



MEAT IN FOCUS

A closer look at a key
New Zealand industry

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INTRODUCTION

An industry in focus

The red meat industry is one of New Zealand's major export earners, created by a partnership between 14,000 commercial sheep, cattle and deer farms and some of the country's largest companies. The export of red meat and related products earns export revenue of more than \$NZ6 billion annually.

The production and export of beef, lamb and venison is, and will continue to be, a core part of New Zealand's economy. Internationally, demand for quality assured red meat continues to grow, and the New Zealand industry has the skills and capacity to take advantage of this.

This booklet is an overview of the industry, from its beginnings through to its significant contribution to the economy today. It is a source of information on:

- the industry's size and contribution to the economy;
- the industry's export scale and diversity of markets;
- the attributes and qualities of New Zealand red meat;
- the diversity of products produced by the industry;
- the meat industry's historical development; and
- ongoing technological innovation in the industry.

The Meat Industry Association (MIA), Meat & Wool New Zealand (M&WNZ) and Deer Industry New Zealand (DINZ) represent the wide range of participants in New Zealand's red meat industry partnership, from individual farmers through to major companies.

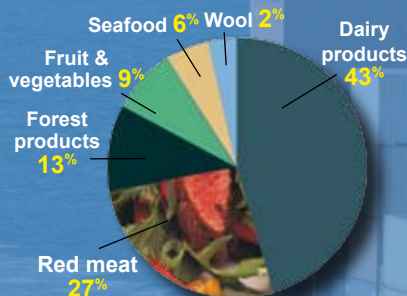
Please feel free to make use of the information in this booklet, and don't hesitate to contact the MIA, M&WNZ or DINZ for further discussion.



SCALE - Export revenues

The red meat sector is a major contributor to New Zealand's export revenue. Our exports of red meat and related products were worth NZ\$6.5 billion in the year ended June 2009, which equates to 15% of New Zealand's total export revenue, and 27% of New Zealand's primary sector export revenue.

Share of NZ's primary exports by value year ended June 2009



Diversity of exports

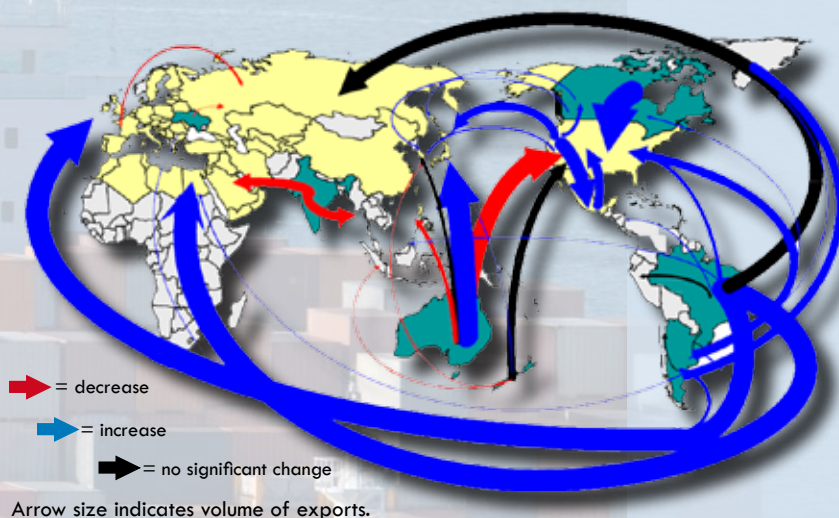
While sheep, beef and venison muscle cuts make up the majority of exports, the industry also exports a wide range of co-products, such as hides and skins, offals and tallow. These products provide significant revenue (NZ\$1.2 billion in the year ended June 2009), and allow the industry to maximise the value of each carcase.



NZ red meat industry export product mix year ended June 2009



Beef export forecast for 2010 and trends to 2015¹



New Zealand is the largest exporter of sheepmeat in the world. Despite accounting for just 6.4% of global production, New Zealand accounted for 40% of global exports by volume in 2007. The next largest exporter was Australia (32% of global exports).

New Zealand is also a significant beef exporter. In 2007, New Zealand accounted for 1% of global production by volume, but made up 7% of global exports.

New Zealand is a major source of farm-raised venison, producing approximately 50% of the world's farmed deer.

Did you know?

The NZ red meat sector is export-driven:

- 92% of lamb is exported
- 82% of beef is exported
- 95% of venison is exported

New Zealand's exports of red meat co-products such as offal, hides and skins, and tallow, were worth more than New Zealand's exports of wine in the year ended June 2009 (\$1.2 billion vs \$990 million for wine).

Industry size

The red meat industry is a partnership between farmers, processors and exporters. It comprises approximately 14,000 commercial sheep, beef cattle and deer farms and around 80 processing plants located throughout New Zealand. The dairy industry also has an important role as a supplier of stock to the industry.

Most commercial sheep and beef farms are owned and operated by farming families. The average number of stock units per farm is 4,250.

Meat processing companies in New Zealand range in size from small, single plant operations, to some of New Zealand's largest companies. The four largest meat processing companies are ranked in the 40 largest companies in New Zealand (according to revenue).

The following table shows the four largest meat processing companies compared to other selected agricultural companies, ranked according to Management Magazine's annual list of the top 200 companies in New Zealand, published in 2008.

Major NZ agricultural companies

| Company | Rank | Revenue (NZ\$m) | Assets (NZ\$m) | Employees |
|---------------------------|------|--------------------|-------------------|-----------|
| Fonterra | 1 | 17,018 | 14,439 | 16,400 |
| Silver Fern Farms | 15 | 1,846 | 654 | 8,000 |
| PGG Wrightson | 25 | 1,245 | 1,471 | 1,983 |
| Zespri Group | 27 | 1,160 | 173 | 136 |
| Alliance Group | 29 | 1,116 | 434 | 5,500 |
| ANZCO Foods | 32 | 1,038 | 440 | 2,500 |
| AFFCO | 34 | 949 | 386 | 2,300 |
| Ravensdown | 46 | 674 | 628 | 650 |
| Tenon | 67 | 496 | 305 | N/A* |
| Westland Milk Products | 76 | 431 | 326 | N/A* |
| Sanford | 89 | 378 | 683 | 1,467 |

* Not Available



Employment

Overall, the red meat industry employed more than 53,000 people directly, and accounted for 2.4% of the national workforce in 2008. The industry's workforce includes:

- 24,000 people employed in the meat processing sector;
- 23,500 people employed in sheep, beef and deer farming;
- 5,600 people employed in shearing services.

Summary

The New Zealand red meat industry:

- earned export revenue of NZ\$6.5 billion in the year ended June 2009;
- produces 15% of our nation's merchandise export revenue (27% of New Zealand's primary sector export revenue);
- employs more than 53,000 people, or 2.4% of the national workforce.

WHY DO PEOPLE CHOOSE NZ MEAT?

Attributes and quality

New Zealand red meat is in demand around the world because customers appreciate its attributes and quality.

Sheep, cattle and deer are raised on New Zealand's natural, grass-fed systems. Levels of important Omega-3 oils are known to be higher in grass-fed animals.

Efficient farming methods and processing expertise deliver low-fat, tender, delicious meat that provides consumers around the world with an enjoyable eating experience.

Chefs, food manufacturers and supermarket shoppers alike, recognise that New Zealand beef, lamb and venison satisfy their requirements every time. Food manufacturers and supermarkets order New Zealand meat, knowing the animal health status, processing hygiene and packaging technology guarantee safe and wholesome food.

For example, nearly 100,000 tonnes of chilled New Zealand beef, lamb and venison are exported each year. Vacuum-packed chilled meat has a shelf life of up to 14 weeks. During this time, enzymes in the meat continue the ageing process, meaning it is even more tender when it arrives in our major markets. And being chilled, gives it the advantages of 'fresh' meat when sold to supermarket customers.

New Zealand produces finished meat products of the highest quality and they are keenly sought by consumers in our export markets.





Consumer appeal

Consumers around the world increasingly recognise the safe, healthy and 'clean and green' values of New Zealand's pasture-raised beef, lamb and venison.

New Zealand livestock is free from BSE, foot and mouth and other major livestock diseases, due to geographic isolation, effective border control and a pasture-based diet.

There are strong regulations on livestock inspection and processing. Every processing plant in New Zealand must have a Government veterinarian on site at all times when operating.

New Zealand's pasture-based 'free range' farming appeals to customers, who are becoming increasingly concerned about animal welfare and environmental issues.

Did you know?

- New Zealand red meat is served in some of the finest restaurants around the world, including the French Laundry in California, and Gordon Ramsey's restaurant in New York.
- New Zealand exports nearly 100,000 tonnes of high value and high quality chilled red meat annually.
- Virtually all New Zealand sheep and cattle are pasture-raised, which provides quality meat and benefits to animal welfare and the environment.

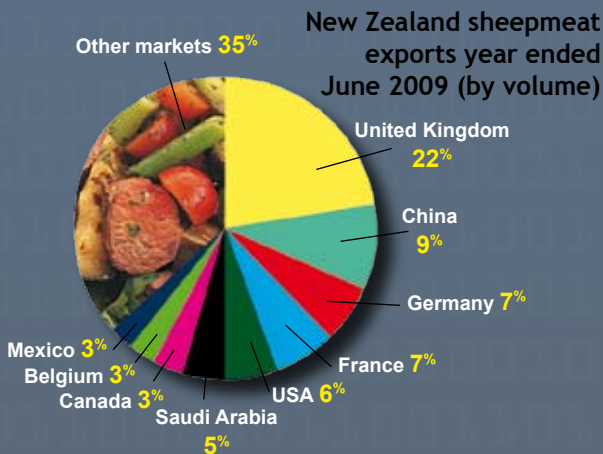
DIVERSE MARKETS AND PRODUCTS

Although the livestock supply base for sheep has steadily declined since the market reforms of the 1980s, the industry has still been able to grow both the value and volume of food it produces.

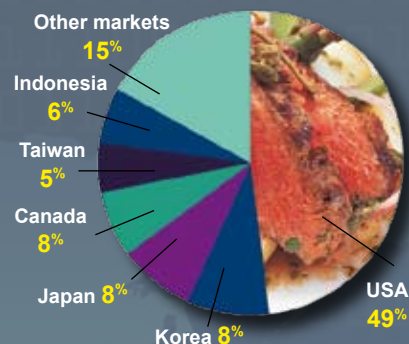
New Zealand red meat is now exported to more than 100 markets, and exports of red meat to our top 14 markets were each worth more than \$100 million in the year ended June 2009.

As pastoral farming is still very much a seasonal industry, New Zealand provides complementary supply in Northern Hemisphere markets. New Zealand can supply product in the Northern Hemisphere's off-season, when there is little local product available.

While exports to traditional markets such as the UK and US are still significant, New Zealand is much less dependent on these markets than it was 50, or even 25 years ago.



**New Zealand
beef exports
year ended
June 2009
(by volume)**



Processing and marketing companies have responded successfully to changes in the market, consumer requirements, and competition from other meats and protein sources. Modern processing meets the requirements of all potential markets, which:

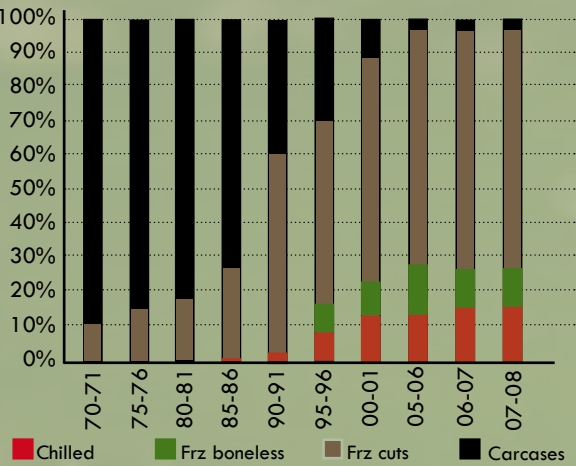
- maximises utilisation of each carcase by finding the best returning market for each part of the carcase;
- allows flexibility of supply as all product can be supplied to a wide range of customers;
- ensures all product meets the highest production standards demanded internationally.

Lamb is a prime example. The chart on page 10 shows New Zealand lamb exports have moved from primarily frozen carcasses in the early 1970s, to now nearly 95% being further processed, value-added product. A significant recent development is the steady growth in exports of high value chilled lamb.

The industry specialises in the deconstruction of carcasses, to supply discerning customers with the specific products they require, in the most cost-effective way.

Examples of this include portion-controlled steaks delivered to supermarkets in France; weight-ranged fully Frenched racks delivered to cruise ships in Florida; and chilled ready-to-cook roasts on UK supermarket shelves.

Export Lamb Product Mix 1970-71 to 2007-08²



The change in product mix has been driven by changes in customer requirements.

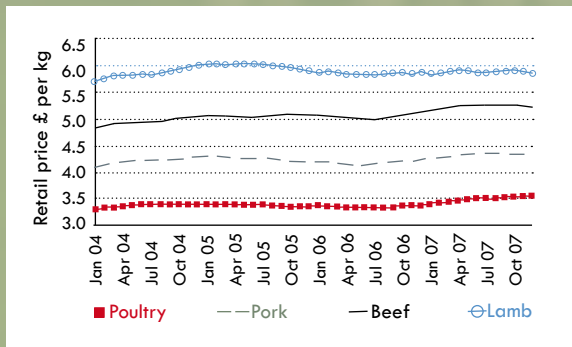
Historically, a large proportion of the processing industry was controlled by British interests, which exported most meat as carcasses to butchers in the United Kingdom, where it was then turned into retail cuts.

However, in the 1970s, new veterinary and hygiene requirements in the United States and Europe meant that significant investment would be required in many plants in order for them to continue exporting to these markets. The overseas companies, unwilling to make the investment, began to depart the sector, and the influence of New Zealand-owned companies began to grow.

The decline in the number of high street butchers and the growing dominance of supermarkets and retail chains, meant New Zealand had to provide pre-packaged, retail-ready products. As the chart opposite shows, the industry has successfully positioned lamb as the premium meat product.



UK Meat Retail Prices²

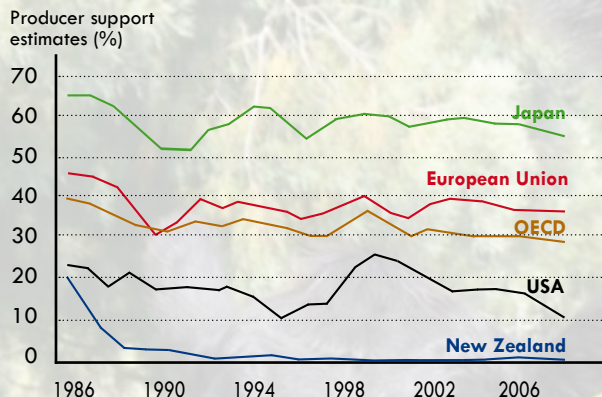


Competition - *Global Agricultural Subsidies*

New Zealand agriculture operates without any subsidies, but faces competition from countries that do provide subsidies to their agricultural producers, particularly the United States, Europe and Japan. These markets account for around 90% of all domestic support provided by World Trade Organisation (WTO) members.

On average, the support given to agricultural producers in OECD countries has been estimated at US\$273 billion per annum between 2003 and 2005. Almost 60% of this arises from market price support, where market access barriers limit imports and support high domestic market prices. Meat, rice, sugar and dairy products are among the most highly supported products.

Support Levels for Agriculture in Selected OECD Countries³



The European Common Agricultural Policy (CAP) is a system of European Union (EU) agricultural subsidies and programmes. The CAP costs European taxpayers about €55 billion per year, around 40% of the total EU budget.

The CAP combines a direct subsidy payment for crops and land, with price support mechanisms such as guaranteed minimum prices, import tariffs and quotas on certain goods from outside the EU.

Around one third of the average farmer revenue comes from transfers from taxpayers. The figure is even higher for livestock farmers. Between 2002 and 2004, EU beef and veal farmers received 73% of gross farmer receipts from transfers from taxpayers.

In the United States approximately US\$25 billion is spent annually on farm subsidies via the Food, Conservation and Energy Act of 2008 (also known as the 2008 US Farm Bill).



Competition - 'Waking Giants'

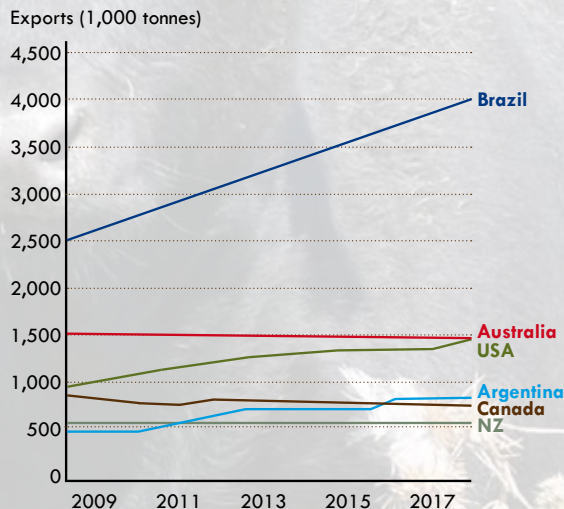
New Zealand faces growing competition from 'waking giants' of agricultural production, particularly Brazil for beef and China for sheepmeat.

Brazil is already the world's largest beef exporter, despite having a 'low input' system, with no crop rotation and very little fertiliser use. Exports have also been hampered because of ongoing issues with foot and mouth disease.

However, Brazil is taking steps to introduce more intensive farming systems, and is estimated to have a further 100 million hectares available for agricultural production (excluding the Amazon).

As the chart below shows, Brazil's beef exports are forecast to increase dramatically over the next 10 years.

Forecasts for Beef Exports (2009 - 2017)



Source: OECD-FAO Agricultural Outlook

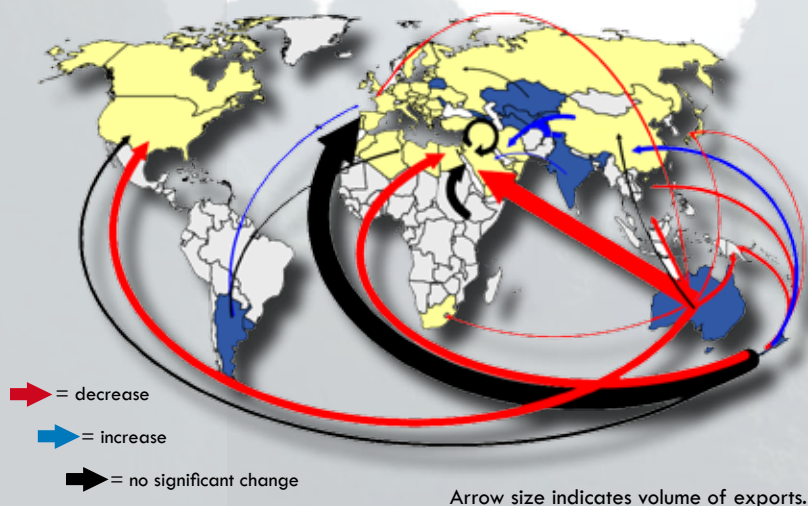
China's sheep flock is more than four times the size of New Zealand's. China is also the largest sheepmeat producer in the world, accounting for 30% of global production in 2007.

Reported production has more than doubled in the last 10 years, from 2.4 million tonnes in 1998 to 5.3 million tonnes in 2008.⁵

Whilst most of this production comes from small-scale farming and is consumed locally, exports have also been growing steadily, reaching 75,000 tonnes in 2008.⁶

However, most exports are still at the 'low-end' of the trade, mainly to the Middle East.

Map showing sheepmeat exports in 2007⁴



Did you know?

- In recent years, total agricultural subsidies within the OECD have been worth more than US\$270 billion annually.
- China has the largest sheep flock in the world - more than four times the size of New Zealand's flock (FAO).
- It is estimated Brazil has more than 100 million hectares of unused land (not including the Amazon) available for agricultural production. New Zealand has 14.7 million hectares of land in use for agricultural production.



The importance of trade agreements

The New Zealand meat industry is highly export focused. However, some of the industry's major markets use subsidies and high tariff barriers to protect domestic producers, at the expense of efficient, subsidy-free, agricultural producers such as New Zealand.

Therefore, multilateral trade agreements, such as the WTO Doha Development Round, and other bilateral free trade agreements that reduce trade barriers through the reduction of tariffs, subsidies and other non-tariff barriers, are vitally important for the meat industry.

Did you know?

- New Zealand companies exporting beef to Korea and Japan pay tariffs of around 40%. Despite this significant barrier, Korea and Japan are New Zealand's 2nd and 3rd largest beef markets, worth \$181 million and \$180 million respectively in 2008.
- Out-of-quota beef exports to Europe are subject to tariffs of 12.8% plus charges of €1.4 to €3.0 per kg; a significant barrier to any exports over New Zealand's small 1,300 tonne beef quota.

HOW FAR WE'VE COME

The Opportunity⁷

The modern red meat industry has changed significantly since its beginnings nearly 130 years ago - and even from the industry of 30 years ago.

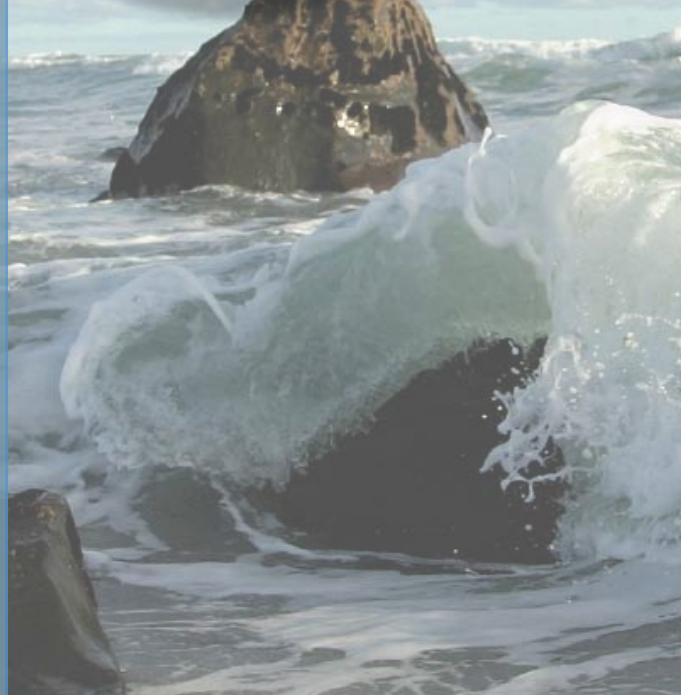
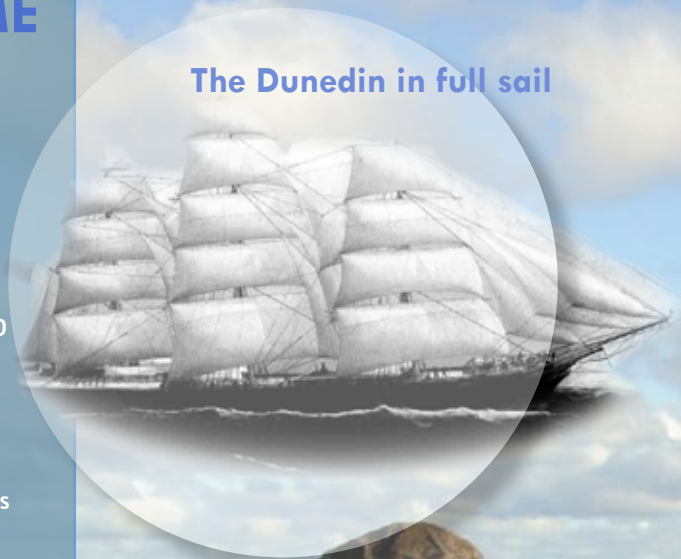
In the late 1870s, New Zealand was a country of little more than half a million people, compared with a population of 15 million sheep and 750,000 head of cattle. Wool and hides were the only products that could be exported from these animals, as they could survive long sea voyages without refrigeration.

Towards the end of the 19th century, entrepreneurs recognised there was not only an excess of meat in New Zealand, but a market for that meat in Britain, where the population had jumped from 28.2 million people in 1860 to 35.6 million, in just over 20 years. The growing demand for meat could not be met by British farmers.

The development of refrigeration gave New Zealand the opportunity to meet this demand. The first ever shipment of frozen meat from New Zealand to Britain was aboard the Dunedin in early 1882. The ship carried more than 4,000 mutton and 600 lamb carcasses. Within a fortnight of arriving in London the entire shipment was sold, at more than twice the price it would have fetched in New Zealand.

Another shipment was made later in 1882, and the following year shipments of refrigerated sheep and lamb were sent from Wellington and Auckland. The export meat industry was born, and by 1900, New Zealand was exporting more than 3 million sheep carcasses annually, mainly to Britain.

The Dunedin in full sail



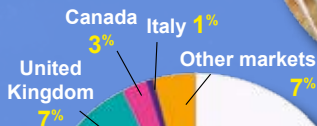
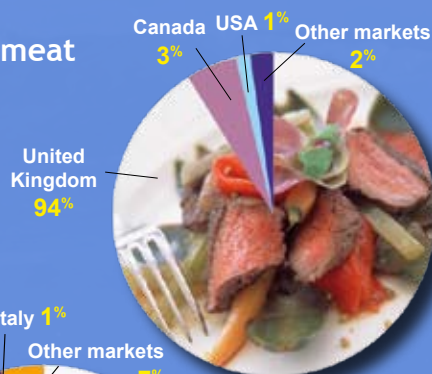
Mid-Century

By the mid 1950s, red meat accounted for 30% of New Zealand's export revenue. However, as the charts below show, the industry was highly dependent on only two markets, the United Kingdom for sheepmeat and United States for beef.

Wool was an even more important export product in the 1950s, and accounted for around 35% of New Zealand's export revenue. The 'wool boom' of the 1950s was mainly a result of the United States buying up large quantities of wool to complete its strategic stockpiles during the Korean War.

Exports in 1958

NZ Sheepmeat



NZ Beef

Challenges and reforms

Open and practically tariff-free access to Britain for New Zealand sheepmeat was severely curtailed by Britain's entry into the European Community in 1973. In 1970-71, 87% of New Zealand lamb exports still went to Britain.

This situation, along with the US introducing a countercyclical beef import formula in the late 1970s, had a number of consequences. New Zealand began to take a strong interest in world trade negotiations and international assemblies relating to market access for agricultural goods.

There was also a strong push to find and develop new markets, and New Zealand began to export meat, particularly sheepmeat, to a wider range of markets (see charts opposite).

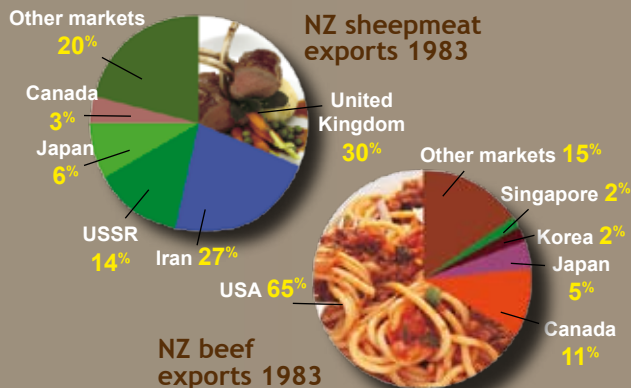
The Government also introduced a range of agricultural subsidies in the 1970s to try and boost export receipts from the industry.

However, by 1990-91, all of New Zealand's residual subsidy effects had effectively been removed and the New Zealand agricultural sector was an open market driven by trends in global prices and customer requirements.

New Zealand agriculture now benefits from greater co-operation, better use of resources, and a competitive industry structure that allows for a better response to market signals.

This has led to productivity growth in the sector, improving from an average of 1.5% per annum in the pre-1984 period, to an average of 2.5% per annum in the post-1984 period.





Subsidies introduced

Following the first major oil shock in 1973, the agricultural sector, as the major contributor to export receipts, received incentives to increase livestock numbers, along with land development loan concessions. In addition, 'supplementary minimum prices' were put in place to provide minimum prices that farmers would receive for meat and wool. This led to significant growth in livestock numbers, with the number of sheep reaching 70 million in the early 1980s. One consequence was that the increase in production could not be accommodated by traditional markets, and the industry became increasingly dependent on new, more 'unreliable' markets.

Subsidies removed²

In 1984, the newly elected Labour Government began deregulation of the economy, including a rapid phase-out of all agricultural support measures. Lamb prices halved from \$24.20 per head in 1984-85 to \$12.75 in 1985-86, and mutton prices fell from \$14.86 to \$5.44. While beef prices were not supported in 1984-85, the market price to farmers in 1985-86 fell 27%. As a result of these factors, sheep and beef farm profit before tax fell sharply by 55% to a record low in the first year of deregulation. Farmers scaled back production, and livestock numbers began to fall. Some farmers also began to diversify into other land uses such as forestry and goat or deer farming.

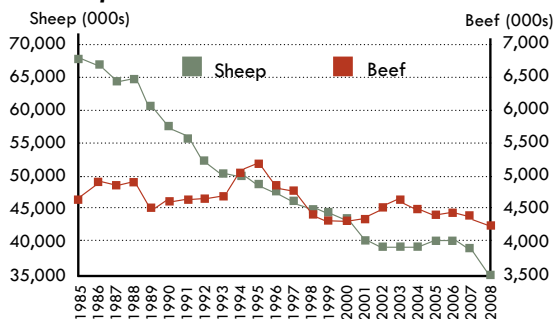
A CONTINUOUSLY IMPROVING INDUSTRY

On-farm productivity

The number of commercial sheep and beef farms has declined by nearly 40% since 1984, but the average farm now carries 27% more stock units through loss of small farms to other land uses and amalgamation.

Although livestock numbers, particularly sheep, have also been steadily decreasing, New Zealand farmers are producing more and heavier finishing stock from less land and breeding stock.

Sheep & Beef Cattle Trend 1985 - 2008²

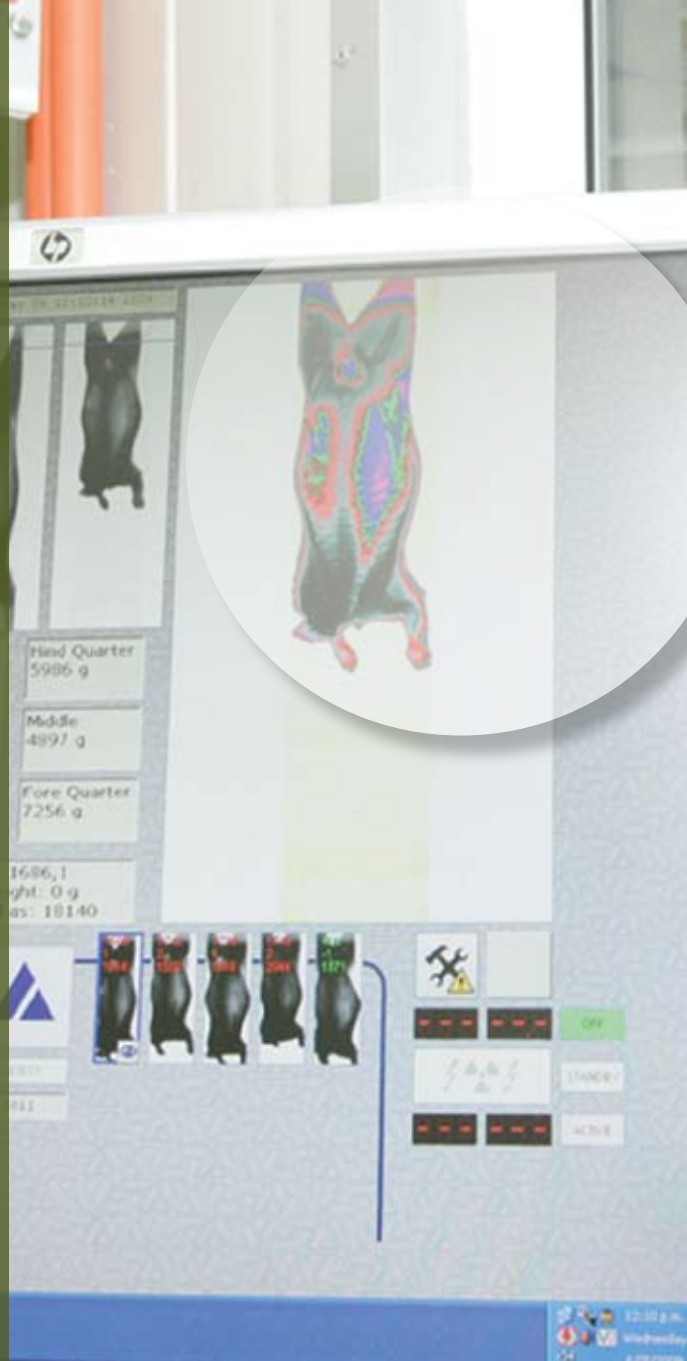


On-farm productivity gains have been largely due to enhanced breeding mixes and improved lambing percentages. Farmers are also producing 'fit for purpose' stock, such as heavier lambs that provide the cuts the market wants. New Zealand farmers continue to increase productivity via investment in pasture improvement and better farm management.

Agricultural production 1990-91 to 2007-08

More dairy: +112% volume
 More beef & veal: +11% volume
 More lamb: +4%

But more lamb from 32% fewer sheep.



Processing plants

The industry has moved from comprising mainly of 'freezing companies', to modern food production and marketing companies providing tailored, shelf-ready products for individual clients and markets.

Productivity in meat processing plants has improved significantly. A typical sheep processing chain in the 1980s employed more than 50 people and processed 3,000 sheep per day. Modern plants typically employ 30 people per chain and process 4,000 sheep a day. This means daily productivity on sheep chains has increased from 55 sheep per person in the 1980s, to nearly 130 per person today.

In recent years, technologies such as yield grading systems, and automated and robotic meat cutting systems have been introduced. A \$16.7 million research initiative is underway to transform sheep processing using state of the art sensing and robotic technology to fully automate the early stages of the process, including removing the pelt and internal organs. This is estimated to deliver improvements in productivity of up to \$43 million a year within five years.

Advances in hygiene, packaging, presentation, handling and distribution have seen exports progress from frozen whole carcasses, to further processing into pre-packed frozen and chilled cuts and boneless products. Lamb is now the premium meat at the higher-priced end of the market.

The New Zealand meat industry exports to more than 100 countries, which requires New Zealand to have the highest standards to meet their import requirements. New Zealand produces meat products with an unsurpassed record of hygiene and food safety.



INDUSTRY DIVERSIFICATION & MARKET RESPONSE

The New Zealand deer industry

Venison production is a successful example of innovation by New Zealand farmers and the red meat industry, seeing market opportunity and creating a product to fit that demand.

Deer are the first new animals to be domesticated for over 5,000 years. Large-scale commercial farming of deer started in New Zealand, and New Zealand remains the world's largest and most advanced deer farming industry.


As farmers looked for alternatives to traditional sheep and beef farming in the 1970s and 1980s, they developed a new industry in response to European demand for venison.

The export of venison from feral deer started in the 1960s, turning a pest into an export earner. Industry pioneers saw an opportunity to build on this base and in the early 1970s, started capturing live deer from the wild and farming them. A new industry was born and rapidly spread throughout New Zealand.

New techniques and technology were developed in New Zealand to manage deer, which had never been farmed on this scale before. New processing facilities were built and new products developed to exploit the unique characteristics of lean, tender farm-raised venison.

In an industry first, a collective marketing appellation was developed in the 1990s. Cervena™ natural tender venison is a licensing marketing arrangement allowing marketing companies who produce venison up to a certain standard to share a common marketing vehicle.





The development of the Cervena™ brand has proven very successful in establishing the reputation of New Zealand farm-raised venison as a premium red meat in the upper end of the US restaurant business.


Today, around 3,200 farmers raise deer for venison production. Venison is a healthy red meat, with virtually no fat or cholesterol. It is also high in protein and is an excellent source of bio-available iron.

Farm-raised New Zealand venison is exported worldwide, however Western Europe (including Scandinavia) is the major market for New Zealand venison exports, taking approximately 85% of total exports.

Germany is the largest single market, as venison is an important part of traditional German autumn and winter cuisine.

Other major European markets include Belgium, Sweden, France, the Netherlands, Austria and Switzerland. The USA is the industry's main export market outside Europe.

Did you know?

- Venison is extremely low in fat. Retail ready medallions contain less than 1.5% fat, and less than 0.7% saturated fat.
 - Deer leather is prized by makers of luxury consumer goods, especially in Bavaria for the manufacture of traditional lederhosen.
 - New Zealand venison competes with exotic expensive proteins like Bison and European Roe Deer in the upper end of the restaurant sector.
- 

Environmental technologies

The New Zealand meat industry continues to investigate and implement technologies that improve the environmental performance and competitiveness of the industry.

Currently, there is work underway to investigate using tallow for biodiesel. Examples of environmental technologies that have recently been introduced in the New Zealand meat processing industry include:

- One processing company has installed a purpose-built 8.5 MW bio-fuel boiler at its largest processing plant. The boiler uses sludge from the plant's wastewater treatment plant as fuel.
- A North Island plant has reduced hot water consumption by up to 36%, by using a system providing hot water for sterilising equipment on demand rather than continuously, but still allowing the plant to maintain high hygiene standards.
- Other companies are running some of their commercial fleet on biodiesel partly derived from tallow produced at their plants.

Greenhouse gas emissions work

The Pastoral Greenhouse Gas Research Consortium (PGgRc) is a commitment by the pastoral sector to address New Zealand's greenhouse gas (GHG) emissions from agriculture, while ensuring that the country's economic wealth is enhanced. Methane produced by farm animals accounts for 32% of the nation's GHG emissions, and the major goal of the PGgRc is to decrease total agricultural emissions of greenhouse gases by 10% per unit of output in 2013 relative to 2004.

The meat industry is currently addressing its greenhouse gas footprint, aiming to provide a tool to reduce its use of resources and its emissions.



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⁵Food and Agriculture Organisation of the United Nations, FAOSTat Database.

⁶IMS-GIRA World Meat Facts Book 2009.

⁷Sourced from *A Lasting Legacy: A 125-year history of New Zealand farming since the first frozen meat shipment*, NZ Rural Press, 2007.



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