

# **Livestock Production in New Zealand**









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EDITED BY KEVIN STAFFORD



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A wide-angle photograph of a lush green pasture filled with a large herd of cows of various breeds, including black and white, brown, and tan. The cows are scattered across the field, some grazing and others standing. In the background, a dense line of tall, thin evergreen trees stretches across the horizon under a bright blue sky with wispy white clouds. The overall scene is peaceful and rural.

# Introduction

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Kevin Stafford



# Introduction

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Kevin Stafford

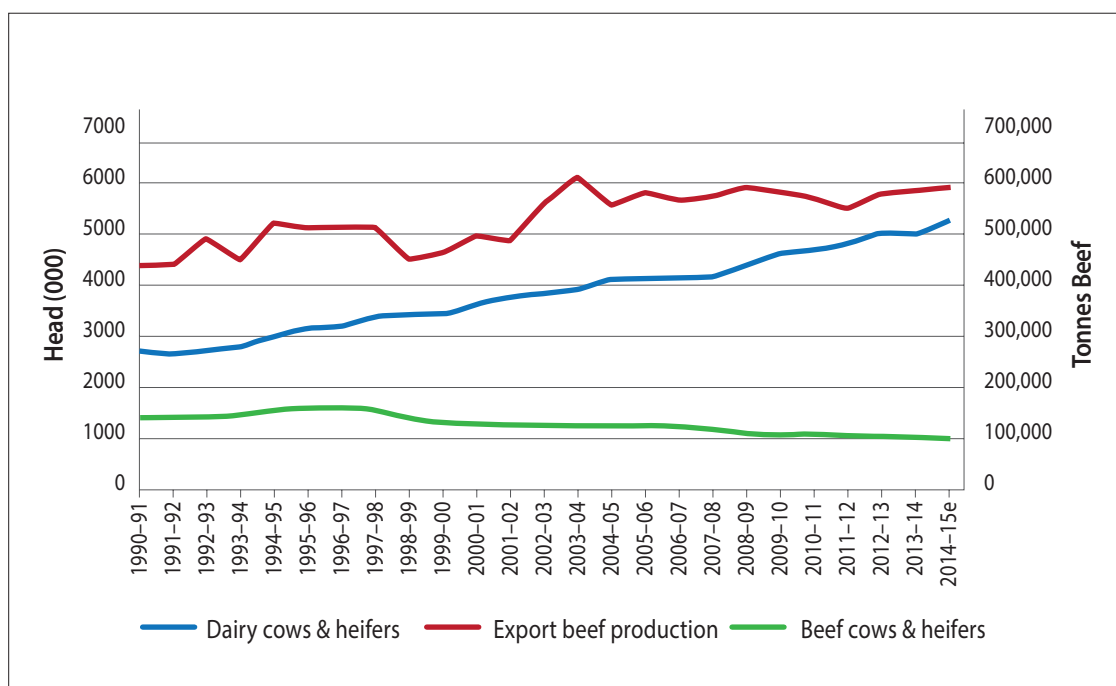
*Institute of Veterinary, Animal and Biomedical Sciences  
Massey University, Palmerston North*

Food is essential for life, and food production is a necessary process. Humans are omnivorous; the majority of people eat a range of plant-based and animal-based foodstuffs. While nations try to maintain food security, either by producing food locally or building trade relations with countries that produce excess food, few are self-sufficient in food. Indeed, New Zealand imports a lot of food both for humans and for animals. Nevertheless, in New Zealand livestock farming is a major industry that produces food for both national consumption and export.

One image of New Zealand is that of a pastoral scene, with green pastures grazed by sheep and cattle. This is an attractive image, but there are underlying tensions between livestock farmers and their critics. The latter worry about the impact of livestock on the environment, and may be concerned about animal welfare and the safety of food produced on New Zealand farms.

The growth of dairy farming, particularly in the South Island, has led to concerns about the long-term impact of irrigation on water resources and the negative effects of cow urine and faeces, plus fertiliser, on the quality of the surface water in streams and rivers and on drinking water. A growing concern for the welfare of farm animals has led to regular exposés of animal abuse, especially in the pig and poultry industries, but more recently also in the dairy industry. To this is added a growing lack of understanding of livestock production among the general population, as is to be expected with reduced rural populations and a concomitant growth in urbanisation. This lack of understanding may lead to poorer communication between urban and rural communities. A recent illustration of this occurred when some commentators on calf rearing did not appear to understand that to get milk from cows, their calves had to be weaned soon after





Trends in beef and dairy cow numbers, and beef production, over the past 25 years ('e' denotes estimates for 2014–15).

Source: Beef & Lamb New Zealand Economic Service.

birth and be fed artificial replacement milk so that the cows' milk could be taken for human consumption. This is an old practice, obvious to farming folk but not to some of those unfamiliar with dairy farming.

The world has a large and increasing appetite for milk and meat. Global meat production and consumption over the past 50 years has trebled, to 312 million tonnes in 2014. The cost of food to the consumer is an important political issue; in most developed countries, people spend less than 13 per cent of their disposable income on food. The pressure to keep food prices low results in competition at the retail end of the market, and the prices paid to farmers for their produce are often only just above — or even below — the cost of production. This is clearly illustrated by the price that dairy farmers are currently being paid for milk (although farmer

debt is a factor in this particular dilemma). The economic pressures on farmers caused by low prices for their produce are countered in the United States and Europe by subsidies that keep farming viable. In New Zealand, farming is not subsidised and many livestock farmers survive economically by keeping large herds or flocks and using low-input systems to maintain profitability. Today there is little scope for increased livestock numbers in New Zealand, given that land development has largely been completed.

New Zealand is known internationally both as a tourist destination and as a source of food. The country's economy depends on these two industries, of which food production is the more important. A significant proportion of export growth in the past decade has been from agriculture. The foods produced for export include milk products, meat (beef, lamb and venison),



fruit, wine, honey and some vegetables. Poultry meat, eggs and pig meat are produced for national consumption. Minor livestock products include velvet, goat and sheep milk, and goat meat; horse meat is also exported. A multitude of other livestock products are exported, including wool, hides, tallow and meat meal. However, although New Zealand exports a wealth of livestock products, it also imports a lot of food — about 50 per cent of the food eaten here is imported, including lamb, beef and milk products and more than half of the pig meat consumed by New Zealanders.

Some important factors underpin New Zealand's position in world meat and milk trade. One is the disease-free status of its livestock. Foot and mouth disease (FMD) and bovine spongiform encephalopathy (BSE, commonly known as mad cow disease) are not present in the country, allowing it to export fresh chilled and frozen beef and lamb to a great number of markets. Nearly all of New Zealand's cattle and sheep are grass-fed, which has a particular advantage in some markets in the United States and Asia. Meanwhile, there are threats to New Zealand milk and meat exports from other countries. Some South American countries would be able to compete for our lamb and beef markets if they improved their animal health status, and the United States

and the EU countries compete with us on the international milk market. Moreover, there is the potential for self-inflicted damage to our export markets. Modern communication can quickly disseminate news internationally and, as a 1080 incident in 2015 showed, it is important to be prepared to counter bad publicity immediately (Brackenridge, 2016). Being 'clean, green and kind' is an important marketing strategy for New Zealand food exporters — but it has to be real, as evidence to the contrary will be publicised by special-interest groups and perhaps even our market competitors. Attaining the goal of significantly increasing primary sector exports to NZ\$64 billion by 2025 not only requires that care be taken to maintain our reputation (Peterson, 2016), but must also have public support.

This book has been written to inform people about how animals, including horses and dogs, are managed on farms in New Zealand. It has not been written to defend livestock production, nor to condemn it. It is simply an introduction to how animals are farmed commercially in New Zealand. Debate about how we manage land, water and animals in this country is ongoing, and this is a healthy aspect of our democracy. Informed debate is valuable, while uninformed debate is pointless, and probably damaging. This book was written to inform this debate.

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## References

- Brackenridge, J. (2016). Why are we wasting a good crisis? The value shift our primary sector needs. In C. Massey (Ed.), *The New Zealand Land and Food Annual*, vol. 1 (pp. 27–36). Auckland: Massey University Press.
- Petersen, M. (2016). Never say die: The way forward for the New Zealand agrifood sector. In C. Massey (Ed.), *The New Zealand Land and Food Annual*, vol. 1 (pp. 37–43). Auckland: Massey University Press.



