



NEW ZEALAND INSTITUTE FOR THE STUDY
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Structural Reform: the Dairy Industry in New Zealand

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Background¹

In the decade from 1983 to 1993, New Zealand farming moved from a relatively high income, protected, low-risk environment, to a low income, unprotected environment in which industry now carries the risks.

Walker and Bell (1994), chapter 4.

Creating a regulatory framework that enables open entry of farmers, processors and marketers will foster the the next stage in the development of the dairy industry in New Zealand

Adrian Orr (Introduction to *Watershed for New Zealand Dairy Industry*, 2001)

Significant structural change in the New Zealand dairy industry, has taken place in two steps. Beginning in the early 1980s deregulation of the economy and agriculture in general materially affected the dairy industry. Then in 2001 a second major deregulatory step was taken that entailed the removal of the industry's (single-desk) exclusive right to export. This had happened to other agricultural and horticultural industries, but for dairy it posed particular issues and affected a much larger industry. The dairy industry will continue to evolve but, under present regulatory settings, this will occur as a result of owner prerogatives in competitive national and international markets, rather than on the basis of specific New Zealand regulatory intervention.

New Zealand's first dairy export occurred in the 1840s with a consignment of cheese from Banks Peninsula to Australia. From the outset the cooperative form of ownership of processing was important. During last century when there were

¹ I am indebted to Lisa Ryan for her able research assistance. Information was provided by the Ministry of Agriculture and Forestry.

many small dairy manufacturing companies the New Zealand government sought to garner economies of scale in international marketing of exports by enabling the establishment of producer and marketing boards in a form that cemented the cooperative form of ownership. From 1945, Britain absorbed the bulk of New Zealand's meat and dairy exports, with guaranteed access and good terms of trade. New Zealand's agriculture producers were sheltered from international markets and competition, and the country developed a high standard of living under favourable conditions. When Britain joined the European Community in 1972, however, access to the British market became limited, exposing New Zealand exporters to the need to find other markets for the first time. Leading up to entry Britain had negotiated tariff quotas for sheep and dairy products that enabled entry of some New Zealand product after this time, but these were fixed and their prospective security was uncertain. In the 1970s consequent market diversification generally entailed lower and more volatile returns. From the 1940s to the onset of the reforms in 1984, government protection of the manufacturing sector with import quotas and tariffs had resulted in a high cost structure for agriculture, and drew substantial transfers to maintain production of export commodities. In 1984, the level of government support to the sector was around 30 percent of total agricultural sales. This policy direction resulted in higher, but inefficient, production (with inefficient use of subsidised products, services and land). It misdirected incentives for farmers to focus on production of goods that received the highest government support, reducing the competitiveness of New Zealand farmers in international markets and concentrating the risk of poor farming decisions solely on the government. Such policy was possible because New Zealand governments had, since the 1930s, held direct control of many aspects of the economy, including rights to import, and wage, price, and foreign exchange rates. The system did not react flexibly to the oil price shocks of the 1970s, during which decade the government materially extended the terms of the welfare state (see Evans, Grimes, Wilkinson and Teece (1996)).

New Zealand farmers faced a crisis by 1984 with high domestic inflation increasing costs coupled with declining terms of trade. Production had expanded

in large part as a result of subsidies that encouraged extra production of (typically) standard commodities without shoring up sector incomes.² By the early 1980s transfers to farmers had shifted to include raising farm incomes. The agricultural sector's predicament was not isolated. Private and public debt combined reached 95 percent of GDP in June 1984, resulting in a downgrading of the country's sovereign debt rating and contributing to a foreign exchange crisis at the time of the election in 1984 when the 4th Labour government came to office. The new government's budget in November 1984 announced dramatic reforms to be introduced. The agriculture sector was to become entirely exposed to international competition with the removal of government support and much reduced direct government involvement in business. Tariffs were scheduled for very significant reduction, the exchange rate was floated in March 1985, and monetary policy targetted inflation that was then running at more than 10%. Exposure to the consequent very high interest and exchange rates coupled with the withdrawal of subsidies was a shock to New Zealand farmers who had previously been largely isolated from international market prices, faced controlled, even subsidised interest rates, and whose production decisions before the reforms were based more on areas of government support than on international consumer demands. The new direction of economic policy as applied by the government of the mid 1980s across all industries and some areas of government was achieved because all sectors were getting the same treatment thereby changing the balance of interests of special interest groups: farming leaders for example, supported the removal of import restrictions and tariffs on manufactured goods and at the same time the removal of subsidies to agriculture.³

The withdrawal of government supports combined with the high exchange rate and high interest rates had a severe effect on farmers early in the reforms. Farm land prices and profits dropped substantially as costs rose and incomes fell, with

² For example, as occurred with suspensory loans for the development of hitherto undeveloped land. This had the effect of encouraging extra output – even from otherwise economically unviable land - rather than supporting farmers' incomes: in otherwords the marginal user cost was lower than the average user cost as a result of the form of many of the subsidies.

³ See Evans and Richardson (2002) for the policy credibility argument as an explanation of New Zealand's unilateral reduction of tariffs.

some farmers forced to sell parts of their farms and other farmers going bankrupt. Farmers' spending decreased dramatically in response to these conditions, with a spin-off effect on rural service industries and communities. In addition, the recession following the equity market shock of October 1987, which was particularly severe in New Zealand, affected the whole economy, not just agriculture. It includes the, by this time, dwindling de-regulated manufacturing sector. Regulations that had restricted competition in agricultural supply of services were eliminated and, although areas of agriculture were struggling by the early 1990s, there was entry and restructuring of transport, meat packing plants and services attuned to other products such as forestry and horticulture. The deregulation of the labour market in 1991, by a recently elected National government, represented by the Employment Contracts Act: facilitated further flexible and, for New Zealand, innovative arrangements and activities that lowered costs and otherwise assisted the progress of de-regulated agriculture.

Agriculture was also affected by the replacement of town and country planning legislation with the Resource Management Act in 1991. This Act sought to control effects rather than activities and to allow a community voice in decisions. The criterion for the assessment of effects was to be close to that of economic efficiency taking intangibles properly into account.

The Sweep of Change 1984-2003

Agriculture is still an important part of New Zealand's economy, although now much less so than in the period prior to the country's reforms. In the 1960s, agricultural commodities accounted for 90 percent of New Zealand's export earnings, but now contribute less than 50 percent. However, dairy products made up 21 percent of merchandise export earnings in 2003, followed by meat at 16 percent and forestry at 10 percent (Statistics New Zealand, 2003), showing that agriculture is still an important component of the country's exports. Much of New Zealand's other exports depend upon agricultural ingredients.

The change in profitability and product mix of New Zealand agriculture is indicated in the information provided by the figures reported in the Appendix. Agriculture is, on the face of it, much as it was, but this, and the figures, belie the changes that have taken place. These changes reflect that costs and benefits of activities in agriculture are based upon, to a close extent, their real resource cost and returns provided by consumer demand. They have had the following effects in New Zealand⁴

- A substantial change in product mix as farmers bear the consequences of their decisions under market prices and costs and respond accordingly (see Figures A1, A2, A6, A7 and A8 of the Appendix);
- Substantial improvement in product quality as subsidies tied to “old” products no longer exist, and deregulation of the labour market, transport and other services facilitate enhanced activities,⁵
- While there remain environmental issues,⁶ the overuse of fertiliser and of steep unsuitable land that accompanied subsidies to 1984 has gone, much of the less productive steeper land has been withdrawn from sheep and beef and planted in production forestry (see Figures A7 and A8),
- The relaxation of the distinction between urban and rural brought about by the change to the Resource Management Act, combined with the economic viability of different activities, and advances in communication technology has led to a tighter, some would say, more concordant, blend of urban and rural. Farms near and far from cities have been restructured to provide, in some cases smaller, in other cases larger, farms and in many cases small properties for those seeking to live in (formerly) rural areas.⁷ Some of this change reflects the very significant product switch that has taken place to

⁴ Most would argue, and evidence suggests, that New Zealand has a comparative advantage in areas of agriculture that is reflected in New Zealand’s low cost of supply despite its distance from all other markets, and thus some of these changes would not be transferable to other countries. In particular, such areas would include: the production of sheep, some beef, and milk solids, forestry and some horticulture.

⁵ Lamb meat production is higher now with an approximately 40% smaller flock. The value per lamb is higher today in real terms as lamb has been transformed to a value-added product, than was the case in 1984 (for indicators see Figures A4, A5, A6 and A9 of the Appendix).

⁶ These issues relate to lake and stream pollution and greenhouse gas issues. They too will have been mitigated by the reduction in subsidies aimed at increased production of existing goods and services.

⁷ The census of 1996 was the first to record net migration to the rural areas in very many decades.

relatively labour intensive horticultural crops, vineyards and tourism, but it also reflects a demand for lifestyle and ability and willingness to farm in more populous settings.

- Finally, farmers and horticulturalists of all kinds seem to be adopting a portfolio approach to their activities. Specialisation occurs with large enterprises – as in farms of all sorts and vineyards – but smaller less specialised properties that diversify products and services are common. The range of products include those of agriculture and horticulture, but importantly recreation and tourism services. Tourism in New Zealand has grown to be the country’s largest export earner, and services provided in association with other more traditionally agricultural products by otherwise agricultural entities are important in this growth. Further, the tourism and recreational elements, and the demand for country lifestyles, of the product mix has promoted agriculturalists’ interests in enhancing the environment of the countryside.

The New Zealand experience of subsidy-free agriculture has demonstrated that farming in a de-regulated environment is feasible, and yields a portfolio of activities associated with better resource allocation; within the sector and among sectors. It also demonstrates that the deregulation of other sectors, including agricultural service sectors, played an important role in the performance of agriculture.

The structural reform of agriculture was not complete by the 1990s. While all farm types had had their subsidies removed there remained producer boards that had various centralised functions. These typically were involved in marketing and otherwise managing farm products, instituting research and limited the rights of companies to export on their own account. The New Zealand Dairy Board was the most important of these. Its prime function was to market internationally New Zealand manufactured dairy products that were produced by cooperative dairy companies. It was owned by these companies. It held the statutory right to be the “single-desk” seller of dairy products manufactured in New Zealand. Its other

functions included research and the administration of advisory and genetic development services to dairy farmers. It also represented the political interest group of dairy farmers.

New Zealand Dairy Reform

In 1882, the first refrigerated shipment of meat and butter went to London aboard the 'Dunedin', the beginning of a long period of a good export relationship with Britain. The first co-operative cheese company was established on the Otago Peninsula in 1871 and by the early 20th century most dairy factories were owned by co-operatives. The government established the Dairy Produce Export Control Board (which later became the New Zealand Dairy Board) in 1923 to control all dairy exports, on the argument that local processing companies were too small to export efficiently on their own account. Four years later, the marketing of New Zealand butter and cheese in Britain began with the establishment of Amalgamated Dairies in London by several of New Zealand's dairy companies. The New Zealand Dairy Board had its single-desk export status conferred on it by legislation in 1961.

From as early as the 1930s, ongoing mergers and acquisitions had been occurring among cooperative dairy companies: indeed between 1933 and 2001 the number of cooperative dairy companies fell from 499 to 4. In common with other farm types, rapid inflation in dairy farm land values began in the 1970s, peaking in the early 1980s⁸ and reflecting government subsidies. Following the reforms from 1984, the removal of subsidies resulted in farm prices falling to a 23-year low in real value (Ministry of Agriculture and Forestry, 1996).

Particularly from the 1970s demands grew to rationalise the structure of the dairy industry as companies sought further economies of scale and better coordination of production and marketing. A particular difficulty was the market signals for

⁸ This refers to land values in the Waikato and Canterbury. See Ministry of Agriculture and Forestry (1996) Section 7.0.

farmers imparted by the bundled price they received for their milk that did not distinguish the production cost of raw milk from return on milk-processing capital, and generally led to over production. Furthermore the single-desk export restriction limited domestic competition, particularly when the number of cooperatives had shrunk to 4. The New Zealand domestic market for milk and milk products is so small any entrant would have to export to expand and this would require permission from its cooperative competitors that owned the Dairy Board. These were among the factors that motivated various interests to encourage structural change and remove the single desk export status in dairy.

The following table shows that, in May 2001 the sets of supply arrangements were internalised within the vertically integrated structure that constituted the industry. In it, the Board was owned by manufacturing co-operatives that were in turn owned by farmers. The table illustrates that product-value enhancing research and development could be carried out by both the Board and supplying co-operatives and that milk-product supply contracts would have to allocate returns from this activity between these entities.

Although the general form of the structure had been in place for some 40 years, its operation was not settled. In 1999, a proposal entailing the merger of the four co-operatives and the Board had, in a draft decision of the Commerce Commission⁹, been indicated to be unacceptable under the Commerce Act 1986. The appearance of the proposal reflected various pressures on the existing single-desk export-monopoly structure, some from foreign governments regarding the export monopoly status of the Board, and other reflecting dissatisfaction on the part of the co-operatives and the Board with the operational position of the industry. At least as early as 1998 the Board was very concerned about attempts to circumvent its statutory sole export rights, potentially by its own large shareholders. The structure that may have survived diffuse shareholding represented by many cooperatives was placed under operational and performance stress when owned, in

⁹ The Commerce Commission is New Zealand's competition law monitoring and enforcement institution. Since 2000 it has also held regulatory functions.

essence by a duopoly, in the 1990s. Competition among cooperatives in the domestic market had some credence when there were many of them, albeit much of their output went to the New Zealand Dairy Board. But with essentially only two very large cooperatives meaningful competition and development could only take place with sales they made in foreign markets. Furthermore the rationale for the Dairy Board – coordination of international sales of small manufacturing entities – was weak in the presence of the two large cooperatives that were patently capable of such coordination themselves. The two large cooperatives were already competing vigorously and seeking competitive advantage for whatever prospective change lay in the future. This competition did not facilitate their coordination as dominant owners of the dairy board.

Table 1: Industry Structure as of May 2001

ARRANGEMENT	ACTIVITY	ENTITY and OWNERSHIP	INTELLECTUAL PROPERTY
	{ Export Marketing and Distribution	The Board	Milk-Product Research & Development
<i>Milk-Product Supply Contracts</i>			
	{ Milk- Product Manufacture	4 Co- operatives	Milk-Product Research & Development
<i>Milk Supply Contracts</i>			
	Milk Supply	Farmers	
<i>Shareholders</i>		Farmers	

The following sources of operational problems between the Board and supplying companies were identified:

- Pooling of product returns into a single price for milk (so companies do not receive the market price for products that they produce),
- The cost of reimbursement (so companies did not share in the commercial success and failure of products),
- Large penalties on downgraded product (creating incentive for companies to sell product outside the Board if possible),
- The Board's marketing priorities differing from those of dairy companies.

The Dairy Board explored various means to resolve these difficulties, but it was not successful. Cost allocation models, as an approach to rewarding supplying cooperatives, did not provide strong incentives for quality or responsiveness by the supplying cooperatives to demands derived from customers. Furthermore if these were modified to include quality premia, incentives were created for excess production of some products at the expense of others and for destructive competition among shareholders (the cooperatives) in the allocation of supply contracts. There was also a question of ownership of new intellectual property: should it be the Dairy Board or the supplying company that adapts its process to supply, even where the origins of the innovation lay with one or other of the parties?

In 2001, farmer shareholders in the country's two largest co-operatives voted for the merger of existing co-operatives and the formation of a new co-operative, the Global Dairy Company (which later became Fonterra Co-operative Group). The aim of this merger of existing co-operatives was to achieve economies of scale and eliminate coordination difficulties that occurred with the existing structure of the New Zealand dairy industry. The Dairy Industry Restructuring Act 2001 facilitated the change, removing the single seller status of the NZDB and authorising the amalgamation of the NZDB and the two largest co-operatives – The New Zealand Co-operative Dairy Company Limited and Kiwi Co-operative Dairies Limited. The Act also allowed for the buy-out of shares in the NZDB held

by The Tatua Co-operative Dairy Company Limited and Westland Co-operative Dairy Co Limited, the two small co-operatives that decided not to participate in the amalgamation. Table 2 below illustrates the mergers and acquisitions that took place from 1996 to 2001 in the New Zealand dairy industry.

The NZDB's previous responsibility for international marketing of dairy products, was absorbed by the newly formed co-operative. The obligations of the co-operative are outlined in the Act and aim to promote the efficient operation of dairy markets in New Zealand to ensure New Zealand markets for dairy goods and services are contestable. One of the requirements is open entry to any prospective supplier, and open (cost-neutral) exit from the co-operative by shareholding farmers, to be enforced by the Commerce Commission. The Act also required the supply of up to 400m litres of raw milk on demand from the co-operative to independent processors on competitive terms, under a given formula.

Table 2: Consolidation of the New Zealand Milk Market

1996	1997	1998	1999	2000	2001
Kiwi Dairies					
<i>Tui Milk</i> →	Kiwi Dairies	Kiwi Dairies	Kiwi Dairies		
Northland Co-op	Northland Co-op	Northland Co-op	<i>Northland Co-op</i> →		
Kaikoura Dairy	Kaikoura Dairy	Kaikoura Dairy	<i>Kaikoura Dairy</i> →	Kiwi Dairies →	Fonterra Cooperative Group
Tasman Milk	Tasman Milk	Tasman Milk	<i>Tasman Milk</i> →		
Marlborough Milk Ltd	Marlborough Milk Ltd	Marlborough Milk Ltd	<i>Marlborough Milk Ltd</i>		
Southland Co-op	<i>Southland Co-op</i> →	<i>South Island Co-op</i> →	New Zealand Dairy Group	<i>New Zealand Dairy Group</i> →	
Alpine Dairy	<i>Alpine Dairy</i> →				
Bay Milk Products	<i>Bay Milk Products</i> →	New Zealand Dairy Group			
East Tamaki	<i>East Tamaki</i> →				
New Zealand Dairy Group	New Zealand Dairy Group				
Tatua	Tatua	Tatua	Tatua	Tatua	
Westland	Westland	Westland	Westland	Westland	Westland

Source: Trechter et al (2003,p5)

Fonterra emerged at the end of 2001 as a vertically integrated cooperative taking milk from its approximately 13,000 farmers, representing 96% of raw milk produced, and delivering almost all of it to consumers in export markets worldwide. The majority of New Zealand's milk is processed into dairy products to be exported. The country's major dairy exports are milk powder, cheese, casein, and butter and the major export markets include the European Union, South-East Asia and Latin America. Fonterra Co-operative Group is New Zealand's largest company and is the world's largest exporter of dairy products (Ministry of Agriculture and Forestry, 2003: 23). It handles around 98 percent of the country's milk production and its shareholder suppliers make up 95 percent of all New Zealand dairy farmers. Fonterra generates 20 percent of the country's export receipts and seven percent of GDP.¹⁰ Fonterra supplies consumers in 140 countries and has over 30 manufacturing plants in other countries as well as the 25 it has in New Zealand. The United States is Fonterra's largest export market, generating over US\$500 million annually. Asia is the company's largest revenue-earning export region. Fonterra was in 2002 the 4th largest dairy company in terms of sales and the 2nd largest in terms of milk processed and has very substantial investments in joint ventures.

Issues in the 2001 Restructuring

In addition to the status quo which was, for the reasons given above, most unlikely to be sustainable, the prime competing model of reform was to remove the single-desk export restriction and thereby enable any cooperative, and perhaps investor-owned firm, to compete in export markets, to integrate the Dairy Board with one of the large cooperatives and that cooperative to buy out the interests of other cooperatives in the Board. This industry model was not supported by the farmers. They sought continuity and held the view that performance in foreign markets would benefit from the larger company. The alternative model had the potential to produce disruption because the Dairy Board had no formal contracts between it

¹⁰ See Fonterra website – <http://www.fonterra.com>

and the supplying companies that could have served as the basis of compensating the cooperative that would go it alone.¹¹ It would be difficult enough to meld the competing cooperatives into one merged entity: the disruption of the industry with competing cooperatives that were arguing over property rights to marketing and production arrangements would have been even greater. Furthermore, it may have limited the extent to which the single-desk was eliminated: with one large cooperative needing to develop its marketing arm a clean removal of the single-desk may not have been politically feasible.

The policy issues relating to the form of structural change ultimately considered included:

- The effect on prices received resulting from export competition that might arise once the single desk was removed,
- The effect on productive efficiency of processing in New Zealand,
- Improved coordination of product production and sales,
- The pricing of milk to farmers and its effect on resource use, and
- The dominance of Fonterra in the domestic market for milk, given that it processes some 96% of total milk produced.

Some considered that the Dairy Board had market power in foreign markets and that removing the single-desk would result in New Zealand export competition lowering prices of New Zealand product. But the fact that the Dairy Board was a monopsonistic purchaser did not give it market power in its output markets. Although New Zealand's share of interational trade was of the order of 30% it cannot have held much market power because its share of trade in any specific foreign market was very small. It can be expected that particular product and market development may transitorily confer higher margins, as in any business, but this does not consitute market power. The Dairy Board's ability to direct product to different markets at short notice and thereby take advantage of price differentials arising for all sorts of reasons is also not a reason for the presumption

¹¹ Indeed, there was dispute about the value of the Dairy Board paid to the two very small cooperatives that opted to go it alone.

of market power: indeed, the dairy market is much more affected by the disposal and pricing policies of administered markets than the export of New Zealand product. The benefits of improved coordination of production and sales was a benefit of the vertically integrated monopoly, but it was argued that the merger of the two large cooperatives into a single firm would inhibit competition and thereby the productivity performance of domestic processing. The removal of the single-desk restriction opened entry possibilities to other firms, and this, and competition from alternative uses of the land would impose performance constraints on Fonterra. There has been some entry since October 2002 but it is negligible in relation to the size of Fonterra. Nevertheless, Fonterra's performance – at least in terms of aggregate payout per kilogram of milk solids is vigorously benchmarked against the two very small cooperatives and farmers.¹² The small amount of entry in the two years since the reform does not imply that Fonterra can be less than vigilant in its manufacturing performance. The adoption of fair-value-share pricing and accompanying regulations have the effect of generating competitive threat from within the company.

Fair-value share pricing entails Fonterra's production, distribution and marketing being valued (to date by Standard and Poor's) to produce a valuation of the company from the point of entry of raw milk. This value is then annualised and allocated between retained earnings and dividend computed as the return to farmers from their investment in Fonterra "the manufacturing company". This return per kg. of milks solids (of raw milk) is then subtracted from total sales to give a price for the raw milk (termed by Fonterra, the commodity milk price) supplied by farmers. Although farmers are paid per kg. of milk solids their dividend on milk product manufacturing and the raw milk price, the valuation and availability of shares solves the "excess production" problem of the earlier

¹² In 2002 and 2003 the two small cooperatives had significantly higher payouts than Fonterra: but in 2004 the position was reversed. Tatua was held to have an advantage over Fonterra in that a larger share of its output related to value added manufacture. Westland, at least in 2002 and 2003, contracted to distribute through Fonterra's network. It should be noted that returns to any New Zealand export company will depend upon volatile factors that include agricultural policies and cross exchange rates so any comparison of returns requires careful identification of their causal factors.

approach to bundling.¹³ Because farmers that leave the company are entitled to take their capital in the company with them a tension is imposed on management that incentivises performance. Entering farmers, or farmers expanding their milk production, have to purchase the requisite capital from Fonterra. In this way the costs and benefits of entry and exit lie with the farmers and the performance of Fonterra.¹⁴ Although, fair-value share pricing is calculated independently of the company by an agent overseen by the shareholder council, the process provides an incentive for Fonterra to desire that as accurately as possible provides the wholesale price of milk in New Zealand, that reflects the marginal value of additional milk solids for processing and export.¹⁵

Fair-value share pricing, the ability for farmers to exit, regulations that require Fonterra to accept all entrants (subject to some transport-cost requirements), and regulations that require Fonterra to provide up to 400m litres of milk upon application at approximately the price Fonterra pays its suppliers, combine to limit any market power that Fonterra holds in the domestic raw milk market by virtue of its dominant position. There remains the potentiality of the application of market power in the domestic market although this is limited by competition law and the position of farmer-suppliers in Fonterra.¹⁶

The restructuring of the dairy industry highlighted the importance of the judicious application of competition law. New Zealand is a small open economy that depends upon trade for its real income. It has very small, and therefore naturally oligopolistic, industries.¹⁷ The evaluation of trade practices and mergers in such an economy requires assessing the full set of benefits and costs: that is, it requires

¹³ Indeed, fair-value share pricing also addresses the cooperative governance problem arising from heterogeneity of members, see Evans and Guthrie (2002).

¹⁴ If more than a certain percentage of farmers leave in a year limitations are placed upon the amount of capital they can immediately take.

¹⁵ Fonterra has an elected shareholder council that is separate from the company Board and which has the task of scrutinising the company and reporting to shareholders, independently of the Board.

¹⁶ For example, Fonterra's milk pricing to groups of farmers is constrained by the ability of its own shareholder farmers to leave if it is to their advantage. Also, it is noteworthy that the viability of cooperative structures depends on the homogeneity of the product transacted and the proposition of equal treatment of members. Thus, Fonterra may be constrained in price differentials it can make available to farmers that differ in cost, for example, transport costs, and in the presence of localised competitive threats.

¹⁷ See, Arnold, Boles de Boer and Evans (2003).

assessment of the sum of producer and consumer measures of welfare over time. To exclude producers' surplus from the evaluation, as can occur in the USA, would in New Zealand's small open economy ignore any potential benefits from exporting, and lessen weight placed upon dynamic economic efficiency. In 1999 the Commerce Commission had studied a dairy merger proposal similar to that which was approved by legislation in 2001¹⁸ and issued a draft decision that had found that detriments exceeded benefits to a very considerable extent: of course, given that proposed combined entity would have exported approximately 96% of its production, very small gains per unit in international marketing, production and distribution would have swamped detriments relating to the domestic market. Even if there were some domestic milk product manufacturing inefficiencies that were assessed to reduce these gains, the economic basis for denial of merger would have been odd, in that it would have essentially been that Commerce Commission had a different assessment of the private costs and benefits of the merger than the owners had. To illustrate, suppose that 100% of the output were to be exported then the private benefits and costs would have been exactly public benefits and costs, and the Commission would simply have been assessing the private calculus of these. In fact, 96% would have been exported and there existed some domestic market costs, but the point remains that the Commerce Commission took an alternative view of costs and benefits that, to a large extent, the owners had every incentive to estimate accurately.

A key element in the competition law evaluation was the fact that it was cooperatives that were merging. Because they return profits to their supplier/shareholders their behaviour would be different from investor-owned firms: indeed, the main potential market power problem to be considered in the wholesale market was that of excluding potential suppliers, in a situation where arguably economies of scale might preclude the establishment of competing

¹⁸ The 1999 proposal did not have a settled management structure, agreement about the relative values of the merging entities and did not emphasise the synergy issues of coordination of marketing, distribution and production to the extent of the 2001 proposal.

cooperatives.¹⁹ The 2001 merger proposal to form (ultimately) Fonterra was never placed before the Commerce Commission. It differed somewhat from the 1999 proposal in its use of fair-value share pricing, and the accompanying behavioural restrictions; in particular the open entry and exit of suppliers under the terms described above and the requirement to supply an amount of wholesale milk.²⁰ These restrictions were specified as regulations under the 2001 Dairy Industry Restructuring Act (DIRA) that enabled the formation of (ultimately) Fonterra conditional upon the vote of the two large cooperatives that would merge.²¹ Such behavioural undertakings were not available to the Commerce Commission had it assessed the proposal: ironically, the Commission was designated as the dairy regulator of these behavioural restrictions as part of the DIRA. Thus, competition law as routinely administered was not viewed as adequate, or sufficiently all-encompassing, to adjudicate on a change of the magnitude and nature of the restructuring of the dairy industry as a whole.²²

Other issues associated with the change in structure related to the fact that the merged entity would not have all dairy farmers as suppliers, and hence activities such as populating and maintaining a dairy animal genetic database, research services, supplying advisory, and genetic propagation services then required rules as to their ownership and access. It was deemed that the database had public good elements that rendered broad access to it beneficial and the other activities private in nature.²³

¹⁹ In fact the existence of economies of scale sufficient to preclude entry is arguable on empirical grounds and not defensible where value-added products are produced. Also the existence of economies of scale would generally not be sufficient for this behaviour some power in output markets would also be required.

²⁰ To enhance competition in the New Zealand retail milk market the merged entity was also required to divest one of the local fresh milk product distribution companies that the two merging cooperatives owned: the Commerce Commission could have taken this step.

²¹ The behavioural restrictions remain in place providing Fonterra's market share remains above a threshold that is of the order of 85% of raw milk processed.

²² The critically deregulatory part of the DIRA was the removal of the statutory single-desk restriction: an action that the Commerce Commission could not have of itself implemented, but it could have assessed the merger under the advisement of the Government that the removal of the single desk was part of the merger package.

²³ For detailed discussion see Evans and Quigley (2001).

The Dairy Industry From 2001

On the regulatory front, New Zealand's quota access to markets had since their inception in the late 1950s been administered through the New Zealand Dairy Board. Under the DIRA these rights were allocated to the merged entity (Fonterra). Depending on the designated market, this allocation begins to expire from 2007, at which point the government will need to specify the rights for further periods. There will likely be other regulations of a more generic form across all agriculture relating to environmental and genetic modification issues and the control of disease.

From the industry perspective evolution will depend upon the performance of Fonterra and the associated entry and growth of competitors. There exist two competing cooperatives and some competition from other entrants, although the share of milk processed by Fonterra has not declined. The ability for other firms to export is less than two years old: but a range of companies other than Fonterra, Tatua and Westland are exporting. An investor processing firm is being established and another fresh-milk-product company has been established in association with a supermarket.

The throughput of Fonterra has continued to grow (see Table 3, and Figures A3 and A7) and dairy farms have continued to expand their scale. However, we can now be sure that such growth is on its economic merits, relative to other uses of the resources employed.²⁴ The structure of Fonterra as a cooperative can be expected to undergo continual scrutiny as the market evolves. It has recently announced moves joint venture to strengthen its position as a food services company.

²⁴ Subject always to regulations that affect all agriculture and other industry: for example, biosecurity and environmental regulation.

Table 3: Growth in Milk Processing Volumes

	Milk processed (million litres)	Milkfat processed (million kg)	Protein processed (million kg)	Milksolids processed (million kg)
1974/75	5,222	244	181	425
1981/82	5,979	282	209	491
2001/02	12,998	631	476	1,107

Source: Ministry of Agriculture and Forestry (2003)

It currently manages the full supply-retail chain from the farm gate to products and ingredients including health, nutrition and convenience food, as well as more standard milk powders, cheeses and butter.²⁵ As mentioned, it was in 2002 the 4th largest dairy company in terms of sales and the 2nd largest in terms of milk processed. Fonterra had in 2002 three divisions: NZMP (in 2002 the largest dairy ingredients company in the world, encompassing collection to ingredients), New Zealand Milk (marketing consumer goods and services) and Fonterra Enterprises responsible for venture and growth businesses. Fonterra has secured its growth and diversification with the assistance of very substantial investments in joint venture arrangements that reflect its comparative and strategic advantages.

The question remains whether the company as a cooperative with shareholding tied to amount of product supplied, is ideally structured for such vast enterprise. The governance and cost of capital issues that are part of a comparison of cooperative and investor firms are discussed in various places.²⁶ It may mean that Fonterra evolves to some combination of investor and supplier ownership since aspects of its business may be viewed differently.²⁷ There is not space here to review the issues, but there is no need to. The environment created by the formation of Fonterra is one in which the appropriate institutional form evolves in response to product, ownership and managerial market pressures. There is no case

²⁵ For a review of Fonterra's activities and investments on other countries and entities see Goldberg and Porraz (2002)

²⁶ See Evans and Quigley (2001) on capital structure and Trecher (2003) who compares the approach represented by Fonterra to the Australian Wheat Board, more investor orientated approach to deregulation.

²⁷ Indeed, the company does list interest bearing notes and thereby draw scrutiny from parties outside its ownership, which is but one of the issues in comparing the cooperative-investor form.

to argue that these pressures, or their interaction, are such that regulatory oversight or strictures of this process would be socially beneficial.

Summary

New Zealand dairy farmers and processors have not received price or income support since before the 1990s. Since 2002 there has been no restriction on dairy processing firms exporting from New Zealand. In consequence, the only restriction on dairy processing firm entry is competition from Fonterra which is dominant in the New Zealand market but which is subject to behavioural restrictions, and the internal tensions of supplier open entry and exit.

There has been some, quantitatively very small, entry to dairy processing, and Fonterra has expanded significantly. Milk production has continued to grow in New Zealand, at least since the advent of fair-value share pricing, reflecting the profitability of dairying relative to other uses of land, labour and capital. It, and the performance of other agricultural sectors, demonstrate the viability of agriculture and better resource use flowing from de-regulation. The extent of financial viability will reflect the profitability of agriculture within the New Zealand economy, and will not carry over to all markets on deregulation.

The structural change process was accepted in the 1980s by farmers as a political interest group because it was part of economy-wide de-regulation: in New Zealand farmers thought that they would ultimately benefit from de-regulation. The structural change in agriculture has been very considerable and it took a long period to adjust. Product mix changed a lot and the more (New Zealand) traditional forms of agriculture took quite some time to adjust; but they are now quite innovative and viable.

The second round of structural adjustment in dairy in 2001 was driven by forces within the industry as well as the need to recognise that the world had changed and that policy should reflect this. In dairy the deregulatory option chosen was one desired by the farmers and that preserved critical elements of the status quo: in

particular, the cooperative structure and a large entity operating in world markets. This created an environment that allows competition and a transition to a form of entity, or entities, that evolve according to the demands of product, service, managerial and ownership markets. Such market endogenous evolution of organisational structures is desirable where possible; in contrast to a sudden “big bang” deregulatory approach that has attendant disruptions of transactions and imposes a view of the right organisational institution.

Competition was important to the structural change of regulations in 2001, but the institution of competition law was not well suited to managing a change of such different nature from its usual business as the one proposed for the dairy industry.

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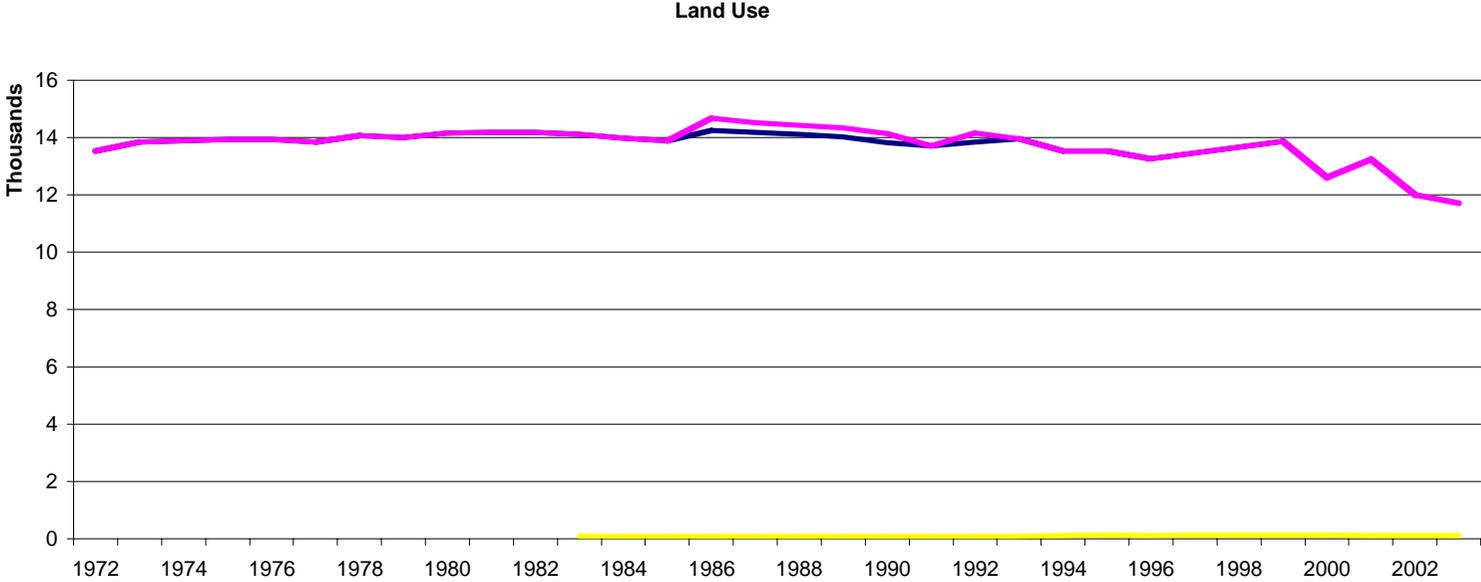
<http://www.dairyinsight.co.nz/main.cfm?id=2#>

<http://www.fonterra.com/content/aboutfonterra/history/default.jsp>

<http://www.open-country-cheese.co.nz/dairybackground>

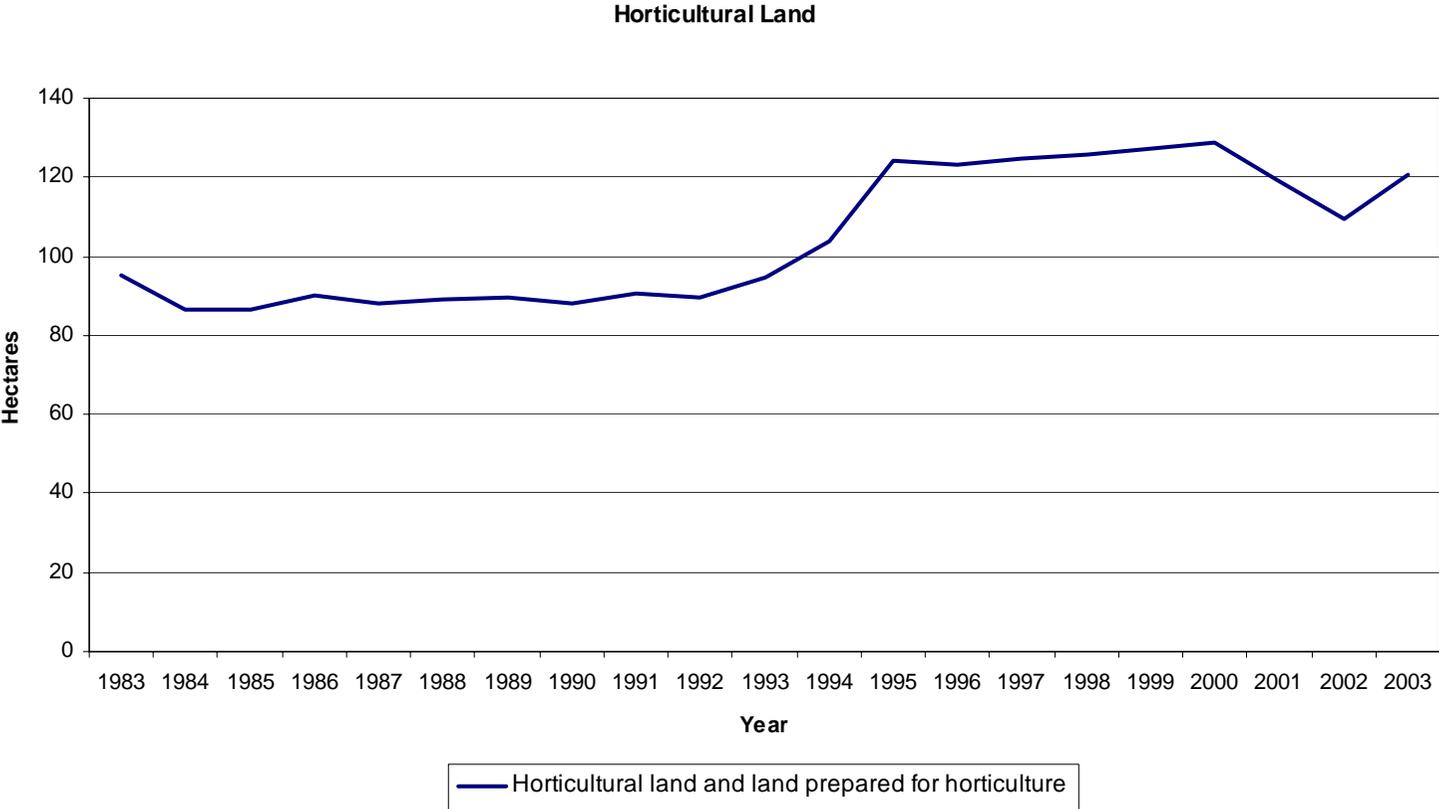
Appendix

Figure A1



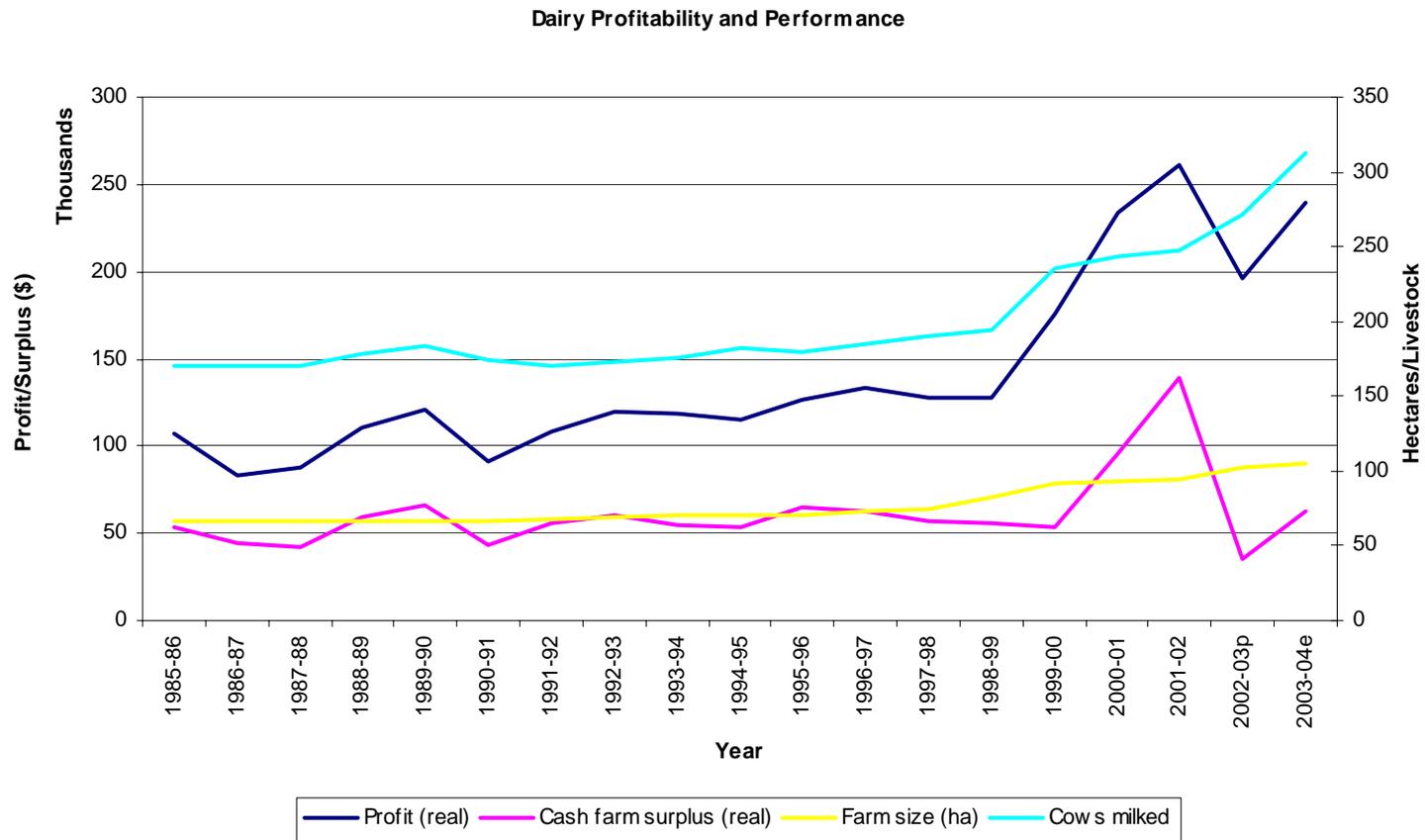
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Figure A2



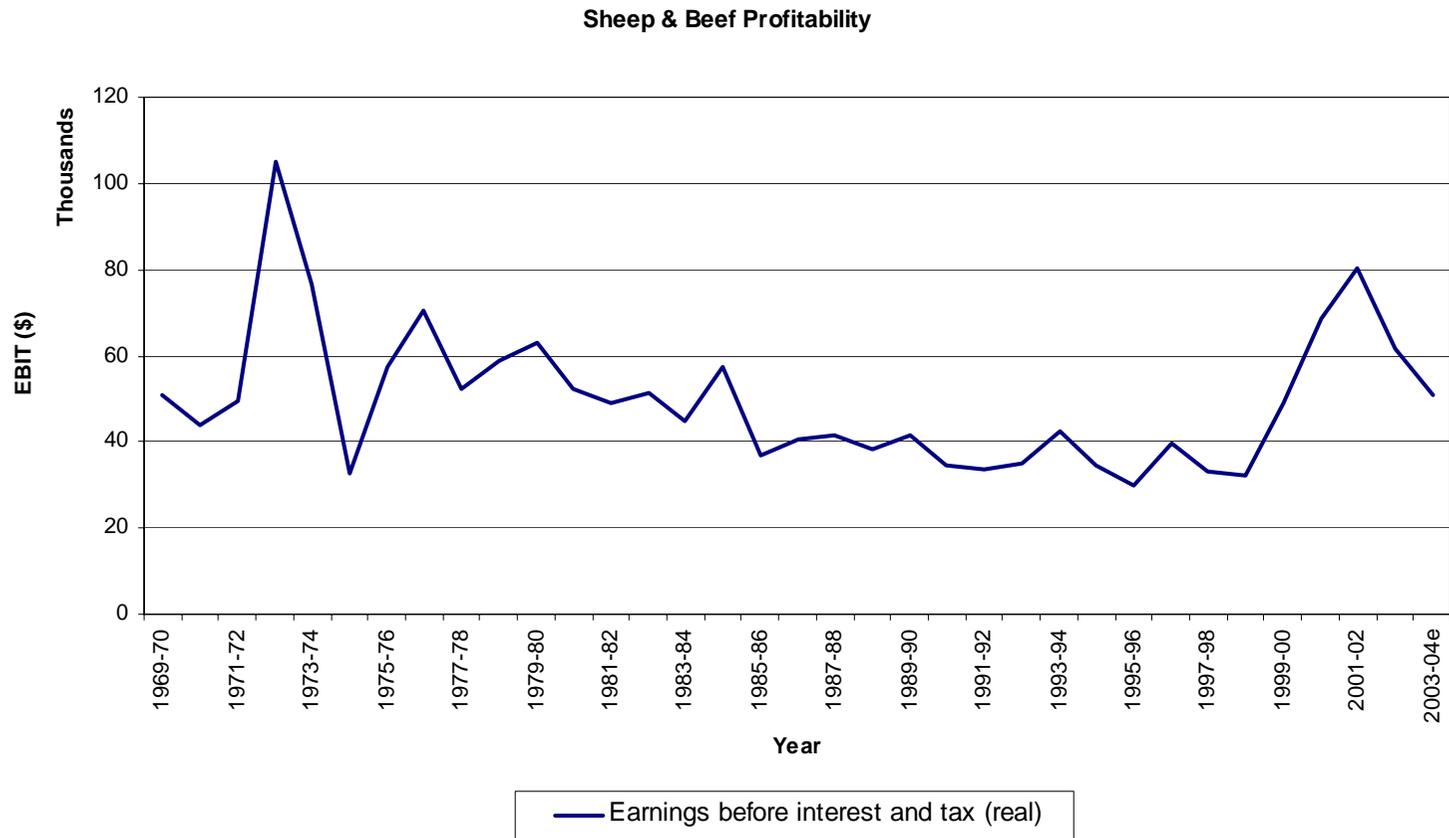
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Figure A3



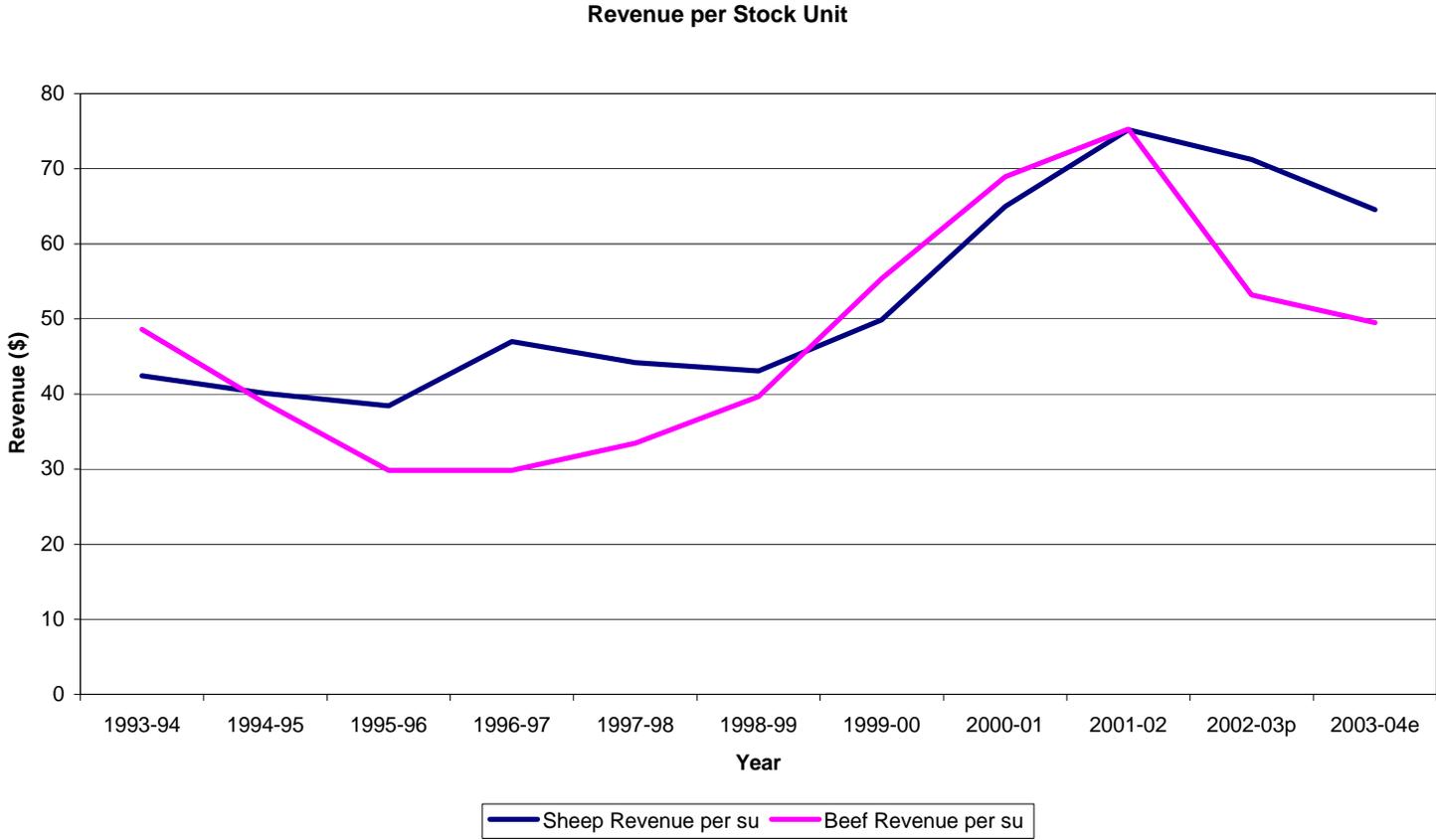
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Figure A4



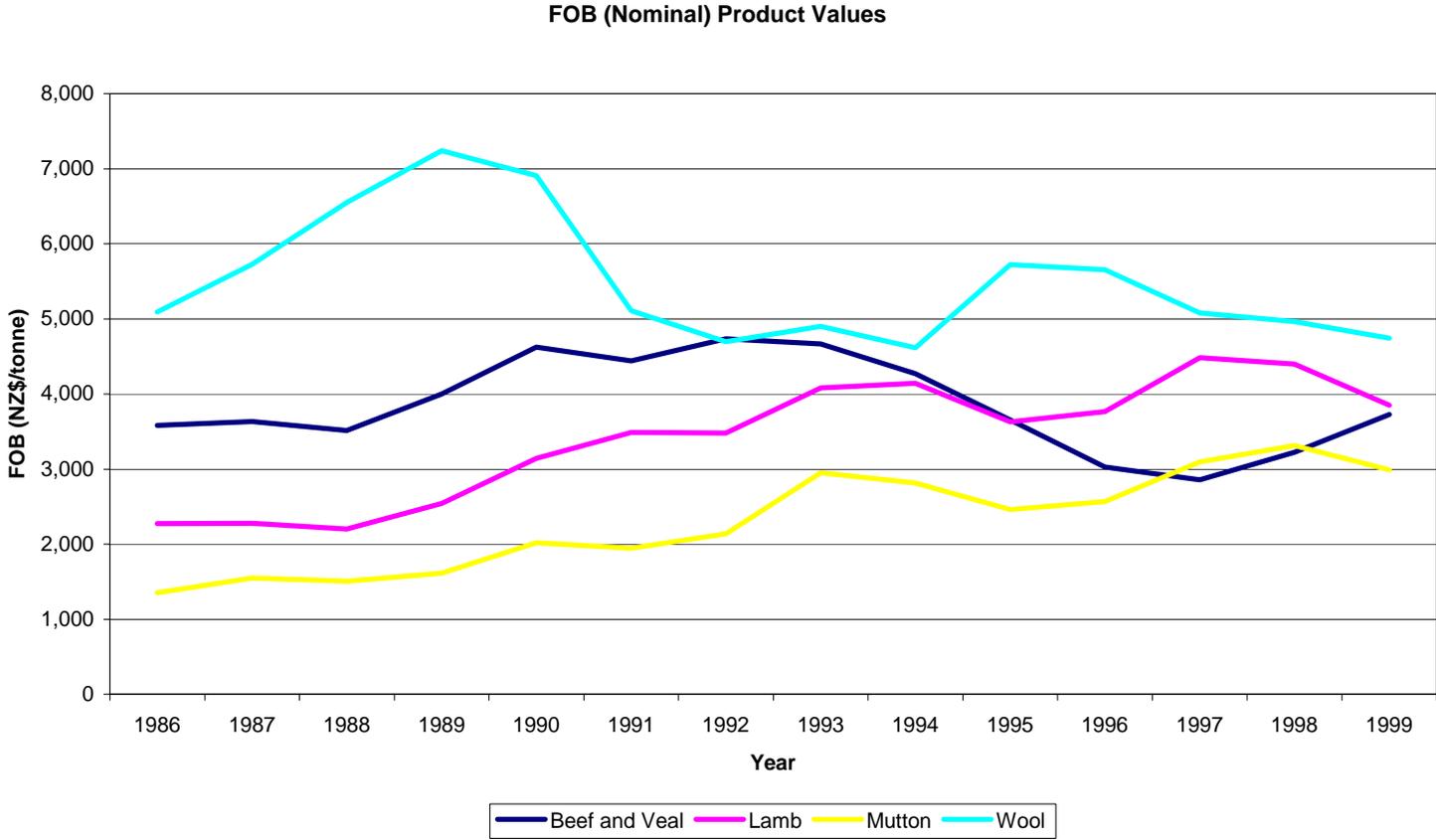
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Figure A5



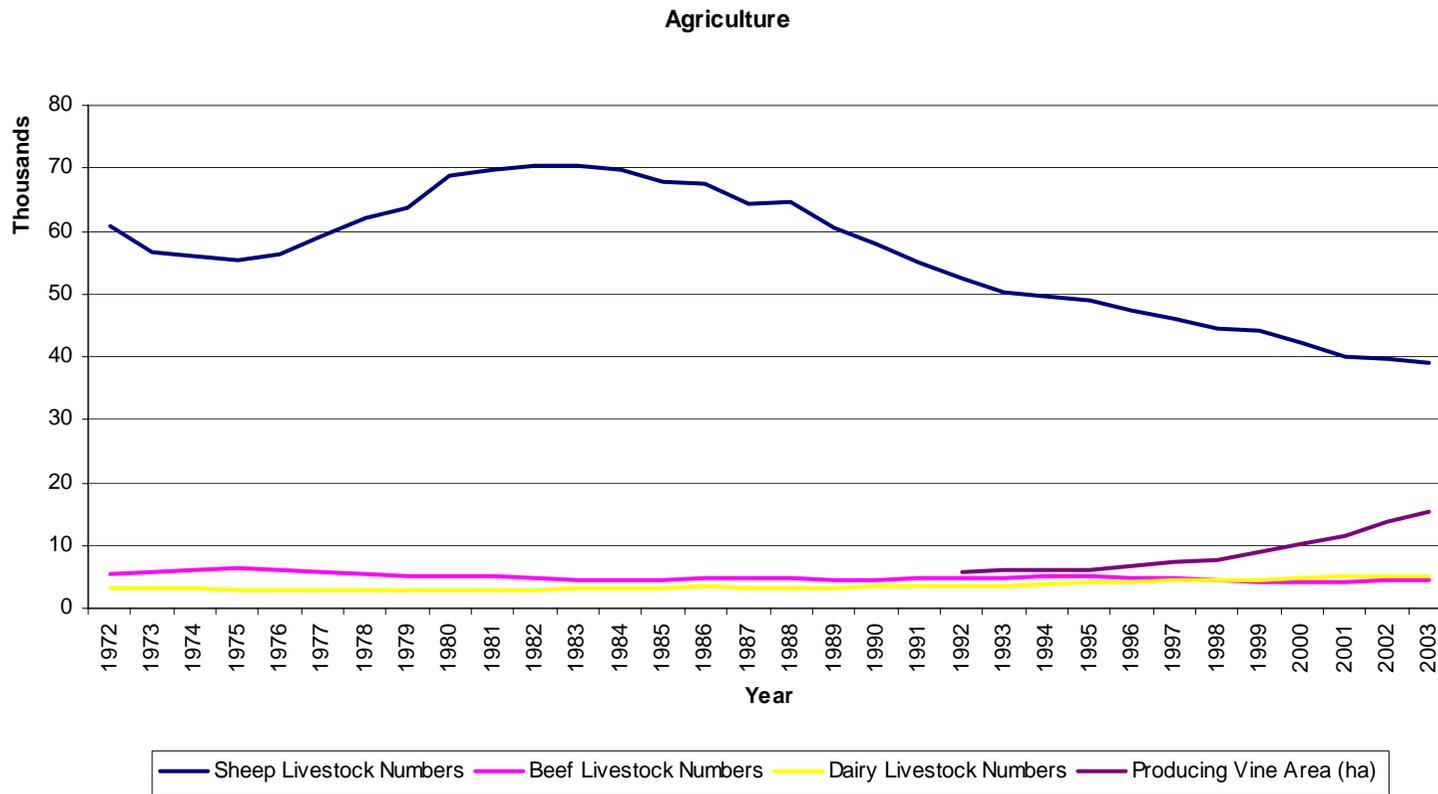
Data sourced from The Economic Service, Sheep and Beef Farm Survey.

Figure A6



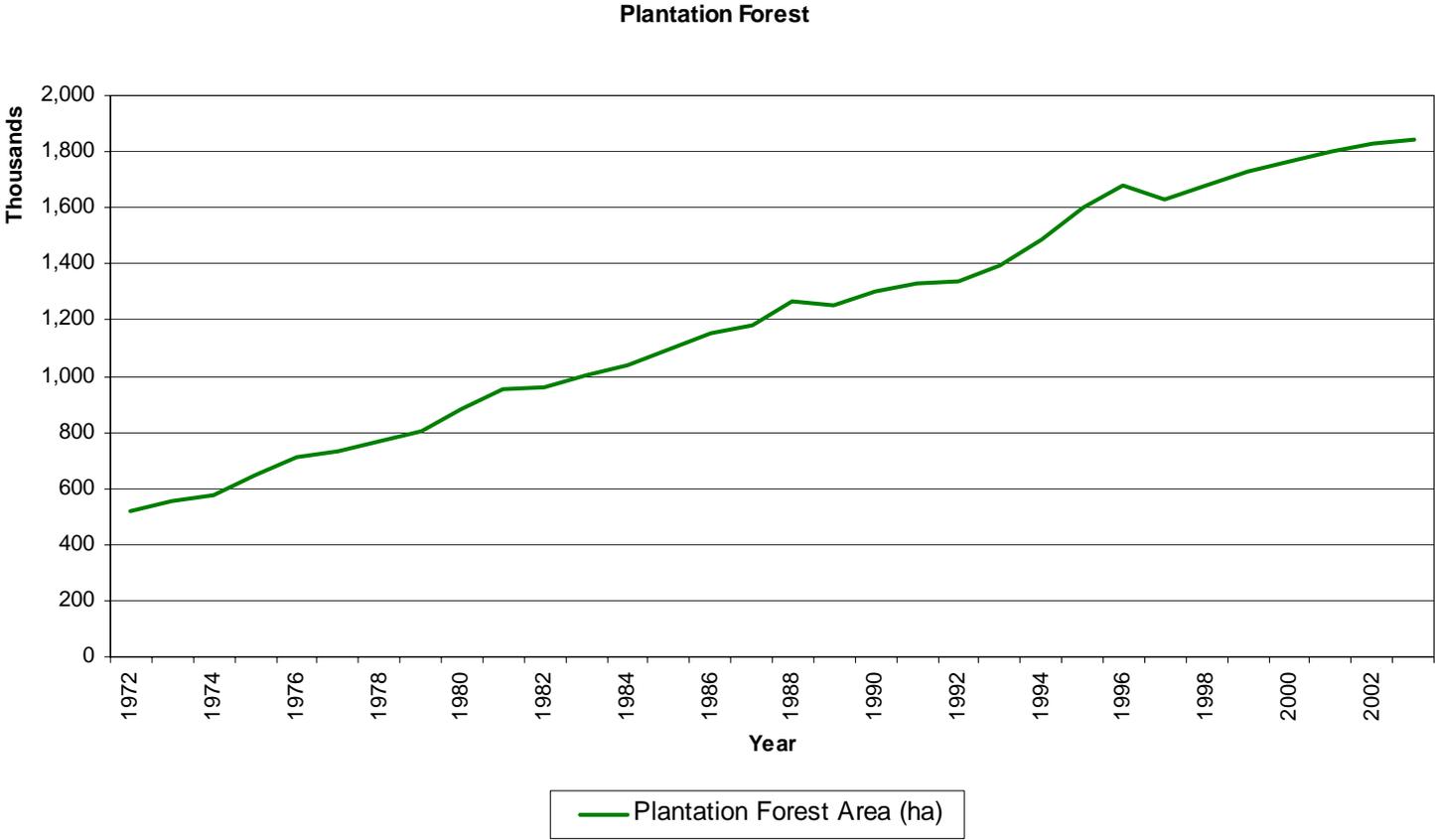
Data sourced from MAF, 10 Year Statistics.

Figure A7



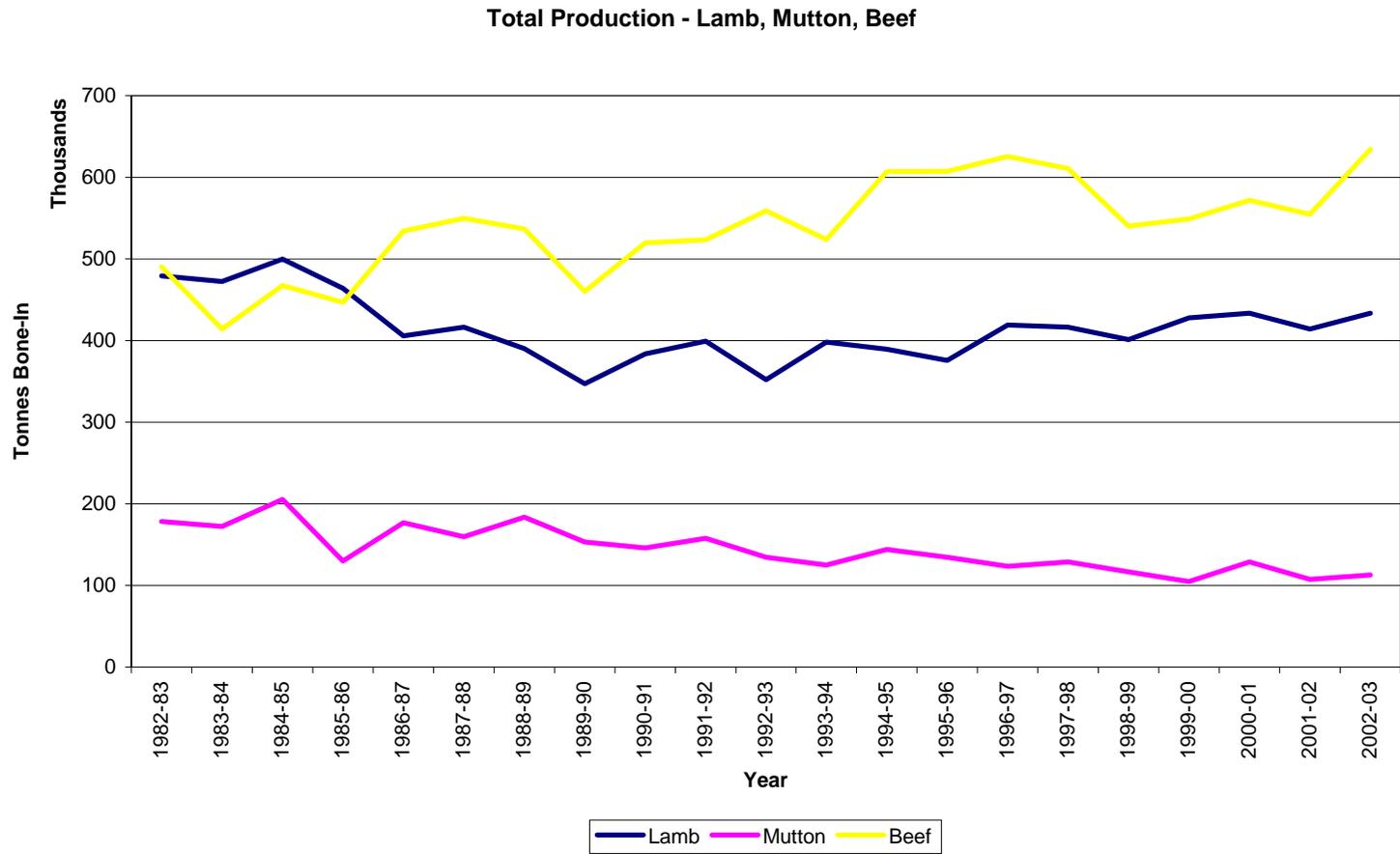
Data sourced from Meat New Zealand Statistics.

Figure A8



Data sourced from MAF.

Figure A9



Data sourced from Meat New Zealand Statistics.