

Some cheers among the dairy doldrums

The beef and horticulture sectors are helping to offset some of the gloom surrounding dairy, highlighting the importance of diversification in the primary sector and the need for innovation.

An exporter-friendly Kiwi is helping to soften the blow imposed by poor dairy prices, as are lower domestic interest rates, but sluggish demand from New Zealand's biggest commodities customer, China – in the key markets of dairy, sheepmeat and logs – is making its presence felt.

There's no doubting that geopolitical ructions, overproduction, sharply lower oil prices, and – in dairy's case – unusually low feed costs, have changed the landscape.

"Dairy grabs the headlines but some of the other sectors are doing well," ASB Bank rural economist Nathan Penny said.

Beef prices – supported by demand in the all-important US market – are strong. In sheepmeat, prices are off the boil thanks to more supply coming on to the market in the United Kingdom and China.

Economists are bullish about the kiwifruit market, post the PSA virus. The apple trade has had a very strong year, building on strength in each of the previous two years.

Viticulture is having another good year, aided by New Zealand dollar weakness in against the currencies two important markets, the United States and Australia.

Ministry for Primary Industries director of sector policy, Jarred Mair, said the primary sector's ability to withstand extremes in the value of the currency was testimony to its ability to adapt.

In April, the NZ/Australian dollar cross rate hit A99.79c – a post-float high. Last year, the currency came within a whisker of breaking its post float high against the US dollar of US88.40c. Mair said those levels would have been unthinkable for the primary sector just a few years back.

These days, he said, the emphasis

Agriculture editor **Jamie Gray** reviews the roller-coaster year in the primary sector where horticulture, beef and wine have been shining lights

in the primary sector was about doing things smarter. "It kind of gets lost in the story when people talk about the primary sector. People to think the primary sector hasn't changed over the last 150 years.

"If you actually looked at it, the change that has occurred in productivity and efficiency has been astronomical. The sector has managed to innovate better business management, investment in farms and better farm practices."

Mair and others point to the sheep meat trade as evidence of what can be done through innovation and better technology. Often quoted sheep population numbers belie what has been happening in that part of the primary sector.

Though the number of sheep has halved in the last 25 years, lamb production has only fallen by just 7 per cent, largely through improved genetics – more ewes giving birth to twins, and higher carcass weights.

Mair acknowledged it was an "awkward" global commodities market. "But it's going to come right again."

Prices below production cost

In dairy, farmers at least have a better farmgate milk price to look forward to, with Fonterra forecasting \$5.25 a kg farmgate milk price for the current year, up from \$4.40 a kg for in the 2014/15 season. However, that forecast won't last long if whole milk powder prices continued to drop.

Current milk prices are well below the average cost of production, both here and abroad. That's led to optimism that world production growth will slow, allowing demand to catch up. The question facing dairy is whether the current supply/demand imbalance is part of the normal commodities cycle, or a sign that something more fundamental is afoot.



Wine and beef have been among the high performers for the primary sector.

For the moment, the experts say its cyclical, but that the price trough will last longer than the norm.

Good growing conditions in most of the big dairy countries and lower feed prices have driven up production. At the last GlobalDairyTrade auction, whole milk powder prices – responsible for about 75 per cent of Fonterra's farmgate milk price – plunged by 10.8 per cent, reflecting oversupply and slack demand, particularly from China.

The auction led to ANZ Bank dropping its farmgate milk price forecast to \$4.50 a kg from a previous forecast of \$5 to \$5.25 a kg. New Zealand, which has been described as the Saudi Arabia of the world's dairy trade, is not making matters any better.

Domestically, there's been a late flush, which means milk production is going to be up by 2 to 3 per cent for 2014/15 in the season to May 31 compared with last year's bumper season.

Supplementary feed

Latest DCANZ data showed New Zealand milk production jumped 11.7 in May, compared with May last year, bringing the 2014/15 season to a close with a record 1889m kg of milk solids, up another 3.6 per cent from last year's bumper season. The use of palm kernel expeller (PKE) – which "turbo-charges" production – has gone ahead in leaps and bounds over the last decade. PKE prices have fallen to about \$198 a tonne from \$270 this time last year, which has encouraged farmers to use more.

Supplementary feed is now a big part of dairying, with just 5 to 10 per cent of the national herd sustained by grass alone. Though farmers have their fixed costs, for many PKE is a

continued on D2

Falling dollar softens dairy blow, rewards other exporters

Jamie Gray

After years of gains, the New Zealand dollar is finally in retreat.

On its Trade Weighted Index, the Kiwi has fallen as much in the past three months as it has gained over the past three years, with far-reaching implications for the primary sector.

Declines in the value of the currency will go some way towards offsetting weakness in the dairy sector and will present a bonus to those parts of the primary sector that are already performing well.

Along with lower domestic interest rates, lower dairy prices are helping to depress the exchange rate, which will bring wider benefits to the economy, says Bank of NZ senior economist Craig Ebert.

"As undeniably weak as dairy prices are, the extent to which they are helping to drag down the NZ dollar is breathing benefit into the wider tradeables sector," he says.

It's been a long time coming, but exporters now have a currency that is less hostile to their bottom line.

Not so long ago, in early April, the currency was a close to reaching parity with the Australian dollar. Today it is still relatively high at A\$90c but well short of parity.

Last year, the Kiwi came very close to setting a new post-float high against the US dollar when it hit US88.38c. It now trades at around US67c, down 24 per cent.

Since the end of April, the currency has dropped sharply against all New Zealand's main trading partners: 12

per cent against the US dollar, 11 per cent against the yen, 5.9 per cent against the Australian dollar, and 11.8 per cent versus the renminbi. Even against the long-suffering euro, the Kiwi has dropped 10.7 per cent in value over the same period.

"The currency has come a long way in a short space of time, so in some ways it's hard to judge the impact because of things like currency hedging and so on, but we think it's a material correction," says Ebert. Exporters and importers typically use hedging to lock the currency in at a certain level for a certain time to coincide with export receipts being repatriated.

The magnitude and speed of the most recent decline will mean some exporters are hedged, or locked in, at

above the current spot rate, meaning some will be "out of the money".

Ebert says the latest price action also serves as a reminder about how frustrating the currency can be for the primary sector when it reaches those high levels.

"But it really has unwound a lot of that in the last three months, so we are still assessing he wider impact." BNZ now expects the Kiwi to fall to US65c by the end of this year, and US64c by the end of 2016.

ANZ has downgraded its Fonterra forecast to \$4.50/kg of milk solids from \$5 to \$5.25, while ASB has cut its forecast to \$5 a kg from \$5.70 after the last GlobalDairyTrade auction saw prices overall slide by 5.9 per cent.

Fonterra itself has a \$5.25 per kg

forecast on its books, compared with \$4.40 per kg for the season just passed.

The effect of the worse than expected dairy auction, plus expectations of a more aggressive easing stance from the Reserve Bank after it surprised the market with a quarter of a point cut on June 11, have sped up the currency's decline.

Since the Reserve Bank's June 11 missive, the NZ dollar's trade weighted index has fallen by 4 per cent to per cent to 70.30.

Currency strategists expect the Kiwi to move lower still but, as always, much depends on how events the Greek sovereign debt crisis, China's sharemarket meltdown and America's encouraging but modest economic recovery play out.

Agribusiness

Riding the roller-coaster

The Government is kick-starting projects to increase the resilience of the primary sector, says **Nathan Guy**

It's been a bit of a roller-coaster ride for much of the primary sector over the past 12 months, with a range of challenges to deal with. Floods, drought, fluctuating commodity prices and geopolitics have all had an impact.

For most farmers and growers, this is nothing new. They are incredibly resourceful and are used to dealing with the challenges that global markets and Mother Nature can throw up.

It's ironic that the east coast of the South Island is still officially in drought at the same time that the central North Island is cleaning up major storm damage caused last month.

The Government is assisting the recovery with \$500,000 for Taskforce Green teams helping with the clean up, and \$145,000 in funding for Rural Support Trusts which work closely with local communities.

There are also Rural Assistance payments and the Disaster Relief Fund for those in real need.

The Government has announced \$8.8 million in funding grants over four years to help councils tackle hill country erosion, with the majority allocated to Horizons and Taranaki Regional Councils.

In contrast, the worst-hit drought area is North Canterbury where it has barely rained all year and farmers are facing a tough winter. The Government has put in \$200,000 towards the local Rural Support Trust in this area.

Longer term, the way to improve our resilience to drought is through more water storage and irrigation projects. Providing a reliable water supply for farmers and growers has massive potential to boost growth, creating jobs and exports in provincial regions.

I have seen what a difference it makes to rural communities – revitalising schools and entire towns, and creating jobs for locals.



The Government has allocated \$120 million to Crown Irrigations Investment Limited to support major projects, and we also have the Irrigation Acceleration Fund to kick-start smaller projects at the planning stage. In this year's Budget we allocated a further \$25 million towards the irrigation fund.

The lower dairy payout this year will be another test for dairy farmers, but we need to remember farmers are in it for the long term. The forecast is for dairy prices to recover in 2016 and the medium to long-term outlook is very bright.

Forestry has also had a challenging year but the outlook to 2019 is expected to see growth in exports to China and potentially India, while other key markets remain steady.

We need to remember that other sectors are experiencing very strong returns. Beef exports are up, wine is strong, and horticulture – especially kiwifruit – is enjoying a record year.

Longer term, the primary sector knows it needs to keep adding value to what we produce to protect ourselves against commodity fluctuations. As a Government we've set a goal of doubling the value of primary sector exports by 2025.

We produce enough food to feed around 40 million people and there is only limited scope to increase that volume. Therefore we need to be targeting the wealthiest 40 million individuals across the globe with our premium products.

Research and development is crucial in adding value. This is why

the Government is working together with the industry through the Primary Growth Partnership (PGP).

There are now 17 PGP programmes under way, covering a broad range of industries with a total of \$720 million co-invested into cutting-edge programmes.

One great example is the "Pioneering to Precision" project with Ravensdown. The aim is to improve the use of fertiliser on hill country farms using drones and GPS technology, delivering real economic and environmental benefits.

Precision Seafood Harvesting is developing revolutionary new fishing nets to target fish by exact size and species. And a new technology for developing mozzarella cheese allows it to be produced in one day,

instead of months. Other important policies to help boost the primary sector include more free trade deals, new roads, and rural broadband.

We are investing \$7.5 million into boosting skills and systems across the primary sector, and are working to encourage more young people into the primary sector. It was pleasing to see a 20 per cent increase in funding for agriculture at tertiary level in this year's Budget.

The world population will reach 9 billion by 2050 and much of this growth will be close to our doorstep, in Asia. As these consumers become wealthier, they will want more and more of the protein we produce.

Some forecasts predict global food demand may increase by 40-45 per cent in the next 10 years.

Our farmers and growers are some of the most efficient in the world because they are so innovative and resourceful.

Though there are a few challenges ahead for the primary sector, there are many opportunities, which means the medium to longer term outlook is very strong.

● **Nathan Guy is Minister for Primary Industries**

● **Primary Growth Partnerships Update, page 22**

AGRIBUSINESS 2015

Executive Editor: Fran O'Sullivan

Writers: Bill Bennett, Jamie Gray, Greg Hall, Tim McCready, Tamsyn Parker, Graham Skellern, Nigel Stirling.

Subeditors: Isobel Marriner, Graham Skellern.

Layout/Graphics: Isobel Marriner

Advertising: Nathan Laing, Nancy Dudley.

nzherald.co.nz

Some cheers among dairy doldrums

continued from D1

viable solution to lower their average cost of production. For some, this can help offset low farmgate milk prices, but it clearly does little to help the oversupply problem.

Fonterra has been struggling to keep pace with the extra production and is in the middle of a large capital expenditure programme to build more plant to handle extra milk. ASB's Penny does not expect the weather to be quite so conducive for growth this year, and for dairy production to level out or decline slightly. Economists expect the impact of low prices to kick in, leading to a slowdown in production growth next year.

Meat

The season started with great expectations but lamb prices have fallen, trading at \$5.25 a kg, down from \$6 to \$6.10 a kg this time last year. Conversely, beef prices have risen to around \$5.55 a kg from \$4.60 a year ago and are still going strong. In the United Kingdom, lamb prices are under pressure because the low euro has meant UK farmers have put more product on the domestic market. In China, sheep meat production is up, lessening demand for imports. Sheepmeat prices are expected remain weak over the next few months, particularly relative to a year ago. In beef, demand is strong in the all-important US market and is expected to remain that way. New Zealand

producers also have the benefit of the Kiwi dollar's big devaluation against the US dollar. US demand for beef is such that US authorities have allowed Brazil and Argentina back into the market after trade was suspended due to foot and mouth outbreaks in 2006 and 2001.

Beef and Lamb NZ economic service chief economist Andrew Burt said US beef prices had improved substantially, thanks to the relative strength of the US economy. "The question is whether big falls in oil fuel prices will encourage the US consumer to spend more on eating out, or whether they will find beef too expensive and move to other proteins," he said.

Horticulture

New Zealand's horticultural industries have enjoyed highly favourable growing and market conditions over the past year. Now, they also stand to benefit from a weaker Kiwi dollar.

Kiwifruit has performed strongly as the sector continues to bounce back from the PSA virus, thanks largely to the advent of the PSA-tolerant Gold3 – or Sungold – variety.

The Trade Weighted Index, which measures the NZ dollar against the currencies of our main trading partners, has dropped by 6.7 per cent since the Reserve Bank surprised the market with a 25 basis point cut in its official cash rate on June 11.

Declines in the Kiwi against the euro and yen should prove particu-



Zespri's Lain Jager is optimistic.

larly useful for Zespri, which markets outside Australasia. Chief executive Lain Jager said conditions had been highly favourable for kiwifruit, which took a big in the 2010 PSA outbreak.

Export volumes will be up from 92 million trays last year to 118 million this year, an increase of 28 per cent. "Obviously, that recovery from PSA is driving a recovery of confidence in the sector and we are seeing land values recover accordingly," he said.

PSA had a big impact on gold volumes when it Sungold's predecessor, Hort16A, proved to be particularly susceptible to the disease. Thanks largely to Sungold, Zespri's gold volumes have risen by 73 per cent from 18.7 million trays last year to 32.4 million this year.

Prices were unusually high last season because of the shortage of supply brought on both by PSA and a heavy frost at Zespri's biggest Southern Hemisphere competitor, Chile.

This year Zespri forecasts a payout to growers of \$6.70 to \$7.20 a tray for gold – down from close to \$10 last year. For green, the payout is steady at \$5 to \$5.50 a tray. By volume, green will be up by 14 per cent to 80 million trays this year. Production in Chile is still constrained – running at 70 to 80 per cent of its normal capacity.

Jager said the decline in the NZ dollar's value against the US dollar and the euro was another big plus.

Gold is going to double in production volume over the next five and to reach 45 million trays next year. Jager declined to be drawn how long kiwifruit's strong run would last. "You just have to take every season as it comes," he said.

New Zealand apple growers have enjoyed another strong season and the industry looks set to hit the goal of \$1 billion in export receipts earlier than the 10-year target of 2022.

In the season just passed the harvest is forecast to reach 551,000 tonnes, eclipsing the previous record, set in 2013, of about 550,000 tonnes.

The past three seasons have all been favourable. New plantings are growing at 5 per cent a year.

The wine industry continues to perform strongly. Exports last year reached a record high and now stand at \$1.37 billion, up 8.2 per cent from

the previous year, and propelling wine to New Zealand's sixth biggest export good. The warm, dry summer of 2015 was perfect for grape growing and ripening. Once again, the wine sector looks likely to gain from a weaker New Zealand dollar against a raft of currencies.

Forestry

MPI says lower log prices and volumes into the Chinese market resulted in an estimated decrease in export revenue of 10 per cent to \$4.6 billion this year. However, the medium-term prospects for log and timber exports to China remain positive because of continuing urbanisation and economic growth.

Inventory buildup in China – again NZ's biggest customer – has played havoc with prices. A-grade logs hit US\$99 per JAS (Japan Agriculture Standard) cubic metre in May, the lowest price since AgriHQ started collating data in 2012. Prices have improved a little, rising to US\$101 per JAS metre in June, but they are a far cry from US\$129 in January, and US\$160 in March 2014. However, a weaker New Zealand dollar and lower shipping costs have benefited log exporters. "Prices are still pretty low, considering where they were last year, but we are in a state of recovery," Emma Dent, market analyst at AgriHQ, said. "We expect to see some more price increases, but again it is going to depend demand from China in the summer months."

Intimacy is the new reality

Speed of information flows allows customer relationships to grow at unprecedented pace, writes **Mike Petersen**

It has been suggested that New Zealand's reliance on the primary sector might jeopardise our future economic prosperity. The reality is somewhat different. There is no doubt that protein produced here will continue to dominate export earnings and create wealth for the foreseeable future.

The demands of rapidly growing middle classes for safe, quality food places New Zealand in the right place at the right time. While the medium and long term outlook is incredibly bright, there are some near term challenges that New Zealand will need to overcome.

The global economy has seen a slowdown in China and a Greek default in Europe. The Russian import ban seems like a distant memory but has also had a serious and distorting effect on world markets.

Growing pains in emerging markets are evident as Governments wrestle with the challenge of accepting that food security can only be achieved using a combination of imported and domestically produced food.

However, we need to remember that all of these headwinds have come hard on the heels of a sustained lift in demand and pricing for food that has set new benchmarks over the past 10 years.

The New Zealand primary sector should be in no doubt that the near term challenges are no different to those being felt in other food producing countries. Volatility is the new normal, and it is here to stay.



Volatility is the norm now, says Mike Petersen.

The real test will be how New Zealand companies adapt to this dynamic and rapidly changing world. The changes occurring in global markets are fast moving and breathtaking.

The new order seems to be 'adapt or fail' as we see a number of large multi-nationals struggling with the pace of change.

Other exporting countries are chasing the same opportunities we see, and we need to accelerate our efforts if we are to retain our place

at the table in key markets. Of all the mega trends sweeping the world, the greatest opportunity for New Zealand may also be our greatest threat.

Technology and the Internet provide us with an incredible chance to connect directly with consumers like never before. In the old world, our distance from markets was seen as a problem.

Today our distance from disease and global threats is an advantage for New Zealand. At a time when consumers are desperate to connect

with the source of their food, the Internet and social media places the farmer from New Zealand into the kitchen of consumers around the world.

The ability to converse through the Internet in a personal way allows us to be very granular in our strategies to connect with consumers. Exporters can move beyond country strategies, and develop consumer followings by tapping market segments where their particular food preferences are satisfied.

Customer intimacy is the new reality, and the speed of information flows allows relationships to grow at a pace never seen before.

Being closer to the consumer is an extraordinary opportunity, but also poses some risks and challenges to overcome. Increased consumer connection also carries increased responsibilities for producers.

Greater transparency is leading to greater scrutiny about how food is produced in areas like sustainable farming – a requirement for reduced environmental impacts and higher animal welfare standards. There is now nowhere to hide in the production of safe food, and the expectations from consumers are growing.

There is no doubt that added value products from the primary sector are delivering greater returns to New Zealand. Differentiated products from all sectors, including dairy, meat, horticulture and wine, are offering new products and new connections.

Niche market segments are look-

ing for the finest products from New Zealand to fulfill their own particular preferences, and this trend is growing. While the long-term trends and opportunities are certainly in New Zealand's favour, none of these will be captured without access to the world's most discerning markets.

The brutal reality for New Zealand is that with a domestic market the size of Sydney, we rely on the rest of the world for a living. Access to markets remains a challenge for a number of our primary sector products, and in many cases, the cost of entry remains prohibitive. New Zealand has worked hard to secure high quality trade agreements, and in doing so we have gained access for our exporters and provided confidence for them to invest further in offshore markets.

There is much more work to be completed in this area, and the Trans Pacific Partnership is just one agreement that will open up new markets and new groups of consumers for the next generation of our primary sector producers and exporters. Social media and the ability to connect with consumers offer huge opportunities, but also brings added responsibilities.

The real measure of success will be how New Zealand primary sector companies adapt to the pace of change and level of volatility sweeping the world. Success in this area will ensure the future prosperity of New Zealand for all.

● *Mike Petersen is NZ Special Agricultural Trade Envoy, chairman of NZ Meat Board and director of Wool Research NZ*

INSIGHT # 23

SUCCESS BREEDS SUCCESS

As New Zealand's best Agribusiness Bank, we have the industry insights and specialists committed to help grow your business, even when times are tough.

To find out how we can help identify areas of opportunity for your agribusiness, call Ross Verry on 09 252 3041.



Best Agribusiness Bank
New Zealand
2015

ANZ Bank New Zealand Limited

YOUR WORLD
YOUR WAY **ANZ**

Agribusiness

Fail to plan, plan to fail

New Zealand is still very reliant on the agricultural and primary sectors to create wealth for the economy in spite of concerted efforts by successive governments to wean us off dependence on the land.

The new and emerging weightless economy, where clouds deliver information and profits, not water and floods, is the world of students and entrepreneurs.

Though the only sign of our biggest industry in Auckland may be the new Fonterra headquarters, export revenue generated by the dairy sector keeps the economy of New Zealand and the city rolling.

But questions of where our primary sectors are heading are beginning to emerge as dairy returns to farmers halve, logs continue to be exported without any value-added processing, and arguments in the meat sector strangle the enthusiasm of our sheep farmers.

The wider public are, rightfully, demanding cleaner waterways and fewer emissions from the primary sectors where nature still plays a big part in the success of individual business operators.

A growing number of farmers and stakeholders are looking for direction and leadership to guide their everyday business decisions on crucial issues like fertiliser use, breed selection and planting of trees.

Any sound business or industry would have in place a strategic vision and plan to refer to when making such decisions. The unfortunate truth is that aside from horticulture, every primary sector lacks a vision, a strategic plan or sustainable pathway to guide the committed and hard work-

Investment, innovation and hard work may be wasted if we head in the wrong direction, says **Damien O'Connor**



ing stakeholders who underpin our economy.

This major vacuum means the investment, innovation and hard work may be wasted if we head in the wrong direction.

Major mistakes on issues of sustainable land use, genetic engineering, animal welfare or product integrity could seriously undermine our hard-won international reputation built on a heritage of hard work, Kiwi ingenuity and trust. We desperately need a long-term view at this critical time for agriculture.

From the setting up of the Dairy Board, the co-ordination of the kiwifruit industry, the removal of subsidies and the setting up of Fonterra,

Labour has shown leadership when it is crucially needed.

Issues facing agriculture – such as water quality – have been acknowledged and are being addressed, but others such as genetic modification, intensification away from pastoral feeding and brand development float in a stormy sea of market confusion.

No one body or person has taken up the challenge of providing a vision and direction for New Zealand agriculture other than the basic goal of providing protein and fibre to meet a growing global demand.

The recent excellent KPMG Agribusiness Agenda is another in a line of critical analysis that identifies the core needs of agriculture.

Protection from unwanted biosecurity invasion of pest or disease is paramount.

Attracting highly motivated and skilled people is essential but failing. Building and protecting a brand that places our products in the highest value markets in the world is the only way for farmers to survive without subsidy or protection.

Investing in leading edge technology and food innovation must be improved to stay ahead of international competitors who are winning in our traditional area of low cost advantage.

Primary sectors need creative and leading edge science now to give us a new viable position in an increasingly competitive international marketplace.

If we lose more creative thinkers and scientists because funding continues to be misdirected then our future is at risk.

If we fail to plan, we plan to fail and this is the reality facing the future of New Zealand without real change in the primary sectors.

Raw logs, unprocessed meat carcasses, basic milk powder and greasy wool should be the basis of New Zealand manufacturing sectors, not the unfinished exports that form an increasing part of our primary sector output because value-add processing is cheaper elsewhere in the world.

● *Damien O'Connor is Labour's Primary Industries Spokesman*



Down on the farm

Glenys Christian gets the low down from the farm gate – **D6-8**



Kiwis lead the way

Beyond No8 wire – **D12**



In the Cloud

Technology tailored for farmers – **D21**



Selling the future

Getting in the graduates – **D23**

What are the ingredients of New Zealand milk?



TALENTED PEOPLE



LUSH PASTURES



GREAT COWS

Dairying in New Zealand has a great story to tell. From small beginnings we are now the world's largest exporter of dairy products. This has been achieved through our belief that we can always do better. So it is no accident we lead the world in pastoral dairy farming.

Find out more about our recipes for building success, go to

dairyatwork.co.nz

Dairynz 

Focus on the fundamentals

Farming profitability at home becomes even more important as competition heats up in the Chinese market, writes **Karen Silk**

To combat weaker global commodity prices, New Zealand farmers must continue to improve their focus and execution on the delivery of high quality product with impregnable integrity and efficiency.

We would argue this can only be achieved with a sustained focus on the fundamentals of cost control, effective capital management and an increasing level of understanding of the factors driving revenue volatility.

Competition in our fastest growing export market (China) is increasing at the same time as European producers are being forced to divert product away from Russia.

At the same time, within China excess supplies accumulated in 2013 are still being worked through and the Chinese consumer demand may carry further risk (at least in the short term) as that market faces its own stiff headwinds.

"Deliquification" is clearly hitting Chinese equities, and speculation is increasing that this weakness may migrate to the credit-fuelled Chinese property market. Should this occur we can expect a more muted level of consumer confidence and demand.

Farming for profit means ensuring that all costs are closely monitored and all proposed capital projects are submitted to a detailed cost benefit analysis that considers their impact through cycles and not just a point in time.

Money invested to drive production gain through higher cost structures (for example, supplement feeding to support higher stocking rates) will make sense when commodity prices are high or increasing.

However, the same investment can become difficult to unwind in periods of lower return, in particular when underlying capital structures have been premised on the maintenance of high levels of production.

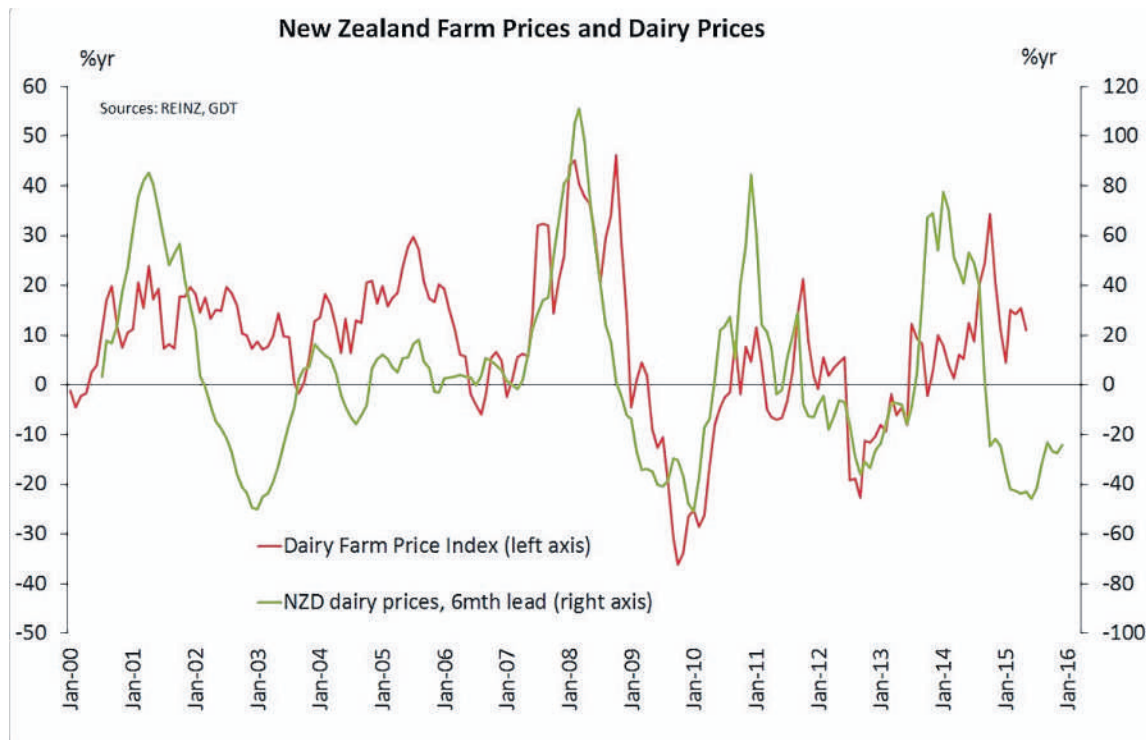
As volatility increases, long term capital structures need to adjust to incorporate sufficient flexibility to carry the business through periods of lower return as providers of capital (shareholders and banks) will require compensation through all parts of the cycle.

New Zealand dairy farms have traditionally been valued on a sustainable (profitable) productive capacity basis.

Recent behaviours within the New Zealand market would suggest that a combination of offshore equity seeking participation in the longer term protein growth story and existing domestic participants seeking scale and capacity have driven both consolidation and conversion activity.

The time has come for these investments to realise the operational efficiency and return benefits envisaged when these projects were initiated – with failure to do so posing risk of not only a cash but potential capital loss.

As outlined in the adjacent chart, sale prices for dairy farms are highly sensitive to movements in commodity prices, at least that's been true up until recently.



The current divergence between land values and dairy export prices is the widest we've seen in a long time, and based on history provides a chilling signal for what may come if export prices don't improve (or the NZ dollar significantly weakens) over the course of this season.

It could be argued that the current level of divergence may be exaggerated in part due to the lower number of properties sold over recent months at the "high market prices".

However, it may only take a small number of distressed sales in the same environment to establish a new, lower benchmark for farm prices across the country, and there is no evidence that the historic approach

to valuing farmland should change.

If commodity prices do start returning to more normal levels this year, what qualifies as 'normal' these days?

We are still firmly on board with the story of China's long-term development, which will drive demand for proteins for decades to come. But we need to recognise that the rest of the world is now on board with this story too – including China itself.

When China emerged as a major buyer of dairy products last decade, New Zealand found itself uniquely well positioned to meet that demand. But years of high dairy prices have persuaded other countries to expand their own milk production and invest in extra capacity.

China's own dairy herd has grown significantly in the space of a few years. And the removal of Europe's milk quota system this year (which operated as a fine for excess production, rather than a hard limit on volumes) means that European dairy farmers will be able to respond more flexibly to changes in demand in the future.

The bottom line is that a growing number of players will be chasing the world's consumers of milk. At the very least, that suggests that the cycles in world dairy prices could become even shorter and choppier, as producers jump on to any rise in prices.

It means New Zealand producers will increasingly need to take a holistic view of what's driving the global market, and ensure that their farm management systems and capital structures support a flexible and efficient approach to production in order to preserve profitability and in turn maintain enterprise value.

● Karen Silk is General Manager Commercial, Corporate and Institutional with Westpac New Zealand

New Zealand producers will increasingly need to take a holistic view of what's driving the global market, and ensure that their farm management systems and capital structures support a flexible and efficient approach to production.

Agribusiness

DOWN ON THE FARM

Price fall tests resilience

Dairy farmers are being cautioned about spending but urged to weather the storm, writes **Glenys Christian**

As dairy prices continue to fall, farmers are likely to receive \$4.75/kg milk solids this year, says DairyNZ chief economist, Matthew Newman.

This is based on retrospective payments from 2014-15 and advance rates for the current season, and includes an estimated dividend for Fonterra shareholders.

It means dairy farmers are forecast to receive around \$1.75/kg less milk income than in an average year – their lowest earnings since 2006/07.

Taking into account New Zealand's milk production of 19 million tonnes, the latest forecast represents a \$3.3 billion drop in milk revenue.

Newman says the lower on-farm spending and reduced tax payments maybe equivalent to about 20 cents of farm working expenditure or a total of \$0.4 billion. Added to this is likely to be lower capital spending of about 80 cents, totalling \$1.5 billion. Tax intakes would be down about \$0.3 billion and personal spending or drawings would fall \$0.2 billion.

The national economy would be drained of a total of \$2.4 billion, affecting all New Zealanders.

Newman says the farmers most at risk are those who have recently invested in land or infrastructure, those new to the industry, share-milkers, and those with high debt levels and farm working expenses.

The break-even milk price for the average farmer is estimated to be \$5.70/kg milk solids, so about \$1/kg will be required from off-farm income or increased overdrafts.

"The big issue for farmers is managing their cash flows through the season," says Newman.

"These drop quickly throughout winter and generally stabilise at negative levels for the rest of the season.

"This will mean the impacts of the low milk prices in 2014/15 and 2015/16 will be felt for a couple seasons as farmers will be required to repay the additional borrowings."

Newman estimates they will need on average \$150,000 or more to pay the bills this season.

Banks are being realistic in wanting farmers to come to them with re-done budgets and additional lending requirements, he says.

And though the present situation is grim, it will allow dairy farmers to determine what's important and to focus on efficiencies, making them more competitive in the long term.

It's deja vu for the farmers. This time last year they were told international milk prices should recover by the end of 2014 or early the next



The big issue for farmers is managing their cash flows through the season.

Matthew Newman

year at the latest. It's the same line a year later. The big difference is that last year Fonterra's opening forecast payout was a comfortable \$7/kg milk solids. That's dropped to \$4.40/kg over recent months, and, worse still, the opening forecast for 2015/16 is just \$5.25/kg.

Industry body DairyNZ, to which all New Zealand dairy farmers pay levies, puts some cold, hard facts around that, calculating that the aver-

age milk price over the last six years was about \$6.50/kg. The record 2013-14 payout was \$7.69/kg milk solids.

With the wholemilk powder price down 10.8 per cent at the most recent Fonterra fortnightly GlobalDairy-Trade auction, farmers are fearful of another unwelcome repeat – price cuts as the season progresses.

They are asking why their co-op seems stuck in a commodity cycle

when it's 3Vs (volume, value and velocity) strategy has been all about moving up the value chain.

Fonterra chairman John Wilson has told farmers that predicting global dairy prices in a year when there are six or seven different factors at play is harder than ever. He's urging farmers to weather the storm, but acknowledges this month in particular will be very hard for them as retrospective payments from last season finish.

Times have changed, both at home and internationally. In 2013-14, dairying accounted for a third of the total value of merchandise exports from New Zealand, largely driven by Chinese demand which has almost quadrupled since 2000.

Its dairy imports now account for 17 per cent of those worldwide, with New Zealand having the largest share of the wholemilk powder market. But China's economy is slowing while competition grows. More recent political upheaval, particularly in Europe, makes other buyers even more nervous.

DairyNZ has cautioned farmers about on-farm spending such as adding wintering barns or feed pads

to boost milk production.

In 2001, 70 per cent of dairy farmers were running low input systems, based mainly of feeding grass to their herds. Just 17 per cent were classified as medium input and 13 per cent high input, including feeding supplements such as palm kernel, grain and maize silage. Now just 30 per cent of dairy farmers are low input, almost matched by 29 per cent in the high input category and 41 per cent in the middle.

In the commodity business, the New Zealand dairy industry is still largely cost-competitive. But the United States' most profitable farms, such as large feedlot operations in California, are closing in as New Zealand farmers have paid high prices for land and locked in high farm working expenses to achieve more milk production.

Their challenge now is to operate a relatively low cost, resilient business while dealing with ever-increasing environmental issues. And that's never been more difficult than in a year like this one.

● *Glenys Christian is the editor at large of the New Zealand Dairy Exporter magazine.*

Online farm budgeting advice is close at hand

Bill Bennett

Some farmers need to get better at budgeting to weather the slow-down in dairying, says David McCall of DairyNZ.

"This doesn't mean writing a budget and putting it a drawer," he says. "It has to be a working document, a business plan. You have to monitor it and base buying decisions on it."

McCall is general manager of research and development at DairyNZ, an organisation that aims to improve the profitability, sustainability and competitiveness of the country's dairy farms. DairyNZ worked with some of the best dairy farmers in the country to learn what makes them successful.

"At the moment the average cost of producing a kilogram of milk powder is around \$4.50; if we get that down to \$3.50 farmers will get back to break even faster," says McCall. "The better ones manage to produce milk at up to \$1 per kilogram less than the others. We wanted to learn how they did it, so we can share this information with the rest of the industry to help them get through tough times," he says.

DairyNZ recommends dairy farmers break spending into the following categories:

- Expenses absolutely necessary to keep the farm ticking over.
- Expenses or costs which can simply be deleted.

● Costs which can be deferred until things pick up – this might include replacing machinery or building, although not replacing could mean spending more on repairs and maintenance.

● Costs which can be reduced – such as buying an expensive food supplement that delivers a marginal increase in production.

McCall says farmers typically spend more when times are good. That's been the case in recent years, so most farms are in a good state to start with.

"It (food supplement) may be worth the cost when the price is high, but banking the cost saving and taking a reduction in milk production could lead to better profits when milk prices

are low," he says.

There's a similar logic behind spending on fertiliser. All the advice on a DairyNZ website. It's something the organisation describes as "online mentoring".

"Farmers tend to be practical people," McCall says. "We're trying to be relevant and practical in our advice, so instead of describing what a benchmark is, we get straight to the point and tell them how to achieve the results needed to meet that benchmark."

McCall says it helps that the dairy industry has a co-operative culture.

"It's long been a strength with farmers happy to help each other and work together."



David McCall

DOWN ON THE FARM

Farmers look at trimming costs

There may just be a ray of sunshine among the gloom of falling milk prices, writes **Glenys Christian**

A slow-down in dairying's growth as a reaction to lower international prices could be a good thing for the industry in the long term, says Auckland Federated Farmers Dairy chairman, Philip Bell.

"We've been in a long growth spurt where we've seen cow numbers rise in a way we've never dreamed of. It may be a good time to see a steadying."

"It's forced on us with China and other world markets in a state of flux, but it may give us a bit of a breathing space," he says. "But taking the foot off the accelerator is hard when you're such a large part of New Zealand's economy."

Bell says the effect of the lower dairy prices is really starting to bite and it's becoming more evident there will be a slow recovery.

"In the new year there were some good increases in GlobalDairyTrade auction results and things were looking favourable."

But recent falls, following two drops in the Fonterra forecast payout for the 2014-15 season and a low prediction for the current one, now sees farmers really focused on trimming costs inside the farm gate.

"It's going to be a very difficult season until there's a correction in world markets," Bell says. He milks 200 cows on an 80ha farm at Clevedon, south of Auckland, which has



It would be very difficult to deal with a downturn like this on our own. That is why we need the co-op.

Philip Bell

been in his family for 151 years.

Reasonably favourable cull cow prices would mean it is tempting for farmers to cut stock numbers and concentrate on the higher producers in their herds.

"They're making sure that every cow they milk is a good one."

Supplement use will be cut, but Bell is quick to point out that successive droughts in many areas left farmers

with little choice than to use expensive feed options. Some may not winter their cows off-farm, as usual.

"Costs have jumped quite a lot, in animal health for example, so they'll be looking hard at those things," he says.

Farmers are committed to having good stock health and that's an area they would still see as priority for spending.

Bell says it remains to be seen whether smaller farms might go out of dairying due to the lower returns, or whether larger scale operators, run on more corporate lines, would look to invest.

Most Fonterra shareholders are like him and committed to the co-operative, Bell believes.

"It's where their destiny lies and it would be very difficult to deal with a downturn like this on our own. That is why we need the co-op."

But he wonders whether shareholders have been asking the right questions of directors and management.

"Have we received provable answers? There have been a lot of programmes to improve things, but they don't seem to have worked."

Fonterra's response often seems to be to come up with a new plan, he says.

"But what happened to the ones in the past? A lot more questioning is needed. Farmers wanted to see outcomes."

"It's disappointing that Fonterra's communication isn't as good as it could have been," Bell says.

Fonterra's recently announced plans to reduce its workforce made farmers ask why the staff were there in the first place and why numbers had grown so large. And while programmes like Milk in Schools

sounded a good idea, farmers were now questioning their effectiveness.

When it came to moving up the value chain, Bell says this was never going to be a fast process. Farmers tended to think about an increase in branded products but often there were better returns for ingredients.

It's hard for individual farmers to find out how successful new products have been because this information wasn't revealed in Fonterra's balance sheet. And they were also questioning how well Fonterra was handling local market sales.

Bell says that before Fonterra's formation, dairy farmers felt a lot closer to their dairy company's business. In difficult times they could ring a local director and have a frank discussion. Now Fonterra directors are bound by much tighter rules when it comes to information they could give out.

Fonterra Shareholders' Council has worked well in dispersing knowledge to them, Bell says. "But they're not directors, so they can't be party to real decisions. It's directors who farmers want to speak to."

He is hopeful that the present review of the Dairy Industry Restructuring Act, under which Fonterra was formed, will create a fairer playing field, after the last one ironed out some perceived problems.

One team you can always bank on

Talk to our specialists who are there to help when you need it most.

westpac.co.nz/agribusiness



Agribusiness

Agribusiness

DOWN ON THE FARM



New entrants make dent in supply

Glenys Christian

Updated figures due out next month will show just how much milk supply has moved away from Fonterra since its formation and dominance of the New Zealand dairy industry.

In the 2013-14 season the large co-operative processed 86.8 per cent of milk. Open Country Dairy was second at 4.6 per cent, Westland third at 3.8 per cent, Synlait 2.6 per cent and Tatua 0.7 per cent.

Fonterra's farmers look enviously at the achievement of the small competitors since 2001, especially in the areas of accessing niche markets and branding. Most galling is that farmers who have left Fonterra generally don't have to stump up for shares.

Some say the new companies have been given an unfair leg-up through the Dairy Industry Restructuring Act under which they are able to receive milk at a favourable price from Fonterra.

This was to allow growth in the start-up companies' first years until they can compete on a more even playing field.

Frustrated Fonterra farmers point to Open Country Dairy's waiting list of farmer suppliers, which is rumoured to number more than 500. Open Country is 69 per cent owned by Talley's Group, and has been predicting \$4.70 to \$4.90/kg milk solids for its suppliers in 2014-15. It has plants at Waharoa in the Waikato, Wanganui, and Southland.



The achievements of Fonterra competitors such as Synlait (top) and Open Country (above) are being regarded enviously.

Westland Milk Products is predicting a payout from \$5.60-\$6/kg milk solids this year and has kept its 2014-15 forecast of \$4.90-\$5.10/kg before farmer retentions.

It's hoping for better returns from its move into nutritional products, limited sales from its new UHT plant

at Rolleston, and higher earnings from its EasiYo yoghurt subsidiary it bought several years ago.

South Island's Synlait has reduced its 2014-15 forecast payout to between \$4.40-\$4.60/kg, down 10 cents on earlier predictions. And it's forecasting \$5.50/kg milk solids for the

coming season.

Small Waikato processor Tatua is always the one to beat when it comes to payout rankings. In the 2013-14 year it hit an all-time record payout by a New Zealand milk processor at \$9/kg milk solids. It started the last season predicting \$6.50 kg, relying on the

higher earnings of its specialised value-added products.

The 15 per cent of New Zealand milk coming from other companies in the 2013-14 season is sure to have grown due to a rush of recent activity. Chinese company, Yili, bought the Oceania plant in Otago and is expanding supply along with Danone at the former Gardians plant in Balclutha.

Taupo-based Miraka, owned by a several large Maori incorporations and trusts, has recently signed a deal to process milk from three Shanghai-Pengxin farms, previously owned by the Crafar brothers. Vietnamese company, Vinamilk also has a shareholding in Miraka.

The Yashili plant at Pokeno, south Auckland, is expected to open in October with plans to send over 50,000 tonnes of infant milk formula to China annually. And the New Zealand Organic and Natural Dairy Company has recently announced plans to build a plant in Otorohanga, processing organic and conventional milk into high-value infant formula, nutritional powders and cheese. Three local farmer investors are involved under an agreement with China's Herun Holdings.

Then there's the Organic Dairy Hub Co-operative of New Zealand, acting as a broker for its 30 members' milk supply. Most is being processed through south Auckland's Green Valley Dairies, with some ending up in the Lewis Road Creamery's sought-after range, and value-added products.

Let's have dividend that covers cost of shares

Whitianga dairy farmer Dirk Sieling sees a strong future in the dairy industry – he and wife Kathy have just spent nearly \$1 million on a new 44-a-side herringbone cowshed and effluent system for their farm.

Sieling remains hopeful international milk prices will increase, probably later this season.

"Most farmers say they can stand one season of low prices and will be okay," he says. "But with two seasons they will struggle and with three go broke. And that will affect our economy for years to come."

He's a former farmer representative on the Fonterra Shareholders' Council and right behind the co-operative's 3V (volume, value and velocity) strategy.

"We've got to get out of the commodity cycle as much as we can and get more of our own branded products," Sieling says. "The global opportunities for our co-operative are vast and we need to capitalise on them

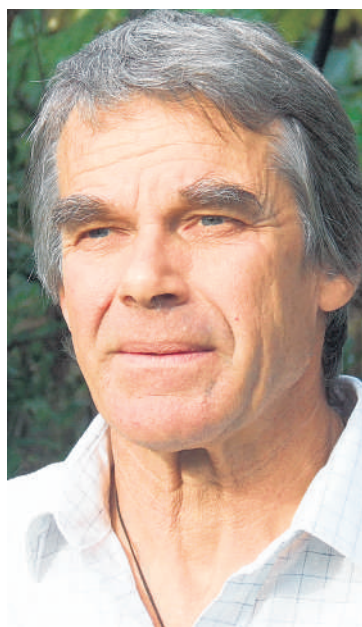
The global opportunities for our co-operative are vast and we need to capitalise on them faster.

Dirk Sieling

faster. Too much time and opportunity has already been lost since the formation of Fonterra."

He's disappointed the co-operative's dividend didn't increase as farmers had been told it would when milk prices were low. At its half year results, Fonterra trimmed 5 cents a share off its forecast dividend to between 20-30 cents. It cited a lag between production and sales, meaning the value of its ingredients inventory was higher in the first quarter.

"What that told me was that the strategy wasn't going fast enough," Sieling says.



He believes the entire culture of the co-operative needs to change.

"From middle management down they know farmers are the owners of the business, but they don't think of them as owners."

Sieling suggests all staff spend time on shareholders' farm to really get to grips with their business. In his case that involves milking 630 cows on 680ha, some of which is in bush and pine trees.

His farm's production is targeted at 157,000kg milk solids this season, with feeding supplements through an in-shed feeding system. A further 104,000kg milk solids is expected to come from a nearby 300-cow equity partnership on 90ha.

Sieling also wants Fonterra to improve its governance and representation structures. He jointly led a Governance and Representation Review Joint Working Group with Fonterra director, Malcolm Bailey, and is disappointed its recommenda-

tions won't be put to shareholders at Fonterra's annual meeting in November.

The proposed changes weren't drastic, he says, but would have been a modest step on a path of gradual improvement.

He also believes the provisions of the Dairy Industry Restructuring Act have become "ridiculous" as start-up companies have grown in strength.

"We don't need any more money going overseas," he says, referring to the number of companies based offshore.

He believes Government will listen to the Commerce Commission's report which is the first stage of reviewing the legislation.

"I'm definitely optimistic about the dairy industry," he says. "But what will give farmers confidence in Fonterra will be a competitive milk price and when it pays a dividend that pays the cost of their shares."

— Glenys Christian

A competitive advantage

A disciplined investment and management regime is helping farmers move into the future, writes **Graham Turley**

The latest world dairy auction results are a strong reminder that dairy is a cyclical business, but also one that is undergoing massive change that New Zealand producers must be responsive to.

This year the world will produce more milk than ever before – an estimated 527 million tonnes. Strong supply has pushed down global dairy prices 39 per cent from a high in February 2014.

In the short term, many farmers will be configuring their businesses to ride out the low prices, but longer term there are big challenges.

Growing global demand, intensified competition, tighter environmental regulations and easier access to markets will combine to make the industry of tomorrow much tougher than it is today.

New Zealand's economy was built on commodity exports, and it's likely we will be primarily a commodity exporter long into the future.

Currently we're one of the world's most efficient producers of dairy protein, but if our industry is to thrive in the new marketplace, we'll need to take that efficiency to a new level.

New Zealand is a relatively small producer, with around 3 per cent of global production. In contrast, India is the world's largest milk producer with 16 per cent of global production, followed by the US, China, Pakistan and Brazil, according to the UN Food and Agriculture Organisation.

The US is a good example of what New Zealand will be up against – a market that is taking advantage of scale, state-of-the-art technology and advances in feed technology to become more globally competitive.

While around 85 per cent of US milk production is used for domestic



Even smaller farms are moving towards the sort of formalised business management and decision-making processes used by larger corporate operations.

Graham Turley

purposes, exports have been steadily growing and seem likely to continue to do so as US producers invest in manufacturing assets more aligned to the products demanded by emerging markets.

US domestic output is set to be the highest for the fifth year, and some farmers are reportedly dumping surplus milk, but cheap and abundant feed encourages continued high production.

The proliferation of free trade agreements is also providing a platform for intensified global dairy competition. FTAs open access to markets for New Zealand producers, but they also improve access for our competitors.

The Trans Pacific Partnership, for example, includes 12 nations covering 40 per cent of world trade. Across

the Atlantic, protections within the EU are evaporating as farmers adopt a more competitive footing.

For New Zealand producers, the message is that they must be more competitive in producing the product – even if they intend to later add value.

Based on DairyNZ figures, ANZ estimates the average New Zealand dairy farm requires a milk price of \$4.89/kg for a break-even cashflow in 2015-16, before depreciation. Farm Working Expenses and the cost of owners labour make up \$4.40 of this, but it is the range in farm operating efficiency which is the issue.

To see the leading edge, the annual Dairy Business of the Year competition – of which ANZ is a supporter – features farmers who are investing in on-farm management, pasture pro-

ductivity and new technology to drive down the cost of production.

In the 2013-14 season, the top businesses achieved \$3.13/kg cost of production including depreciation and owner's labour, and many of the other finalists for the 2015 competition were well below \$4/kg.

ANZ's Privately Owned Business Barometer Dairy Insights survey of 368 dairy businesses found reducing costs was a high priority (and likely to have become a higher priority in the months since the survey was taken).

The survey found farmers were taking a balanced approach – which included redirection of costs to areas that contribute more to profit, and to consider investments to increase production that enhance efficiency.

Over half of the survey respon-

dents were planning to invest more in pasture and forage, improved animal genetics and improved feed budgeting.

This highlights an issue for the industry – farmers will need to invest to increase efficiency, and this requires cash.

The Dairy Insights Survey provided strong evidence that producers are moving away from intuition to a disciplined investment and management regime, assisted by sophisticated farm system modelling, financial modelling and environmental outcome modelling tools now available from farm management consultants.

Even smaller farms are moving towards the sort of formalised business management and decision-making processes used by larger corporate operations.

For example, more than 10 per cent of the dairy businesses in the Barometer have boards, or similar structures – a much higher percentage than the commercial sector as a whole.

Despite dairy prices being at the low end of the cycle, I'm optimistic about the long-term prospects for the sector. Growing affluence throughout Asia will see a change towards more Western diets on a large scale and that will underpin industry growth for the next couple of decades.

But while the global opportunities for New Zealand dairy are huge, the competition from new and existing players will only become more intense.

In the end, the market that can produce the best quality product in the most efficient way will reap the greatest benefit.

● *Graham Turley is Managing Director Commercial & Agri at ANZ*

Sumagrow plans export growth from Auckland

Graham Skellern

A fast-growing American fertiliser manufacturer, Bio Soil Enhancers Inc, is planning to use Auckland as its base for exporting through the Asia-Pacific region including China and India.

Mississippi-based Bio Soil is seeking a site to establish its first overseas blending and bottling facility that will initially produce 24 million litres of its all-natural Sumagrow liquid fertiliser in a year.

"New Zealand is a very important agricultural country and is well positioned with its '100 per cent Pure,'" says Bio Soil representative, John Greenberg.

"We can meet that promise, and there is a list of 20 other reasons why we consider Auckland an appropriate place to base our Asia Pacific operations."

Sumagrow fertiliser is a soil amendment of concentrated living microbes found in healthy soils. The formulation is suspended in an organic humic carrier, and makes atmospheric nitrogen and existing soil minerals – phosphate, magnesium and calcium – available for uptake by plants.

Mobilising soil nutrients is a vital role of the naturally-occurring micro-organisms.

Greenberg says products containing Sumagrow replace or reintroduce vital soil micro-organisms that are lost or damaged by conventional farming methods including the overuse of chemical-based fertilisers and pesticides, and the depletion of organic matter.

After a decade of research, testing and trials, Bio Soil began selling its OMRI (Organic Materials Review In-



stitute) listed fertiliser commercially three years ago.

It says the product increases crop yields by 10 per cent and improves the nutritional value of food and forage crops including higher brix (sugar) levels. Bio Soil also has data about its product reducing nitrate leaching to waterways, and requiring lower applications than NPK fertiliser.

Bio Soil claims its fertiliser has a wide range of applications – for pasture growth and restoring rice paddies through to growing healthy crops such as corn, cotton, tea, soybean, wheat, sugar cane, vegetables and fruit. The typical application rate, normally by spraying, is one litre of Sumagrow to 20 litres of water.

The company, which sells in 47 US

Bringing this (Chinese) land back to productivity represents an almost unbelievable opportunity for the company.

Lou Elwell

states, is presently doubling the capacity of its production plant in Hattiesburg as export orders roll in. There are ongoing commercial trials in more than 40 countries and Bio Soil is selling or has registered to sell in half of them.

The Mississippi State Government is also providing the company with

a financial package – land, tax holiday and employee training funding – to build a second plant at Hattiesburg.

This 10,000 sq m processing facility will be replicated, likely in Auckland, which will become a vital cog in Sumagrow's strong Asian export growth. Greenberg expects the first stage (5000 sq m) of the plant to be completed within 12-18 months.

"We will be installing the blending equipment, after we have increased the microbe production at Hattiesburg."

The Sumagrow product will be sent to Auckland as a concentrated syrup that contains active microbes. The syrup will be finished, bottled and distributed.

Late last year Bio Soil's product was approved in New Zealand as a fertiliser by the Ministry for Primary Industries, and Sumagrow has received an import and export permit.

The company is already selling in Vietnam and is working on export orders in Laos, Cambodia, Thailand, Korea, India and China, with much of the production coming from the new Auckland processing plant.

Sumagrow has received an import licence and is awaiting a final sales permit from the Indian authorities. Bio Soil's chief executive and co-founder Lou Elwell says India is a massive opportunity. "The Indian government subsidises chemical fertilisers including urea and farmers frequently over-use these inputs, which has led to a relative decline in yields and can ultimately lead to the collapse of soil."

Bio Soil began selling in Vietnam during the middle of last year and expects to increase its shipments to

at least 100 containers in a year, producing NZ\$21 million in revenue.

Says Greenberg: "Our product is being used to treat rice paddies exposed to high salinity water, and there are generally three rice crops grown each year, per hectare."

Elwell says China is the "800-pound gorilla" when it comes to sales forecasts as the opportunities there might exceed all the other Asian-Pacific countries put together.

"Not only does China have a massive amount of land but according to one official Chinese news agency report, up to 40 per cent of the agricultural land has been abandoned as unproductive. Bringing this land back to productivity represents an almost unbelievable opportunity for the company," he says.

Auckland will play an important part in Sumagrow Asia Pacific's supply and distribution network, and Greenberg says the company and product can be very useful to New Zealand.

"There is a nitrate leaching problem. Our product increases the holding capacity of the soil and can reduce leaching by up to 70 per cent. There are also marginal soils in the Far North and too much nitrogen in some of the waterways. Sumagrow should be able to alleviate those problems," he says.

Bio Soil is also eyeing the forestry industry and will hold talks with a group in the central North Island about starting pine trials. Trials in the United States have shown a pine tree, producing more needles, grows 11 feet (3.35 metres) tall in two and a half years with an application of 12-14 ounces of Sumagrow product per one gallon at planting.

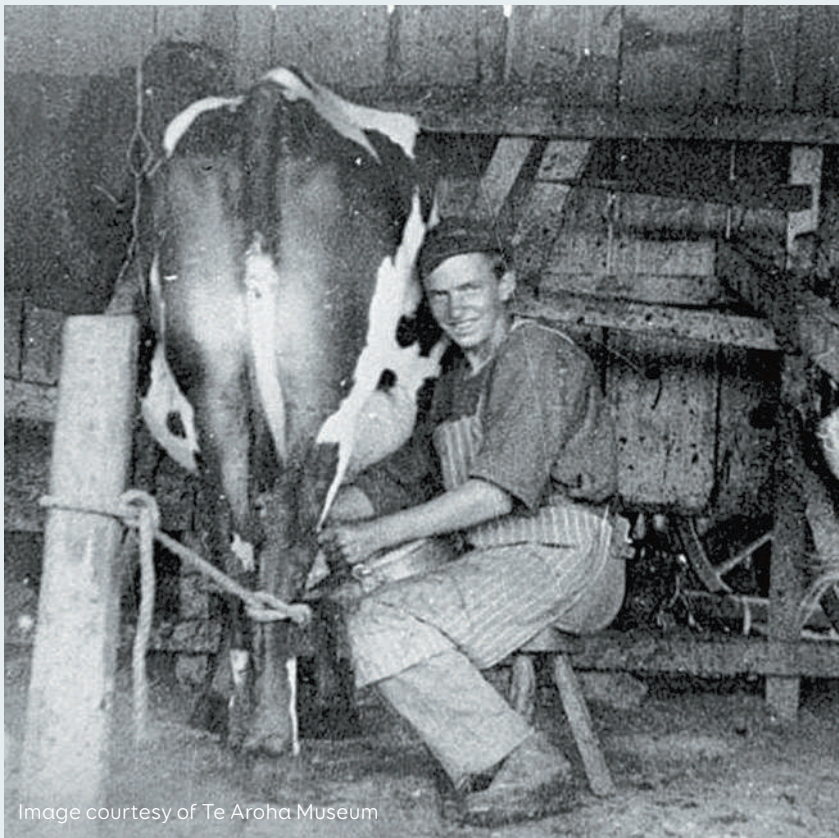


Image courtesy of Te Aroha Museum



History is milking four cows a day.
Improvement is milking 1,000 cows
in two hours.

Prosperity comes from productivity.
Productivity comes from improvement.
Now let's talk about where
improvement comes from.

In 1814 there were two cows and one bull, brought into New Zealand by Samuel Marsden. Today the dairy industry has 4.9 million cows and processes 1.83 billion kilograms of milk solids per year.

In early days, if you were milking more than three or four cows, you were a full-time farmer. Today, two people can milk 800 to 1,000 cows in a couple of hours.

Between 1979 and 2014, production

increased by 1.3 million kilograms of milk solids. In the last 20 years alone, increases have averaged 93kgMS per cow - with 60% of these gains coming from genetic improvement.

Once, farmers knew their individual cow's quirks, characteristics and names. Today, farmers have the smallest details of every one of their hundreds if not thousands of cows at their fingertips.

The story of the New Zealand dairy industry has been one of constant improvement. And at LIC, we've been part of that story for over 100 years, helping improve the productivity and prosperity of our farmers. Helping make New Zealand dairying the world leader that it is.

Improvement. It's in our nature.
It's in our name.



Primary sector powerhouses

We should maximise our potential to create real, sustainable value in New Zealand, writes **Ian Proudfoot**

Our climate, natural environment, passionate people in the industry and the innovative technology we adopt to produce high quality food, fibre and timber provide New Zealand with huge advantages over many of its competitors.

However, many commentators often overlook these strategic advantages and focus solely on how effective farming businesses are in providing more product to sell to customers around the world.

There is regular criticism that the industry is failing to add sufficient value to the produce we grow, but there is little understanding of how the value is being created.

KPMG's analysis suggests that over the period from 2002-14, the primary sector grew its value return to the New Zealand economy by 4.5 per cent compound annual growth – strong growth over a period which included the Global Financial Crisis.

Value growth rates have, however, varied dramatically between productive sectors – pastoral farming (including dairy) showed an annual growth in value of 5.7% while the seafood sector increased only a 0.4 per cent.

Digging behind the headline figures highlights that the majority of the value growth has come from commodity price movements and increases in the amount of product being produced.

Despite the strategies the majority of companies have adopted to increase the value they are able to secure from their products, there was little evidence that these initiatives are making a significant contribution to income being captured by New Zealand companies and returned to the farm gate.

It is very apparent that adding substantive value to our primary sector produce is easier said than done. For too many companies, the default value-added strategy is designing and placing a brand mark on their packaging in the hope that this will sustainably generate a premium return for production.

The risks of this simplistic approach was illustrated by the manuka honey industry. Many companies believe they can create sustainable value add by putting their honey in a jar and sticking a label on it.

The reality is far more complex. There is consumer uncertainty about the authenticity of manuka honey, meaning it is the businesses that are using their honey in clinically proven healthcare solutions that are being more effective in creating sustainable value.

KPMG identified a number of other factors that are impacting on the effectiveness of companies in adding sustainable value to the products they are delivering to customers around the world:

- Many organisations struggle to evolve their go-to-market approach to reflect the cultural, social, political and economic nuances of the markets they are looking to sell into, preferring to replicate what has worked for them historically in every market they enter.

- Many companies try to operate both commodity and value-add businesses under the same roof and find one culture dominating, leaving part of the business to operate sub-optimally.

- The growing global demand for food plays to New Zealand's strategic advantages. However, we will never be able to produce anywhere near enough food to feed the world (or even a small part of it). Many companies have big ambitions, for instance, to dominate their market segment in China, but lack the scale necessary to be relevant to the large



customers in these markets

- Many companies in the primary sector have an unwillingness to commit to intangible investments. They find it far easier to invest in tangible production assets (for instance, a milk drying plant) than in the intangible investments that have significantly greater potential to transform their ability to create sustainable long term value.

I strongly believe that we should maximise our potential to create real, sustainable value in New Zealand by leveraging strategic advantages to produce products that solve the most important problems and issues that consumers face on a day to day basis.

This means we need to be very close to the consumers of our products to understand their lifestyles, the problems that they face, and how our products fit into their daily lives.

From 2002-2014

the primary sector grew its value return to the New Zealand economy by

4.5 %

compound growth over a period which included the Global Financial Crisis.

Growth rates have varied dramatically between productive sectors – pastoral farming (including dairy) showed an annual growth in value of

5.7%

while the seafood sector increased only a

0.4

per cent.

For too many companies, the default value-added strategy is designing and placing a brand mark on their packaging in the hope that this will sustainably generate a premium return for production.

We must be prepared to walk in our customer's shoes if we are to truly understand how to create value for them.

The reality is that achieving this level of consumer intimacy does not come cheaply. It is not something that can be done by flying sales representatives into a market for a week or two every now and then.

It requires co-ordinated and planned (intangible) investment to have people permanently based in a market, building a high level of customer knowledge, and providing deep insights to shape innovation and marketing strategies.

It is investment in building customer relationships, employing highly-talented leaders, innovation undertakings and developing the experience that have the greatest potential to differentiate our products in market.

The investment could be designing product delivery mechanisms to enhance the convenience and relevance of a product to its consumers. Or it could be completing detailed scientific trials to support a product health claim to better articulate the experience a consumer can expect from a product.

It could be weaving New Zealand's strategic advantages into a deep, authentic consumer brand story.

The challenge with this type of expenditure is that it is intangible. It is not easy to envisage what will be delivered when the funding is com-

mitted – compared with making a capital expenditure decision on a new milk dryer).

Very often this expenditure is not considered as strategic by companies as their spending on capital projects. This is demonstrated by the board level review that many capital projects receive, while investments in market activities, people and innovation are often handled by management under delegated authorities – rather than being viewed as something requiring oversight by an organisation's governors.

It also cannot be ignored that it is difficult to explain to stakeholders – particularly when many of them are focused on the short term cash flow they receive for the products they supply – that part of their return is being withheld to be invested in a project with a long payback period.

Our work with the Te Hono Movement, the primary sector leaders who have attended the New Zealand Primary Sector boot camps at Stanford University over the past four years, has enabled us to identify organisations that have evolved a high-value enterprise culture to enable them to consistently capture greater value for their products.

It has become clear that organisations which are more effective in creating value have common DNA traits:

- They have pivotal leadership – leaders who are willing to make decisions that set the direction and

pace of an organisation.

- They have clear ambition to be the best company in their market segment, but are not arrogant – they recognise that they can learn from anyone.

- They understand their purpose – this provides them with a strategic anchor and guides every action the organisation takes.

- They treat every investment as strategically important, paying as much attention to an investment in a market activity or a talented person as a piece of capital equipment.

- The organisations recognise that without customers they have a limited future, and invest heavily in market activity to ensure they do walk in their customers' shoes on a very regular basis.

- Technical competency and high performance are a given from their people, thus the contribution an individual makes to organisational culture and achievement of its ambition is key to recruitment decisions.

- The organisations are committed to delivering on their core mission – they do not get distracted by fads and fashions but do ensure their activities remain relevant in rapidly changing markets.

Re-engineering organisational culture to incorporate all aspects of the DNA of high-value enterprises is not easy.

It is not something that happens overnight or even within a year and can be a difficult to get under way, given it often requires current leadership to recognise they lack the capability to lead the journey and stand down from their role.

We have no choice but to create more primary sector powerhouses – organisations that can see the world through a sufficiently ambitious lens.

● Ian Proudfoot is KPMG's Global Head of Agribusiness, based in Auckland.

Agribusiness

Kiwis still leading the way

New Zealand's agricultural sector has historically relied on strong commodity prices rather than large research and development budgets, but innovation on the farm is alive and well, reports **Graham Skellern**

While the call goes out about adding more value to primary products, Waikato Milking Systems is a step ahead and flying the flag. The Hamilton-based innovator has obtained a global patent for its latest Centrus 84 Rotary Platform, designed to milk several thousand cows a day.

Made of composite materials including Kevlar – used in the construction of aircraft – the platform is 90 per cent lighter and five times stronger than traditional concrete alternatives. The 84 stalls provide more cow space to make farmers' lives easier.

The flexible, durable platform is supported by an award-winning, self-aligning pivot roller, making it easy to move, and it is suitable for very large herds and a 24/7 operation.

"We've taken out the structural steel and replaced it with Kevlar engineering," says Waikato Milking Systems international sales manager, Grant Wisniewski. "The (milking) platform is a world first. It's very easy to ship and install and can be packed in a container."

"The R&D budgets of the large dairy companies overseas are 10 times our annual revenue, and we have to think outside the box about adding value," he says.

The Centrus was launched at last month's Fieldays at Mystery Creek, won the international innovation award, and had orders from United States, South Africa and China.

The first one is being shipped to a Michigan farmer who milks his herd of 3500 cows three times a day to get an extra 10 per cent more milk production. The system will be used 20-22 hours a day, every day of the year. There's very little downtime for servicing and the platform will handle the pressure, created by hefty 700kg Holstein Friesians.

A farmer near Cape Town will be the first to install the Kevlar platform in South Africa, and another Centrus 84 will be sent to a dairy corporation in north China by the end of the year.

Waikato Milking Systems, founded more than 30 years ago, makes rotary and herringbone systems and components, and exports to more than 20 countries, including Russia and Latin America. The company has been supplying the US market for 25 years.

New Zealand's agritech exports were worth about \$NZ1.2 billion in 2013, and the sector grew at 4 per cent compounded annual rate over the past five years. The exports were mainly made up of animal health products (worth \$311m), fencing



The Centrus 84 Rotary Platform easily handles a herd of more than 3000 cows, milked three times a day.

supplies and equipment (\$307m), and machinery and systems (\$307m). Key growth categories were animal and plant genetics, including grass seeds and vegetables for sowing.

Consulting company Coriolis' report on the Agritech sector, published in September last year, concluded New Zealand's agritech exports were underperforming compared with its key competitors – Israel, Ireland and United States – but the sector was showing good growth.

The latest KPMG Agribusiness Agenda laid out a strong case for taking control of corporate culture and growing a more valuable future for the industry and for New Zealand. Increasing competition makes it the right time now to think deeply about how the primary sector positions itself in the markets of the future.

Stand out agritech exporters include PGG Wrightson, Agriseeds and Canterbury Seed which grow and export seeds globally; Gallagher Group and Tru-Test Group which sell fencing and monitoring systems; Simcro which specialises in drench guns and injectors and works closely with animal health companies; and Waikato Milking Systems.

PGG Wrightson's new perennial ryegrass, available with the AgResearch endophyte for insect re-

sistance, prevents grass staggers in sheep. Gallagher's ring top post reduces tangling and reduces the time spent on moving stock.

New Zealand Merino has added value to the fine wool by contracting growers to supply one or more brand partners – such as active wear company Icebreaker and luxury carpet manufacturer Godfrey Hirst – at a fixed price, generally one to three years in advance.

Tru-Test Group has established a corporate culture which includes embedding Lean principles in its innovation pipeline, and implementing "Voice of the Customer" where teams visit farmers around the world to discuss their challenges and ideas.

Tru-Test produces a range including milk meters, animal weighing and electronic identification, dairy automation, milk cooling and tanks, and electric fencing. The company sells its products in 130 countries and has established subsidiaries in Australia, United States and South America, while the high-tech manufacturing remains in New Zealand.

Fieldays at Mystery Creek traditionally displays a wonderful array of innovation, and last month was no exception. On show were a variety of new products from farm apps to an electric motorbike and the Centrus 84

milking system. Farm apps were naturally a centre of attention.

Daniel Hall decided there had to be a way of finding out whether an electric fence was live without actually touching it. He formed his own company, Danz Zappz, and worked with electro-mechanical consultancy Beta Solutions and mobile applications company Muli Mobile to develop the Fence Detective app – and earned the Vodafone Innovation Technology award at Fieldays.

The app detects the presence of electrical pulses. It works remotely and the smartphone never comes into contact with the electricity source.

Farm Angel, powered by Blackhawk Tracking, is a satellite and cellular system that monitors (quad bike) rider and (tractor) driver behaviour including acceleration, speed and tilting. It also tracks vehicles and routes. Alerts are automatically activated via the smartphone if pre-set limits are breached, such as an accident occurring.

Farm Angel also determines who can operate an all-terrain vehicle with a key-fob or medical wristband that activates the ignition.

Tauranga's Anthony Clyde and Wellington's Daryl Neal, who founded the Utility Bike Company (Ubco), de-

signed and built an all-electric, two-wheel drive farm bike which can handle all terrain conditions.

The Ubco 2X2 weighs 50kg, is powered by a lithium battery, has a load of up to 200kg and travels an estimated range of 100km, with a top speed of 45km/h. It has no clutch or drive chain, eliminating maintenance issues with regular farm bikes.

Pastoral Robotics, founded by Dr Bert Quin and Geoff Bates, has developed a robot called Mini-Me which identifies urine patches after each grazing and immediately applies fertiliser or other products. The machine moves over the paddock in a pre-programmed route, scanning as it goes and making applications where necessary. With further development, the robot is likely to be equipped with a drag chain or small plough and spread manure over twice or three times the normal area.

Bates says the application of GPS, robotic and sensing technologies to manage nutrient applications in a pastoral setting is, as far as he is aware, unprecedented globally.

Tauranga-based Kliptank, which makes an internationally-patented, clip-together HDPE plastic storage tank, developed an aerator stirring technology that allows aeration, entrainment and stirring from the one system, advancing the benefits of a healthy effluent tank.

The Steel Step caught the eyes of the Fieldays judges and won the Locus Research Innovation award. Siegfried Bachler designed his steel step that bolts on to a post instead of building a traditional wooden turnstyle for the fence.

Levin-based Carry-mate won the Best Pitch at Fieldays for its light-weight, durable plastic solution for transporting, deploying and retrieving fence standards. It is mounted on farm vehicles, and can be operated using one hand, allowing the standards and reel to be simultaneously deployed or retrieved. Inventor Doug Harrison says the system improves farmers' efficiency and makes transitioning between different stages of fencing quick and easy.

NZ National Fieldays Society chief executive, Jon Calder, says "the innovations we see continue to impress and amaze. The passion for creating something that will solve real problems for farmers and our ag-industry is exciting and encouraging for the future of NZ agri-tech."

All that's needed is for the inventors to develop a corporate culture and attract vital capital input to turn their bright ideas into global commercial products

New company's diagnostic tool takes guesswork out of mastitis

A newly-established south Auckland company, Farm Medix, is selling thousands of mastitis diagnostic kits and saving farmers plenty of money around the world.

Farm Medix, founded by Natasha Maguire and Leon Spurrell, launched its CheckUp Mastitis Diagnostic tool just over three months ago and has already picked up 70 clients in Australia, the US, Canada, South America and here – including dairy processing and animal health companies and farmers with big herds.

Maguire and Spurrell, who worked for Biofilm Research Laboratories, developed a simple, accurate and low cost diagnostic kit that identifies the bacteria pathogen or bug associated with a case of mastitis.

The kit contains a high-tech petri dish divided into four sections and tests for multiple strains of bacteria



Natasha Maguire and Leon Spurrell's mastitis diagnostic tool has quickly attracted overseas interest.

from one milk sample. Each kit can complete 10 tests.

After winning the Launch NZ and Innovation Den awards at the Fieldays, Farm Medix has had approaches from potential investors and parties wanting to secure distribution rights.

Maguire says standard testing of herds and daily milk supplies gives farmers an indication of their animals' general health but the gap is the lack of information about the cause of the infections.

Rather than guessing, CheckUp is a measurement tool that produces fast results, and the farmers can then work with their vets to establish the right treatments. "Without measurement, farm-side treatment is frustrating," says Maguire. "Some cases respond, some don't and others came back as soon as treatment stops. Since the bug is not known, often the treatment is

a guess, and everyone wants to reduce the use of antibiotics.

"Our tool indicates which cases are likely to respond to treatment, which to give up on, and which do not need intervention – in 20 per cent of cases the cow has already eradicated the pathogen herself," she says.

DairyNZ statistics show mastitis in cows costs the average dairy farmer \$54,500 and the country \$280 million annually in lost milk and herd treatment.

Maguire and Spurrell attended a conference in Texas in January last year and learned their kit was at the global cutting edge of strategic herd management for mastitis.

Because New Zealand is disease-free, Farm Medix can export its diagnostic kits to any parts of the world without restriction. "That's a major advantage for us," says Spurrell.

Livestock chasing \$1b goal

It may seem an uphill task but CEO Wayne McNee tells **Tamsyn Parker** he is pursuing a growth strategy

The dairy price might be in the doldrums but farmer co-operative Livestock Improvement is still pursuing its ambitious goal to get to \$1 billion in revenue by 2025.

Chief executive Wayne McNee has just finished a week touring the country to talk to farmer shareholders about growth plans and how he plans to deliver on them.

"It is a challenging goal," says McNee who admits views on the plan from farmers are mixed. "It would be fair to say there is a range of views from; we love the strategy – a lot of farmers are investing for the long term and have seen difficult times before – to others saying; we don't think it is a good time to invest. They don't think we should be borrowing money."

Launched in February 2014, the co-op wants to increase its revenue from around \$200 million a year to the billion dollars. But to do that it needs to borrow through a term loan for the first time ever – before now it has only ever taken on seasonal debt. And it is talking about going out to farmers with its hand out as well by 2017.

McNee says the business' current growth rate is around 7 per cent per year although it has just done 17.6 per cent in its half year – growth that isn't expected to remain that high for its full year.

To get to the billion it needs to grow at around 15 per cent per annum.

He says this can be done through organic growth, acquisitions,

partnerships and through selling its software and hardware solutions around the world.

It has already made moves in the acquisition space. Last year it snapped up Dairy Automation Ltd and has rolled it together with its Protrack business to create a new wholly owned subsidiary called LIC Automation.

McNee says the new subsidiary will have 50 staff based in one place with the potential to grow to 80 over the next few years. By splitting it off into its own division it is hoped that the business will create more synergies. "We have 850 staff (at LIC). There are a lot internal processes. By splitting it off we hope it will be more innovative and creative."

The automation division includes its Protrack system which tracks individual cows as they come into the milking shed. By reading the cow's tag the system can tell the farmer who the cow is and identify whether it needs to be held back from milking for some reason such as mastitis or treatment for other illnesses.

The system can also identify whether a cow is in heat and ready for insemination and drafts them off for further examination.

Protrack links into LIC's MINDA database – what McNee calls its births, deaths and marriages register.

The division also incorporates its CellSense and YieldSense technologies which allow farmers to monitor the somatic cell count of their animals which can indicate mastitis and monitor milk production levels, fat and



Wayne McNee: looking offshore as well as locally.

protein content and lactose.

It is that technology which McNee is hoping will be attractive globally.

In April LIC signed a partnership arrangement with Dutch firm Lely Group which it hopes will help support global distribution of its inline milk sensors. As part of the deal LIC has bought Lely's New Zealand based Sensortec business which will be incorporated into LIC Automation.

McNee said Lely had a strong reputation for delivering innovative technology systems worldwide and working with the company on re-

search would boost new developments in sensor technology.

The partnership follows LIC's agreement with cow intelligence company SCR Dairy to distribute LIC sensors into Israel, Belarus, Russia, and Turkey.

McNee said it would continue to look for acquisitions both locally and off-shore. "There are a lot of start-ups to look at. They are interesting but have a long way to go before they have a product."

"So we are looking off-shore as well."

But he said the barrier for off-shore acquisitions was higher.

While buying a New Zealand business could be used to provide its New Zealand farmer owners with more products and services, an off-shore business would likely only benefit them through increased revenues and dividends.

As well as distribution of its software LIC is looking to sell more of its hardware offshore.

McNee said hardware was a more competitive market but its advantage lay in the ability to retrofit existing milking sheds.

"In many markets the technology available is expensive and comes with the existing package. But our advantage is that our technology can be retrofitted."

It can cost up to \$1.5 million to replace a whole cow shed. But replacing it with some LIC automation can cost between \$20 to 80,000, he said.

"These are some of the areas where we are looking to get growth."

But he said the growth plans were not without challenges and some farmers had questioned the strategy in light of falling milk prices.

"Yes it is a difficult time for shareholders."

McNee said it depended how long the milk price remains low as to how much of an impact it has on its growth plans.

"Like everybody we will see how long it lasts"

"We have got plans over the next five years, beyond that it's hard to pick the future."

For life on the land, an office in your hand

Get a ruggedised tablet and phone with a protective case on a Red+ Business plan. 10GB phone data, Unlimited talk to std NZ and OZ numbers for \$120 p/mth excl GST, 24 mth term.

Visit us at Fieldays in the Pavilion: PE53

Be a Ready Business

Vodafone
Power to you



Comes with 500MB each month

Agribusiness

Projecting the right image

Massey scientists are exploring technology for better farming reports **Tamsyn Parker**

Imagine being able to pinpoint exactly which part of your farm needs more fertiliser to ensure better grass growth without having to take any soil samples – that's exactly what farmers could do in the future with the use of a new spectral imaging tool.

The \$500,000 device was bought last year by Massey University, partly funded through a Primary Growth Partnership programme between Ravensdown and the Ministry for Primary Industries as part of a project to improve how fertiliser is applied to hill country.

Since then the university has been trialling the aerial imaging on eight farms – five in the North Island and three in the South Island – and is hopeful the technology will soon be available for use by other farmers, agricultural businesses and even councils.

The seven-year programme is expected to generate \$120 million a year in additional export earnings by 2030 and net economic benefits of \$734 million between 2020 and 2050.

Ian Yule, professor of precision agriculture at Massey, said buying the device was a "bit of a leap of faith. When we started, I think I was the only one who thought it would work. People thought it sounded too good to be true."

Yule said the model it had bought was not the "Rolls Royce" of spectral imaging machines but it met the requirements. "We did a lot of ground work and knew the spectral range we would need."

The device is the only one of its type in the Asia Pacific region, although others are used in Europe and America on varying applications including the military. It helped that the company which manufacturers them allowed the university to test it first.

The device is about the size of a printer and weighs around 75kg.

Placed in a small aircraft, it can



Ian Yule says the imaging tool can pinpoint fertiliser needs.

deliver highly detailed images of the land covering 1000 hectares in one hour.

Yule said everything had a spectral signature and the device allowed them to measure different aspects of the soil and plant life. It could also be used on meat to tell if the animal it came from was female or male.

Yule said initially the sensor had to be calibrated and its findings validated through tests undertaken by ground crews. "We have proven the technology works. It can generate new knowledge."

Now it was about working out how to use that information to farm better, he said.

Applying fertiliser through top-dressing is one area where it could make a big difference – by allowing it to be spread at different rates depending on the requirements of the

soil. "Previously you could make really good maps and plans but it would still rely on the pilot manually using a lever."

The new imaging would allow it to be automated, leaving the pilot to just fly the plane.

Yule said he hoped applying the technology to hill country farms would help arrest the country's falling stock rate over the last 30 years – in part caused by farmers not using enough fertiliser.

Yule said there was 8 million hectares of hill country in New Zealand and 55 per cent of it was farmed. There were around 12,000 hill country farms with an average size of 676 hectares.

Farmers typically spent around \$75,000 a year on fertiliser – about \$110 to \$120 per ha.

But analysis showed it should be

more like \$140 per ha, Yule said.

If there is a blanket increase in the amount of fertiliser spread on a farm, then it would cost a lot more. The technology would allow some areas to have more fertiliser and others to have less, boosting potential productivity by 25 per cent.

Yule said once the initial research on the eight farms was complete they would move onto focus farms.

"The whole project is still a number of years away from being completed. This is really the first stage. People are excited about what the technology can offer."

He is hopeful the project will be able to go out to other farms by next year.

Yule said the spectral imaging tool would cost around \$15 per hectare – about 10 per cent of what farmers typically spent on fertiliser.

Approach success by design

Understanding other cultures is key to New Zealand making its food attractive to different markets around the world and to boosting our export earnings, according to a top industrial designer.

Matthijs Siljee, a Dutch professor at Massey University's college of creative arts believes selling more of the same thing won't achieve the Government's goal of tripling the value of food exports by 2025. "Anyone can see it is madness to try and pump out even more milk powder. That is not where the value is going to come from."

Instead he says the country needs to take a design-led approach to developing new food products.

While scientists can figure out different ways to develop a product such as isolating a protein which helps yoghurt taste better. He says it is good product design that will help that product be selected by consumers off a supermarket shelf in Singapore when they are faced by a raft of other choices.



Matthijs Siljee

Siljee says consumers are impacted by every detail – from how it appears on the shelf to what it feels like to unwrap and taste and smell it.

"It's like a fabric you want to feel it and immerse yourself in it."

But Siljee says it's not always easy to nail down what appeals to certain consumers – especially when it comes to other countries. "You cannot make assumptions ... You have to know the culture inside out to know what is wrong or right for a brand."

In New Zealand Siljee says one brand which has got it right is the home brand concept.

"In conversations with people it is seen as crass, dowdy or nasty but that is part of its success. We want to get it plain and straight and cheap. It is a very clever, deliberate type of branding."

Siljee says when it comes to food one recent success is Zespri's special yellow spoon which it sells packaged with its gold Kiwifruit into international markets.

"People buy the fruit and keep the spoon and it provides a semi-reminder. It is designed specially for that fruit and is part of the branding strategy. That is an example of how design works."

Massey is undertaking design work through Open Lab, part of its college of creative arts. One of the areas it is working on is a knife to go with butternut squash sold into the Korean and Asian markets in their off season. Butternut is difficult to cut safely and that is one of the main things that turns consumers off, so work has begun on designing a knife to be sold alongside. Siljee says the best way to learn about a market is to connect with the people who live there. "We need to immerse ourselves with people from those markets."

That's a big challenge when it comes to a place like China which has so many regional language and cultural difference. Siljee says there are no shortcuts. "Nothing is cheap. We have to be a world leader in understanding cultures."

— Tamsyn Parker

Plan to boost food earnings

Tamsyn Parker

A \$16.65 million programme to develop and commercialise new ways to process food could add \$250 million a year to New Zealand's export earnings by 2032 according to its lead scientist.

Massey University professor Richard Archer is heading up the six-year project which is being funded by the Ministry of Business, Innovation and Employment and will involve collaboration from AgResearch, Plant and Food Research, the Riddet Institute, the University of Auckland and the University of Otago.

Archer says the main idea is to find technology which can be used across multiple food groups whether that was dairy, meat, fish or fruit and vegetables.

So far 11 projects have been set up with 10 on the initial priority list.

Archer says the projects range from looking at better ways to get milk from remote locations to remote factories in as good a condition as possible to upgrading lesser quality meat and investigating the drying of fruit and vegetables.

"Currently, much farm gate production leaves New Zealand with only minimal processing, particularly Maori food assets, which are now concentrated in primary production."

He says it is hard to pin-point exactly how much New Zealand earns on its current value-added exports but total agricultural exports were worth \$28 billion a year to the

It is a strength of the university that we have researchers with rich industry experience able to bring such a programme together.

Steve Maharey, Massey Vice-Chancellor

economy. A large proportion of that is dairy and other sectors have been identified such as the wine industry which bought in around \$1 billion a year.

Archer said agricultural exports are growing by around 13 per cent per year but there is still scope to increase that.

Research by Massey University has pointed to an extra \$250 million worth of export income which could be garnered by 2032 through new technology. "We can't guarantee that but we think that is what it could do."

The research is being carried out by six providers and will be overseen by a governance group.

But not all of the projects are expected to come to fruition.

"A project could get stopped if the commercial purpose disappears," Archer says.

That's a big change from the typical model where research can be worked on for years before it ever gets to the commercialisation stage.

"We are going to try and do things in a different way."

"We usually spend years in labs before it is commercialised."

Archer says it is hoped that the first project will be commercialised within two years and would be used as a guide for the others.

"If we can get the first attempt commercialised then we learn the problems really well and that steers the rest of the project."

The programme will be closely linked to industry with around 30 companies already involved.

Archer says those companies will be the first to get their hands on the new technology but he expected others to join the programme.

"We hope to double that number."

Michael Guthrie, managing director of Mainland Poultry, one of the firms signed up to the programme, says it is exactly what the company needs to ensure its products are suitable for new export market opportunities.

"Until now the risk of developing new technology was too great for us to take on our own," Guthrie says.

The programme is closely linked to the New Zealand Food Innovation Network and will make use of the regional product development

centres based in Auckland, Hamilton, Palmerston North, Christchurch and Dunedin.

It utilises and widens the networks of FoodHQ, the Manawatu-centred cluster of agrifood business innovation organisations.

Archer says around 40 per cent of the research will be undertaken in the Palmerston North region.

Plant and Food chief executive Peter Landon-Lane says the large-scale collaborative approach to the research will be the most efficient way for New Zealand to make rapid progress.

AgResearch research director Warren McNabb says it will create a high level of engagement between an extremely large cross-section of the New Zealand food industry.

Massey Vice-Chancellor Steve Maharey says the programme is a great example of aligning research capability with industry need and national necessity.

"It is a strength of the university that we have researchers with rich industry experience able to bring such a programme together."

The new research programme is designed to sit alongside existing funded programmes, including the High-Value Nutrition national science challenge, the industry-targeted Primary Growth Partnerships and the BioResource Processing Alliance which focuses on returning value from various biological product streams that would otherwise find only low-value outlets or go to waste.

The advantages of good genes

Gene-mappers say the information they are producing could add \$300 million to the dairy industry. **Tamsyn Parker** reports

Richard Spelman says it's unlikely Livestock Improvement Corporation would have embarked on a journey to map the genomes of New Zealand's national dairy herd without a partnership agreement and funding from the Government.

"When we put the bid in, at the time it was quite speculative research," says LIC's chief scientist. "The cost of sequencing was a quarter of a million to \$500,000 per animal."

"We thought we would sequence maybe 20 to 30 animals."

But nearly five years later Spelman and his team have sequenced 800 animals with the cost coming down to \$1000 to \$3000 an animal and are well on their way to isolating enough variants to make a commercial difference to New Zealand's dairy production.

"Our job is to understand which variations impact on traits of economic performance. A lot of it has been gathering data up until now."

"We needed a large number of observations to work out if the data was important. We have got there in the last three to six months. Now we are working out what is important."

One variation identified has been for tropical cows – cows which can stand up to higher temperatures.

It is already being worked into the breeding programme and is expected to be commercialised in around three years.

"Then we can take that to international markets like South America and Southeast Asia."

The scientists have also identified a genome which affects whether a cow will carry a calf to term.

It requires both the bull and the cow to have the identified genes.

"The nice thing is with the technology we can genotype all the bulls. Because we have over 90 per cent of the animals on a national database we can estimate the probability of a cow being a carrier of the genome."

When the AB tester turns up they can work out whether a bull and a cow should be mated.

It can then be bred out of the herd.

Spelman said it was now in the process of integrating milk production into its genome selection path.

For a single variation it takes around three to five years to get to the commercialisation stage.

Every year LIC buys 250 bulls and puts them through testing. To look at lactation, fertility and a cow's likelihood of getting mastitis they have to look at the daughters of those bulls.

Before they even select the 250

they test 2000 bulls to pick the best based on their genomes.

Spelman says it is believed that genetic improvement could add \$300 million to the dairy industry.

"If we can increase it by another 10 per cent that's another \$20 to 30 million."

LIC has put up \$1.5 million per year for the seven programme which is being matched by the government through a primary growth partnership with the Ministry for Primary Industries.

"The PGP has been amazing we wouldn't have gone down this path without funding."

Spelman says the gains on the farm would be incremental.

"On a year-on-year comparison you probably won't see differences but when you compare 1990s cows to present day cows you can see an absolute difference in the animals."

Spelman said it was like comparing it to a child who grew every day but whose growth wasn't noticeable unless you hadn't seen them in a while.

He says the seven-year project is just the beginning.

"We are in the process of looking at areas within the business that would benefit from further research. We may contemplate whether another PGP will be appropriate."



Scientist Richard Spelman and his team have partnered with the Government on the gene-mapping project.

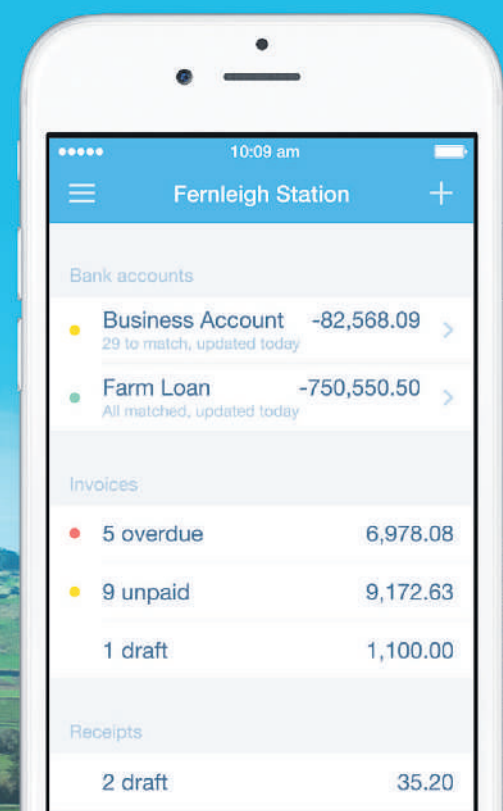
Xero connects rural business

Xero is online accounting software that connects farmers with their finances. It's simple and easy to use from anywhere, at any time. Get out of the office and spend more time on the land.

Try it now for free at xero.com/farming



Beautiful accounting software



Agribusiness

New ways to feed the world

Can agriculture save the world before destroying it, asks **Steven Carden**

At a recent agriculture technology conference I attended in San Francisco, Tom Vilsack, US Secretary of Agriculture, dropped a bombshell: to meet the needs of a much bigger population, without harming the environment, world agriculture will need to see more change in the next 20 years than has occurred in the past 10,000.

How can we produce much more food with less land and fewer inputs? Or, to put it another way, how can agriculture save the world before destroying it? Well, unless the Western world is prepared to move to an almost exclusively plant-based diet, our only hope is AgTech.

AgTech is a new class of companies focused on innovations and technologies designed to solve particular agricultural problems. This emerging asset class is attracting lots of Silicon Valley interest from companies like Google and IBM because of two phenomenon.

The first is a growing awareness that humanity faces an impossible dilemma: it can only feed 10 billion mouths in 2050 by putting the environ-



Farming is in for a technological revolution. If New Zealand can lead the development and use of these technologies, we stand to prosper.

Steven Carden

ment at severe risk in the process. For this reason, agriculture's future is being able to do dramatically more on the farm, but adding dramatically less. Less fertiliser. Fewer pesticides and herbicides. Less water. Fewer people.

The second is an emerging sense that the solution to the dilemma could be found in AgTech. AgTech could supercharge what has been happening in agriculture globally for the past 50 years, introducing science and technologies that will help farmers produce

much more with a lot less.

Based on what I saw at the conference, the array of AgTech coming down the pipeline is staggering.

The AgTech phenomenon is driven by a convergence of technology trends that will upend farming.

The first trend is the growing application of Big Data, fuelled by the Internet of Things, which is taking farming from gut-instinct to data-driven insight. It's what we at Landcorp describe as "DecisionAg". This is bridg-

ing the gap between an animal or plant's genetic potential and its actual performance.

A leading company in this space at the conference was FarmLink, which analyses weather, soil, topography and crop data from 500 million "microfields" across the US. This creates 600 billion data elements used to benchmark the performance of corn, soy and wheat fields across the country. It allows farmers to compare the performance of their land at the microfield level, then apply specific solutions tailored to the requirements of that specific patch of dirt. DecisionAg is delivering predictive insights on when best to plant and graze pasture.

This technology and data processing capability is ensuring farmers apply the exact amount of nutrients or water to land, and the precise amount and type of feed to animals, to optimise their performance, and, more importantly, to dramatically cut the amount of waste from the farm.

In the resource-scarce, environmentally-fragile world of the future, this is an exciting field called 'PrecisionAg'.

An example is mOasis, which has developed a polymer that helps soil store water, releasing the moisture only when the plant needs it.

Finally, the arrival of artificial intelligence and advanced robotics is creating new waves of automation technologies. From self-driving harvesting and mustering equipment to advanced

robotic milking, the repetitive tasks in our farming system today will be automated. Just as they have been in many other industries over the past 20 years, the type of jobs farming offers, and the sorts of people we employ, will change dramatically over the next two decades.

Naturally these big changes create a range of exciting opportunities for New Zealand. Already we can see that "how we farm" is as important now as "what we farm". We can simultaneously improve our productivity while reducing our environmental impact and our high accident rate.

Even more exciting is the opportunity for New Zealand to build another leg to our economy. Given our global reputation as agriculturalists, and the strong agriculture science base, New Zealand is well positioned to build a leading AgTech sector helping tackle the world's unique farming challenges. High tech, lots of IP, high value. All the things we've been asked to produce in farming.

But we also risk missing the boat. Because there are other countries getting a leap on us. And the most significant threat is coming from a very unlikely place – Israel. With 50 per cent of its land mass desert, and with only 20 per cent capable of arable farming, Israel doesn't immediately spring to mind as an agriculture powerhouse. But having already solved how to produce 95 per cent of its food needs, it is now the leading AgTech country in the world.

Describing itself as the "Start-up Nation", Israel operates on the premise that necessity is the mother of invention. It doesn't have the luxury of New Zealand's gentle temperate climate. So it commercialises science and new technologies (from places like New Zealand) designed to address the challenges of a world with much less water and land available for food production.

For example, Israeli companies like CropX are using New Zealand-developed technology to commercialise water-monitoring sensors in the large US market, currently reeling from California's worst drought in recorded history.

The lesson from the AgTech conference in San Francisco is that farming is in for a technological revolution. If New Zealand can lead the development and use of these technologies, we stand to prosper. However, we also could be left well behind.

● Steven Carden is CEO of Landcorp Farming, NZ's largest farming company.

Market-led the modern Landcorp buzzword

Tamsyn Parker

Landcorp boss Steven Carden is taking a two-pronged approach to developing and building on New Zealand's largest corporate farmer.

The state-owned enterprise which owns or manages 140 dairy, beef, sheep and deer farms has been undergoing a refresh in the last two years since Carden and chairwoman Traci Houppapa came on board.

Carden says its focus has been on two areas: overhauling its approach to farming and trying to be more market led by looking beyond the farm gate to what consumers want.

Landcorp has more than 600 permanent employees most of whom work on farms with around 70 staff

based in its Wellington head office.

Part of its investment into people had been a safety drive. In early 2014 it launched a Play it Safe campaign to talk to staff about the need for safer farm practices.

Fronted by former All Black and farmer Richard Loe it has prompted an increase in reported incidences while reducing the number of lost work days due to injury.

Its other 'on farm' approach has been a drive towards sustainable farming practices.

The plans lay out how management need to achieve sustainability for both environmental and productive purposes and cover stocking rates, nutrient applications, scrub regeneration and forestry planning.

It is designed to plug directly into boosting production rates to a point where it supplies 5 per cent of the country's total meat and fibre exports as well as having a focus on targeting niche markets. As part of this the company launched a new brand earlier this year called Pamu – meaning "to farm" in Maori.

Carden says increasing the volume of what New Zealand produced was not enough and the branding was part of Landcorp's strategy to work with its partners to connect with customers in niche high end markets.

While Landcorp's direct customers were all local – it supplied milk to Fonterra and Synlait and dealt with meat processors Silver Fern Farms – ultimately its lamb was sold into the

UK, its beef went to the US and milk was distributed around the world.

Carden said wool and meat were areas it felt it could offer something different. "We will look at those areas where we can develop an advantage."

One area is sheep milk.

Carden said sheep milk had a higher level of consumption globally than cow's milk but most of it was done within domestic markets such as the Middle East. "It's not really exported so there are opportunities to create an export market."

Landcorp has formed a joint venture with SLC to set up a marketing company called Spring Sheep Dairy and hopes to sell milk powder, probiotic yoghurt and ice cream into Taiwan and Korea next year.

It's time for a fresh debate on GMOs

Will Barker

New Zealand urgently needs to have an informed discussion on new science technologies – and genetically modified organisms (GMO) and advanced gene editing technology are part of that discussion.

Colourful rhetoric about keeping New Zealand GMO-free should be balanced with what is happening globally and the advances in science since New Zealand introduced the Hazardous Substances and New Organisms Act (HSNO) in 1996.

If New Zealand doesn't use science-based decision-making about adopting these advanced techniques, there will be economic ramifications.

Treasury secretary Gabriel Makhoul made a pro-innovation speech about advanced gene editing technologies at last month's Fieldays. He pointed out that New Zealand's current system denied any choice, whereas its competitors had that choice. He also challenged New Zealand's approach to risk.

Federated Farmers of New Zea-

land has similarly voiced its concern. NZBIO, representing the wider biotech sector including agri-science, believes now is the time for fresh debate.

Humans have been modifying plant and animal genomes to achieve desirable outcomes for thousands of years. Every time we choose to selectively breed the "best" (strongest, tallest, sweetest, most colourful) we usurp natural selection, exerting pressure on the evolutionary process to suit our needs.

Advanced gene editing technologies provide fast, cost-effective and safe methods for achieving the same desired outcomes in a precise, predictable and safe manner.

The benefits of these technologies can be applied across a broad spectrum of industries with clear and tangible benefits. These benefits can include eradication of deadly diseases, addressing climate change and water quality issues, reducing the world's reliance on oil and, significantly, feeding the world through a time of unprecedented population growth.

Many scientists have scrutinised



the development and introduction of these advanced technologies to assess efficacy and safety. A massive 2010 crop-based study by the European Commission spanning 25 years and comprising data from more than 500 independent research groups concluded technologies using GMO were not more risky than conventional plant breeding technologies.

These sentiments have been validated by independent groups across the globe, including a current,

New Zealanders should be presented with all the facts to enable robust discussion on the use of gene editing technologies.

Will Barker

comprehensive and independent study by the House of Commons Science and Technology Committee.

These technologies are already being widely used throughout the world and the benefits are increasingly visible. In 2013, 18 million farmers from 27 different countries grew genetically modified crops over a total of 175 million hectares (more than 12 per cent of the world's arable land).

Since our own use of these technologies is limited by overly restric-

tive legislation and unnecessary local council interference, the potential for New Zealand remains speculative. However, a good indicator lies in two economic analyses conducted as part of separate field trial applications (Pinus radiata and rye grass), which estimated the combined benefits for these two species alone were up to \$2 billion a year.

New Zealand relies heavily on primary industry and while others are gaining competitive advantage from adopting new technologies, we will fall behind.

New Zealanders should be presented with all the facts to enable robust discussion on the use of gene editing technologies. The country must also address deficiencies in the way government agencies and local councils deal with the regulation of these technologies.

We need a regulatory framework that enables a risk assessment based on scientific fact, such that we can choose to enjoy the benefits of new innovations.

● Dr Will Barker is a patent attorney and chief executive NZBIO.

The value-added approach

Three key strategic disciplines will create more product value, writes **Hamish Gow**

There is a lot of confusion around the call to take a more value-added approach to the marketing of agricultural products.

What does added value really mean? Are we not already adding value to our products? How do we evaluate value?

Discussions about the restructuring of the dairy and meat industries have shown the need for a simple framework to understand and evaluate different firms' strategic market position and how they create value.

Without a simple conceptual model that everyone understands, people talk at cross purposes and meetings end with more confusion and frustration than when they began.

So how should we start to understand and evaluate the strategic market positioning of a firm and how it creates value?

After much trial and error, I've found that Treacy and Wiersema's Value Disciplines framework provides some good guidance.

They argue there are three core strategic disciplines that companies can follow for creating value: operational excellence, product leadership and customer intimacy.

For companies to add value to their products in a sustainable way, they need to excel at one of these value disciplines with strong support from the others.

Here's some examples.

The Talleys Group is one New



Zealand agribusiness that has adopted an operational excellence approach to value creation. All its divisions are known for being competitive price leaders that deliver standardised products with outstanding efficiency.

They create value by stripping out the supply chain fat, leveraging competitive market-based procurement processes, delivering to exact specification, and only investing in what is absolutely necessary.

As a result of their model, they can deliver fair and competitive market

prices to farmers based on standard market relationships. This clear and simple marketing relationship requires no capital investment by farmers and allows them to focus their scarce resources (land, time and capital) on what they know and can control best – farming.

Zespri is an exemplar of a product leadership approach to value creation. Its business model, brand and market positioning strategy is tightly aligned to two key products: green and gold kiwifruit.

To ensure that they can create

For companies to add value to their products in a sustainable way, they need to excel at one of these value disciplines with strong support from the others.

Hamish Gow

sustainable value, Zespri has undertaken a channel captain's role, co-ordinating research and development, production, quality assurance, supply chain management, category management, distribution and branding to ensure that everyone's programmes (from farmer to retailer) are aligned to deliver consumers a superior branded product that always performs to expectations.

Although the model has come under attack from some individuals, I would argue that the successful transition to SunGold after the arrival of the PSA disease in New Zealand positively reinforces the continued use of this value discipline approach for the kiwifruit industry.

Then there is John Brakenridge and the New Zealand Merino Company who have taken a customer intimacy approach to create value. The company has created a two-sided platform that links individual merino growers, such as Jack and Kate Cocks at Mt Nicholas Station, directly with branded clothing retailers and manufacturers like Icebreaker.

The platform solution offers each

brand a customised suite of programmes that can be packaged in a win-win manner to assist each brand to deliver their desired outcomes for their target consumers. The farmer is no longer just a merino grower, but a brand partner.

For many growers this has been a significant mindset change as their long-term success is now tightly connected with their brand partner's success. This is a value discipline alignment that some farmers want and others do not. But if you want to play in this space there is no halfway house – it's all in, or nothing.

So what does this all mean?

As a member of any agrifood value chain, you need to know the strategic value discipline of your marketing channel. Does it align with the strategic market positioning of your enterprise? If not, you will need to find a new marketing channel that does.

On an industry level, some sectors are lucky because their leadership have strategically positioned them with the appropriate value discipline and then built an appropriate operational structure around it.

However other sectors are not so lucky, with groups still fighting over how to make the wrong thing right by restructuring, rather than doing the right thing right.

That means getting the strategic market positioning and value discipline correct, then allowing the structure to follow.

● Hamish Gow is Professor of Agribusiness at Massey University.

INVENTIVE
BY NATURE IN A
FAST CHANGING
WORLD

Landcorp has for decades played an important part in New Zealand's proud farming history - but what excites us most is what we can achieve in the future.

We're applying our vast experience to transform this great industry even further; working with our partners to develop and implement brave new practices and innovations that will meet the demands of our fast changing world.

And together, we're shaping opportunities that will sustain New Zealand and generations of farmers to come.

LANDCORP
NEW ZEALAND

For more on our story visit landcorp.co.nz

LANDCORP FARMING LIMITED

Agribusiness

Consumer-ready meat on rise

Frozen carcasses being dropped into the holds of ships bound for London's Smithfield markets has been the staple image of the New Zealand meat industry for much of its history.

Listening to the industry's critics, one could be forgiven for thinking not much has changed since the first shipment of frozen sheep meat left Port Chalmers in 1882.

In reality the frozen carcass trade is a relic (see graphic).

Today's meat companies sell as many cuts as there are in markets of Asia, Europe and North America, and just 6 per cent of New Zealand's meat exports are still in frozen carcass form.

But is it enough? The recent freefall in dairy prices can only be increasing the pressure on the meat industry to play a bigger part in the Government's goal for a doubling of New Zealand's agricultural exports by 2025.

More pressingly for those running the meat companies is renewed agitation among farmers for a shake-up of the industry after years of middling returns and declining sheep numbers, which have heaped further stress on processors' bottom lines.

Leading the angry mob is Ohakune sheep and beef farmer John McCarthy who heads Meat Industry Excellence, the latest in a long line of farmer-led industry reform groups.

McCarthy says farmers have played their part in lifting the sector's productivity through genetic improvements to breeding stock which have boosted lambing percentages 20 per cent since 1990 and lamb weights by 25 per cent.

"Farmers have basically kept up production, but we are like a mouse on a wheel and we cannot keep propping up the companies."

McCarthy says for returns to get on a sustainable footing, it is up to exporters to add more value to the animals sent to them for processing.

The country's largest meat exporter, Dunedin-based Silver Fern Farms, has developed consumer-ready meat packs featuring the cooperative's distinctive black and white livery.

First trialled on New Zealand supermarket shelves, these are now being rolled out in a range of overseas markets.

Silver Fern trumpeted its success in New Zealand's biggest sheep meat market, China, by using social media giant Alibaba's Tmall online store to sell to smart phone users in Shanghai eager for English-labelled and imported meat in place of potentially tainted local alternatives.

Silver Fern's chairman, Rob Hewett – a South Otago sheep and beef farmer – says this new set of customers is the beginning of a valuable counterweight to the main trade with China in relatively unprocessed or manufacturing-grade meat, has produced respectable returns for the New Zealand meat industry in recent years.

"That is a good example of transitioning from commodity to consumer-led ... it is a challenge when it is very cost effective to export a carcass.

"We are currently sitting at 5 per cent of revenue generated by value-added product. We have a goal of 10 per cent by 2017/18 and ultimately 25 per cent, but that will be more long term because you need more markets to put it into," says Hewett.

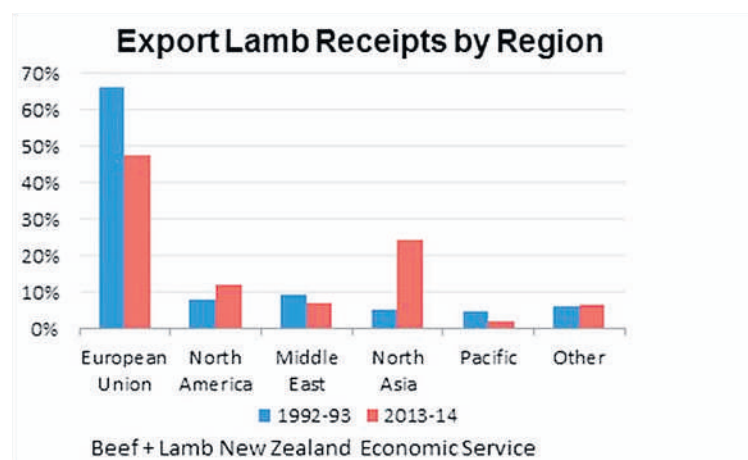
Around \$3-\$4 million annually – out of total annual revenue of more than \$2 billion – is being invested in developing the brands.

Hewett says low profitability has hampered more spending, although the hand-brake is also being applied deliberately. "If we go and market something that actually doesn't turn the consumer on, all they will see is an expensive piece of meat sitting in the chiller that they are never going to buy and are probably turned off the brand as well. That is why it is really important to take the time to understand the market," he says.

Industry leaders are at loggerheads about whether processors are doing enough to add value to meat exports, but there are signs of progress, reports **Nigel Stirling**



John McCarthy says farmers have lifted production but cannot go on "propping up the companies".



Those who have been in the simple keep costs down model ... it hasn't been too bad. They have survived.

Graham Harrison

McCarthy, however, believes the "destructively competitive" New Zealand meat industry is undermining companies' ability to fund more substantial value-added strategies.

"Because company A, B or C put less into the branding, they can go along to the end user – whether it be the wholesaler or the supermarket – and say 'here is the same product, it just hasn't got the package but we will give it to you cheaper'."

Only by consolidating the meat industry's major players – starting with the two South Island co-operatives Silver Fern and Invercargill-based Alliance – will such behaviour be brought to heel.

On top of that, the closure of under-utilised meat plants, and McCarthy – backed by findings from global business consultants GHD and presented in a March report Pathways to Long-term Sustainability – says the industry would reap a \$400 million gain within five years – either to be paid to farmers in higher prices or retained by the companies to boost investment.

At the other end of the scale, Sir Graeme Harrison, founder and chairman of the industry's third-largest player, ANZCO, believes the primary sector is often unfairly maligned by those who say it does not do enough to add value to the raw materials.

Commodities like milk powder or grinding beef are intermediate goods and by definition have value added to them by processing companies prior to export.

"There is actually quite a lot of value that is added. There are a lot of myths about this," he says.

Another useful truism to keep in mind when talking about adding value is that in further processing a raw material cost is also being added, says Harrison.

He says adding cost in the face of a persistently over-valued exchange rate, and with trade barriers remaining

in place was not necessarily smart business. China has paid good prices for basic carcass cuts.

"Those who have been in the simple keep costs down model ... it hasn't been too bad. They have survived."

Harrison says with the exchange rate falling, and the potential for tariff and non-tariff barriers to come down as a result of trade agreements like the Trans Pacific Partnership, the balance again could be tilted to adding more value in the meat industry.

Industry sources estimate as much as 30 per cent of ANZCO's \$1.3 billion turnover could be classed as coming from value-added activities, ranging from its 30,000-head Five Star feedlot near Ashburton to restaurants in Singapore and Tokyo selling its own branded meat cuts.

It would be easy to attribute ANZCO's success since being bought out of New Zealand Meat Board ownership in the mid-1980s to the financial backing of Japanese food conglomerates Itoham, and until recently Nissui.

Harrison says of more importance was dedication to building relationships over a long period at all levels of the offshore meat supply chain – something he says has been neglected by New Zealand rivals' more "transactional" approach to relationships with importers and distributors.

Unusually, ANZCO in some cases owned its overseas distributors to maintain good quality relationships with customers – the next step in the supply chain.

"Too often in New Zealand people judge things on a retail relationship. That is the visible bit but in reality most of the country's products are intermediate products that have to be processed into a final form," says Harrison.

● *Nigel Stirling is a farmer, and agribusiness and trade journalist based in South Otago.*

Funding scarce for new projects

Challenges faced by a major meat industry player of a previous era in pursuing its branded strategy will sound familiar for those attempting the same today, writes **Nigel Stirling**

It is a decade-and-a-half since Hastings-based Richmond rolled out its "freezing company-to-food company" plan. But today the meat industry players are facing similar challenges in pursuing a brand strategy.

Richmond's chairman and Central Hawke's Bay farmer Sam Robinson says the trend downwards in prices for a range commodities since the 1970s made the change in direction inevitable for the 100-year old company.

"We knew if we remained in commodities we were going to be going downhill," Robinson says.

As in the meat industry of today, and despite Richmond's annual turnover at the time of more than \$1.5 billion, capital for new projects was scarce.

Several million dollars was found for developing a brand, more elaborate packaging and in-market presentations and customer support in shops. Investment in new cutting facilities at its Takapau plant in Central Hawke's Bay also complemented the strategy.

Then Richmond chief executive John Loughlin says one of the immediate – and unexpected – pay-offs was an improvement in the quality of the meat cuts produced by the workers in the company's processing plants.

"I saw a lot more pride in boning rooms after that. People took a lot more pride in what they were doing as opposed to just carrying out a repetitive task in a mindless sort of way," he says.

Persuading customers to pay for the value the company felt it was creating was more problematic.

"For most existing customers there was price resistance and that emphasised to me that we were working with middlemen rather than end



Chef Anna Hansen preparing Richmond products at a demonstration in 2001.



When you have a commodity downturn it is the quality that always sells ... anything of lesser quality then you can forget it, mate.

John Loughlin

users," Loughlin says.

"People liked it, saw it as useful, but looking back my sense is that there were other steps that were required if we were to crystallise full value out of it."

British supermarkets – which tended to bury supplier brands with house labels – were, in particular, a hard nut to crack. "They have got to have something that underwrites the premium to their consumers. That is the key for anyone trying to participate in those value chains – giving them something that is reliable and distinct in some way," Loughlin says.

He left Richmond in 2002 shortly before it was taken over following a long and bitter battle with Dunedin-based PPCS (now Silver Fern Farms), and was unable to see the strategy through. Since then Loughlin has taken on directorships with kiwifruit marketer Zespri and niche meat marketer FirstLight among others.

With them came further insight into how a branded strategy can be used to extract more value from customers, Loughlin says.

"Typically they are looking for quality which has got to be first-rate and really importantly they are looking for absolute reliability of supply."

Loughlin says farmers' ability to negotiate the vagaries of climate and pestilence to supply livestock on time and to specification is all important.

"Timing becomes really important when you are dealing with chilled meat because you cannot use inventory as a buffer ... you basically have to run a just-in-time supply chain rather than be a receiver of whatever stock whenever."

"In order to really get value you have got to have your supply chain really sorted," he says.

Robinson believes Richmond was on the right track despite the recovery in prices for agricultural commodities during the 2000s and 2010s. "When you have a commodity downturn it is the quality that always sells ... anything of lesser quality then you can forget it, mate. It's payback time," he says.

Fresh moves to get Alliance with Silver Fern

Nigel Stirling

Farmers have been assured that Silver Fern Farms' plans to raise up to \$100 million in new equity will not threaten its status as a co-operative.

Silver Fern's chairman Rob Hewett says "we have talked about \$100 million. [But] It is not a fixed sum. It is a line in the sand in terms of what we have aspirations for. We want to be a co-operative at the end of this."

Struggling under a mountain of debt, Dunedin-based meat processor Silver Fern earlier this year enlisted the help of merchant bankers Goldman Sachs to come up with a plan to recapitalise the \$2 billion turnover business.

The move has unsettled some farmers who fear it will undermine farmer control and open up A previous attempt in 2008 to raise capital from farmer shareholders fell woefully short of its intended target, and it had been assumed that any new equity would have to come from outside the co-operative. And given the tepid reception to previous suggestions to consolidate the meat industry's domestic players, it had been further assumed that any new capital would come from offshore – most probably from Asia, North or Latin America.

Meat Industry Excellence spokesman John McCarthy says a survey conducted by his group showed farmers did not support the industry moving into foreign hands.

"There is no doubt that Silver Fern is short of capital. Maybe a foreign investor would alleviate that in the short term but you only have to look



We have talked about \$100 million. [But] It is not a fixed sum. It is a line in the sand in terms of what we have aspirations for.

Rob Hewett

what is happening in Australia to know what foreign control would look like," he says.

According to figures from Beef and Lamb NZ, the average return for Australian chilled lamb exports was 24 per cent below those for the same cuts of New Zealand lamb last year.

McCarthy says bringing a foreigner on to the Silver Fern share register would "probably take the legs out" from Meat Industry Excellence's proposal to combine the co-operative with its Invercargill-based rival Alliance Group.

Meat Industry Excellence had com-

missioned research from independent business consultants that showed such a merger would create annual gains of \$100 million, costs saved from closing under-utilised meat plants and other efficiencies.

"We know that if the co-operatives can put a proposal to farmers that will offer a renewed and reinvigorated model around the principles of committed supply, transparency, and scale, we think that farmers will buy into that as an alternative to bringing in foreign capital," says McCarthy.

With Silver Fern due to report back

on its recapitalisation plans at the end of the month, several shareholders connected to Meat Industry Excellence succeeded in forcing the cooperative to hold a special meeting.

Alliance shareholders have also set about gaining the 5 per cent required for a meeting to discuss identical resolutions. Both resolutions call on Alliance and Silver Fern's respective boards to disclose at the meetings their long-term plans for their respective businesses, and that independent analysis be carried out on the merits of amalgamating the two.

Northern Southland farmer Jeff Grant, a former National MP and producer board veteran, was one of two shareholders to put his name to the Alliance resolution.

Grant says he is not necessarily in agreement with all of Meat Industry Excellence's ideas for industry reform or even on the need for a full merger of the two co-operatives. He says the resolution was aimed at bringing into the open as much information as possible on the merits of a closer collaboration. That could include a full merger or merely working together more closely together in one of the three main areas in which they compete – livestock procurement, processing and marketing. "I literally do not know if there is \$30 million to save in processing or \$100 million, or \$30 million in marketing or \$100m ... I have no idea," says Grant.

"Having done all that they come back and say 'well actually there is no real benefit and we should continue until the last man is standing and see what comes of that' then at least as a landowner I can make a more informed choice about what I do with my farm."

Alliance chairman Murray Taggart has previously said the co-operative is prepared to look at a merger if it could be shown to be commercially viable, but he had yet to see evidence that it would be. He has said plant closures from a merger could increase the time taken for stock to be processed and potentially leave farmers stranded with animals they did not want in the event of a drought.

Agribusiness

More than just the sheep's back



Sheep milk products may become a Holy Grail as the agricultural industry continues to diversify, writes **Tim McCready**

Dairy diversification is a very New Zealand preoccupation, and with good reason. Dairy prices are not becoming any more predictable, an uncertainty that feeds constant rhetoric about the need to diversify away from dairy.

It is true that diversification into technology and intellectual property exports offers New Zealand an exciting future, but it overlooks the potential for diversification within dairy. This can offer New Zealand significant opportunity, new markets and potentially less environmental damage.

Though dairy is still dominated by industry giants, this has not crowded out smaller innovative players. The "alternative dairy" industry has already had success in New Zealand.

Hamilton-based Dairy Goat Co-operative developed the world's first goat milk-based infant products in 1988. Focusing only on the premium market, Dairy Goat's turnover in 2014 exceeded \$150 million. They show no signs of slowing, with a \$70 million spray dryer opening last year.

Auckland-based health product provider New Image Group has partnered with Oete Farms, and plans to increase goat milk products, particularly due to a strong response from China, Southeast Asia and the Middle East. Even Hawke's Bay's regional economic development agency is spearheading a project to capture the value chain for the region's goat industry – from breeding through to processing and exporting.

Yet it is New Zealand's sheep that may provide the next exciting opportunity for diversification within the dairy industry.

The global market for sheep dairy is large and growing, driven largely by health, tradition, and fashion. Sheep milk has considerably more milk solids than cow's milk, almost double the protein, more calcium, high levels of key vitamins, and a creamier texture. It is also reported to be more easily digested than cow's milk, making it attractive to the Asian market.

The New Zealand government has recognised this potential. The Ministry of Business, Innovation & Employment, tasked with helping businesses to become more productive and internationally competitive, is running a six-year programme to boost exports of New Zealand's emerging dairy sheep industry.

Their research, involving AgResearch scientists from across New Zealand, aims to grow our dairy sheep industry to become an international leader by better understanding sheep milk composition and function, boosting production and value, and ensuring the environmental footprint of the industry is sustainable.

New Zealand's dairy sheep industry is already reasonably established, with five commercial operations, but there are signs it can expand and innovate further still.

AntaraAg, New Zealand's largest producer, has around 20,000 stock units and produces cheese and milk powder, mostly for export. Earlier this year AntaraAg's predecessor, Blue River Dairy, sold its processing plant and brand to Chinese company Blueriver Nutrition HK – a necessary step for expansion into Asia after a year of unsuccessful negotiation to have Blue River Dairy's infant formula certified in China.

On top of this, New Zealand's sixth commercial sheep dairy operation was announced last month. Spring Sheep Dairy is a 50/50 partnership of

SLC Group and State-owned enterprise Landcorp, and has ambitions to lead this field.

The partners aim to make Spring Sheep a leading dairy operation in terms of innovation, on-farm best practice, sustainability, product safety and quality, and product and brand development.

Landcorp is one of New Zealand's leading agribusiness organisations and aims to improve the productivity, profitability, and sustainability of farming. Besides holding New Zealand's largest dairy cow herd, it is also considered a world leader in sheep farming, genetics and research.

SLC Group is a boutique investment company that provides strategic support to turn New Zealand's small and medium enterprises into brands that are attractive to a global market and to multinationals, with particular expertise in selling high quality New Zealand products into Asia.

The global market for sheep dairy is large and growing, driven largely by health, tradition, and fashion.

Spring Sheep's initial operation will be based on 400ha of farmland at Reporoa in the Bay of Plenty. They are converting the farm to milk 3000 East Friesian ewes and ultimately expect to milk 3500 sheep and produce one million litres of milk annually.

Though sheep milk is typically associated with feta, Spring Sheep sees this as a European dominated product and not maximising New Zealand's added value potential. Spring Sheep is also steering clear of infant formula, which has historically been difficult to capture value from. Instead, they expect to start with ice cream, with the aim to expand their product range into senior and sport nutrition products. They will initially target Taiwan and Korea.

Lucy Griffiths, a 2014 New Zealand Nuffield scholar, spent a significant amount of time last year travelling to meet and work with sheep milk farmers around the world, and has arguably become one of New Zealand's leaders in the industry.

Her report provides a business plan for New Zealand sheep dairy to become a billion dollar industry in 10 years' time.

Griffiths can see the sheep industry offering New Zealand massive opportunity. "When I met with leading industry experts in the Middle East, Afimilk, they pointed out that the return on investment for sheep dairy is five years on average, versus 20 years for dairy cows. Sheep dairy could also provide a more viable return for the land and reduce the environmental impact at the same time."

But Griffiths noted: "If New Zealand wants to position itself as a leader, we must be market-led and offer a point of difference from other large global producers."

● *Tim McCready is Director of Innovation & Business Development for NZ INC. He has worked in the public and private sector in New Zealand and offshore growing NZ businesses globally.*

Sheep milking may be the next exciting diversification for dairy.

I AM
STUDYING
AGRICULTURE
I AM AN
EXPLORER

APPLY
NOW

The great unknown. It's out there and waiting to be found. So if trailblazing gets you excited, then come and study agriculture, agribusiness and food at Massey, New Zealand's #1 university for agriculture.

Call 0800 MASSEY or visit massey.ac.nz/ag



**MASSEY
UNIVERSITY**
TE KUNENGA KI PŪREHUROA

UNIVERSITY OF NEW ZEALAND

THE ENGINE
OF THE NEW
NEW ZEALAND



Spreadsheets in the cloud

Technology firm Xero is moving in and providing online support for farmers, writes **Bill Bennett**

When Xero wanted to test whether its successful accounting software-as-a-service could extend to vertical markets, it didn't look far. Ben Richmond, the company's rural strategy lead and head of New Zealand sales, says farming was the obvious choice for a trial run.

"We chose farming because we're New Zealanders. It's an industry that has scale here and it is the key to New Zealand. We wanted to collaborate with the entire industry that means the banks, our rural accounting partners, the big companies serving the rural sector and industry bodies. Farming is something many of us at Xero understand," he says.

Richmond is right about the last point, he comes from a farming family and started his career in livestock accounting.

Richmond says the decision also squares with Xero founder Rod Drury's idea of using New Zealand as a pilot market to explore ideas before scaling them up and exporting them to the rest of the world.

"We started by asking what an online farm looks like. The we developed a blueprint showing what Xero can do. We used our partnership model to find a good specialist farming software partner, Figured, to work with and added what it can do to the blueprint," he says.

Xero's Farming in the Cloud service launched a year ago at the 2014 National Fieldays. Richmond says since then Xero's rural accounting partners have seen an annual subscription growth rate of 120 percent. "There are some 4000 rural entities using our platform. They're not just farms, we see agribusinesses, shearers and other contractors.

"We also seen more accounting partners move to Xero because of the strong rural solution and we've done some big deals with banks, including ASB, operating in the rural sector. Historically big companies didn't co-operate. That's changed, now they're discovering you can do more for their industries by forming partnerships."

One aspect of these partnerships means companies serving the rural sector, like PGG Wrightson and RDI can integrate directly with a farmer's Xero account. A farm order appears in the books immediately.

Xero learnt early to concentrate on promoting its software to accountants and then to let them sell it on to their clients. This strategy proves to be even more important in the rural sector.

Richmond says a significant number of the work done in New Zealand is outsourced to accountants, more



than in other sectors. "If you develop the tools that work for the accountant and let them be connected to their client, then they can educate their client around the tools and how to do more with them.

"Good accounting advisors and banks know that a farmer who is involved in pulling together their budget and monitoring it is going to have a far stronger business," he says.

Vodafone is one of Xero's key partners addressing the agricultural sector. The phone company is pushing broadband into rural New Zealand erecting cell towers and providing fixed wireless services as part of the government funded Rural Broadband Initiative (RBI). A good internet connection is essential for anyone wanting to use Xero's cloud computing software.

Richmond says Jeremy Anderson, the agribusiness sector manager at Vodafone New Zealand comes from a rural background, so he "gets" the

There are some
4000 rural entities
using our platform.
They're not just
farms, but also
agribusinesses,
shearers and other
contractors,

Ben Richmond

industry, but he also sees where telecommunications fits into the picture.

"I've found him to be both pragmatic and progressive to deal with. He is also fast. Often when you're getting a partnership off the ground things don't move quickly. We've

found in this market there's a real need and a want to partner," he says.

To date RBI uptake has been slow. That could change now the service is moving from using 3G mobile technology to the faster and longer-range 4G mobile based on the 700 MHz spectrum.

Something else has held RBI back. Richmond says when Xero was on a roadshow talking to rural accountants and bank managers about technology it quickly became clear they had little technical or other knowledge about the RBI services. He says the problem is a lack of awareness. A year ago Xero surveyed 700 farmers at Fieldays on their attitudes towards rural broadband.

The company found only 9 per cent of farm owners were satisfied with their internet capacity while on the job and only 11 per cent of rural businesses were satisfied.

The same survey found 46 per cent of farmers hadn't even checked

to see if they were in the RBI zone.

Richmond says as soon as farmers see something requiring broadband that they want to run on their farm, they go and look for a service.

He says this is why the Vodafone and Xero bundle makes sense: "Farmers can see the tools they can use and their benefits. We show them this is the way you can get the access and speed that you need. It's been a powerful sales tool for us."

One of the advantages Xero has reaching farmers is its pure cloud model.

Richmond says many of the company's rivals sell accounting software that is hybrid in nature, where a lot of data needs to be synched with the computer. That chews a lot of broadband, which is a precious commodity outside the main centres.

After one year of selling in New Zealand, Xero is already getting interest in its Farming in the Cloud package from overseas.

Farming software specialists in Australia and South Africa are preparing modules to work with the software. Richmond says similar plans are under way in the US where most farmers still use old fashioned spreadsheets for planning.

New Zealand farmers are not necessarily much better.

Richmond says the Xero survey found 48 per cent of farmers questioned said their business plan is in their head. Less than half have a formal, written plan. In 2013 the Ministry of Primary Industries set a target of doubling New Zealand primary sector exports by 2025. This means lifting 2013's \$32 billion of exports to \$64 billion a year.

Richmond says that level of growth isn't going to happen without planning. To do that farmers need tools that go beyond financial accounting.

This is why Xero has partnered with Figured, a farm management software specialist.

"With Xero farmers get the financial information they need for compliance. The software takes direct bank feeds to help with tax and other compliance issues. Figured works in a similar way, but focuses on farm specifics. So it will take in milk price as a feed and update a farm's budget overnight. Farmers get real-time information," he says.

Real-time information gives farmers a better picture of where their business is heading.

Richmond says more accurate planning tools reduce a farmer's risk profile and that, in turn, gives banks more confidence when making lending decisions.

Technology builds resilience – and profitability

Mark Heer

Managing another era of volatility is a big challenge for our dairy industry, and one that requires a high degree of resilience.

One way farmers can build resilience into their business is to have strong partnerships. First it is important for any business to engage early with their bank and accountant around cashflow, taxation planning and working capital facilities.

Often, it's less about money-based solutions, which are short-term, and more about planning and understanding how systems, risk management, governance and financial reporting contribute to a more resilient and ultimately profitable enterprise.

Technology is also helping farmers

adapt to change with new farm management and planning tools - crucial when times get tough.

An innovative new partnership is New Zealand company Figured offering a cloud-based livestock management and forecasting tool, designed specifically for farmers.

Working in tandem with Xero, Figured tracks a range of data from livestock movements to milk prices, income and expenses, producing one set of real-time information for the whole farming team - the farmer, accountant, bank and farm consultant.

Figured is a prime example of an innovative partnership, and ASB is proud to be a partner in this collaboration tool that gives farmers greater confidence in forecasting and timely decision-making.

Tough times certainly force businesses to refocus, and farmers are no exception.

For farmers across the country, dairy price volatility is forcing clarity around purpose, strategy and business model.

With the right partnerships, volatility can become an opportunity and a chance to make positive and sustainable changes to rural business models and strategies.

New Zealand farmers have a strong track-record of showing determination. Those who continue to adapt and strengthen their platforms will be strongly positioned to capture value from the long-term growth story on New Zealand's front doorstep.

● **Mark Heer** is ASB General Manager Rural



With the right
partnerships,
volatility can
become an
opportunity and a
chance to make
positive and
sustainable
changes.

Agribusiness

Now it's farming by numbers

Rural rollout will help put an end to the town and country divide, says Vodafone's Russell Stanners

Russell Stanners is adamant: If Kiwi farming wants to keep its edge it's not by being physically stronger, it's by understanding a better way to manage pastoral growth and animals.

Vodafone was at the cutting edge of rural technological developments when it partnered with Chorus to rollout the rural fibre, cabinetry and wireless broadband to connect farming communities nationally.

"Our view was it was opening up a new market," says the Vodafone CEO. "With 55 per cent of NZ exports coming from the rural sector and accounting for a big slice of GDP, our edge is about technology and innovation."

"More and more of that edge is driven not by the physical grass-eating animals, but by technology. More productivity. Better working conditions. More out of the livestock and the land."

It's a far cry from the future that a young Stanners once envisaged for himself. "When I was thinking about being a farmer as a 13-year-old, I liked wandering about and doing things," he recalls. "Now you have to be quite a businessman – farming by numbers – not farming by physique."

Vodafone, nationally and as part of its global brand story, is at the sharp end of agribusiness developments.

Just prior to Fieldays, Vodafone launched a new "first of its kind" bundle under the Rural Connect brand, specifically designed to help farmers navigate increasing pressures on profitability and productivity in the sector.

The farming solution brings together rugged devices, online farming financial management from Figured and Xero farm vehicle and safety technology from Blackhawk Tracking Systems, and Vodafone's security software – all delivered over Vodafone's rural network.

Stanners says these innovative partnerships are changing farming practices and providing the connectivity that will enable farmers to attract employees to rural New Zealand and



Experts expect New Zealand farmers to be among the first wave of businesses to benefit from the internet-of-things.

It's the name phone companies and gadget makers have given to the business of adding sensors to every day items and then connecting them to networks. Eventually it will cover everything from cows to milking machines, irrigation equipment and watching farm gates.

Vodafone enterprise director Ken Tunnicliffe says: "We probably lead the world in using the internet-of-things and machine-to-machine communications in agricultural businesses. I've got a dedicated team of people working in this area and they talk all the time to Vodafone's global team. We're helping our local partners sell their technology to other Vodafone branches overseas."

One place internet-of-things technology is showing up is on all-terrain quad bikes. Farm Angel, from Blackhawk Tracking Systems, is a Wi-Fi-enabled GPS tracking device that attaches to a quad bike and continually sends data to a secure server using Vodafone's mobile network. If the device goes beyond the coverage area a secondary back-up satellite communications system kicks in.

Russell Stanners (centre) at Fieldays.

keep families connected.

He points to Blackhawk (see adjoining story) which has developed a quadbike device linked by satellites which helps with worker safety.

There are other technical partnerships such as one that enables tomato growers to track potential insect infestations in glass houses.

Then there is a partnership to deliver online farming financial management with Figured and Xero. At Fieldays, 70 per cent of farmers surveyed at the Xero stand said they did not have a budget. "We think they need one," Stanners adds. "It's surprising because the payout has gone down."

Asked where their business plan was, some said: "In my head."

The big challenge is how to use technology to spur greater innovation and productivity in the rural sector.

Stanners says farmer customers want to be assured that their suppliers will be long-term providers. Bundled offerings by varying groups of suppliers are resonating with the market. More than 50 per cent of Vodafone's rural business is now driven by its partners, just half through Vodafone Retail.

Spark has now stepped up its involvement in the rural market. Stanners says that will help develop a

whole new competitive eco-system.

"When you've got competition – innovation will happen dramatically." Vodafone also stepped up by introducing a new rural broadband service with super-fast 4G speeds and large data bundles.

Rural 4G (L700) roll-out is under way in areas like Cambridge, Te Aroha, Pukekohe and Masterton, delivering greater reach and better in-building coverage than other frequencies.

Vodafone data shows rural New Zealand is in the middle of a transformational change towards connectivity. Usage has almost doubled this year in the rural network as the latest technology becomes more accessible.

Stanners is confident greater connectivity will help put an end to the rural divide.



Blackhawk chief executive Andrew Radcliffe says Farm Angel helps farmers meet health and safety requirements. "Quad bikes are the modern farmer's workhorse. They can go almost anywhere, but they can be dangerous. More farm workers are killed or injured by quad bikes than

anything else," he says.

Farm Angel went on sale last month following trials.

Using Farm Angel to monitor a quad bike rider does two things to improve safety. First, because riders know they are being watched they are forced to ride more carefully. The software can send alerts if it detects dangerous behaviour so the farmer can give the rider a dressing down or as Radcliffe puts it "remedial training."

Secondly, if something should go wrong, such as the bike rolls, Farm Angel automatically makes an emergency call. Its location information means rescuers can quickly find the rider.

Radcliffe took the first batch of 400 Farm Angel devices to Fieldays and sold them all. He says about 70 per cent went to rural corporates and 30 per cent direct to farmers. There's interest from Canada and United States to use Farm Angel with snowmobiles.

He says kids in farming families might moan about how their texts don't work when back at the farm. But with technological progress they will have the same access to the same social networks as their city-based peers.

It will also help farmers with their employee attraction packages.

"We're involved with Ngai Tahu down in the South Island," says Stanners. "They were converting farmland to dairy farms and the needed to have high speed broadband in the homes as part of their employee propositions. Workers want broadband and television."

As to the future, he says the uptake of smart phones is increasing both by farmers onfarm and via online social communities linking up through their devices.

Collaboration, innovation for thriving primary sector

The Primary Growth Partnership is providing the platform for a sustainable, thriving future for the primary industries, writes **Michael Jamieson**

New Zealand is known for its world-class primary products, and they are part of everyday life, contributing greatly to our economy and wellbeing as a nation.

But to truly ensure the future of this vital industry, and New Zealand's long-term economic growth and sustainability, we must continue to innovate and look for better, more sustainable ways of doing things.

This is at the heart of the Ministry for Primary Industries' Primary Growth Partnership (PGP), which is at forefront of boosting the value, productivity, profitability and sustainability of our primary industries.

Through the PGP, the ministry and industry is co-investing \$720 million into 20 programmes. To date, there are two completed programmes, 17 under way, and one undergoing contract negotiation.

The programmes cover the breadth of the primary industries, with more than 50 companies and more are likely to get involved.

PGP programmes must push the envelope in terms of innovation, rather than simply improving what they already do. They must stretch thinking and look for newer and better ways of doing things, and we are



The Precision Seafood Harvesting programme has produced better-than-expected snapper survival rates.

looking for outcomes for the environment, the economy and society.

The New Zealand Institute of Economic Research (NZIER) estimates the PGP will add \$6.4 billion a year to New Zealand's economy by 2025. There's the potential to achieve an additional \$4.7 billion a year by 2025 if all the research and development undertaken by PGP programmes is successful, and the innovations are

widely adopted. NZIER concluded that for every dollar invested in PGP programmes, there will be a return of \$32, which is a substantial return on investment.

Already PGP programmes have delivered results.

Trials in the award-winning Precision Seafood Harvesting programme show that snapper survival rates are even better than expected, especially when compared with existing trawl performance. There was a 100 per cent survival rate of snapper fished from a depth of 0-20 metres. For snapper taken from a depth of 20-90 metres, the survivability was 79 per cent, and we expect this to increase as the research programme progresses.

The Clearview Innovations programme has commercially released N-Guru, a software tool that enables farmers to tailor application rates of nitrogen to areas likely to produce the highest pasture response.

In addition to enabling more efficient use of nitrogen fertiliser and reducing over-application, there are obvious environmental benefits, and farmers are able to generate greater returns from their land with a lower footprint.

In April, the SPATnz programme

opened New Zealand's first dedicated Greenshell™ mussel hatchery. The new facility in Nelson allows SPATnz to selectively breed from many of the best mussels that nature has to offer, enhancing desirable traits such as a faster growth rates, increased resilience and vibrant colour.

Thanks to the PGP, New Zealand's fine wool sector is a step closer to eradicating footrot through groundbreaking research in sheep genetics by the New Zealand Sheep Industry Transformation programme.

Footrot is expensive to treat, and costs farmers \$10 million a year. It also limits the expansion of fine wool breeds beyond the high country because wetter, warmer conditions are more conducive to infection.

This programme is using genetic testing to identify fine-wool sheep with resistance to footrot, with researchers now close to developing a simple test for growers to eliminate footrot using selective breeding.

This could see footrot bred out of New Zealand's fine-wool flock.

There are a number of "spill-over" benefits that will flow out of PGP programmes.

The Primary Industry Capability Alliance was spun out of the Trans-

forming the Dairy Value Chain PGP programme and is helping to build the capability and capacity to meet the future needs of New Zealand's primary industries.

PICA is now a standalone entity that has grown in membership. The Alliance is delivering a strong industry-wide message under the brand "Growing NZ."

Earlier this year the Office of the Auditor-General reported that the ministry is administering the PGP effectively, and is protecting the public's investment.

The office noted the ministry's strong focus on promoting more engagement with, and between, industry partners, and identifying opportunities to strengthen PGP partnerships, such as sharing information and expertise to successfully benefits for New Zealand.

The ministry is looking to simplify the reporting and administration tasks involved in PGP programmes where feasible, while still meeting its requirements for reporting and monitoring.

● *Michael Jamieson is Acting Director Primary Growth Partnership at the Ministry for Primary Industries.*

Selling the future of farming

The trend of New Zealand's population getting older is nowhere more evident than in the dairy industry. The average age of our dairy farmers is 43 and slowly climbing.

DairyNZ estimates that 108 new workers will be required in the industry each year until 2031. The country needs to have a strong pipeline of agricultural graduates.

Rick Powdrell, a Federated Farmers national board member responsible for education policy, says there are a number of challenges in repopulating the agricultural workforce.

"The perception of the industry by young people needs to change," he says. "The industry these days isn't just about being a farmer – it's about the myriad of people around them, from lawyers to irrigation specialists."

"We need to get kids to understand that when people talk about jobs in agriculture, they're not talking about down-on-the-farm labour jobs."

Powdrell says "we want to put the positive side of farming out there. The jobs are rewarding. They are diverse in nature. There's a specific lifestyle that goes with these careers that we aren't doing enough to sell."

"Also, technology is playing a huge part in farming. I'm of the hope that the technology side will drag a lot of young people in – young people that we need."

University of Waikato's Professor Jacqueline Rowarth is enthusiastic about what education – at all levels – can do for agribusiness in New Zealand.

"I'm heartened by the uptake of agribusiness subjects over the last few years. We are finally getting the message across that the business pays good money," she says. "To position the industry better, right down at the

Dairying is one of a number of industries facing a possible labour shortage but work is taking place to ensure graduates are coming through the system, as **Greg Hall** explains



The industry these days isn't just about being a farmer – it's about the the myriad of people around them, from lawyers to irrigation specialists.

Rick Powdrell

school level, students need to be told not to be afraid of the harder maths and science subjects because they're gateways to the industry."

Rowarth says education goes beyond just selling high school graduates on a career in agribusiness. "Much of what we're doing concerns the economics of how farmers can best position themselves in terms of this time of volatility."

"It's all well and good to fill the industry with young employees, but we must maximise the output of those people once they're in the industry."

Claire Massey, Professor at Massey University, echoes the sentiment. "We're dealing with changing demographics, changing geopolitical

power away from Europe and towards Asia, and changes in technology meaning huge buying pattern changes."

"If you look at those three factors alone, it actually creates an incredibly complicated puzzle. Because of that getting good information to the farmer is absolutely imperative," she says. "Having informed and educated commentary on the modern issues and ideas, and providing forums for good, constructive comments about the data universities and research institutes collect is so important."

The complexity of these issues makes the creation of Massey University's Te Puna Whakatipu initiative more relevant than ever. A small team led by Massey, Te Puna Whakatipu is

focused on responding quickly to industry inquiries and engaging the best expertise to transform agri-food business.

Further south, Lincoln University's long-awaited innovation hub is taking shape. Called the Lincoln Hub, the initiative is a joint venture between the university, AgResearch, Plant & Food Research, Landcare Research and Dairy NZ to deliver science, technology and transfer capability more effectively and efficiently to the New Zealand farming sector.

The project involves some 900 scientists and industry specialists collaborating to generate innovative ideas it hopes will generate new export opportunities for the sector and drive its growth generally.

The next month should see the unveiling of a re-tooled master-plan for the project, involving a massive rebuild at the Lincoln University campus to accommodate the hub.

Powdrell says more secondary schools are making an effort to promote agriculture as a career – particularly St Paul's Collegiate and Mt Albert Grammar School.

St Paul's announced it was developing a new agriculture curriculum in 2014 and is now seeking a national rollout in 2017.

The course includes risk management, microbiology, food science and agribusiness accounting.

A trial at St Paul's last year saw 16 of the 20 Year 13 students go on to study an agriculture-focused degree at the tertiary level. The pilot programme

will expand to seven more schools next year.

Though efforts are increasing at college level, there's been a drought in the tertiary institutions.

"We used to have a lot of tertiary papers around wool classing and the like, and unfortunately they've fallen by the wayside in recent years," Powdrell explains.

"We've had silly situations the last couple of years where students have gone to take those papers at Lincoln or Massey that once existed but have been dropped."

"Ultimately, if we're going to educate a new generation of agriculturalists, then we've got to make sure that we have the courses that cover what we want them to do."

Rowarth says agribusiness as a major and specialisation at University of Waikato started in 2012, and since then "we've gathered over 200 enrolments throughout the degree and up to the masters level."

"The number of students enrolled in the first year paper alone is 54, which is a very encouraging sign. Given the prospects for agribusiness grads, enrolment shouldn't be a hard sell."

"Our agribusiness grads are getting (paid) on average 40 per cent more than their non-agri grad counterparts," she says.

"What's so great about Waikato is that virtually anyone, in any degree, can pick up an agribusiness paper."

"The way our economy is structured, it will never hurt to get more of an understanding in agribusiness."

Dairy makes a positive impression on the country

Greg Hall

Here's the good news. New Zealanders' impression of the dairy industry is positive, and the public perception is ahead of forestry, oil and gas, and financial services by some margin.

DairyNZ's latest Public Perceptions of Dairy survey revealed 66 per cent of respondents backed the dairy industry and only 14 per cent said their overall impressions were negative.

Project manager Andrew Fraser says the survey is an important tool to tell the industry's story. For dairy to be successful, it really needs good people. If you're a talented person, you've got choices.

"We want the dairy industry to be an attractive choice. If the dairy industry has an image of being slow,

If we can get farmers telling their own stories to the public rather than through a corporate mouthpiece, this will get a higher degree of resonance with everyday New Zealanders.

plainly agricultural and a drag on the environment, then it's not going to be very appealing and sexy for those people. If that's how people are viewing it, then we need to know that so we can address it."

The survey's aim is to ensure the industry is continually aware of how it is viewed by the public, as well as what issues they consider to be important surrounding dairy farming.

In the past, research was conducted using traditional focus groups of eight to 10 people. This year Dairy NZ used a different approach, inviting participants join an online discussion panel akin to a message board, answering questions set by the moderators, as well as engaging with one another.

The format proved a more honest conversation than the previous method. "In a physical focus group, you get all sorts of dynamics influencing the results and you only get them for an hour, so easing that bias is difficult," says Fraser.

"We hosted the online discussion

panels for a week. Not only do you get discussion generated by the questions but discussion in response to conversation going on among themselves. The anonymity helps remove some of the biases."

Fraser says one of the more interesting outputs in this year's research is that people really value the idea of farmers being genuine and relatable.

"That was something we'd never really thought about before."

"What this tells us is that if we can get farmers telling their own stories to the public rather than through a corporate mouthpiece," he says.

"This will get a higher degree of resonance with everyday New Zealanders."

Demystifying public perceptions isn't just the end. Thanks to dairy's

unique position within New Zealand's cultural identity, it's important to keep farmers connected with the general public.

"What we find is a lot of farmers are really sensitised to headlines that are down on dairying," explains Fraser. "But what we found, particularly from our qualitative online panels, is that the public don't pay as much attention to all that, as you'd think."

Fraser says the positive results in the latest survey make it easier to convince dairy operators that the key to the hearts of everyday New Zealand is simply to walk-the-talk.

"Ultimately, we want New Zealanders, both the public and the farmer, to feel proud of dairying. That's what the research is about," he says.

WITH THANKS TO OUR SPONSORS



The discovery of agriculture was the first big step toward a civilised life.

ARTHUR KEITH

Agribusiness



Dr Bert Quin (left) and Geoff Gates of Pastoral Robotics with their invention, which detects and spreads urine patches on paddocks. For more, see D12

Despite dairying gloom the turnout was high at this year's Fieldays, where there were aspirations, innovations and some well-known faces.

