

5. Cooperatives in New Zealand Agriculture

In this section we provide a high-level survey of the role and significance of cooperatives in New Zealand agriculture. It must be noted at the outset that the exercise is complicated by certain institutional arrangements in New Zealand. The first relates to the ability of cooperatives to organise themselves other than as cooperative companies, as discussed in Section 2, and to the absence of any requirement in New Zealand for cooperatives to identify themselves as such. Companies that wish to call themselves cooperative are required to register under the Cooperative Companies Act 1996, but even registered cooperatives need not call themselves cooperative. The Companies Office does not publish information on which companies are cooperative. These features complicate the identification of those organisations in New Zealand that are legally, let alone functionally, cooperatives.

The second institutional feature is a lack in New Zealand of reporting requirements for privately-owned organisations. While publicly listed companies – including those cooperatives with securities traded on NZX's various exchanges (NZSX, NZDX and NZAX) – are under obligation to make certain financial disclosures, most cooperatives do not fall into this category. Those cooperatives that are not listed but raising capital from investors must comply with securities legislation requirements for the filing of prospectuses, but these too are a limited source of cooperative information. Thus, even where cooperatives can be identified, there is generally little publicly-available financial or other relevant information available to researchers.

The data presented in the following sub-sections must therefore be regarded as providing incomplete “snapshots.” We have confined our focus to identifying the major cooperative and non-cooperative organisations within each of New Zealand's major agricultural sub-sectors, and where possible, to estimate their associated market shares. Given differences in data availability across sub-sectors, different types of market share estimates have been required, using for example either sales or production volumes. Comparisons across sectors will therefore involve a degree of inconsistency, as will any comparisons with market share figures for overseas counterparts. However, even these partial snapshots should provide a reasonable indication of where cooperatives have a greater or lesser stake in total sub-sector output relative to local IOF rivals, or relative to the stake of cooperatives in their overseas counterpart industries.

We begin with a brief background on the organisation of agriculture in New Zealand. In that discussion we take it as read that the bulk of primary production in pastoral farming and horticulture is organised around family-owned farms and orchards. We then examine the role and significance of cooperatives in each major agricultural sub-sector, providing international comparisons as well as brief policy discussions. A brief summary is then provided, followed by further comparisons with local non-agricultural industries and overseas agricultural sectors.

5.1 Background on New Zealand Agricultural Organisation

5.1.1 Cooperatives in the Late Nineteenth and Early Twentieth Centuries

New Zealand agriculture has used a combination of cooperative organisation and, from the 1920s to 1990s, statutory control/producer boards, as the main vehicles of industry coordination. Stephens (1936) provides a glimpse of cooperative activity in New Zealand in the late nineteenth and early twentieth centuries. Cooperatives were not evident prior to the 1880s, but developed rapidly after then in dairying, in Taranaki, the Waikato, and later Southland. Factors underlying this movement from IOF to cooperative dairy processing were the development of factory-based processors, enabling efficient and uniform dairy processing, as well as the rapidly expanding export trade, allowing the product to be marketed through well-defined channels. Further impetus for cooperation arose with a decline in output prices following World War I, with both cooperative mergers, and further extensions of cooperation into cooperative marketing and purchasing. Part of this impetus was to reduce the degree of competition between cooperatives in an environment of falling prices.

Stephens records that by the early 1930s cooperative dairy processing accounted for about 80% of production, due to the product's high perishability. Given the lack of wool processing, no cooperative such processors were in existence. Cooperative meat processing also did not exist, which Stephen argued was because the economics of processing gave the incumbent IOF processors effective monopolies, and all processors would face higher processing costs if cooperative rivals should enter the industry. Fruit and egg production was also satisfactorily serviced by IOFs, although some cooperative marketing of fruit, and also of pork, was undertaken.

As to the nature of cooperation then evident, Stephens states (1936, p. 745):

“... the primary urge to co-operation has, in nearly every case, been economic. It has been prompted by the realization of relatively weak bargaining power of the individual farmer when confronting the more integrated marketing firms, and the desire to overcome this by eliminating the middleman. Rightly or wrongly the farmer has thought that middlemen are making excessive profits and that some form of co-operative organization will increase the returns to the producer by reducing marketing costs, or transferring the profits of marketing from the middlemen to him.”

5.1.2 The Development of Statutory Producer Boards

Moran et al. (1996a) add to this early picture, describing the organisation and regulation of early twentieth century New Zealand agriculture. British and American companies had established meat

processing plants in New Zealand around the turn of the century, and also organised the shipping and marketing of produce to overseas markets. During World War I the British government commandeered all New Zealand meat, wool and dairy exports. The end of this arrangement coincided with a slump in prices, causing producers to lobby through their industry associations for the reinstatement of control measures to compete with overseas processors, transport companies, and importers. Control boards to regulate collection of farm output and its transportation to, and distribution in, Britain were set up in the early 1920s as a result of farmers' political power. Producer board control of agricultural marketing was reinforced by legislation such as the Primary Products Marketing Acts of 1936 and 1953, the 1961 Dairy Board Act, and the 1971 New Zealand Apple and Pear Marketing Act. Government-sanctioned producer marketing boards and cooperative processors enabled producers to control the processing and marketing of their produce.

Moran et al. argue that state support measures for farmers reflected their initially privileged political position early in New Zealand's colonisation, which survived despite the loss of this position with the inception of the welfare state in 1935. Support measures were reinforced by an acceptance of state intervention following the Second World War, and continued into the 1990s due to a combination of farmer political strength, and a political perception that these measures remain in the national interest (despite the change in ethos characterising New Zealand's economic reforms of the 1980s, and the realignment of global agriculture under GATT).

Moran et al. (1996b) attributed the power of New Zealand's early producer marketing boards to four pieces of legislation:

- 1) 1921 Board of Trade (Wool Industry) Regulations;
- 2) 1922 Meat Export Control Act;
- 3) 1923 Dairy Produce Control Act; and
- 4) 1924 Fruit Export Control Act.

The Meat Export Control Act was enabled by statute, whereas the other three required a majority vote by producers. The relevant boards largely confined themselves to promotion, reducing seasonal price fluctuations, and securing better freight and insurance rates. More recently they operated in three main areas: regulation and control, commercial, and industry servicing. The authors argue that dairy farmers are relatively homogeneous, explaining their traditional support for a single seller desk, whereas sheep and beef producers are more diverse (e.g. South Island high country versus Canterbury Plains farmers), resulting in a lack of cohesiveness, meaning that

producer boards were unable to exercise comprehensive control. Pipfruit and kiwifruit, like dairying, tend to be family farms, and also supportive of single seller desks.

Producer marketing boards shared some cooperative features. They were all under control of the farmers they represented, via boards of directors with majorities elected by producers. Board levies reflected producers' use of the boards, being based on units of output. However a difference between cooperatives and boards was that producers had to operate within the boards, whereas cooperative participation is normally voluntary.

5.1.3 Transition to New Industry Structures

Moran et al. note the pressure New Zealand came under in the 1990s – even from parties such as the US, Japan and the EU in which agricultural production is highly regulated and distorted by state intervention and support – to dismantle its producer marketing boards. The boards have been argued to be a source of unfair advantage to New Zealand farmers, and in the past decade a variety of institutional alternatives have been implemented. These include the marketing functions of the former NZDB being included in the major dairy cooperative merger creating Fonterra in 2001, or devolved to an industry body in the case of kiwifruit. Heron et al. (1998) interpret such shifts away from more centralised coordination to market coordination as creating structural space for new governance solutions. They argue that the upsurge in networking (e.g. via alliances, cooperatives, etc) is part of the search for new institutional solutions to secure competitiveness in the face of global restructuring.

New Zealand agriculture now comprises a mixture of cooperative, IOF and other private structures, in places meshed with the successors to former statutory producer boards. In the following discussions of the role and significance of cooperatives in each of New Zealand's major agricultural sub-sectors we will also touch on how some of these changes have affected current industry organisation.

5.2 Dairy

5.2.1 Milk Processing

Ward (1975) records the first dairy cooperative in New Zealand as the Otago Peninsula Cheese Factory formed in 1871. As reported above, cooperatives accounted for around 80% of production by the early twentieth century, and have remained dominant since. The contemporary New Zealand milk processing sector is clearly dominated by Fonterra, with even its two closest rivals – both of which are cooperatives – accounting for just over 3% of market share in total. Other

cooperative organisations include Gisborne Milk and Taumarunui Milk Co-op (1972) Ltd. Other milk processors include small, specialist or local organisations such as King Country Milk Limited, Topmilk Ltd, Fresha Valley Processors (Waipu) Ltd, and United Milk.

Table 5.1 – Milk Processing at a Glance

Share of merchandise exports:	19.2% ^a	Export share of production:	90% ^a
Share of world trade:	33%+ ^b		
Major Cooperatives:		Major Non-Cooperatives:	
➤ Fonterra		➤ Synlait to cease supplying milk to Fonterra in favour of independent supply and processing from 2007/8	
➤ Westland		➤ Open Country Cheese Co. under establishment as a specialist cheese producer	
➤ Tatua			
Market share of major cooperatives:	99%	Market share of major non-cooperatives:	<1%
Fonterra alone 96%. Based on litres processed.			
Cooperative market share in other countries:		Notes:	
➤ Australia	70%+ ^c	^a	New Zealand Official Yearbook 2004.
➤ Canada	42% ^d	^b	www.fonterra.com.
➤ Denmark	95% ^e	^c	Fitzgerald (2000), up from 50% in 1990.
➤ EU mean (median)	71% (82%) ^f	^d	2002. Gurung and McCagg (2005).
➤ Ireland	97% ^g	^e	Hobbs (2001).
➤ Norway	99% ^h	^f	Min. 20%, Max. 100%. van Bekkum and van Dijk (1997), in Cook et al. (2004b).
➤ United Kingdom	95% ⁱ	^g	McCarthy et al. (1998).
➤ United States	83% ^j	^h	Tomte (2003).
		ⁱ	2000/01. Plunkett Foundation.
		^j	2002. Cook et al. (2004b).

5.2.2 Downstream Processing

Fonterra also produces over 1,000 dairy-based ingredient products for the international food industry under the NZMP brand. While mostly involved in dairy commodity production, its New Zealand “fast moving consumer goods” brands include Mainland and Tip Top, while its overseas brands include Anchor and Fernleaf. Fonterra has diversified its milk supply sources such as through its interest in Australian company Bonlac, and formed an alliance with Nestle in North, Central and South America, and joint ventures with Arla Foods in Great Britain and Dairy Farmers of America. Tatua is the most specialised of the three major dairy cooperatives, producing consumer products and value-added ingredients. Westland is involved mainly in commodity production, but has also made investments to increase its share of value-added products.

The main IOF involved in downstream dairy processing is New Zealand Dairy Foods, producing milk products, cultured foods, butter, cheese and dry goods, and specialty cheeses. Until

November 2005 New Zealand Dairy Foods owned the Anchor brand in New Zealand, but was then cleared by the Commerce commission to sell that brand, as well as the Fernleaf and Country Soft brands to Fonterra. These transactions formed part of a brand swap agreed between Fonterra and NZDF in August 2005 in which NZDF acquired assets from Fonterra such as Meadow Fresh and Kiwi Meats. Other IOF processors, such as ice cream and cheese manufacturer Kapiti Fine Foods, and cheese producers such as Whitestone Cheese also have market niches. In November 2005, however, Fonterra agreed to purchase Kapiti Fine Foods from Foodstuffs Wellington, subject to Commerce Commission approval and due diligence.

Corporate dairy farmer Synlait intends to expand its milk production to 1% of New Zealand's output by the 2007/8 dairy season. It is to cease supplying Fonterra in favour of independently processing milk powder for export, and later, high-value functional ingredients for sale to international food manufacturers. New independent IOF cheese producer Open Country Cheese Co. predicted a production level of 5,000 tonnes of cheese (almost 0.4% of New Zealand's milk production, and about 1.5% of New Zealand's current export volumes of cheese) in the year to 30 September 2005. At full throughput it expects to be capable of producing more than 20,000 tonnes of cheese per annum, and also intends to engage in whey processing from 2005. Initially it sourced milk from Fonterra, but it now has over 20 supplying farmers augmenting the 50 million litres supplied by Fonterra.

5.2.3 Other Industry Activities

In 2003 Fonterra, Tatua, Westland, Mainland Products and New Zealand Dairy Foods formed Dairy Companies Association of New Zealand to represent the joint interests of New Zealand dairy companies on domestic and international policy issues. This role was formerly undertaken by the NZDB. As a subscription-based service provider, it now represents a body for industry-wide cooperation, suggesting that industry has seen a need for ongoing coordination on topics of common interest. Causes for such coordination include industry initiatives on securing, improving and allocating market access quotas such as those for butter exports to the EU.

5.2.4 Discussion

The dominance of cooperatives in New Zealand milk processing sits comfortably with the standard explanations of cooperative formation. Indeed, given the New Zealand sector's primary export focus – more so than other countries' dairy industries, which tend to concentrate on domestic sales – this could well account for New Zealand's dairy processing market share being at the upper limits observed worldwide.

Not only do New Zealand's 13,600 dairy farms compete to supply dairy processors with a highly perishable and time-collection sensitive product, but they must also vie with market power in the shipping, consumer food processing, and foreign marketing and distribution (e.g. supermarket chain), industries. To remain internationally competitive in distant export markets requires significant efficiencies in processing, marketing and distribution, necessitating economies of scale which only exacerbate any market power concerns dairy farmers would face if they did not organise cooperatively in processing and marketing. Given the historically high homogeneity (yet increasing differentiation) of their product, and shared challenges in international distribution and marketing, Fonterra is able to remain a viable organisational form despite having 11,600 owner-patrons (with associated costs of collective decision making).¹ It is actively experimenting with structural changes such as enabling suppliers to provide increased milk volumes at a contract price without also having to supply capital for processing and value-added activities.

All three major dairy cooperatives are increasingly active in value-added consumer goods processing, either alone or by alliances with international food processors. Thus far this represents a useful means of acquiring skills and networks as well as circumventing the capital constraints that cooperative dairy processors might otherwise face. The adoption of NGC-like characteristics by Tatua, and listed debt security issuance and fair value share pricing with voting proportional to supply for Fonterra, further relaxes the capital constraint. The smaller cooperatives should be able to remain viable so long as they establish secure market niches, as should new IOF processors Synlait and Open Country Cheese Co. It is unlikely that IOF processing will displace cooperative processing to any significant degree in the foreseeable future, although the competitive environment would change if Fonterra's market share were to fall to the point where its regulatory restrictions (requiring it not to impede open entry/exit by suppliers) were no longer imposed.¹⁸

5.3 Beef, Lamb and Venison

As reported above, cooperative meat processing was non-existent in the earlier part of the twentieth century, with the sector dominated by largely foreign IOFs. Cooperative meat processors were subsequently formed, such as Alliance in 1948 "in order that the producers should have for themselves all the profits that are in the business" (Calder (1990, p. 2)), and now account for roughly half of industry output. The current cooperative stake in the sector arises against a backdrop of significant industry rationalisation in the 1980s and 1990s, which itself reflected wider economic reforms over 1984 – 1995 (see Evans et al. (1996)) such as the removal of agricultural subsidies and resulting 40% decline in New Zealand's sheep flock. As noted by Calder and Tyson (1999), early rationalisation gave rise to three major groups of processors: cooperatives Alliance, PPCS and (then cooperative) AFFCO; overseas-owned IOF Weddell Crown, and IOF Goodman Fielder Wattie/Waitaki.

¹⁸ See Evans and Quigley (2001).

Plagued by industry overcapacity exacerbated by industrial relations inflexibilities, the failing Waitaki was subsequently split up, with AFFCO taking its North Island assets and Alliance taking those in the South Island. In part this cooperative survivorship was aided by the development of Freesia Investments, an investment subsidiary of the then New Zealand Meat Producers' Board. Freesia invested over \$100 million in New Zealand meat processing companies, predominantly cooperatives (Alliance, and the then cooperative AFFCO). Freesia also invested in the then unlisted but farmer-controlled IOF Richmond, in each case to "foster the establishment of producer-oriented marketing and processing companies ... [in the] belief that the producers are the natural owners of the meat processing and exporting sector" (Calder (1990, p. 1)). Weddell also subsequently failed, as did the prominent and innovative but smaller IOF processor Fortex (which also suffered financial scandal). AFFCO became a listed company in 1995, and while 70% of its shareholders remain its farmer suppliers, it is no longer a cooperative. Cooperative PPCS recently acquired listed IOF processor Richmond. Both examples illustrate organisational flexibility in the sector. Smaller, more focused and innovative marketers such as Wairarapa Lamb Cooperative, and IOF Blue Sky Meats, have also gained market niches. In part such industry changes and innovations have been driven by the relative ability of new entrants and incumbents to compete in labour practices.

Table 5.2 – Beef, Lamb and Venison Processing and Marketing at a Glance

Share of merchandise exports:	15% ^a	Export share of production:	
Share of world trade:		➤ Lamb	92% ^a
➤ Sheepmeat	50% ^a	➤ Mutton	87% ^a
➤ Beef	8% ^a	➤ Beef	83% ^a
Major Cooperatives:		Major Non-Cooperatives:	
➤ PPCS		➤ AFFCO	
➤ Alliance		➤ ANZCO Foods	
Market share of major cooperatives:		Market share of major non-cooperatives:	n.a.%
➤ Lamb	54%	Combined market share of PPCS, Alliance, AFFCO and ANZCO around 80%.	
➤ Beef	41%		
➤ Venison	69%		
PPCS share based on export market share.			
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a New Zealand Official Yearbook 2004.	
➤ Canada	15% ^b	^b Livestock. Gurung and McCagg (2005).	
➤ Denmark	66% ^c	^c Hobbs (2001).	
➤ EU mean (median)	38% (30%) ^d	^d Meat. Min. 0%, Max. c80%. van Bekkum and van Dijk (1997), in Cook et al. (2004b).	
➤ Ireland	30% ^e	^e Beef and lamb. McCarthey et al. (1998).	
➤ Norway	75% ^f	^f Including pork. Tomte (2003).	
➤ United Kingdom	17%/11% ^g	^g Cattle/sheep. 2000/01. Plunkett Foundation.	
➤ United States	13% ^h	^h Meat. 2002. Cook et al. (2004b).	

Thus, while cooperatives have remained dominant in an industry suffering from painful restructuring due to overcapacity and resulting intense competition for stock, IOF processing also remains viable, both among the major processors (farmer-controlled AFFCO, and ANZCO owned by Itoham, Nippon Suisan and management) as well as second tier processors. This is despite cooperative processors having been argued to enjoy advantages over IOF processors when securing supplies in stock “procurement wars”. According to this argument cooperatives are able to sacrifice investment returns (due to poorly specified cooperative property rights) to enable them to pay farmers greater premiums than IOF processors for their stock. However, this ignores the fact that such over-payments for stock deplete equity reserves – for both cooperatives and IOFs – with cooperatives facing tighter capital constraints than IOFs. As noted by Calder (1990), meat producers show little loyalty to their cooperative processors, selling stock at the highest price. For these reasons, and those discussed in Section 4.2.2, cooperatives cannot be argued a priori to enjoy inherent advantages over IOFs in securing supply.

Some of the arguments supporting the formation of cooperative dairy processing also apply in the case of meat processing. Economies of scale in processing, marketing and distribution increase the risk of multiple competing farmers being exposed to market power abuse by large, concentrated IOF processors. The need for coordination along the entire agri-food supply chain – allowing food traceability and providing market information to farms – also suggests a rationale for cooperative ownership. However, livestock production does not suffer from the same risk of extreme perishability as does milk supply, and livestock can be economically transported to competing processors when local processors offer unfavourable terms, both of which reduce processor market power. Furthermore, beef and sheep producers cannot be assumed to enjoy the strong commonality of interest that is often attributed to dairy farmers, meaning the costs of cooperative ownership are relatively higher for cooperative meat processors.

Additionally, unlike dairy producers, who would compete against each other in export markets not constrained by market access property rights such as quotas (EU butter quotas are an exception), New Zealand meat producers face meat quotas in major export markets. The allocation of these meat quotas create secure property rights to export markets, diminishing the risk of New Zealand producers competing away export returns through uncoordinated export competition. For all of these reasons, the case for cooperative ownership is less compelling than in the dairy industry, which is reflected in the significantly lower cooperative market share for meat processing in both New Zealand and many other meat producing countries, although with notable exceptions such as Denmark and Norway.

Where the meat industry retains strong commonalities of interest, such as in industry research, and securing, enhancing and allocating meat quotas into the EU and US, some form of industry cooperation and coordination can be expected. Currently some of these functions are carried out by levy-funded statutory body, Meat & Wool New Zealand. Others are the function of voluntary

trade association Meat Industry Association of New Zealand, an industry body analogous to Dairy Companies Association of New Zealand.

5.4 Wool

Cooperative wool marketing appears to be the exception rather than the norm. According to its website, the British Wool Marketing Board is the only organisation in the world to collect, grade, sell and promote fleece wool.¹⁹ While the British Wool Board operates in a cooperative manner – operating as a non-profit organisation returning to producers the market price of their wool less its own costs – it is a statutory producer board (the only one remaining in Britain).

Table 5.3 – Wool Marketing at a Glance

Share of merchandise exports:	4% ^a	Export share of production:	90% ^a
Share of world trade:			
➤	Fifth largest sheep flock ^a		
➤	Second largest wool producer ^a		
Major Cooperatives:		Major Non-Cooperatives:	
➤	Primary Wool Co-operative	➤	The New Zealand Merino Company
		➤	PGG Wrightson
		➤	Reid Farmers
Market share of major cooperatives:	c7%	Market share of major non-cooperatives:	c93%
Primary Wool Co-operative's approximate 16% share of wool auction sales volumes, times auctions' 43% share of total wool sales.		➤ PGG Wrightson – Merino:	c70%+ ^b
Cooperative market share in other countries:		Notes:	
➤	Australia	n.a.	^a New Zealand Official Yearbook 2004.
➤	Canada	n.a.	^b PGG Wrightson was formed by the September 2005 merger of Wrightson and Pyne Gould Guinness.
➤	Denmark	n.a.	Figure from Commerce Commission (2001).
➤	EU mean	n.a.	^c Statutory British Wool Marketing Board. 2000/01.
➤	Ireland	n.a.	Plunkett Foundation.
➤	Norway	n.a.	
➤	United Kingdom	100% ^c	^d Cooperatives accounted for 30% of all wool marketed in 1975/76 (USDA (1979)). In 2002 only US\$7.8 million of wool and mohair was cooperatively marketed (www.rurdev.usda.gov).
➤	United States	n.a. ^d	

Following longstanding dissatisfaction with returns on industry levies, New Zealand producers in 2002 voted (with 96.9% of votes in favour) to disestablish their statutory wool marketing organisation, Wool New Zealand. This move mirrored that of Australian wool producers, who in 2000 elected to trim the marketing functions of the Australian Wool Research and Promotion

¹⁹ Although the National Cooperative Council for Agriculture and Horticulture reports that 75% of Dutch wool marketed in 2002 was done so via cooperatives (www.cooperatie.nl).

Organisation. In both cases “industry good” activities such as research and development have been set up as grower-controlled private companies, but wool marketing has been left to private – generally IOF – organisations. The New Zealand Merino Company is one such marketing organisation. Handling the majority of the Merino clip it is owned 65% by Merino producers and 35% by listed IOF PGG Wrightson. It has developed direct linkages with customers using producer contracts requiring specific quantities of wool of certain specifications for particular manufacturers. Industry good research and development in New Zealand is now conducted via Wool Equities Limited, an IOF initially owned by non-Merino sheep farmers and listed on the NZX alternative Exchange, NZAX.

The nature of wool, and its processing and marketing, differs markedly from that of milk. The product is non-perishable, affording opportunity for it to be stored and marketed over time. It can be easily transported, diminishing any regional market power enjoyed by local processors. The product is inherently heterogeneous – ranging from “strong wools” (74% of production, used in carpets) through to fine wool types (Merino, for fashion garments), with numerous variations in key characteristics. These differences reduce the commonality of producer interests that lowers cooperative ownership costs for producers of more homogeneous products such as milk.

The main methods used to market wool reflect these features. Historically most wool has simply been sold at auction, representing one extreme of the governance spectrum, spot trading. Such trading has been facilitated by the use of independent testing to objectively classify wool clip characteristics, such as by New Zealand Wool Testing Authority Limited. Also, around 80% of all wool is exported in a relatively unrefined state (i.e. greasy, scoured or slipe form), with major buyers in China, the UK, Australia and India undertaking actual processing. Only 10% of the clip is processed in New Zealand, mostly for carpets and carpet yarns. Hence wool sellers have traditionally faced little buyer market power to spur the development of cooperative processing or marketing, thus offering little gain for the costs of ownership that such a development would entail.

Increasingly wool sellers are opting for direct sales to private buyers and end customers, offering greater market feedback regarding buyer specifications than do auctions, and assisting relationship-specific investments. Wool brokers are also commonly used, selling wool on a commission basis rather than purchasing it on their own account, thus sharing producers’ interest in maximising sales returns. Hence auctions now account for 43% of sales, with private sales to merchants accounting for a further 43%. Prior to the Wool Board’s disestablishment, McKinsey & Company (2000) record 11 registered wool brokers (six of them accounting for 90% of the wool handled), 139 registered private wool buyers (more than half of private sales being accounted for by the largest six), and 100 registered wool exporters (most owned by overseas processors, the largest 10 handling 75% of production).

By way of example, PGG Wrightson is the principal South Island wool auction centre and has the largest auction market share, followed by Primary Wool Co-operative. Listed IOF Allied Farmers – which began as a Taranaki farm supplies and marketing cooperative in 1913, but diversified and grew by acquisition, with conversion to an IOF in 1997 – offers wool producers a range of marketing options from auctions through to tenders, facilitated direct contracting with buyers, and forward contracts. Listed IOF Reid Farmers, and farm supplies cooperative CRT Society Limited, also offer wool trading services.

Thus, the heterogeneity and low-cost storability of wool, and lack of market power in its processing and end-use, appear to preclude or negate the need for cooperative processing, marketing and distribution. Spot sales – or increasingly market contracting – appear to provide sufficient coordination between buyers and sellers without the need for a “single seller”, or at least are not so inadequate that the costs of cooperative ownership are warranted. Where growers have sufficient commonality of interest – such as Merino growers in the development of Merino-based products and markets – they are able to form niche organisations through which to collectively pursue those interests. Interestingly this does not appear to require the establishment of cooperatives, rather being adequately achieved via grower-controlled IOFs. Should this solution not prove successful then cooperative development remains an option, but on the strength of present evidence this seems unlikely.

As for the meat industry, the statutory body Meat & Wool New Zealand remains responsible for industry activities such as maintaining and extending trade access for New Zealand wool, and providing wool-related technical advice. The Federation of New Zealand Wool Merchants, and New Zealand Council of Wool Exporters, are just two of a number of industry associations formed to cooperate on the advancement of industry interests.

5.5 Fishing and Aquaculture

It is difficult to identify any strict cooperatives in the New Zealand fishing sector. All major organisations involved in farming/catching fish, and in processing and marketing, tend to be private IOFs, with only Sanford being a listed IOF. A number of fishing organisations are active in the promotion and/or market development of particular fish species, although it is not clear that they do this on a cooperative basis. These organisations include Hoki Fishery Management Company, Eel Enhancement Company Ltd, New Zealand Abalone Farmers Association, New Zealand Marine Farming Association, New Zealand Mussel Industry Council and Queen Scallop Fishery.

A plethora of other industry organisations more clearly operate on a cooperative basis, having features such as one-member-one-vote, and levies for services provided related to members’

production level or holdings of individual transferable quota (ITQ). Examples include New Zealand Salmon Farmers Association, and Paua Industry Council. Many of these are umbrella bodies for organisations active in a particular fishery, or even specific fisheries management areas (FMAs) within a species. Most of these “near cooperatives” are involved mainly in the activities of representing industry members (e.g. managing their interface with government agencies such as Ministry of Fisheries), protecting and enhancing their fishing property rights (i.e. ITQ) – such as through the development of fisheries management plans, contestable stock assessment research, and other activities such as training.

Table 5.4 – Fishing and Aquaculture Production, Processing and Marketing at a Glance

Share of merchandise exports:	Fifth largest ^a	Export share of production:	90% ^a
Share of world trade:	n.a.		
Major Cooperatives:		Major Non-Cooperatives:	
➤ See text		➤ Aotearoa Fisheries (owns 50% of Sealord, all of Moana Pacific Fisheries, and others)	
		➤ Talley's (also owns Amaltal)	
		➤ Sanford (recently acquired many of Suminovich's Fisheries' assets)	
		➤ Vela Fishing	
Market share of major cooperatives:	n.a.	Market share of major non-cooperatives:	n.a.
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a www.marketnewzealand.com.	
➤ Canada	n.a. ^b	^b McCall (2002) reports 51 fishery cooperatives with annual turnover of C\$138 million and assets of C\$64 million.	
➤ Denmark	n.a.		
➤ EU mean	n.a.		
➤ Ireland	n.a.	^c Fishermens' cooperative Norges Rafisklag is one of six fishing organisations with a legal right to the first-hand sale of fish caught in Norway's fishing zones.	
➤ Norway	n.a. ^c		
➤ United Kingdom	n.a.		
➤ United States	9% ^d	See Kalsaas (2003).	
		^d USDA (1985). Marketing share of US fish landings in 1980.	

The development of cooperative fisheries is argued to be an example of fishers coordinating in the face of insecure fishing rights to avoid over-exploitation of otherwise “commons” fisheries (e.g. see Ostrom (1990)). In New Zealand this is resolved via the quota management system (QMS), which creates secure – but proportional, not absolute – rights to catch species in given FMAs. Where property rights uncertainty remains in the QMS, this is to do with the total allowable catch set by reference to periodic stock assessments and estimates of sustainable yield, and competition between commercial fishers (those with ITQ) and recreational fishers whose catch limits continue to be determined by regulation. Activities to protect and enhance fishing property rights, such as through cooperative fisheries management, remain as areas for possible cooperation by industry members.

As well as predominantly private IOF fishing organisations, collectively-owned (e.g. tribal) Maori IOF fishing organisations are prominent in the sector. The most notable example is Aotearoa Fisheries Limited (AFL), which is or will soon be owned by Maori tribes (iwi), either directly via non-voting investor shares, or indirectly via the successor to the Treaty of Waitangi Fisheries Commission, Te Ohu Kai Moana, which owns all of AFL's voting shares, and 20% of its investor shares, on behalf of iwi. AFL owns half of New Zealand's largest integrated fishing company, Sealord, with the other half owned by Nippon Suisan Kaisha. It also owns half of Prepared Foods, and all of Moana Pacific Fisheries, Pacific Marine Farms and Chatham Processing. Other prominent Maori tribal fishers include Ngai Tahu Seafoods and Raukura Moana Fisheries.

Obvious reasons exist for why New Zealand fisheries would not adopt widespread use of cooperatives. For starters, fish catching is dominated by large commercial fishing fleets integrated with processing and marketing activities across diverse species. While there are many small independent fishers, they do not represent the dominant mode of primary production in the industry – unlike family-owned farms in the dairy, meat and wool sectors. This backward integration by processors/marketers into fish farming/catching (rather than forward integration by fishers into processing/marketing) suggests that market power in the industry resides not in large processors/marketers exhibiting economies of scale, but rather in the scarce property rights created under the QMS to avoid over-exploitation of the fisheries, in access to coastal space for marine farming (regulated under the Resource Management Act), and in access to technologies for successfully farming key aquaculture species. That backward integration – rather than forward – is the more sensible integration strategy in fishing is supported by the fact that many smaller iwi with fish quota entitlements but no established catching, processing and marketing infrastructure annually lease their entitlements to integrated operators (i.e. spot contracting). Also, economies of scale in catching and processing – especially in deep-sea species where the two are often combined on factory-ships – provide a counter-balance to any scale economies in land-based processing and marketing, further reducing the market-power imbalance rationale for cooperative organisation.

Apart from limited and possibly only loosely cooperative market development and promotion of selected fish species, cooperatives are therefore not a feature of fishing in New Zealand. Clearly there are numerous industry organisations based around specific fish species and FMAs, indicating that fishers belonging to these organisations have sufficient commonality of interest to overcome the costs of collective action. Indeed, federalised or umbrella bodies such as the New Zealand Seafood Industry Council (SeaFIC) are also common, indicating benefits to cross-species cooperation. However, the scope of such cooperative activities is narrow, with the main activities of fishing – farming/catching, processing and marketing – the preserve mainly of IOFs. A notable feature of fishing IOFs in New Zealand is that all but one of them (Sanford) are private, often family- or iwi-owned, companies. This raises the possibility that such organisations face capital constraints of the same nature as those faced by traditional cooperatives. Just as cooperatives

often adapt to such constraints by growing through the use of mergers, joint ventures and alliances, scarce fishing industry capital is similarly stretched via such liaisons. In some respects Sealord is similar to Fonterra, having used joint ventures and strategic alliances to expand its international supply and marketing resources.

5.6 Horticulture

5.6.1 Kiwifruit

Just as there are organisations in the New Zealand fishing industry that might be classified as “near cooperatives”, the same can be said of dominant kiwifruit organisation ZESPRI. Formally ZESPRI – which markets the bulk of kiwifruit produced in New Zealand – is a grower-controlled IOF. However, it is effectively the “single point of entry” to export markets for most of the kiwifruit crop, pooling export returns and allocating them to growers according to their production. It has also adopted a loyalty payment to producers with characteristics of a cooperative rebate to growers. ZESPRI describes itself as providing cooperative supply and integrated marketing delivery. This industry structure came about as a consequence of industry reforms where the statutory export monopoly of the former Kiwifruit Marketing Board was relinquished, but industry opted for continued centralised (although partly contestable) export marketing through a grower-controlled company.

Table 5.5 – Kiwifruit Post-Harvest Activities and Marketing at a Glance

Share of merchandise exports:	26% of hort. ^a	Export share of production:	95% ^c
Share of world trade:	25% of production ^b	Trays shipped by ZESPRI as ratio of trays submitted.	
Major Cooperatives (see text re ZESPRI):		Major Non-Cooperatives:	
➤ Satara		➤ ZESPRI	
➤ Eastpack		➤ Seeka Kiwifruit Industries	
		➤ G6 Kiwi	
Market share of major cooperatives:	c30%+^d	Market share of major non-cooperatives:	c70%
Satara and Eastpack kiwifruit packing share.		➤ Seeka	27%+ ^e
		➤ G6 Kiwi	17% ^f
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a www.maf.govt.nz.	
➤ Canada	6% ^g	^b New Zealand Official Yearbook 2004.	
➤ Denmark	n.a.	^c ZESPRI 2004/05 annual report.	
➤ EU mean (median)	35% (35%) ^h	^d Personal communication, Satara.	
➤ Ireland	n.a.	^e www.seeka.co.nz.	
➤ Norway	n.a.	^f www.g6kiwi.co.nz.	
➤ United Kingdom	n.a.	^g Fruit and vegetables. 2002. Gurung and McCagg (2005).	
➤ United States	19% ⁱ	^h Fruit and vegetables. Min. 0%, Max. c80%. van Bakkum and van Dijk (1997), in Cook et al. (2004b).	
		ⁱ Fruit and vegetables. 2002. Cook et al. (2004b).	

Beneath ZESPRI, downstream “post-production” functions are carried out by a mixture of cooperatives and IOFs. For example, packhouse and coolstore facilities are provided by NZAX-listed cooperative Satara, unlisted cooperative Eastpack, NZSX-listed IOF Seeka, and private IOF G6 Kiwi. These four account for almost three quarters of kiwifruit handled in New Zealand.

With economies of scale in post-production activities and marketing, crop perishability, and multiple kiwifruit growers, certain conditions exist favouring cooperative organisation in the kiwifruit industry. Indeed, industry’s election of a semi-cooperative, centralised marketing model indicates a measure of homogeneity of interest that could favour further cooperative development in the industry (although this homogeneity of interest may diminish as alternative kiwifruit varieties become more common). However, the existence of significant IOF companies with the ability and incentive to independently market kiwifruit in export markets – should the existing regulations controlling unfettered export marketing be revised – could hinder such further cooperative development. Absent such regulations it is unclear therefore whether greater or lesser cooperative organisation would be the naturally resulting industry structure.

Industry representation is provided through New Zealand Kiwifruit Growers Inc.

5.6.2 Apples

The New Zealand apple industry perhaps represents a more extreme example of industry fragmentation possible with the abolition of a single seller desk. Apple exporting in New Zealand was deregulated in 2001, following initial industry reform in which the former statutory monopolist exporter, ENZA, had been passed into grower ownership. Corporate entities Guinness Peat Group (GPG) and FR Partners took advantage of ENZA’s ownership rules to take significant stakes in the organisation, thereby securing access to its single-seller status. Conflicts of interest between these parties and among growers resulted, leading to industry opting for the removal of ENZA’s export monopoly. These changes stand in marked contrast to the kiwifruit industry experience, which had been informed by that of the apple industry, where growers effectively voted for a continuation of a substantive export monopoly, but with limits on non-grower participation in that monopoly.

Currently almost 100 exporters handle the New Zealand apple crop. This has resulted in oversupply in the important European market, and returns so poor that many in the industry are contemplating exit. In October 2005 government rebuffed industry pleas for state assistance to remove unwanted apple trees before they become a disease risk. Certainly the international market environment for apple exporting has recently been unfavourable, with increases in competing EU and Chinese production, declining demand, and improved storage technologies reducing the marketing window for New Zealand producers. On top of these adverse market factors industry fractionation and uncoordinated export competition among New Zealand apple

growers has contributed to poor industry returns. Headlines like “Apple Growers ‘Killing’ Each Other,” and “Shaken to the Core,” make the point.²⁰

Table 5.6 – Apple Packing and Marketing at a Glance

Share of merchandise exports:	18% of hort. ^a	Export share of production:	55% ^a
Share of world trade:	5% ^a		
Major Cooperatives:		Major Non-Cooperatives:	
➤ Orchard Crisp (marketing)		➤ Turners & Growers (including ENZA brand)	
➤ Grower Trust Group (coolstores and marketing)			
➤ Fruitpackers (HB) Co-Operative (packing)			
Market share of major cooperatives:		Market share of major non-cooperatives:	
➤ Orchard Crisp	3%	➤ Turners & Growers (including ENZA brand)	c33% ^d
➤ Grower Trust Group	4% ^b		
➤ Fruitpackers	0.6% ^c		
Cartons marketed or exported as ratio of 17.8 million cartons of apples exported in 2003 ^e			
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a	www.maf.govt.nz.
➤ Canada	6% ^f	^b	www.grower.co.nz.
➤ Denmark	n.a.	^c	www.frupak.co.nz.
➤ EU mean (median)	35% (35%) ^g	^d	“Shaken to the Core”, <i>Dominion Post</i> , 3 September 2005.
➤ Ireland	n.a.	^e	New Zealand Official Yearbook 2004.
➤ Norway	n.a.	^f	Fruit and vegetables. 2002. Gurung and McCagg (2005).
➤ United Kingdom	74% ^h	^g	Fruit and vegetables. Min. 0%, Max. c80%. van Bekkum and van Dijk (1997), in Cook et al. (2004b).
➤ United States	19% ⁱ	^h	2000/01. Plunkett Foundation.
		ⁱ	Fruit and vegetables. 2002. Cook et al. (2004b).

It would be unfair, however, to attribute this state entirely to the reform process described above. Conflicts among growers of different apple varieties were commonplace during the period of statutory monopoly exporting, with those growing new and premium varieties having conflicting interests with those continuing with older and less marketable varieties. Such heterogeneity of interest remains, and represents an obstacle to the industry endogenously cooperating to restore some form of export coordination, despite the apparent advantages offered by such coordination. Cooperation also remains important on matters such as market access, for example in overcoming biosecurity fears about New Zealand apples in Australia. Complicating the evolution of the apple industry is the fact that the comparative advantage of apples in their traditionally suitable locations is challenged by the increasing profitability of grape production.

²⁰ *Dominion Post*, 5 August 2005, and 3 September 2005, respectively.

It is therefore little surprise that cooperatives account for only a negligible share of industry output, with the largest apple marketer being NZSX-listed IOF Turners & Growers. While there are economies of scale in post-harvest handling (e.g. in providing coolstore facilities) and marketing, not to mention possible advantages in “cooperating to compete”, possibly high ownership costs in the face of apple-grower heterogeneity remain. Market power in apple processing does not appear to be a significant issue warranting cooperative organisation, with most apples sold as fresh fruit. Industry moves are afoot, however, to institute a quality-mark for New Zealand apples meeting certain specifications so as to improve the branding of New Zealand apples. This initiative comes from the industry representative, Pipfruit New Zealand Inc, following an industry-wide move away from use of toxic pesticides in favour of natural pest control. Such industry-wide endeavours indicate there are still areas of sufficient interest to all New Zealand apple growers that cooperative activity can be warranted. Spawned by industry crisis it is possible that greater cooperative organisation – among growers of specific apple varieties at least – will arise to better coordinate export activities.

5.7 Forestry

Table 5.7 – Forestry Production, Processing and Marketing at a Glance

Share of merchandise exports:	Third of total ^a	Export share of production:	72% ^a
Share of world trade:	1% of production ^a	Raw and processed roundwood equivalent as ratio of harvested log volume	
Major Cooperatives:		Major Non-Cooperatives:	
➤ Nil		➤ Carter Holt Harvey	
		➤ Tenon	
		➤ Harvard University Endowment Fund	
		➤ RREEF Infrastructure/Rayonier consortium	
		➤ Norse Skog Tasman	
		➤ Pan Pacific Forest Industries	
		➤ Winstone Pulp International	
Market share of major cooperatives:	n.a.	Market share of major non-cooperatives:	100%
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a www.maf.govt.nz.	
➤ Canada	n.a.	^b Tomte (2003).	
➤ Denmark	n.a.		
➤ EU mean (median)	n.a.		
➤ Ireland	n.a.		
➤ Norway	80% ^b		
➤ United Kingdom	n.a.		
➤ United States	n.a.		

Like fishing, forestry is another sector in which backward integration by processors and marketers has been the imperative instead of forward integration by producers. Large scale economies exist in wood processing, and pulp and paper production, but these do not appear to provide an

incentive for cooperative organisation by forest growers. In part this has been because of significant state involvement in the forest growing and processing sector, resulting in a concentration of wood supply, as well as the adequacy of long-term contracting for securing access to supplies needed for efficient capacity utilisation of processing. This latter feature is emphasised by Boyd et al. (2000) as a suitable alternative to cooperative organisation by forest growers.

In fact recent trends suggest that backward vertical integration via processor ownership of wood supplies is becoming less common in both New Zealand and internationally. Integrated listed IOF forester and wood processor/pulp and paper manufacturer Carter Holt Harvey is New Zealand's largest forest owner with 12% of total exotic forest plantings. It has recently divested non-core forest assets, following listed IOF wood products manufacturer Tenon's exit from forestry ownership. Carter Holt Harvey's parent company, US IOF International Paper is itself divesting potentially all of its 2.5 million hectares of US forest land.²¹ Forest ownership is increasingly dominated by foreign timber management organisations (TIMOS) such as Harvard University's Endowment Fund, which offer more tax-efficient forestry ownership than can New Zealand organisations. Numerous private forest owners also exist, including iwi organisations, but they account for a relatively insignificant share of total commercial forest plantings. With four pulp and paper companies, eight panelboard companies, around 362 sawmillers and 50 re-manufacturers,²² even smaller forest growers enjoy local competition for their harvest, diminishing concerns about downstream market power exploitation. In fact, many of them opt for the other main marketing channel for New Zealand commercial forests, namely exporting unprocessed logs, mainly to processors in Asia. Thus foreign and local buyers compete for supplies of New Zealand forests.

Additionally, forest growers enjoy other advantages that set them apart from producers such as dairy farmers for whom cooperative organisation more naturally arises. Harvested logs are not highly perishable like milk, and can be transported internationally (which broadens their market and enhances competition for their harvest). Moreover, foresters have considerable discretion over exactly when to harvest, with optimal harvest usually falling within a window of some years. This provides forest growers with considerable latitude to time harvest to maximise returns, and enables them to contract for sale prior to harvest. Thus the normal market drivers for cooperative organisation are not present for forest growers.

Add to this the fact that forest growers in New Zealand vary markedly in terms of scale, location, forest maturity (and hence expected harvest date), extent of downstream processing involvement and/or other supply commitments. For many foresters harvest is a once-in-a-life-time event and forest management is a part-time activity, so repeated interactions to foster supply chain coordination are unwarranted and unnecessary. The heterogeneity of interest this creates means the costs of cooperative ownership by forest growers of downstream activities will be prohibitive.

²¹ "Money Really Does Grow on Trees", *Dominion Post*, 28 July 2005.
²² Figures from www.maf.govt.nz.

In part this is reflected by the multiplicity of industry organisations representing different types of forestry interests – from those representing major corporates, to those representing commercial forest owners, small tree growers (e.g. farm foresters), contractors and merchants. In late 2005 the formation of an umbrella industry organisation (“Newco”) was announced, intended to represent these various bodies on shared industry issues such as securing market access and interfacing with regulatory agencies. At best such organisations are only “near cooperatives”, however, and are not involved in the main sector activities of growing, harvesting, processing or marketing. There is potentially some rationale for cooperative forestry supplies, maintenance and (possibly) harvesting – since collectively foresters require such activities on an ongoing basis – but once again the heterogeneity of forest grower types, as well as their geographical dispersion, probably means that such activities being organised cooperatively would be unviable. Cooperative forestry research such as that between Scion (formerly Forest Research Institute) and industry is perhaps the rare exception to this general rule.

5.8 Rural Supplies

Table 5.8 – Rural Services at a Glance

Share of merchandise exports:	n.a.	Export share of production:	n.a.
Share of world trade:	n.a.		
Major Cooperatives:		Major Non-Cooperatives:	
➤ Combined Rural Traders (CRT)		➤ PGG Wrightson ^a	
➤ Farmlands Trading Society			
➤ Ashburton Trading Society			
Market share of major cooperatives:		Market share of major non-cooperatives:	30%
➤ CRT	35%	Based, respectively, on actual, and estimated, rural	
➤ Farmlands Trading	25%	services share of 2004 total operating revenue for	
➤ Ashburton Trading	10%	Wrightson and Pyne Gould Guinness.	
Based on operating revenue.			
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a Listed IOF formed by the September 2005 merger	
➤ Canada	6%/13%/23% ^b	of Pyne Gould Guinness and Wrightson, the latter of	
➤ Denmark	57% ^c	which acquired Williams & Kettle in March 2005.	
➤ EU mean (median)	41% (50%) ^d	PGG merged with Reid Farmers in 2001.	
➤ Ireland	n.a.	^b Seeds/feed/fertiliser and chemicals. 2002. Gurung	
➤ Norway	n.a.	and McCagg (2005).	
➤ United Kingdom	18%/28%/29% ^e	^c Farm supply excluding fuels. Hobbs (2001).	
➤ United States	29% ^f	^d Farm inputs. Min. 0%, Max. 85%. van Bekkum and	
		van Dijk (1997), in Cook et al. (2004b).	
		^e Pesticides/fertiliser and lime/seeds. 2000/01.	
		Plunkett Foundation.	
		^f Farm inputs. 2002. Cook et al. (2004b).	

Rural supplies trading is dominated by the three major cooperatives, despite PGG Wrightson having a larger presence in the rural sector, given its other activities including livestock and wool trading, grain and seed supply, financial services, real estate, and irrigation. Each cooperative has a relatively defined geographical presence, with CRT dominant in Southland, Ashburton Trading Society operating throughout the South Island, and Famlands Trading Society in the North Island. Pyne Gould Guinness and Wrightson, through their September 2005 merger, have a nationwide presence.

The rationale for cooperative rural supplies businesses traditionally centred on ensuring farmers had access to a range and quality of supplies which IOF providers might find unprofitable to supply on an ongoing basis, or to enable farmers to share any profits from rural supply trading instead of passing them on to third party IOF investors. In each case cooperative ownership was fostered by the relatively homogeneous and stable farmer base, each of which reduces the costs of ownership.

It is unclear why New Zealand rural supply businesses should enjoy a higher market share than other countries, with only heavily-cooperatised Denmark reaching a market share close to that of cooperatives in New Zealand. It perhaps arises due to the importance of assured agricultural supplies in a small, isolated country. New Zealand rural supply businesses are less active than their overseas counterparts in supplying animal feed (given New Zealand's greater reliance on pastoral farming) and farm fuels.

5.9 Fertiliser Production/Importation

Cooperatives dominate fertiliser production in New Zealand, more so than proxy market shares for other countries would suggest. Historical reasons for cooperative ownership of fertiliser production included farmers' concern over fertiliser quality, but modern labelling systems and requirements have diminished the importance of this rationale. Concerns over regional market power enjoyed by cooperative suppliers are potentially an ongoing reason for cooperative organisation, with transportation cost barriers possibly restricting competitive fertiliser supply in all regions. Fertilisers used in New Zealand are largely undifferentiated, with superphosphate (combining phosphorus, calcium and sulphur) being the dominant product, and other compounds accounting for only 28% of sales. This product feature enhances the homogeneity of farmer-owner interests, reducing the costs of cooperative ownership relative to IOF ownership. These factors perhaps explain this ongoing dominance of New Zealand's two main cooperative fertiliser producers.

Ravensdown has diversified into the retail sale of chemicals, thereby competing in this area with rural supply firms.

Table 5.9 – Fertiliser Production/Importation at a Glance

Share of merchandise exports:	n.a.	Export share of production:	n.a.
Share of world trade:	n.a.		
Major Cooperatives:		Major Non-Cooperatives:	
➤ Ravensdown		➤ Summit-Quinphos (40% owned by Ballance,	
➤ Ballance Agri-Nutrients		60% by Sumitomo) ^a	
Market share of major cooperatives:	90%^b	Market share of major non-cooperatives:	7%^a
Share of manufacturing, marketing and distribution.		9% in North Island, 4% in South Island. Importation, marketing and distribution.	
Cooperative market share in other countries:		Notes:	
➤ Australia	n.a.	^a "Ballance to Increase Stake in Summit-Quinphos",	
➤ Canada	23% ^c	www.scoop.co.nz.	
➤ Denmark	57% ^d	^b www.fertresearch.co.nz.	
➤ EU mean (median)	41% (50%) ^e	^c Fertiliser and chemicals. 2002. Gurung and McCagg (2005).	
➤ Ireland	n.a.	^d Farm supply excluding fuels. Hobbs (2001).	
➤ Norway	n.a.	^e Farm inputs. Min. 0%, Max. 85%. van Bakkum and van Dijk (1997), in Cook et al. (2004b).	
➤ United Kingdom	28% ^f	^f Fertiliser and lime supplies. 2000/01. Plunkett Foundation.	
➤ United States	29% ^g	^g Farm inputs. 2002. Cook et al. (2004b).	

5.10 Comparison with Other Sectors

5.10.1 Agricultural Cooperatives Overseas

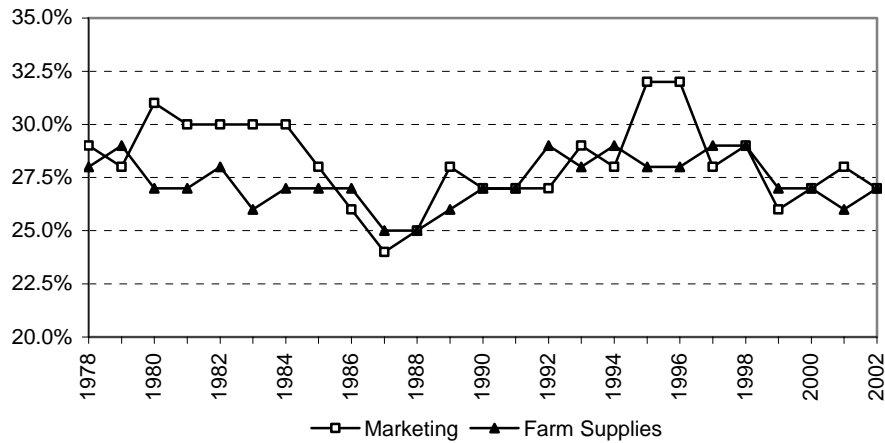
McCall (2002) provides a survey of cooperative activity in a selection of countries and regions. In terms of agricultural cooperatives she records:

- 1) Australia (New South Wales) – cooperative numbers remaining static over the 1990s, with 82 agricultural cooperatives generating turnover of A\$2.6 billion from an asset base of over A\$1 billion, and exports of A\$750 million.
- 2) Canada – 974 agricultural cooperatives, representing 642,000 producers and generating a combined business volume of C\$19.8 billion on assets of C\$6.7 billion.
- 3) UK – 553 agricultural cooperatives with a membership of 271,000 and annual turnover totalling UK£7.4 billion.
- 4) US – 3,346 agricultural cooperatives, owning more than 1,000 brands, and with a net business volume of US\$100 billion in 2000.

Good data is available indicating the trend in overall cooperative market shares in US and Canadian Agriculture. The US trends for agricultural marketing and supply cooperatives are

summarised in Figure 5.1. They indicate a fairly stable market share in the order of 25 – 30% for both agricultural marketing and supplies overall.

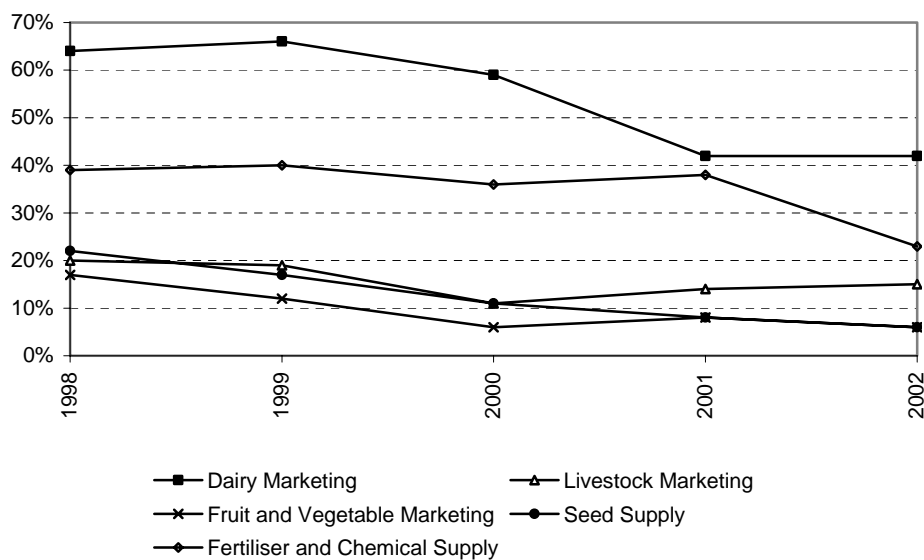
Figure 5.1 – Trends in US Agricultural Cooperative Market Shares 1978 – 2002



Source: www.rurdev.usda.gov.

In Canada a different trend is apparent, with the selected sectors all trending downwards, and much variation evident in overall market share levels. On the strength of these two sets of time series it would appear that considerable differences can arise in both the level and course of agricultural cooperative market shares, depending on the sector and country considered.

Figure 5.2 – Trends in Canadian Agricultural Cooperative Market Shares 1998 – 2002



Source: Gurung and McCagg (2005).

5.10.2 Cooperatives in New Zealand Non-Agricultural Sectors

Agricultural cooperatives are certainly common in New Zealand, and in some sectors they are the dominant form of organisation. Cooperatives are not confined to agriculture, however, arising across a range of sectors. It is worth noting that most business enterprises in New Zealand are small and medium-sized enterprises, 65% of which are operated by owners who provide all the business' labour without drawing a wage or salary (Ministry of Economic Development (2005)). Such enterprises can therefore be classed as a form of worker cooperative.

To illustrate the range of organisations classifying themselves as cooperatives in New Zealand, Table 5.1 summarises the scale of cooperatives by economic sector using membership data supplied by the New Zealand Co-operatives Association (NZCA). This data is not exhaustive, in that not all cooperatives belong to the NZCA. It does, however, provide a useful snapshot of the sectors in which cooperatives have a sizeable presence. While agricultural cooperatives tend to be the larger of the NZCA's members, grocery wholesalers and financial services also have a notable cooperative presence.

Table 5.1 – Turnover/Revenue and Assets of NZCA Members by Sector

Sector	Turnover/Revenue (\$m)				Assets (\$m)			
	2001	2002	2003	2004	2001	2002	2003	2004
Dairy	14,421	14,349	12,882	12,321	12,896	12,178	11,115	11,520
Wholesale Grocery	4,839	5,418	5,834	6,170	1,254	1,381	1,522	1,579
Meat Processing	2,306	2,278	2,521	3,317	902	892	1,164	1,060
Fertiliser	793	940	882	862	440	669	626	668
Trading Society	549	587	758	741	101	94	96	139
Trade Wholesaler	247	284	336	373	69	87	90	100
Pharmacy Wholesaler	76	138	152	160	12	23	24	26
Insurance Finance	119	120	126	153	282	270	257	247
Fresh Produce	78	84	89	99	36	44	44	64
Trade Wholesale Buyer	79	85	82	84	11	12	11	9
Motor Industry Finance	72	71	74	79	443	460	519	553
Packhouse/Marketing	43	51	57	61	44	51	50	52
Financial Services	46	45	50	53	559	606	662	759
Wool Marketing	14	26	33	33	3	6	7	7
Horticulture	23	23	26	27	15	21	23	23
Electricity Lines	25	21	21	25	78	95	102	115
Vehicle Testing	9	11	11	11	6	5	5	4
Vehicle Trades	9	11	11	11	6	5	5	4
Grain	1	8	10	9	4	6	5	6
Produce Wholesaler	7	6	6	8	5	3	5	6
Transport	-	-	7	7	-	-	6	5
Export Marketing	-	-	-	3	-	-	-	1
Irrigation	0	0	0	1	26	26	26	26
Community	0	0	-	-	0	-	-	-

Source: Data supplied by, and used with permission of, New Zealand Co-operatives Association.

Of note is the fact that many electricity lines companies in New Zealand are organised as functional cooperatives, where they are formally set up as IOFs owned by electricity consumer trusts. In this case lines company profits are rebated to customers, either by trust payouts of dividends they receive from their lines company, or through customer discounts. They thus have the characteristics of consumer cooperatives, although only imperfectly where trusts have customers (e.g. of network assets acquired after trust formation) who do not share in payouts or rebates. Evans and Meade (2005) report that 19 out of New Zealand's 28 electricity lines companies – including the largest network company, Vector – are organised in this fashion. One further lines company, Electricity Ashburton, is formally organised as a cooperative. Similar cooperative ownership, particularly of rural lines networks, is found overseas. Hansmann (1996) notes that while IOF utilities dominate electricity supply in the US, rural customer electricity cooperatives formed since the 1940s number almost 1,000, appear in 46 of 50 states, own almost 45% of all lines, cover 67% of the nation's land area, and supply around 10% of the population. Smaller electricity cooperatives in turn band together to own upstream generation and transmission cooperatives (Hansmann (1996), Burr (2004)).

5.11 Summary of New Zealand Agricultural Cooperative Survey

Of the New Zealand agricultural sectors surveyed, the following conclusions emerge regarding the role and significance of cooperatives in those sectors:

- 1) Cooperatives have been a feature of New Zealand agricultural organisation for much of its history, both before, during and after the dominance of statutory producer boards;
- 2) *Dairy processing* – cooperatives account for essentially all milk processing in New Zealand, much in line with dairy sectors overseas. IOFs are also involved in further downstream processing, either alone or in association with cooperatives.
- 3) *Meat processing and marketing* – cooperatives dominate the sector, at least for high-volume traditional products. In part this may reflect policy and support measures adopted for cooperatives in the industry restructuring of the 1980s. IOF processors also have a continuing presence, and are more commonly found in smaller, niche operations. Other than Denmark and Norway, most other countries surveyed had lower cooperative market shares in this sector.
- 4) *Wool marketing* – cooperatives play little part in the New Zealand wool sector, consistent with industry organisation in other countries. This is explicable in terms of wool's heterogeneity and storability, both of which diminish the traditional economic rationale for cooperative organisation.

- 5) *Fishing and aquaculture production, processing and marketing* – cooperatives play little role, with the imperative in this sector being backward integration by processors and marketers into catching and farming. Economies of scale in catching, and scarcity of fishing property rights, provide counter-veiling market power to any held by processors and marketers. IOFs therefore dominate the sector, and since most of them are unlisted entities, it can be argued that they face capital constraints analogous to those of traditional cooperatives. Widespread use of joint ventures and strategic alliances indicate that cooperative-like strategies are used to relieve these constraints. Cooperative-like organisations arise in the sector for a narrow range of common interest activities, such as the maintenance and enhancement of fishing property rights.
- 6) *Kiwifruit marketing and post-harvest operations* – formally kiwifruit marketing is via a dominant grower-controlled IOF, but in its nature ZESPRI is arguably a functional cooperative. This is in contrast to fruit and vegetable marketing in selected overseas countries, in which cooperative dominance is unusual. Kiwifruit homogeneity and shared issues regarding export marketing possibly enhance the economics of cooperative-like organisation in New Zealand. Cooperatives are present to a much lesser extent in post-harvest operations like packhouse and coolstore provision.
- 7) *Apple marketing* – cooperatives are all-but absent in the sector, which indicates a cooperative market share lower than that suggested by our survey of fruit and vegetable marketing overseas. This may be a reflection of the difficulties experienced by the sector following repeated restructuring and ultimate removal of its single seller desk, but also reflects conflicts of interest due to grower heterogeneity evident long before such restructuring. Cooperative organisation may be feasible within certain apple varieties, but the costs of ownership from a single industry cooperative are likely to be prohibitive. Specific cooperative activities, such as branding initiatives by Pipfruit New Zealand, indicate that the cooperative form may be feasible for at least some grower activities.
- 8) *Forestry production, processing and marketing* – like fishing and aquaculture, backward integration by processors and marketers into growing has historically been the imperative in this sector, and hence cooperatives play essentially no role. Increasingly even this backward integration is being eschewed in favour of contractual wood supply by non-integrated foresters. Given the adequacy of contracting for growers, as well as considerable heterogeneity between forestry operators – ranging from small independent growers through to large integrated processors – the ownership costs of large-scale forestry cooperatives would likely be high. Scope exists for cooperative organisation within certain forestry activities, but geographical dispersion may be a limiting factor in its development.

- 9) *Rural supplies* – cooperatives play a larger role in this sector than for other countries, perhaps due to the importance of security of rural supplies in a small, isolated country.
- 10) *Fertiliser production/importation* – more so than for rural supplies, cooperatives are dominant in this sector, and more so than for overseas industries. The homogeneity of most fertiliser used in New Zealand, and possible regional market power due to transport costs, may explain cooperative dominance in this sector.
- 11) Agricultural cooperatives are common overseas, and enjoy differing levels of dominance and trends in market share depending on the country and sector considered.
- 12) Cooperatives are found in many non-agricultural sectors in New Zealand, most notably in the wholesale grocery and wholesale distribution sectors, retailing, and the electricity distribution sector.

5.12 Policy Implications

From our survey of the role and significance of cooperatives in New Zealand agriculture, both relative to non-cooperative organisation in New Zealand and cooperative organisation in comparable overseas agricultural sectors, the following policy implications can be drawn:

- 1) Cooperatives do not systematically arise to a greater degree in New Zealand agriculture than they do overseas, although there is some variation between sectors.
- 2) It is not evident that cooperative dominance of certain New Zealand agricultural sectors necessarily constrains sector performance. Indeed, where it arises it can be suggested to underpin sector performance, for example due to the farmer-to-customer coordination that cooperatives can offer. In other cases a lack of coordination – notably in the apples sector – would be widely acknowledged to hamper sector performance, although cooperative organisation is not necessarily suggested as a response.
- 3) Agricultural cooperatives in New Zealand are adopting many variations on the traditional cooperative form, both to improve capital utilisation as well as to enhance integration through the supply chain. The flexibility afforded to them under New Zealand cooperative legislation – despite the absence of policy preferences – is likely to be important in facilitating such organisational innovations.
- 4) While the conversion of cooperatives to IOFs is not common in New Zealand agriculture, it does arise, indicating that the cooperative model is not entrenched.²³

²³ NZCA (personal communication) offers Veleco, ITM, Orb Communications, and Composite Retail Society, as examples of restructuring organisations that have adopted the cooperative model.