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## Farming in New Zealand: The state of play and key issues for the backbone of the New Zealand economy

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# Farming in New Zealand-

## The State of Play and Key Issues for the Backbone of the New Zealand Economy

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- New Zealand's primary production sector remains a key to New Zealand's future economic performance.
- The dramatic agricultural reforms of 1984 have created a dynamic, diverse and responsive farm sector.
- There has been a noticeable shift away from traditional farm enterprises, such as sheep and beef, to new industries such as grapes, horticulture, deer and farm tourism.
- New Zealand agriculture has seen a massive diversification away from its traditional export markets.
- Despite the allure of fashionable industries, New Zealand's future export income will rely heavily on agriculture.

Primary production has always been the backbone of the New Zealand economy. New Zealand's temperate climate, low population to land ratio, fertile soil and Kiwis' natural affinity for all things outdoors have all contributed to farming playing a huge role in forming the economic and social fabric of New Zealand. When the rural sector performs well, the additional income that flows through rural economies trickles down through the rest of the economy, resulting in a lift to overall economic growth. There is little doubt that New Zealand's primary sector remains a key to New Zealand's future economic performance.

In spite of this, in recent years there has been a sense that policymakers have rather neglected the primary sector when shaping economic policy. The Labour government's 2002 Growth and Innovation Framework (GIF) (Clark 2002; New Zealand Government 2002) aims to promote some form of 'economic transformation' that will improve the performance of the New Zealand economy in order to lift New Zealand up the Organisation for Economic Cooperation and Development's (OECD) economic rankings. The GIF states that New Zealand has 'continued to be over dependent on the production and exporting of commodities.

New Zealand's skills, in areas relevant to the new knowledge-based industries were inadequate'. This suggests that, in the opinion of the government, New Zealand's future economic success will require a move away from commodity-based exports into more knowledge-intensive sectors. The sectors of focus in the GIF are biotechnology, the creative industries (such as fashion, film-making, music and design) and information and communications technology (ICT).

This paper aims to highlight the continued importance to New Zealand's economic future of having a vibrant farming sector. It argues that New Zealand policymakers cannot afford to ignore or downplay the contribution of the primary sector in favour of promoting 'sexy' industries such as ICT and the creative industries. By looking at how the New Zealand farming sector has overcome the significant adjustment costs of deregulation and the removal of assistance, and how it has diversified and adapted its product mix, it will be argued that the medium term outlook for the primary sector is very bright. This paper shows that other countries considering the removal of agricultural assistance can learn a great deal from New Zealand's experience over the past two

decades. Finally, the key challenges facing New Zealand's farmers are examined to consider how policymakers might assist the farming sector to maximise its potential.

## Effects of the 1980s Reforms on Farming in New Zealand

The election of the Labour government in 1984 brought about massive changes in the New Zealand farming sector. New Zealand was struggling with a massive fiscal deficit, an overvalued currency and a persistent current account deficit. Although economic reforms were effected economywide, the agricultural sector was targeted due to the high levels of support it was previously receiving. Around 30 different agricultural production subsidies were abolished in the 1984 Budget (Federated Farmers 2002) and sectors such as sheep and beef, that previously received nearly 40% of their income as government assistance, had almost all assistance removed a year later.<sup>1</sup>

So how did the farming sector in New Zealand adjust to the considerable changes it faced in this post-reform period? While there was certainly a difficult adjustment phase, the predicted demise of the agricultural sector was much overstated.<sup>2</sup> Rae et al. (2003) suggest that farmers reacted rationally to the withdrawal of assistance and to the other broader economic reforms of the mid-1980s, and that farmers emerged from the adjustment period in a strong position. Productivity continued to improve and incomes, while hit hard initially, started to rise again.

Some of the key reasons for the positive adjustment of the New Zealand farming sector, according to Rae et al. (2003) include:

- The disbanding of various marketing boards enhanced domestic competition.
- Labour market and waterfront reforms improved the efficiency (and thus reduced the cost) of loading agricultural products onto ships.

- The 20% devaluation of the New Zealand dollar increased the export prices of key commodities, although some of these gains were eroded in 1986 and 1988 as the New Zealand dollar appreciated.
- New Zealand's sheep and beef farmers (who had previously been the major benefactors of government assistance) adjusted rapidly to the reforms, reducing stock numbers and diversifying land use into deer and goat farming, horticulture and semi-urban lifestyle blocks. Sheep and beef farm land use dropped around 16% between 1984 and 1994 (Davison 1996).
- The removal of fertiliser subsidies resulted in sheep and beef farmers halving their applications of fertilisers between 1985 and 1986, yet output did not drop so rapidly. This represented a significant productivity improvement.
- Farmers had to shed casual staff initially to cut costs, and consequently did more work themselves. Rae et al. (2003) estimate that the reforms resulted in an 11% drop in farm labour between 1986 and 1991.
- The distribution of farm sizes became more bimodal, with sheep and beef farms becoming fewer but larger, and a larger number of smaller, diversified farms emerging.

Some assistance was provided to help New Zealand's farmers during the reform period; although Federated Farmers (2002) claim that this was 'minimal'. The assistance included one-off exit grants for those wishing to leave the farming sector, the introduction of a living expenses grant (equivalent to the unemployment benefit) for those in critical financial positions and the creation of a government-funded rural coordinator service.

The New Zealand farming sector has come through the initial shock of the reforms and has emerged as a more dynamic, diverse, responsive and internationally competitive sector. Perhaps the best indicator of the improvement in the sector is by looking at farming productivity estimates.

<sup>1</sup> Latest estimates suggest New Zealand's current Producer Support Estimate (PSE) is around 1%.

<sup>2</sup> For an excellent summary of the key issues facing the New Zealand farming sector in the immediate post-reform period, see Sandrey and Reynolds (1990).

In the period between 1976 and 1984, when the primary sector was heavily subsidised and protected by the government, productivity averaged just 1.0%. Productivity then lifted between 1985 and 1990 to just over 2.0%, and to 2.3% per year in the 1990s (Rae et al. 2003).

Farm profitability has also improved as a result of productivity gains. Farmers achieved the fourth-highest profit in twenty-three years in 2003/04, despite the high New Zealand dollar causing a fall in profits from the previous year. Meat New Zealand (2003) suggests that this is due to the lagged payoff from past 'investment in R&D, trade access (negotiations) and market development that farmers have made over the years'.

This suggests that farmers are now farming a lot 'smarter' than they did 20 years ago. Federated Farmers (2002) suggests that farmers are now subject to the same market forces as most other New Zealand exporters, and thus are much more rational and efficient in their decision making processes:

'No longer are they chasing subsidies, pursuing maximum production at any cost. Farmers maintain cost structures that reflect the real earning capacity of their farms. They invest in protecting the environment, and the value of their land is based on its earning capacity in the market'.

Rae et al. (2003) concur, noting that the New Zealand experience shows that farmers 'have the scope and ability to make changes in reaction to the reduction in assistance, thereby raising business profitability above what it would have been had such a reaction not occurred'.

The other key lessons to be learned from the New Zealand farm sector's response to removal of assistance are the following (Rae et al. 2003):

- Farmers need to be reassured that government will not re-instate assistance measures. This aids certainty, thus helping farmers to be confident in making decisions that have long term consequences.
- While macroeconomic stability is important for farmers in the post-reform period, the keys to lifting productivity and profitability

are innovation and flexibility/willingness to change.

- Agricultural deregulation is more politically feasible if other sectors are also deregulated at the same time.
- Farmers must be made aware of, and then focus on, the long term gains from the removal of government assistance, rather than over-reacting to the short term transitional pain of adjustment.
- During the adjustment period, there is a need for governments to smooth the adjustment costs for farmers.

## The Current State of Play

This section examines some recent statistics that demonstrate the diversification that has occurred in the New Zealand farming sector.<sup>3</sup> While New Zealand's traditional strength in dairy, beef, sheep meat, forestry and apple production remains firmly in place, there has been a noticeable shift towards the production of horticultural products such as wine, kiwifruit, olives and avocados. The fishing sector has developed as a key provider of high value-added exports, and the deer industry has emerged as an important export earner. The importance of off-farm income, including rural tourism, eco-tourism and farmstays has increased. This has left the farming sector as a more broad-based industry that is less susceptible to slow world growth and exchange rate and commodity price fluctuations. The shift in composition of New Zealand's exports is illustrated in Figure 1.

### Livestock farming

New Zealand's dairy herd has seen a considerable expansion in recent years. In 1991 there were 3.4 million head of dairy cattle, which has since increased to 5.2 million in 2003 (Figure 2). The dairy expansion has been most rapid in New Zealand's South Island, where numbers have doubled since

1994. The expansion has been, in part, a lagged response to the very high dairy returns witnessed in the late 1990s, when world dairy prices peaked and the New Zealand dollar was at around US\$0.38. Longer term, the dairy conversion trend is partly a response to declining real wool prices.

New Zealand's sheep numbers were 39.7 million in June 2003. This is down considerably from 1982 when there were over 70 million sheep, and down 20% from 1994. Presently there are around 10 sheep per person in New Zealand, compared to twice that figure two decades ago.

Beef cattle numbers have dropped steadily since the mid-1990s. In 1994 around 5.0 million beef cattle were farmed, compared to 4.5 million in 2003. Most of this drop in numbers has occurred in the North Island, with number staying relatively static in the South Island.

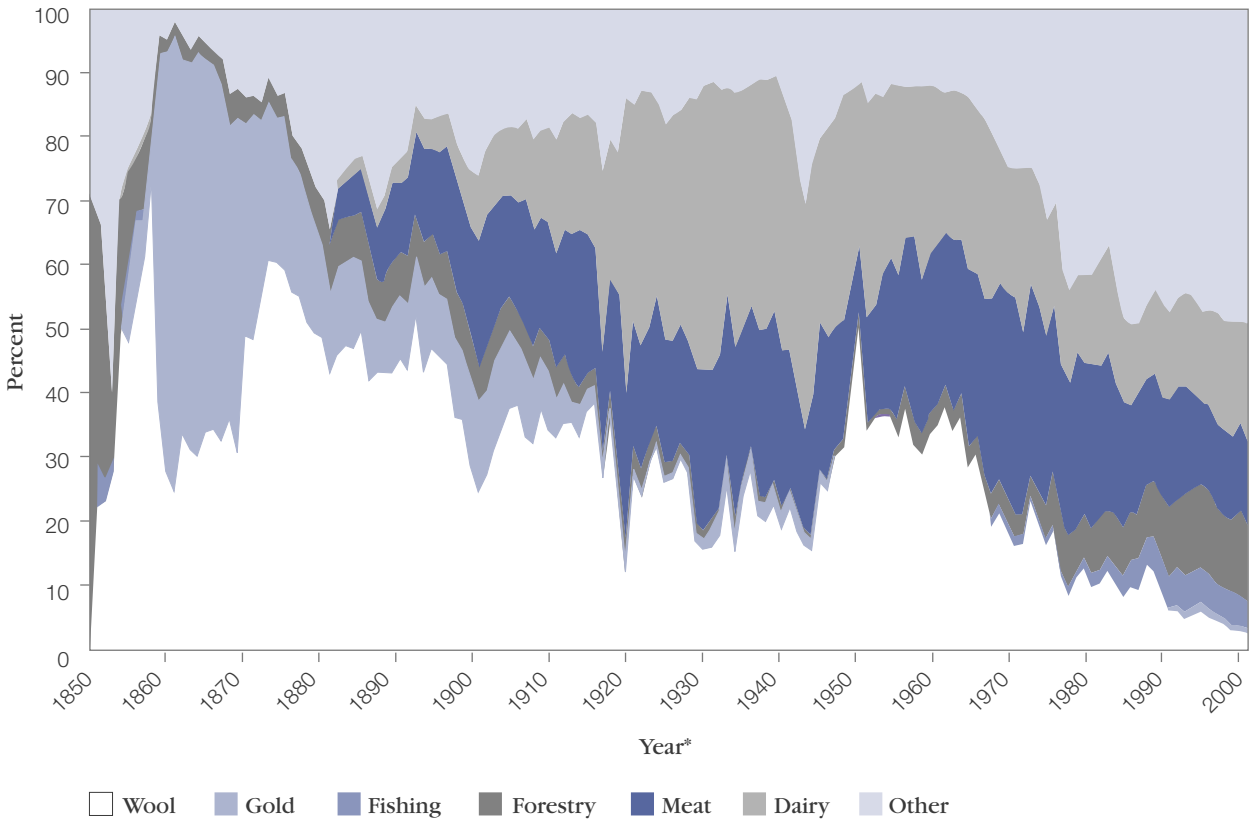
One of the key growth areas in livestock farming

has been in the deer industry. Deer numbers have increased 38% since 1994, to around 1.7 million in 2003. A full account of the development of the deer sector in New Zealand can be found in Nixon (2004, forthcoming). Venison and velvet are the two key deer products sold overseas, primarily to Germany (venison) and Korea (velvet).

**Horticultural crops**

The main crops grown in New Zealand are cereals, kiwifruit, wine grapes and apples, with avocados and olives becoming more important in recent years. Horticultural products account for around 5% of New Zealand's total exports – around \$1.6 billion.

The land use associated with kiwifruit has remained relatively static over the past decade, at around 12,400 hectares. Despite problems in the past year with frosts destroying large amounts of fruit, world prices have been strong, fuelled by robust demand from Japan and Europe.

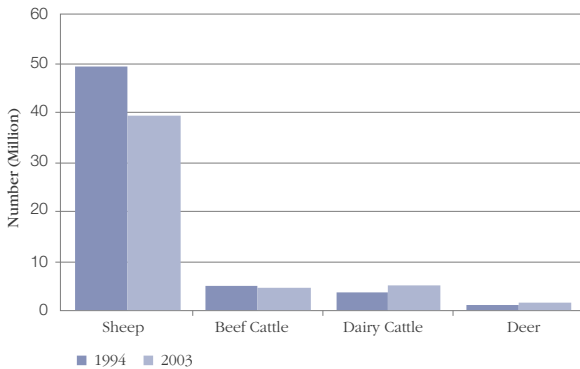


\* The figures are for calendar years to 1961 and June years from then on.

**Figure 1: Goods exports by type of commodity expressed as a percentage of total.**

Source: Briggs 2003

<sup>3</sup> Most data from this section comes from the Statistics New Zealand's agricultural production figures for 2002 and 2003.



**Figure 2: Number of livestock in New Zealand.**

Source: Statistics New Zealand (agricultural production figures for 2002 and 2003)

New Zealand's production of wine grapes has shown continued growth over the past decade. In 1994, wine grapes accounted for around 7,000 hectares of land use. This increased to over 19,000 in 2003. Over half of this land use is based on sauvignon blanc and chardonnay grape production, although pinot noir grape production has shown rapid growth in recent years. Wine production is expected to increase over the period to 2006, due to the maturation of new plantings. However, considerable investment in processing capacity and market development will be required over the next few years to handle the projected increases in grape production.

Wine production has encroached upon New Zealand's traditional production of apples. The area planted in apples increased slightly in 2003 from 2002 to 11,900 hectares; the first increase since 1995. The figure is still well down on the 15,900 hectares used for apples a decade ago. In recent years there has been a big drop in the number of apple growers in the country – down from around 1,500 to fewer than 900. However, New Zealand's apple production is forecast to continue to increase in future due to orchard expansion, new development and increased productivity.

### Off-farm income

Over the past decade or so, New Zealand farmers have increasingly looked to 'off-farm' income to supplement the revenue they generate from farming. Off-farm income refers to farm tourism (or farm stays) and rural tourism and eco-tourism (such as guided rural walks, horse treks, fishing and 4 wheel drive adventures). These opportunities have arisen as the average length of stay of overseas visitors to New Zealand has

increased (the average stay is now around 22 days); these visitors are more likely to move away from the traditional urban tourist destinations into more rural areas.

Farm stays occupy a valuable niche segment of New Zealand's booming tourism industry, as overseas visitors enjoy the chance to experience New Zealand's rural way of life in situ. As early as 1988, more than 1000 farms offered guest accommodation (Holland and Shakur 2000). Despite the often non-financial motivations for establishing farmstays, they account for around 35% of these farms' total income.

In a broader sense, rural tourism is a rapidly expanding sector. Rural tourism activity often means the difference between people being able to stay in rural areas and having to seek job opportunities elsewhere. However, according to Warren and Taylor (1999), the ability of rural communities and individuals to take advantage of their rich resource base and develop viable business enterprises is limited by factors like operators' business practice, ambivalent community response to tourism development and uneven support by the wider tourism industry.

### Diversification of export markets

New Zealand farmers have diversified not only their product mix, but also the export destinations which they sell into. As noted by Briggs (2003):

*'in the space of half a century, New Zealand has seen a massive diversification in the destinations for its exports. It has gone from being Britain's colonial farm to being a country that supplies goods to a wide range of countries located around the Pacific Rim and beyond.'*

From the late 1870s through to 1940, Britain was by far New Zealand's biggest market taking 70% or more of total exports. Since the end of the Second World War the share of exports to Britain has fallen; accentuated by the entry of Britain into the European Union (EU) in 1973. As shown in Figure 3, trade with the US increased sharply after the Second World War, and exports to Japan increased sharply between 1960 and 1980. Exports to EU countries other than Britain have remained relatively constant, as a share of total exports, over the last 40 years. The share of total exports going to 'other' countries (including East Asian countries) has increased from under 10% in 1960 to around 38% in 2001.

It will be vital for the health of New Zealand's farming sector to monitor overseas markets to keep abreast of changing tastes and income growth. China and India represent key potential markets, as the middle classes in these countries are expanding rapidly and their elasticity of income with respect to animal protein is high.

## Outlook

A large proportion of the New Zealand export sector is currently being negatively affected by the rapid appreciation of the New Zealand dollar that has occurred over the past two years. Farmers have been particularly hard hit, as they have been before by the peak of exchange rates cycles. Despite this, the outlook past 2004 is positive for farmers (NZIER 2004b). The New Zealand dollar is expected to stabilise, and world commodity prices have generally been strong.

The New Zealand dollar export price for dairy products is forecast to rise by 1.4% in the year to March 2005 (Figure 4). The forecast rise is the result of sustained increases in international dairy product prices and a reasonably stable New Zealand dollar over the coming year. Dairy production will expand at around 3% per annum over the coming four years, a result of productivity improvements and a steady increase in the size of New Zealand's cow herd. Export volume growth will broadly be in line with these production increases. These volume increases will help lift the value of dairy exports to \$6.5 billion by 2008.

Beef prices overseas are currently high and the short term outlook rosy, helped by rising prices in the US beef market. However, lamb prices overseas are expected to fall over coming years as UK supply increases following the eradication of foot and mouth disease.

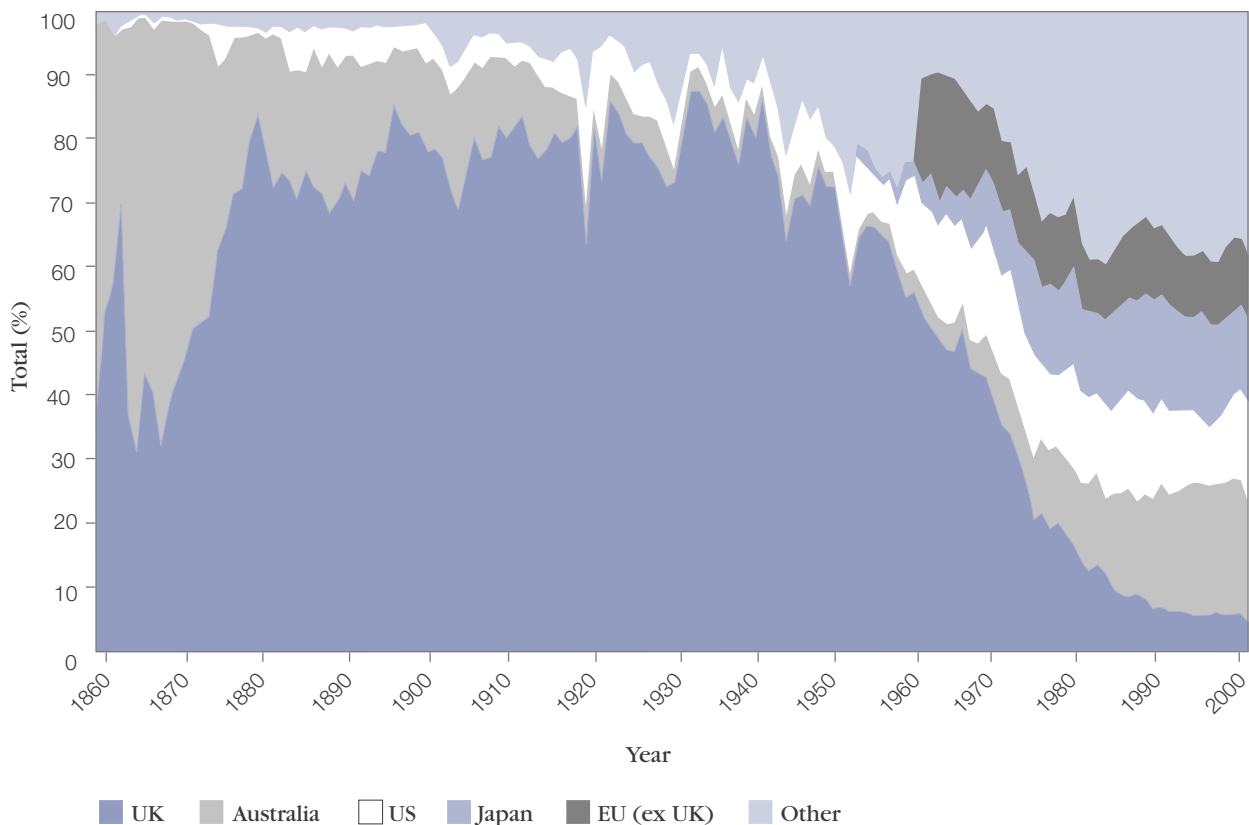


Figure 3: New Zealand's goods exports by destination.

Source: Briggs 2003

The value of meat exports will fall again in the year to March 2005. This reflects static volumes and a continued downward drift in New Zealand dollar prices as the lagged effects of the recent appreciation of the kiwi dollar filter through. Despite declining sheep numbers, the volume of meat produced will increase around 1% per year, on average, over the period to 2008. Productivity improvements in the form of higher lambing percentages and heavier lambs, combined with an increase in secondary beef production associated with greater dairy cow numbers will support this growth. Some price increases as the New Zealand dollar depreciates will complement this volume growth bringing the value of meat exports to \$4.2 billion by 2008.

New Zealand's Ministry of Agriculture and Forestry released its 'Situation and Outlook for New Zealand Agriculture and Forestry' in 2003. As well as short and medium term forecasts, it also suggests a number of longer term issues that may affect the New Zealand farming sector. These include:

- Dairy technology will improve rapidly over the next decade, with improvements in conventional breeding knowledge and genetic engineering allowing New Zealand to retain its competitive advantage in this sector. Productivity will improve through the use of labour-saving technology and increased use of computers, for example to check pasture cover across farms. Robotic milking systems will become more widespread, reducing costs. Consumers' tastes will change, with health concerns prompting the search for low-fat, full taste milk and cheese.
- Rising incomes in developing countries will cause the demand for meat consumption to lift. Potential markets for boneless and bone-in beef and sheep meat will include the higher income countries in Southeast and Northeast Asia. The key to New Zealand retaining its comparative advantage in beef and sheep meat will be the avoidance of diseases such as foot and mouth disease. In this respect, biosecurity concerns must remain paramount. Organic lamb and beef production is likely to expand in order to meet global market demands for such niche products.

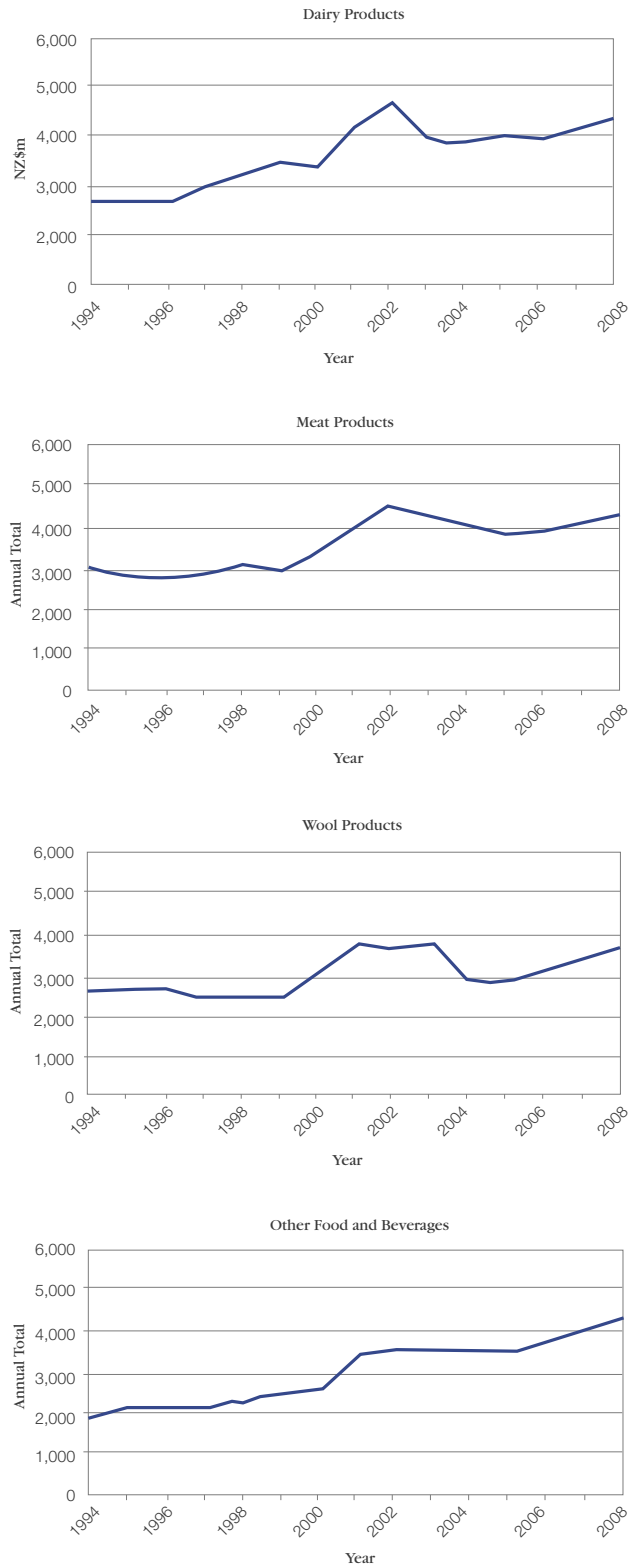


Figure 4: Performance forecast of selected primary exports in New Zealand.

Source: Statistics New Zealand, NZIER 2004b



- The outlook for strong wool producers in New Zealand is positive, given the world shortage of this type of wool, and declining global sheep numbers. The demand for wool is also likely to be helped by its continued importance in the niche fashion industry and its use for carpets. Technological developments should lead to the introduction of wool-based fabrics that can sense and respond to stimuli. Keratin (a protein in wool) is likely to become a growth industry, as it could potentially act as a renewable alternative to petroleum-based products. The importance of 'eco-labelling' is likely to increase, as the more environmentally-conscious global consumer seeks chemical-free fabrics.
- New Zealand is expected to remain the world's largest supplier of venison over the long term, primarily due to a lack of government assistance for deerfarming in other countries which discourages deer farming compared to the production of other animals. The EU will remain the key export market, with New Zealand producers seeking to focus on higher quality (and thus higher return) cuts. Increasing the supply of venison to the domestic market could also be a lucrative option, as the retail and restaurant markets are relatively untapped. Deer velvet exporters are likely to focus on China and Korea, where traditional medicine shows little sign of decreasing in popularity.
- New Zealand's kiwifruit producers are expected to remain at the top end of the world market, despite competition from China. The demand for kiwifruit is expected to remain fairly static, although the tastes in developing countries may move away from commonplace fruits (apples, bananas, etc) towards more exotic fruit such as kiwifruit.
- The world apple market is changing rapidly, with supply increasing sharply, particularly in China. The demand for apples, meanwhile, has fallen, as different types of fruit enter the market and snack food continues to erode apple consumption. Retailers and distributors are demanding the latest packing and supply

chain management technology from suppliers, which adds to New Zealand apple producers' costs. Improved storage techniques have led to Southern Hemisphere producers no longer being the sole suppliers in the Northern Hemisphere off season. Finally, some damage has been done to New Zealand's high quality reputation by due to export of low grade apples in recent years.

- The future of New Zealand's wine industry depends on its ability to maintain its reputation for producing premium, single variety, full-fruit tasting wines. International competition is increasing and consumer preferences are moving towards more consistent and higher quality wines. It will become increasingly important for New Zealand's wineries to establish links with overseas retailers and to meet their supply expectations. Consequently, marketing and branding, both as individual wineries and at the national level will be vital in maintaining market presence.

## Challenges and Opportunities

Moving away from individual sectors' prospects, there are a number of issues facing New Zealand farming as a whole that will impact upon future returns.

### Government attitudes

As discussed earlier, recent experience in New Zealand has suggested that policymakers are keen to transform the New Zealand economy to produce more knowledge-intensive manufactured goods and concentrate on sectors such as the creative industries, biotechnology and ICT. A recent piece of work by Ballingall (2004) concluded that

'there does not appear to have been any significant change in New Zealand's comparative advantage in merchandise trade since 1990... [it] has not shifted far from primary products and the manufactured goods associated with these products.'<sup>4</sup>

While there has been some diversification in the manufacturing sector, and New Zealand's exports of niche manufactured goods in particular have grown, there is little doubt that New Zealand export income going forward will continue to rely on agricultural products.

<sup>4</sup> The research focussed on merchandise trade only. New Zealand most likely also has a comparative advantage in tourism and export education services, but there is little international data to confirm this belief.

There seems to have been some groundswell over the past year suggesting that policymakers need to 'rediscover' agriculture and start to place a higher value on the economic contribution of farmers.<sup>5</sup> Whether or not this will occur is yet to be seen, but one option for promoting the so-called 'knowledge' industries as well as agriculture is for policymakers to improve the links between technological developments in scientific research industries and farm production techniques. By better commercialising New Zealand's research base and applying innovative solutions to traditional agricultural production methods, productivity improvements can be obtained in the primary sector.

### Market access

New Zealand has long been at the forefront of trade liberalisation efforts, as the incomes that New Zealand's farmers receive are highly dependent on the prices they receive in world markets and the access they have to key export markets. The Ministry of Agriculture and Forestry (2002) estimates that sheep meat, beef, and dairy farmers each earned at least \$11,500 extra in 2000 because of gains from the Uruguay Round of trade liberalisation, and that agricultural export receipts increased by NZ\$6.1 billion over the 1995-2004 period through greater market access and World Trade Organisation (WTO) members being less able to use trade-distorting export subsidies.

Despite the positive impacts of the Uruguay Round on improving New Zealand's access in global agricultural markets, farmers still face considerable barriers, particularly in key dairy and meat markets. These barriers are not only traditional tariff and quota restrictions, but are increasingly taking the form on non-tariff barriers such as phyto-sanitary and labelling restrictions. The New Zealand government continues to press for further liberalisation, both in multilateral negotiations via the WTO, and in bilateral and regional preferential trading agreements.

### Innovation

Productivity in the New Zealand farming sector has improved in recent years. It is vital for the future of New Zealand farming that significant investment is made in research and development, and that farmers are open-minded about

incorporating new technology into production techniques. Improvements need to be made in the commercialisation of New Zealand's farming research base. This refers to the process by which new ideas and knowledge generated by the research base are taken up by the farming sector and turned into increased sales of agricultural products. Commercialisation is particularly important to the farming sector in New Zealand because it mainly comprises relatively small farms that are unwilling or unable to sustain their own research and development activities. The GIF alluded to the importance of intermediaries between the research base and the business (including farming) sector, but the role of the intermediaries has yet to be fully defined (NZIER 2004a). Given that there is often a 'second-mover advantage' with innovation, considerable effort must be made by the government to offer incentives for R&D in the rural sector.

### Environmental concerns

Consumer demand for food and fibre produced by environmentally friendly systems will continue to grow. In today's socially and environmentally aware consumer markets, price premiums are often placed on agricultural products that are deemed to be 'clean and green'. New Zealand has a natural comparative advantage over many of its competitors in this area. However, New Zealand farmers and growers will need to constantly adjust their production systems and practices to protect environmental values in the productive landscape. In particular, run-offs from farms into waterways will need to be minimised. Techniques for efficient water, fertiliser and energy use will need to continually evolve and be refined. One possible way that New Zealand farmers could develop an additional edge over international competitors is to ensure 'traceability'. This refers to consumers being able to work backwards through the supply chain to identify where the raw farm products came from. Being very transparent about labelling and sourcing sets New Zealand apart from other suppliers; creating a potential market advantage. This will be increasingly important as time goes on.

<sup>5</sup> See for example, Brackenridge (2004), also published in Wellington's Dominion Post newspaper and Freeth (2004).

## Market monitoring

A large proportion of New Zealand's traditional exports of agricultural products are sold in relatively slow growing markets (Ballingall and Briggs 2002; Ballingall 2004). This means that future demand growth is likely to be limited. Any significant growth is likely to stem from either new markets for existing products, or from the introduction of new products into existing markets. Therefore it will be important to ensure that New Zealand's key export markets are closely monitored for evidence of changing consumer preferences (i.e. the opportunity to develop new products). In terms of emerging markets, China and India must be closely monitored. Additional fiscal resources should be made available for such efforts.

## Conclusions

This paper argues that the New Zealand farming sector, despite experiencing a significant adjustment period in the wake of the mid-1980s reforms, has emerged as a more diverse, dynamic, innovative and efficient sector in the early 21<sup>st</sup> century. Policymakers appear to be rediscovering the value of agriculture after some years of practically ignoring it in favour of 'sexier' sectors, such as the ICT and creative industries. There are a number of key lessons that other countries can learn from New Zealand farmers' experiences of the removal of agricultural assistance. These include the need for on-farm innovation and flexibility in the face of changing market conditions, the need for a stable macroeconomic environment and liberalisation in non-agricultural sectors, the retention of a long term perspective rather than concentrating solely on short term adjustment costs and the provision of government assistance during the liberalisation process.

This paper also outlines the medium and long term outlooks for New Zealand farming. In the next couple of years, the strong New Zealand dollar will erode some of the lift in world prices for many of New Zealand's agricultural exports. However, productivity improvements will see production volumes increase. Longer term, New Zealand's farming sector will need to continue lobbying for further multilateral and regional trade liberalisation, adapt production techniques to reflect environmental concerns, create better links with the research sector and closely

monitor product and export markets. Provided these occur, farming will continue to remain the backbone of the New Zealand economy for decades to come.

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