IN THIS ISSUE

West Coast feature

Overseas ownership and investment in New Zealand farmland

VOL 15 NO 4 DECEMBER 2011 ISSN 1174-524X

Primary Industry Management

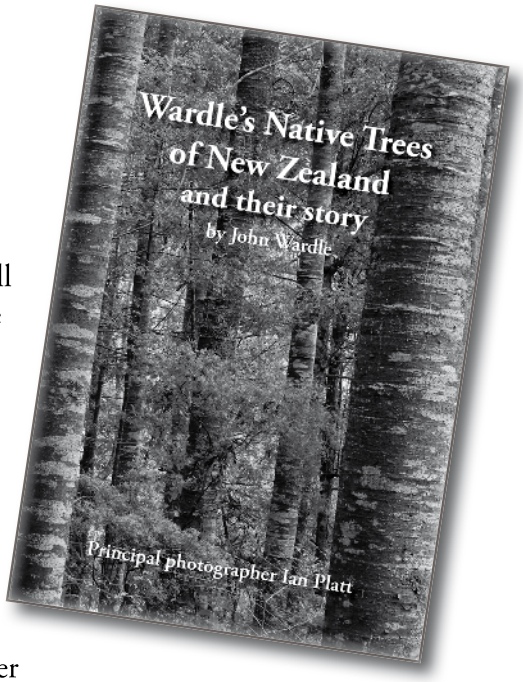
THE OFFICIAL JOURNAL OF THE NEW ZEALAND INSTITUTE OF PRIMARY INDUSTRY MANAGEMENT INCORPORATED

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



Order this book now. Stocks are limited and it will not be available in shops for quite some time. The book is currently only available directly from the NZFFA.

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.

This book is an easy-to-read, but all-encompassing account of our native trees with over 300 full colour photographs. The text includes botanical and ecological characteristics of 330 species of native trees, describing form and dimensions as well as foliage, flowers and fruit.

There is detailed geographic distribution along with the types of site and plant associations in which they are normally found. Information is also provided on propagation, establishment and the potential for planting.

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.

You are only able to buy this book directly from the NZFFA using this form.

All proceeds from the book will go to the NZFFA.

Order form for Wardle's Native Trees of New Zealand and their story

To order a copy of the book send this form or a copy to NZFFA, C/o BPL, PO Box 2002, Wellington or telephone your order to 04 385 9705.

Please send me _____ copies of the book *Wardle's Native Trees of New Zealand and their story*
Price $95 including post and packing.

Payment information:

Cheque encl. ☐ Payable to NZ Farm Forestry Association

Please debit the following card: VISA / MasterCard (circle one)

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ Exp. date: ☐☐/☐☐ Signature: _____

Name on the card: _____ Phone: _____

Address for delivery: _____

_____

_____ **Postcode:** _____

PIMDEC11

New Zealand Institute of Primary Industry Management

National Office
55 Cuba Street
PO Box 33-369
Petone
Lower Hutt
New Zealand
Phone (04) 939 9134
Facsimile (04) 939 9135
Website www.nzipim.co.nz
Email admin@nzipim.co.nz
President: Andy Macfarlane
Executive Officer: Kerry Geertson

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.

Primary Industry Management is dedicated to the publication of articles on all aspects of agricultural science and the management of primary industry resources. The opinions of the contributors are their own and not necessarily those of the publishers or editor.

Editor
Julian Bateson
Email: bateson.publish@xtra.co.nz

Assitant Editor
Helen Greatrex

Editorial Office
Bateson Publishing Limited
PO Box 2002
Wellington
New Zealand
Telephone 04 385 9705
Email bateson.publish@xtra.co.nz

Advertising Enquiries
Bateson Publishing Limited
Telephone (09) 406 2218
Facsimile (09) 406 2219
Email julianne.orr@batesonpublishing.co.nz

Subscription
$60+GST (New Zealand), $90 (Australia), $110 (other countries). Subscription enquiries should be directed to the NZ Institute of Primary Industry Management.

Primary Industry Management

Volume 15, Number 4 December 2011
ISSN 1174-524X

Contents

Nico Mouton

Editorial

The West Coast of the South Island is synonymous with big variations in weather and rainfall levels of up to 4000 mm more common in tropical conditions. In these unique geographic conditions a large range of pastoral farming is undertaken.

This issue of *Primary Industry Management* looks at a few of the enterprises on the West Coast, and particularly one of the major enterprises – dairy farming. Westland Milk Products in its present form was created after the changes to the Dairy Board and the formation of Fonterra. The dairy shareholders in Westland Milk Products decided not to join the new co-operative and continued with Westland Milk.

The Westland Milk story is impressive to note, coming from the early settlement times in the 1800s to its present establishment, investment in new plant that sees it producing a wide range of highly specified products. Milk production creates valuable employment on the West Coast and contributes substantially to its local economy. Of note is the added value that the company is working with as opposed to being involved in large volume commodity exporting.

Much is made of the lifestyle on the West Coast and it has many of the attributes synonymous with the New Zealand mountain landscape and outdoor lifestyle. West Coast dairying is clearly on a development and expansion path and it has now also ventured into the Canterbury area, creating an interesting competitive and choice for dairy farmers between Westland Milk and Fonterra in certain areas of its supply base.

Environmental challenges due to weather conditions are as problematic as anywhere in New Zealand and the example of Rooney farm at Lake Brunner and the management of their environmental responsibilities is notable. Reductions in cow numbers, improved efficiency and the management of nutrients in setting up a monitor group in the Hokitika area will all benefit the West Coast dairy farming, along with its ability to sustain its production under sometimes difficult weather conditions while still meeting increasing environmental standards.

An important contribution to this journal is by David Jackman et al regarding breeding of perennial ryegrass and its crucial contribution to the New Zealand economy and the foundation of all our pastoral industry. In the previous 10 years there has been a large number of varieties of ryegrass offered with improved selection of traits. However, there have been challenges to the new varieties in the previous five years. In particular through periods of drought, and especially following the 2007/08 drought, with the increased challenge of black beetle in the North Island affecting ryegrass persistency and farmer exasperation with the persistence of perennial ryegrass.

There is a tension between the cost of breeding in the long pipeline from laboratory to commercial variety, which can be up to 14 years for cultivar development. Of concern is the low rate of dry matter gain of perennial ryegrass verses crops such as maize. There is a call by the writers for a more comprehensive indexing system and the availability of good data, which brings to the fore the importance of well targeted research and the improvement of the national forage variety trial system.

The future New Zealand pastoral agriculture will still be reliant on ryegrass and the importance of independent trial work and data to assist plant breeders cannot be over-emphasised. The Pasture Persistence Symposium in May 2011 highlighted the concerns with regard to pasture persistence. The farming community has also moved into other species such as commercial forage varieties of chicory and plantain to overcome the perceived weaknesses of ryegrass.

Foreign investment in New Zealand agriculture is well covered in two contributions to this journal, indicating that it is a political and emotionally charged concern. There is an increasing interest in agricultural land worldwide with the perception of the value of food production increasing demand as world population goes over seven billion.

An increased interest in New Zealand land assets by sovereign wealth funds will continue as well as interest in land from individuals. The danger of foreign investment and the complete vertical integration of agriculture, however, needs to be carefully considered when applications are received. The present overseas land owners tend to be either investors in production facilities from agriculture, or land only, and market their production through the locally owned agricultural co-operatives or companies.

Contracts in all forms are important in agriculture. Well-thought out contracts to secure an end product price as well as having clear relationships with contractors will all improve the farm's performance and give some security to the price of products sold. The updating of the Sharemilking Agreement Order 2011 indicates the specific nature of this contract and that it is covered by statute. Farmers are accustomed to the Employment Contracts Act and this has led to improvements in farm employment. The Sharemilking Agreements Order is no different in clearly specifying the terms and conditions of their relationship.

West Coast feature

The West Coast of the South Island is a significant challenge for primary industry, but there are still quite a few successful companies and farmers who work in the region. This short feature on the West Coast contains articles on The Cascade Whitebait Company and Westland Milk Products, along with two DairyNZ case studies.

Matt O'Regan

Dairying on the West Coast the Westland way

Dairying on the West Coast has come a long way since the late 1800s when butter packs were stored in a pit next to the river bank to keep them cool. Today, dairying is a billion dollar industry and has a cornerstone value within the local economy and West Coast community.

The dairy cooperative on the West Coast, Westland Milk Products, serves 340 dairy shareholders. Following a massive overhaul of the dairy regulatory framework in 2001, and a decision by Westland to become independent from Fonterra, the company and its dairy farmers have gone from strength to strength.

Westland's vote to remain independent from Fonterra set the company on a path to carve its own future in the dairy industry. This proved to be a success, with the company experiencing a 60 per cent increase in milk solids production. This year is shaping up to be another record year. The company is progressing well down its strategic path to become the world's leading provider of nutritional products using recently initiated capital investment.

The company plans are backed by a cooperative structure which has contributed to a successful past and prosperous future for farmers, their families and the surrounding community on the West Coast. Dairying and the payouts distributed to farmers is a significant contributor to the wider West Coast community. Dairying returns more than $10,000 each year for every person on the West Coast because of its resulting spend.

Westland now has a world class manufacturing plant, with a turnover of more than $500 million a year. It is a stable and strong cooperative which is taking advantage of the rapidly growing global dairy industry.

The loyalty and drive of Westland's 400 staff is a critical factor for the company's success and the employees are integral to the business. Plans to reinvest profits back into new infrastructure, research and development and staff are set to continue Westland Milk Product's on the West Coast.

Brief history

Westland's history dates back to 1893 when West Coast dairy farmers first entered the commercial world of

dairy processing. With refrigeration not yet developed, and shipping schedules less than reliable, it was not until refrigeration was introduced that exporting became a viable business.

The next significant leap forward in technology occurred in 1968 when skim milk could be collected from farms and dried at a new processing factory to create powdered milk. Until then, skim milk was an unused bi-product of the milking process, requiring farmers to house more than 30 to 40 pigs on a farm, the smell of which was widely known to be the nemesis of the dairy farmer's wife.

As production increased and Westland's processing facility in Hokitika grew the company quickly became one of the region's largest employers. By 1992, Westland was supplying all the butter in the South Island including Tararua, Fernleaf, Anchor, Meadowfresh and Mainland brands. The cooperative consistently dominated its peers for quality, monopolising the national milk products awards held throughout the 1990s.

Independence retained

Westland was forced to face its biggest challenge in 2001 when the New Zealand Dairy Board was disestablished and small processers such as Westland faced the decision of whether to merge into the newly-formed dairy conglomerate Fonterra. At the time, Fonterra controlled approximately 97 per cent of the dairy industry and had acquired almost every major factory in New Zealand with the exception of Tatua and Westland.

Naturally, Westland was invited to join the dairy giant, but shareholders elected to retain their hard-earned quality mark and remain independent. Westland was now responsible for producing, manufacturing and selling its own product on the international market place.

Dairying on the West Coast

The West Coast has all the ingredients needed to produce some of the finest quality milk in the world thanks to the region's abundant rainfall, ample sunshine, high water tables and natural springs which promote lush green pastures and all year grass growth. Westland's milk collection catchment spans more than 440 kilometres from Karamea to Fox Glacier where the region has an annual average rainfall of 2,000 mm a year near the coastline, and up to around 8,000 mm near the mountain ranges.

During the season from August to May, Westland's fleet of tankers collect milk from nearly 400 farms, some tankers covering more than 600 kilometres in one shift. The processing plant in Hokitika operates around the clock for 10 months of the year, and tankers can be scheduled to arrive at the farms at any time of the day or night.

During peak periods, the milk tankers' three bays are kept continually occupied. A tanker and trailer unit can carry up to 28,000 litres of milk which can be unloaded in as little as seven minutes. For six days a week, products go by rail from Hokitika to Westland's warehouse facility in Rolleston.

Wide range of products

Testing the milk begins before it has left the farm with samples from each farm on every collection taken for daily analysis in the laboratories. Once unloaded, individual milk samples are analysed for quality and milk solid content to determine the payment farmers will get for their milk. These figures are then uploaded on to the web portal for dairy farmers to see online later that day.

Westland already has one of the most technically advanced and flexible plants in the world, capable of producing over 250 varying specifications. This includes a full range of milk powders and fats, milk proteins, bioactive, consumer and nutritional products.

The milk powders have a wide range of suitable applications include drinking milks, general vending and coffee applications, snack foods, confectionary, spreads and dips, baked products and nutritional products where low lactose levels are required. The milk protein range is used by industries which manufacture sauces, nutritional products, cheese, weight management formulations, yoghurts, beverages, coffee whitener and low fat spreads.

The research and development team interacts directly with the product and development teams of customers, ensuring ideas can be rapidly converted into a commercial reality. The company is also proactive in liaising with universities and external research organisations, both in New Zealand and around the world. This ensures it remains informed of the latest industry developments

The West Coast lifestyle

One of the big advantages to dairying on the West Coast is the attractive lifestyle it provides to dairy farmers and their families. The West Coast has a thriving economy supported by its main industries of agriculture, mining, tourism and fishing. Employment in the agricultural sector is relatively stable, with the largest increases in employment experienced in the dairy sector.

The West Coast region has been identified as one of New Zealand's fastest growing economies, growing by four per cent in 2010 at a time when the rest of New Zealand was shrinking. The region also recorded stronger than average growth rates in employment, productivity, population and business size.

Family lifestyle is important to those known affectionately as coasters, who look out for each other and are well known for being relaxed and friendly. Low crime rates and low traffic volumes contribute to low stress living. Many West Coasters are able to indulge in their passion for the outdoors, thanks to the region's expansive and mountainous terrain. Fishing and hunting, kayaking, golf, multisport, boating on the lakes and climbing and tramping are popular among locals as well as among national and international tourists.

The West Coast community works hard to bring a range of first class health, education and professional services to the region. Banks, accounting, legal and farm supply firms are well represented throughout the region, in particular Hokitika, Greymouth and Westport.

Good representation

Dairy farmers on the West Coast are also well represented with numerous organisations and community support groups set up across the region. Federated Farmers is very active, holding regular provincial meetings in outlying towns providing a collective voice for farmers at both a provincial and national level. Voluntary organisations such as Rural Women New Zealand and Young Farmers also provide much needed support to the dairy industry community. Agricultural workers are trained on the West Coast by local industry funded training organisation AgITO.

Professional courses on relevant topics such as animal health, pasture management, dairy effluent management, milk quality and general farming skills ensure the future dairy workforce is equipped to take the industry into the next generation. Westland also provides numerous opportunities to upcoming employees in the form of cadet and scholarships opportunities, awards and sponsorships.

The West Coast's thriving dairy industry enables the community to plough resources back into its infrastructure, transport and other vital community services. With the industry expected to continue to flourish, it is anticipated the dairy industry's contribution to the West Coast community will continue to grow into the foreseeable future.

Dairying and the environment

Environmental sustainability is vitally important for the industry and for the dairy farmers themselves. The pristine West Coast land is the lifeblood for dairy farmers and the tourism industry, which is the second largest economic contributor. As such, Westland and its shareholders are committed to protecting their precious natural resource.

Westland's farms are sustainably managed with a view to protecting the heritage for future generations. Initiatives are continually being recommended to promote further sustainability. Most recently, all West Coast dairy farmers agreed to operate under a code of practice to ensure appropriate best management practices for environmental, animal welfare and farm presentation standards are adhered.

The code ensures water quality in dairy catchment areas is protected and effluent management is maintained in line with the strict requirements of the Resource Management Act. Alongside the regional council, Westland conducts its own regular on-farm checks to monitor compliance.

In line with its commitment to promote global sustainability, Westland also recently joined the Emissions Trading Scheme voluntary participation programme. This is a precursor to January 2012 when it will be required by law for agricultural operators to operate within an annual allocation of carbon credits. Voluntary participation allows Westland to record its own emission units and review its current manufacturing processes adapt where necessary to reduce its carbon footprint. Westland sees this as a great opportunity to improve its sustainable practices and protect its environment for the future.

A growth story

Since 2008 Westland has been focused on transforming the company from a medium-sized, West Coast-focused, dairy commodity producer into a nutritional dairy products manufacturer and marketer. The strategy aims to strengthen the long-term sustainability of the business while taking advantage of an unique opportunity to enter the lucrative market of nutritionals and paediatric formulas.

Existing customers around the world are already leading brand owners in these markets which, in the paediatric nutritional market alone, is worth approximately $24 billion a year globally. Globally consumers are demanding more protein in their diet and paediatric formulas and nutritionals help satisfy that demand. Westland is at the forefront of product and market development in this sector and is ensuring strategic capital investment is targeted towards this market. At the time of writing, Westland is investing heavily in rapid milk growth enabling technology and marketing capabilities to position the company at the heart of the nutritional growth market.

Capital spend

Significant capital expenditure has also been set aside to invest in a number of new initiatives, including the construction of a new reverse osmosis plant at the Rolleston warehouse and office facility. This plant removes half of the water from the milk which is then transported by train from Christchurch to Hokitika. The de-watering process halves the cost of transport.

Westland also plans to invest in a state-of-the art paediatric nutritional manufacturing plant on the West Coast, to satisfy customer demand and produce nutritional products at volume. The upgrade will include building a dedicated nutritional products batching facility, enabling production of large volumes of milk powder on demand. There will also be electronic traceability to the standards required to manufacture and sell nutritional products successfully.

Westland is also taking steps to increase its share-backed milk supply outside the West Coast and into Canterbury. The plan to increase the milk supply beyond the West Coast presents an opportunity for the company to extend its special culture to include Canterbury dairy farms, some of which are amongst the most productive in New Zealand. For Canterbury dairy farmers, the opportunity to join a dairy company at a price of $1.50 per milk solid has been too good an opportunity to miss, resulting in a number of secured commitments.

The future has never looked so promising. Strong demand in Asia continues to encourage demand. Strategic growth plans, which include new capital investment in human resources and infrastructure, have positioned the company well to secure a place on the international dairy stage.

Matt O'Regan is Chairman of Westland Milk Products

DairyNZ case studies

Water-sensitive farming West Coast style

Renee and Greg Rooney farm near Lake Brunner on the West Coast, a natural playground that includes rivers, lakes, mountains, valleys and dense bush. The couple are equity partners in the 300 hectare farm they have worked on for the past five years, developing it into the asset it is today.

Like most West Coasters, they face challenges because of the landscape. Heavy rainfall averaging 4,500 mm a year, and numerous water bodies on the farm including the Orangipuke River, affect the way they farm. They are also aware that improving the water quality of Lake Brunner and its catchment waterway including Orangipuke is a high priority in Westland.

Monitored farm

The Rooneys want to preserve the area they live in. For this couple, taking care of the land goes hand-in-hand with looking after their livelihood. Greg has lived in the district since he left school and Renee has been there over 12 years. Their farm in the Inchbonnie catchment is one of those monitored as part of the best practice dairying catchments project initiated in 2001. Using this information their progress has been measured and documented by researchers.

The numbers show that the work to lower nutrient losses from their farm has paid off – for the environment and their business. Farm phosphorus losses were reduced from 1,280 kg to 320 kg a year of phosphorus between tests in 2004 and 2009. Despite high rainfall, the farm has a low environment footprint with 37 kg of nitrogen per hectare leached and phosphorus run-off of 1 kg of phosphorus per hectare.

The Rooneys are modest about their achievements, saying they have done nothing extraordinary, but just made smart decisions followed through with hard work – best practice management commonsense. Greg runs a tight ship in terms of the day-to-day management of the farm.

The couple are now in their fifth season on the property. Previously they stocked around 800 cows, but in their first year they took that number back to 450 to develop the farm, which included re-grassing. The herd is now at 515, a number they do not intend to build on by too much. With this number they are able to increase production, improve cow condition, and increase profitability.

Water sustainability projects

One of the bigger pieces of work has been a bridge constructed over the main waterway of their property. The bridge has reduced the amount of nutrient and faecal contamination from entering the waterways and also improved animal health by reducing cases of lameness. Stock crossings are also protected with multi-barrel culverts covered with river stone.

The Rooneys refer to a sustainable farm plan, put together as part of the Lake Brunner catchment project. They say much of it is common sense and work they would have carried out anyway to protect their land, although it still serves as a useful guide. Another major task, also in the plan, has been placing protective rocks in strategic areas to stabilise eroding stream banks.

Nutrient efficiency and riparian fencing

Most of the waterways have been fenced off. Until the re-fencing project is completed, there are still a few smaller areas which need to be temporarily fenced when animals graze alongside. Other work includes increasing their effluent block from 44 hectares to 55 hectares for better nutrient efficiency. They follow a nutrient budget and are smart about fertiliser use. Fertiliser is applied more frequently in lesser amounts instead of big hits. They have gone away from using as much nitrogen, planning to go back to storing it using a silo system, rather than just throwing it away.

They also plan to take advantage of the West Coast Regional Council's biodiversity fund to extend their riparian fencing. The work is never-ending, but the results show that even in a very challenging environment there are always options to make dairying sustainable.

Their story has been used as part of a DairyNZ project designed to improve nutrient use efficiency by providing practical examples from farms across the country. DairyNZ developer, Brigid Buckley, is leading the project which focuses on strategies to help farmers improve their nutrient use efficiency while looking for opportunities to reduce nutrient losses from farm systems.

The farmers used in the case studies were selected because they all face different challenges from the environment they work in. DairyNZ and FertResearch have developed regional indicators of nutrient use, so farmers have an idea of what 'good' looks like for their region. This will help farmers gauge whether they are doing well at using their nutrients, or if they should look at taking steps to improve.

She says the practical steps the Rooneys have taken to improve their dairy farm will be useful for others to learn from. These case study farms provide practical examples of how farmers can improve their nutrient use efficiency, nitrogen loss, as well as phosphorus loss.

She also says the indicators and case studies will help farmers and their advisors as they work through their nutrient management plans. They are all useful resources which can help farmers understand how to use nutrients productively to grow feed and more produce milk while minimising nutrient losses from the farm system.

Monitor farm feeds the data-hungry

Dairy farm owners Tane and Rachel Little have opened up their 100 hectare farm, at Kowhitirangi near Hokitika, to others in the area as part of the farmer-initiated West Coast monitor farm project. The project is designed to provide farmers with regional information using emails, field days, discussion groups and weekly reports. Data for grass growth, average pasture cover and rainfall is collected from four different farms at Kotuku, Westport, Ikamatua and Kowhitirangi. The financial and physical data is also entered into DairyBase.

Tane has worked on the farm for 10 years, advancing up the career ladder from manager to sharemilker before buying the farm last year. He and Rachel volunteered for the project, now into its third season, after seeing the benefits.

Pasture growth monitoring has allowed them to identify the best and poorest performing paddocks, aiding pasture management decisions and identifying opportunities on their own farm. Field days are also interesting and have provided Tane with a different perspective on management techniques, finding that it is good to hear from other farmers about how an idea or method has worked out for them, before giving it a go.

DairyNZ runs discussion groups on the property and also used the data at other events in the region. The main objectives of the project include developing a database of reliable pasture growth rates for four dairying regions on the West Coast.

The project is valuable to farmers who may not take their own measurements. They can use the information from the monitor farm nearest them to help make management decisions. The large variation in growth rates recorded on the monitor farms confirm that it is important that different regions, with differing micro-climates, are represented.

The Kowhitirangi farm was identified as the most profitable of the four farms last season, mainly because of low farm working expenses of $2.28 per kilogram of milk solids. Tane is keen to aim for better than this – there is room for improvement.

A version of these case studies first appeared in the Dairy NZ* Inside Dairy *publication in April 2011.

Nanette Buchanan-Brown

The Cascade Whitebait Company A West Coast fishery

The Cascade Whitebait Company had its beginnings in the mid-1940s. The story of the Buchanan family setting up their whitebaiting business is common to many pioneering settlers. Poverty pushed them to work harder and longer than the norm. Each of the brothers gave their individual skills to reach the common goal. Bill was the administrator, Bruce, Ted and their brother's in-law Dick and Charlie Eggeling provided the muscle power and mechanical knowledge, with Henry as the entrepreneur.

Whitebait potential

The Buchanan brothers became aware of the potential of the whitebait in the Cascade river after working for the Nolan family for several seasons. They had been catching and packing out whitebait from the top of the Cascade to Dinny Nolan's canning factory at Okuru. In 1949 the family decided to pool their resources and build a boat, the *Cascade*, and use it to carry whitebait by sea to the Nolan canning factory during the whitebait season, stealing a march on their previous employers. They also used it to catch crayfish during the rest of the year.

After several seasons it became clear that the treacherous river mouth was a major handicap to the new operation. Also at this time Henry was dabbling in venison recovery by air, so the plan to build a landing strip was quickly acted on. During the next two years the family cleared the flax and flattened the ground to make a serviceable airstrip. The first flight was by Des Nolan in 1954.

Expansion

With the closure of the Nolan canning factory in 1953 the family had to look further afield to sell their product and sold to Ferons and other fishmongers in Christchurch. Bevan Nolan joined the venture in 1956 after fishing further up the Cascade river for nearly 10 years. His natural talent at organisation and selling whitebait quickly saw him spending his seasons in Christchurch rather than on the Cascade riverbank. Alan Roulston, another new company member, took his place.

The first planes to fly the tins of fish from Cascade to Christchurch were leased from aircraft companies and individuals. It took many years of saving to buy the first company plane, but by 1987 a Cessna 180 was purchased. Today the company owns a Cessna 185 which spends the season transporting chilled whitebait to Christchurch and back with supplies.

Nestled in among the flax and the sand flies, the huts of the Cascade whitebaiters have stood the ravages of wind and rain for over 60 years. Originally there was only one hut, Hermit, located on top of a sand hill. However as the fledgling business expanded, and the brothers married and had families of their own, buildings sprouted up in the flax from supplies carried in by sea, river and air.

Today there are nine accommodation huts as well as sheds for generators, boats, planes, chillers and socialising. Originally the Buchanan brothers leased the land which their whitebaiting business used from the Forest Service for a nominal sum. With the advent of the Department of Conservation lease-holder arrangement, fees are now set at market rates.

Current operation

Fishermen erect their stands in late August ready for opening day on 1 September. They fish their stands come rain, wind or shine for six hours of the incoming tide before lifting their net and returning with their catch to the camp. The whitebait are quickly sorted before being chilled in drainer buckets to allow water to escape.

The whitebait is then packed and flown to Christchurch to reach the markets in the best condition. As soon as the weather allows, the whitebait are flown to the depot at Waiatoto, Haast. Canterbury weather is checked and any whitebait bought from fishermen caught on other Haast rivers are added before the plane is flown to the Christchurch retail outlet.

Whitebait has been sold commercially by many individuals and businesses throughout New Zealand. The Cascade Whitebait Company is a limited company where most shareholders fish the stands on the Cascade river for the

company. The fresh and frozen product is sold throughout New Zealand to retail and wholesale buyers. Third generation family members are now beginning to become shareholders and face new challenges looking into the future. Exports to New Zealanders living overseas may be one of these.

A game of chance

The fishery continues to fluctuate from season-to-season as it has from the first season the family fished on the Cascade. Catches have reduced throughout the West Coast, but it is a point of much debate as to the extent of that reduction. With more stands built, and pot netters becoming more plentiful, is it also a case of a much smaller amount shared further or a slightly smaller amount shared further?

The company has always pursued a policy of conserving the breeding stock, ensuring that the Ministry of Fisheries closed off the north side of the river to the first tributary and all side creeks of the Cascade river. Newcomers are soon told of these conditions if they fish there by mistake. This season has been a good one throughout the southern West Coast so conditions must have been very favorable during spawning in March and again during April spring tides.

As with all wild fisheries it is a game of chance. Never knowing what the season will bring is much of the appeal, and the fishermen will be back to search the river for a glimpse of the whitebait as their fathers and mothers did before them.

Whitebait – the science

The lifecycle

The most common whitebait, the inanga, lays its eggs in tidal estuaries at the time of the March high spring tides. In rushes and grasses, usually only covered at high spring tides, the female lays thousands of eggs which are fertilised by the male extruding a milt which clouds the shallow water. As the tide falls, the eggs are washed to the base of the vegetation and remain there until another spring tide arrives to take them out to sea. Usually this is a fortnight later, but can be up to two months.

Not a lot is known of life at sea for the juvenile whitebait, but it is now accepted that after six months at sea, they generally return to a similar type of river from where they hatched. This may be fast snow-fed rivers like the Arawata or Waiatoto or the slower swampier rivers like the Cascade. Whitebait are known to travel great distances at sea and to be found in countries other than New Zealand.

Once returned to the rivers, whitebait lose their transparency and face the gauntlet of the many predators waiting to eat them. Trout, eels, shags, herons, penguins and gulls all line up to try the delicacy. From spring to autumn most whitebait live beyond the tidal areas of the rivers, but are inexplicably drawn to return to spawn. Scientists believe they are attuned to lunar cycles and can detect an imminent spring tide.

Galaxias maculatus **inanga** These are the most common and most prized of the five species, making up nearly all of the catch in the many rivers and is a market favourite because of its transparency. The inanga, inaka to the South Island Maori, grow to about 15 centimetres, a slender fish with silver belly and greenish-coloured back. Like its cousins, it is scaleless. It is common in estuaries, swamps and rivers near the sea.

Galaxias brevipinnis **koaro** Probably the second most common whitebait, it is found in snow-fed rivers offering access to its adult habitat of swift-flowing, rocky streams in forest areas. As a juvenile it is recognised by its milky appearance. It grows to about 20 centimetres, a sleek fish-coloured olive-green to brown with greenish-gold blotches on its sides.

Galaxias fasciatus **banded kokopu** This is about as common as the koaro, it arrives in the river with a pale amber tinge through its body which gives rise to the name golden bait. Deep olive to brown as an adult, with distinguishing pale vertical bands across its sides and back, it grows to about 26 centimetres and is found in bush streams and swamps. It was an important food for Maori in early days.

Galaxias argenteus **giant kokopu** This is a rarer species, with a slight amber colour as a whitebait and is usually seen towards the end of the fishing season. As an adult it is the heavyweight of the *Galaxias* species, growing to over 50 centimetres. Its adult habitat is commonly small swampy streams, swamps and lakes near the coast. Gold spots, rings and crescents are distinguishing features of a fish which whitebaiters have difficulty accepting as the adult form of whitebait.

Galaxias postvectis **short-jawed kokopu** Another rare species, this fish is of no great significance in the whitebait catch. It is distinguished from the other kokopu species by a short lower jaw. Its adult colouring is drab dull green to brown with pale marblings on its sides. Scientists assume from the few sightings of the species that it inhabits streams and pools in unmodified native forest. It grows to about 25 centimetres.

The last section, on the lifecycle of whitebait, was taken from the book **Cascade On The Run** ***by Neville Peat.***

Phil Handford

Production of biodiesel from tallow feedstock

Production of biodiesel from tallow feedstock is an opportunity to grow the production of biofuels in New Zealand on a sustainable basis. It would significantly reduce greenhouse gas emissions using a unique, patented processing technology which is now available. It could potentially replace up to five per cent of New Zealand's conventional diesel fuel consumption used for transport.

Biodiesel internationally

Biodiesel is a substitute for conventional mineral diesel fuel, and is manufactured from vegetable oils, used cooking oils or animal fats. It can be easily blended with mineral diesel fuel as its properties and performance in a diesel engine are basically the same. Similarly, it requires no special storage, blending or distribution facilities, unlike bioethanol which is the other common biofuel.

Internationally most biodiesel is manufactured from vegetable oils and used cooking oils using high temperature, high pressure process technology developed in Europe. This technology has difficulty processing animal fats or tallow because tallow is solid at room temperature and requires extensive and expensive pre-treatment before it can be handled and distilled to make the finished biodiesel. Therefore there is an international focus on vegetable oils, and to a lesser extent the smaller volumes of used cooking oils.

In Australia, efforts to use tallow rather than vegetable oils have mainly failed, despite significant government support. This is because the Australian plants are all based on European high temperature, high pressure process technology.

Biodiesel in New Zealand

There has been very limited production of biodiesel in New Zealand, with most of this from used cooking oil, of which only about four million litres a year is available. As in Australia, the process, with one exception, is based on the European model.

Like Australia, New Zealand has an abundant supply of tallow and other animal fat, from the meat and dairy sectors of the farming industry. Currently, New Zealand produces about 160,000 tonnes a year of tallow, of which approximately 85 per cent is inedible and cannot be used as a food extender. Therefore almost all New Zealand's tallow is exported as a relatively low value commodity product to markets in China and Asia.

If the exported tallow could be processed in New Zealand, there is the potential to produce 130 million litres a year of biodiesel which could be substituted for mineral diesel. The EECA's assessment is for a greenhouse gas reduction of 77 per cent carbon dioxide equivalent for every tonne of mineral diesel replaced by a tonne of tallow based biodiesel. This could reduce New Zealand's greenhouse gas emissions by 100,000 tonnes of carbon dioxide equivalent each year.

Biodiesel from tallow

As explained above, the very limited production of biodiesel in New Zealand has been mainly based on used cooking oil, partly because the plants are small scale, but more importantly because, they cannot process tallow, being based on European technology. The one exception to this is the low temperature process technology developed in Auckland by the organic chemist who founded Ecodiesel. This development, specifically designed to handle tallow, took nearly 10 years to become a successful pilot plant. This is the basis for a 20 to 40 million litres a year partially constructed, but now mothballed, production plant in Auckland. This process also incorporates distillation as the final process step, similar to the final process step in manufacturing mineral diesel.

The Ecodiesel process plant costs less than half the construction cost of a typical European process technology plant. It is also less than half the cost to operate.

In addition, the Ecodiesel process produces no waste by-products, with all feedstock, water and chemicals being recycled or used to produce a small volume of saleable glycerine in addition to biodiesel. The plant can be designed to be self sufficient in that it can generate all its own fuel requirements.

Biodiesel from the pilot plant has been tested and

approved by the corporate laboratories of the world's largest international oil company, and successfully tested by them in New Zealand. The product has been proved to meet all the major oil companies' specifications for biodiesel and the New Zealand specifications for biodiesel.

Government support for biodiesel

Around the world, biofuels enjoy direct and indirect government support in the form of production subsidies for biofuels producers and mandated minimum offtake by mineral fuel marketers. In some cases capital grants to help with plant construction are also available.

This government support recognises the inability of the biofuels industry to compete with the scale and distribution reach of the oil industry in most markets. In addition there is the general lack of incentives for the oil industry, with its investment in refining and marketing mineral fuels, to use biofuels. In Australia, the biofuels industry has enjoyed excise duty exemptions for several years, and these were recently renewed for a further 10 years, at levels comparable to those in new Zealand.

In New Zealand, the Labour government introduced a mandated minimum offtake regime, which would take biofuels up to a minimum 2.5 per cent of all fuels over a five year period beginning in 2009. However, the National government, on winning office in 2008, immediately repealed Labour's regime, and promised to replace it with incentives which treated biodiesel and bioethanol equally. Bioethanol has long had an exemption from petrol excise duties, now worth 48.5 cents per litre.

In May 2009, the government introduced the Biodiesel Grants Scheme under which locally produced biodiesel attracted a grant of 42.5 cents a litre. However this scheme was limited to three years, expiring in June 2012 and with limited total funding. Therefore biodiesel was not treated equally with bioethanol, which continued to have an open – ended exemption from petrol excise duty which has increased in value as petrol excise duty has increased. New Zealand is unique in the world, with no excise duties on diesel, but with road user charges paid separately by owners of diesel powered vehicles instead.

Because the Biodiesel Grants Scheme is time limited, local biodiesel producers such as Ecodiesel have been unable to raise the capital investment to complete, or expand their plants, and the biodiesel industry is on the point of collapse, with multi-million dollar losses to existing investors. This was addressed by the Parliamentary Commissioner for the Environment in her June 2010 report on biofuels. She recommended local production of biodiesel should be encouraged and that the scheme should be extended beyond June 2012 because that 'is not a long enough horizon to encourage investment in production facilities'.

Ecodiesel has New Zealand's largest and locally owned oil company waiting to invest the capital needed to complete Ecodiesel's Auckland plant, and to invest in storage and blending facilities to distribute blended biodiesel with its mineral diesel throughout the upper half of the North Island. However, they will not do so under the current scheme with a time limit of June 2012.

Regardless of the effect of the ETS, or other government programmes to reduce diesel fuel consumption, the use of biodiesel reduces greenhouse gas emissions when substituted for mineral diesel. Therefore biodiesel ensures an additional, quantifiable benefit for greenhouse gas reduction.

Where to from here

Biodiesel can make a constructive contribution to green growth. Exporters can gain greater value in international markets by emphasising the use of biodiesel in the New Zealand transport sector – road fleets, KiwiRail and Air NZ and other airline ground fleets as well as on farms and in orchards and vineyards.

Tourism operators can demonstrate the use of biodiesel in their bus and camper van fleets. The availability of biodiesel at service stations will enhance our clean green brand, compared to the present situation where tourists from other OECD countries, who are used to seeing biofuels in their home countries, see nothing of them in New Zealand.

The technology could be exported to the Pacific Islands and used to produce biodiesel from surplus coconut oil for power generation, based on the low cost of construction and operation. This would help overcome the high cost of mineral diesel for power generation in the Pacific Islands and contribute to economic development there.

Encouraging farms to use locally produced biodiesel, and to encourage their suppliers to do the same, will help them move to a lower carbon economy without increasing their costs or reducing productive growth. This will demonstrate that a lower carbon economy does not necessarily mean lower productive growth.

This article was originally part of a paper submitted by Ecodiesel Ltd to the Green Growth Advisory Group. Phil Handford is a Director of Ecodiesel Ltd.

David Chapman, Julia Lee, Cory Matthew, Errol Thom and Jeremy Bryant

Perennial ryegrass is the king – breeding and evaluating the next generations of ryegrass royalty

Perennial ryegrass is the foundation pasture species from which nearly $20 billion of export earnings flow into the New Zealand economy from the pastoral industries. With the application of sound grazing management and fertiliser practices, and steady but relatively low rates of adoption of new ryegrass cultivars, New Zealand farmers have become very efficient at growing and harvesting this very adaptable grass species.

There is an impressive history of perennial ryegrass plant breeding in this country. Systematic ryegrass breeding began with the certification of Grasslands Ruanui in 1936, and accelerated from the 1970s onwards with developments based on the Mangere ryegrass ecotype and the entry of commercial companies into the plant breeding market. In addition, since the 1980s, breeding of perennial ryegrass has become inter-twined with the development of strains of the perennial ryegrass endophyte – a fungus that lives within ryegrass tillers.

Today, over 30 cultivars of perennial ryegrass are available commercially, most of which can be purchased with selected strains of endophyte such as the standard type of the novel types AR1, AR37, NEA2 or Endo 5. Farmers now have a wide range of broadly adapted cultivars to choose from, with additional built-in control of insect pests from novel endophytes. This is a remarkable development within a relatively short time period. However, it has resulted in a daunting array of cultivar and endophyte choices for farmers when they are renewing their pastures.

Genetic gain

There has been clear and substantial progress in improving the adaptability of perennial ryegrass and protecting pastures against insect pests such as Argentine stem weevil and black beetle. However, it is important to establish what rate of genetic gain is being achieved in the productivity traits of dry matter, nutritive value and persistence.

Estimating genetic gain in our pasture species is not just an academic exercise for at least two reasons. One is that productivity improvements are critical for sustaining long-term competitiveness of pasture-based livestock systems. Improving plant and animal genotypes is an effective way of achieving productivity gains. Another is that ideally, rates of genetic gain in plants should at least match rates of gain in animals so that New Zealand farmers can continue to exploit the low cost advantage of our unique pasture-based production systems. We need to know how successfully these challenges are being met, and be able to respond if targets are not being reached.

Yield gains

Gain estimates are published regularly for the important annual crop species such as maize and wheat, and tend to fall in the range 0.5 per cent to 1.5 per cent gain in grain yield each year. For example, a maize variety released on to the market this year is likely to yield an additional 5 per cent to 15 per cent of grain compared to a variety released in 2001. Estimates for genetic gain in perennial ryegrass dry matter yield are shown in the teable.

Most of the yield gains appear to be coming in the summer and autumn months, partly as a result of the development of cultivars that head later in spring by up to 25 days compared to cultivars developed from the standard 'Mangere' ecotype. The 0.5 per cent estimate is within the range reported for perennial ryegrass breeding in European countries , but at the lower end of the range in gain estimated for annual crops.

That rates of gain in perennial ryegrass appear to be lagging gains in yield of annual crops is not surprising considering that –

Annual herbage dry matter production gains in perennial ryegrass cultivars

Benchmark cultivars	Number trials and cultivars	Pure/mixed swards	Genetic gain percentage per year	Reference
Grasslands Nui	7 trials/8 cultivars	Pure/mixed	0.25	Pennell et al 1990
Multiple	17 trials/16 cultivars	Pure/mixed	0.40	Easton et al 2001
Grasslands Ruanui	8 trials/3 cultivars	Mixed	0.60	Kerr 1987
Grasslands Nui	1 trial/7 cultivars	Mixed	0.73	Thom et al 1998
		Average	0.50	

- The changes in harvest index are limited, all above-ground mass is harvested compared with crops in which the proportion of grain can be manipulated
- Ryegrass yield is measured following repetitive defoliations and grazings over successive years, rather than as seed at maturity in annual crops
- A greater range of other beneficial traits in ryegrass have been taken into consideration, rather than just herbage yield alone
- Ryegrass is a perennial with a longer breeding cycle
- There is much greater research and development investment in the breeding of the internationally important crop species compared to perennial ryegrass.

It must be noted that the genetic gain estimates for perennial ryegrass cited above are based entirely on the dry matter yield of the ryegrass component only. However, productivity gains in farming systems must be via mixed ryegrass and clover pastures which result in increased animal production. There is virtually no information available to translate gains in ryegrass cultivar performance measured in small plots to gains in whole pasture performance and animal production at the farm business level and associated economic returns.

Other breeding objectives

Dry matter yield is not the only objective that ryegrass breeders have been pursuing. There are other main breeding objectives.

Improved herbage nutritive value, especially dry matter digestibility, which has been addressed by, hybridisation of perennial ryegrass and annual or Italian ryegrass, or other compatible species such as meadow fescue. selection for low leaf tensile strength. Shifts in maturity date, and selection for low levels of aftermath heading have also contributed significantly to improvements in the feeding value of newer perennial ryegrass cultivars.

Disease and pest resistance is another objective, particularly resistance to crown and stem rusts and resistance to shoot-feeding insect pests such as Argentine stem weevil and black beetle adults. This is by selection of novel endophytes which produce chemicals which deter these pests from attacking plants while producing much-reduced, or zero levels of alkaloids harmful to grazing livestock.

Persistence of pastures, another objective, is the persistence of the yield increases available through use of improved cultivars with higher growth potential. This trait is, of course, one which the breeders of annual crops are not concerned with. However, with pasture re-sowing costs frequently exceeding $1000 a hectare, failure of new pastures to persist can significantly erode farm profits. Apart from the relationship between endophytes and certain insect pests, we have a worryingly small amount of good information on the causes of poor yield persistence in modern farm systems. This is therefore a poor basis from which to compare current cultivars and propose how this trait could be improved in future selections.

A challenge

It is fair to say that breeding new ryegrass cultivars for the diversity of environments and farming systems found within New Zealand is a challenging task. The cultivar development cycle, from initial plant selection and crossing to the completion of three years dry matter yield assessment in the National Forage Variety Trial system operated by the New Zealand Plant Breeders Research Association, takes up to 14 years.

During this time, thousands of individual plants and hundreds of candidate plant lines are reduced to just one cultivar for release into the market. This comes at a cost. Up to $15 million is invested each year by the commercial breeding companies, building on a similar amount of investment by the government and pastoral industries. Government investment in the innovation chain has declined over the past two decades, and most of the remaining contribution is now directed toward genomic technologies which promise much but have yet to bring any benefits to New Zealand farmers.

Therefore we can calculate that the roughly $20 billion of annual export income generated by the pastoral industries is supported by just 0.15 per cent of that value being invested in the breeding of improved perennial ryegrass. Is this testimony to the extraordinary effectiveness of the plant breeding innovation system in New Zealand, or cause for concern? Can the genetic gains achieved so far, and the important contribution to the competitiveness of New Zealand's pasture-based industries, be sustained at current investment levels?

Where to from here?

The locally-based commercial companies breeding pasture plants for New Zealand's pastoral industries hold world-class capacity in plant screening, selection, multiplication, quality assurance and distribution. They operate an effective innovation pipeline that produces up to three to four new perennial ryegrass cultivars into the New Zealand market each year, bringing farmers new technologies such as tetraploidy and novel endophytes. This is funded by re-investment of a proportion of revenue from seed sales.

Investment in future research and development infrastructure depends on the same funding source. From this perspective, a lift in pasture renewal rates on New Zealand farms from current levels of between three per cent and five per cent of total pasture area each year would generate additional turnover from seed sales. It would also potentially allow greater re-investment in breeding. For this to happen, farmers will need greater confidence that their investment in new pasture genetics will lead to worthwhile economic benefits in the medium to long term. Currently, it is difficult to mount a completely convincing argument for this.

Three ways to go

We propose three areas where new knowledge is required to fully understand the value that is being brought to New Zealand farm businesses from perennial ryegrass breeding. Many other areas could, and should, be identified. However, these three illustrate how different research and development disciplines could be bought together for the challenge.

Communication

The economic benefit to farm businesses of different productivity-related traits in perennial ryegrass should be determined and communicated to farmers and plant breeders**.** Using agronomic information and farm system simulation tools, it is possible to estimate the economic return to farming businesses of incremental changes in traits such as seasonal dry matter production or nutritive value. Irish researchers have integrated such information into a weighted index that can be used to rank ryegrass cultivars according to likely economic value to a dairy farm business. There is sufficient information in such analyses to direct plant breeding effort into the traits that have the greatest effect on estimated economic value.

There are, however, technical hurdles to overcome, not least being the availability of reliable and comprehensive data on the main traits for all commercially available material. There is a substantial store of dry matter yield information from evaluations trials conducted by seed companies over the past two decades, which provides a starting point for economic analysis. However, data on persistence and nutritive value are less plentiful. Well-targeted evaluation procedures will also be needed if such information is to be generated routinely and with sufficient reliability for the development of robust economic ranking indices for the New Zealand pastoral industries.

Forage value indeces

The relationships between perennial ryegrass traits and whole pasture performance should be defined and accommodated in the development of quantitative forage value indices. There is a substantial store of yield data available for perennial ryegrass cultivars which comes predominantly from monoculture pastures. However farmers generally manage ryegrass/clover mixtures.

The translation of information on cultivar-specific traits to measures of pasture performance needs to be addressed. This includes the possibility that cultivar rankings may not equal pasture performance rankings, or that the range between poorest and best cultivars may differ when rankings from ryegrass monocultures are compared with rankings for mixed pasture. Both relative and absolute economic values associated with cultivars at the whole-pasture level are important. Again, well-targeted agronomic research is required to solve specific problem.

Genotype x

Genoptype x environment interactions should be better documented for the pastoral regions of New Zealand**.** It is necessary to include both endophyte strain and plant host under the definition of genotype, and environment must include the management environment, as well as the physical macro-environment.

The problem of interactions between perennial ryegrass and white clover noted above is a case in point. In environments which favour ryegrass dominance, such as those receiving high rainfall or irrigation and high nitrogen fertiliser inputs, a close match could be expected between economic value rankings based on ryegrass monoculture evaluation data and pasture performance.

The relationship may be weak in low nitrogen environments subject to regular soil water stress that allows other species to compete successfully in the pasture community. In addition, the defoliation management applied could result in the re-ranking of cultivars, although there are no published studies for New Zealand material. These possibilities could have significant implications for breeding objectives, rates of genetic gain, and cultivar evaluation methods. To our knowledge, there has been no systematic agronomic investigation of Genoptype x environment in the main productivity traits of modern perennial ryegrass cultivars in New Zealand.

Future progress in ryegrass plant breeding, and in the uptake of new cultivars by farmers, may be restricted if these and related problems are not addressed. The uncertainty regarding cause and effect will continue. The return to the national economy from public and private sector investment in ryegrass plant breeding is likely to be sub-optimal under these conditions.

David Chapman, Julia Lee, Errol Thom and Jeremy Bryant work for DairyNZ and Cory Matthew for Massey University.

Damian Stone

Contemporary issues for governance of Maori trusts and incorporations

Maori are active participants in the primary sector. In addition to fisheries, much of the Maori involvement in the primary sector is based around land. Historically, Maori land ownership and administration has been governed by successive native and Maori land legislation, the current legislation being the Te Ture Whenua Maori Act, or the Maori Land Act 1993.

The landscape

Maori freehold land constitutes approximately 1.4 million hectares, or 5.5 per cent of New Zealand's land mass, with 12 per cent of the North Island being Maori land. There are between 24,000 and 26,500 Maori land titles, and approximately 2.3 million ownership interests in those titles. On average there are 86 owners per title, with the lowest 10 per cent averaging one owner per title, and the highest 10 per cent averaging 629 owners per title. The average size of a Maori land block is 54 hectares with the smallest 10 per cent averaging 80 square metres and the largest 10 per cent averaging 468 hectares.

Of the 2.3 million Maori land interests, anecdotal evidence suggests that approximately half of these are owned by people who are now dead. In addition, many of these interests are owned by the same person under different names, while many also live far from their land and in other cases owners not aware that they own Maori land at all.

There are approximately 1.5 million hectares of land in Maori ownership and 12.5 per cent of the total area of New Zealand land used in agriculture is Maori land. The total contribution from Maori agribusiness is approximately $1 billion a year.

Of the 24,000 to 26,500 Maori land titles, approximately 8,500 titles have management entities in place, and this covers 80 per cent of the area in in Maori land titles. These management entities manage areas which range in size from over 1,500 hectares, but there are an estimated 60 per cent of these entities managing an area of less than 50 hectares.

There are approximately 16,000 blocks of Maori land with no management structure in place. Many of these blocks of land are too small to be workable on their own, even if sufficient owners could be identified and agreed to establish some form of management structure. Some of these blocks could potentially be amalgamated to create a single and economic block, but this process can be complex and may not provide an answer where blocks are not in close proximity.

Trusts and incorporations

The Maori Land Act 1993 sets out the legislative framework for a range of trusts and for Maori incorporations. However, most of these entities were established under previous laws and the 1993 Act adopts or adapts those pre-existing structures.

Entities established or administered under the 1993 Act do not reflect the entire scope of Maori land management and administration entities. Other common examples are –

- Post-settlement governance entities, often in the form of common law or private trusts for the benefit of iwi members, established to receive and administer settlement assets from either or both of the settlement of historic Treaty settlements
- Fisheries settlements under the Maori Fisheries Act 2004
- Charitable purpose trusts
- Incorporated societies under the Incorporated Societies Act 1908
- Maori trust boards under the Maori Trust Boards Act 1955
- Statutory bodies such as those established for Ngai Tahu and Ngati Awa.

Trusts

The 1993 Act provides for a number of trust structures to administer Maori land interests, each with different intentions. The ahu whenua trust is the equivalent of the section 438 trust under the Maori Affairs Act 1953. These trusts are established to help the use and administration of land in the interests of the owners. This is the most common form of Maori land trust. There are approximately 5,500 ahu whenua

trusts administering 750,187 hectares of Maori land.

Whanau trusts were created under the 1993 Act and, unlike the ahu whenua trust, did not exist before 1993. The intention of these trusts is to restrict or halt the increasing fragmentation of interests into smaller and smaller amounts. On the creation of a whanau trust, the interests of a deceased or living owner are vested in trustees and no further succession, and therefore no fragmentation occurs. In term of numbers, whanau trusts are the most popular, with 15,673 whanau trusts having been established.

Kai tiaki trusts had a forerunner in Part X of the Maori Affairs Act 1953, and while most of the trusts constituted under Part X were created in favour of the Maori trustee, under the 1993 Act the public trustee and others have taken over most kai tiaki trusts. The purpose of these trusts is for the administration of the interests of 'persons under a disability' and this wording is the same in both the 1953 and 1993 Acts. Kai tiaki trusts are intended for the interests of a minor or someone with a disability and who is unable to manage their own affairs.

A whenua topu trust is intended to enable Maori land to be held by trustees for the benefit of a hapu or an iwi. This structure was not present in earlier legislation. The intention was to provide for a structure consistent with customary land ownership. Succession to interests held in a whenua topu trust is not possible. While intended for administering resources returned as part of treaty settlements, and used as such in some cases, the Crown requirements for post-settlement governance entities have meant that there has been little use of this model generally, except in discrete cases.

There are 53 whenua topu trusts throughout the country. It has been suggested that the severance from actual beneficial interest in the land has proved to be a deterrent to the adoption of this model. The uptake has been limited and the lands involved small blocks, with history of diffuse ownership and with limited economic viability. The 1993 Act also contemplates the establishment of a putea trust, but this model has not been used to any significant degree.

Whanau and putea trusts, and to an extent kai tiaki trusts, are share management trusts and relate mainly to specified shares in land. Ahu whenua and whenua topu trusts are land management trusts and involve whole blocks of land.

Incorporations

Maori land incorporations originated with the schemes of Sir Apirana Ngata's programmes with his own Ngati Porou people in the 1890s. The incorporation is similar in concept to a company and was designed to help commercial development and use of the subject Maori freehold land. This model treats owners as shareholders who elect or appoint a committee of management to administer the land in question, with the owners receiving dividends on the basis of their respective shareholding in the land.

Owners retain a beneficial interest in, and therefore a link to, their ancestral land. The first statutory provision for incorporations is found in the Maori Land Court Act 1894, which has been continued through to the 1993 Act. Incorporations have been eclipsed by trusts as a form of land management. There are somewhere between 129 and 167 incorporations administering 207,157 hectares of Maori land. Ahu whenua trust and incorporations are the two most common governance structures for administering Maori land.

The largest 10 Maori incorporations alone collectively control around $1 billion of diversified assets concentrated mainly in the primary sector, and involve numerous contractors, retailers and service providers. These Maori incorporations include

- Wakatu Incorporation (Nelson Bays, Malborough)
- Parininihi Ki Waitotara Incorporation (Taranaki)
- Wairarapa Moana Incorporation (King Country), Mangatu Incorporation (Poverty Bay)
- Atihau-Whanganui Incorporation (Ruapehu, Whanganui)
- Taharoa C Incorporation (Waikato), Mawhera Incorporation (West Coast)
- Waitutu Incorporation (Southland)
- Tahora 2C1 Incorporation (Hawke's Bay)
- Mangatawa-Papamoa Incorporation (Bay of Plenty).

Governance and administration

The capacity of owners and governors

There are approximately 66 per cent of Maori titles, accounting for 19 per cent of the total area of Maori freehold land without a management structure in place. Of these titles 70 per cent are without a management structure and are less than five hectares. However, 34 per cent of titles and 81 per cent of the total area of Maori freehold land has some form of management structure in place.

The trustees and committees of management of Maori land trusts and incorporations reflect a range of different capacities and skills. Trustees and committee members are, with few exceptions, drawn from the owners or beneficiaries and shareholders of land trusts and incorporations. In summarising existing literature, a recent Ministry of Agriculture and Forestry report noted that committees of management often reflect political influence of families rather than the best available skills to oversee large, often complex, agricultural businesses. MAF's review of research in this area has also identified that limited skill levels were among the challenges faced by owners of under-used land.

This point was repeated in a Te Puni Kokiri report highlighting the views of owners or beneficiaries of ahu whenua trusts that trustees are not elected based on their knowledge of their responsibilities, but on recognition of their political standing in the ownership community. This is not to suggest that there are no trustees or committee of management members who bring relevant skills to their position, and indeed other skills or relationships other than governance capacity may play a role in such appointments.

The Chief Judge of the Maori Land Court has observed that the larger, successful trusts and incorporations are seldom

before the Court, the owners are happy, and there is generally few applications filed. This need for professional development of governors generally has been recognised.

The breadth or range of landholdings

While this article is focused on Maori land trust and incorporations, it is important to note that economic development is only one aspect of land administration and development, and one of the principles of the 1993 Act. This Act has two main principles, regularly debated or questioned as contradictory. The other primary principle in relation to development is the retention of land. In addition, there are the Maori land interests that are not intended, or ever likely to be, used for commercial development – reservations for the purposes of marae or meeting places and for urupa are two examples.

For many of the larger, more successful and commercially-minded trust and incorporations, as well as more modest in terms of holdings and income, the oversight of the Court may seem like a costly, tedious and unnecessary impediment to profitable business. On the other hand, there are those lands without any management structure, whose owners struggle with dysfunction due to a lack of leadership, business skills, shareholder interest, funding or other problems.

The role of the Maori Land Court

It is a common argument that too much discretion and control resides in the hands of the Maori Land Court. For example, while election of trustees is common practice amongst Maori land trusts, the formal appointment of trustees is the Court's decision. Voting and the results of elections are considered by the Court as evidence of the support for prospective trustees.

However, the Court retains the discretion to appoint alternatives, subject only to the requirement that the Court be satisfied that the individual being appointed has a sufficient level of support. While sufficient is a common term in the 1993 Act, including in relation to sufficient level of notice, sufficient opportunity to discuss a proposal, and sufficient support amongst owners for a proposal or action or a trustee, the term itself is not defined.

There is a long line of cases emphasising the broad powers and guardianship role of the Court in respect of Maori land trusts. The role of the Court in relation to incorporations is much less than in respect of trusts. A specific barrier to development of Maori that has been identified by owners is the role of the Maori Land Court in having the final say in development proposals and the Court's power of review and intervention.

Conclusion

Maori land already makes a significant contribution to the New Zealand economy. There is significant scope to increase that contribution, particularly given the number of Maori land titles for which there is no existing management structure. Governors and managers of Maori land are also subject to court oversight, an issue that their mainstream counterparts do not have to deal with.

The role of the Maori Land Court has been debated ever since its establishment as the Native Land Court in the 1860s. That debate continues today and there is little doubt that its role in the governance and management of Maori land will continue to change and evolve to meet the circumstances of the day. A failure to do so will adversely affect the ability of Maori land owners and their governors and managers to reach their full potential.

Damian Stone is a Partner with Kahui Legal based in Wellington

In upcoming issues of Primary Industry Management

The March 2012 issue of *Primary Industry Management* will have a feature on the Bay of Plenty, an area of the country which has been suffering more than their average share of problems recently. The oil pollution from the *Rena* has significantly affected fishing, as well as tourism, but the discovery of psa in kiwifruit has been a much bigger concern. As well as this feature there will be a continuation of the series of articles on new technology which will include one on the development of bioplastics and another on the way new technology can improve urea application.

The September 2012 issue of P*rimary Industry Management* will contain a feature on primary industry in the high country of the North Island.

If you would like to contribute an article to the journal on the above features or on another subject, please contact the editor. The contact details are on the contents page.

Bridgit Hawkins

Technology for proactive dairy effluent management – the importance of sustainability and productivity

Running a modern-day dairy farm in New Zealand is big business. The rewards can be great, but so too are the risks and responsibilities when it comes to effluent management. Regional councils are enacting ever more stringent consent requirements, and non-compliance poses the genuine risk of hefty fines and damage to farm reputation. Even with the best of intentions, it is a challenge for farmers to be certain they are compliant 365 days a year. Without a systematic way to monitor crucial factors, such as soil moisture and pond levels, compliance relies more on hunches than on sound farm-specific information.

Profitability in the global market-place also relies on maximising farm efficiencies. Effluent run-off or leaching is not just a pollutant, it also represents wasted nutrients, which increase fertiliser costs and reduce margins. Similarly, maintaining an over-sized storage pond inflates costs unnecessarily and cuts into farm profits.

Environmental sustainability

Environmental sustainability is a hot industry topic of increasing importance in New Zealand. AgResearch's 'Pastoral 21' programme is designed to boost farm productivity and lessen environmental effects. The organisations behind it are now planning to invest for a further five years. Pastoral 21 is a collaborative venture between Dairy NZ, Fonterra, Beef & Lamb New Zealand and the Ministry of Science and Innovation. The goal is to ensure that efficiency gains to reduce our environmental effects are larger than production gains.

Farmers are now accepting that effluent systems have to meet different standards, and this is likely to evolve further. Striking the right balance is an increasingly difficult goal as intensive farming techniques improve, creating further demand for resources. Increased stocking rates, more feed-pads and herd-homes, and an increased amounts of feed imported into the dairy farm system to increase production translate into more nutrient-rich effluent being collected and managed through the dairy effluent system.

From the perspective of the whole farm nutrient balance, this has a positive effect on the environment if the effluent is applied to land appropriately. Having the tools and systems to monitor and manage the effluent system is important in getting the most out of this nutrient source.

Dairy NZ recently launched the Dairy Effluent Design Standards and Code of Practice. A component of the code is to have integrated management of the effluent system.

Re:Gen is a product which meets this requirement. This software tool provides information to help dairy farmers manage effluent disposal effectively – an industry-wide challenge in New Zealand.

Re:Gen Ltd is a Wellington-based company creating technology-based solutions for the agricultural sector. Re:Gen is a tool to help dairy farmers manage and monitor dairy effluent disposal.. The system was developed in conjunction with Massey scientists and proved to have a range of benefits for the farm. These included the scheduling of effluent irrigation and quantifying the changes required to the farm's effluent system.

The system was launched in March 2010 following a successful nationwide farm trial and has proved to prevent ponds from overflowing. It was originally developed by Wellington company Harmonic, with support from Dairy NZ, Massey University, Gen-I and the Ministry of Science and Innovation.

The system in practice

The system helps farmers turn dairy effluent from a problem into a solution. It is now installed on farms across New Zealand in areas covering a range of soil types and weather conditions. It collects vital data from the farm, calculates the exact level of effluent which can be safely spread, and sends

the farmer the information via a daily text message. With that knowledge, farmers can confidently use dairy effluent to promote sustainable pasture growth, protecting the land and waterways for future generations.

Knowing which days are suitable for effluent irrigation and how much to apply is an important tool for actively managing effluent storage. Re:Gen is the most advanced effluent monitoring solution on the rural market and having more information helps to manage farms more efficiently. It is a fully computerised system which takes the guesswork out of compliance and ensures farmers can maximise their farm potential. Reporting enables farmers to verify, both to regional councils and the public, full compliance throughout the year.

Hikurangi dairy farmer, Ben Smith, is an avid user of Re:Gen and believes farmers need to take advantage of such new technology. He was surprised by how many consecutive days in spring that the soil moisture deficit was insufficient to irrigate. The record of pond height collected by the system can provide auditable data to Northland Regional Council if required to support adherence to his consent conditions.

Re:Gen integrates well with the farm's overall effluent management system, a component of a good design programme. Receiving the recommendation as a daily text message means that the farmer has easy access to important information, so they can make decisions on the move. The farm also has a secure website to view the data and see trends in soil moisture and temperature, rainfall and pond levels. For owners or managers who are off site this gives easy access to important information about the farm.

How it works

The system uses environmental monitoring technology. Each farm has a rainfall gauge, pond level sensor and an optional soil moisture and temperature reader sensor installed. These are connected to a telemetry device, which transmits the readings via cell phone or wireless internet automatically to the centralised database.

Data is from a range of sensors which send out measurements every 10 minutes to report on the latest conditions. The data acquisition and communication device records the measurements and stores them until the next schedule data upload. Data upload occurs every 15 minutes using the internet or cellphone network.

Once the data is received on Re:Gen cloud servers, latest measurements are processed, analysed and aggregated. Further analysis, modelling and application of business rules enables the system to continuously recommend best possible action based on real-time knowledge.

As well as the daily text, the farmer can also view the data collected on their own webview. The recommendations are specific to each property. Each farm has its own website which stores and tracks effluent disposal, providing useful reporting options.

The website information shows farmers the soil moisture deficit, how much effluent can be applied through that farm's irrigation system, and a summary of pond level and rainfall received. The information is illustrated with summaries, graphs and trends.

Without real time data, farmers are likely to either over-apply or under-apply effluent at different times of the year. Over-application is an opportunity cost of wasted nutrients that can run as high as $10,000 a year on a 500 cow farm. Similarly, under-application and failing to completely empty storage ponds may result in the construction of unnecessary surplus ponds.

Seamless information flow

Many dairy farms have several layers of management, but all have a responsibility for ensuring effluent disposal is well managed. Access to up-to-date information on what is happening on any farm, at any time of day, anywhere, gives off-farm managers and owners the ability to view the status of key indicators at any time.

The system is also a useful tool for staff management. Staff with responsibility for the day-to-day operation of the effluent system may be young and inexperienced. The daily text recommendation means they are not required to make any independent assessments or decisions, but can simply follow the clear instructions provided in text alerts. The system is also fully customisable, allowing owners and managers to segment the flow and format of information according to the specific needs of their farm.

Looking to the future

Re:Gen will evolve as the science changes. It provides a service for farmers to help with effluent management and is a technology footprint of each farm. It is flexible and can become more sophisticated as further modules will be added in the future such as weather forecasting. It is not technology in isolation and has been designed to work in with other effluent system providers to ensure a farm's overall effluent system operates well.

The software is a platform for collecting data. More and more applications will be able to be plugged into that, for example, GPS products like Tracmap and the sharing of information through Gen-I's Rural Zone.

We are keeping an eye on sensor technology development internationally and their potential for agriculture. Rural broadband improvements and the increasing popularity of smart phones will also help encourage farmer demand for information anywhere, anytime. The past four years have been about marrying together the practical application of good solid science capable of delivering a service in a form which is readily accessible, easily interpreted and makes money for the farmer.

Environmental issues are not going to wait for the global economy to improve. The team enjoys the challenge of taking something complex and producing it in a form that is easily understood, user-friendly and makes a difference.

R:Gen is led by Bridget Hawkins, who has a Masters Degree in Agriculture from Massey University and is an agricultural business specialist.

Meike Guenther, Peter Tait, Caroline Saunders, William Kaye-Blake, Sini Miller and Walt Abell

Labelling sustainability – what consumers want, know and understand

With today's concerns about the general status of the environment, there is an increasing expectation for products to have sustainability attributes. Labelling is a common method of letting consumers know more about what they have bought. Different consumers react differently towards various attributes on food labels and this may have an effect on their choices. It is helpful to understand which of the many attributes appeal to consumers and how much they may be willing to pay.

As an example, carbon labelling is a practice which has grown in importance. There are currently approximately 16 carbon labels, of which eight were developed in European countries. The process of developing carbon labels has varied, some being initiated by governments, others by government quangos and non-profit organisations. But all of them have usually involved cross-sector consultation.

The UK's introduction of carbon footprinting and carbon labelling is of particular interest for New Zealand as it started the trend and is an important export market. In 2006, the UK Carbon Trust introduced a label called the carbon reduction label. Products bearing the label have to reduce emissions associated with their products by 20 per cent over two years following certification, otherwise they risk losing the right to use the label. Tesco, UK's major supermarket chain, announced in 2007 their intention to carbon label 70,000 stocked products. Currently only 120 products in six categories have been assessed, but there are plans for more products and categories in the future.

A carbon labelling scheme was also introduced to Japan in 2009, with retailers voluntarily attaching these labels. Japan's undertaking carbon labelling is of interest to New Zealand as this is an important export market. It is of value to assess how consumers react to carbon labelling and if this influences their purchase behaviour.

The study

A study undertaken by the Agribusiness and Economics Research Unit of Lincoln University in 2010 investigated consumers' attitudes, knowledge and preferences towards certain sustainability claims on food products across countries. In particular, the study assessed consumer attitudes to greenhouse gas and footprinting information along with other criteria. The aim of the research was to help industries and companies benefit from market opportunities, especially with regard to carbon footprints and other sustainability attributes on food labels. Focus group meetings were held to support survey development. Subsequently, several web-based consumer surveys were undertaken in the UK and Japan in July 2010, using a sample of 440 people in each country.

Focus group meetings

Two focus group meetings were held in Christchurch in February 2010 to determine a general understanding of people's views and attitudes towards different food labels and the importance of sustainability, particularly carbon footprint labelling. The participants in the first group were aged 20 to 30 years, with the second group including people aged 30 to 60 years. Both group meetings followed a similar format, including discussion of individual products and awareness and perceptions of sustainability, especially carbon footprint labelling. The level of awareness was roughly the same across both groups.

The focus groups were presented with three specific carbon labels to assess their preference and user interpretation. Participants were concerned about how the standard of the carbon measure was set. In addition, respondents felt that they

Carbon labels shown to focus group participants

were missing a reference point and background information. However, it was agreed that if all products had such labels this would be more useful as food items could be compared.

Overall, the variety of focus groups' responses showed the complexity of the decision-making process and constraints that individuals face while shopping.

Web survey

The questionnaire for the web survey included generic questions on shopping behaviour and on attitudes towards sustainability. In addition, a choice set was shown to respondents in which they were given two options of food with different levels of sustainability attributes. Participants then had to choose which alternative they would prefer.

The sampling strategy involved the recruiting of participants from an online panel database of consumers. Each survey was stratified by age and household income distributions. The surveys were implemented using a combination of Qualtrics, a computer programme, and purpose built software developed for the experiment.

Public perceptions

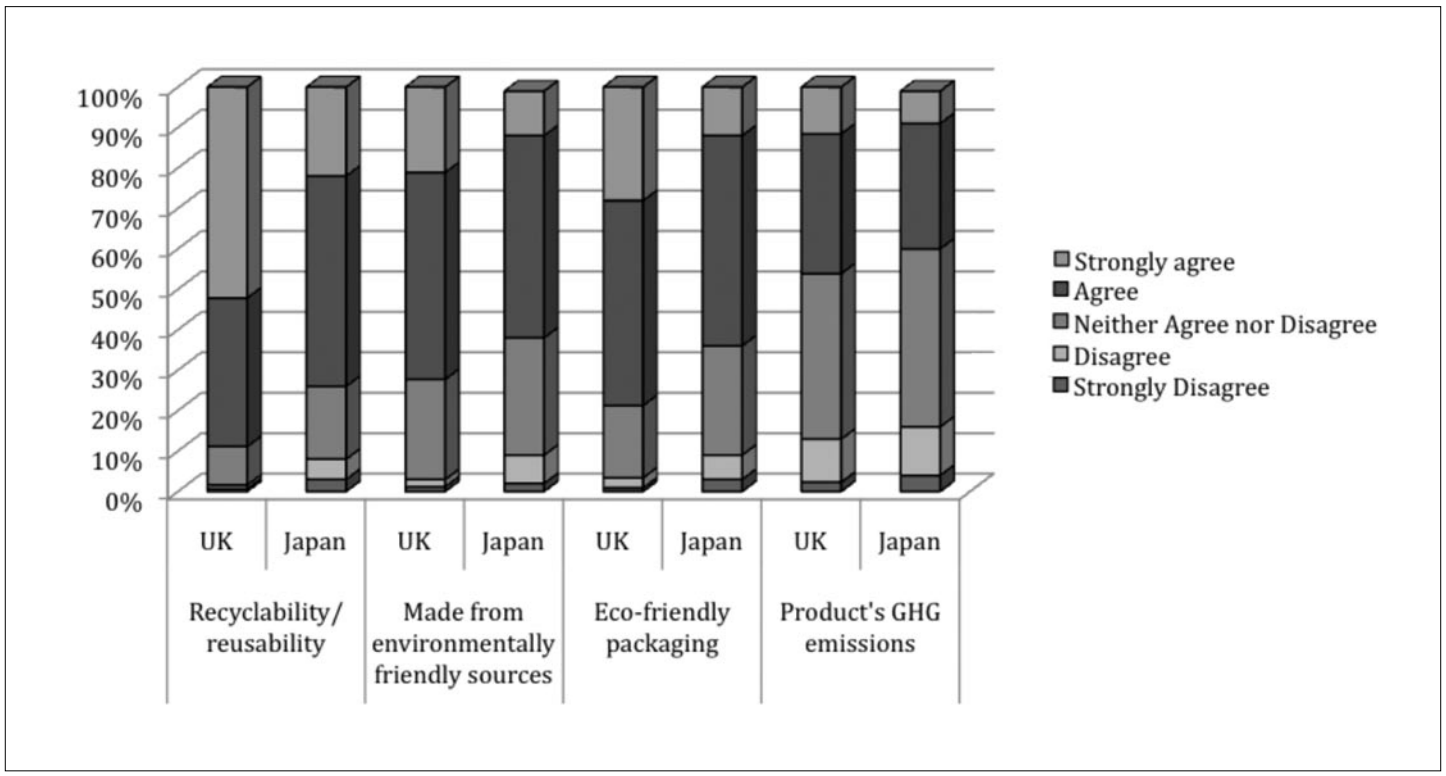
In the first part of the survey, participants in the UK and Japan were asked about their attitudes, knowledge and preferences towards sustainability and other attributes of food products. On a scale varying from 'very important' to 'not important at all', participants were asked about the importance of certain features, such as brand, quality, price and effect on the environment when making a purchase decision. Participants showed interest in the effect on the environment, although in both countries price and quality were rated higher.

The results also outlined several attributes that consumers would like to see on environmental labels. As shown in the graph, recycling and reusability of a package was the most desired label claim in both countries. The second most desired claim was whether a package is eco-friendly. In both countries, the proportion of respondents selecting greenhouse gas emissions as most desired information on environmental labels was lowest compared to all other listed claims but still significant.

When respondents were asked how much they agree or disagree if 'there is a connection between environmental well-being and my personal health', results demonstrated the largest difference between the two countries compared to all other survey questions. In the UK, less than a third either agreed or strongly agreed, and over a third disagreed or strongly disagreed. Conversely in Japan, almost two-thirds of participants agreed with this statement and among these, 17 per cent agreed strongly. Then respondents were asked to agree or disagree with the statement 'I trust producers' claims about the environmental performance of their own products'. There was a similar result in the two countries, with about a half agreeing and a further 15 per cent strongly agreeing in both. This left only about one in ten respondents who would not trust producer's claims, and within this amount only one per cent in each country strongly disagreed with the statement.

Sustainability knowledge

In order that we could learn more about consumer perception and attitudes on specific environmental and social issues, participants were asked about their knowledge of general sustainability on a scale varying between 'a lot'



Consumer preferences for environmental label claims

and 'never heard of it'. Perceived knowledge about specific terms showed differences between the countries with the terms Fair Trade, sustainability and carbon footprint not well known by Japanese participants but well known by the UK respondents. More than 55 per cent of Japanese respondents have not heard of the term sustainability. This may be a translation issue specific to the survey or due to the fact that the term is not commonly used in Japan.

In addition, Japanese respondents were less aware of carbon footprint compared with UK respondents. Again, this may be a translation and application problem as both were similarly aware of the term carbon dioxide emissions. The knowledge of the term carbon footprint in the UK, about which 40 per cent of respondents indicated to know a lot or a fair amount, may be generated by carbon footprint labelling of the major supermarket chains in the UK. The term water footprint was not well known by respondents in either country.

Preferences for food labels

The second part of the survey included an experiment, in which participants in the UK and Japan were shown sets with two options of food products with different levels of attributes. The attributes were selected following indications from the focus group meetings. These were –

- Price
- Reduced carbon emissions
- Increased water efficiency
- Reduced waste and packaging in production
- Nutrition content measured in increased vitamins.

A choice experiment allows estimation of a willingness to pay for the display of a specific attribute on a label. This is measured as a tradeoff as it evaluates how much a consumer is willing to pay for a change in the level of a particular attribute, such as a dollar price increase for a 10 per cent reduction in carbon emissions.

Results indicated that consumers from both countries were willing to pay for improvements in each of the sustainability attributes considered. UK respondents were willing to pay more for reduced carbon emissions than the Japanese, while Japanese respondents valued increased water efficiency higher than the UK participants.

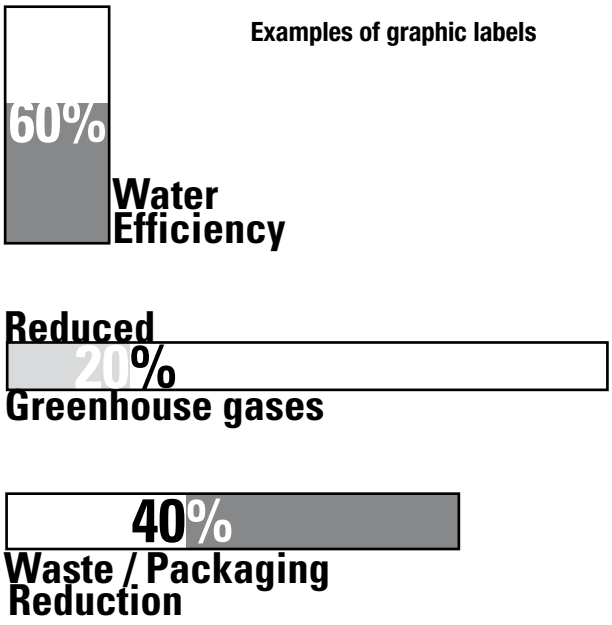
Does the label format matter?

An additional facet of the survey was that the choice sets were shown to the participants in different formats, ranging from pure text to graphical and pictorial. This was carried out to determine if the display of information affects the decision-making process of consumers.

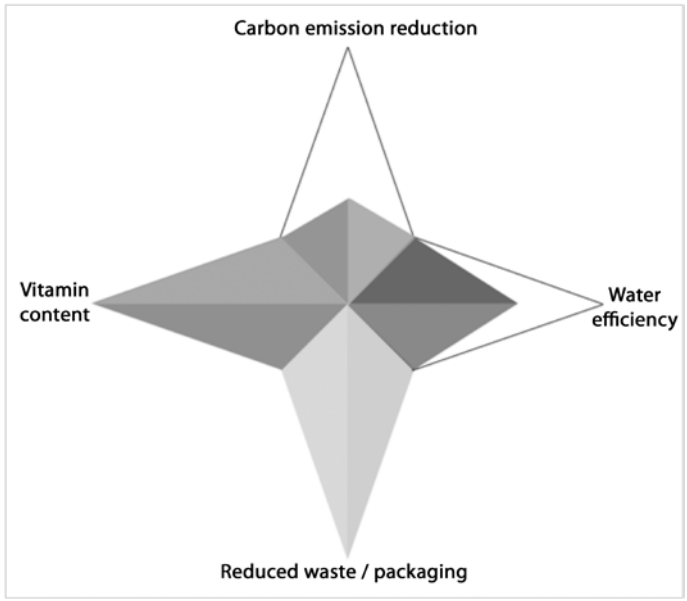
The following illustrations give an example for the graphical presentation format shown to survey participants. This format combines a graphic representation of the changes in the attribute and a brief text description with each of the attributes presented individually.

The sustainability compass allows information to be presented in a holistic way by presenting all the sustainability attributes together. Price is given separately reflecting normal markets. Each of four sustainability attributes corresponds to a point on the compass. The points can be filled in with colour to represent how well the product is doing.

Examples of graphic labels



Sustainability compass holistic label



Results showed that differences are evident between presentation formats, and between countries, with willingness to pay for increased vitamins being the most sensitive to format and country while willingness to pay for reduced carbon emissions is the most insensitive.

The ranking of reduced waste and packaging is reasonably consistent in Japan across presentation formats. Similarly willingness to pay for UK consumers for increased vitamins was consistently ranked over the different presentation formats. However, the ranking of the other non-price attributes varied.

>> Continued on page 24

Jacob Haronga

Better technology would ensure National Animal Identification and Tracing relevance

Biosecurity and food safety are important for the continued viability and prosperity of New Zealand. We have a reputation for producing safe food free of the biosecurity problems of so many other countries and New Zealand has done well by this reputation. To continue to do well this reputation must be maintained.

The latest initiative to maintain this reputation is the National Animal Identification and Tracing scheme. The basis for this scheme is the mandatory application of radio-frequency identification tags to livestock to support the electronic recording of them through their lifetime in this country. The approved technology is low-frequency tags under a technical standard. Federated Farmers believes New Zealand should lift its sights a little higher and aim to approve the use of ultra-high frequency radio-frequency identification tags.

There are approximately 60,000 farming businesses generating direct contributions of $11.6 billion, or over five per cent of total GDP. If we include downstream processing, then the contribution from the agriculture sector climbs to 15 per cent. New Zealand agriculture is able to contribute to this extent because we export around 90 per cent of the food we produce and are responsible for over 55 per cent of total merchandise exports. Prosperity relies heavily on the income generated by the work of the agriculture sector.

It is for this reason that Federated Farmers is a strong supporter of biosecurity, incursion response, food safety and consumer confidence on farm products to help trade access. New Zealand currently uses a number of systems to achieve these objectives and as a result, we have a well-established and hard-earned reputation for producing high quality and safe meat and dairy products. It is this reputation which enables the country to have the access to markets that it does.

Voluntary or mandatory?

The latest initiative to enhance biosecurity and food safety capability is National Animal Identification and Tracing, a joint government-industry scheme which traces the location of livestock throughout its lifetime. A commercial voluntary system would have been the best option. Demand for lifetime traceability is not blanket across all our markets, customers or consumers.

The demands differ markedly from each other. If a voluntary scheme was pursued, then a stronger link between risk and reward could be drawn and the benefits of lifetime traceability more self-evident. However, draft legislation is proceeding with a mandatory system, so our focus as an organisation is now to make sure the scheme is as efficient as possible with compliance efforts, and that costs to farmers are kept to a minimum. Ensuring there is balance between satisfying the market expectations, and the ability for farmers to cost-effectively satisfy those expectations, is important. The aim with any endeavour is to ensure the cure is not worse than the disease.

Draft legislation still before Parliament would see the scheme become mandatory for all farmers of initially cattle and deer, requiring the tagging of animals with radio frequency identification (RFID) tags. The current standard for such tags approves low-frequency tags for use where they meet conditions such as read range, tag retention and other design specifications. The point of all this is to ensure that the tags farmers use are fit for the purpose in a New Zealand farming environment.

Which animals to tag?

As mentioned earlier, the scheme initially includes cattle and deer, but the intention was always to broaden its scope to

include other species. The practical farming reality of many of these other species is that the use of individual RFID button tags may not be entirely appropriate or necessary.

Looking at the pig and poultry sectors, location identifiers with numbers of livestock might suffice. Similarly, with the equine sector, embedded microchips or other less obtrusive identification devices could be more appropriate. The point here is that there ought to be an open mind to the approval of technology for traceability.

The proposed scheme has a standard for RFID devices for cattle that approves the use of low-frequency tags where the manufacturer can prove their tags meet the physical and performance requirements described in the standard. It makes sense that low-frequency tags were approved so quickly, given their commercial availability and the wealth of data out there to support the performance requirements of the standard. However, that this is all that low-frequency RFID could do – satisfy the technical standard.

Innovative technology

New Zealand farmers have a long history of innovation and adopting new technology and farm practices. Individual farmers have already adopted electronic identification and tracing technology to produce significant gains, such as reduced labour costs and increased accuracy when weighing stock, or the ability to more easily select stock on specific production traits. This is what happens currently.

As an emerging technology, ultra high frequency (UHF) tags represent an opportunity to do more on-farm with electronic identification and for farmers to be able to realise greater benefits to farm productivity and efficiency. A simple example is with the ability of UHF tags to hold more information than simple identification numbers, so that the animal's history could theoretically follow that animal.

Another would be with the enhanced ability to accurately trace faster-moving animals, or larger groups of smaller animals. The UHF tag system is a well-understood technology in logistics and product distribution systems around the world. For true paddock-to-plate traceability, it makes sense for the same technology to run from farm of origin to the supermarket counter.

Clear process required

We understand UHF tags are not commercially available in New Zealand and that many of the tags which have been tested have not met the technical standards. That said, it is important that we all look to farming's future and to the opportunities to farm better.

To enhance innovation, National Animal Identification and Tracing must have a clear and easy process for the integration of new technologies into the system, such as UHF tags. To maintain our reputation for biosecurity and food safety, the scheme must only approve technologies fit for the New Zealand farm environment. To demonstrate value to New Zealand farmers, they must be able to make use of technologies that enable benefits beyond the scheme to be realised on the farm.

Jacob Haronga is a Senior Policy Advisor for Federated Farmers.

>> Labelling sustainability – what consumers want, know and understand continued from page 22

Conclusion

The purpose of this study was to examine the attitudes, knowledge and preferences of consumers towards sustainability attributes on food products. The preferences consumers have for differing sustainability attributes may influence the production processes of primary sector exporters aiming to market their products effectively.

Overall, the results found evidence that consumers in the UK and Japan value the display of product attributes on food labels. It was found that the majority of consumers trust producers' claims of the environmental performance. This result may be useful for producers as consumer trust can help in forming the basis for an effective label which contains sustainability attributes.

Interesting differences between the two countries could be observed in the perceived connection between environmental well-being and personal health, where a majority of UK respondents did not see a connection compared to a large Japanese population that did. In both countries it was found that consumers are aware of climate change. However, consumer knowledge and perceptions of some label claims differ between countries, and in particular the knowledge about certain terms, such as sustainability and carbon footprint is very different between the Japanese and UK consumers.

An important result from the choice experiment showed that perceptions are dependent on presentation format and that this influences willingness to pay for sustainability attributes. In addition, in both countries consumers valued improvements in all sustainability attributes considered. However UK and Japanese consumers had different preferences over the importance of each attribute.

This project is part of research aimed at examining the role of sustainability attributes of New Zealand food in decision-making. Future research will focus on other attributes which are emerging as significant for the New Zealand export markets. These could include farm animal welfare, functional foods, biodiversity and safe foods. This research could help identify potential market opportunities for the primary sector.

Meike Guenther is a research associate at the Agribusiness and Economics Research Unit, Lincoln University.

Daniel Kalderimis

Foreign direct investment in New Zealand farmland

The sale of New Zealand farmland to foreigners is a divisive topic. Some, such as Save the Farms Incorporated, see it as self-evident that foreign ownership of New Zealand farmland is undesirable. Others, such as the Treasury, find it difficult to see why ownership should be a problem – as opposed to questions of land use which can be addressed by generally applicable regulation.

The regulatory path New Zealand is presently on could be described as putting a bob each way. It has not, as Save the Farms would like, placed a moratorium on farm sales to foreigners. Equally it has not, as Treasury would like, scrapped the Overseas Investment Act regime which screens foreign investment. Indeed, the OIA regulations were strengthened in September 2010 in an attempt to assure the wider New Zealand public that adequate controls are in place to prevent foreign aggregation of farmland.

This article uses the Crafar farms saga as a case study to explore some of the positions and attitudes which sit beneath the ownership debate. It concludes that it is not easy to see why foreign investment rules need to be further tightened, especially given the additional protections introduced in 2008 and 2010. While there may be a case for certain restrictions on foreign ownership of farmland, its proponents need to be more thoughtful and articulate in advancing it.

The OIA regime in a nutshell

The Overseas Investment Act 1973 was replaced in 2005 by the Labour government. The objective of the 2005 Act was to focus on what Michael Cullen called 'those assets that really matter to New Zealanders', in particular what is defined as sensitive land and fisheries assets.

To reflect the focus on landbased scrutiny, the new Act abolished the Overseas Investment Commission, and appointed as the regulator the Chief Executive of Land and Information New Zealand. Under the 2005 Act, approval is required for all purchases by an overseas person in sensitive land or fishing quota or a 25 per cent or greater interest in persons who own sensitive land or fishing quota. Sensitive land is defined to include –

- All foreshore and seabed regardless of the size of land parcel, and adjoining land which exceeds 0.2 hectares
- All lake beds, specified islands, land held for conservation purposes, as a public reserve, an historic place or under a heritage order provided the parcel exceeds 0.4 hectares, and adjoining land which also exceeds 0.4 hectares
- Non-urban land, which includes all farmland exceeding 5.0 hectares.

Criteria for approval are –

- For all investments covered by the Act, an overseas investor must satisfy the 'investor test' requiring proof that the investor has relevant business acumen, financial commitment and good character;
- For investments in sensitive land, the relevant Ministers must also determine that either the relevant overseas person, or all individuals with control of that person, are ordinarily resident in New Zealand or intending to reside in New Zealand indefinitely or the overseas investment will, or is likely to, benefit New Zealand. If the land is non-urban land, that the benefit is likely to be substantial and identifiable.

Therefore the basic rule is that foreigners can only buy New Zealand farmland where a substantial and identifiable benefit can be shown. Business investments which do not relate to sensitive land or fisheries are also screened where they have a value exceeding $100 million. The screening regime for business-only investments is not a serious impediment in practice as there is no requirement to establish that the investment will provide a national benefit. Once the 2011 Australia-New Zealand Investment Protocol is passed into New Zealand domestic law, the business-only threshold for Australian investors will be $477 million.

Flexibility with uncertainty

The factors for assessing the benefit of overseas investment in sensitive land are set out in a section, of which the final factor is 'any other factors set out in regulations'. This provision is what lawyers refer to as a Henry VIII clause, which permits amendment of the principal legislation. It means that Cabinet can change the law without going through Parliament. Such clauses increase flexibility, but also uncertainty.

New Zealand governments have twice relied upon the above to expand the benefit test for investment in sensitive

land. In both cases, the government passed amendments in a charged political atmosphere and against the backdrop of specific applications from foreign investors.

The first intervention was in response to the 2008 bids by Dubai Aerospace Enterprise and the Canadian Pension Plan Investment Board. This was to purchase, respectively, between 51 and 60 per cent, and 40 per cent, of Auckland International Airport. While the bid was pending, Cabinet resolved to add by regulation a further factor for consideration in assessing applications for sensitive land, namely 'whether the overseas investment will, or is likely to, assist New Zealand to maintain New Zealand control of strategically important infrastructure on sensitive land.'

After this change, the offer was revised to state that it would restrict its voting rights to 24.9 per cent while maintaining a 40 per cent ownership stake to demonstrate that it would not control the airport. On this basis, it made an application for OIA consent. The application was rejected as being unlikely to provide benefits to New Zealand.

Unusual regulation

In September 2008, Parliament's Regulations Review Committee considered a complaint brought by the New Zealand Business Roundtable and the Wellington Chamber of Commerce. The committee concluded that the regulation was an 'unusual or unexpected use' of the regulation-making powers in the 2005 Act, as the Canadian Pension Plan Investment Board's application only invoked the sensitive land criteria because of the coincidence that Auckland Airport is adjacent to Manukau harbour.

The government, it was argued, took advantage of this coincidence by inserting an additional criterion for strategically important infrastructure which happens to be located on sensitive land, but not otherwise. The committee also concluded that the matter was better suited to parliamentary enactment and added that the proliferation of similar Henry VIII clauses is 'a cause for concern'.

The committee recommended that the government introduce legislation to either omit the relevant section from the 2005 Act, or add a requirement to consult with relevant parties before using it. Neither the Labour government nor the subsequent National government followed the recommendation.

Review of the Act

Instead the National government, elected in November 2008, found itself facing a further overseas investment controversy due to the Natural Dairy bid to acquire the Crafar farms. On 17 March 2009, the government had announced it would review the 2005 Act and regulations. The message was that the government would identify the problems with New Zealand's screening regime and remove them. As the Minister for Finance stated 'Current rules are complex and processing a sensitive land application involves the assessment of 27 criteria and factors. The process is too long and too uncertain ... The objective of the review is to create an overseas investment screening regime that promotes and encourages the flow of investment into New Zealand, while addressing valid concerns about foreign investment.'

On 22 September 2010, however, following adverse publicity about Natural Dairy, Cabinet decided to conclude the review of the 2005 Act by adding two further factors to the regulation. These are a new 'economic interests' factor and a 'mitigating factor', providing that –

> Whether New Zealand's economic interests will be adequately promoted by the overseas investment, including, for example, matters such as all or any of the following:

(i) whether New Zealand will become a more reliable supplier of primary products in the future

(ii) whether New Zealand's ability to supply the global economy with a product that forms an important part of New Zealand's export earnings will be less likely to be controlled by a single overseas person or its associates

(iii) whether New Zealand's strategic and security interests are or will be enhanced

(iv) whether New Zealand's key economic capacity is or will be improved

(j) the extent to which persons who are not overseas persons (New Zealanders) will be, or are likely to be, able to oversee, or participate in, the overseas investment and any relevant overseas person, including, for example, matters such as all or any of the following

(i) whether there is or will be any requirement that one or more New Zealanders must be part of a relevant overseas person's governing body

(ii) whether a relevant overseas person is or will be incorporated in New Zealand

(iii) whether a relevant overseas person has or will have its head office or principal place of business in New Zealand

(iv) whether a relevant overseas person is or will be a party to a listing agreement with NZX Limited or any other registered exchange that operates a securities market in New Zealand

(v) the extent to which New Zealanders have or will have any partial ownership or controlling stake in the overseas investment or in a relevant overseas person

(vi) the extent to which ownership or control of the overseas investment or of a relevant overseas person is or will be dispersed amongst a number of non-associated overseas persons.

Treasury opposed these changes and recommended that if the government did add new factors it should, at the very least, remove the regulation. Cabinet rejected this advice and the regulation was retained. Therefore, the 2005 Act, which exists mainly to protect New Zealand farmland from foreign control, has become incrementally more restrictive due to political influence by successive governments.

The Crafar farms as a case study

Thinking about foreign ownership

There is clearly a sizable public constituency in New Zealand which considers that the present OIA regime regarding farmland is too accommodating and should be toughened up. A poll of 500 respondents conducted in October 2011 on behalf of the Michael Fay consortium wishing to buy the Crafar farms found that –

- 82 per cent believed foreign ownership of farms and agricultural land was a bad thing
- 81 per cent of respondents were specifically opposed to Chinese ownership, 67 per cent to British ownership and 54 per cent to Australian ownership.

A poll conducted a year earlier on behalf of Natural Diary also found opposition to foreign farm ownership, but with rather different views depending on the nationality of the foreigner. While only 18 per cent of 1,000 respondents would be extremely uncomfortable with Australian ownership of New Zealand farmland, 41 per cent would be extremely uncomfortable with Chinese ownership of the same.

On the other hand, there is a fairly settled view that opposition to foreign ownership is misguided. This point was made recently by new Treasury Secretary, Gabriel Makhlouf.

> 'On the loss of control of land assets, the implicit assumption here is that a foreign owner would behave differently from a New Zealand owner, for example whether they use the land productively or protect important social and environmental features such as walking access or heritage value. If that is the case, then the issue at hand is really how the land is used, rather than who owns the land. There are a number of regulatory mechanisms governing land use in New Zealand. The protections offered by these forms of regulation govern all land owners – irrespective of nationality.
>
> We [Treasury] consider that the same standard of protection should apply regardless of who owns the land. On that basis, requiring foreign investors to meet higher standards, through the Overseas Investment Act, would not be necessary.'

The argument for more restrictive rules has not been well explained by those who hold it. To take one prominent example, the issues page of the Save our Farms website states only that agriculture directly accounts for around five per cent of GDP, with processing of primary food products accounting for a further 2.9 per cent. The website also says that the government does not know the amount of land currently in overseas ownership, and that several overseas bids to purchase New Zealand land have been approved. It does not explain, perhaps because the authors think it goes without saying, precisely what is problematic with foreign ownership.

The respondents to the October 2011 survey were somewhat more helpful, suggesting two interlinked reasons for opposition to foreign farm ownership. One was to 'keep control of our primary resource' so 'that Kiwis benefitted from exports, not foreigners'. In my experience, these two arguments tend to break down into four propositions.

Profit overseas

One is that when New Zealand assets are acquired by foreigners, the business profits are diverted overseas. This is a risk. However as most economists point out, those profits should have been factored into the price by which the foreign investor acquired the asset in the first place, so that money has already been paid to the local owner who can then reinvest it into the local economy.

Now that Sam Morgan has sold TradeMe to an overseas investor, for example, he is free to reinvest his sale receipts into new local businesses such as Pacific Fibre. In addition, the risk of asset relocation as opposed to profit diversion obviously does not apply to farmland, which, no matter who owns it, is staying put.

Land price rises

The second proposition is that once foreigners are permitted to buy freely on markets for land, prices will rise so that ordinary New Zealanders will be priced out. The flip-side to this argument is, of course, that excluding foreigners artificially depresses the price of the relevant asset.

There may be some tracts of New Zealand land which are genuinely too strategically important to let out of New Zealand hands. However, this is unlikely to be the case for all New Zealand farmland over five hectares.

Economic resource and heritage

Number three is that New Zealand's farms are a key economic resource. As a matter of national and economic security New Zealand should keep these in local hands. The fear seems to be that New Zealand might lose critical wealth-generating assets and the food security which comes from owning them. In some forms, this argument seems almost to overlook that most of this country's farmland is privately held. New Zealand does not own the farms, a small number of often very wealthy New Zealanders do.

If the same taxes are paid in New Zealand on profits earned from those farms, then the case still needs to be made for why a Chinese owner poses more of a concern than a New Zealand owner. In addition, New Zealand has always exported its most valuable primary produce. You could make the argument that in today's globalised world, the connections and linkages which a foreign owner brings may be of particular advantage to New Zealand's primary produce export industry.

Finally, the fourth proposition is that New Zealand farms are an important part of this country's social and cultural heritage. Can you expect foreign owners to uphold New Zealand' values – whether this is about employing local workers or contributing to the local community? This

argument needs to be made very carefully to avoid overtones of xenophobia.

The Crafar farms saga

Given that the sale of Crafar farms has been a focal point of the debate about foreign ownership of New Zealand farmland, and the cause of the 2010 changes to the OIA regulations, it seems appropriate to use it to try briefly to draw out some of the underlying issues. The CraFarm Group was, until it went into receivership in 2009 owing approximately $240 million, the biggest private family dairying business.

The aggregation, over 30 years, of the Crafar family dynasty is well known. What is also well known is that from around 2006, Crafar farms were plagued with allegations of poor farming practices, including mistreatment of animals, and they racked up record fines on numerous occasions for illegal effluent discharge.

Following the Crafar receivership, the high-profile application by the Hong Kong-owned Natural Dairy consortium to purchase several of the Crafar dairy farms from the receivers also became mired in controversy. This was not least due to the elusive May Wang fronting the acquisition. Natural Dairy's applications were rejected on the basis that the government was not satisfied that all of the individuals with control of Natural Dairy were of good character.

Also in 2010, it was announced that state owned enterprise Landcorp had made an offer for the Crafar farms. This was rejected because the price was too low. At the end of January 2011 it was announced that a new Chinese entity, Pengxin International Group based in Shanghai, had made an offer to buy the farms for $200 million. That bid was accepted by the receivers, and is subject to Pengxin's OIA application being granted.

Range of options

What we have seen, then, is a wide range of ownership options –

- A traditional New Zealand dairying family and the person to whom they sought to sell their farms for a nominal value
- New Zealand state owned enterprise
- An Asian investment consortium
- New Zealand investment consortium
- An Asian agribusiness.

It is not immediately apparent why the first ownership model is the best answer. Mr Crafar and his family are definitely New Zealanders. However their stewardship of the empire they built did not reflect the modern agricultural values of world-class professionalism, sustainability and environmental consciousness which this country likes to pride itself on. On the contrary, the farms were a marquee for complaints about the adverse environmental effects of New Zealand dairying practices.

It is equally not clear why New Zealanders should have supported the effective nationalisation of the Crafar farms through Landcorp. Farming has traditionally been a private sector activity, especially in an era when public asset sales are on the agenda, the case for state acquisition and ownership of significant farming assets is not at all clear cut. There were undoubtedly problems with the Natural Dairy bid, but this was rejected by the existing system. So it is not an argument that the existing rules are inadequate and need to be tightened.

A good story

What is perhaps most curious is the notion that there is some broad national benefit to be obtained by the Crafar farms being owned by a consortium led by Sir Michael Fay. As is well known, he was for several years domiciled in Switzerland leading Labour MP Shane Jones to suggest in 2007 that Sir Michael's ownership of a New Zealand island should itself be subject to the OIA regime.

Leaving aside personal attributes, Sir Michael's acquisition of any significant asset, like that of Pengxin, is motivated by profit. There is no particular reason to think that his bid would necessarily result in more employment of New Zealanders at the farms, increased export volumes or a better run operation.

The Crafar farms saga will one day make a good story. However a quick scan of its cast list shows that it is difficult to describe the New Zealanders who want to own the assets as the heroes and the foreigners as the villains. It may be wiser to avoid trying to form such judgements and adopt a commercial perspective instead.

Conclusion

Public sentiment has led to the OIA regime becoming increasingly restrictive. It currently contains considerable latitude for discretion, and for political considerations to influence regulatory decisions. While this may be comforting to some, it is not obviously in New Zealand's interest for foreign investors, such as Pengxin, to be uncertain about their ability to invest in this country's assets.

There may be a case to be made on why certain foreign ownership of New Zealand farmland is undesirable. If it can be made, it is likely to be far more than generalisations about losing control of our primary resources. It may perhaps involve specific concerns about the creation of foreign-owned vertically integrated supply chains which could make it harder for New Zealand businesses to penetrate important export markets.

However as the choice facing the Crafar receivers between accepting a higher price from Pengxin or a lower price from the Fay consortium plainly demonstrates, there are economic costs in restricting foreign investment. Those who claim that the OIA regime needs further tightening therefore need to prove their case. It is not enough to state a position, however forcefully, nor to offer as justification comforting bromides. Those who want further change must persuade by cogent argument and clear-sighted analysis. They have not done so to date.

Daniel Kalderimis is a Partner at Chapman Tripp. The opinions expressed in this article are those of the author, and should not be attributed to Chapman Tripp as a whole

Nick Clark

Overseas ownership of farmland

There has been a lot of debate around the sale of farmland and other assets to foreigners. New Zealanders, including farmers, hold a wide range of views on the issue. As befits a healthy democracy, a well-informed debate is a strong basis for effective policy development. However, to be useful the debate needs to be well-informed and based on fact, not emotion. Unfortunately, much of the debate so far has been uninformed or even misinformed.

As the largest membership-based rural advocacy organisation in New Zealand, Federated Farmers has a strong interest in the issue of land ownership and we have recently reviewed our policy on overseas investment. Overseas investment is entrenched in the economy. Most people either realise that it is beneficial or would at least accept that it is necessary. However, overseas investment in farmland can be particularly contentious and emotive.

New Zealand's rules for overseas investment are already among the most restrictive in the OECD, but there is a public perception that it is still too easy for foreign investors to buy land. For example, a TV3 poll released in August 2010 showed over 75 per cent of New Zealanders wanted overseas investment rules tightened and only eight per cent wanted the rules loosened. Not long afterwards, another poll found that 65 per cent of New Zealanders believed that farms should only be able to be sold to New Zealanders.

Much heat was generated last year by the proposed acquisition of Crafar dairy farms by the Chinese company, Natural Dairy, so it was perhaps no surprise that further restrictions were imposed by the government – see the article on page 25.

Overseas investment helped build the economy

There are a number of points around foreign investment and ownership of assets that are important to recognise. New Zealand's economy is built on foreign investment, which has been built up over many years. As at June 2011, the stock of foreign direct investment was $95 billion. Total foreign investment including direct investment, equities and debt was $303 billion.

The New Zealand economy developed mainly thanks to foreign investment, initially from Britain and Australia and more recently from Europe, the US and Asia. It is difficult to think how New Zealand could have developed without overseas investment as it has been found to generate jobs, increase incomes, improve competition, consumer choice and productivity, and assist in the spread of technology and innovation.

Profits generated by foreign investors accrue to the host government in taxes. Some claim that overseas owned and controlled businesses aggressively seek to minimise tax. In fact, a high proportion of New Zealand's company tax revenue is paid by overseas owned and controlled businesses. Despite concerns about the repatriation of profits overseas, some surveys have shown that around 90 per cent of the value added by foreign companies remains in New Zealand, with employee remuneration accounting for the largest share.

New Zealand invests overseas

Some opponents of overseas investment argue that it will lead to a loss of economic sovereignty. However, all overseas owned and controlled companies must comply with New Zealand legislation and regulations in the same way that domestic companies must comply. The state is still sovereign.

Overseas investment also provides New Zealand's small and thin domestic markets with additional market participants. This is the case for farmland, and it is probable that land values would be considerably lower if it were not for capital from overseas owned banks or foreign direct investors. Whether this means prices are set more efficiently, or whether it encourages distortions like land values not reflecting income generating potential, is a matter of opinion.

Many of New Zealand's major companies, including a number of agricultural businesses, have invested heavily in overseas assets including farmland, in Australia and Latin America. As at June 2011, New Zealand investments abroad were worth $163 billion. New Zealand needs to be careful not to put this investment at risk of retaliation by foreign governments aggrieved by any decisions our current or future governments might make.

The New Zealand economy has been poorly performing over many years and as a country we have had decades of spending more than we have earned. So New Zealand governments, individuals and businesses have run up

large amounts of debt to sustain first world living standards and to invest in productive assets. Most of this debt build-up has been sourced from overseas. This is as true in agriculture, with over $47 billion of debt, as it is anywhere else in the economy.

Along with high debt New Zealand has low domestic savings and an apparent inability or unwillingness for New Zealanders to buy assets other than houses. This means foreign investment is often the only option for growing businesses, whether funded by bank debt or through asset sales to overseas persons. With access to bank credit more constrained there will be more and more of these direct investment proposals, whether it is for farmland or for other businesses. Regardless of what people might think about the benefits and costs of overseas investment, the reality is that it is necessary and we cannot afford to close our doors to it.

Overseas ownership

Turning specifically to farmland, if we are to believe the political rhetoric and the media reporting, we could be forgiven for thinking that New Zealand's most productive dairy farms were rapidly disappearing into foreign, increasingly Asian, ownership. However, as is often the case the reality is somewhat different.

According to statistics from the Overseas Investment Office, since 2002 a net 203,000 hectares of agricultural land has been approved for sale to people overseas, with an average size sold of 350 hectares. Most of this land area is sheep and beef rather than dairy, while Asian investment has been miniscule compared to that from Australia, the US and Europe. Overall, the approvals since 2002 represent less than two per cent of New Zealand's 11.3 million hectares of pastoral land.

In addition, according to Statistics New Zealand, the stock of land-based overseas holdings was estimated in 2009 to be around $4.8 billion or only one per cent of the total land value. Foreign investment is much more significant in the rest of the economy, with around $27 billion invested in manufacturing and $192 billion in finance and insurance or 61 per cent of total value.

Emotion rules

The public concern around land sales is interesting when in fact overseas investment is quite low compared to ownerships in other sectors. The public and its political representatives have a greater emotional attachment to land than to other business assets.

Reflecting this attachment, rural land sales to foreigners is regulated by the Overseas Investment Act 2005. The Act requires anyone from overseas to get approval from the Overseas Investment Office if they wish to purchase significant business assets valued at over $100 million or any sensitive land. In effect, all farms are deemed sensitive. New Zealand's rules on foreign investment are among the most restrictive in the OECD.

Federated Farmers carefully reviewed its position on foreign ownership and adopted a position at its June 2011 National Conference. Overall, the view it came to is that the Act's requirements generally strike the right balance between encouraging foreign investment and addressing the concerns about certain types of investment that might not be in New Zealand's best interests.

We support overseas investment in New Zealand farmland by immigrants wishing to farm that land. We also support the ability for high wealth individuals to buy New Zealand farmland with a high scenic value, of which the land is not necessarily highly productive. Both of these types of investment have been long established and have been highly beneficial for farming and to the New Zealand economy as a whole. We do not see any need to impose tighter rules for these types of investment.

Certainty and integrity

More recently, some overseas corporations have been looking to purchase multiple productive farms in New Zealand. Some of these entities might create vertically integrated production, processing and marketing businesses with the subsequent loss of New Zealand control. There are concerns about the application of this business model to the New Zealand farming system and the economy as a whole and we supported the government's changes last year which impose tighter rules for these sorts of purchases.

It is very important for investors and landowners to have certainty over the policy environment for overseas investment within New Zealand and we are concerned about the potential for decisions to be made by political whim. We have therefore urged the government to ensure that any directions it makes to the Overseas Investment Office provide a clear and objective steer on what would be acceptable and what would not be acceptable.

The Government directives must make it clear that any additional economic test, or any other discretionary assessment for overseas investment in farmland, should apply only where there is an application which would result in the mass aggregation of farmland. To maintain the integrity of the process for approving overseas investment in farmland, the Overseas Investment Office must thoroughly assess applications for purchase of farmland, and monitor and enforce compliance with all conditions written into any agreement.

To conclude, Federated Farmers considers there are significant benefits of overseas investment, both for farming and the wider economy. We accept that there are legitimate concerns about certain types of investment in farmland which might not be in New Zealand's economic interests. But the Overseas Investment Act strikes the right balance between encouraging foreign investment and addressing these concerns. We would not support further moves to prohibit foreigners from buying farmland.

Nick Clark is the Federated Farmers General Policy Manager

Graham Cooney

Contracts – livestock procurement in the sheep meat industry

This article outlines the history of a contract system used for livestock procurement in the sheep meat industry. It has been in place for 24 years and has given planning certainty to farmers, the processor and for marketing.

Blue Sky Meats (NZ) Ltd started processing lamb and mutton in 1987. The company existed for various reasons, including a reaction to the inability to get stock killed on time in the existing industry. This was brought to a head in a six-week national strike in 1986. However, the main reason was a belief that the changes to agriculture under the Lange government presented an opportunity to do things differently and better.

An integral part of the new company was a contract system that allowed farmers some certainty around killing dates and numbers to be killed on those dates. This was a direct result of my experience and frustration, as a farm consultant, around the inability to plan farm management with my clients. The system developed at the time has not changed greatly in the 24 years it has been in place.

How does the contract work?

Around docking time, Blue Sky Meats sends a contract application form to its farmer suppliers. The form shows guaranteed per head premiums which reflect the difficulty of farm management at various times of the year. For example these have traditionally been at their lowest in February and March at one to two dollars a head, and at their highest leading into the winter and at the start of the season at $8.50 a head. Farmers understand these are guaranteed and will be added to a changing schedule that reflects market and currency trends.

The amount of premium is determined by the per head processing return to the company. A simplistic way of describing this is to say the company is prepared to forgo profit, but hopefully cover overheads, in the difficult farm management months, but is not prepared to do that in the peak demand months. The system is designed to encourage a spread of kill.

Farmers select dates and numbers based on their knowledge of their own management systems and return the application form to Blue Sky Meats. By early November, Blue Sky Meats will confirm their ability to meet these dates by sending out a completed contract listing dates, numbers and premiums. Farmers have two to three weeks to sign the contract and return it to the company.

Over the years, most applications have been returned by the company in contract form, with dates moved by only a day or two at most. In the late 1990s and early 2000s, some dates were moved at peak periods by up to a week. Apart from the obvious reason of having the correct number of stock on any given day, date movements allowed for transport and drafter coordination, and consequent cost reduction. As the season progresses, communication between the farmer and company allows for changes in numbers to be planned. Sometimes the farmer will ask for a kill date change.

Why is the premium per head?

As mentioned above the premium which is announced up to eight months before the kill date is funded by processing revenue. That is the only figure that the company can predict a considerable time before the kill date. All of that revenue is received on a per animal down the chain basis and is not influenced at all by size of animal other than, perhaps, the size of some byproducts. The company has always had the attitude that all it wants is a processing fee and the revenue received from product sales belongs to the farmer.

The premium amounts mentioned above were a significant part of famer income in 1987. Lambs were worth $20 to $25 – it is interesting to note that pelts were more than $10 of that – and a premium that moved by seven dollars over the season was substantial.

Pre-planned guaranteed per kilogram premiums give all the wrong messages. In particular, it signals that the market requires heavier and heavier lambs, which in most cases is not correct. Over the years various companies have tested pre-announced per kilogram incentives. Unless they have rigid weight parameters they have never worked.

Can the total payment be pre-announced?

This is probably the most frequently asked question by farmers who want to advance the concept. The answer is we

could do that if you can guarantee accurate numbers and, most importantly, accurate size and grade of animal at the time the contracts are being drawn up. In order to have a guaranteed price in advance an exporter must pre-sell most of the product. That can only be done if the volume, size and grade can be guaranteed in advance.

While New Zealand sheep farming remains production-led with heavy lambs in a good growing season and lighter ones in a dry season, it will always be impossible to accurately predict a price. The dairy industry has a number of in-built advantages and one of these is the ability to make manufacturing decisions in advance because the raw product is predictable.

How successful have the contracts been?

In the early years applications reflected the supplier's wishes to ensure guaranteed space. The contracts applied to mutton as well as lamb. Once a farmer had booked their cull ewes for a particular day, the ewes would be killed on that day even if there was a shortage of available lamb space. This was a major change in industry practice.

As the years passed it was obvious that applications were influenced by the level of premium. Space certainty was not the same issue that it had been and, more importantly, farmers had gained confidence that the system worked. It is a matter of pride that the company has never asked to move a contract more than one day from its original date in the 24 years that the system has been in place.

In 1994, following the Fortex collapse, the international market stopped buying meat in the expectation that the price would fall. The Fortex receivers, along with other companies, refused to take lower prices and there was a period when sales stopped. This led to a cash flow crisis at many companies. They were still killing and paying for livestock, but receiving no income. Blue Sky Meats was no exception. Consequently it said to the contracted suppliers that, for a short period, they would be paid in 28 days rather than 14 days, but they would be paid interest on the extra 14 days. They were offered the opportunity to withdraw from their contract if they considered the risk to be too great. No-one withdrew.

In recent years with the effects of dairy conversions and the retirement of some of the original suppliers combined with a gradual move to more per heading, the percentage of stock procured under contract is lower than it used to be. However, it still provides a significant majority of the company supply.

The contract system is, without doubt, a major reason for the company's success. It is simple, trusted and well understood by existing suppliers, if not by some farmers outside the company. It is without doub, the best procurement system for maintaining a good relationship, and relative sanity, between farmer and the company in tight feed situations.

Why have contracts?

A well-designed contract system between the processor and farmer has potential and real benefits.

Farmers – It allows farmers to plan their farm management with some certainty. Farmers know the date of their next draft and the number. They also know that the system is fair. The company has always kept some space aside in each week to allow for requests for extra stock. This space has gone to 100 per cent suppliers initially, on the understanding that the company has a bigger obligation to them than anyone else. At the times when space is not an issue, organised farmers still value the ability to plan towards their next date. This creates good management.

Processor – Once the contracts are confirmed the processor can plan production. Gaps are identified and policy concerning filling those gaps can be developed. Planning of the start and finishing of shifts and manning levels can be accurately planned. This in turn leads to better industrial relations and recruitment and retention of staff. This has been a significant advantage at Blue Sky Meats.

Marketer – The ability of the marketer to plan for forward sales is probably the biggest advantage. It has already been shown how the inability to accurately predict grades and size of animals restricts forward sales planning. However, the contract system gives some ability to plan sales well in advance for at least 66 per cent of the products. Over the years it has been particularly helpful in planning for mutton sales.

Retailer – If the marketer is able to be more reliable in relation to consistent sales this in turn leads to a better result for the importer, retailer or end-user.

What is the future for contracts?

The industry has moved to more and more procurement being done on either a per head or a per kilogram basis. In either case it tends to be ad hoc with reduced loyalty to any one company. Apart from the fact that the last time this was done it led to the collapse of two major meat companies Fortex and Weddell, with all the subsequent pain and recriminations, it is restricting the meat industry's ability to maximise returns in the market. Investment is going into procurement rather than into the market.

More importantly, the ability to organise a proper marketing campaign with an international importer is restricted due to uncertainty about supply of both volume and type. This limits total returns available to farmers.

Blue Sky Meats remains committed to the contract system. At the same time, it has also committed to paying all farmers at any particular time the same price, and that price must be clear and transparent to all suppliers. We consider that these are the three things that have maintained a respectful relationship between company and supplier. The recent Red Meat Sector Strategy identified a breakdown in respect between farmer and company as a major factor in moving the industry forward.

The format of the contracts may change. Development may include the following –

- A move to an advance total price for reasonably tight specifications which can be on time and on specification. The on-farm management tools to do this are available,

particularly in the southern part of the South Island.

- In the past, Blue Sky Meats have restricted this to heavy lamb contracts which are available to all suppliers. This is partly a response to demand from those who are doing a good job of producing these lambs, but is also a way of limiting the number of heavy lambs in a market situation where too many have in the past collapsed the market.
- The next contract specifically targeting a weight range will probably be at a 15 to 16 kg carcass weight. In order to maintain present higher per kilogram returns, the market is demanding smaller cuts. Consumers are happy to pay a certain amount for their meal even if that is for a smaller portion of a recognisable cut. What they will not do is pay an ever-increasing amount for the same sized portion. At some point either they stop buying or the retailer stops supplying.
- A contract for smaller lambs runs counter to most farmers' thinking. It will therefore have to be aimed at farmers whose properties suit the production of these lambs and see their profits being increased by producing a greater number of lighter lambs.
- These farmers supplying these lambs may be hand picked. Does this undermine the transparent fair system used until now? That will depend on how it is handled.
- Prices in these contracts will be cents per kilogram and in this case it will give the correct message.
- A different type of contract may apply to a group of farmers who believe they have significantly better yielding lambs. Critical mass is essential so that accurate yield measurement can be done online. Again a challenge will be to ensure that other suppliers do not see this as different to the fair and transparent message.
- Blue Sky Meats has already tested a contract for specialist finishers who can meet the pre-determined specifications. The concept needs fine-tuning, but will work and can be done by either purchasing the lambs or in a share-farming arrangement with the breeder.
- There will be contracts for lambs which meet unique market requirements for a specific market.

What are the challenges for NZIPIM members?

It is fair to say that I have been disappointed in the role played by most farm consultants and rural bankers in the last 20 years in the meat industry. I believe that when giving advice it must be well researched. In addition, NZIPIM members have a responsibility in the industries they are directly involved in. I see excellent examples of this with some members involved in the dairy and fertiliser industries.

That does not apply in the meat industry. I do not recall one direct approach from a farm consultant or banker to enquire about the contract system or to debate the often-quoted concerns about marketing of industry product. While I have occasionally presented to NZIPIM meetings, I do not ever recall a healthy debate about the merits of various procurement systems and their effects on processing and marketing.

In almost all cases where I am told about advice given to individual sheep farmers concerning the marketing of their animals by NZIPIM members, that advice appears to be short term, based on poor research, and is counter to what will move the industry forward. In case readers think this is simply a selfish argument applying only to Blue Sky Meats, I refer them to the Red Meat Sector Strategy report where there are sobering comments from all involved in the industry, including farmers. They do not paint a complimentary picture of advisory services.

Conclusion

Without doubt, the main impediment to progress in the sheep meat industry is the procurement systems. Contracts may not be the only answer, but they have worked well in the sheep meat industry over many years. The successful contracts have been reasonably basic. The industry is at a crossroads. If it does not develop a range of contracts that cater for international market requirements it will continue to decline.

When considering any structural changes in the industry two questions need to be answered. First, will the change lead to more money from the market? Secondly, does the change reduce costs from the farm to the market? Well-developed contracts meet both requirements. Most alternative procurements meet neither requirement.

NZIPIM members involved in the industry should ensure they are part of the industry solution rather than part of the problem. They have an important role in working with companies and farmers in developing relevant and workable contracts.

Graham Cooney was formerly a farm consultant, and a former National President of the NZIPIM. He is now a Fellow. In 1987 he set up Blue Sky Meats, and after 17 years as an employee and board member has now been the Chair for four years.

John Gardner

The Sharemilking Agreements Order 2011

In August a new Sharemilking Order was announced to come into effect on 1 June 2012. This Order revokes and replaces the 2001 Order. It substitutes new minimum terms and conditions for those sharemilking arrangements where the herd is provided by the farm owner. All such sharemilking arrangements will need to comply with the new Order. Those who have entered into agreements under the 2001 Order covering the year 2012/2013 and beyond will need to renegotiate their agreements to comply with the new Order.

The 2011 Order leaves plenty of time for everyone to become familiar with their rights and responsibilities. This situation contrasts with that which arose with the 2001 Order which was published only one day before coming into effect. That led to complaints to Parliament's Regulations Review Committee about retrospective legislation. The committee did not uphold the complaints ruling that the legislation was in fact prospective.

The new Order has come about following negotiations by those representing sharemilkers and farm owners, with the Department of Labour which administers the Sharemilking Agreements Act facilitating the process. The Order reflects what the committees representing sharemilkers and farm owners have agreed to.

This article identifies the principal changes in the 2011 Order from the 2001 Order. Some clauses in the 2011 Order are identical with those in the earlier one. In others the wording has been changed, or redundant words have been deleted, but the intent remains unaltered. The wording is thorough in the 162 clauses in the new Order, in many cases significantly improving their clarity.

Definitions

In the 2011 Order there is a definition for farm owner but not for employer as appears in the 2001 Order. This makes it clear that farm owners are not employers in legal terms in sharemilking arrangements. The term sharemilker is given a new definition and agreed share and notice of dispute are formally defined in the 2011 Order.

Warranty information

The farm owner must now state the number of fully paid shares at the commencement of the agreement and if the production entitlement is limited or unlimited. If neither is selected production will be unlimited.

In addition if there is likely to be a change in the shareholding in any year which could disadvantage the sharemilker then a separate agreement is required. The farm owner must provide the sharemilker with any consents, soil tests and nutrient tests which are available.

Records

The farm owner must provide certain records to the sharemilker before signing the agreement concerning the herd's status with respect to items such as milk grading. The records are the same as those specified in the 2001 Order, but in the 2011 Order receipt of the various records is to be recorded and there is the opportunity to comment on the information.

Relationship of parties

The basic relationship of principal and independent contractor remains unchanged. However, now both must nominate a single representative or point of contact for the purposes of the agreement. Importantly the nominated representatives cannot be changed without the written consent of the other party, but this must not be unreasonably withheld.

The 2011 Order requires the parties to perform an agreement for its full term unless the other party agrees to an early termination. A party may not assign or transfer an agreement or the responsibility for performing their side of an agreement to another person. Before the parties to an agreement can be changed,it must be renegotiated.

Remuneration

There is one significant change from the 2001 Order where there are fewer than 300 cows. If a sharemilker receives part of the milk price together with a share of the dividend related payment adjustment then the return for all labour net of operating costs must be at least 21 per cednt of the milksolids income as in the 2001 Order. The percentage is, however, 22 per cent if the sharemilker does not participate in the dividend related payment adjustment.

The Order includes clauses to establish the basis for determining the number of shares if the sharemilker is to receive a dividend related payment adjustment. In both situations of fewer than 300 cows and more than 300 cows, the default option if no share number is specified is production.

Penalties

A new development in this section is that any historical soil contamination is the responsibility of the farm owner.

Capacity charge

This is now the responsibility of the farm owner unless it is agreed otherwise in writing.

Children

The 2001 Order included a clause designed to protect young children who must be present in the dairy at milking. The 2011 Order extends the obligations of the farm owner in this respect and provides for the situation where, after signing an agreement, a sharemilker becomes responsible for young children who must be accommodated at the dairy during milking. A dispute in this area is subject to the conciliation process provided in the Order.

Alterations and improvements

Clause 39 in the 2001 Order focussed on alterations and improvements to the house, dairy or other facilities the farm owner agrees to undertake before the commencement of the agreement. These were to be identified in an annex.

There is a similar clause in the 2011 Order with the information again to be specified in an annex . The heading of this annex is 'Accommodation' and this is its sole focus apart from the requirement for a secure stock proof fence enclosing house and surrounds. This is a change from the 2001 Order which required that the area surrounding the sharemilker's accommodation be securely fenced.

Herd numbers

Both the 2001 and the 2011 Orders specify minimum herd numbers. In the 2011 Order however, failure by the farm owner to maintain the minimum numbers will be a serious breach of an agreement.

Effluent disposal

The 2011 Order requires the farm owner to provide the sharemilker with any resource consents needed relating to effluent disposal. Attention is drawn to their need to be aware of their responsibilities under the Resource Management Act. Under the 2011 Order the sharemilker is given the authority to fix a fault in the effluent disposal system immediately at the expense of the farm owner if unable to contact that person.

Accommodation

In the 2011 Order there is a major change from the 2001 Order in relation to accommodation. In the 2011 Order there is an extensive accommodation checklist included in an annex.

The parties must inspect the house and surrounds together and a written record must be made of any existing damage or wear and tear. Any improvements to be undertaken by the farm owner must be recorded together with the date when the work will be completed.

Matters not provided for

A new clause provides for the situation where a matter not covered in an agreement becomes the subject of a dispute. In this event the issue is to be determined in accordance with custom prevailing in the district. If this is not applicable the matter is to be determined in accordance with equity and good conscience.

Breach of agreement

Under the 2011 Order a sharemilker who uses, possesses or cultivates any illegal substance or who commits an offence against the Misuse of Drugs Act 1975 is considered to have committed a serious breach of an agreement and is grounds for immediate termination of an agreement.

Notices claims and counterclaims

There are important changes in the 2011 Order around the serving of notices, claims and counterclaims. Notices will be able to be served in future by fax or email.

A claim must be served by the claimant on the respondent within 20 working days of the claimant becoming aware of the alleged breach, but in any event no later than 20 working days from the end of the season to which the alleged breach relates. A party receiving a claim has 10 working days to make a counterclaim. Both a claim and a counterclaim must be in writing with full details provided.

A party to an agreement must not withhold proceeds, begin court action or arbitration relating to a dispute arising out of an agreement without first completing a dispute resolution procedure.

Dispute resolution

Clauses 142-148 in the 2011 Order stipulate a procedure to be followed where there is any dispute arising from an agreement, not necessarily one involving a claim and counterclaim as in the 2001 Order.

The first step in the dispute resolution process is to attempt conciliation. Those involved can appoint their own conciliator who need not necessarily be from the National Panel of Conciliators as in the 2001 Order.

The conciliation procedure is broadly similar to that in the 2001 Order although there are some differences. The conciliators proposal for settling a dispute is now binding unless rejected in writing by a party within five days. In addition a conciliation is regarded as unsuccessful if the conciliatior is unable to convene a meeting with the parties within 20 working days of the notice of a dispute, previously no time limit was specified.

Arbitration

Clauses 149 to 159 cover the procedure to be followed should a dispute proceed to arbitration. This process, like that involving conciliation, has been simplified in the 2011 Order and designed to obtain a binding decision as rapidly as possible.

There will now be a sole arbitrator and the parties have 20 working days to agree on who that might be. Otherwise the appointment is made by the President of the Arbitrators and Mediators Institute. An arbitration is commenced by one party serving notice in writing on the other.

An arbitrator is required to deliver an award within three months of their appointment. This must be within one month of the hearing although this can be extended by one month by the arbitrator giving notice.

Importantly under the 2011 Order the award in the arbitration is final and binding. The clause in schedule two of the Arbitration Act, which allows the High Court to grant leave to appeal on any question of law arising out of an award, does not apply to an arbitration conducted under the 2011 Order. This is an important change from the 2001 Order. Clause 152 enables the arbitrator to conduct the arbitration in the manner the arbitrator considers appropriate subject to the Arbitration Act 1996.

Public liability insurance

The obligation in the 2001 Order requiring the sharemilker to take all steps to prevent loss or damage to or by wandering stock and that any such loss or damage is the responsibility of the sharemilker has been deleted from the 2011 Order. The recommended public liability insurance cover which must be taken out has been increased from $1 million to $2 million

Sale of the farm

Clause 160 in the 2011 Order covers the situation where the farm owner sells part or all of the farm during the agreement. There are minor wording changes in the new Order but no substantive changes to the intent of the clause. The farm owner has the unfettered right to sell the farm or any part of it at any stage and thereby cancel the agreement, but the sharemilker is entitled to receive compensation. Clause 160 specifies how this is to be determined.

Summary and conclusions

The 2011 Order is an important regulation as it is binding on all variable order sharemilkers and their farm owners when it comes into effect on 1 June 2012. There are approximately 1,570 sharemilkers and their farm owners who will be affected.

There are a number of important changes in the Order. For farm owners the number of fully paid shares in a dairy company must be provided and is warranty information. Both parties must provide a single point of contact during the term of the agreement. If the herd is 300 cows or fewer, sharemilkers must receive 22 per cent of the milksolids income, net of operating costs for their own labour and that of their employees if the sharemilker does not participate in the dividend related payment adjustment. Greater protection is provided for children if outside the house and in the dairy shed if children must be present at milking. There is greater certainty about the state of the house at the beginning of the agreement as both parties must undertake a joint inspection at this time.

Farm owners failing to provide the minimum herd numbers specified in the agreement constitutes a serious breach. For sharemilkers a conviction under the Misuse of Drugs Act is grounds for immediate termination of an agreement. The most important changes are in the areas of dispute resolution, in both conciliation and arbitration. Procedures have been streamlined and strict timelines specified where possible. The objective is to resolve disputes quickly and to provide certainty to the parties in a reasonable time frame.

Jill Greenhalgh and Rupert Tipples

Working together – sheep and beef cattle farmers and their rural contractors

Fifty years ago, most farmers would have engaged shearers to shear and crutch their sheep and a rural transporter to send their lambs to the freezing works. Their permanent employee probably carried out any cultivation, while the family would help with the sheep dipping, and the family and neighbours would have helped out with the haymaking. Since then, labour used on sheep and beef cattle farms has changed considerably.

Since the Labour government's deregulation of agriculture in the 1980s, there has been a steady change in labour use on sheep and beef farms. The use of permanent employees has declined by around 10 per cent over the 15 years from 1982 to 2007. These figures are based on the sheep and beef farm surveys supplied by the Meat & Wool New Zealand Economic Service for 2009. Initially, family labour and changes in farming styles compensated for the loss of the permanent employee, but then multiple job-holding by the farm principals reduced the amount of family labour available.

Farm sizes have been increasing by 24 per cent over the 15 years, and sheep and beef cattle farming has tended to become a much more diverse and complex business operation. This has required greater levels of knowledge and specialisation across a wider range of activities. At the same time, the supply of the jack-of-all-trades, multi-skilled, permanent farm employee of the past has been declining.

In addition, sheep and beef cattle farmers now compete with dairy farmers for employees from a dwindling labour pool. To overcome the problems of labour shortage at the busy times of year, and the level of investment required for specialist machinery, sheep and beef cattle farmers have increased their use of both casual labour and rural contractors. This article looks at the use of the rural contractor on sheep and beef cattle farms and provides some insights into the relationship between the two parties. Understanding how a relationship works should enable mutually beneficial improvements.

The contractual relationship

Sheep and beef cattle farmers have traditionally used shearers and rural transport companies in a contractual relationship. However, most farmers today would use a wide range of contractors for their contribution to more flexible labour use on farms. They also need the use of the contractors' expensive, specialised or sophisticated machinery, their technology, and their expert skills gained from carrying out the same tasks on a regular basis.

The range of contractors available for farmer use is very wide. Shearers, veterinarians, accountants and farm consultants offer specialist skills that do not form part of many farmers' skills. Other contractors provide machinery which the individual farmer cannot justify purchasing, such as balage wrappers, fertiliser spreaders, hedge cutters, cultivating machinery and large transport trucks. Still others supply technology plus skills, such as scanners and high-technology spraying and precision agriculture equipment.

Finally docking gangs, tree pruners and relief milkers carry out work which the family would have helped with in the past. While this last group is recruited for their labour alone, the indirectly recruited labour which comes with the machinery in the categories above may also be valued by the farmer. Regardless of the service the contractor provides, the issues affecting the relationship between farmer and contractor are similar.

Finding out about rural contractors

A research project has examined the relationship between sheep and beef cattle farmers and rural contractors with an initial survey with 65 members of Rural Contractors New Zealand. The knowledge gained from this provided a guide for the in-depth interviews undertaken with 11 farmers, 11 contractors, two machinery suppliers and an ex-contractor who ran an employment agency for contractors.

The farmers came from a range of farm classes in the eastern South Island from Southland to Marlborough. They spent between 14 per cent and 45 per cent of their farm operating costs on contracting, which averaged close to $100,000 per farmer for the 2008 financial year.

The contractors interviewed spanned the same geographical area. They consisted of two whose main service was forage-making, two chemical applicators, two agricultural contractors, two in rural transport, a scanner, a

fencer, and an aerial contractor. With the exception of the fencer the contractors supplied more than one service as a strategy to cope with the seasonal nature of most contracting services, and as a way of spreading risk.

All of these were full-time contractors. However, because of the largely seasonal nature of the industry, many contractors combine contracting with other forms of employment, particularly farming.

Choosing a contractor

All of the farmers interviewed had been on their farm for a number of years and so knew of most local contractors. They invariably said they would rely on their informal networks to gain a recommendation for a contractor who did a good job, turned up when expected, and was tidy and efficient. For some, it was important to use a local person who contributed to the community, as they felt such people would be more accountable and understand the area's weather and soil conditions.

A younger farmer commented: 'I try to learn a bit about them and where they are in their life. I try to associate with younger people who are doing what they are doing for the right reasons, and who are going to give me good service for the next 20 years. I try to establish a relationship with them'. Some farmers would meet with a new contractor before using them.

Some would check out the contractor's work on other farms and establish whether their equipment was reliable. A farmer who was looking for a new accountant had invited several to come to meet with him on his farm. In other words, he was interviewing potential contractors.

Only one farmer knew whether his contractors had registration within their field. In general, farmers depended more on reputation than on qualifications, but only those contractors who wish to raise their level of professionalism and intend to remain in the industry indefinitely are likely to undertake the process of registration

Farmer and contractor problems

The survey found that the five main areas of concern for contractors with their clients were –

The farmers' lack of appreciation of the relationship between the cost and the value of the job

- Communication
- Payment
- The timeliness of service
- Health and safety.

Most of these rural contractors serviced a range of clients including dairy farmers, sheep and beef cattle farmers, deer farmers, arable farmers, lifestylers, along with other non-rural organisations such as local councils. Their responses were based on their total client base, not just sheep and beef cattle farmers.

Little research has been carried out on rural contracting in recent years, but a 2007 Finnish study on rural contracting agreed with these New Zealand findings. The most typical problems that the contractors encountered there were the timing of the work and customers requesting it too late. Other problems included price negotiations with the customer, and the pricing of the work in general.

Getting value for money

Thirty-seven per cent of the contractors surveyed indicated that getting farmers to consider the value they were getting from a service, rather than to simply look for the cheapest price, was a real challenge. Without exception, those contractors interviewed worked hard to give value for money. They were supported by one of the machinery suppliers who believed that the pricing issue is something which has to be addressed, because if farmers want high quality silage made for them for winter feed, they need to pay what high quality silage is worth.

These contractors were always prepared to back up their jobs. They recognised that their greatest marketing tool was their reputation. None of the farmers interviewed chose their contractors on price alone, although they would look for someone who would do a good job for good money.

Communication

The second most important issue concerning 22 per cent of the surveyed contractors is linked to everything relating to the contractor-farmer relationship – communication. Good communication is the basis for a farmer gaining value for money. A discussion on the requirements and expectations of a job will ensure that the contractor understands exactly what the farmer wants, while the farmer will have an idea of how much it will cost them. Good communication is also the foundation of a contractor's ability to provide a timely service.

The farmer who phones to tell the contractor that they have just cut 10 hectares of hay and is ready to bale is likely to be disappointed with the contractor's apparent lack of a timely service. The major problem from the farmer's perspective is when contractors are running late but fail to notify them. The availability of mobile phones, and the use of Navman by trucking companies, means un-notified lateness is less excusable than in the past.

Payment and timeliness of service

Payment and timeliness of payment concerned nearly a fifth of all the surveyed contractors, but it appeared that sheep and beef cattle farmers had a better reputation for paying than other farmers. Due to their aversion to risk they tended not to undertake contracted work that they could not pay for. Alternatively, if they were going to pay late, they usually notified their contractor and explained the situation. As one contractor noted 'Sheep and beef farmers are real gentlemen. They will agree to do something at an agreed price and they will meet that the best they can'.

Satisfying the requirements of all their clients at the busier times of the year is a challenge for contractors offering seasonally-based services. Timeliness of service is dependent on five factors –

- The weather

- The skill and proficiency of the service provider
- Machinery reliability
- Communication between both parties
- The managerial skill of the contractor.

The weather is often the main reason why contractors are unable to complete tasks on time, but good communication ensures the farmer knows when their job will be carried out. The level of resourcing is also important. It is easier for bigger contractors to swap machines and employees around to meet demand. At the other end of the scale, part-time contractors can divert their attention away from their farm to their contracting business when required. Those in the middle accepted that you need to be over-stocked with machinery and to have more capacity than required.

Good contractors keep their machinery well maintained to minimise the chance of breakdowns. Some even had sub-contracting arrangements with other contractors to fall back on as a last resort. Contractors usually aimed to under-promise and over-deliver. Possibly the most fundamental skill a contractor can have is to know their clients well and to be able to prioritise jobs accordingly.

Health and safety

Health and safety was a distant fifth in the surveyed contractor's concerns, and yet most contractors had stories of accidents or near misses in their business and in their sector. Contractors operate in a hazardous business, for example, walking on top of high stock crates, fertilising steep paddocks, working with chemicals, using complex machinery, and flying planes and helicopters at low levels. Having to contend with unknown on-farm hazards also increases the potential for accidents by contractors.

Section 18 of the Health and Safety in Employment Act directs that it is the duty of the principal, the farmer, to take all practicable steps to ensure that contractors and their employees are not harmed while undertaking any work under contract. In practical terms this means that farmers are required to warn a contractor of any hazards which have been identified, but not eliminated, such as overhead power lines or unsafe farm tracks.

While the farmers interviewed had varying degrees of awareness of their responsibilities under the Act, none had a system in place to ensure their responsibilities were fulfilled when a contractor came on to their farm. Some contractors relied on the commonsense of their workers to protect them, while others had an informal system to check for on-farm hazards. However, the aerial contracting sector actually had a formal checklist that had to be signed off by the farmer.

The trust relationship

It is notable that the farmer-contractor relationship is still predominantly based on trust and a figurative handshake. The farmer trusts their contractor will meet the required standard of performance, while the contractor trusts the farmer will pay in full. While it may be in a contractor's short-term interests to exploit a farmer's vulnerability, those in business for the long-term are too reliant on their reputation to risk such behaviour.

Both farmers and contractors recognised that there are some fly-by-nights in the industry, who are not there for the long term. Trust grows when there are repeated successful transactions between the two parties. As trust increases, the farmer may be able to take back some control of the contracted activity because the relationship with the contractor will enable them to work together to find new and better ways of completing the task.

Trust is the single most important factor in personal and business relationships. This trust relationship appears to be the foundation of the relatively harmonious relationship between most sheep and beef cattle farmers and their contractors, and it eliminates the need for formal contracts with their high transaction costs. It is based on the assumption that the contractor will reciprocate and comply with the farmer's expectations.

Contractors talked about their clients becoming their friends, and farmers talked about contractors being part of their community, showing that the relationship was more than a purely business arrangement. In contrast, in the more mobile dairy sector, dairy farmers' relationships with their contractors are often transactional – merely a short-term exchange for compensation.

The key to a successful contracting relationship

As already mentioned the common thread running through all these farmer-contractor issues is communication. Good levels of communication can solve most problems. If the farmer and the contractor take the time to clarify the farmer's expectations in a job, there will be no argument about the price the contractor charges. When a farmer is unable to pay their account on time, the onus is on them to contact the contractor and make an arrangement that is mutually suitable. A contractor is not the farmer's banker.

Gaining a timely service may not be completely solved by good communication, but the farmer deserves to know exactly when the job is likely to be done and the genuine reason for the hold-up. Most contractors reward a farmer's loyalty by providing them with a preferential service. Finally, identifying farm hazards and reducing the chance of an accident also requires that the farmer and contractor communicate fully.

The importance of the relationship between a farmer and their contractors can be summed up by the words of a South Island sheep and beef farmer –

It is a fairly important understanding you have with your contractor, no matter what they do for you. And if you start chopping and changing, you lose the association you have with your contractor. Once you break that trust, the whole thing goes out of the window

Jill Greenhalgh works as a Research Officer for the Centre of Excellence in Farm Business Management at Lincoln University. Rupert Tipples is a Senior Lecturer in Employment Relations at Lincoln University and specialises in rural aspects of employment relations and rural labour markets.

Elephant Hill Winery – sustainable and award winning

Elephant Hill officially opened to the public in 2008 and, as a relatively new addition to the New Zealand wine and food landscape, has gained a solid reputation as a premium producer of elegant Hawke's Bay wines.

Elephant Hill is a producer of 100 per cent hand-picked premium Hawke's Bay wine. With high sunshine hours and low rainfall, the region is renowned as one of New Zealand's warmest areas. Located on the Te Awanga coast, the vineyard enjoys a temperate dry climate and an extended growing season. Cooled by afternoon sea breezes, the shingle vineyard allows them to grow wines which produce wonderful fruit purity and elegance.

The afternoon sea breeze is perfect for preserving a lively acidity, yet allowing excellent maturation and ripening of the grapes. This moderated climate results in intense flavour development, ensuring that distinct wines are produced representing Te Awanga.

Due to the variety of soil types ranging from shingle-sandy to fine clay-silt soils, the vineyard produces fruit with slight differences in flavour profiles. This gives extensive blending options and allows the wine-makers to make three tiers of wine.

The winery and viticulture team has carefully identified changes in soil type, structure and porosity and selected varietals to match the different soil types. The land is mostly flat with two elevated terraces and a hillside block. The stony coastal soil is ideal as it is free-draining, and the stones retain their heat to enable the growing of a wide range of varieties over a longer period.

Water conservation

The vineyard uses the New Zealand designed Lyve Winery waste water treatment system. Elephant Hill is one of only two wineries in the country to have installed a state-of-the-art filtration system which allows them to re-use valuable wastewater for irrigation and winery purposes.

The problem of keeping algae at bay in the pool located at the base of the restaurant terrace was a problem that could not be solved with chemicals because of company policy. A solution has been found and involves combining the use of UV filters and an ultrasonic device in the water.

Elephant Hill viticulturist, Brittany Thompson, believes the dry farming of grape growing is possible in 70 per cent of the vines and this conversion is underway. She says that longer intervals between irrigation encourage the roots to go down and find water. You create a balanced vine that does it all by itself with no irrigation required.

Sustainability

Sustainability, having as little effect on the land as possible, is at the core of Elephant Hill and it is their guide and driving force. Everyone at the vineyard cares for their working environment and understands their role as custodians of the land. For Elephant Hill, it is not about the cost, it is about quality and sustainability.

The property is rated 100 per cent sustainable by Sustainable Winegrowers of New Zealand. Elephant Hill take it a step further by employing additional environmental practices throughout the vineyards, winery and restaurant.

All bottles, plastic, cardboard and food wastes are recycled. Wild flowers are planted in the vineyards and creek

banks to contribute to the beauty of the property and attract beneficial insects, allowing them to reduce the amount of insecticides used. Elevated raptor platforms have been installed and are stocked with food for hawks. The constant presence of birds of prey helps protect the fruit from damage by smaller birds.

Success

The wines are enjoyed in over 20 countries and have scooped well over 50 medals and trophies on the New Zealand and international wine stage. This year, at the prestigious 2011 Decanter World Wine Awards, the Elephant Hill 2009 Syrah won an international trophy, beating over 12,000 entries. This type of success is almost a once-in-a-life-time opportunity for any winery. It followed on the heels of trophy wins at the Sydney International Wine and Food Show and being awarded five stars in *Cuisine*, the food and wine magazine.

The restaurant, twice a finalist in the *Cuisine* Restaurant of the Year Awards, is recognised for its service, ambience and an ever-changing menu. This is inspired by the taste of New Zealand, with dishes prepared using fresh seasonal food.

In 2010, Elephant Hill was also the first time recipient of a Ballance Farm Environmental Award, winning the Massey University Discovery Award. Describing the winery as excellent, the judges said they considered Elephant Hill in the top 10 per cent of wineries in the area which are environmentally aware.

Winery building design

Inspired by the Pacific Ocean and the natural beauty of the Te Awanga coast, architect John Blair designed and positioned the buildings with environmental and aesthetic considerations in mind. The uncluttered rectangular shapes with the horizontal emphasis of the buildings evoke a complementary sense of space and freedom. They blend into their background and are in harmony with the beautifully tended vine rows and the coastal environment.

Not previously used in New Zealand, the pre-aged copper exterior wall cladding and withstands the climatic conditions, but is compatible with the colours of the vines

and the blue of the ocean. Another practical element of the pre-aged copper is that its matt finish renders the material non-reflective and negates any glare issues often problematic in a coastal environment.

Elephant Hill wines and staff

Elephant Hill is growing and now employs a team of over 35 full-time employees covering positions in the winery, cellar door, viticulture and field work, the restaurant, kitchen and administration. During the harvest, numbers increase significantly to include pickers and general harvesting crew members.

With a strategic plan in place to ensure long-term profitability, Elephant Hill is going from strength to strength. It is gaining recognition on a local, national and global level for wines, the restaurant, and innovation and care towards the environment.

Named after the majestic elephant, and with vines planted on the estate hillside block, a commissioned hand-carved teak Burmese elephant stands proudly at the top of the palm tree-lined driveway. Elephant Hill is built on a shared love of great wine, food, love of people, and a deep sense of commitment to caring for the land and their future.

Profile

Jon Morgan
Agricultural journalist

Jon has been Farming Editor of **The Dominion Post** *for 10 years, and earlier this year was named Landcorp Agricultural Communicator of the Year.*
Jon remembers his first day's work as a 16-year-old at the Wanganui Chronicle *in 1966: "I was fascinated by the teleprinters rattling out the big stories from Reuters. I rang my mother and said, 'Guess what. There's been a coup in Liberia, the Pope's going to visit America, and there's going to be a new James Bond movie.' She says, 'So what?' She didn't get it. I told her, 'You and I are the first people in Wanganui to know this.'"*

Jon early in his career

That sense of wonder, of wanting to tell people interesting things they did not know about, has never left him. It was the start of a career that has so far lasted 45 years, working as a reporter, sub-editor and news editor on newspapers in New Zealand and Australia. When he started, newspapers were published in a process unchanged for a century – printers set the news stories and advertisements on linotype machines. They created them line-by-line in slugs of hot metal.

The presses were in the paper's basement and the smell of hot ink permeated the building. Reporters worked on typewriters and their stories were handed to sub-editors who thoroughly checked spelling, grammar and syntax, and wrote the headlines. Then everyone's work was checked again by proofreaders. In 1966 the first journalism school was just starting, but Jon was trained on-the-job over the next few years by senior journalists.

Opting for agriculture

For the rest of the decade he moved around other newspapers, including the *Taumarunui Press* and the *Daily News* in New Plymouth. In 1971 he arrived at *The Dominion* in Wellington and remembers, 'Pat Plunket, the chief reporter, said to me he had two rounds available – police or agriculture.' Jon had already done a lot of police work during his time at the provincial papers, so he opted for agriculture. This was more about the political and marketing side of agriculture, and he did the rounds with the Meat Board, Wool Board, Dairy Board and Federated Farmers and made frequent trips to Parliament.

After two years in Wellington he became a business journalist on the *Sydney Morning Herald*, covering the sharemarket. He returned to Wellington in 1979 to his old position as agriculture reporter, but because this was not considered a full-time role he had to spend some time reporting court and general news. Once again, he was not required to go out on farms. He left reporting a year later and was not to return to it for 16 years. He moved into the production side of newspapers, becoming a sub-editor, chief sub-editor, and eventually ending up as news editor responsible for news selection and front page layout.

Back to The Dominion

On arriving back from Sydney, he did try his hand at other work briefly before he took up his position with *The Dominion*. At a time when the railways were 'soaking up unemployed people' he worked as a labourer in Wanganui. He felt he needed time out from journalism after the Australian experience. Labouring was good for him, both mentally and physically.

He took up running seriously during this time, especially the longer distances, and is still competing in half-marathons and the occasional marathon. He learned in these years that there is a work-life balance to get right.

Back in newspapers, the most stressful times were on the production side. Being a sub-editor on an afternoon paper for three years, and then becoming the news editor which was much the same role but with more stress, involved incessant deadlines. Later, news editing on *The Dominion* involved 11-hour days that finished at 1:30 am.

Change of pace

This could not last. He reached what he now refers to has his mid-life crisis. With wife Lynsey working on the *Evening Post* as a reporter, and Jon working nights at *The Dominion*, they did not see much of each other. Their daughter Dawn had also left home. They were also becoming tired of city life, so bought a lifestyle block at Te Horo.

Lynsey, always a keen gardener, took a certificate course in floriculture and they decided to start their own flower growing business. They looked for a blue flower, according to research the flower-buyer's favourite colour, which had a long stem, was hardy enough to need minimal cover and had a long season. They found it in the miniature agapanthus and started planting.

The move to Te Horo was a big change, but one they were ready for. They built a house and a packing shed with a coolstore for the flowers and Lynsey became a full-time grower. The idea was that Jon would stay in journalism until the business could support them both. He negotiated a new contract with the paper to go back reporting for *The Dominion* in Palmerston North. It involved a pay cut, but he thought it would not be for long. It meant he could finally be home in the evenings and enjoy a relaxed lifestyle on the Te Horo block.

The flower business proved to be more difficult than they realised. Returns were only enough to cover their costs, even after they moved into export. After five years, when Lynsey was offered a public relations job in Wellington, she took it. The business is now on hold until retirement.

Farming Editor

For Jon this was not such a big disappointment. He was enjoying being a reporter again and was starting to win recognition with several Qantas Awards. For six years he covered general news in the Manawatu and Wanganui region – murder trials, a plane crash, Maori occupations and local body politics. Then Richard Long, *The Dominion's* editor, let him know the agri-business reporter was leaving and asked if Jon like to take over that role. However, this time the focus would be more practical.

Although he grew up in a city, and had hardly ever set foot on a farm, this suited him. 'I had become sick of writing stories about people's misery.' He was involved, for example, in the early stages of the Lundy murder trial and was very pleased to move on from this type of reporting.

Special people

Jon looked at the paper's readership profile and decided he did not want to exclude the large number of urban readers from the farming page. He resolved to write stories that informed town dwellers about farming life, the people, the different styles of farming and their technical aspects. Above all, he wanted to 'try to show why these people are special. This idea grew on me as I got to meet more rural people and came to realise how their values of hard work and personal integrity are woven into the culture of New Zealand, a culture in danger of disappearing from the cities. I wanted to show what we as a nation owe them, and why we should treasure this way of life.'

He also realised he needed to earn the trust of the farmers he wanted to talk to and decided to show his stories to his interview subject before the final copy went to the paper. As these were features and not urgent news stories there was time to do this. Other journalists frown on this, but Jon says it gives the person interviewed the chance to see if the story gives the right impression to others in the community who would read it.

Jon says, 'Journalists sadly have a reputation they do not quite deserve for not accurately communicating what is told them, which puts them at the bottom of the list of trustworthy occupations.' He did not want people to feel they had been misquoted, misinterpreted or misunderstood. Jon applies the same principle to his technical stories – he likes to make difficult concepts and terminology understandable, and also say something about the people behind the technology.

Now he says he has ended up in very good place – the best job on the paper and the best job he ever had. He no longer finds it stressful as he is meeting delightful people, and is at a stage where he is comfortable as a writer working on a topic he has become very familiar with.

Awards

For this interview he did a count-up of his awards and was surprised to find they came to 26. Among them, he has won six Qantas and Canon Awards – Canon are the new sponsor of the national journalism prizes – four AgResearch science

Judging the Steak of Origin awards

writing awards, and is a three-time winner of the Guild of Agriculture Journalists and Communicators' supreme prize, the Rongo Award. One he is particularly proud of is the Cowan Prize for Historical Journalism, won in 1996 for a series of articles on the Taranaki Maori Treaty of Waitangi claims. James Cowan was a historian and journalist at the time of the Maori wars.

The most recent award has been the 2011 Landcorp Agricultural Communicator of the Year, administered by the Guild of Agriculture Journalists and Communicators. It recognises excellence in communicating agricultural issues, events or information. Past-president of the Guild, Mick Calder, said at the time of the award –

> Jon is one of a small group of newspaper journalists who write with clarity, a depth of understanding, and empathy on farming and farmers for a largely city audience. As well, his regular weekly opinion pieces provide an experienced view on issues affecting the primary sector. Jon has the ability to convey the lifestyles and experiences of people living off the land to life in a way that is easy to read and understood by everyone. His writing expands the readers' knowledge of things that impact on the life of the rural communities, helping to bring the city and rural communities closer together.

Jon is the new president of the Guild. He finds membership useful as 'it is quite isolated in my specialty so it is good to meet up with others and talk about what we have in common.' One of the issues he is working on for the Guild is a training programme for agricultural journalists. Many, like him, have drifted into the area and could need help understanding technical aspects and the not-so technical – he recalls in his early days having to ask a farmer what a steer was. Others have a farming background, but could benefit from journalism training such as note-taking, interview techniques and writing tips.

Town and country gap

In his feature articles Jon tries to be as even-handed as possible with controversial topics. Looking back over a year it can be seen, for example, that an interview with a proponent of organics is later balanced by one with a scientist who has some criticism. But in his 'Over the Fence' columns he speaks his own mind on the issues of the day. One that has exercised him lately is the increasingly popular perception of dairy farmers as polluters. This has not been helped by his own paper's editorial stance. He feels farmers have been unfairly treated.

'Sure, there a few ratbags, there always will be. But the vast majority of farmers are horrified at the thought of harming the environment and are doing all they can to dispose of their effluent safely, to keep cows out of streams and to stop nutrient leaching into waterways. More could be done, like reducing herd numbers in sensitive areas, and probably will be, and that is not a bad thing. But for some people who have the ear of a credulous media such steps will never be enough and they stoop to using common abuse, labelling dairy farmers as wilful destroyers, tax dodgers – you name it, they'll throw it.'

Jon says this is an issue for all farming as concerns about the environment spill over to sheep and beef farming, and is part of a broader issue of the growing gap between town and country. 'I think urban people are proud of New Zealand's rural origins and feel a sense of ownership of farms as much as the rivers and mountains. But they do not have the full picture. They do not appreciate the economic, technological, environmental and animal welfare exigencies of those on the land. I think it is the duty of all of us to do all we can to bridge that gap.'