IN THIS ISSUE

Primary Industry Management

VOL 16 NO 4 DECEMBER 2012 ISSN 1174-524X

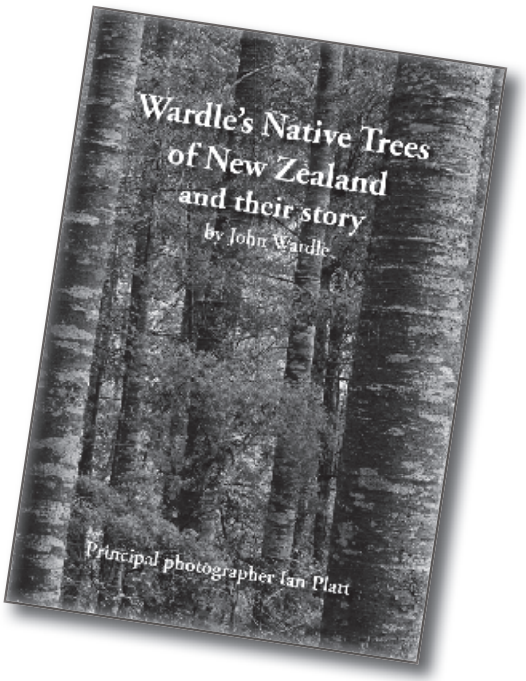
THE OFFICIAL JOURNAL OF THE NEW ZEALAND INSTITUTE OF PRIMARY INDUSTRY MANAGEMENT INCORPORATED

NZ Institute of PRIMARY INDUSTRY MANAGEMENT

WARDLE'S NATIVE TREES OF NEW ZEALAND
and their story

Written by John Wardle
Photographs by Ian Platt

Over 400 pages, A4
300 full colour photographs, hardback $95



Wardle's Native Trees of New Zealand and their story is a book that anyone interested in trees will want to buy and read. There is no other similar book available on New Zealand native trees.

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The author of *Wardle's Native Trees of New Zealand and their story* is John Wardle who has spent many years working on the text. The majority of the photographs have been taken by Ian Platt who spent almost as many years travelling throughout New Zealand to find just the right specimens at the right time for the photographs.

The NZ Farm Forestry Association and the Indigenous Forest Section of the NZFFA are the main funders of this book. Sales of the book will be used to raise the profile of native trees and of the NZFFA.

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Primary Industry Management is the quarterly journal of the New Zealand Institute of Primary Industry Management Incorporated. It is supplied free of charge to more than 700 NZIPIM members involved in rural consultancy, education, science, technology and agri-business. It is also available on subscription to the wider rural community with an interest in technical, management and rural business information.

Subscription

$75+GST (New Zealand), $100 (Australia), $120 (other countries). Subscription enquiries should be directed to the NZ Institute of Primary Industry Management.

Primary Industry Management

Volume 16, Number 4 December 2012
ISSN 1174-524X

Contents

Julian Bateson

Responsibility

It is becoming an interesting if confusing battle over the implementation of the One Plan to control nutrient levels on farm land and subsequently in streams and rivers. No doubt we will watch the current Environment Court appeal and subsequent results with interest.

In the June 2013 issue of *Primary Industry Management* we intend to look more closely at how farming can manage in the future with reduced nutrient levels. There is no doubt that local authorities will expect farmers throughout New Zealand to work with less nitrogen leaching. It is the responsible way to farm.

Responsibility can be apparent in a variety of actions. The exercise earlier this year by MPI to test reaction to a simulated a foot-and-mouth disease outbreak was a responsible project. It was a government to plan to expect the worst and see how to manage the problems which would be created. We have seen how devastating Psa disease has been for kiwifruit, and the article on page 10 of this issue is a timely reminder of how the problems of a serious disease affect a major export crop. It seems that virtually none of the kiwifruit growing regions are to be spared.

The government has to show continuing responsibility by keeping our borders safe and preventing any more pest and disease problems for primary industry. This is especially important now, as the government continues to make primary industry more responsible for the costs of the control of any disease outbreaks.

The article by the Banking Ombudsman outlines other types of responsibility, such as when borrowing money for new ventures. The banks should be diligent in lending, but the responsibility for making the project work and return an income has to be with the borrower. The new Reserve Bank governor Graeme Wheeler has recently said that agricultural debt is still too high. It has grown over four per cent during the year and he suggests that dairying is more vulnerable now than in 2007/8 with the debt 'more tightly held among the most indebted farmers'. It may be that everyone involved can work their way out of this debt, but responsible borrowing is vital at the beginning of the process.

We have also recently seen what happens, yet again, when an investment company is not responsible with the money it manages. This most recent collapse is of a company in Wellington, with almost half a billion dollars still missing. It appears that a number of retired farmers, among others, have lost their retirement savings. Responsibility, or lack of it, is at the heart of this problem.

Should dairy farmers be concerned about feeding palm kernel expeller meal as a supplement? The article by Wybe Kuperus suggests that it is an important supplement to use. However, questions have been asked about the sustainability of palm oil plantations where the palm kernel is essentially a waste product. Apparently these palm plantations have very low profitability yet have been specially planted on ground cleared from native rain forest. In the next issue of *Primary Industry Management* we will briefly look at the problem and the resulting moral responsibility which some dairy farmers might have to face about the use of palm kernel extract

The NZIPIM is taking on the responsibility of looking at membership and registration. The article by Kevin Wilson asks about the relevance of registration, or a similar concept. If you make standards for registration too easy there is no respect, make them too hard and people will not bother to reach them. The NZIPIM need to answer some questions and raise the bar, so that professional farm advisers can be proud of membership and registration. They will no doubt be more respected as responsible professionals. It is the way forward.

Phil Journeaux

The relentless treadmill
The need for productivity gains

The Oxford dictionary defines productivity as 'the effectiveness of productive effort, especially in industry, as measured in terms of the rate of output per unit of input'. The reason this is important is that productivity gains result in a lift in real income both at the individual or company level and at a national level. The emphasis here is on the word real – as someone undoubtedly famous once said 'productivity gain is the enemy of inflation'.

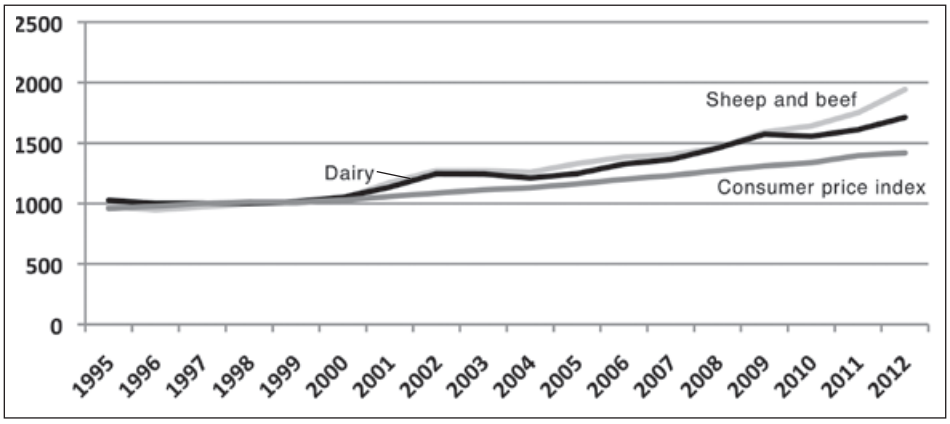
The productivity we are talking about is an economic term – total factor productivity, which encompasses efficiencies around physical inputs and outputs along with efficiency in capital use. The trend shown by this index demonstrates the efficiency with which inputs to on-farm production are used relative to outputs, and is independent of prices.

On-farm importance

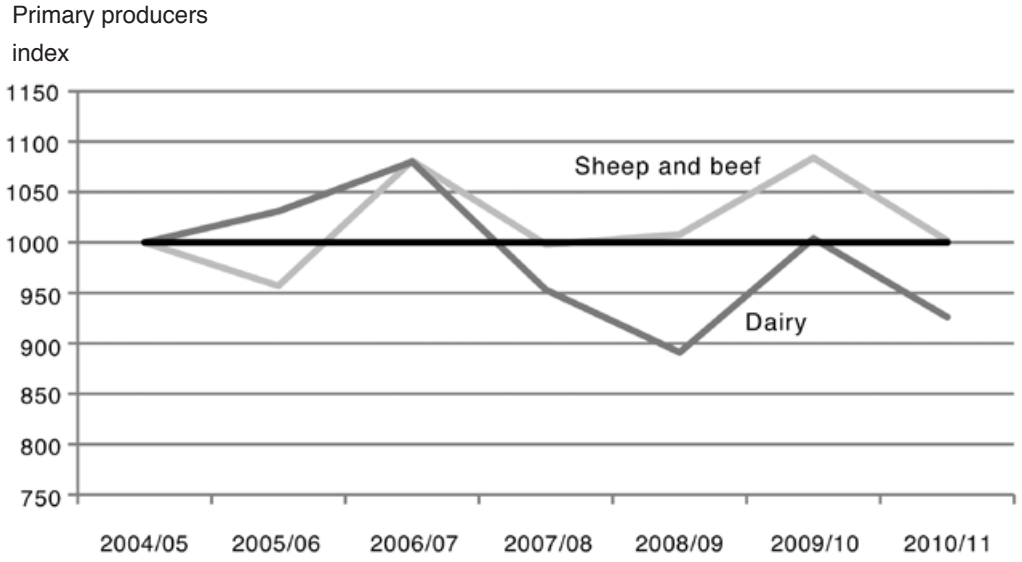
Why is this all important down on the farm? Because our on-farm productivity growth over the last decade or so has tended to be somewhat limited. On-farm inflation has been moving along well ahead of inflation as measured by the consumer price index. The differential between on-farm inflation and productivity gains is why dairy farmers now need six dollar a kilogram pay-outs, why sheep farmers need $150 lambs and beef farmers need schedules over four dollars.

On-farm inflation is measured by the primary producers index (PPI). As can been seen on the graph below, the PPI for both dairy and sheep and beef has been rising more steeply over the last 17 years compared to the consumer price index. Over this period the annual consumer price index movement has been 2.3 per cent, compared to the dairy PPI at 3.1 per cent, with the sheep and beef at 4.2 per cent.

As can be seen from the graph, the PPIs start to diverge more from the consumer price index from 2000 onwards. From there through to 2012, the average



Consumer price index versus primary producers index



On-farm total factor productivity changes on dairy farms and sheep and beef farms

annual movement has been 2.6 per cent for the consumer price index, 4.2 per cent for the dairy PPI, and 5.3 per cent for the sheep and beef PPI.

While the difference in these figures may look small, the power of compounding soon starts to bite. On-farm productivity, meanwhile, has meandered somewhat over the last six years as illustrated in the graph at the top of the page.

This shows that the net gain in total factor productivity on sheep and beef farms over the period was two per cent compared to minus 7.4 per cent for dairy farms. There is a range of reasons for the difference, but a significant one is the capital structures of each. Sheep and beef farms have an average of 80 per cent equity, while dairy farms have an average of 53 per cent.

This affects the weighted cost of capital for both. It reinforces the comments made in an earlier article I wrote for *Primary Industry Management* about the price of land – the more it moves out of line with profitability, the more adverse effect it has on productivity.

What the data shows is that the gains for on-farm productivity have seriously lagged on-farm inflation for at least the last decade, which means that the increase in farm costs have continually eroded farm profitability. The other side of profitability, market returns, is outside the scope of this article. If market returns outpace on-farm inflation then all well and good. They have not, which then compounds the situation.

Productivity and profitability

Productivity is directly linked with profitability, and the data here shows a significant difference between farms. Analysis of the 2011/12 Ministry for Primary Industries dairy farm monitoring data gives a significant profitability distribution, as measured by economic farm surplus per hectare. The data shows that the bottom 10 per cent of farms are 58 per cent of the mean farm, whereas the top 10 per cent farms are 65 per cent higher than the mean farm. In addition, the break even pay-out varies significantly across farms.

Dairy profitability and break even pay-out differences for 2011/12

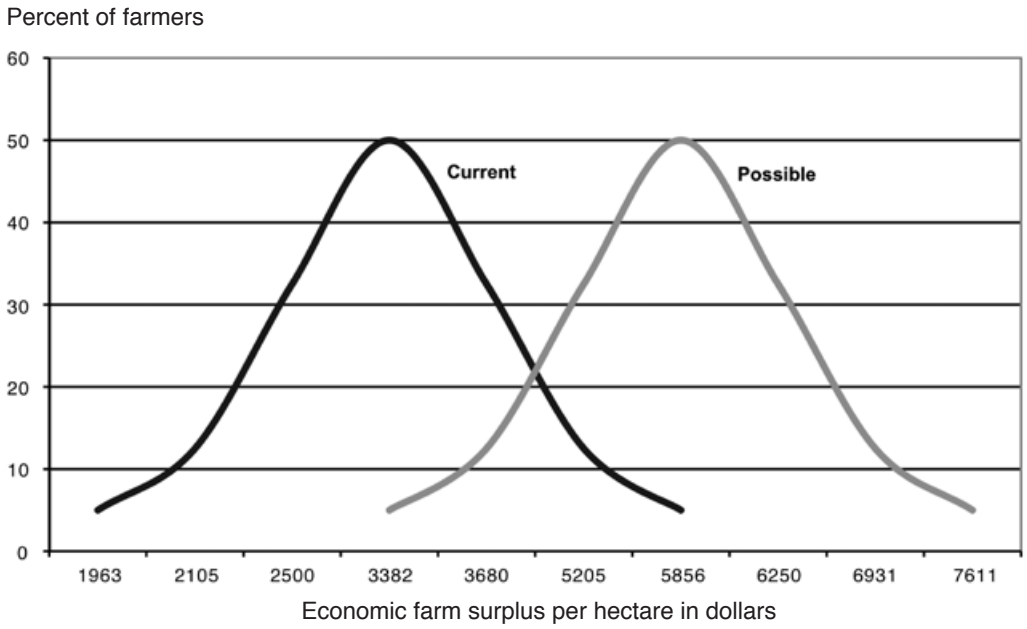
	Mean dollars	Median dollars	Bottom 10 per cent dollars	Top 10 per cent dollars
Farm working expenses	3.86	3.77	4.76	3.21
Debt servicing	1.11	1.11	1.09	1.13
Depreciation	0.33	0.29	0.53	0.20
Drawings	0.55	0.47	0.58	0.25
Total	5.85	5.64	6.96	4.79
Economic farm surplus per hectare	$3,382	$3,138	$1,963	$5,586

Looking at this data over the last three years, as a generalisation the average dairy farm now needs a pay-out of six dollars a kilogram of milk solids to break even. However, what the table illustrates is that in the 2011/12 season the top 10 per cent of farms were 65 per cent more profitable than the average farm. They were also 185 per cent more profitable than the bottom 10 per cent.

In the sheep and beef world it is more extreme. The 2009/10 data shows the top 10 per cent of farms were around twice as profitable as the average, and 32 times more profitable than the bottom 10 per cent. The obvious inference is that the top farms on profitability per hectare are in a much better position to handle on-farm cost inflation in the face of variable pay-outs and schedules.

Moving the curve

It is interesting to speculate the value to the industry if the



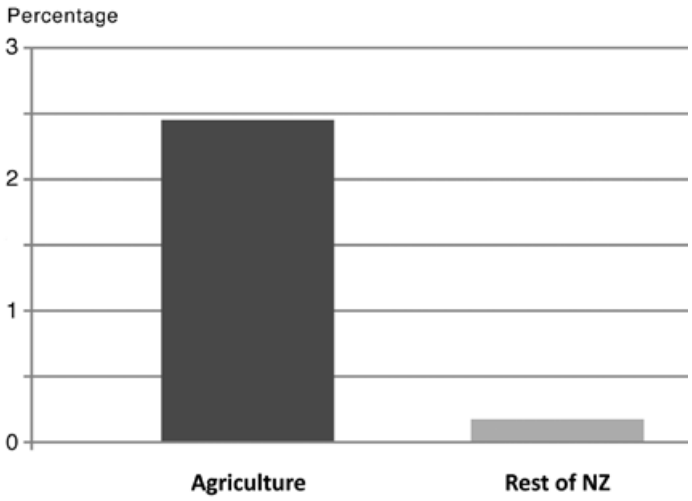
Effect of moving the profitability curve

profitability of the average farm was to be lifted to that of the top farms. For dairying, using 2010/11 data, this equates to $3 billion as illustrated.

Is it possible to move this curve as illustrated? The short answer is yes, but there is no easy way to achieve it, and to do so would take a significant effort and many years. There is a wide range of factors affecting this, not least of which are farmer capability and skills, applied research, along with technology transfer of this research.

Nevertheless, there is a need to improve farm productivity and profitability in the face of ever-increasing inflation, and a combined effort of government and industry is needed to achieve this. Current expenditure on applied research is low, and technology transfer programmes are also limited and not well co-ordinated across sectors.

It is interesting to note that one way farmers have moved to try and solve this cost pressure is to look at economies of scale. Over the last several decades there has been a continuing trend to larger farms.



Total productivity gain 2000 to 2009

At a sector level, productivity gain over the last decade in the agricultural sector covering on-farm servicing and processing has been relatively successful. It has gained 2.5 per cent compared to the rest of the New Zealand economy which only gained 0.2 per cent over the period. The agricultural sector can take a bow on that.

While the comparison makes agriculture look good, the emphasis is on the word relative. The annual average productivity gain of 0.25 per cent can hardly be described as exciting.

Improving productivity

What can farmers do to improve their productivity performance? Again there is no magical answer. Like rust, inflation never sleeps. However there are a number of things to be aware of –

- When buying land, consider the price relative to its profitability
- Keep an iron control on farm working expenses, particularly the big three of labour, feed and fertiliser. Always consider if the marginal revenue from any input is going to be greater than the marginal cost.
- Increasing production while holding down costs will give productivity gain, the trap to be aware of is to avoid production simply for production's sake.

In essence, to stand still, productivity gain needs to match on-farm cost inflation. Achieving this, or bettering it, is a relentless treadmill. However, without it, the farm is moving backwards in real terms.

Phil Journeaux is an agricultural consultant at AgFirst Waikato.

Ruth Underwood

Update on the effects of Psa disease of kiwifruit

In the March 2012 issue of **Primary Industry Management** *three articles discussed the New Zealand kiwifruit industry and the effect of the bacterial vine-killing disease known as Psa. This contribution provides an update until the end of October.*

First to re-cap – what is Psa? It is the acronym given to an isolate of the bacterium *Pseudomonas syringae* pv. *actinidiae*. We have been calling it Psa-V with V for virulent as there was a low-impact isolate also found. However we have recently shortened the acronym to Psa as it is only the virulent strain which is the problem.

It causes a disease of kiwifruit vines that can kill the vine. Importantly, the disease is specific to kiwifruit vines and does not affect human or animal health. Fortunately, it is not known to be carried with the fruit, and market access for New Zealand kiwifruit has not been impaired by its presence in this country.

Incidence increasing

The disease was first identified in New Zealand in November 2010 in an orchard in the heart of the Bay of Plenty growing area of Te Puke. It is spread in wind-borne rain as well as by movement of infected plant parts. The incidence of Psa has continued to increase. The main statistics at the time of writing are shown in the following table, along with the figures published in March. The hectares recorded are the whole orchard, although only part of it may show symptoms of Psa.

	At 26 September 2012	March 2012	Increase
Orchards with Psa	1,579	961	64%
Hectares on orchards with Psa	7,810	5,155	51%
Percentage of hectares on affected orchards	56%	37%	51%

Since March, two new areas have recorded Psa, with a small number of orchards in each of Te Awamutu and Coromandel recently tested positive. Otherwise, spread has been within the existing areas of the Bay of Plenty, including Waihi and Franklin.

There has been a marked increase in the number of affected orchards in spring 2012. This happened in spring 2011 as well. However, 2012 was expected to be better, as many of the Hort 16A gold vines which are particularly susceptible to Psa had been removed, so the inoculum levels should be reduced compared to 2011.

Industry fighting back

The industry has embarked on a recovery strategy to replace the particularly susceptible Hort 16A gold vines with G3 gold vines which are more tolerant of the disease. This was implemented from winter 2012 with significant areas of Hort 16A removed and the stumps re-grafted to G3 gold.

Fortunately, the seedling rootstock most vines are grown on is also relatively tolerant to Psa so the change in varieties can be done via grafting which is much

quicker than replanting. A mature orchard is expected to be back at full production in the third season after grafting.

The G3 variety is in the early stages of commercial production with around a million trays produced in 2012 from vines grafted since 2010 on a few hundred hectares. The area regrafted in 2012 was unprecedented.

Symptoms increase

The rapid recent increase in Psa symptoms has been a blow as some G3 gold orchards are showing significant Psa symptoms. This escalation in symptoms has occurred very recently. Leaving Psa infections unmanaged is not wise, as it spreads rapidly and the neighbouring symptomatic vines are more likely to become infected.

Growers are removing clearly infected parts of vines, protecting the cuts made, and containing the infected material cut out such as by bagging or burying it. Worst affected areas seem to be cold parts of orchards with a high water table.

Growers are also continuing to apply protectant materials to their whole orchards. A regime of applying protectant sprays has been developed. A weather-based risk model available to growers indicates when infections are most likely to occur to help plan orchard management activities for dry periods and protectant sprays ahead of the wet weather.

Stump grafting in progress yet to be taped and sealed

We will not know how successful the strategy to replace Hort 16A with G3 is for some time. The recent Psa symptoms on G3 grafted in the past couple of years are a significant concern. The industry is being active to contain the infections, but is also on tenterhooks about prospects for the new G3 grafts that are just starting to grow for the season.

Hort 16A gold vines showing symptoms of Psa bacterial disease in spring with new season shoots wilting

Variety susceptibility

Hayward, the traditional green kiwifruit variety, is also being affected by Psa. However, it seems to be at the tolerant end of currently available varieties. This spring, Psa symptoms on male vines in Hayward orchards have been particularly concerning. As pollination from these male vines is a main production success factor, Hayward growers are on tenterhooks as well. The industry is gearing up to collect pollen from early male flowers for use on orchards with Psa-affected male vines. Pollen can also be stored for use in future seasons.

Differences in variety susceptibility have emerged, with the common Bruno seedling rootstock, traditional green Hayward, new G14 sweet green and G3 gold relatively more tolerant to Psa than the Hort 16A gold which has been the main gold variety to date. A significant breeding programme was already in place and tolerance to Psa is now an important attribute. New varieties are a longer-term part of the solution to Psa, even with each step of breeding being sped up as much as possible.

Protecting the crop

A large number of products have been tested as controls, progressing from laboratory to greenhouse and field trials if they show good preliminary results. As well as efficacy, the regulations applying to materials need to be considered. Some new materials have been approved for use on a provisional basis over a significantly compressed time frame, which has been very helpful to growers.

Kiwifruit has a significant organic production sector. There are Psa protectants available to organic growers, and although the range is limited it does provide materials to organic growers that have a couple of different modes of action.

Effect on growers

Growers have been under stress for a prolonged period. New orchards have become directly affected by Psa progressively, and all growers are contending with worry about their prospects, even if their orchard is currently not affected by Psa symptoms.

The five stages of grief framework described by Elisabeth Kübler-Ross in relation to bereavement have been used in relation to how people are emotionally affected by Psa. The stages are denial, anger, bargaining, depression and acceptance. New people are affected all the time and there is no tidy progression through these stages.

The personal and business supports described in the article published in March have continued and people are being urged to look out for themselves and one another. Growers have organised informal support groups in addition to the coordinated ones. Not just growers are affected – so are workers, contractors, corporate staff and other local businesses.

Communication

Web-based communication has been very important as an addition to other forms. Meetings have been videoed and are available online, usually the day after. Weekly bulletins are available by email subscription or online.

Most of the information is in the public domain but some information, such as maps which could indicate the disease status of specific orchards, are password protected. A wide range of groups is being kept informed including the

Hort 16A cut-out fire pile in winter 2012

media, bankers, Maori landowners, local government and local community and business groups.

Pan-industry strategies

Helpful pan-industry strategies have been developed. A variation to the income equalisation scheme operated by Inland Revenue has been approved. This may help growers whose financial circumstances changed radically because of Psa after their financial year had ended.

Discussions between grower representatives, accountants closely involved with the industry, and Inland Revenue have also identified problems such as the status of spending to remove diseased vines. This apparently is classified as capital spending and it is intended to change the status, although legislation is required.

The adverse events framework developed by the Ministry for Primary Industries, allowing for income support for severely affected growers, has been extended from the weather-based adverse events to a disease or biosecurity event such as Psa. Support measures have a 12 month duration, so the start date needs to be aligned to the time of greatest need. Few growers expect to be eligible for this support but they are keen that the provision is available to those who are badly affected.

A national pest management strategy is in development for Psa. A recent grower poll was strongly supportive of development of such a strategy. It would introduce some teeth to deal with problems such as movement of plant material between districts and management of untended properties. The districts with no Psa are of benefit to all growers as they are producing a crop which will help to keep markets serviced while affected areas are out of production.

Reports

A report for the Ministry for Primary Industries by the Sapere Research Group found some deficiencies in the biosecurity system which could have provided an entry pathway for Psa. The report also said the kiwifruit industry should have been more outspoken earlier about the risks of Psa entering New Zealand given the industry knowledge of the effects of Psa in Italy.

Another report, prepared for the KiwifruitVine Health organisation by the Agribusiness and Economics Research Unit of Lincoln University, has estimated the cost of Psa to be between $310 and $410 in net present value terms over the coming five years to 2016. This was assuming successful implementation of the recovery strategy of replacing Hort 16A with G3 gold. These figures will increase if G3 performance is significantly impaired or delayed due to the effects of Psa.

A further report for the Ministry for Primary Industries on how Psa may have arrived in New Zealand was inconclusive, as have reports tracing the origin of infections in new districts, despite many factors being considered and investigated. This appears to be because Psa is readily spread and also because we do not know the time lag between Psa arriving at a particular orchard and the appearance of symptoms. Delineating surveys have found the bacteria on asymptomatic leaves. The escalation in symptoms being seen in spring 2012 is likely to be from infections occurring during the last growing season.

Outlook

The 2012 kiwifruit crop was better than had been forecast in the months preceding harvest. Good yields were achieved on the Bay of Plenty Hort 16A gold orchards that made it to the 2012 harvest, and yields in other districts were also good.

Psa symptoms have occurred this spring on the replacement G3 gold variety, to a greater extent than seen in previous seasons. The green Hayward variety is also affected, particularly as the male vines used to pollinate the Hayward variety are showing symptoms of Psa. Growers are actively treating infections and protecting vines with agrichemicals and anxiously watching progress. The G3 variety is more tolerant to Psa bacterial disease and it remains to be seen whether this tolerance is sufficient to establish the variety satisfactorily.

Kiwifruit has had a comprehensive crop protection programme in place, which had successfully reduced applications significantly over 10 or more years, while maintaining crop yields and low incidence of both quarantine pests and residues. The new need to apply Psa protectants to vines has changed this. It has also required capital investment. Having enough spray units available to cover orchards within 10 days was sufficient before Psa, now coverage within two to three days is needed ahead of unfavourable weather.

Considerable activities are being carried out to help contain the effects of Psa. The statistics are still alarming. In particular is the increase in symptomatic orchards this spring, and the level of infection being found on older vines of the more tolerant G3 gold variety being used to replace the particularly susceptible Hort 16A gold variety.

The escalation in statistics does not mean current activities are futile, but more that this is a virulent pathogen well suited to the New Zealand climate. A high level of implementation of the known containment strategies is needed alongside the development of the longer-term strategies such as breeding new varieties with high Psa tolerance.

Ruth Underwood is a Horticultural Consultant at Fruition Horticulture (BOP) Ltd in Tauranga.

Nadine Tunley

Current state of the pipfruit industry in the Nelson region

I have been recently appointed to the role of Chair for Pipfruit NZ, the governing body of the New Zealand Pipfruit Industry. Based in Nelson and involved in a small exporting company, I get to see on a daily basis the challenges the industry faces, and they are significant.

The new Chief Executive Officer, Alan Pollard, at the recent Pipfruit Conference held in Nelson, pointed out a fragmented industry, lacking a common vision or strategy and struggling with poor grower returns. It is perhaps a good summary, but at the same time highlights the opportunity which exists to take the industry in a new direction and a time to introduce a new era of cooperation and shared thinking for a common good.

The Nelson region

The Nelson/Tasman region sits at the top of the South Island by the shores of Tasman Bay and incorporating the towns of Motueka, Richmond and the city of Nelson. The combined districts have a population in excess of 85,000 people, many of them linked to the primary industries of the district. Nelson was originally established in 1841. It is the second oldest settled city in New Zealand and the oldest in the South Island. It was named in honour of Admiral Horatio Nelson who defeated both the French and Spanish fleets at the Battle of Trafalgar in 1805.

Perhaps this has helped instill a fighting spirit into many of the Nelson land-based growers. The popular Abel Tasman and Kahurangi National Parks are also in the region, which has a wonderful natural microclimate conducive to growing a range of horticultural products. Nelson also regularly claims the prize for sunniest spot in New Zealand, with in excess of 2,400 sunshine hours a year.

The Nelson economy is mainly based on four large industries – seafood, horticulture, tourism and forestry. Port Nelson is the largest fishing port in Australasia. There is also a range of growth industries including art and craft, aviation, engineering technology and information technology. The region grows hops, wine grapes, kiwifruit and of course pipfruit – apples and pears.

Apple history and overview

The apple story in New Zealand is reasonably well known. Following World War II, an orderly marketing system was introduced for this country's apples and pears and the New Zealand Apple and Pear Marketing Board was born from this. It transformed into ENZA in the early 1990s and was the sole marketer of New Zealand apples and pears, until deregulation of the industry in 2001. Following deregulation there was a proliferation of exporters from one to nearly 100, virtually overnight.

In the 10 or more years of the post-deregulation period growers have experienced at first hand the rigours of a deregulated industry. It has been a steep learning curve for many, particularly negotiating as a fragmented industry for main services to get fruit to the market. Markets have performed within the full range

Climate in the Nelson region

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average high degrees C	22.4	22.4	20.8	18.1	15.2	12.9	12.4	13.1	14.9	16.8	18.7	20.5	17.4
Average low degrees C	13	12.9	11.4	8.2	4.9	2.4	1.6	3.1	5.4	7.9	9.8	11.8	7.8
Precipitation millimetres	72	57	78	86	77	85	86	90	73	92	82	75	970

from disastrous to wonderful, and exchange rates, an influence of profitability, have settled at record high levels.

Among this, compliance costs and customer expectations have rocketed upwards and the world has sunk into a deep financial crisis. Growers are the original eternal optimists as they have dug in and are doing their best to ride out this almost perfect storm. Nelson growers have been particularly challenged by this situation, with a varietal mix less suited to the emerging markets of Asia.

Climate in the Nelson region

The Nelson region is ideally suited for growing pipfruit. It has cold winters and warm summers. In the autumn months when harvest is at its peak it has settled weather and diurnal temperature changes which help harden and colour the fruit. The region is blessed with high sunshine hours which are critical for the production of high-quality fruit. Mean average temperatures fall within a range of 1.6°C and 22.4°C and annual rainfall of around 970 mm.

What this means is that pipfruit grows very well. However, the region is usually later in harvest than Gisborne and Hawke's Bay, resulting in market opportunities missed in Asia, because unpredictable spring weather generally produces apples with varying degrees of russet on the fruit. While not affecting eating quality in any way, the cosmetic appearance is marginally affected and generally results in lower export packout percentages.

Production data

As a region, Nelson represents just over 30 per cent of New Zealand's pipfruit production with 30 per cent of the country's apple exports and 78 per cent of its pear exports. The major growing region is Hawke's Bay, which produces about 60 per cent. As the figures below show, Nelson is more heavily weighted in the apple varieties Braeburn, Cox Orange and Jazz, and in pears.

The number of growers and packers within the region has declined over the last 10 years in line with an overall industry trend. However, total export production from the region has settled at between 85,000 and 95,000 tonnes over the last five years.

Market destinations

The New Zealand market distribution has traditionally been weighted toward the northern hemisphere. Up to 35 per cent of New Zealand's export apples have headed to Europe in 2011 and around 16 per cent to the United Kingdom and Ireland. However, in 2012 the Asian market has taken over the number one spot in terms of export destination, with approximately 33 per cent of the New Zealand crop headed to Asia. This is the first time that Asia has overtaken Europe as our largest export destination, with continental Europe dropping back to approximately 28 per cent of the export volume. The United Kingdom has remained static at around 16 per cent.

National export production tonnes by region and variety in 2011

Variety	Nelson	Varietal mix within Nelson	Nelson as a percentage of national volume	Hawke's Bay	Otago	Rest of New Zealand	National total	National varietal mix
Braeburn	24,774	26.9%	33.7%	44,571	1,460	2,767	73,572	24.5%
Cox Orange	5,051	5.5%	73.4%	563	1,263		6,877	2.3%
Cripps Pink	4,432	4.8%	35.6%	7,333		668	12,433	4.1%
Fuji	4,287	4.6%	14.9%	22,395	1,268	836	28,786	9.6%
Granny Smith	1,725	1.9%	21.9%	5,345	510	283	7,863	2.6%
Jazz	18,839	20.4%	58.0%	12,617	1,031		32,487	10.8%
Pacific Beauty	40	0.0%	1.5%	2,624		38	2,702	0.9%
Pacific Queen	380	0.4%	4.9%	6,998	325	66	7,769	2.6%
Pacific Rose	288	0.3%	3.2%	7,620	629	525	9,062	3.0%
Royal Gala	26,402	28.6%	24.7%	72,424	3,560	4,665	107,051	35.7%
Other apples	5,996	6.5%	53.1%	2,451	2,715	125	11,287	3.8%
Apple total	92,214		30.7%	184,941	12,761	9,973	299,889	
Pear total	3,406	3.6%	77.7%	613		362	4,381	1.4%
All apples and pears	95,620			185,554	12,761	10,335	304,270	

For Nelson the statistics are probably very different as the varietal mix, heavily weighted in Jazz, Braeburn and Cox Orange, is more suited to the United Kingdom and European markets. Royal Gala and Fuji are sent to Asia, but at a combined total of just 30,000 tonnes, are overwhelmed by the Hawke's Bay volumes of 150,000 tonnes. These are made up of Royal Gala, Fuji and the popular Pacific series which are all more suitable to the Asian market.

The attraction to the Asian market is mainly based around lower cost structures, lower shipping costs, quick payments and almost entirely done at fixed and known prices before shipping. Contrast that with the United Kingdom and European models, which are mainly consignment selling with long and expensive shipping services. Payments are significantly slower and in many cases at marginal levels.

Here lies one of the most significant challenges for the region. This is to develop a varietal mix which is more suited to the Asian markets, but that can tolerate the unsettled spring weather routinely experienced over the crucial September to November time period.

Industry concerns and how they relate to Nelson

Short-term profitability

A significant Nelson problem is grower profitability. While this is common throughout the industry, it is more significant in the Nelson region because of the high percentage of European varieties produced. Cash-flow shortfalls for many are being funded by overdrafts or erosion of equity.

The problem is further complicated by the fact that the more Asian suitable varieties are difficult to grow in the region. It is therefore not a simple matter of just replacing varieties, unlike Hawke's Bay which has the advantage of supplying Pacific series varieties late into the Asian markets. Growers doing the best within the Nelson region are those with a diverse variety base, usually vertically integrated and those receiving income from related enterprises.

Varietal mix and market access

The issue of varietal mix has been well mentioned throughout this article but is a significant one for the region. The existing varietal base is forced into struggling markets due to flavour profiles. New varieties are difficult to find and many of the Asian suitable varieties struggle under Nelson's spring conditions.

Market access sits within the responsibilities of Pipfruit NZ. Meaningful market access is critical for the industry and very significant for the future of the Nelson region. A clear strategic change of Pipfruit NZ will be to play a more active role in determining market access criteria, with a desire to be part of an equal partnership in the negotiations.

It is the aim to have a seat at the negotiating table to ensure that realistic industry conditions are agreed to. Recent examples of poorly conceived results were the Australian and Chinese access protocols, both of which are unreasonable and have been very difficult for growers and packers to achieve.

Shipping and exchange rates

Shipping is crucial to the industry and is becoming more and more expensive. It is the single largest expense in the supply chain. In Nelson, shipping options are limited, with few carriers calling at the port. Most lines charge a handling surcharge for shipping with them out of Nelson.

As shipping lines continue their drive for fewer port calls and larger hub ports, the region will face more difficult times getting products out of it. One current initiative is that a number of the larger industries, apples included, are discussing a coordinated approach to ensure that Port Nelson remains on shipping line radars.

While not a Nelson only problem, the weak global economies and their corresponding foreign exchange rates are having a major effect on grower profitability. Businesses should not rely on the exchange rate for sustainable profitability, but a more exporter-friendly monetary policy would have a significant effect on grower returns.

Market and buying behaviour

The Asian market has become the model for ideal market and buying behaviour in many ways. Products are differentiated according to specific market and or buyer needs. Quality is of the utmost importance.

Brands are important, are well recognised and create demand. Price is fixed before shipping and generally payment to growers is quick. The time has come to start demanding the same or similar from other markets and customers around the world.

Leadership

At the recent Pipfruit NZ conference in Nelson, Alan Pollard highlighted a pathway for the industry's future. It hinged around strong leadership from within Pipfruit NZ and coordinating a common vision for all growers. He said many smaller growers were disenfranchised, with a lack of trust being prevalent through the industry. The strong message was that as an industry we need to work together more closely. A far greater degree of cooperation is required.

For the Nelson region this strong leadership and a coordinated and cooperative approach will go a long way to helping growers. If this approach helps coordinate exporter activities and behaviour to increase returns, to reduce costs from shipping negotiations or at other parts of the supply chain, and if improved market access conditions are achieved, then the outlook for Nelson and all pipfruit growers looks positive.

In the meantime growers continue to tighten their belts and maintain their orchards and operations under the most efficient and least cost methods they can. The fighting spirit instilled by the region's namesake Horatio Nelson remains strong and that spirit will be important as the industry addresses the challenges ahead.

Nadine Tunley is the newly appointed Chair of Pipfruit New Zealand.

Keith Woodford and Xiaomeng (Sharon) Lucock

New Zealand's agri-food opportunities in China

China has become New Zealand's most important destination for food and fibre exports. In the year ending 30 June 2012, total exports from New Zealand to China were worth $6.1 billion, of which food and fibre exports were worth $4.9 billion. This was a three-fold increase in only five years.

A main feature of these exports is that they have been mainly commodity-based. Although it is possible to find New Zealand branded food products in some supermarkets, the overall effect at the consumer level remains low.

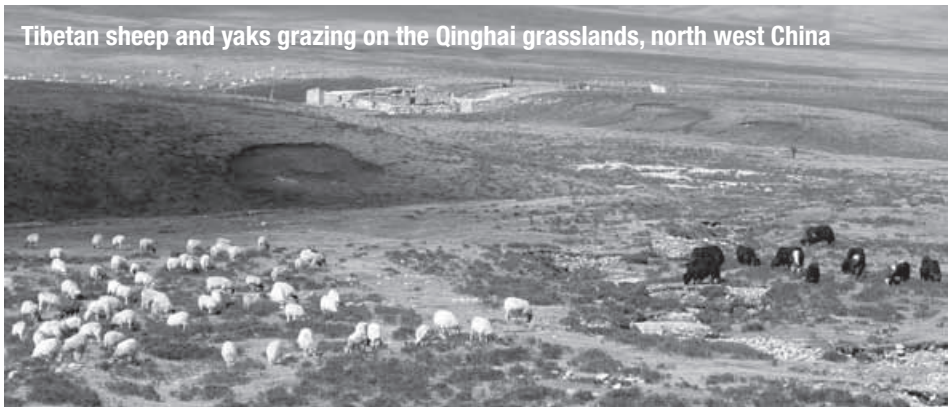
Despite its obvious importance, China remains a country which is poorly understood in New Zealand. This is particularly the case in relation to agri-food opportunities. In this article we set out what we consider to be the major forces which will shape the future opportunities. In subsequent articles in this journal, we will focus more specifically on opportunities and challenges for the dairy, meat and horticulture industries. The main reasons behind the opportunity are increasing wealth, urbanisation, changing cuisine, food safety, local agricultural production constraints, and associated food security issues.

Increasing wealth

China has been increasing its inflation-adjusted GDP at close to 10 per cent a year for more than 30 years. In that time, per capita incomes have increased about 10-fold. Currently, there is a middle class of 200 to 300 million people, and for them incomes have been increasing even faster. Indicative of this rising middle class, with its increasing discretionary expenditures, is that around 70 million Chinese travelled internationally in 2011, excluding visits to Hong Kong and Macau.

Urbanisation

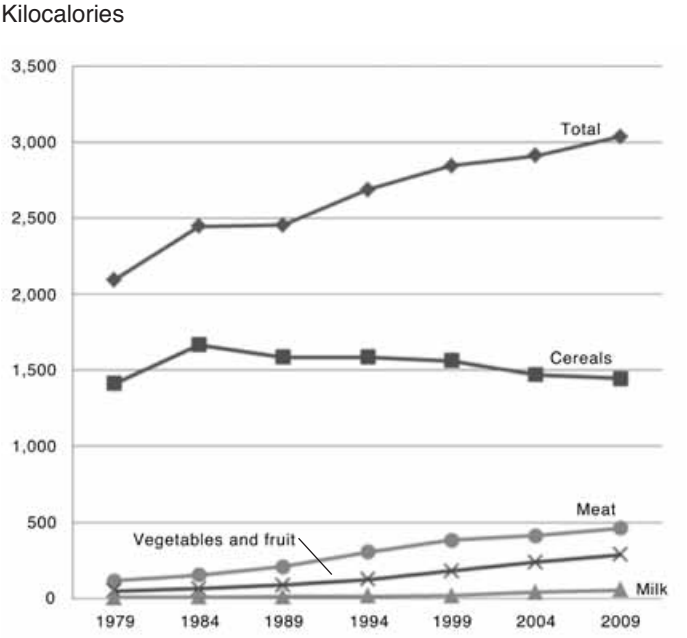
Urbanisation is increasing rapidly. Each year some 15 million people move to the cities – about one per cent of the total population. This is like a new city roughly the size of Timaru or New Plymouth being created every day, a new city the size of


Tibetan sheep and yaks grazing on the Qinghai grasslands, north west China

Christchurch every week, or a new city the size of Auckland every month. However, Chinese cities are generally much bigger than New Zealand ones, with more than 150 Chinese cities having a population greater than a million people. Currently about 700 million people live in Chinese cities. Although the total Chinese population is within about 10 years of reaching stability, where births and deaths will be in balance, there are probably another 500 million or so Chinese who will move to the cities from the countryside over the next 30 years.

Changing cuisine

Chinese food consumption has moved from predominantly wheat and rice-based in the north, and rice-based elsewhere, to a more diverse diet including increasing meat, fruit, vegetables and alcoholic beverages. Although total per capita availability of dietary calories consumed and wasted, increased 50 per cent between 1979 and 2009, the consumption of cereals, including waste, declined from about 1984.



Food consumption per capita in China 1979-2009

During this 30-year period from 1979, fruit and vegetable consumption increased by 72 per cent and meat consumption by a factor of 4.6. Dairy consumption is still only a very minor component of diets, despite increasing between 1979 and 2009 by a factor of nine. Alcohol consumption increased during this period by a factor of 15, and was still increasing rapidly at the end of this period. Over the 30-year period, the dominant alcoholic beverage changed from rice wine to beer.

Different purchase patterns

Urban Chinese tend to eat away from home a great deal. Noodle-based dishes and soups costing about 50 cents are available from street-side eateries. Western-style restaurants such as McDonalds, Kentucky Fried Chicken, and Starbucks are ubiquitous in both major and minor cities. The clientele of western restaurants is mainly the younger generation, with older people preferring traditional Chinese food.

The young middle class Chinese who live in cities are very status conscious. There is prestige associated with being seen to have a modern lifestyle, which can include having nice clothes and foreign food. It is a very materialistic society. Food and culture are closely intertwined in China. However the Chinese have always been open to new foods, much more so than, for example, the Japanese. The Chinese way has always been to absorb new cuisine and build it into the local culture.

Increasingly, Chinese consumers buy products on line. The internet is everywhere, even in the countryside. With products such as infant formula, about a third of purchases may already be on line. We have friends who buy their fresh fruit and vegetables on line, with these being delivered to their apartments.

When buying branded products on line, Chinese consumers search the internet to make sure that exactly the same brand with the same packing is sold in the country of origin. However, counterfeiting is widespread, and we have ourselves seen Chinese kiwifruit being sold as Zespri kiwifruit in a major Bejing supermarket.

Fake Zespri branding on local Chinese kiwifruit in Beijing supermarket

Food safety

Food safety is a very big concern in China. Quite simply, the Chinese do not trust their own food supply systems and at times with good reason. The most outstanding recent example was the 2008 melamine in milk formula scandal which has been widely reported as affecting 300,000 babies.

Although Fonterra's Chinese partner San Lu was at the centre of this, in fact nearly all the major Chinese dairy

companies were implicated to varying extents. Within the country the melamine scandal is very much seen as a Chinese problem, and New Zealand's reputation has not suffered at all.

The problem was that supply chains from peasant farmers to village collectors to larger collectors were too long, and there were lots of opportunities along the way for adding nitrogen-based melamine to raise the apparent protein content. However, there are many other problems, some real and others possibly just perception, which are far more ubiquitous, many of them related to the polluted environment and associated contaminants.

Modern Chinese dairying at Fonterra's Yutian1 farm, Hebei Province

The Chinese are attempting to deal with some of these problems by insisting on larger scale operations and shorter supply chains. In the case of dairy, this means a minimum-sized milk processing plant of 20,000 litres a day. The Chinese government is also encouraging industrial-scale production units. In the case of dairy this is usually farms of 3,000 to 5,000 cows.

We visited one milk processing plant in western China where the owners plan to reduce the number of supplying farmers from 15,000 to a mere 10 suppliers, with each farm having thousands of cows. Similarly, we are aware of pig farms of up to 500,000 sows and more than 10 million pigs produced each year.

Agricultural production

China has 21 per cent of the world's population but only seven per cent of the arable resources. Currently there are 20 million hectares of cultivated land, which is less than 0.1 hectare per person. China has a redline policy to ensure that the level of cultivated land does not drop below this figure.

There is considerable concern in China about water sustainability. In particular, it is widely known that water is being drawn from the north China aquifer at unsustainable levels. The Chinese are now taking environmental concerns very seriously, and livestock have been removed from large tracts of the grasslands.

An even greater constraint to agricultural production may relate to the apparent impossibility of mechanising the steep lands on which tiny rice terraces have been constructed. With increasing labour costs, farming this land is becoming uneconomic. Currently, about 30 per cent of China's rice is

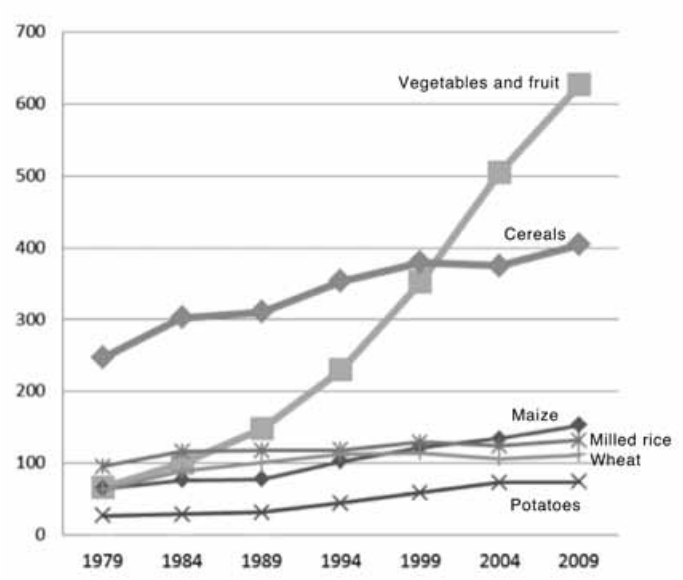
Intensive rice production in the hills of south China

produced on these steep terraces.

Despite these problems, production increases over the last 30 years have been significant, usually driven by increasing yields. Although there have been many media reports in the west suggesting global food production is plateauing, there is nothing to support this in the figures of the international FAOSTAT database, either for the world or for China. In China, total cereal production – primarily rice, wheat, and maize – which was destined for both human and animal consumption increased in the most recent 10-year period through to 2010 by 22 per cent.

Food security

Million tonnes



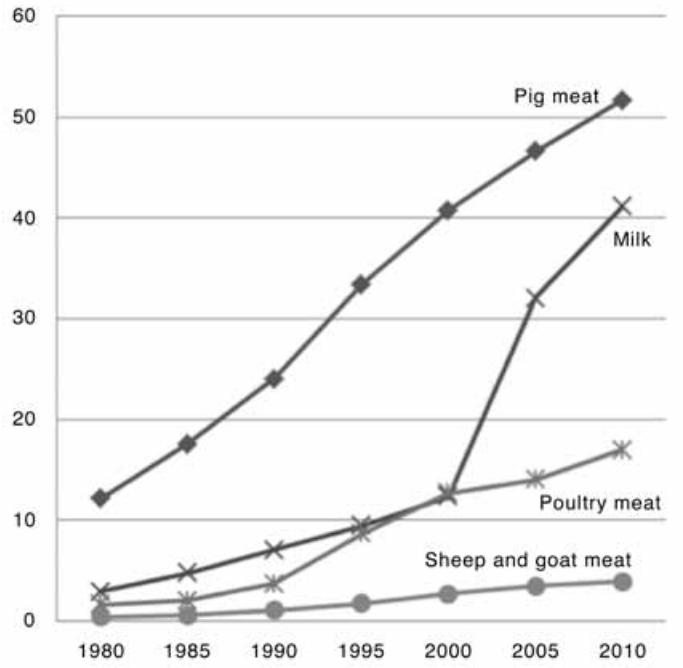
Plant based domestic food supply in China 1979-2009

The challenge for food security in China is widely misunderstood. China will never have any great difficulty in providing the plant-based foods, such as cereals, vegetables and fruit, which its population requires. This is because it has solved its population problem to the extent that it is now moving back towards a two-child policy. Couples who are themselves the children of one-child families are already able to have two children, although many choose not to. Accordingly, the global food security problem for basic foods is a problem for other parts of Asia, and also for Africa, but not for China.

However, China's problem is that rising incomes and changing cuisine have greatly increased the demand for animal-based products. Although the animal-based production increases have been remarkable, this has only been achieved in recent years by enormous purchases of soybeans and maize. Our Chinese colleagues advise that soy bean imports rose to 57 million tonnes in 2011 and that maize also increased markedly to about 11 million tonnes.

Before about the year 2000, China was a major exporter of maize. The imported crops are mainly used to feed pigs, but also for large-scale dairying. The feed is sourced mainly from Brazil and the United States. To put those numbers in perspective, total Australian cereal production is usually about 35 million tonnes a year. In New Zealand, in most years, our total cereal production of wheat, barley and maize is less than a million tonnes.

Million tonnes

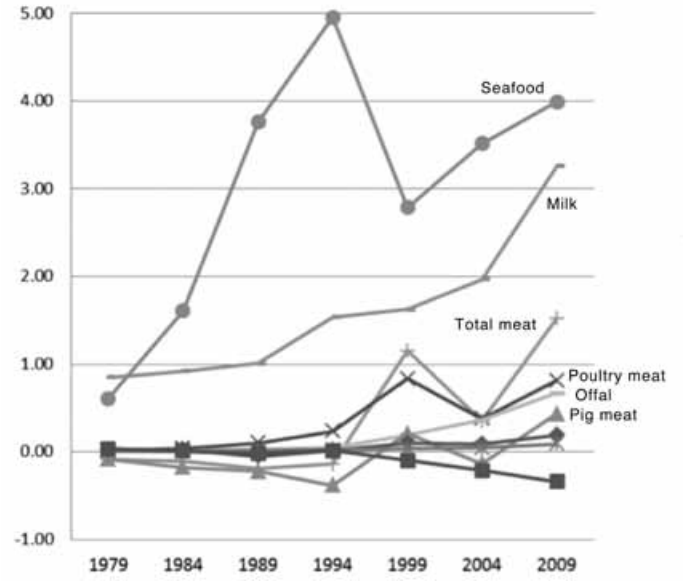


Meat and milk production in China 1980-2010

Major importer

China has also become a major importer of animal-based and fish products. Seafood is particularly important, with net imports of four million tonnes in 2009. Milk powder imports approaching 500,000 tonnes, recorded as fresh milk equivalents in the statistics, are important to New Zealand which is the major source, but of comparatively minor importance to China relative to its expenditure on fish and feed.

Million tonnes



Net imports of animal and fish products in China 1978-2009

Typical Chinese supermarket

However, when converted to liquid form, these milk powder imports equate to about 15 per cent of total Chinese milk consumption. Imports of New Zealand sheep meat, despite increasing rapidly to more than 100,000 tonnes of lower priced cuts in 2011, are of minor significance relative both to total meat consumption and to the feed and fish imports.

The opportunities

The key determinant of the opportunities for New Zealand agri-food in China will be the extent to which it continues to experience economic growth. As long as it continues to grow, and this can still be considerably slower than historical growth rates, then there will be increasing demand from Chinese consumers for safe food products. Even if China solves its food safety problems, then some consumers will remain suspicious for a long time.

In addition, there will still be prestige associated with foreign brands. New Zealand holds a very favourable position among Chinese. They perceive this country as being a place of pure natural beauty without pollution. This perception provides a powerful marketing platform, but it is only a platform. The big question for New Zealand, therefore, is how to directly access consumers and thereby capture the potential value-added premiums.

There are challenges in getting this country's products into the thousands of supermarkets, but the increasing tendency of Chinese to buy on line opens up new opportunities. The notion of an 'NZ Inc' coordinated approach to marketing branded New Zealand food on line, guaranteeing the provenance of the products and direct delivery to purchasers in their apartments, could be a powerful development.

The logistical elements of all of this are already in place, but the system and the associated NZ Inc commitment to make it happen are not. If New Zealand cannot make the NZ Inc approach work, then there will still be benefits from the sale of animal-based commodities, but that would seem a second best option.

Graphs in this article were supplied by FAOSTAT

Keith Woodford is Professor of Farm Management and Agribusiness at Lincoln University. He has been visiting China periodically since 1973. Xiaomeng (Sharon) Lucock is a Lecturer in Agribusiness Management at Lincoln University. Sharon was born in China and moved to New Zealand in 2002. Her first degree was from the China Agricultural University in Beijing.

Ian Yule

Precision agriculture

I have seen many definitions of precision agriculture and lots of groups have attempted it, even the United States Congress no less. However, many groups want to bend it to their own circumstances which is understandable. Some want to be all-inclusive and would include virtually all information technology used within agriculture under the precision agriculture banner. I suspect that it matters more to academics than practitioners.

My own definition is that precision agriculture – is a suite of technologies which allows you to manage land in a spatially variable way and identify and manage individuals within a herd with a reasonable degree of automation. There are a lot of related technologies we depend on, so does it really matter what precision agriculture is and what agriculture information technology is? Hopefully, it will all become synonymous with the agriculture of the future.

One of the criticisms of precision agriculture is that it is complicated. Farming is complicated, and there is no single way to create successful adoption, although two features stand out for me in terms of success.

- Farmers are able to identify ways to improve productivity and they start with obvious problems
- Most of the improvements come from having better information, and precision agriculture gives us the ability to gather a great deal of information, it is what to do with it that swamps us.

Autosteer technology

To give a cropping example, a farmer friend has been yield mapping with his harvester for a number of years and he knew drainage was a problem for him. When he saw the extent of the crop losses and yield variations he was suffering because of ground being under water in spring, he had the information to let him see that drainage was a viable and necessary first step to improving his productivity.

A further point was the use of autosteer technology. This allowed him to operate his machinery more efficiently. He estimates a 12 per cent increase in output and 12 per cent saving in fuel and other costs. Once he had this technology he also realised that the autosteer system could allow him to change his cultivation system to reduce costs even further.

Wind erosion on spring seedbeds produced by conventional tillage was a problem in some years. However, minimal tillage techniques were not suitable as they were slow to warm the ground in spring, which retarded germination and plant growth. Because the autosteer is so accurate it allows him to cultivate strips in the soil and go back and sow on to these.

In this way he benefits from eliminating erosion, faster tillage, reduced tillage costs and a good cultivated zone for the seed to germinate, and yields which were not compromised. In Australia the level of adoption of autosteer systems in broadacre cropping is over 90 per cent. It is standard practice.

Variable rate fertiliser and irrigation

The above farmer has not attempted to use variable rate fertiliser application yet. He may consider it in the future, but now he has other priorities he is working on. The problem is that academic studies and research have focused on this type of technology, which is probably more relevant once farmers have other management problems under control.

A further example is variable rate irrigation. This is a technology, developed in New Zealand, which will put the right amount of water on different parts of the soil under the irrigator. It is a technology which has been proved to save between 10 and 30 per cent of the water used by the irrigator.

A further advantage is that variable rate irrigation turns a centre pivot or lateral irrigator into a far more flexible watering system. This will allow areas to be eliminated from wetting, different crops to be grown under the same irrigator, or different soils to receive the correct amount of water. It results in soils with higher water retention not being over irrigated and drier soil not under-irrigated. This is an application which has significant cost, but like autosteer, it is being taken up by farmers because they can see immediate benefits.

Precision dairy farming

In dairying, similar trends have taken place. Precision dairy farming is being practised by a small number of New Zealand dairy farmers. Typically, the herd would have electronic identification, as this allows individuals within the herd to be automatically identified, monitored and managed. Examples include regular weighing to ensure that the herd is tracking in the manner planned and that individuals within the herd are also tracking as they should.

Should a cow start to drop in production and condition, she can be drafted and examined before problems become too serious. This is not an easy task when someone is milking large numbers of cows with no supplementary information.

Pasture meters

Another important area is the use of pasture measurement devices. A recent innovation is the C-Dax pasture meter. This allows farmers to accurately allocate feed for their cows and has a number of benefits. These include no surprises in the vat when cows are under fed, there is a reduction in waste when feed is previously over-allocated, with better regrowth and use achieved. The productivity of individual paddocks can also be monitored. This allows farmers to look at re-grassing or winter crop feed programmes as well as focusing on fertility issues.

One farm which can be used as an example has improved milk output by around 40 per cent in four years by implementing some of these changes. Pasture is measured and allocated on a regular basis, productivity and animal health is closely monitored using automatic weighing and electronic identification, and in-shed feeding is allocated on the basis of known grass intake, productivity and health.

The annual productivity of each paddock can be known. Soil samples can be taken from individual paddocks and fertiliser allocated accordingly. This has led to a significant reduction in fertiliser cost while productivity has increased. Fertiliser is then applied by a contract machine which has precision agriculture capability.

One feature is the focus on planning and measuring what is happening on the farm and comparing it to the farm plan. It gives the ability to constantly monitor activities on the farm and take action early. This has not only led to increased milk production, but now all of the dry cows are grazed on the farm reducing costs still further. By having very good information on the production process, management is far better informed and accurate.

Managing information

One of the features of precision agriculture which is not considered as much as the shiny hardware and technology, is information management. Precision agriculture is about creating a system which gives far more information on a farming system that allows decisions to be properly considered for better results with reduced risk. One of the things which alarms me as a researcher is that I can see a new generation of sensors coming over the horizon capable of producing far more data than present systems. But we have not yet come to terms with the present systems.

Crop sensors are a good example. We have done enough with them to know that they work and can be used reliably to assess crops, but we are still a bit hazy on what to do with the information. Turning data into useful management information is still a task that requires further work, and is probably one of the main reasons we have not been adopting precision agriculture. We need to build improved systems which can produce reliable information that can guide management.

Smaller can be better

Inability to deal with information is not a new phenomenon. I often see some of the best farmers farming smaller areas or number of animals adopting and developing the technology where larger farms really struggle. There is a number of reasons for this, but I suspect depth of agronomic knowledge about the land and animals is a factor. Therefore, the level of improvement in information pays dividends for these individuals, whereas larger farms have other more basic problems to deal with.

Smaller areas are more manageable, or we get to know individuals in a herd and we develop specific husbandry skills. However, when numbers become overwhelming we need extra help to make sure we can achieve the same level of management. We employ milk harvesters or machinery operators, and they are flat out carrying out those functions so that observation and information gathering does not feature.

I heard of a large farming operation recently declaring that it was going to go low tech. I do not see the ultimate answer as becoming less precise and less well informed, but it indicates that there are significant problems with larger farm enterprises in achieving a high standard of management. It is

very easy to criticise from a detached academic perspective. My feeling is that we are falling behind in the adopting precision agriculture technology in New Zealand.

Getting it right

I think we have many problems to deal with and we have not got it right. There needs to be a much broader involvement with groups such as NZPIM, machinery manufacturers and service providers, as well as groups representing industry sectors, education, extension and research. We also have a lack of engineers and people with the right skills to handle these systems.

We need to try to build a research, education, extension and service network, and one starting point may be the creation of Precision Agriculture New Zealand. This will be launched late this year with the express aim of raising awareness around precision agriculture and trying to promote the uptake of technology.

More involvement

Something which needs to be tackled is how to get service and equipment providers more involved. End users expect them to take all the risk in terms of promoting a new technology, yet we use some fairly old models in how we work out the commercial value – we want the best deal possible. At the same time end users are incredibly reliant on these integrated technologies and if there is a breakdown it needs to be put right straight away. It is very difficult to do that when pricing is extremely tight.

The other solution is to charge end users for services, and farmers have been incredibly unwilling to do this. How do you build that case? By providing longer-term examples. Yet I do not know of any project which has been funded that will allow it to happen and build the economic case, because it is long term and expensive.

Better advice

Could the same argument be put forward for farm advice? Better farmers see value in it while the majority plough on independently. A few years ago I saw the results of an United States study that really hit home. They had researched the farmer's ability to grow maize, and they used criteria around temperature and water availability to judge what percentage of maximum production individuals were achieving.

A total of 600 farmers were involved in a number of environments and their crop records were used. The top 10 per cent of farmers were achieving 80 per cent of that biological maximum. The level of the average farmer was 52 per cent of maximum. I would suspect that if we were to do the same over the farming sectors in New Zealand we would find a similar pattern.

Another interesting note to finish on involves the results from the Red Meat Strategy Review completed in New Zealand. When beef and sheep farmers were asked where they would rank themselves, 80 per cent put themselves in the top 20 per cent. Now it might be a loaded question, but it does show there is a real lack of awareness around performance levels and what could and should actually be being achieved.

Ian Yule is Professor in Precision Agriculture at Massey University in Palmerston North.

Deborah Battell

Ascertaining the viability of business ventures – whose responsibility is it?

In the current economic climate it is not uncommon for customers to complain to the Banking Ombudsman Scheme about the failure of banks to ascertain the viability of a business proposition before approving lending. Complainants feel that if the banks had undertaken proper due diligence, they would never have agreed to lend in the first place. They would then not find themselves in their current situation – owing money to the bank, in the process of mortgagee sales or in debt collection.

Lending viability

We have recently investigated complaints of this nature from property investors, farmers, wine growers and a range of property purchasers. It has become clear that some customers expect that the bank will automatically have assessed the viability of the proposition as part of the lending process. It is important for customers to know that this is not necessarily part of a bank's assessment of a lending proposition and that customers must undertake their own due diligence.

It may also be helpful for customers to know that we cannot look at the bank's commercial judgement. We can, however, look at the way in which the bank has administered the lending process. The customer's ability to repay a debt, for example, is a very important factor.

Although it can be difficult for a lender to assess a customer's ability to repay business or investment propositions, we do expect a bank to properly obtain and assess all of the available information about the prospects for success and we do consider whether the proposition met the bank's normal lending guidelines.

In addition, we assess whether there was any evidence to show that the bank had, in fact, given advice about the merit of a customer's proposed venture. If a bank has chosen to give advice, it may bear some responsibility if it gives that advice negligently.

Farming customer case study

The following case, involving farming customers, illustrates these issues well and may be helpful for people considering taking on lending with a reasonable degree of associated risk. In this case, the complainants were lucky to avoid residual debt to the bank, but they did need to sell a farm which had been in the family for some time.

The background

Mr and Mrs D were experienced farmers who had a number of term loan and overdraft facilities with their bank. In 2004, they approached the bank for finance to purchase the neighbouring farm. The property needed some development and was able to be subdivided. The couple provided an updated valuation for the property to the bank. Based on the bank's knowledge of Mr and Mrs D's current farming operation and the value of the property, which it considered offered sufficient

security, the bank approved the application. The finance was advanced, interest only was repayable for the first four years of the loan, and the interest rate was fixed.

Some months after the purchase, the couple engaged a farming consultant who advised them that the farm venture they planned on the new property would be viable once the development was complete. Over the next few years, Mr and Mrs D continued to farm and to develop the new property. During this time they suffered set-backs due to drought and poor lamb prices. The new farm never reached the level of productivity needed to service the debt.

After four years, a different farm consultant advised Mr and Mrs D to sell their farm and realise the equity. They decided to continue with the farming operation, however, as the outlook for the meat industry appeared to be improving. Their loan was refinanced for a further four years on an interest only basis, with the interest being fixed over this period.

The couple carried on for a further year before deciding that the farming venture was unsuccessful. They sold their properties and repaid the bank in full. The bank charged Mr and Mrs D an early repayment cost as the lending was on a fixed interest rate, and interest rates had fallen since they refinanced their loan.

Mr and Mrs D complained to us that the farming venture was never viable, and that even given good seasonal conditions and improved market prices, the venture would not have generated sufficient income to meet the debt servicing requirements. While they accepted that they did not do their own due diligence on the farming venture, and that they were willing borrowers, they believed the bank should have carried out an in-depth analysis of the farming venture before advancing the finance. They sought repayment of the early repayment cost.

The decision

After investigating, we decided that the bank was not responsible for Mr and Mrs D's situation. This was on the basis that –

- There is no general duty on banks to analyse a customer's business ventures for viability when assessing applications for credit
- Mr and Mrs D did not do their own due diligence on the farming venture and could not, by asking for finance, transfer this responsibility to the bank
- There was no information to show, nor did Mr and Mrs D claim, that the bank had led them to believe it would analyse the venture for viability, or assume a role as their adviser
- Under the Code of Banking Practice, banks state that they will only provide credit when the information available to them leads them to believe the customer will be able to meet the terms of the facility, but this does not mean they must carry out due diligence on a business venture
- In this case, the bank knew Mr and Mrs D as customers and as experienced farmers and it was comfortable with the level of security provided

The bank was being asked to finance what was effectively a new business venture on the new farm and where the property required some development. It is not possible to guarantee the success of new business ventures at the outset. In the normal course of business, the risks associated with business ventures are borne by those undertaking them.

Conclusion

The decisions of banks to lend are usually based on whether borrowers can provide sufficient security for the lending and on whether they have some comfort about the borrower's ability to repay at the time that the loan was taken out. Unless a bank has explicitly taken on responsibility for providing advice, customers must satisfy themselves about the viability of their business ventures, and seek advice from their own advisers if necessary.

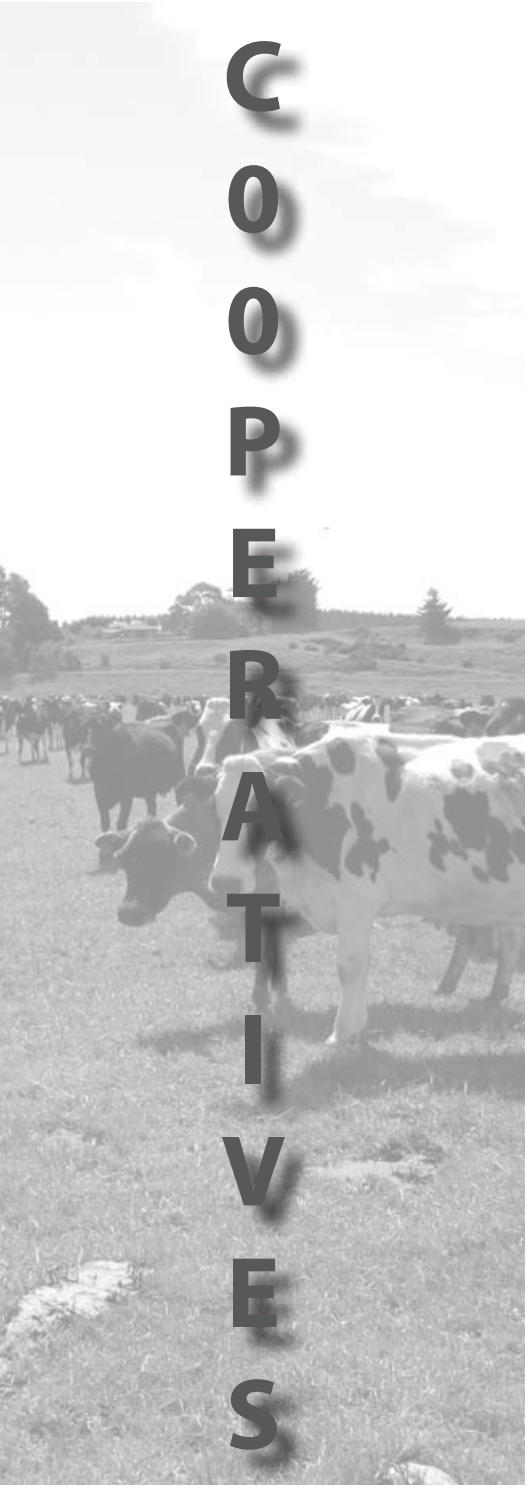
The Banking Ombudsman Scheme cannot investigate matters involving a bank's commercial judgement. However, we can investigate the administration of the lending process to determine whether it has properly obtained and assessed all of the available information about the prospects for success, and whether the proposition was consistent with the bank's normal lending guidelines.

***This article was previously published in* Property Quarterly**

Deborah Battell is the Banking Ombudsman

Kevin Old

Co-operative governance
The roles of co-operative dairy company boards



Co-operatives have been a very successful business model in primary industries. The governance of co-operatives is distinctly different from corporate counterparts. Co-operative governance lies at the heart of the co-operative user-control principle. Despite their importance little has been known about what their directors do in practice. This article highlights four roles deduced from research on Australasian co-operative dairy company boards.

Much of the world's economic activity is undertaken with the guidance and supervision of governing boards. Boards, as ultimate decision-makers for organisations, determine the fate of businesses and affect most people. Despite their importance, little appears to be known about how the directors work in practice.

Much has been written about what they should do, but surprisingly little is understood about the reality. A board is viewed as a black box with little real understanding of the processes, practices and how they relate to each other, management and other stakeholders.

Research into corporate governance has focused mainly on large United States publicly listed companies with freely traded shares. However, most of the world's economic undertakings are undertaken by other forms of organisation. These may have different objectives and require different governance structures and roles for their boards.

The co-operative has a substantial share of developed market economies. It is estimated that a third of the world's agricultural food supply passes through co-operatives. Fonterra is New Zealand's largest company by revenue and is a co-operative, and there are five in the top 15 companies in this country. The New Zealand dairy industry, dominated by co-operatives, accounts for 30 per cent of merchandise exports.

Users in control

The three principles which make co-operatives unique from other organisations are that they are owned by users, controlled by users and benefit users. At the core of the user-control principle is the board and its composition. The co-operative governing board is elected from and by the membership to represent and protect the interests of supplier shareholders. The governance of co-operatives goes to the heart of the structure which makes co-operatives distinct.

The terms user, patron, member, farmer, producer, owner, shareholder, member-owner, member-shareholder and combinations of these appear to be used interchangeably in the literature. While they differ they all refer to those who patronise, own and control the co-operative. The term supplier-shareholder is used here as it more accurately reflects the user relationship with a dairy co-operative. That is, they are first and foremost a supplier to the co-operative, but they also have a less important shareholding relationship.

Roles of boards

Understanding co-operative governance may help in understanding the spectacular success of the co-operative business form. The roles of governing boards of Australasian co-operative dairy companies given from the perspective of the participants are outlined in this article.

In their normal activities, boards and their members carry out a multitude of tasks. When these tasks are aggregated they can be considered as roles. Research was undertaken to discover their activities, relationships and the process in which they make board decisions. In the case of Australasian dairy co-operative directors, four board roles emerged – control, strategy, service and unite. These roles sometimes overlap and are often ambiguous and contradictory.

The role of control

The most prominent role is control. As a result of corporate scandals it is this role which receives the most frequent attention from the popular and business press, shareholders, regulators and researchers. Legislation, regulations, company constitutions and policies are methods the board uses to manage responsibility for the co-operative. In practice, the boards delegate much of the day-to-day operations of the co-operative to professional executives skilled in the management of sophisticated, complex commercial businesses.

Despite this delegation, co-operative boards maintain control over significant decisions and oversee the remainder. Foremost amongst these significant decisions, is the board's appointment, firing and remuneration of the CEO and to a lesser extent, the senior management. This activity gives the board enormous power over the direction and operation of the co-operative. Boards select CEOs who can implement their strategic decisions.

Designing and setting remuneration allows the board to align management remuneration to supplier-shareholders' interests. Although dismissal seldom happens, this latent power is important in disciplining management and setting the boundaries of decision making. This lever helps in make sure the co-operative continues to operate in the best interests of the supplier-shareholders.

Delegation

Co-operative boards also delegate most aspects of the management of the co-operative to the CEO who further delegates to staff, cascading down through the organisation. The board must define, adopt and review appropriate delegated authorities. These allow a framework for the executive to work with before having to request the board for permission to act. These policies limit the discretion of the managers. Boards work through a CEO and management, so their effectiveness in meeting the objectives of supplier-shareholders relies on this delegated authority. Performance is very dependent on the CEO.

Nevertheless, co-operative boards retain the veto rights to what are usually significant decisions across a range of the operations. Boards have the authority to accept or reject any executive proposals, including strategies. Boards may veto various decisions including hiring, firing and remuneration of the CEO, delegated authorities and policies, accepting or rejecting strategies and business plans, budget ratifications, capital and financial decisions, and what to oversee.

Monitoring and evaluation

Having delegated much of the management to the CEO, the board has a role in monitoring and evaluating performance which is carried out in a variety of ways. Much of the monitoring is reviewing formal financial and other reports and questioning executives during regular board meetings. This is supplemented by committee work and informal monitoring. The monitoring task takes a substantial amount of the board's time, particularly in formal board meetings.

The selection of what the board monitors helps control operations as it focuses management attention. After evaluation, action may follow such as relaying the board's dissatisfaction to the CEO, overturn management decisions, or in extreme circumstances remove poorly performing management. The boards also have a task in preserving the co-operative nature of the organisation by ensuring that any changes to the constitution and policies are in line with co-operative principles. Only by maintaining the co-operative nature of the business can the benefits be gained in meeting the needs of the supplier-shareholders.

In summary, these various board tasks give significant internally focused control over the operations of the co-operative as a result of the relationship between the board and management. The control role has a close association to the co-operative principle of user control.

Strategic role

There seems to be fairly clear consensus that boards have a role to play in an organisation's strategy. However, the extent of a board's involvement in strategy and what the influences are and how the role is fulfilled, are far from understood. The strategic role is mainly a decision-making process for the co-operative board. Therefore, the strategies followed are important if the board is to meet the needs of supplier-shareholders. The research shows there are three levels of strategic involvement.

The first is strategic control which involves the board as the ultimate arbiter of strategic decisions. With the power to accept or reject proposals the board ensures the co-operative's strategic direction is in line with the needs of its supplier-shareholders. The board hires a CEO with an eye on the co-operative strategy, therefore giving the board a great deal of sway over the organisation's direction. Using their control role by accepting budgets, a board allocates resources to pursue the desired strategies.

Boundary making is the second level of involvement. This involves defining the purpose of the co-operative which involves its general strategic direction and the strategic domain in which management are able to operate. Co-operative boards set the parameters for the strategic decisions defining boundaries. Examples could be –

- We are a co-operative dairy company
- We collect, process and market the milk of our supplier-shareholders
- We aspire to add value to the milk of our supplier-shareholders.

In these examples boundaries restrict business to the collection, processing and marketing the milk of their supplier-shareholders. Other co-operatives will have different boundaries.

Finally, due to their ability to accept or reject strategies, a board is also in a position to help shape the strategies. In conjunction with the management boards have an involvement in the development and review of strategies, the extent of which is dependent on the particular strategic decision.

In general, boards have a greater involvement in strategies closely associated with their supplier-shareholders. Market strategies appear to have less input from the board. Boards, however, play very little part in strategy implementation except in times of crisis and in strategies closely associated with the supplier-shareholders.

Service role

The service role involves providing advice and counsel to the management, particularly the CEO. The board or its members often act as a sounding board for the CEO and also provide the public face of the co-operative, including dealing with the media, undertaking ceremonial functions, enhancing legitimacy and interacting with stakeholders. The service role also involves directors using their personal and business networks of contacts to open doors for executives.

The service role appears to be focused both internally and externally. The provision of support, advice and counsel, and using networks are internally focused on the co-operative's management. The public face, where it does not relate to supplier-shareholders, appeasing stakeholders, legitimacy and networks tasks is externally focused in smoothing the way in the co-operative's external environment.

The defining role

The role of unite is the defining role of co-operative boards. This sets co-operative directors apart from their corporate counterparts and involves uniting supplier-shareholders in a common vision and the active representation. This task includes representation, accountability, leading and finding consensus among diverse supplier-shareholder needs.

It requires communication with supplier-shareholders, in particular informing, listening, understanding and responding to them. Co-operative directors are also required to develop trust and loyalty among suppliers in their relationship with the co-operative by sharing similar values, challenges and needs. This is a major task for the co-operative boards.

In this role the directors ensure that supplier-shareholders continue to patronise the co-operative. This is a critical role as co-operation is a collective activity requiring supplier-shareholders to continue with the co-operative.

Role ambiguity

The four co-operative board roles overlap parts of the roles synergistically, while other parts are contradictory. The provision of advice, counsel and knowledge to management can be seen as both a service and a strategic role. The ability of a board to veto strategic decisions can be seen as both a control and strategic role. The appointment, removal and remuneration of the CEO could be seen simultaneously as part of control, strategic and service roles. The notion that some behaviour can be seen as strategic, service and control highlights the complexity, the interdependence and the inter-relatedness of board roles.

Board independence from management is seen as very important by commentators, regulators and academics for board members to fulfil their control role. Contradicting this, others note the need for closeness and trust and a deep involvement between board and management to fulfil their service and strategic roles. Close involvement, however, between the board and management is important as it is only through participation in strategy and service that boards gain the knowledge to fulfill their control role.

Changing roles

Board roles may also change. For example, the emphasis and involvement of particular board roles may increase in times of poor performance, crisis and uncertainty. The four roles are often performed concurrently by boards, or individuals within boards. The appointment of the CEO has implications for all four of their roles.

Another example may be a director accompanying the CEO on a market visit as the former may be simultaneously –

- Flying the flag for the co-operative as a service role
- Monitoring and evaluating the CEO's performance with customers as control
- Discussing and informing strategic processes
- Acquiring information which will be shared with supplier-shareholders on the director's return as a unite role.

It also appears probable that every board meeting contains elements of each of the board roles. Research makes it clear the board roles are interdependent, with board members undertaking all roles to varying degrees.

The governance of co-operative dairy companies is important and substantially different from that of other business enterprises. Co-operative governance goes to the core of the co-operative user-control principle.

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Wybe Kuperus

Palm kernel expeller meal

The use of palm kernel expeller meal, known as PKE, has grown exponentially over the last 10 years. It is now the most important imported feed supplement for the New Zealand dairy industry. In my opinion a number of factors have helped PKE make such big inroads as a feed supplement for dairy cows –

- It is a low cost per kilogram of dry matter, so is a cheap feed gap filler
- It is safe to feed in uncontrolled feeding systems such as trailers in the paddock or bins near dairy shed, because most dairy farmers and their advisors had little experience or the right facilities to feed out other types of supplements
- It is available during droughts or other periods when forage feeds of hay, silage and straw are not available, have become seriously overpriced or are of unknown quality
- Good milk solids and body condition responses have been achieved during periods of feed shortage.

However, PKE is not a silver bullet to be used in all situations when extra feed is required. Therefore, I would like to share a little more background information on it.

By-product of palm kernel

PKE is the by-product of the palm kernel in the palm fruit after most-of the oil has been extracted by a mechanical expeller process. It is a dry, gritty meal with a brown colour and soapy smell. It is imported from mainly south east Asia. The increasing demand and price for palm oil has been the main reason for the growing availability of its by-product for the animal feed market.

The assumption, made by some political groups that the increasing use of PKE in the New Zealand dairy industry leads to more palm oil plantations at the cost of the rainforest, is not correct. The demand for vegetable oils for human consumption as food ingredients, cooking, or cosmetics is continually increasing.

PKE contains moderate levels of energy, around 11 megajoules of metabolisable energy, 16 per cent protein and about eight per cent oil in the dry matter. The most important component is between 60 per cent and 70 per cent slow digesting

Palm kernel expeller press

fibre. This means that there is no risk of rumen acidosis with this product. This fibre is not effective fibre due to it being processed to a small particle size, and cows cannot use this fibre for rumination.

The feed is less palatable than most other feeds, so it takes cows longer to get started on it. It means less chance of over eating when the feed is introduced. Interestingly once cows are used to it, they will eat considerable amounts when short of feed and in a period of feed shortage most cows are quick learners.

PKE is a by-product which will vary in composition. Feed analysis over the last few years has recently shown a reduction in oil content originally from between 10 and 11 per cent down to between five and eight per cent. This is a result of improved extraction processes, which can further reduce the metabolisable energy content of the meal with another megajoule per kilogram. If expeller plants are replaced by extraction plants the oil percentage would further reduce to around two per cent.

These days the PKE gets double screened before it leaves the warehouse of suppliers in New Zealand. This is to remove unwanted materials which did cause problems in livestock and feed systems a few years ago.

Feeding and storing PKE

You can feed PKE on the feed pad, via some feed systems in the dairy shed or on a trailer in a trough in the paddock. If you feed it in the paddock with a feed-out wagon it needs to be mixed with chopped silage.

Feeding on the feed pad and or in the dairy shed gives the least wastage and highest utilisation and every cow gets access at the same time. When I see a six metre trailer with PKE in a paddock with 600 cows, some will be eating three or four kilograms while others get none, and these are often the cows that need the extra feed the most.

You need to build the feed intake up to one to two kilograms of dry matter over a week. Normal feed-out rates are two to three kilograms and give an optimum milk solids response, usually via litres and milk fat percentage. Higher rates up to six kilograms of dry matter are possible in cases of serious feed shortage, but are not recommended. On some farms where structurally high rates of PKE are fed, a substantial amount of undigested particles are found in the faeces and an AI technician finds it hard to perform their task in these herds.

The response can vary between zero and 75 grams of milksolids per kilogram of dry matter, depending on substitution level of pasture or other feeds or quality of the PKE. With my clients I mainly use PKE over summer and autumn to help put condition on cows and extend round length. In combination with grain based feeds a good combined response of milk solids and condition score can be achieved.

Feed carefully

In the spring, grain based feeds are in general more suited to meet the energy demands of the cows because of less substitution, higher energy available, higher soluble carbohydrate and lower protein content. The table below compares the feed composition of barley grain with PKE as an example.

Feed composition and value of PKE and barley in dry matter

	PKE	Barley
Dry matter percent	90	87
ME megajoules per kilogram	11	13
Crude protein percent	16	12
Crude fat percentage	8	2
Acid detergent fibre percent	42	6
Neutral detergent fibre percent	67	16
Starch and sugars per cent	2.5	58
Calcium grams per kilogram of dry matter	2.6	0.7
Phosphorus grams per kilogram of dry matter	5.6	3.9
Magnesium grams per kilogram of dry matter	2.6	1.1
Sodium grams per kilogram of dry matter	0.1	0.1

Before you feed PKE in the dairy shed it is important to ensure the feed system can handle it, by checking with the supplier of the system. Around 200 to 300 millilitres of molasses dribbled on top of the PKE in the feed tray will help to keep the dust down for cows and milkers as will a fine spray of water. Some PKE loads are dustier than others.

The PKE should be stored under a roof and preferably on a concrete floor. This prevents growth of fungi with the risk of mycotoxins, such as aflatoxin, which can cause animal health problems or contamination of the milk. You can also store PKE in vertical metal or plastic silos, if they have a big enough opening and a steep cone. Some feed system installers provide vibrating elements to be mounted on the outside of the silo to prevent blocking in the silo. Another option is to mix in 30 per cent or more crushed barley or pelleted feed.

A problem recently highlighted is high liver copper levels cause by feeding PKE meal. This only seems to happen when PKE is fed in low-producing herds where high levels are fed. Getting the veterinarian to check liver copper levels is the only way to clarify the animal status.

Feed levels over two kilograms before calving can lead to an increase in milk fever problems. Feeding PKE to young calves less than four months old is not recommended because they are not fully functional ruminants at that stage.

PKE meal is in general an easy, safe and low-cost feed for pasture based dairy systems. It is most suitable for filling feed deficits and putting condition on cows. Grain based feeds give in general a better milk solids response and mainly as milk protein, but require more controlled feeding. Cents per megajoule is important, but not the only consideration when assessing which feed is most suitable and will give the best financial return.

Wybe Kuperus is the Director of NutriSense Limited in Darfield.

Andrew Coleman

Exercise Taurus – a catalyst for improvements in biosecurity preparedness

In March this year, the Ministry for Primary Industries was put through a comprehensive simulation of a foot-and-mouth disease outbreak to ensure we are well prepared for such a significant event. Exercise Taurus, as it was named, enabled MPI and other government agencies to practice their roles during a major livestock disease outbreak. The exercise also demonstrated how they could return New Zealand to normal trading conditions as quickly as possible, thereby minimising the effect on the economy.

In my role as the Ministry's head of response activities, I spent the exercise as response commander. In this article is a short review of the exercise and the work MPI is undertaking to make improvements.

Managing the problem

More than any other developed country, New Zealand depends on the success of its primary industries and the biological systems that underpin them. Over 70 per cent of our merchandise exports relate to farming, fishing, food and forestry, a total of $33 billion a year. The production and market access of those exports depends on our biosecurity status. A major biosecurity outbreak would shut markets to our exports, potentially for some time.

The arrival of the highly contagious livestock foot-and-mouth disease would cause economic losses in the range of $6 billion to $16 billion depending on the scale of the disease spread. The losses would arise mainly as a result of being excluded from premium overseas meat and dairy product markets for months or years. Losses also include effects on tourism and flow-on effects to other sectors which service primary production.

In the event of a foot-and-mouth disease incursion MPI, along with other agencies, is geared up to initiate a rapid emergency response. As a result we are able to provide assurance of our freedom from foot-and-mouth disease to other countries and minimise the effects if it were ever to arrive in this country.

Testing the response

New Zealand has never had an outbreak of foot-and-mouth disease. Its isolation, risk management and border control measures have combined to prevent this. In 2005, there was a foot-and-mouth disease scare which initiated a full-scale response. It is vital that MPI maintains the capability to respond to the unlikely event, given what is at stake.

In March this year MPI staged Exercise Taurus 2012 – a simulation designed to test a government response to a foot-and-mouth disease outbreak. Taurus 2012 was the first major test of since 2005 and involved around 250 people from 12 government departments along with representatives from five industry organisations.

Supporting agencies included the Department of Prime Minister and Cabinet, Treasury, Ministry of Foreign Affairs and Trade, Reserve Bank, New Zealand

Police, Ministry of Transport, New Zealand Trade and Enterprise, Ministry of Economic Development, Ministry of Social Development, Ministry for the Environment and Department of Conservation. Staff from Beef + Lamb New Zealand, the Meat Industry Association, NZ Pork, Deer Industry New Zealand and Dairy NZ also participated.

The exercise involved a simulated outbreak of foot-and-mouth disease in sheep flocks in Taranaki and Hawke's Bay. Over a period of two days, participants were subjected to a wide variety of scenarios as the exercise aligned with how a real outbreak would develop.

The response strategy

In reality, responding to a detection of foot-and-mouth disease involves three components, where disease response, trade and recovery management teams operate under a comprehensive strategy. The disease response management team focuses on –

- Detecting the disease
- Minimising its spread within New Zealand with a national livestock movement standstill to prevent long-distance spread
- Tracing the movement of animals to and from locations where the disease is detected, to identify spread which may have already occurred
- Eradicating the disease as quickly as possible by slaughtering animals in the disease areas with suitably-sized buffer zone to prevent natural short distance disease spread.

The trade team ensures that –

- Possible sources for the arrival of the disease within New Zealand are identified to help with disease tracing from recently imported animals and animal products
- Animal and animal product exports are suspended

Recent exports are identified to prevent any forward spread of the disease internationally. Trading partners would be rapidly informed of the outbreak and the progress with the disease management response. The trade team would also negotiate the conditions under which normal trade can resume and support industry to develop alternative marketing arrangements in the interim.

The recovery team would advise the government on the provision of financial and community support that would enable businesses to rapidly resume production once market access is restored. The team would also administer compensation payments to those adversely affected by the exercise of Biosecurity Act powers for the purpose of the response. This would be for livestock which would have been destroyed for disease control reasons.

The three teams need to have a common understanding of the biosecurity system and the links between offshore, border, surveillance and response activities. A common understanding enables decision-making in each team to reinforce the overall goal of regaining foot-and-mouth disease-free status, resuming normal market access to premium markets and rebuilding the capacity to meet the usual market demand.

Exercise results and recommendations

The independent observers of the exercise considered that Taurus was a robust test of the preparedness for foot-and-mouth disease of MPI and other departments and agencies. They considered that agencies collectively are reasonably well placed to respond to foot-and-mouth disease.

Overall, the exercise highlighted the importance of having an integrated biosecurity system which is agile and adaptive. Any delay from misalignment or miscommunication between the disease response management, the trade team and the recovery team could have catastrophic effects on the economy.

The three components of the response strategy need to work together to minimise the overall effect on primary industries and the wider economy. Each team has to draw heavily on their detailed knowledge of the overall biosecurity system, along with their regular day-to-day working relationship with other teams to provide the coherent and coordinated response needed.

The main areas for improvement identified the need for –

- A comprehensive and regular exercise programme each year
- Better integration between the teams working on disease response management, trade and recovery so they produce a single coherent response
- Alignment of information management systems which will enable MPI and supporting agencies to view the common operating picture, so that everyone is aware of the status of the response at all times and can communicate accurately to everyone involved
- A shared understanding of how the various biosecurity emergency response activities can be effectively coordinated to provide a government and industry response
- More effective involvement between MPI and government resources to create a higher level of biosecurity emergency preparedness
- MPI to work with other departments to develop a recovery plan for the primary sector and the wider economy.

The management action plan

As a result of Taurus 2012, MPI has put in place a biosecurity response plan to implement the exercise recommendations. The plan consists of seven programmes of activities under the leadership of directors from MPI.

Whole of government

This is a body of work designed to enable MPI to lead a whole of New Zealand response, harnessing the skills and experiences of both government and primary industry. Under this programme work is being undertaken to establish better links into government emergency management so that MPI can learn from recent experience with large scale, high-risk crises such as the Christchurch earthquakes.

This work also involves taking part in the government coordination meetings, and forums being used to manage national and international events. MPI is formally establishing partnerships with the police, the defence force and the Ministry of Civil Defence and Emergency Management.

This work will help ensure the police, defence force and civil defence and emergency management have all the information they need to manage the movement of livestock when a national livestock movement standstill is invoked. The effectiveness of this can affect the scale of the response, such as containing it to one region or island, as well as its duration and its overall economic effect.

Filling policy gaps

This will help fill known policy gaps around compensation and a policy framework for recovery from a major incursion and response. Work here will help minimise the long-term effects on individuals, communities and the rest of New Zealand. The work, to be carried out by MPI's sector policy team, will establish a system for foot-and-mouth compensation so that it can be determined and paid quickly, fairly and pragmatically.

A project of analysis is set to be completed by March next year. In addition, work will take place to ensure the Biosecurity Act covers all the actions required for national strategies for identified high-risk organisms.

High-risk preparedness

This sets out to establish programmes of work to ensure New Zealand is ready to respond to high-risk pests and diseases if they arrive. This work programme, overseen by the MPIs Director of Preparedness and Partnerships, will develop an improvement programme and a comprehensive agreed national strategy specific to the disease.

By 31 December this year, the full programme will be planned and agreed. This will be subject to industry involvement using the proposed Government Industry Agreement and the foot-and-mouth disease joint working group, which includes the animal industries and MPI. Work to be incorporated into the programme includes –

- Agreeing on urgent movement controls, including developing clear instructions for putting a livestock standstill in place
- Developing standard communications materials
- Allowing for emergency carcass disposal
- Updating the existing foot-and-mouth disease response plan
- Agreeing a foot-and-mouth disease vaccination policy with industry.

This programme will also identify other high-risk problems which require specific preparedness improvement programmes such as biosecurity, food and other emergency responses.

Systems

This programme sets out to align systems for managing a response and response information flows to ensure that those who are making the decisions have full oversight of all information available. The high level analysis for the programme is expected to be completed this year and plans agreed by mid-2013. The work will ensure that information is contained in a single, easily accessible location for consistent updates to available for decision-makers, stakeholders and those providing media briefings.

There is currently a range of systems used in responses. Examples include an incursion response system, the National Animal Identification and Tracing system, FarmsOnLine and laboratory information management systems. These need to be integrated.

The programme will see a review of the system used in planning and implementing movement controls. We will require staff to use all the core systems in their day-to-day business, so that they are practised at using them when a large-scale response occurs. It will also provide an opportunity to validate and improve these systems during smaller events.

Integrating response functions

The programme will ensure the response functions across the MPI and contributing agencies are better integrated. Decision making in the disease response management, trade and recovery teams needs to be mutually reinforcing. This is made particularly difficult in a fast-moving response as any lag in information flows can mean that the three groups are not always operating with the same base information.

Information technology solutions can help to reduce the time lags, but decision makers need to be very familiar with the operating modes of the other two teams. They can then anticipate the probable direction of travel of the overall response and be prepared for the range of occurrences during the response.

It can only be effective if the teams have strong day-to-day involvement with the each other and the biosecurity system. The work programme will enhance and maintain links between the various functions with joint small-scale exercises and information sharing sessions. The first joint exercise is scheduled to take place before the end of the year.

The programme team will also scope an approach to integrate MPI's various response functions. This could include considering other response and emergency management structures and processes, as well as amending systems and structures to include responding under joint decision-making with industry as would happen under the proposed Government Industry Agreement.

Communications and liaison

This programme will make sure appropriate plans are in place to communicate with the public and stakeholders in the event of a major response. It will also ensure systems are set up so that liaison channels are maintained. Work here involves communications planning and regular updating databases of contacts in an emergency.

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Nicola Shadbolt

The Centre of Excellence in Farm Business Management

Over the years, the discipline of farm business management has seen a serious loss of capability and capacity, and has suffered from a lack of investment. Unsurprisingly this has contributed to a reduction in research activity and advances in the management of New Zealand farming systems. There is a strong industry demand to solve this problem and rebuild our farm business management expertise. It starts with a focus on our academic strength and connecting this knowledge with rural professionals, farmers and the industry generally.

The Centre of Excellence in Farm Business Management is a joint investment of DairyNZ and the Primary Growth Partnership, together with the Lincoln and Massey University Partnership for Excellence. The fundamental aim of the centre is to build farm management capability by strengthening linkages between academics, rural professionals and farmers. Then the aim is to carry out research and education which will enhance the understanding of farm business management and advocate global best practice.

The strategic framework which guides the centre is based on six points –

- Teaching will be informed by research
- Research will challenge current thinking and critique prevailing assumptions
- Professional networks will influence industry strategy
- The work plan will be informed by industry strategy, opportunities and challenges
- To attract world-class researchers, teachers and students
- To build the next generation of academics, rural professionals and farmers.

Strategic and operational plan

This plan is the result of consultation with the respective university farm management academics and the advisory committee. The long-term and annual plans are strongly influenced by the results from analyses of market needs, stock-takes of currently available training programmes and farm business management tools in New Zealand and Australia, and an in-depth understanding of the status of global relevant farm business management research.

As a result of industry consultation, an annual programme of activity is formulated which helps addressing critical knowledge gaps to improve current thinking in farm business management and on-farm decision making. Linked to this, and using the research results, is an education and training infrastructure for industry growth in rural professional and farmer business capability.

All work undertaken by the centre is aligned to five main themes which have been determined as underpinning the discipline of farm business management –

- Strategy and structures
- Resilience and decision making
- Farm systems
- Data
- Human capability.

By continually focussing on these five themes, and evaluating proposals with these in mind, it ensures that critical knowledge gaps are filled and results are relevant.

Research activities

A collaborative approach is important for the research activities of the centre and is a distinct point of difference. By connecting and combining external industry experts and students with Massey and Lincoln University academics into research teams, the Centre is able to benefit from a strong core knowledge base which will challenge and extend current thinking in farm business management.

A project proposal submission process takes place on an annual basis. All potential projects are reviewed jointly by both universities, again ensuring collaboration and capability across those involved in the centre. Where appropriate, a range of organisations may contribute to the projects in the plan.

Education activity

Importantly, the Centre is focused on producing tangible research results, and the development of an education and professional development programme helps obtain these. As

with the strategic framework, this programme is informed by research and guided by discussions with industry and sector stakeholders.

The education initiative includes university postgraduate education and professional development for farmers and other interested professionals. It is envisaged that this will promote recruitment of postgraduates, and attract a new culture of professionalism for farmers and the rural professionals supporting the dairy industry.

Professional development modules will be developed as a result of gaps identified by both research and industry, but they may also be developed specifically for organisations to help with staff training. This flexibility enables the centre to meet industry needs, add value to organisations servicing the rural sector, and increase the capability of those working with farmers and providing advice to them.

Connecting with industry

Connecting research teams with those who will use the results has not always happened in a seamless or timely manner. To try to overcome this, the centre is adopting a philosophy of working together. By actively looking for involvement with the broadest possible rural and farm business management community it hopes to achieve results which are practical, user-friendly and creative.

New Zealand dairy farmers and the industry will get these results by a variety of methods. The results from the comprehensive research portfolio will be presented in formal peer reviewed journals and conferences to ensure our researchers are critiqued by their peers. The papers will then be made available on line and presented to farmers via industry conferences, journals and workshops or seminars.

A vital component for successful industry connection is the development of the OneFarm web site. The web site provided the platform from which to launch the Centre of Excellence in Farm Business Management and is important for connecting with the target audience. It provides the mechanism to demonstrate current and previous research, and for professional development modules, webinar series and learning tools.

The web site also encourages and aids user discussion on the research using forums, blogs and topical polls. This is a crucial part of the process for the Centre as so it can gain feedback from the industry on its activities. Involving rural professionals and farmers in the research process is another factor that sets the work apart.

Achievements

The Centre initiated the organisation of an international succession summit, which brought experts from around the world to speak on this important industry concern. The summit was the first step towards improving the knowledge of rural professionals in the area of farm succession and planning, as well as farm business structures and governance. It has also provided direction for further research and the information required to provide much needed learning resources on this subject.

The summit was recorded and presentations are being made available on the OneFarm web site so that all can benefit from the information shared over the two days. Work is currently underway on developing an accreditation system for farm succession experts, as well as formulating a series of workshops for rural and other professionals to increase knowledge, confidence and capability.

A targeted networking strategy enables the Centre to begin to form strong links with national organisations such as the Dairy Women's Network and the Young Farmers Association, and internationally with Farm Management Canada and the Universities of Guelph, Wageningen and Harper Adams. These relationships form the first stages of creating opportunities for joint research, information sharing and sabbatical fellowships.

Nine research projects have been successfully completed on topics ranging from challenges in precision dairy farming through to the use of farm tools by rural professionals. Summaries of each project are available to view on the OneFarm web site and the full reports will be made available after the peer review process has been completed.

From an education perspective, seven postgraduate scholarships have been awarded across both universities and applications for 2012/13 are currently being assessed. The Centre has selected four individuals, and supported their participation in Modules 1 and 2 of the Food and Agribusiness Market Experience programme to help in the development of their management capability.

The future

Currently DairyNZ and the Primary Growth Partnership fund the work of the Centre, but the aim is to secure sustainable funding and close cooperation from other industry organisations. This would enable the two universities to recruit additional staff, attract sabbatical visitors, and fund greater numbers of postgraduate students to contribute to the programme. In addition it would widen the focus from purely dairy-related work to cover the needs of other industry sectors.

DairyNZ has begun discussions with Dairy Australia on potential links in farm business management research and education. The Centre will look for opportunities with the Australians to apply in the New Zealand and Australian markets. Developing a close connection with the NZIPIM will ensure the Centre's activities develop in line with their needs for training and accreditation, and suggestions on research opportunities.

For further information on the Centre of Excellence in Farm Business Management please visit www.onefarm.ac.nz. The work of the Centre is funded by New Zealand dairy farmers through DairyNZ and the Primary Growth Partnership.

Professor Nicola Shadbolt is the Director of the Centre of Excellence in Farm Business Management.

Kevin Wilson

Registration accreditation and primary industry professionals

Registration was a cornerstone of the New Zealand Society of Farm Management when it was established in 1969. It was retained when the Society evolved into the New Zealand Institute of Primary Management in 1999. Skip to 2012 and the question becomes – Is registration or a similar concept relevant in the current professional environment and if so, what should it look like? This article sets out the history of registration and attempts to answer the above question.

The original vision

The vision of the founders of the NZSFM was to raise the standards of farm management advice.

The technological advances in New Zealand agriculture after World War II led to an increasing number of people – graduates and others with experience – offering management advice to farmers. The quality of that advice varied widely. Members needed a tertiary qualification to join. On reaching a required standard they could be registered, in effect it was public notice of competence from a reputable professional association.

There was recourse for the public in the form of a disciplinary procedure held by NZSFM in the event that a member, registered or not, did not uphold the expected standard of professional conduct. Registration was compulsory for members who were practising consultants, but was not enforced due to a lack of resources or funds and perhaps a reluctance to uphold the rule. The rule was later dropped.

Farm consultants and field staff

The focus of members at that time was on farm management, the knowledge and expertise in tying together the attributes of the land, labour and capital of the farm business in a coherent way to get the best out of the resources for the owner. Members of the NZSFM in its early days were doing just that. They were predominantly farm consultants and field staff from Lands and Survey, the Department of Agriculture, the Rural Bank, the New Zealand Dairy Board, the New Zealand Meat Board Economic Service and the farm management departments at the universities of Lincoln and Massey.

The requirements for registration included an acceptable degree and three years of full-time experience. The applicant also had to submit to a registration board five reports which purported to demonstrate the applicant had the knowledge and expertise in farm management. Registration was well supported by all members in the early phase.

Did the process raise professional standards? The very small number of disciplinary hearings needed by NZSFM and NZIPIM in the subsequent 40 years suggests that standards were high, but attributing the low incidence of disciplinary issues solely to the two umbrella associations might be a stretch.

Subsequent history

By the late 1990s the number of applications for registration was tailing off. However, the ideals of registration were thought strong enough by the NZSFM council of the time and member workshops to retain registration within NZIPIM when it superseded NZSFM in 1999.

It is also worth stating why it evolved into NZIPIM. Membership had grown, but more importantly the skills of members had widened and this happened in two ways. First, members had either changed jobs within agriculture or within their organisation. They were still involved in agriculture, but although the understanding of farm management was important it was not the main emphasis of their day-to-day work.

Secondly, agricultural advisory services were well down the road towards specialisation including fertiliser, finance, feed systems, rural accounting, pastures and fodder crops. Recently specialists in human resources, strategic planning, environmental, irrigation and effluent have appeared, and become members. In the last 10 years various groups of members have confirmed the criteria for registration, and the process of evaluation has been strengthened.

The result

The number of registered members has steadily declined from 172 in 1998, 142 in 2002 and 102 in 2012, with the average age increasing. Membership in general has also aged. There are several reasons that can be attributed to the decline in registered members. Membership and registration is a voluntary requirement for the profession. There is no statutory, regulatory requirement for primary industry professionals to belong to or be registered by NZIPIM. It would be very difficult, and more likely impossible, to change this.

NZIPIM is not in the public eye. The business activities of members are not life-threatening compared with doctors and pilots, or health-threatening as for plumbers. Nor have members, with one exception, been involved in dubious or fraudulent practices sufficient to warrant public demand for protection.

Membership of NZIPIM is only relevant for an estimated 50 per cent of potential members and registration is seen by many members as only relevant for consultants. Only about a third of members are consultants and less than half the members who are consultants are registered.

In short, membership of NZIPIM has only nominal value to primary industry professionals and registration has no value to most members. Even those who are registered rarely promote that fact in their business.

So back to basics –

- Who are existing and potential members and is a registration system, or an equivalent, needed?
- How does a representative association become more relevant?
- Who does it represent?

These questions do become a circular argument. A system for registration is highly desirable if a professional association is to have relevance, but it must add value to its members and the public to attract members. A starting point is a premise that the association represents professionals.

A professional is a highly trained person, often with a tertiary qualification and with specialist knowledge, which they apply in a disciplined and considered way to a high standard. The results include information, recommendations or actions all applied with the appropriate conduct and demeanor.

What is wanted from a professional association?

Professionals want the association to add value by creating a point of difference for them in the market place and, ultimately, enhancing their income. They join an association representing professionals for one or more reasons including to –

- Exchange ideas with like-minded professionals
- Have their expertise peer reviewed
- Be part of a lobby group
- Be part of an organisation that promotes the professionals as a group within that industry
- Have industry professionals working to a common code of conduct and ethics
- Provide recourse for the public in the event that a professional does not meet acceptable standards
- Because statute or regulation requires them to belong.

Review of expertise implies a system of recognition within the professional association. Status titles such as senior member, accreditation and registration can form part of recognition. However that status has to be frequently recognised in the public arena, within the professional association, or provide a monetary reward to add value, or probably a combination of all three.

Most of the above reasons for joining a professional body are more likely to be applicable to self-employed professionals. The public assumes that an organisation employing a fee-charging or salaried professional has done its own due diligence on the employee and has its own disciplinary procedures. Employers have their own culture and training. Salary is based on several other attributes of the employee before membership of NZIPIM or registration is taken into account.

Industry attitude

Local authorities and industry good organisations are starting to want primary industry professional employees and contracted consultants to belong to a recognised professional body which in turn, has a registration or an accreditation system. It is reported that there is also a slow move within the wider users of primary industry professionals for a similar recognition system.

An independent registration or accreditation process is seen as a means of establishing the creditability of the employer with the public and the competence of the

employee and the consultant. Similar moves are being made in the employment of other professions.

Registration or accreditation of primary industry professionals is being inferred or explicitly understood by the local authorities and industry good organisations as being a generalised status. That is, the person has reached a set standard of understanding in farm management as a whole – agricultural systems in modern parlance – within their particular specialist expertise.

That is not quite where NZIPIM is heading. Distinguishing between member, accredited and registered, if the term is retained, will require some careful words and a lot of publicity.

Review of registration

NZIPIM Council commissioned a working group in late 2011 consisting of Charlotte Glass, Sue Cumberworth, Keith Woodford, Wayne Allan and myself. The first goal set was to develop a credible, workable professional registration scheme which is acknowledged and supported by referral agents and clients and is considered highly desirable by members. The second was to establish a framework for accreditation.

The need even to have a registration scheme was debated. That it is a means of raising standards in the profession was the main reason for its retention. In turn, that would increase the status of both NZIPIM and the profession as a whole. Some principles were established by the working group –

- Registration would be targeted at all members, not just consultants
- Registration would be an acknowledgement of background training, and professional skills and standards
- The process of registration, and subsequent maintenance of registration, should increase standards of members
- Registration would be supported by accreditation in specific areas of knowledge.
- Registration should be competency-based with subjectivity provided in the final stages – by referees and an interview.

The biggest problem identified was how to build the value proposition, particularly for non-consultants. Five main areas which registration supports and that are of value to the individual are –

- Increasing professional standards in the industry
- Enhancing professional creditability
- Ensuring continuing professional development is maintained
- May allow access to new streams of professional activity
- Kudos.

The principles stood as the working group progressed but the terminology did change. Two issues became apparent. The requirements to become a member of NZIPM lacked rigour compared to many other professional associations and the membership structure was unwieldy.

The result was a view that the barrier of entry should be raised for the status of member. That would lift the overall standards of professionalism in the NZIPIM, which was the underlying thrust of the institute and its registration policy. More controversial was that the term registered be dropped and replaced with member. Council initially agreed to both.

The working group proposed that an academically qualified individual could join as an associate with a minimum of paper work. To progress to being a member the person must have all of –

- A recognised agricultural tertiary qualification which provides an understanding of agricultural systems to a 201 level or another tertiary qualification plus a postgraduate qualification in agricultural systems. The study level of systems management has yet to be finalised.
- Three years of professional experience in their field
- Having met the continuing professional development requirement of the NZIPIM
- Making a statutory declaration on three attributes of character, have had no criminal convictions or have pending criminal cases in New Zealand or overseas, are not bankrupt or been adjudicated bankrupt or pending, are not currently subject to, or been the subject of, or pending a professional disciplinary hearing
- Provide two referees
- Passing communication and ethics modules or have passed substantially equivalent study while completing, or subsequent to completing, their tertiary studies
- Being accepted by the board as a suitable person to be a member.

The status of member will be open to all associates, not just consultants. Only a member could use the letters MNZIPIM after their name. They must maintain the annual continuing professional development requirement to retain the status of member or they revert to an associate. Declarations of character would be required every five years. Grandfather clauses would apply to existing registered members.

Meeting the criteria for member can be seen as saying the applicant is qualified to be a professional. There was debate over adding that a member can also apply their skills in a practical way and within the context of the whole business. The working group favoured focusing on the first part. Independently assessing the competent application of skills in a robust way is a huge challenge, and expensive, given the diversity of skills between members.

Accreditation

Accreditation is an explicit recognition which a set standard of perhaps narrower specialist expertise has been reached, for example, nutrient budgeting. The working group agreed that accreditation is an add-on to the status of being a member, which has the requirement for a base understanding of farm management.

Accreditation in a specialist expertise will be achieved by an applicant passing a course or completing a set activity to an established standard. The working group agreed it was important that NZIPIM took a role in accreditation, but not be the provider of training. This will be done by a commercial

operator with standards set by the market and reviewed by the board established by the NZIPIM. The content of training will also be set by market demand.

Accreditation in agricultural systems – farm management – might be granted if the applicant has passed two 300 level papers in the subject. It may require postgraduate study. The standards for accreditation in any subject are heady questions for a board with an independent member to assess and determine. Both associates and members can be accredited in the specialist expertise, but only a member can use the accreditation on a business card and letterheads. Again, the council has accepted the above.

Rearguard action

Several registered members are not happy about dropping the term registered and I have some sympathy with that. The term member says you have some experience and are qualified but it will have no resonance with stakeholders without a lengthy explanation. The use of the term registered has an almost instant recognition as having reached a high standard due to its wide use in professional and trade associations.

A tested level of competence is absent in the 'member' proposal. But the difficulty in testing the level of competence has already been mentioned. A suggestion that competence be self-assessed, with a statutory declaration by the person that they are competent to act in their expertise, has raised some eyebrows and seen as lacking rigour. It does pass the buck fair and square to the self-declared expert in the event of a dispute over competence and not on a board who has made a judgement and later found to be wrong.

Adding the term registered as another membership tier re-clutters structure. How about retaining two main levels of membership – associate and registered member? This issue is being revisited by council.

The other part of the story

Re-vamping policies, procedures and membership structure has been done before. The end result has been little real change as already discussed. Successive councils, and I was part of it for a while, failed to grapple with the real problem of how to make NZIPIM relevant to stakeholders. That is a real struggle for a small association of 800 members consisting of around 600 subscription members along with students, those who have retired, and a $160,000 gross income. This is in addition to councillors who have a job to keep going, and part-time administrators, their hands full with general administration.

It needs NZIPIM to promote itself far more widely, and to actively promote the knowledge and expertise of primary industry professionals. It needs current members and registered members to promote themselves as members of the NZIPIM. It is understood that council are in the process of reviewing what, why, how and when questions for the future direction of NZIPIM which includes giving consideration to the above issues.

Conclusion

A professional association needs a hierarchy of standards to be credible to both its members and the stakeholders. Making the standards too easy to achieve does not create respect or value for them. Make them too hard and primary industry professionals will not bother, as there is no compulsion.

The working group proposals simplified the membership structure, raised the standards for being a member, and made this term applicable to all primary industry professionals. They have to be steps in the right direction. Making the distinction clear between registration, or its replacement, and accreditation is one of the challenges for NZIPIM.

It could be argued that the proposals of the working group are still only tinkering at the edges. That would be true if they are the only changes. NZIPIM also has to change and promote the profession on a wider scale. Tying it all together is the challenge – just like farm management.

Kevin Wilson is semi-retired in Blenheim and is a Registered and Life Member of NZIPIM. His career has been in agricultural finance and economics with the Rural Banking and Finance Corporation, the National Bank and finally with ANZ National.

>> Exercise Taurus – a catalyst for improvements in biosecurity preparedness continued from page 30

Improving capability and capacity

The programme will ensure there is sufficient capability and capacity to respond to problems with high risk organisms.

The MPI's human resources team will help identify those within the organisation and across other agencies who have the appropriate technical and leadership capability for important roles in a response. Opportunities will be sought to improve staff skills in leadership, opportunities will be investigated for two-way exchanges from partner organisations where people have suitable skills and experience in emergency management.

Under this programme a schedule of exercises will be developed to further test and validate New Zealand's preparedness and identify areas for improvement. This will involve how partners can be involved in exercises and how we can participate in others.

Conclusion

Exercise Taurus 2012 was a valuable and at times stressful simulation. It tested and challenged everyone involved. But the massive effort that went into it has been well worth it.

We generally got things right, sometimes we did not, but the point of the exercise was to learn. We learned a lot and New Zealand's biosecurity system will be stronger for it.

Andrew Coleman is Deputy Director-General, Compliance and Response, Ministry for Primary Industries

Keith Cooper

Striving to set the standard Silver Fern Farms

A proud, progressive, partnership – Silver Fern Farms is a company on a mission to create the world's best red meat experiences. In doing so, it hopes to make a significant contribution along the way to building a more sustainable future for one of New Zealand's most significant primary sectors.

Silver Fern Farms is New Zealand's leading procurer, processor, marketer and exporter of sheep, lamb, beef and venison and associated red meat products to more than 60 countries. The company was registered in 1948 as Primary Producers Co-operative Society, eventually trading as PPCS until it changed its name and brand in 2008 to Silver Fern Farms, heralding a significant change in direction.

Today the company is New Zealand's second largest primary sector company behind Fonterra. The business owns and operates 23 processing sites throughout the country and has and eight sales and marketing offices around the world. It employs over 7,000 staff at the peak of the season. Silver Fern Farms also remains a farmer-controlled cooperative representing over 16,000 sheep, cattle and deer farmer shareholders throughout the country.

The company's strategy is to become a fully integrated company investing in consumer products which will add value to its farmer partners, customers and people. In 2010 Silver Fern Farms became a major co-investor, along with the New Zealand government, in a Primary Growth Partnership programme. This aims to turn the meat industry's traditional approach led by production into one which is market-led and focused on responding to consumer needs in a plate-to-pasture integrated value chain.

Crying out for leadership

The sales approach has resulted in an unsustainable production-based red meat supply chain. This has meant that plant throughput has been maximised for global customers, with little focus on the value for the customer or the sustainability of the components in the existing supply chain.

Several reports in recent years have highlighted the significant problems affecting the red meat sector. The current supply chain is often described as dysfunctional, inefficient and driven by production. It has led to market failure and to an industry where the main focus has been to convert livestock into cash as quickly as possible. This is shown by sheep and cattle farmers moving away from meat production as the meat industry has not competed for land use with the dairy sector.

The meat industry continues to struggle to be competitive for land use as a result of years of under-investment in technology and farm productive systems. This is born out of a lack of concentrated leadership within the sector in the form of large commercial entities such as Fonterra or from effective, focused organisations. The meat industry has no Dairy NZ.

Equally, the continued erosion of land in use by beef and sheep farmers

undermines the sector's ability to be profitable and to reinvest in its future due to the continued over capacity. It is inevitable that more plant capacity rationalisation will occur in the sheep meat sector as it continues to respond to competition for land use by downsizing.

Commodity problem

The continued strengthening of the New Zealand dollar exposes the meat industry as a commodity based sector without any insulation from commodity prices cycles in the form of global brands. Silver Fern Farms is convinced that the economic environment which surrounds the meat industry will linger while it continues in its current form. In the company's view, it is characterised by a fragmented ownership model, with diverse and opposing strategies, no clear sector leadership, and where farmers are poorly integrated into the value chain to global consumers.

There have been good examples of red meat value chains in operation before in New Zealand, but they have been small-scale initiatives targeted at niche markets with limited information capture and feedback. None have operated at scale or captured the full benefits at each part of the chain to dramatically improve farm profitability in a sustainable manner.

Silver Fern Farms believes it is critical to solve the problems which the industry faces to assure a viable future for its supplier base. It is an unfortunate state of affairs when the world is demanding more protein, and premium markets require food security and safety, but as a sector we cannot get together and gain the value from those opportunities.

As a result, the company has made a commitment to its shareholders to adopt a leadership role in the introduction of new methods and models in the future. Of significant importance is the company's commitment to the Primary Growth Partnership – FarmIQ Systems Limited.

Leading transformation

Silver Fern Farms, Landcorp Farming, Tru-Test Group and the Ministry for Primary Industries will invest $151 million over seven years in the red meat sector. This is to create a market-focused and integrated value chain which will produce the transformational change that the industry requires.

Individually, the industry partners and around 20 associated groups, who also have solutions, do not have the resources or capability to develop a programme of this breadth and scale in the current operating environment. Their collaborative action draws on their own expertise, as well as their combined networks with benefits across the industry.

The business case stated that by 2025 the value gained to the industry of the programme would be 47 cents for every dollar earned. It attributed the additional value generation to growth in four areas –

- Production growth representing the additional amount of meat produced as a result of improved animal breeding and farm systems.
- Value growth representing the increased value secured in markets and distributed back to value chain participants.
- Carcass conversion representing the optimisation of products produced per animal in processing plants.
- Capability growth representing the improvement in on-farm management by improved farmer information, feedback and farm inputs.

Connecting farmers to markets

Farm IQ is the resultant joint venture with the aim of achieving the aim of the Primary Growth Partnership business case to grow the red meat sector's contribution by $8.8 billion by 2025. Over the next seven years this will be achieved by the development of six separate projects under

Farm IQ's plate-to-pasture programme, which work together to connect the farmer and the customer. This adds sustainable value across the supply chain.

Farm IQ's market analysis project aims to identify and understand which markets and market segments are willing and able to pay a premium for quality red meat products. This is being achieved by in-depth market and consumer research. The second phase of this project is the development of products to meet customer specifications. Consumer sensory evaluation or taste panels play a critical role, as does developing the appropriate product packaging and recipe suggestions for specific markets.

The processing project is collecting accurate information on meat yield and quality and, with traceability made possible by electronic identification, is feeding this data back to the farmer. In this way, the farmer can identify the breed, genetic and management practices which are producing the most profitable meat cuts and carcass conformation.

The genetics project focuses on identifying animal traits to meet customer specifications for which they are prepared to pay more. This harnesses genomics technology, capable of estimating animal performance without full progeny test and therefore speeding up genetic-based gain, to identify desirable animal traits. These genetics will be made more widely available to commercial farmers.

The farm productivity project has a simple objective which is to improve on-farm production and performance using best practice production systems. It will be carried out by obtaining data about animals and farm inputs and linking this back to the value chain. In this way, product specifications can accurately match consumer specifications. The project covers overall farm management systems, equipment infrastructure, forage influences, animal nutrition and health. Farm IQ will showcase new technology and best practice.

Underpinning all of the projects is the Farm IQ database project. This exists to obtain and analyse on-farm and processing data throughout the value chain so farmers can link an individual animal's performance back to management practice. The volume of data processed means the centralised Farm IQ database will give farmers an accurate means of benchmarking their performance regionally and nationally, as well as identifying trends in management practices. The final project relates to the management and governance of the Farm IQ project itself.

Advances in processing technology and innovation

Silver Fern Farms has developed innovation centres at plants throughout the country. A range of projects is underway aimed at collecting more accurate quality and yield information. With increasingly accurate and more sophisticated insights to hand, the company can then involve farmer suppliers to help improve on-farm productivity gains using improved genetics, forage, animal health and management systems.

The last year saw significant investment and developments in the company's processing technology and capability. Examples include –

- Sheep electronic identification scanning is up and running, while cattle and deer electronic identification panel readers are being installed and trialled
- Radio frequency identification is being installed across all Silver Fern Farms' processing sites to track carcasses from slaughter to boning
- Five new x-ray systems are being built to undertake lamb yield analysis
- A prototype beef boning station is now operational at the Finegand plant, which will be used to test a product tracking solution and develop improved boning yield control systems.

The following work has also been carried out.

- A market analysis project is close to completion to inform the business case for traceability from farms to consumers

- Expert reviews were completed for meat quality and measurement technology
- Meat quality investigations were undertaken on tenderness, purge, vacuum pack confinement odour and shelf life, which will help improve overall meat quality and allow more accurate matching of quality against customer specifications.

Measuring yield is important to establish the value of meat derived from each carcass to send this information back to suppliers. Pricing signals will then improve genetic and farm management to increase animal value. Various technologies are either in use or under development within lamb plants, such as x-ray for primal weight proportions, DEXA for meat: fat: bone proportions, and microwave for surface fat depth. These technologies are being developed so that the company can make smarter decisions on the best way to bone each carcass to maximise value.

Innovation

Commitment to innovation is evident in the newly commissioned Te Aroha plant. Designed in consultation with experts in process layout and ergonomics, and incorporating the latest technologies including sophisticated traceability and yield collection systems, it reflects the company's focus on plant economics and best practice processing.

The rebuild of the Te Aroha plant provided the company with the chance to review the environmental footprint of its operations. The new design has been developed with eco-efficiency and sustainability in mind. The focus is on improving environmental efficiency, while reducing costs by better use of resources and reduction of waste. The new Te Aroha plant will use significantly less electricity and water per head processed, discharge less effluent per head, and will set a new industry benchmark aligned to global customer requirements. Coupled with the innovative solutions offered via Farm IQ, the company is working hard to set new standards in processing.

Building a global brand

Silver Fern Farms believes it is charting a different course from other producers in the red meat industry. The company is convinced there is a real opportunity for a brand to embark, armed with the best meat products available, on a global mission to increase knowledge and appreciation of red meat for the consumer. It has made a considerable investment over the last four years to design the brand and marketing infrastructure required to change the nature of the business.

Silver Fern Farms has consciously turned the old saying from pasture-to-plate on its head. It typifies the traditional meat industry as we know it – finding markets and customers for its range of products. Instead it is focusing on the plate part first, targeting consumer needs and asking farmers to grow animals specifically to meet these needs.

New Zealand has always had a natural advantage in producing quality lamb, beef and venison, but this has created complacency. The industry needs to develop more sophisticated branding and marketing strategies to target premium segments in niche markets if it is to grow and prosper in the long term.

Product innovation is increasingly being informed by consumer insights and follows international trends. A capability we are developing is consumer understanding and knowledge of the company's target segments. Knowing how consumers perceive and use premium lamb, beef and venison is crucial to building brands and new products that consumers want.

This approach is not new to innovative fast moving consumer goods food companies, but the red meat industry in New Zealand and globally has been slow to develop such capabilities. Building consumer insights and future foresights is the cornerstone of any major food company.

With family size decreasing Silver Fern Farms has found that 'portion for purpose' or natural products which offer good quality and taste at a the right size for the occasion, is

important for consumers to make decisions. The company therefore developed and launched a range of branded portion-controlled products into the New Zealand market in 2009.

It discovered that New Zealanders had lost confidence and the art of cooking red meat and this was acting as a barrier to purchase. As a result, there was a gap in the market for a range of premium quality, tender and tasty lean red meat cuts ideal for different occasions, and the company identified an opportunity to educate consumers on optimal usage.

Working in partnership with the major New Zealand supermarket retailers, Silver Fern Farms focused on bringing new innovation into the premium red meat category, offering something different from the standard supermarket butchery lines. The brand and products are suited to increasingly busy lifestyles and meets a need for consistent, healthy and convenient options that can be prepared easily at home.

The company also ascertained that consumers dislike their meat being over-packaged. Subsequently, a lot of work went into ensuring that the packaging achieves the right balance between convenience, maintaining integrity and providing information about how best to cook and serve the meat while still allowing consumers to see it.

It is also investing in an integrated marketing and promotional programmes. This is aimed at building the knowledge of red meat, enabling consumers to appreciate the cut, the aroma the taste and the story. This can inspire them to create a good meal experience – how to prepare the meat, cook it, what to serve it with, and how to serve it.

Major achievement

New Zealand has proved an ideal testing ground for the company. The business is now well positioned to roll out a premium niche branded product range to affluent global markets. However, it does require a major change and heavy long-term investment in research and development, food and packaging technology, and brand building.

In 2011, the company's range of premium lamb cuts was accepted into approximately 250 Tesco stores across the United Kingdom. This was the first time that a branded consumer range of lamb had been launched into a private label dominated category in the grocery channel. It was a major achievement for Silver Fern Farms and the red meat industry as a whole.

The launch into this market was the first significant step of the company's plans to roll out its retail strategy internationally, and has provided the platform for it to start building the brand's global positioning. The company now has its sights set on entering the German market with a super-premium retail range of lamb and venison in 2013.

Cooperative strength

To plan stronger marketing programmes throughout the year with New Zealand retail customers, the company has needed to work more closely with a committed group of suppliers. This is to ensure a consistent supply of high quality stock to an agreed programme which meets animal traceability, animal welfare and environmental quality standards.

It is important that any brand has consistent taste, texture, tenderness, colour and consistent supply. In the future, the focus will be on a guaranteed perfect experience to consumers. Farm IQ has been established to accelerate that vision.

Holding to its cooperative values, we are committed to producing sustainable returns to its farmer partners. Regular communication and involvement with the company's supplier-shareholders are critical if the company is to build the committed and loyal partnerships which will enable the company to meet its long-term objectives.

It is vital to the success of the strategy of increasing the focus on the consumer and their needs to educate farmers that the red meat industry is hampered by its continual dependence on a throughput. Farmers are encouraged to think about the effective use of their pasture.

Producing three 19 kilogram lambs as opposed to two 25 kilogram lambs demonstrates a real understanding of what consumers are happy to cook and what they want to eat. Increasing the value of the product in the market place increases the return to farmers. The company is now seeing the benefits of the creation of a modern farmer partner cooperative, with a clear progressive strategy, which focuses on operating within today's challenges and invests in the future.

From meat processor to marketing exporter

Silver Fern Farms recognises it needs to reinvent what it means to be a New Zealand primary industry meat company. The company has challenged itself to obtain more significant proportion of revenue from premium value branded products and knows this will need brave steps to change the corporate culture from meat processor to design-led food people.

In 2012 the company adopted a new vision statement – inspirational food created by passionate people – to galvanise this change. The new statement reflects the company's aim to do things differently and challenge the norms. It reflects an innovative culture.

Passionate people are vital – the staff, suppliers, shareholders, customers and consumers. It reflects the emphasis we have in the business of having the right people in the right places working in the right way. Silver Fern Farms are charting new territory. We may not always get it right first time, but we will learn quickly from our endeavours and make better progress as a result.

At the heart of the business we are a spirited co-operative, proud of our people, progressive in our approach, and firm in our partnerships. We believe this will make the real difference.

Keith Cooper is Chief Executive of Silver Fern Farms in Dunedin.

Farm IQ for better decision-making

Farm IQ allows farmers to track individual animals through their entire life, all the way to slaughter, something which has never been done before. It offers the opportunity to make more informed farm management decisions by having accurate information on individual animals, resulting in greater profitability.

Using this system, farmers are able to maximise the number of high production animals on their farm and ensure they are growing to their full potential. There can be a focus, for example, on increasing the percentage of animals within specification, ensuring feed goes to priority stock and reducing costs by the use of selective drenching. One other significant advantage is the ability to monitor animal health risks and trace this through to the plant. In the future, this type of technology could be used to allow consumers easy access to information about the provenance of the meat they are eating.

One of the first

There are currently over 400 farmers involved with Farm IQ. Last season a total of 320,000 lambs and ewes were tagged and in the system, 41,000 cattle, and 6,600 deer. Numbers for this season are currently building. Central Hawke's Bay farmers Sam and Hannah Morrah were among the first to sign up to Farm IQ. The couple won the Marks and Spencer Future of Farming award a year ago and subsequently attracted a high profile in relation to their lamb finishing. Farm IQ recognised the advantages of the Morrah's farming philosophy and the direction of the programme.

The Morrah's farm of 755 hectares is at Wallingford, near Waipukurau. About 250 hectares is cultivatable, which provides them with options for finishing. Over the past six seasons they have moved from a traditional sheep and beef operation, dabbled with a bull beef system and are now running a sheep breeding and finishing, and a cattle trading operation.

They have 3,250 breeding ewes and buy in replacements as two-tooths every year. The flock is Romney based, but the incoming two-tooths are Focus Genetic's Highlanders. A contract allows the Morrahs to concentrate on lamb finishing, averaging 19 kilograms per carcass this season – up from 18.5 kilograms last season.

Improving business

The lambing percentage is currently between 130 per cent and 140 per cent, with an additional 2,000 trade lambs purchased before the winter and sold during winter and early spring. About 200 to 300 weaner heifers and 50 rising two-year-old bulls, depending on autumn conditions, are also taken through the winter. Up to 80 cows with calves are purchased in the spring as a grazing management tool, then sold before the winter.

Sam Morrah said that the lamb finishing focus is a new policy and one they came to after concluding it was sheep they were good at farming and this suited the property. They had had had four or five tough years and were sick of battling with average livestock due to high cattle numbers. Now they grow good forage, which grows good stock, for which they get paid a good price.

The Morrahs are believers in contract supply to manage risk and because of the guaranteed margin it allows them to budget for. Sam says his attitude to Farm IQ is simple. He says that there is PGP money and it is there to be spent. Rather than stamping our feet and saying things are not working, we might as well use it to our advantage. They would have upgraded anyway and are using Farm IQ to improve business and hopefully, over time, will be helping to improve our industry as well.

Profile

Andy Macfarlane Life Member

Like many rural professionals of his generation, Andy Macfarlane grew up in town. His interest in the rural sector was triggered by family holidays at Methven, and his father's interaction as a bank manager with farmers in the many regional towns the family lived in. It is a link Andy believes we need to work harder at, as city children are more removed from rural interaction. He believes it is unrealistic to expect the urban population to understand and empathise with agriculture and how the food supply chain operates, unless people in the rural sector are proactive in communicating and involvement.

Andy saw an agricultural science degree at Lincoln University as being his entry ticket to the agricultural sector. It was only as a third year student, while on a holiday internship with MAF, that the idea of a career in farm management consultancy struck him. After leaving Lincoln, he was posted to Wanganui as a Farm Advisory Officer, where he had responsibility for the Rangitikei area.

Business ventures

The mixed land-use of that area attracted Andy. However the opportunity late in 1981 to join the private sector as a young consultant for Englebrecht, Royds and Tavendale in Ashburton was too attractive to turn down. By 1987, he had joined forces with John Tavendale, John McKenzie and Phill Everest to form JB Tavendale & Co, and also Agricom.

The partners saw Agricom, managed by John McKenzie, as an opportunity to develop a new business creating benefits for themselves, farmer growers and plant breeders. This was done by using the plant royalties to fund breeding programmes for future plant cultivars.

By 1997, career path choices had to be made so Andy formed Macfarlane Rural Business with Jeremy Savage and Nicky Hyslop, and invested his share of Agricom into commercial property and farmland. He regards himself as lucky and privileged to have had the opportunity to work with top farmers, scientists, farm management consultants and other professionals. The basic concept of a farm management consultant being an integrator of this specialist knowledge appeals to his strategic skills and passion for working with others to create profitable businesses.

Succession plan

Andy has tried to replicate the opportunities he was given as a young consultant by people such as Grant McFadden, Fred Phillips, Mike Adamson, John Tavendale and Bob Englebrecht by building a succession plan for Macfarlane Rural Business. The comapny has eight advisers ranging in age from mid-20s to mid-50s. He appreciates the support Canterbury farmers have given his business, which has allowed the employment of young consultants with the right attitudes and skills.

The willingness of those Canterbury farming businesses to employ and pay for one-on-one advice has not only helped the region's farm business growth, but has ensured a flow of new advisers to the area. He is conscious that the effect of a poor rural sector image, a risk-averse farming and consultancy sector, successive government policies leaving agricultural productivity growth to chance, and a proliferation of the one man band low cost consultancy model has fewer such opportunities elsewhere in New Zealand.

Value of cooperation

Andy was a recent President of the NZIPIM, involved in initiatives to remedy that shortage of farm business management and practice change capability. He believes the NZIPIM is the entity around which professional standards can be encouraged and capability increased. He suggests that it will require an even closer relationship between –

- Science institutions which produce the new material knowledge and information for members to interpret, integrate and disseminate
- Universities which attract, educate, train and re-train graduates, along with their research role
- Industry good bodies which should have clearly defined objectives for productivity and profitability for their sector.

These objectives give scientists, farm management consultants, and other rural professionals a more transparent pathway down which their clients can move.

Other roles

Since completing his term as President, Andy has accepted governance roles with AgResearch, Lincoln University and as chairman of Deer Industry NZ. Aligning those roles with

his valued background, and his business roles as an ANZCO director and farmer, means he has the luxury of seeing across the entire value chain.

The opportunity to see international agriculture at work over the past decade, particularly through the International Farm Management Association, has reinforced to him that New Zealand agriculture had done very well, particularly in pasture-based farming systems, kiwifruit and small seed production. However we have a significant amount of untapped potential. It is realising some of this which inspires him to try to create greater synergies for the organisations and people in the industries he works with.

Opportunities and challenges

At an on-farm level, Andy and his partners work on the integration aspect of their advice with the combined expertise of the eight consultants, building on the natural skills of their clients to grow profitable businesses. They see two particular opportunities –

- More professional interaction and understanding of the interface between governance, management and labour in the farm business
- Optimising the use of, and benefits from, the smart use of irrigation water in agriculture.

Being based in Ashburton, with ownership involved in sheep, beef, deer, arable and multiple dairy businesses, keeps his strategic approach firmly grounded towards implementation and risk management. Like many of his generation, those views were formed in the traumatic years of the late 1980s where many hours were spent helping rural families restructure their farming businesses to cope with a free market economy. Andy recalls that while those years were formative in understanding risk management strategies, they also opened his eyes to counter-cyclical investing.

Testing skills

Andy and Tricia, in partnership with Andy's brother, brought their first land in 1989. He notes that their first loan was at a fixed two-year rate of 14 per cent. The current farm earnings before tax, averaging around $4,000 a hectare, far exceeds the original farm capital cost of around $2,500 a hectare.

The risk management skills have again been tested over the past two years in Christchurch, where several buildings owned as investments by his family and clients were destroyed in the earthquakes. Despite that time-consuming issue, Andy is very optimistic about the future of Christchurch as the gateway to the South Island. But he also reminds his friends there that, in reality, it is the economic power of the rural sector that provides the impetus to that rebuild.

Andy is of the view that strong groups of people create better results than many individuals. His career path and investments have therefore been centred on working with, or building teams, whether that is at a farm level, in the consultancy practice, in off-farm investment, in governance roles, or within his own family.

Home life and the future

Andy and Tricia Macfarlane have four children. Thomas graduated with a Lincoln University degree in agricultural science. He has inherited his father's passion for agriculture, and is currently working in the United States to learn more about beef after two years of farming. Julia has graduated from Massey University with a degree in design, and with a fellow graduate has set up a business in Christchurch. James recently left school to start a career in the insurance industry and Lauren is still at school.

Andy is particularly appreciative of the contribution his wife Tricia has made in enabling him to work across the sector. She manages the farm and personal finances, a big family, rears calves and still has time to mentor and help overseas students coming to New Zealand.

Andy notes that the next few decades are a time for opportunities in agriculture, and for New Zealand, but also a time for cool heads. He would love to attract more people to the sector to take advantage of that opportunity, and is working towards helping create an environment where that is possible. He sees the NZIPIM as a vital component in the jigsaw of organisations.