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INSIDE

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TIMES ARE A-CHANGING

FEATURE ARTICLE: UP THE 'VALUE-ADD' LADDER

While many still lament the primary sector's lack of 'value-added', when you dig a little deeper a range of evidence suggests such a view is somewhat outdated. Those further into the value-add journey are typically the smaller primary sectors. Success is turbo-charging returns and asset valuations. The fast followers and larger sectors are seeing more incremental gains at this stage, but there are promising signs of more to come. It is critical that the larger industries such as dairying, forestry and red meat deliver on creating more value.

THE MONTH IN REVIEW

Wet weather conditions have caused a range of on-farm challenges. This could have some impact on livestock production if wet conditions continue into spring. Current expectations are that milk supply will increase by 3-5%, lamb production will improve slightly, and beef output will remain stable. Wet conditions have delayed the planting of crops too. Forestry harvest volumes have lifted.

RURAL PROPERTY MARKET

Rural land values have remained robust in recent months, but turnover has dropped. The decline in turnover is from healthy levels, but the wet winter and general election appear to have been influential. Looking forward, the most important focal points would seem to be a robust earnings outlook versus starting point for valuations and increasing regulatory requirements.

KEY COMMODITIES AND FINANCIAL MARKET VARIABLES

In-market returns have remained robust thanks to strong demand from China and the broader Asian region. Supply in certain sectors (dairy, meat complex, green kiwifruit) has remained tighter than expected, supporting prices too.

BORROWING STRATEGY

Indicative rural lending rates have changed little since our last edition, but we have seen the yield curve flatten further. The floating rate remains the lowest rate, and although we expect the RBNZ to leave the OCR on hold for longer, which will keep floating rates steady for the next year or so, long-term rates are back at their lows for the year. That said, they are not as low as they were this time last year lows. While we see merit in longer terms given the certainty they offer and the lower rates on offer, low inflation and the uncertain global political backdrop suggest some caution is warranted.

ECONOMIC BACKDROP

The economy is showing late-cycle behaviour where capacity constraints and a moderation in the housing market are crimping growth. However, the economy has enough impetus from other areas (commodity prices, fiscal policy and household incomes) for the economic expansion to extend.

EDUCATION CORNER: FARMING UNDER NUTRIENT LIMITS

In the water-quality space the debate and implementation of the National Policy Statement for Freshwater Management continues. It is therefore topical to look at some of the modelling that has been conducted on reducing nutrient losses, and the impact on profitability of different levels of abatement for the various regions, sectors and farm types within a sector. The results show there is no 'one size fits all' with a number of unknowns that require further science, research and new innovations if current nutrient losses are to be reduced to the desired level of the community.

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SUMMARY

While some lament the primary sector's lack of 'value-added', examples of exactly this are in fact abundant.

1. In their top five markets Green kiwifruit earn a 40% to 100% premium over the nearest competitor. For SunGold there is an additional premium due to its exclusivity and sweeter taste preferred in Asian markets.
2. Exclusivity and eating qualities desired by Asian markets have put new club apple varieties into a league of their own – earning a 30% price premium over traditional varieties. Volumes of these varieties are moving towards 40% of export supply.
3. New Zealand branded wine's retail price is in the top 11% in the UK and at least the top half in the US and Australia. In both the US and UK markets New Zealand wine is similarly positioned to France price-wise.
4. New Zealand Manuka honey's average export price (FOB) is USD21/kg, whereas most other major honey exporters earn only USD2-8/kg, and an average of USD3/kg. This pricing power is much higher for other product categories that use higher active-rated honey.
5. New Zealand's King Salmon is considered the "wagyu" of the salmon world, where it achieves more than a 50% price premium over Atlantic salmon. Rock lobster is in a league of its own when it comes to value and compared with competitors receives a 50% premium on average.
6. New Zealand dairy companies have generated an extra $0.64/kg MS of revenue from 'value-add' products over the last three years. In aggregate this has generated $3.5 billion in extra revenue. Non-milk price product volumes have grown at 20% per annum since 2014 and there is more in the pipeline, looking at recent processing company investments.
7. A number of red meat companies are increasing chilled sales under their own brand with in-market price points generally 2 to 3 times greater than traditional supply formats. There is also a range of initiatives to make more from co-products and target sales through new foodservice and e-commerce channels.

The journey into the value-added space is being led by the smaller primary sectors. Success is turbo-charging returns and asset valuations. The fast followers and larger sectors are seeing more incremental gains at this stage, but there are promising signs of more to come. It is critical that the larger industries such as dairying, forestry and red meat deliver on creating more value.

In the case of the leaders, today's 'value-added' was initiated a decade ago via research & development activities, protection of unique intellectual property, investment in key areas of product development (brand, packaging etc), changing management practices across the supply chain, and a commitment to redefining their business. Microeconomic (firm and individual) decisions taken years ago are now manifesting in today's macroeconomic statistics. The primary sectors and major companies within them haven't been standing still for the past few years either, so the 'pipeline' for further value creation looks pretty good.

Such activity has helped lift New Zealand's terms of trade to the highest level since the 1970s wool boom, boosting the nation's purchasing power. We're extracting value from traditional soft commodities and benefitting from falling prices for the "new" commodities (imported manufacturing and technology products) and low prices for the old (oil).

INTRODUCTION

Estimates suggest New Zealand can provide 40 to 60 million people with their entire daily dietary needs, or put another way, feed 0.5 to 0.8% of the world's current population. Obviously New Zealand specialises in certain products and provides a much larger share of the globe's populace with their daily dairy, beef, sheepmeat, kiwifruit and wine requirements, for example. In fact New Zealand dairy products are estimated to reach over 1.2 billion people each day.

Nevertheless the point remains: natural resource and industry capability constraints (i.e. infrastructure, skilled expertise, capital, scale, type of production systems, location, competitive realities etc) **mean New Zealand will only ever feed a very small proportion of the global population** – even if one factors in a significant production lift from new innovations or technology.

If you can only feed a relative few (and have naturally higher production costs) you need to target the markets that will pay. The strategic direction of many businesses and industries has shifted in recent years to try to extract greater value from the status quo (i.e. current product mix and raw materials being produced in New Zealand). We say 'status quo' because value extraction has always been an underlying priority no matter what the type of business.

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The term 'value-added' is also a consistently moving target due to competitive pressures, continuous improvements and changing consumer trends. Nevertheless there is no doubt many primary sector businesses are placing the catch phrase 'value-added', or some derivative of it, at the core of their strategic plans to increase earnings.

This report looks at some of the 'value-added' examples coming through and how quickly they are being scaled at an industry level to create a more meaningful step change in earnings for shareholders (farmers, employees, exporters etc)

THE MEANING OF 'VALUE-ADDED'

'Value-added' is somewhat of an elusive term due to the changeable nature of markets and consumer trends. Goods considered 'value-add' today could well be reclassified as a commodity over time – a range of manufactured goods that were once considered 'high end' have become commoditised and seen huge price falls over the past couple of decades. The phrase can also mean different things to different businesses depending on the sector and where an entity sits within the supply chain.

To start with, it's useful to consider the definition of a commodity. A commodity is usually deemed to be a basic good (a raw material, or agricultural product) that is easily interchangeable, or substitutable, with other commodities of the same type (e.g. WMP for SMP/milkfat), or similar type (e.g. lamb and beef). Commodities are often used as an input into the production of other goods and services. Quality and price may very slightly, but it's essentially the same across all producers.

In contrast, 'value-added' describes the enhancement a commodity is given before being consumed/used to distinguish it from the competition and thus obtain a degree of pricing power. In the case of primary sector commodities, this involves enhancement of a product's features, brand factor, service proposition, quality characteristics and packaging. The enhancement of a product's features can come in a number of forms, from extraction and recombination of specific materials from the same commodity (e.g. milk into a range of products), or a range of commodities (e.g. packaged food products). It also includes how the involvement of packaging, other services and specific quality characteristics of a commodity combine to deliver different features, or product experience.

Adding value isn't the be-all-and-end-all – there are plenty of commodity-focused businesses delivering solid earnings and a high return on capital through the 'lean and mean' approach. However, it's generally accepted that 'value-added' should deliver more stable/consistent and higher returns over the long term, albeit not without some risks. The superior returns come from higher profit margins and extracting more value from the raw commodities. This is the opposite of being focused on volumes and cost efficiencies. Efficiencies are of course still very important, but are of secondary importance to extra value creation.

BENCHMARKING 'VALUE-ADDED'

The benchmarking of 'value-added' is debatable and depends on the product and sector. We are interested in the creation of extra value over and above the status quo for a particular product and the returns for New Zealand businesses (i.e. farmers, processors and exporters).

To benchmark 'value-added' we looked at two main themes:

1. **In-market product prices for specific sectors and products compared with key competitors.**
2. **Margin and return creation over and above status quo, or base commodity products within a sector.**

A third step would be to assess the return on investment from additional margin creation. While this is important, because many 'value-added' options are capital intensive, due to data limitations and other compilation complexities (i.e. determining capital applied at different production stages) this was considered beyond the scope of this analysis.

THE LEADERS

Some of the leading examples of 'value-added' are in the horticulture sector. Each of the three big crops – kiwifruit, pipfruit and viticulture – have achieved considerable success in carving out higher returns and margins versus their global competition in recent years. This is made necessary by a higher cost base versus key competitors, especially for land, labour and transportation (i.e. New Zealand's distance to some key markets and being off the beaten shipping track). This has created a need to extract more value to survive and compensate for these higher costs.

The blueprint for extracting more value has varied, due to each sector having a different structure and back story, but common facets have emerged.

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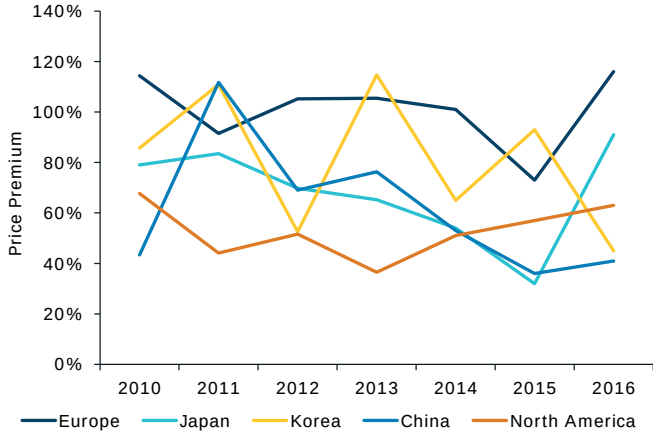
1. **The application of best practice management** from orchard through to end customer.
2. **Applying new innovations/technologies** to key facets of producing, processing, storing and distributing products.
3. **Market-based payments to producers** that reflect the quality characteristics most desired by customers.
4. **Product uniqueness with trademarked intellectual property.**
5. **Targeting of new market segments in Asia and higher-margin food categories** (such as health and convenience).
6. **Integration and collaboration between supply chain participants** delivering extra efficiencies, consistent quality and improving two-way information flow.
7. **Creation and investment in strong brands** that emphasise uniqueness, quality, food safety, service and the New Zealand story.

KIWIFRUIT

In the kiwifruit sector it's not only the SunGold variety, but also Green kiwifruit that earn a significant in-market premium versus the competition. For Green kiwifruit New Zealand earns a 40% to 100% premium over and above the next best competitor for its five major markets. This is remarkable given Green kiwifruit is generally viewed as the commodity of the category.

Figure 1: In-market price premium between NZ and nearest competitor

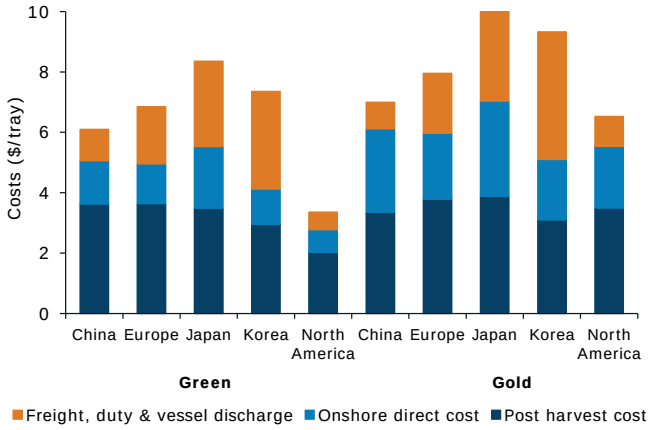


Source: ANZ, Zespri

In the case of SunGold, where there is currently limited competition, the premium is even higher. It's not only the sweet taste of SunGold, which is more attractive to Asian markets, but also the intellectual property associated with SunGold. This is trademarked, meaning supply can be controlled to ensure exclusivity and profitable returns.

The premiums for both Green and Gold help compensate for some of the higher costs of production for New Zealand fruit. Chilean fruit tends to have a cost of production advantage due to lower orchard and post-harvest costs. Domestically produced fruit in both Europe and China have a cost advantage for both transportation and onshore costs.

Figure 2: Direct costs to deliver fruit in major markets



Source: ANZ, Zespri

In-market there are many demand and supply influences that can impact on returns, but to mitigate this, Zespri has established meaningful brand reputation and built up equity through long-term market commitment and investment. Zespri is now one of the top-five most recognised fruit brands in its key markets. It is seen to represent quality, great taste, sustainability and food safety. The Zespri brand, and the associated values and promises it delivers, helps underpin these price premiums for New Zealand fruit. Other factors include:

1. **Consistency of supply of a high-quality and high-taste product supported by a world-leading supply chain, where growers receive market-based payments reflecting the quality of their fruit.** In the last financial year the taste component accounted for 19% of total fruit and services payments (excluding loyalty) to growers for Green and 36% for SunGold.

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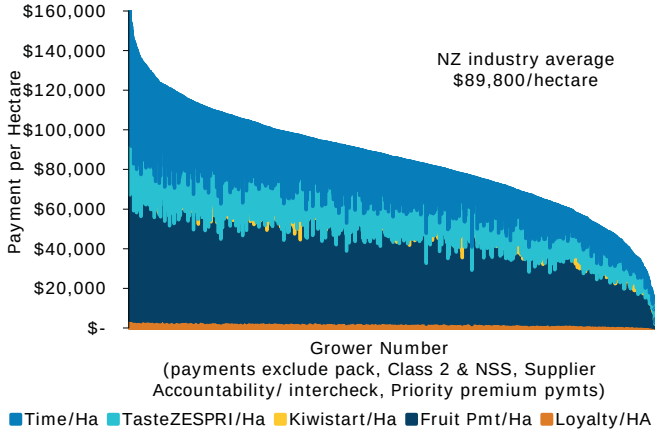
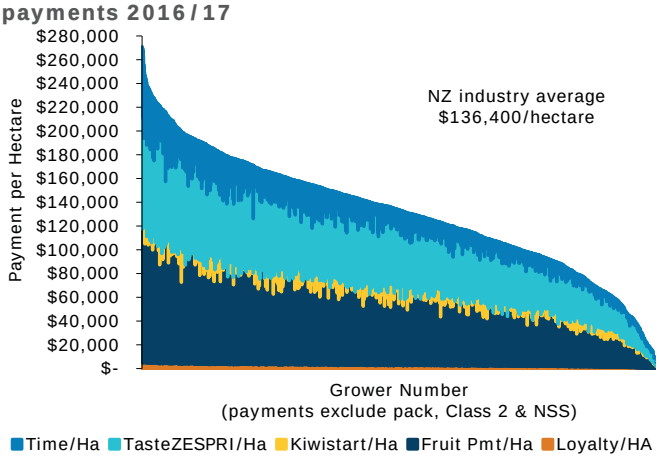
Figure 3: Zespri Green Kiwifruit – fruit & service payments 2016/17



Source: ANZ, Zespri

Figure 4: Zespri Gold Kiwifruit – fruit & service payments 2016/17



Source: ANZ, Zespri

2. **An innovative portfolio of Zespri-exclusive product offerings** (i.e. SunGold, organic), including new and novel products.
3. **Significant investment and support of brand marketing and category growth.**
4. **A comprehensive understanding of the health benefits of kiwifruit.**
5. **Deep penetration of core markets.**
6. **Focused development of new high-growth markets.**
7. **Year-round supply of Zespri-branded fruit** with New Zealand supply augmented with product from the Northern Hemisphere. This enables Zespri to support its branded offering to consumers all year round, as well as offer a category management solution to large retailers. This is particularly important to support Zespri's category leadership position and the commercialisation of new varieties into a fruit that is consumed every day.

Further growth is on its way with Zespri looking at total supply of 260 million trays by 2025, a large increase from 150-160 million trays at present.

PIPFRUIT

The New Zealand pipfruit industry is currently ranked first for international competitiveness according to the World Apple Review. The Review looked at 33 major apple-producing countries, accounting for 90% of world apple production. Consistency across all the key categories of production efficiency, industry infrastructure and financial/market factors are key to its number one ranking.

This #1 ranking has been further enhanced by:

1. **A shift to a more vertically integrated structure.**
2. **Applying best-practice management** from the orchard right through the supply chain.
3. **A production system superior to competitors** that meets both the ultra-low spray residue requirements of European retailers and the restrictive quarantine requirements of Asia. This boosts food safety credentials.
4. **New 'club' varieties** with trademarked intellectual property and eating qualities preferred by Asian markets.
5. **New orchard design and management innovations.**
6. **An ability to consistently deliver superior quality pipfruit.**
7. **Brand presence, quality, exclusivity of "club" varieties, and proximity to Asian markets, delivering price premiums.**
8. **Growth in regional trade with Asia, which offers significant transport advantages versus traditional European markets.**
9. **The recognised Seasonal Employer Scheme**, which provides sufficient numbers of experienced overseas workers to carry out jobs such as thinning and picking.

Combining these new-found competitive advantages with the sector's traditional strengths, including favourable climate conditions for fruit growing in the Hawke's Bay and Nelson regions, has led to in-market returns that consistently outperform key competitors. Indeed, over the last four years New Zealand's average in-market export prices have been 30% higher than arch rival Chile and nearly 50% greater than South Africa.

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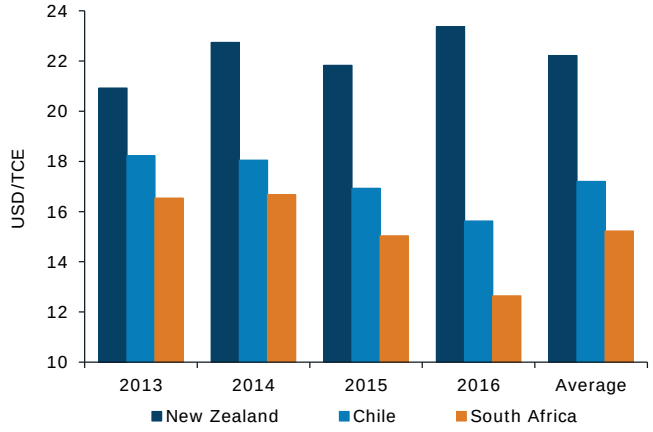
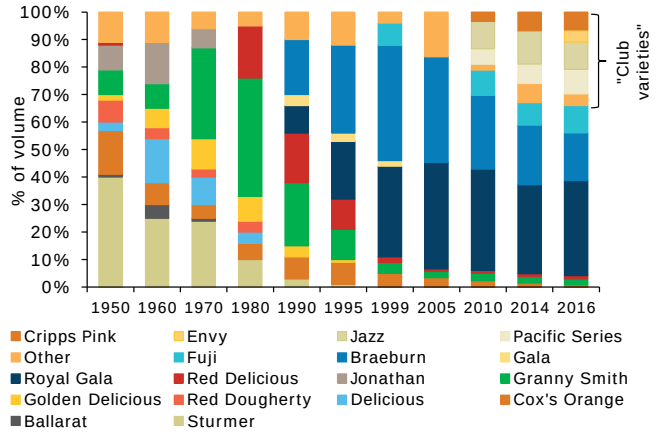
Figure 5: Average export returns for Southern Hemisphere exporters



Source: ANZ, Comtrade

A big part of this is the shift to 'club' varieties[1] that accounted for 118,000 tonnes, or 34% of New Zealand's export supply in 2016. This proportion is expected to reach 39% of total supply in the current selling season. These 'club' varieties were just 21%; or 55,000 tonnes of export supply back in 2010. If anything, the above in-market margins have widened further in recent years as the supply of 'club' varieties has grown. Further growth is forecast as additional planting takes place, other recently planted orchards start to produce, and new varieties such as 'Dazzle' are introduced.

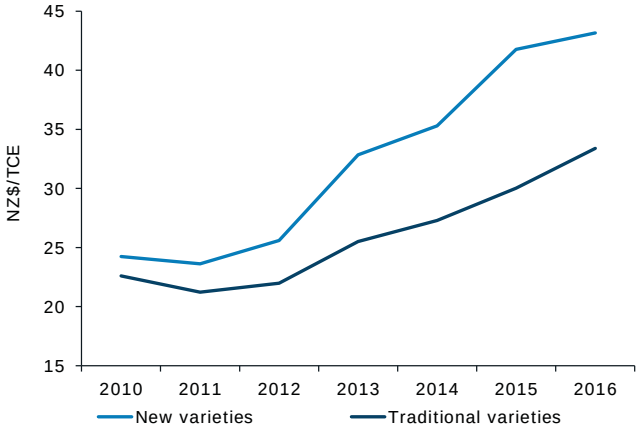
Figure 6: New Zealand apple exports by variety



Source: ANZ, Statistics NZ

These new 'club' varieties are trademarked and supply is controlled to meet market demand. They also have eating qualities desired by Asian markets (red colour and sweeter tasting), where consumption growth is highest. This, combined with New Zealand's focus on higher quality standards and ability to meet strident phytosanitary measures, has created brand presence and exclusivity, delivering FOB export price premiums that are 30% above traditional varieties. They are also higher yielding, which combined with higher prices is very potent in supporting per-hectare revenue.

Figure 7: Export price premiums between different varieties



Source: ANZ, Statistics NZ

VITICULTURE

New Zealand's wine story continues to be primarily about Sauvignon Blanc, with the varietal continuing to win many global accolades. Proximity of New Zealand's vineyards to the ocean has a pronounced effect on the character of New Zealand's wines. Mild, sunny summers and marked differences between day and night time temperatures in many regions slow the ripening of the grapes and allow them to develop pure, intense varietal flavours. This is the foundation of New Zealand wines' elegance and power, and helps explain their famed balance, structure and food friendliness.

Combined with best practice orchard / canopy and winemaking management, brand positioning by exporters, and sustainability efforts, New Zealand wine continues to be positioned in the 'super premium' category. This positioning even allows New Zealand to out-compete France in some markets, despite the latter's much richer wine heritage.

Due to the existence of bulk wine exports that are often bottled and packaged in market under a New Zealand brand, the best price comparison of market positioning is on the supermarket shelf, given that the retail channel accounts for the lion's share of sales in New Zealand's top markets. Looking at the three main export markets of Australia, the US and United Kingdom, on average New Zealand wine occupies the premium end of the spectrum in each.

[1] Club varieties include: Pacific Beauty/Queen/Rose, Jazz, Cripps Pink, Envy and other low volume and new varieties such as Dazzle.

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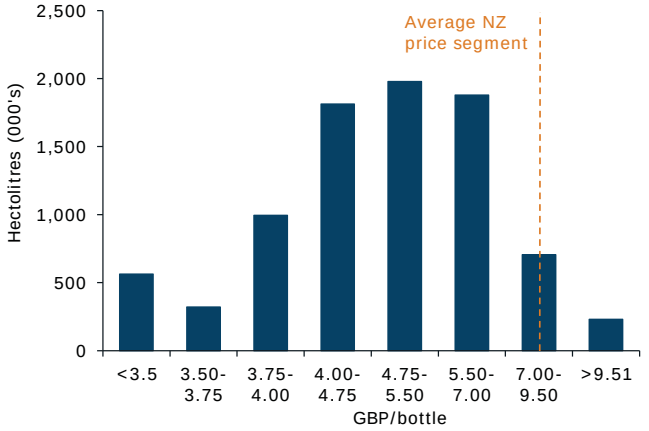
The UK accounted for 30% of New Zealand's wine exports by volume and 23% of value in 2016/17. Bulk wine exports accounted for 47% of total exports, which was the highest of the big three export destinations. However, this doesn't appear to have dented **the final selling price much, with New Zealand wine's average retail price in the UK around GBP7.0-7.5/bottle. This places the average New Zealand wine in the top 11% of retail wine sales in the UK by price**, where nearly 50% of wine sells for below GBP5/bottle. From a UK importer point of view New Zealand wine is ranked number one by value per litre, even outdoing France.

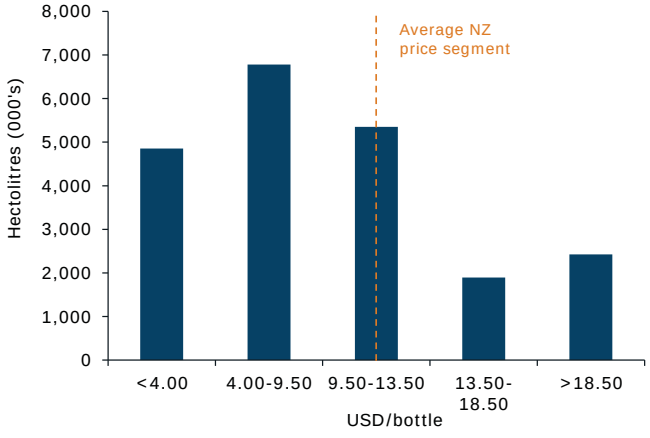
Figure 8: UK wine sales by price segment



Source: ANZ, NZ Winegrowers

The US accounted for 29% of New Zealand's wine exports by volume and 31% of value in 2016/17. Bulk wine exports accounted for 38% of total exports to the region. **New Zealand wine's average retail price in the US is around USD11-12/bottle, placing it in at least the top half by price of retail wine sales in the US.** Nearly 50% of the wine sold in the US retails for less than USD9.5/bottle. From a US importer perspective, New Zealand wine is ranked a narrow second behind France by value per litre, but well ahead of other competitors.

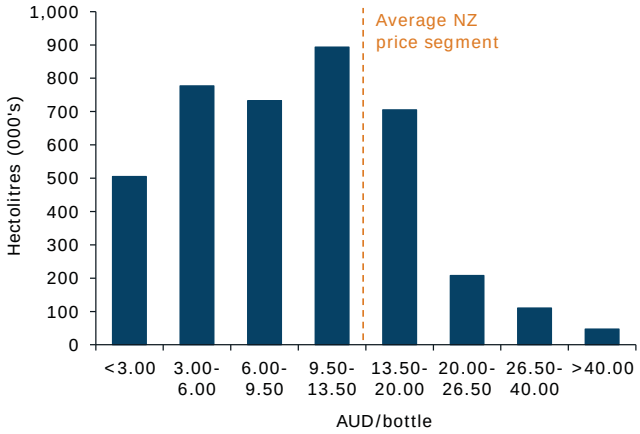
Figure 9: US wine sales by price segment



Source: ANZ, NZ Winegrowers

Australia accounted for 24% of New Zealand's wine exports by volume and 22% of value in 2016/17. Bulk wine exports accounted for 38% of total exports. **New Zealand wine's average retail price in Australia is around AUD12-13.50/bottle, placing it again in at least the top half of retail sales in Australia by price.** Nearly 50% of the wine sales are below AUD9.5/bottle. From an Australian importer's view, New Zealand wine is ranked second behind France by value per litre.

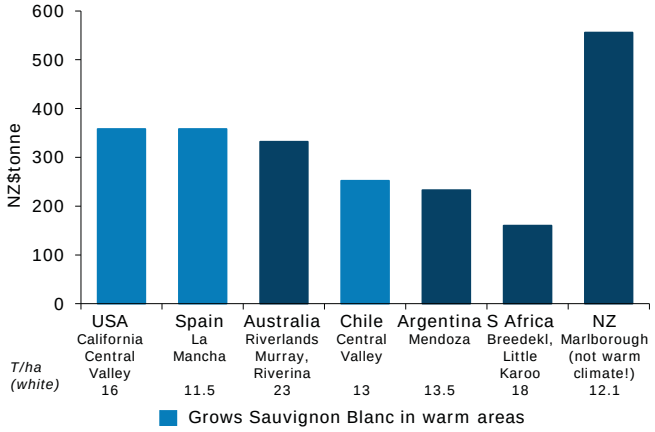
Figure 10: Australia wine sales by price segment



Source: ANZ, NZ Winegrowers

So for the three export destinations accounting for 82% of export volumes and 77% of total value, New Zealand wine clearly occupies the premium end of the spectrum.

Figure 11: Grape cost of production comparison by country



Source: ANZ, Pricewaterhouse Coopers

When you look at New Zealand's grape production costs against a range of competitors, our costs are twice the average, and nearly three and a half times higher than South Africa, one of the lowest-cost grape producers. This means we have a higher break-even for our wine when it lands in its export destination compared with

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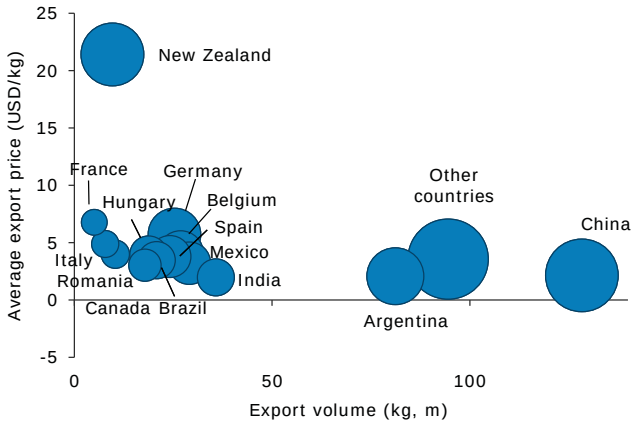
most of our competitors. **Therefore, high quality, proprietary-branded packaged wine with a high margin/price focus is an imperative for New Zealand's competitiveness and bottom lines.**

HONEY

The fledgling Manuka honey industry is currently experiencing some growing pains, but nonetheless it already has a good standing versus other competing products – both direct competitors and other honey varietals.

Manuka's standing in the food & beverage category is such that New Zealand's average export price (FOB) is USD21/kg, whereas most of the other major honey exporters are earning only USD2-8/kg, and an average of only USD3/kg. Similar price multiples can also be demonstrated for retail honey prices in the main markets.

Figure 12: Value and volume comparison of top 20 global honey exporters



Source: ANZ, Comtrade

A more valid comparison of New Zealand companies' Manuka honey price prowess is against Australia's bush jelly (their Manuka equivalent).

Examining online retail prices in Australasia for different UMF (or equivalent)-rated honey in a 250g container shows a 23% premium at the lowest end. However this widens substantially to above 50% at higher UMF or equivalent rating. This demonstrates New Zealand products have a better brand and market presence than the nearest competing rival product in the retail honey space.

Table 1: Average honey pricing by UMF, or equivalent rating across top Australasian brands (NZ$/250g)

UMF or equivalent rating	5+	10+	15+	18+	20+
New Zealand brands	23	40	65	117	111
Non-New Zealand brands	19	29	43	50	66
Premium	23%	36%	53%	134%	69%

Source: ANZ, various websites

That said, Manuka honey's uniqueness is its scientifically proven anti-bacterial and anti-inflammatory properties that are different to other types of honey. This opens up a wider variety of end-markets and product categories that are not captured in the above statistics. These product categories range from health, cosmetics and nutraceuticals right through to medical. Within each of these categories there is a range of applications and products such as skincare, sanitisers, healthy snacks, infant formula, throat lozenges, children's cold medicine and elixirs.

The medical category is perhaps the most exciting, especially from a potential returns perspective. Off-the-shelf medical products centre around creams and gels to heal wounds. Medical-grade products are being used in hospitals to heal wounds and skin infections that are nonresponsive to standard treatments, such as bacteria that are resistant to antibiotics.

The available margins for each category are difficult to assess. However, given the price escalation seen above for the different grades of honey, one can make a broad generalisation: there are substantially higher margins for medical products, followed by cosmetics, nutraceuticals/natural health products, and then food/beverage.

This wide spread of applications would appear to offer the prospect of plenty more growth as increasing volumes become available and further product/brand development is undertaken. The Manuka honey industry is one of the fastest-growing export earners and has aspirations to be a $1 billion earner around 2025.

MERINO WOOL

While the rise and rise of synthetic fibre has hurt coarse-breed wool, the New Zealand Merino Company (NZMC) has managed to carve out a more lucrative niche. Prior to the establishment of the NZMC, wool auctions were the only method for the sale of merino fibre in New Zealand. Essentially sold as a commodity, merino fibre was subject to very significant price volatility.

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The company's business model is to transition a significant percentage of merino wool into sales executed via forward contracts. To do this, NZMC markets the superior attributes of New Zealand merino fibre to differentiate it from other products and competitors (such as Australia).

Once end users are convinced of the attributes of the NZMC offering and its other associated benefits, they enter into long-term contracts to ensure supply. **The price-points are negotiated between NZMC and its brand partners at a level that allows growers to receive a fair, equitable, and sustainable return for their fibre and manufacturers to be successful over the long term. The price premiums vary by micron.**

As a result, **NZMC growers have greater price stability** that allows them to more effectively manage their farms and make important capital investment decisions. In exchange, **NZMC's brand partners receive sustainable pricing, guaranteed supply, consistency of supply, traceability, and fit-for-purpose processing consignments.**

NZMC has crafted a marketing story that supports a price premium at retail that could be shared among partners across the supply chain. NZMC further supports this price premium by investing heavily in research and development (R&D) and market-development activities that help retailers and brands boost demand for products made with New Zealand Merino wool.

Today, over 70% of the wool sold by NZMC is committed to forward contracts.

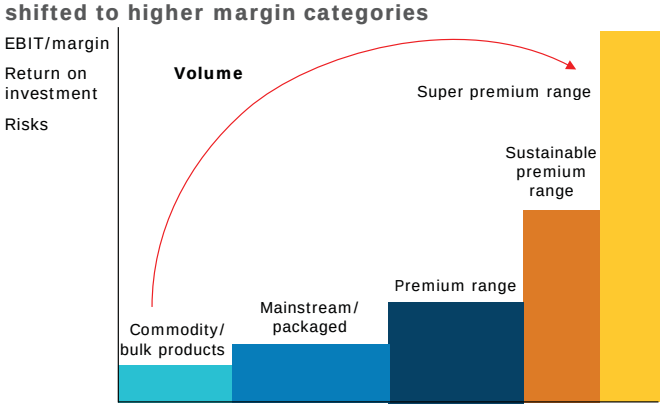
THE FAST FOLLOWERS

The next group of examples is classified as the 'fast followers' – many of the initiatives, or examples are still in the 'earlier' stages and a lot of further growth is still expected to occur. Many of them need to be scaled further to make a more meaningful impact on the sector's entire earnings. That said, some of the examples profiled are for New Zealand's larger primary sectors and businesses. If Fonterra's consumer and foodservice business were split out as a separate entity it would be the largest food business in New Zealand by some margin (as measured by revenue turnover).

In many of the examples, the sector or specific business profiled currently produces/processes a large amount of raw material into base products. In many cases the volume of these products is significant in the context of global trade and they are often classified as commodities. In some cases the sharp seasonality in local supply of the raw materials restricts processing or 'value-added' options, but in most cases a conscious effort is being made to extract more value over and above the status quo. **This value extraction is generally taking place through a combination of creating new products from the raw materials, changing the marketing mix, shifting supply/new products through different channels (retail, foodservice, e-commerce), forming mutually beneficial partnerships, and brand/packaging innovation.**

Below is a stylised/generic example of the above philosophy in action, where companies are trying to shift more of their product out of commodity categories and further up the value (or margin) curve. **The target products, markets and sale channels of the shift are the ones that deliver higher and more stable margins. This, in turn, supports a higher return on investment even though there is often more risk, direct costs and capital required.**

Figure 13: Stylised movement of more product being shifted to higher margin categories



Source: ANZ

The incremental effect of shifting the same amount of volume overall, but with less 'commodity' type product and more 'value-added' is better revenue per unit of output. This lifts earnings with controlled costs, which is either passed back to end consumers to remain competitive, paid out to farmers/growers, and/or boosts shareholder returns in the business, adding extra value. The split of the spoils depends on a sector's ownership structure, supply arrangements and in-market competitive forces.

SEAFOOD

Seafood exports now total $1.7 billion and have been steadily growing at 3% per year on average since 2007. The sector's export revenue is split between 45% fish, 18% rock lobster, 15% mussels, 5% salmon, 1% oysters and 8%

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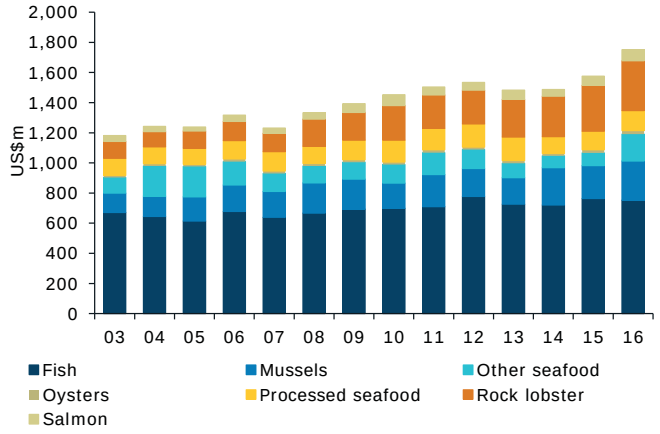
processed seafood. Other seafood products make up the remaining 8%. At each sub-sector there are a number of 'value-added' stories and some new initiatives that hold the promise of more to come.

Figure 14: New Zealand seafood exports

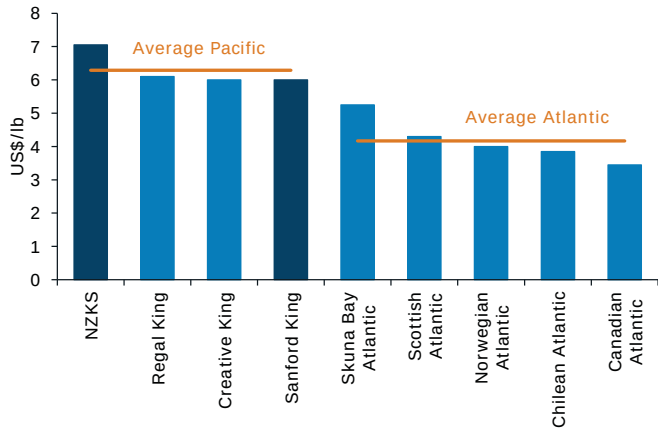


Source: ANZ, Statistics NZ

Salmon

New Zealand's King Salmon is considered the "wagyu" of the salmon world and is sought after around the globe. Roughly half of New Zealand's salmon is consumed domestically, with the rest heading off to export markets such as Japan, Australia, and the US, where it achieves more than a 50% price premium over Atlantic salmon.

Figure 15: In-market salmon pricing comparison



Source: ANZ, New Zealand King Salmon, Forsyth Barr

Taste, colour, and texture are important attributes when it comes to selling seafood and New Zealand salmon rates highly on all these attributes. However, it has additional benefits with a higher oil content than Atlantic salmon, and New Zealand farms do not use antibiotics, pesticides, growth promoters or vaccines. There is also no concern about heavy metals accumulating in the fish.

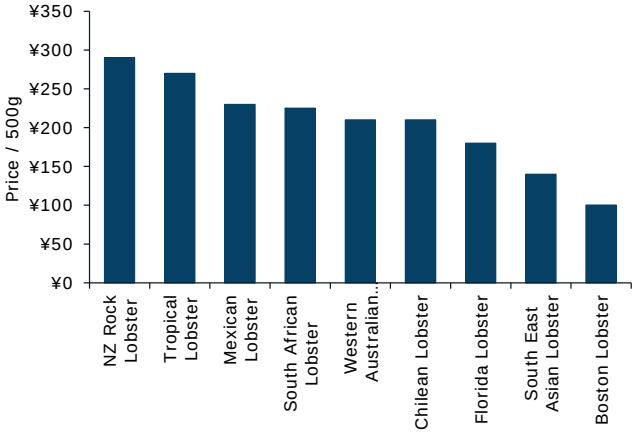
All these attributes, combined with strong brand presence and sustainability practices (New Zealand salmon farming recognised as the world's greenest[2]), contribute to its premium position and mean it is a highly sought-after product by many top-end retailers and restaurants.

Rock Lobsters

Rock lobster (crayfish) is in a league of its own when it comes to value with an average export price of $116/kg (FOB) in 2016. This was almost 30 times more valuable than New Zealand's average return per kilogram for fish and 16 times greater than red meat. New Zealand exported 2,813 tonnes to China in 2016; this accounted for 18% of the seafood sector's total export earnings, yet only 1% of seafood export volumes. Comparatively, other lobster species achieved an average export price of $42/kg, while other crustaceans such as shrimps/prawns and crabs were $37/kg and $11/kg respectively.

Comparisons with other competing lobster products (figure 16) shows on average New Zealand achieves a nearly 50% premium versus competing products.

Figure 16: In-market lobster pricing comparison



Source: ANZ, Rock Lobster Council

The Chinese craze for New Zealand rock lobster – and lobster generally – is driven primarily by its popularity as a luxury item during Chinese New Year and other festive occasions. New Zealand rock lobster receives a premium due to its freshness, quality (airfreighted), specific appearance, colour, natural harvest and sustainability (quota managed), all of which make a number of important cultural connections with the Chinese consumer, supporting the 50% price premium.

[2] Global Aquaculture Performance Index

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Mussels

New Zealand green-lipped mussels generated $260 million in direct exports last year (15% of total seafood exports) at an average export price of just over $8/kg. However, a number of companies have started to further process the mussels into oils or powders for natural health and nutraceutical products. While we couldn't find any reliable margins data for such products, capsulated green mussel powder products currently retail for between NZ$250 to $700/kg, implying substantially higher margins than as a food product.

Fish - Sanford

Some of New Zealand's largest seafood companies are looking to take a further step.

Sanford currently holds around 23% of the total fishing quota in New Zealand and has substantial aquaculture interests. They are targeting doubling their earnings of EBIT/kg for fish over the next 4-5 years (from $0.50 to $1.00/kg).

Sanford had typically operated under its own name through wholesale terms, selling 90% of its seafood products at commodity pricing with no branding. To grow margins it is in the process of rolling out a branded strategy, including targeted brand tiers:

- Sanford Blue (mainstream, wholesale and retail);
- Sanford Black (premium);
- Tiaki (premium super-sustainable – consumer and foodservice);
- Big Glory Bay (super premium provenance story).

Figure 17: Sanford strategic targets for new brand introduction

Source: Sanford

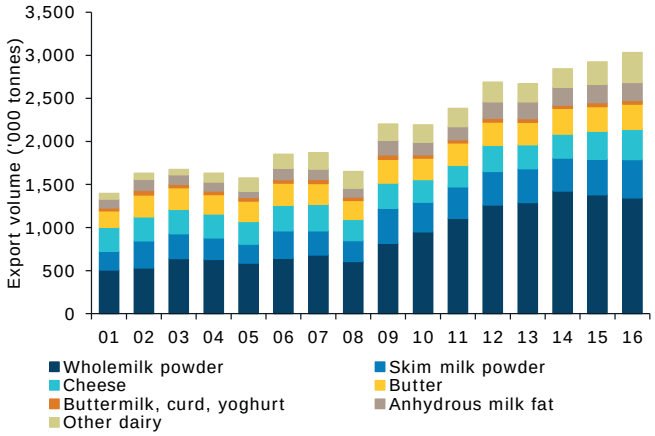
The aspiration is that 60% of total volume is 'value-added' product in the future, and that this contributes to 75% of total revenue, which is also more stable. While the volumes are smaller as one goes along the premium curve, the potential margin step-up to 30-40% for super premium is substantially higher than for mainstream products. Other initiatives to improve earnings include a more targeted end-market strategy through retail and foodservice markets, as well as cost efficiency initiatives.

Sanford have also recently purchased a small nutraceuticals mussel powder manufacturer, and 3-4% of its current supply (approximately 30,000mt) is expected to shift into higher-value powder sales, with options to further expand processing capacity.

DAIRY

Somewhat simplistically, New Zealand's dairy production mix consists of the base products that make up the milk price, namely whole milk powder, skim milk powder, anhydrous milkfat, butter, and buttermilk powder. The most standardised versions of these products are considered the base commodities for dairy. Then there is everything else, including cheese, whey powder, casein, infant formula, whey protein concentrate, lactoferrin etc. Some of these products in their most standardised versions can also be considered base commodities.

Figure 18: New Zealand's dairy export/production



Source: ANZ, Statistics NZ

New Zealand's dairy sector has some unique characteristics that make the pursuit of 'value-added' for the entire milk pool challenging.

1. **The volume of New Zealand's annual milk production is large in the context of globally traded dairy products, accounting for around 30-35% of supply.** This means small changes in milk supply and the specific products produced

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can have a large impact on prices. **It would be impossible to place all of New Zealand's milk into just a few high-returning product categories (i.e. infant formula) because the demand is simply not there and prices / returns would collapse.** That means the challenge is more about optimising the long-term returns from New Zealand's entire milk pool. Therefore a wide variety of products need to be produced and the mix varied from year-to-year to optimise returns according to market signals.

2. **New Zealand's milk supply curve is very seasonal due to our production system** (i.e. pastoral farming). This means processing a proportion of New Zealand's seasonal peak into milk powder – which extends its shelf life and is fast to process – is always going to be part of the most efficient way to deal with peak seasonal volumes (notwithstanding technological advances extending shelf life, shortening processing time and improving the functionality of certain dairy products). **Traditionally milk powder has been the easiest and most efficient way to process, store and transport raw milk long distances.** This is important for New Zealand also due to poor cool-chain infrastructure in many emerging importer markets.

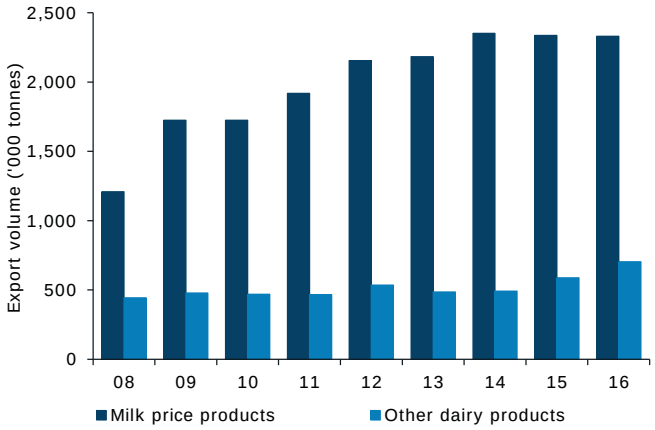
That said, two things have begun to take on more importance in the dairy processing sector:

1. **Independent milk companies have experienced rapid market-share growth** and currently account for around 17-18% of milk processed. **Many of these processors have a manufacturing footprint capable of producing specialist / higher-value products.** This includes a range of products under the broad product categories of infant formula, speciality nutritional ingredients, foodservice, creams, bionutrients and consumer-ready dairy products.

2. **Not to be outdone, Fonterra's business strategy has been to shift more milk into high-returning speciality ingredient, foodservice and consumer-ready products.** This has become easier with the Co-operative's overall milk collections having dropped 5% since 2014/15. The immediate growth outlook appears capped with new dairy conversions having slowed to a trickle and continuing competition from other processors.

The collective success of the dairy company's strategies can increasingly be seen at the company and export level. At the collective level, dairy export volumes excluding the core products that determine the milk price have grown 20% per annum since 2014, whereas the volume of the five products that determine the milk price have flat-lined over the same period.

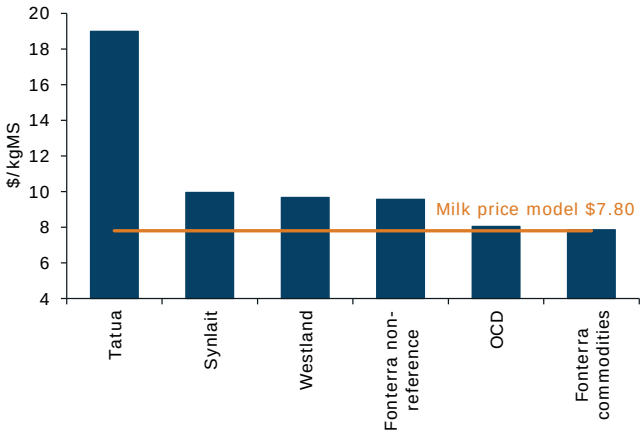
Figure 19: Dairy sector export trends



Source: ANZ, Statistics NZ

Company-level and specific product category analysis is probably a lot more illuminating given the different cost structures, capital requirements and efficiencies of turning a litre of milk into a specific product. **Indeed, the average revenue per milksolid produced by the major dairy companies (shown in figure 20) over the last three years has exceeded the regulated milk price model by $0.64 / kg MS.** Or put another way, it generated an additional $3.5 billion in revenue for the sector. The range reflects the businesses' different strategies and specific product splits between base commodities and higher-value ingredient/consumer products.

Figure 20: Revenue produced by dairy company



Source: ANZ, various dairy company financial reports

However, revenue is not the only consideration, as each company has different cost structures and capital footprints to produce its product mix. Benchmarking the fixed assets employed by the major companies shows those who generate higher revenue per milksolid have also employed more

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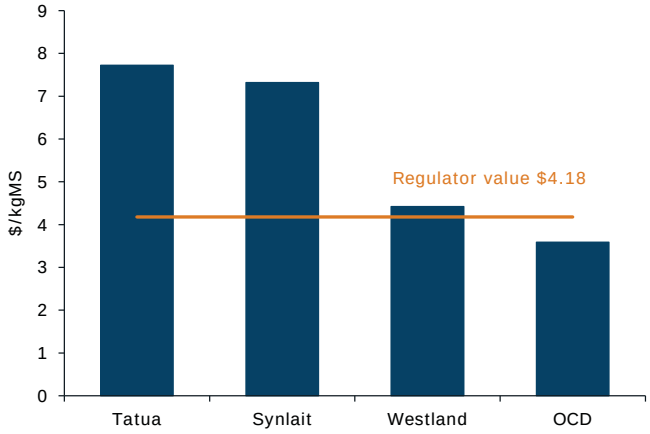
capital. In turn, this provides a different picture for return on capital/investment. For example, despite Open Country Dairy generating less revenue per milksolid than the other companies, they operate with a substantially lower capital and cost base. This significantly boosts their return on capital.

Figure 21: Fixed assets employed by dairy company



Source: ANZ, various dairy company financial reports

If we had data on actual operating costs, return on capital/investment could be more accurately deduced. A lack of comparable publicly available information makes this difficult. Broadly, the gross margins for the major product groups over the last three years are shown below.

Table 2: Gross margin split by product group

Product Group	Examples products	GM / LME
Reference commodity products	Premium or slightly non-standard WMP, SMP, Butter	~$0.05
Non-reference products (i.e. not included in milk price calculation)	Bulk Cheese/ Protein Powders	$0.15-0.20
Foodservice	Mozzarella/ Branded Creams	$0.20-0.25
Consumer	Branded Products	$0.40-0.45

Source: ANZ

The gross margin includes the cost of milk and other goods sold. As the export and company level data shows, it is the higher gross margin categories that have started to grow more strongly in recent years. **Given the type of capital investment that has occurred in recent years, and is planned in the future, greater growth in the higher-returning products groups such as foodservice and consumer ready products is expected, at the expense of base commodities volumes.**

From a Fonterra perspective you can see the ship has turned, with foodservice and consumer products in the first half of the 2016/17 having grown to 21% of total sales. This is well up on several years ago, where this product group was only 18% of total sales. Non-reference dairy products have also grown to 26% of total ingredient sales. This is up on several years ago when these products accounted for 21% of total sales.

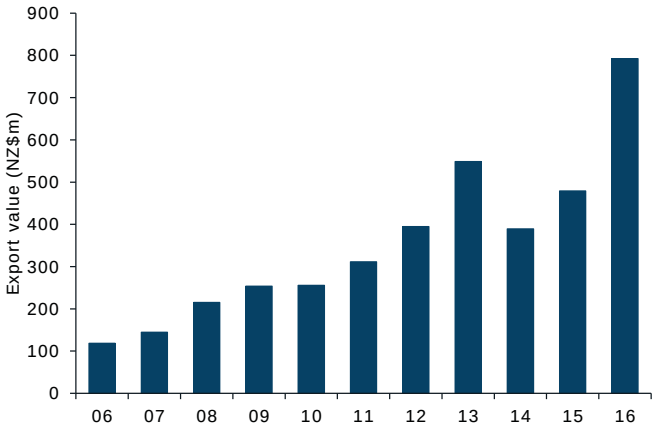
These volumes can vary, as Fonterra has improved its processing flexibility to take advantage of relative price signals. This flexibility ranges from 20% to 45% for the non-reference product groups. The long-term goal is to move more milk into higher-returning non-reference products, but this takes both time and capital.

Another sign of increasing sophistication and searching out higher margins/returns is the growth in finished infant formula product exported from New Zealand. Infant formula is one of the more complex foods as it is designed to mimic human breast milk. It sits on the dividing line between food and pharmaceuticals.

Traditionally New Zealand has been a key supplier of the base milk powder that other companies have used to manufacture infant formula (and indeed it still is).

More recently, the various dairy companies have moved more into producing bulk base infant formula, contract packing retail product for other companies, and manufacturing own company brands. This has been demonstrated by finished infant formula export earnings growing 40% per year since 2010.

Figure 22: Finished infant formula exports



Source: ANZ, Statistics NZ

Figure 23 shows the step-up in gross margins associated with taking milk from ingredients through to fully-blended infant formula and canned infant formula. While there are higher capital costs, greater processing complexities and higher testing/quality standards as you move along

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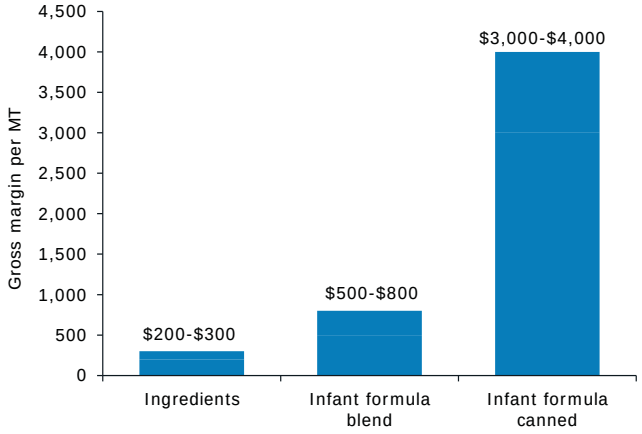
the production process, the step-up in gross margins from ingredients to fully blended and canned product is significant. This more than compensates for the higher capital and direct costs of each stage, if the strategy is well executed.

Figure 23: Gross margins for different stages of infant formula production



Source: ANZ

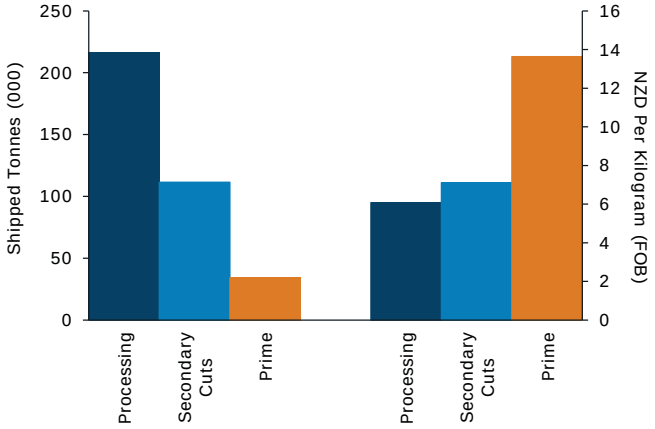
RED MEAT

The opportunities for the red meat sector are similar to those outlined earlier for Sanford, but this sector faces some of the same constraints as dairy: seasonal supply, access to capital, type of supply and being a large supplier for certain markets/product categories. Nonetheless many of the companies are undertaking a range of new initiatives to try to extract higher returns from the marketplace.

Broadly, New Zealand meat production has been tracking downward over the last 10 years. Sheepmeat and venison production has declined and beef production has fluctuated according to dairy cow turn-off.

Of exported beef production, 59% is destined for processing/manufacturing product, 31% for a range of secondary cuts and 10% for prime cuts. Including domestic sales would show a higher prime-cut proportion. The export revenue per kilogram is more than 2 times greater for prime versus manufactured product. However, there are limitations on how much of a cattle carcass can be turned into each type of product. New Zealand's beef supply is also heavily weighted toward the dairy herd. In fact, of New Zealand's current production, nearly 70% is estimated to be of dairy origin and the remaining 30% traditional beef breeds. Of this, dairy farmers account for around 40% of direct supply, much of which needs to be processed in a very short period. The remainder is from red meat farms, of which approximately half is dairy origin (bulls) and the other half traditional beef breeds.

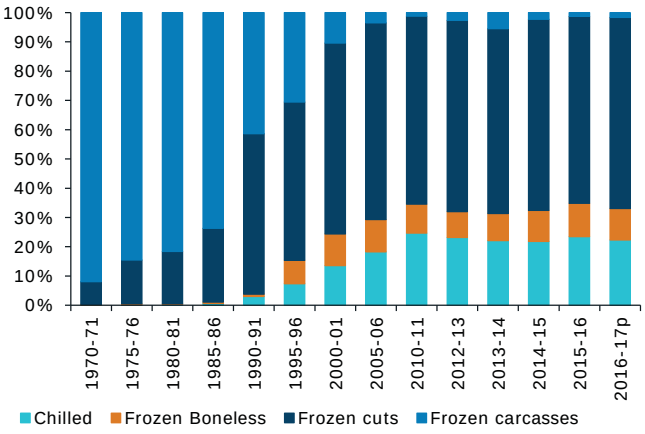
Figure 24: Breakdown of beef exports by cut and value



Source: ANZ, Beef + Lamb New Zealand

For a lamb/mutton carcass it's a similar story to beef regarding the different types of cuts that can be produced, but different in terms of there being a single source. From a long-term perspective the industry has moved well away from frozen carcasses into frozen and chilled cuts. The margin improvement moving from frozen to chilled cuts for the same specifications tends to be in the range 10% to 15%.

Figure 25: Breakdown of lamb exports by cut



Source: ANZ, Beef + Lamb New Zealand

While it is difficult to extract exact numbers and company specifics for some of the initiatives individual meat companies are currently engaged in, the collective effort looks to be gaining more momentum around some key initiatives. These include:

1. **Targeting of sales through new foodservice and e-commerce channels in certain markets.**
2. **Chilled meat export access to China opening up and currently being tested** (long-term opportunity).

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3. **More own-brand chilled product being produced, with market price points generally 2-3 times greater than traditional supply formats.** The reach of these is being expanded with, for example, Silver Fern Farms rolling out its branded chilled product range into Germany, North America and China. Many other companies either have established brands, or have just rolled out new ones. The race is on.
4. **New and revamped strategic partnerships have been formed in key markets to improve the channel to market, creating dual branding opportunities for chilled products, and providing new capital to speed up key initiatives.**
5. **A range of initiatives aim to make more from co-products and rendered product.** This includes petfood, blood recoveries, using bone for edible products, and pharmaceuticals. Margins on these products can range up to 3 times what is normally achieved (and even more when you start talking pharmaceuticals).
6. **Shortening the supply chain through application of new technology, partnerships and capital investment** (i.e. reducing/ eliminating other supply chain intermediaries' margins).

Some of the additional key barriers to doing more in the 'value-added' space include high tariff rates and other non-tariff barriers in certain products/countries; distribution and logistic support to end market; shelf-life restrictions for chilled; shipping time to market; consumer education (i.e. how to cook and use); and domestic support for local products. But many of these may be circumvented through improved market access and new/revamped partnerships. Some of this stuff isn't new, but much of it is becoming more aggressively targeted, especially by some of the larger meat companies, providing scale.

FORESTRY

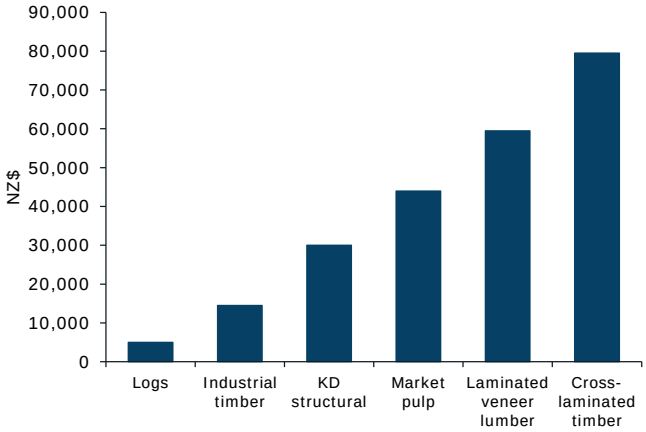
The forestry sector is another one to watch with plenty of opportunities to turn harvested logs into a range of 'value-added' products.

As wood supply has increased since 2012 the proportion directly exported as logs has increased toward 55% of the total harvest. The remaining 45% is further processed in New Zealand into a range of products for both domestic use and export.

Overall, local processing capacity appears to have increased slightly in recent years, albeit with some natural churn occurring. Of the product processed locally, around 26% is pulp, 6% reconstituted panels, 3% poles and 2% wood chips.

The remaining 62% is saw or peeler logs. Of this, around 14-15% is processed into plywood products and the remainder is destined for sawmills to make sawn lumber, panels, laminated products and mouldings. The sawmill residues are also fed back into pulp and reconstituted panel production, as well as being used an energy source.

Figure 26: Value of different wood products in 40 FT container



Source: ANZ, Beef + Lamb New Zealand

Figure 26 shows there is a significant step-up in the revenue extracted from turning logs into structural timber, laminated veneer lumber and cross-laminated timber. In order to extract more value from the 55% of logs that are currently exported there is a requirement for the industry to invest much more in new technology and plant/ equipment.

New investment is currently constrained by intense competition for logs from offshore processors/markets and the fact many competitors are heavily protected by non GATT/ WTO-compliant subsidies and other non-tariff barriers. This places somewhat of a 'double squeeze' on the sector's ability to invest to extract more revenue from the 55% of New Zealand's logs that are exported, but the potential is there.

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CONCLUDING REMARKS

While many still lament the primary sector's lack of 'value-added', there is a range of evidence that suggests such a view is somewhat outdated. There are numerous examples at a sector and individual company level that show that New Zealand is performing well versus both key competitors and the status quo (or base commodity pricing within a sector).

We believe these efforts are a big part of New Zealand's current terms of trade boom, which has surged to the highest level since the wool-induced spike of the 1970s. A clear secular trend upwards is notable over the past twenty years. The emergence of manufactured and technological products as the new "commodities" has helped (we import those), but the aforementioned examples of adding value have helped too.

Strong terms of trade add to New Zealand's purchasing power. The lift also feels more sustainable than historically has been the case. Not only is the increase spread over a range of products, but also it is partly due to the unique intellectual property and brand investment that is being built on a number of fronts across the various primary sectors and companies.

Figure 27: New Zealand's terms of trade

Source: ANZ, Statistics NZ

Yet there is still plenty of scope for more 'value-added' in most cases. The majority of the leaders we identified have strong growth pipelines for the next 3-5 years. In most cases the fast followers have only just more seriously embarked on a journey focusing on 'value-added'. By 'serious' we mean that the 'value-added' strategies that have been talked about in recent years are seeing more investment and focus, which is now starting to flow through to earnings (and asset valuations) in a more meaningful ways.

Make no mistake – there is still a long way to go for many, but the journey appears to have certainty begun and there is plenty of room for further growth. The journey won't be without its ups and downs. There are a number of potential risks, and many barriers to still be navigated. The competition never sleeps and consumers can be a fickle bunch. But it just has that feeling about it: the talking is turning into more serious action and results in the form of dollars earned.

In the case of the leaders, today's 'value-added' was initiated a decade ago via research & development activities, protection of unique intellectual property, investment in key areas of product development (i.e. brand, packaging etc), changing management practices across the supply chain and a commitment to redefining their business. Microeconomic (firm and individual) decisions taken years ago are now manifesting in today's macroeconomic statistics. **The primary sectors and the major companies within it haven't been standing still for the past few years, so the 'pipeline' for further value creation looks pretty good.**

THE MONTH IN REVIEW

SUMMARY

Wet weather conditions have caused a range of on-farm challenges. These could have some impact on livestock production if wet conditions continue into the spring. Current expectations are for milk supply to increase by 3-5%, lamb production to improve slightly and beef output to be stable. Wet conditions have delayed the planting of crops. Forestry harvest volumes have lifted with robust local prices.

MOTHER NATURE

Regular heavy rainfall events since the autumn period has left much of the country very wet heading into the spring. The soil moisture conditions have caused a range of challenges around the country, including soil structure damage (especially on winter feed crops), high feed wastage, low pasture utilisation, and animal health/condition issues. The positive is that water tables have been fully recharged for the first time in a while.

Current conditions are now causing delays in planting spring crops. Pasture growth rates have tended to be stop-start. Concern about soil/pugging damage is leading to quicker rotations and higher pasture residuals. This could result in some quality issues later in the spring/summer period, impacting on livestock production and/or demand for supplementary feed.

The weather patterns New Zealand has been experiencing since April are forecast to continue through to at least October. These patterns are expected to bring about a mild end to winter and a quick start to spring. Air temperatures are likely to be above normal, but rainfall is also expected to be at or above normal, reducing sunshine hours and leaving conditions wet underfoot.

DAIRY

Market expectations seem to be primed for a 3-5% lift in New Zealand milk production in 2017/18. The anticipated lift is being driven by slightly higher cow numbers (+1-2%) and better yields (trend growth 1.3%). Winter milk collections have provided a fast start, with production up 13% year-to-date. However, the comparison is inflated by changes Fonterra made to its winter milk contracts to encourage more production during this period.

It looks like dairy cows in calf to start the season could be 1-2% higher than last season. Lower cull cow and heifer turnoff (-11% ytd) suggests slightly higher stocking rates as new dairy conversions have dropped to just 14 (compared with a 5-year average of 112). Per-cow productivity growth is 1.3%, so this would imply growth toward the lower end of expectations. That said, the better cash-flow situation is expected to increase the use of supplementary feed, which will be used to fill any feed deficits that emerge and/or improve diet balance. This should support average yields and provide more durability (less downside) in milk supply if pasture conditions deteriorate at any point during the season.

MEAT AND FIBRE

New season lambs are arriving. Industry expectations are for only a small lift in the 2017 lamb crop (1.1% y/y). If some further rebuilding of sheep numbers in regions previously affected by drought or facial eczema occurs, export lamb production could be flat or even lower in 2017/18. This would be price supportive. We're a little more upbeat on scanning survival results; mutton turn-off in 2016/17 (-7%) implies higher breeding ewe numbers than the 1.9% drop in the B+LNZ stock number survey and more hogget lambs are expected too. All up, the scene is set for a bigger lamb crop, but as always the spring weather conditions will be the key determinant of the final size.

Prime and bull beef production has had some catch-up through the winter period as target weights have been hit, wet weather caused pugging, and schedule prices have been high. Cull-cow production has been lower than industry expectations due to more winter milking, higher dairy cow stocking rates and retention of traditional beef breeding cows.

Looking forward we expect New Zealand beef production to remain fairly stable in 2017/18. Slightly higher dairy culls and more bull beef is expected. The offset is lower prime beef production due to the 9% decline in the number of traditional beef cows into 2016 (meaning a smaller number of calves born in 2016).

Wool exports finished the 2016/17 season nearly 18% behind last year. This implies a large carryover of stock into the 2017/18 season with overall production having decreased only 3%.

ARABLE

Wet conditions have delayed crop planting. The latest AIMI survey suggests the total area of feed wheat and barley to be harvested will increase in 2018. Growers are anticipating planting 40,000ha of feed wheat (+6% y/y) and 52,220ha of feed barley (+51% y/y). While the increase for barley seems large, it's basically a return to historical averages. There could be a further increase if wet weather extends limiting growers' ability to plant wheat in time (meaning barley is planted instead).

FORESTRY

High log prices are encouraging the early harvesting of some forests. The uplift appears to be mainly smaller forestry owners who are selling cutting rights to exporters to unlock current value. Some of these exporters are harvesting at a younger age than normally would be the case when a log is used for domestic processing/purposes.

RURAL PROPERTY MARKET

SUMMARY

Rural land values have remained robust in recent months, though turnover has dropped. The decline in turnover has been off healthy levels, but the wet winter and general election appear to have been influential too. Both factors could provide a slower start to the traditionally busier spring period.

Looking forward there are many issues to ponder. The most important focal points are a robust earnings outlook versus starting point for valuations and increasing regulatory requirements. The rural land market is notorious for trading off a one-year-ahead price-to-earnings ratio, so higher cash flow for a range of sectors implies upward pressure on prices. On the other hand, interest rates have bottomed, valuations are already high, and dairy expansion has matured. Add onto that regulatory uncertainty (especially election-related: bringing agriculture into the ETS, water tax, nitrogen tax, capital gains tax, foreign investment rules and migrant labour) and it all signals 'steady as she goes'. We side more with the latter.

For lifestyle and smaller horticulture blocks, the slowing in the housing market, especially in Auckland, is likely to take some heat out of prices in certain areas.

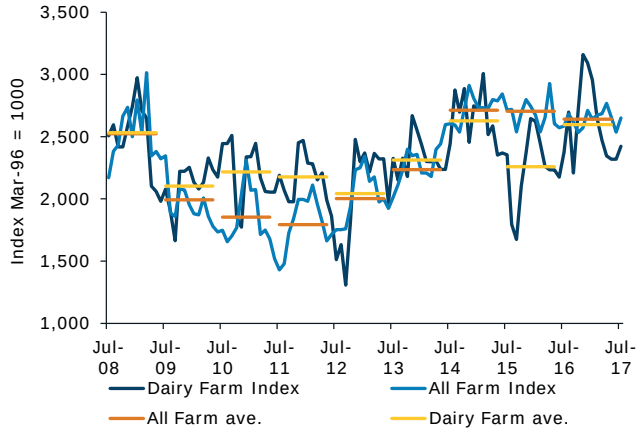
The latest REINZ data shows the average all-farm price continues to hover around the $27,000 to $28,000/ha mark. The adjusted REINZ index shows a similar picture, with little change in the past year. **In contrast, turnover has dropped below the 10-year average.** By farm type, turnover has reduced for dairy, grazing, arable, horticulture and lifestyle properties. This signals a broader-based reduction in sales activity beyond one sector.

Dairy land continues to trade between $37,000 and $38,000/ha, or $35/kg MS. This range extends back to the end of 2016. Finishing land continues to trade between $27,000 and $30,000/ha and turnover has remained robust. Grazing land has been volatile depending on the regional mix of sales from month-to-month. Arable values have pushed up, but Canterbury turnover has been notably lower than normal. Horticulture values remain robust, especially for kiwifruit and pipfruit.

FARM SALES BY FARM TYPE

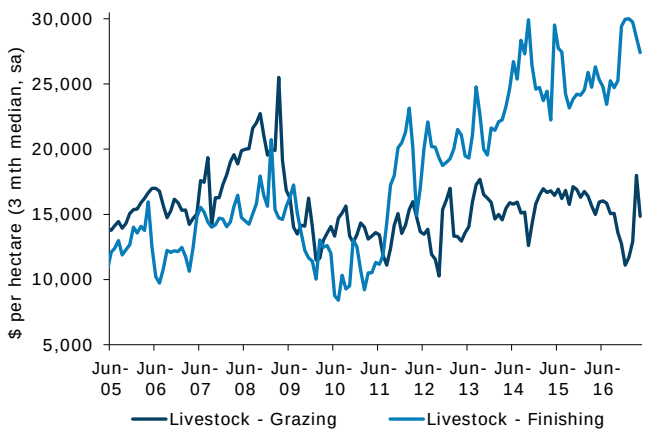
3-Month Seasonally Adjusted		Current Period	Previous Period	Last Year	10-Year Average	Chg. P/P	Chg. Y/Y	Chg. P/10yr
Dairy	Number of Sales	55	60	49	58	↓	↑	↓
	Median Price ($ per ha)	37,600	37,600	36,800	34,900	↔	↑	↑
Livestock – Finishing	Number of Sales	141	139	87	72	↑	↑	↑
	Median Price ($ per ha)	27,500	26,100	23,400	19,400	↑	↑	↑
Livestock – Grazing	Number of Sales	99	116	172	177	↓	↓	↓
	Median Price ($ per ha)	11,700	9,700	16,000	15,400	↑	↓	↓
Horticulture	Number of Sales	50	54	80	42	↓	↓	↑
	Median Price ($ per ha)	156,700	154,500	218,100	163,500	↑	↓	↓
Arable	Number of Sales	15	18	37	23	↓	↓	↓
	Median Price ($ per ha)	42,700	42,600	39,800	34,200	↑	↑	↑
All Farms ex. Lifestyle	Number of Sales	382	419	456	401	↓	↓	↓
	Median Price ($ per ha)	27,300	26,500	26,700	23,300	↑	↑	↑
Lifestyle	Number of Sales	1,914	1,988	2,366	1,562	↓	↓	↑
	Median Price	571,000	599,000	561,000	490,000	↓	↑	↑

Figure 1. REINZ farm price indices



Source: ANZ, REINZ

Figure 2. Farm sales, median price



Source: ANZ, REINZ

RURAL PROPERTY MARKET

Region	Regional Farm Sales for 2016 by Farm Type								
	Dairy			Fattening		Grazing		Horticultural	Arable
	Average sale price per ha	Average production MS per ha	Average sale price per MS produced	Average sale price per ha	Average sale price per stock unit	Average sale price per ha	Average sale price per stock unit	Average sale price per ha	Average sale price per ha
Northland / Auckland	26,800	666	28	23,900	1,254	20,100	1,303	178,700	–
Bay of Plenty	36,200	745	45	32,200	1,900	–	–	225,500	–
Waikato	46,100	770	51	19,000	1,565	12,000	1,557	170,200	–
Taranaki	50,300	765	60	15,100	1,619	4,600	1,151	–	–
Gisborne / Hawke's Bay	–	–	–	19,800	1,292	7,000	758	137,500	73,900
Manawatu / Lower NI	33,300	923	33	23,100	1,574	6,400	706	141,300	46,400
Canterbury / West Coast	32,900	820	36	28,900	2,577	7,000	1,500	92,800	37,400
Otago / Southland	36,100	1,131	31	19,100	1,637	6,000	1,306	167,600	43,500
New Zealand	40,300	799	42	22,300	1,677	10,900	1,131	180,700	46,200

Source: ANZ, Quotable Value New Zealand

In this edition of the rural property section, we look at the regional variations in land values for different farm types.

There is wide variation in regional prices and trends for the different farm types, which is not captured at the national level. The differences are often associated with parameters such as weather, soils, contour, location, environmental regulation and productivity.

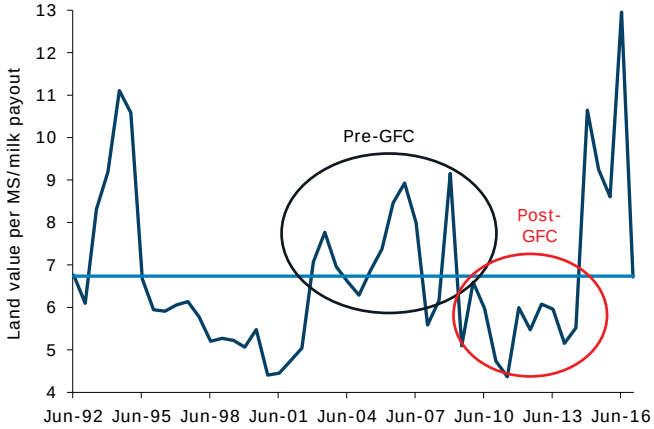
We have used Quotable Value NZ data, which has just been released for the 2016 calendar year. While the data lags the current situation by eight or so months, it does offer an insight into the regional differences in farmland values. Comparisons with the REINZ data shouldn't be made due to different collection methods and definitions. We have also taken some outlier results out and amalgamated certain regions to distil the results down to broad trends.

Property prices across all farm types remained buoyant in the 2016 calendar year. This reflected a wide mix of drivers including buyer focus on the long-term returns of owning land; record-low interest rates; productivity improvements; a different mix of buyers (foreign and equity investor interests); succession; offshore interest in rural land as an asset class; efficiency gains from amalgamation with next-door neighbours; improvement in dairy prices; general buoyancy in all asset prices; high cash returns for horticulture; and a restricted supply of quality properties.

Of course there were plenty of challenges too, including the lingering effects from the two-year dairy downturn, its associated effects on other sectors (i.e. dairy support and arable returns), increasing regulatory requirements on a number of fronts, and lower livestock production. But these seem to have played second fiddle to all the other drivers.

Dairy farmland sales averaged $40,300/ha, or $42/kg MS produced in 2016. Using the 10-year average milk payout of $6.27/kg MS this gives a per MS land value to milk payout multiple of 6.7. However, the actual cashflow over the two adjoining financial years of 2016, at $4.90/kg MS, was well below the long-run average. Using this gives a much less favourable multiple of 8.6. But in the context of previous spikes higher during periods of over-exuberance and/or an income hit, the increase when calculated using year-specific prices isn't any more of an outlier. It is also worth noting that it adjusted back to the 10-year average over the second half of 2016 with the improved milk price environment.

Figure 3: Land value multiple to milk payout



Source: ANZ, QVNZ

On a regional basis, using the same valuation metric provides an even wider split. At one end there is Taranaki, with a per MS land value to milk payout multiple of 12.2. Then there is Northland at the other end of the spectrum with a multiple of 5.8. The difference highlights the various regional drivers

RURAL PROPERTY MARKET

of the property market well. In Taranaki a big driver is amalgamation of smaller neighbouring parcels of land to improve operating efficiencies. In addition, it is a traditional dairying area due to its climate and soils, and there is very limited new area that can be converted. In contrast, Northland's conditions – both climate and soil-wise – are generally tougher for dairying, impacting on key productivity metrics and creating more income volatility. Mother Nature has swung regularly in the region between too dry and too wet. Income volatility means a lower price-income ratio.

Similar themes are reflected in other regions and valuation metrics. On a per hectare basis, Taranaki ($50,300/ha), followed by the Waikato ($46,100/ha), took out the top spots. Then there was quite a gap to the other major dairying regions of Bay of Plenty ($36,200/ha), Otago/Southland ($36,100/ha), Canterbury/West Coast ($32,900/ha) and Manawatu/Lower N.I. ($31,800/ha).

Ranking the regions on a 'cost per MS' basis produces a similar regional ranking. The most expensive regions on this measure are Taranaki, Waikato and the Bay of Plenty, with average valuations all above $45/kg MS.

At the other end of the spectrum are the major South Island regions, Manawatu/Lower N.I. and Northland/Auckland, all with average valuations below $36/kg MS. Northland/Auckland takes out bottom spot with the lowest average production per hectare being offset somewhat by a low per-hectare price. The Otago/Southland region looks to have offered the best value in 2016 with a price per hectare of $36,100/ha and high production of 1,131kg MS/ha. This leads to an average price paid of $31/kg MS and land value to milk payout multiple of 6.3 (using $4.90/kg MS).

For fattening properties, the highest value regions on a per-hectare basis were the Bay of Plenty, followed by Canterbury/West Coast. However, it was the reverse on a per-stock unit basis. Generally the valuations on a per-stock unit basis look very high. This perhaps suggests some data quality issues on the actual stocking rates of the properties sold, or compositional issues.

The next-highest value regions for fattening farms were the Manawatu/Lower N.I. and Northland/Auckland. Both regions had similar values on a per hectare basis, but Manawatu/Lower N.I. had a higher per-stock unit value of $1,574. At the other end of the spectrum Otago/Southland, Waikato and Gisborne/Hawke's Bay all had an average value of $19,000/ha. However, on a per-stock unit basis Otago/Southland had the highest value, followed by Waikato and Gisborne/Hawke's Bay. Surprisingly, Taranaki ranked the lowest on a per-hectare basis for fattening properties, but at $1,619/SU wasn't quite so cheap. Turnover was relatively low (11 farms sold) for Taranaki, suggesting some compositional impact.

For grazing properties there is a wide range of valuations. Lower turnover of just 205 farms means the sample size at the regional level is smaller and can skew the results in certain areas. The areas with lower turnover were Waikato, Taranaki, Gisborne/Hawke's Bay and Otago/Southland.

For grazing properties, Northland/Auckland took out the highest spot on a per-hectare basis. However, this was skewed by a few sales in the Auckland area. Looking just at Northland sales shows an average sale price of $10,000/ha and $1,300/SU. High beef prices no doubt helped valuations. Waikato was the next highest-value region at $12,000/ha and $1,557/SU. Low turnover of 13 sales suggests some compositional skew.

The next highest-value regions were Gisborne/Hawke's Bay and Canterbury/West Coast at $7,000/ha. But on a per-stock unit basis there was a marked difference with Canterbury/West Coast at $1,500/SU and Gisborne/Hawke's Bay half this, at $758/SU. The Gisborne/Hawke's Bay farms were on average smaller and more intensive than the Canterbury/West Coast.

At the other end of the scale is Manawatu/Lower N.I., Otago/Southland and Taranaki. Manawatu/Lower N.I. offered the best value on a per stock unit basis at 706.

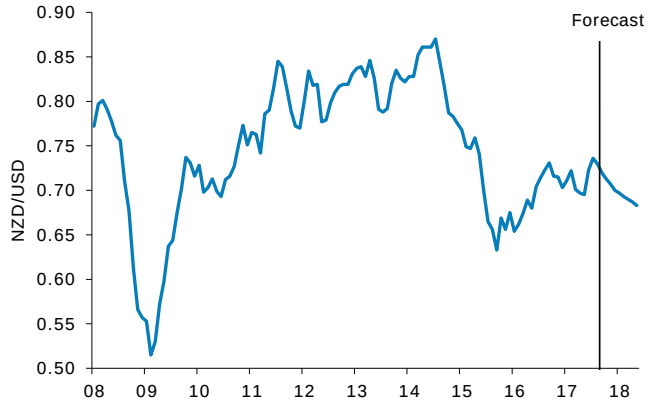
In the arable sector, 22 out of a total 36 sales occurred in Canterbury. The average size of the properties sold was 66 hectares. A proportion of these would have been sold for future intensification. Of the remaining 14, Gisborne accounted for seven, Manawatu/Wanganui six and Southland/Otago one. The valuations in Gisborne were $73,900/ha, Manawatu/Wanganui $46,400/ha, both above Canterbury at $37,400/ha.

In the horticultural sector, the changing mix of sales always makes regional comparisons fraught and less relevant. Bay of Plenty is likely to reflect a larger proportion of kiwifruit blocks, but other areas such as Auckland provide fresh produce for the local or Australian export markets, and the East Coast cultivates a wide variety of produce. QVNZ recorded 340 horticultural business sales in 2016, which would appear to be more than other real estate data sources reported

ECONOMIC INDICATORS

EXCHANGE RATES					
	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
NZD/USD	0.730	0.718	0.723	↑	↑
NZD/EUR	0.618	0.637	0.645	↓	↓
NZD/GBP	0.563	0.556	0.552	↑	↑
NZD/AUD	0.923	0.945	0.948	↓	↓
NZD/JPY	80.26	80.28	73.24	↓	↑
NZD/TWI	73.65	76.42	75.89	↓	↓

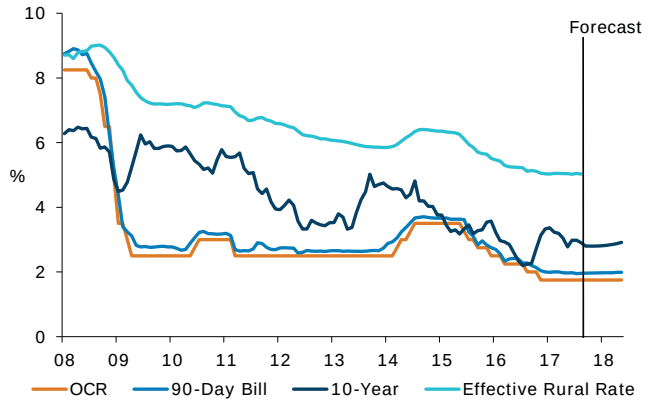
Figure 1. NZD buys USD



Source: ANZ, Bloomberg

NZ INTEREST RATES					
	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
Official Cash Rate	1.75	1.75	2.00	↔	↓
90 Day Bill Rate	1.96	1.97	2.28	↓	↓
2 yr	1.94	2.02	1.80	↓	↑
3 yr	2.08	2.17	1.81	↓	↑
5 yr	2.48	2.57	1.82	↓	↑
10 yr	2.90	2.91	2.24	↓	↑
Effective Rural Rate	5.03	5.04	5.12	↓	↓
Agricultural Debt ($b)	60.42	59.60	58.73	↑	↑

Figure 2. Key interest rates



Source: ANZ, RBNZ

The NZD remains elevated, supported by the terms of trade at close to 40+ year highs, strong GDP growth (in absolute terms and in comparison to peers), a sound microeconomic policy agenda, and widespread USD disenchantment.

Some weakness has emerged of late with election related uncertainty and swings in global risk sentiment a reminder that what goes up can also come down.

Looking ahead, while we expect the NZD to remain elevated, our bias is for a mild move lower. New Zealand's previous clear #1 position across a number of key "relativities" (growth, yield, unemployment and debt) is now being challenged as domestic growth levels out and momentum picks up around the globe.

The NZD has also been a major beneficiary of excess global liquidity (QE); we expect the reverse to apply as the liquidity cycle turns with the US Fed starting the process of unwinding QE soon. All up we have the NZD holding above 0.70 until year-end, beyond which we expect it to gravitate towards 0.66 by mid-2019. That's a modest cycle relative to history, reflecting still solid NZ credentials and challenges the USD faces.

Interest rates are likely to continue range-trading for the next few quarters, with the short-end anchored by an on-hold OCR and the long-end cushioned by spread compression as US interest rates inch higher.

We recently changed our OCR forecasts, delaying the timing of the next OCR hike from May to November 2018. We were somewhat tempted to flat-line our forecasts given the benign global inflation backdrop, the degree of financial leverage in the system (globally and locally), NZD strength, and softening credit and house price growth. However, as we expect the NZD to correct lower, and with almost every leading indicator of wages pointing higher, we ultimately expect wage inflation to rise, eventually driving inflation higher too.

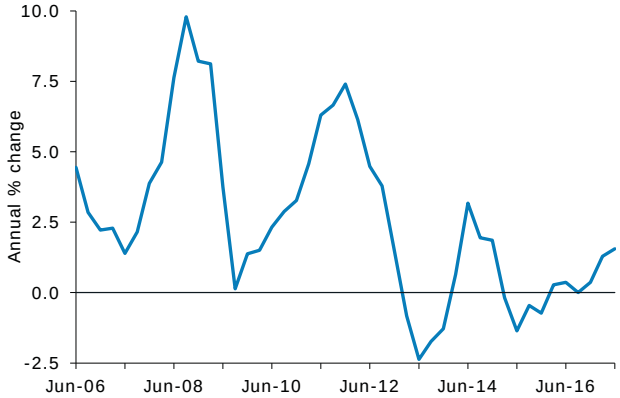
Long-end rates have fallen. Given the role US bond yields play in setting NZ long-end rates, all eyes are on the Fed, US inflation and politics, and North Korea. Near-term uncertainty is high. Indeed, it is not difficult to envisage a deepening of Korean tensions and further US political uncertainty driving US bond yields lower. And with Fed balance sheet reduction supplanting rate hikes, there is a limit to how quickly bond yields can rise, particularly in the near term.

However, the US data pulse is improving, the labour market is tightening and the Fed is on track to start scaling back its balance sheet in late September. Moreover, we concur with the Fed that the recent softening in US inflation is transitory, and that it will ultimately recover. All else equal, that suggests that US bond yields will rise gradually.

ECONOMIC INDICATORS

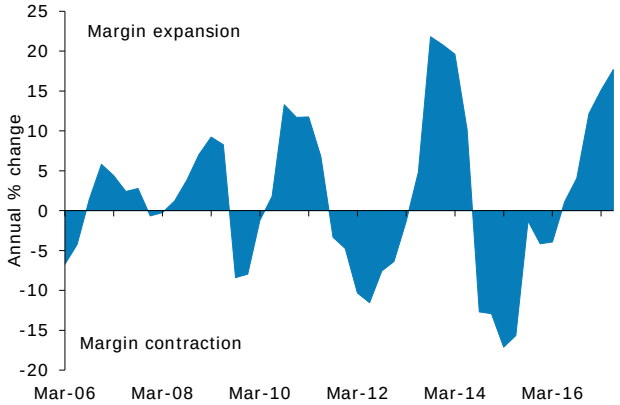
INFLATION GAUGES					
Annual % change	Current Qtr	Last Qtr	Last Year	Chg. Q/Q	Chg. Y/Y
Consumer Price Index	1.7	2.2	0.4	↓	↑
Farm Input	1.6	1.3	0.4	↑	↑
Net Imp. Margins PPI	17.7	15.1	1.1	↑	↑

Figure 1. Farm input inflation gauge



Source: ANZ, Statistics NZ

Figure 2. Annual net implied margins PPI ag/forestry/fishing (outputs – inputs)



Source: ANZ, Statistics NZ

Inflationary pressures both domestically and globally remain low, and that looks set to remain the case for a year or so. Local headline inflation looks set to fall back towards 1% over the next year given the impact of earlier oil price falls and NZD strength. Structural factors (like technological change, retail sector competition and labour mobility) are having a strong dampening influence too. Inflation is low across the western world and it's hard to see New Zealand being out of step.

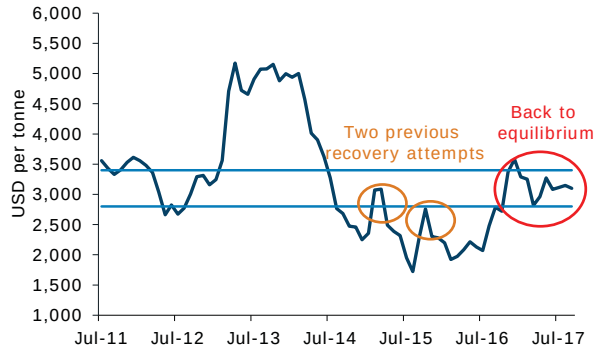
We expect underlying price pressures to rise gradually in time, and key factors behind this is wage growth and boosts to the economy from fiscal policy. Domestically we expect wage growth to rise modestly as the labour market tightens. Surveys are saying firms' biggest problem is finding staff. Job ads growth is slowing amidst solid appetites to hire, and employment growth has stalled; that suggests that the demand is still there, just not the people. When there is a shortage of something, the price tends to go up, in this case wages. As wages lift broader inflationary pressures should too. But we must emphasize, we are talking a slow and modest lift in wages and inflation. Inflation is not going to rise a lot when technology is removing pricing leverage.

It's a similar story globally where we expect inflation and wage growth to rise gradually. The US, where the labour market appears to be closest to full employment, should lead this. That said, headline unemployment rates across the G7 seem to be understating the degree of slack left in labour markets. Broader measures of underemployment have not returned to previous cyclical lows/highs. Technology is creating new jobs, but removing a lot of old ones; that's diluting wage bargaining power. Workers are more concerned about job security than pay rises. It all means that while inflation is expected to rise off lows, it will remain low.

Producer margins had a strong June quarter with net margins expanding 4.1% q/q. In annual terms net margins expanded 18% y/y. The June quarter lift was led by a 5% increase in output prices with input prices only increasing 0.8% q/q. The lift in output prices was led by a 9% q/q improvement for sheep and beef farming. This was driven by better sheepmeat, beef and venison prices, offset to some degree by lower wool prices. Horticulture/fruit growing and dairy also experienced a strong lift in output prices of 6% q/q. **The stronger output prices for all these sectors flowed through to net margins.** Sheep and beef farming margins lifted 7.5% q/q, horticulture/fruit growing 5.7% q/q and dairy 4.6% q/q. In annual terms dairy has contributed to most of the headline increase with net margins up 54% y/y. **The seafood sector is the only one to experience an annual decline in net margins (-6% y/y).** This driven by an increase in input prices (2.6% y/y) and a decline in output prices (-3.3% y/y).

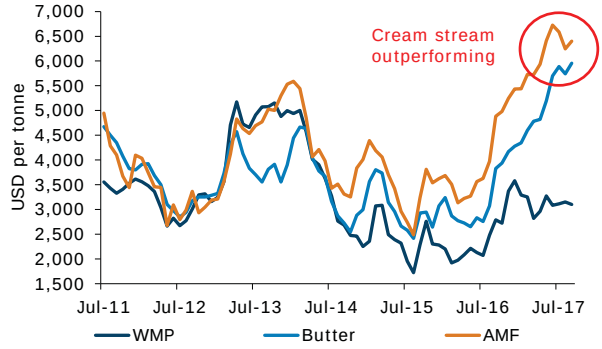
KEY COMMODITIES: DAIRY

Figure 1: Whole milk powder prices



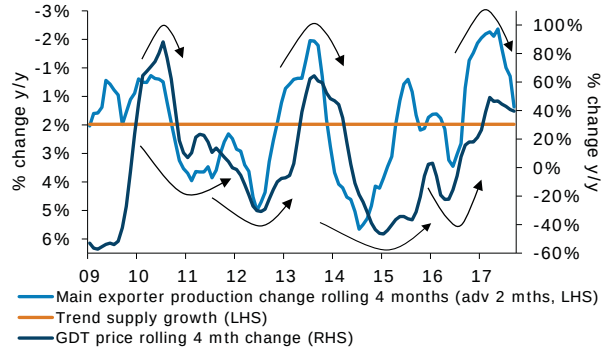
Source: ANZ, GlobalDairyTrade

Figure 2: Milkfat prices outperforming



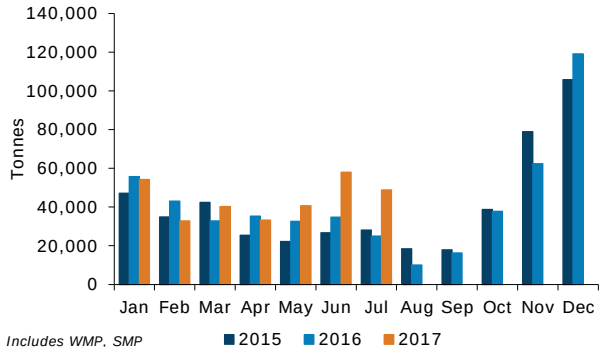
Source: ANZ, GlobalDairyTrade

Figure 3: Milk production growth vs GDT prices



Source: ANZ, Dairy Aus, DCANZ, CLAL, Datum, USDA

Figure 4: NZ milk powder exports to China



Source: ANZ, Statistics NZ

We remain comfortable with our $6.75/kg MS milk price forecast for now. GDT auction outcomes over the next two months or so will be crucial.

There are mixed signals across the dairy market; some bullish and others the opposite. Milkfat prices continue to outperform, but milk powders have been treading water. Milk supply is beginning to lift more aggressively across the major export regions, which is usually a precursor to prices softening. However, this could be delayed by low Oceania inventory levels, the need for sustained milk growth in key export countries, seasonal dynamics, solid demand and currency movements.

A substantial lift in milk supply remains the largest risk to prices. US milk production continues to grow 1.5-2.0%. Combined with domestic demand pressures moderating and a lower USD, this is supporting exports. Total US exports have increased 17% y/y with butter, cheese, whey products and skim milk powder volumes all higher. Most of the increase has been destined for Mexico (cheese & SMP) and Canada (butter), but China, Japan and South Korea have also taken some extra volume.

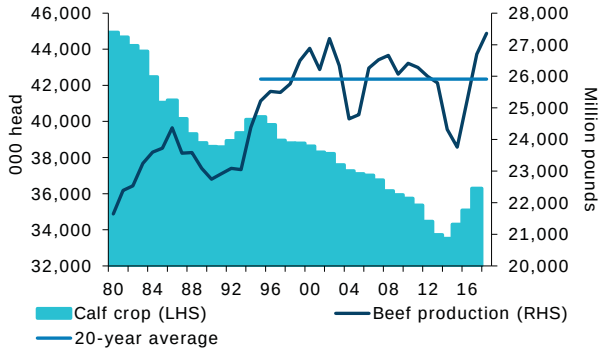
On the other hand, European milk supply, while now increasing, has been fairly lacklustre year-to-date (-0.6%). Crucially, milk supply in some of the key exporting countries continues to struggle. Year-to-date milk volumes are down in Germany (-3.2%), France (-2.9%) and the Netherlands (-0.5%). The offset has been stronger Eastern European and Irish (+6.6%) growth. We expect a seasonal decline, but a y/y increase in European milk volumes due to better farm-gate prices and improved climatic conditions.

The European milkfat market remains critical for butter and AMF price direction. European butter prices have been around US$8,000-$8,200/t. This has opened up a significant gap (circa US$2,200-$2,400/t) to GDT milkfat pricing, even making it advantageous for NZ to export product to Europe. The butter imbalance is highlighted by year-to-date production declining 7%, exports dropping 17% over the same period, and there being no product in private storage. Seasonal demand for the Christmas period is expected to support near-term prices, but a further escalation is unlikely as affordability and substitution effects kick in. Beyond this some price moderation is expected, but a substantial fall is unlikely until seasonal milk production lifts next year. Elsewhere Europe's exports of WMP, cheese and whey products have lifted marginally (2-8%) and SMP significantly (+35%). A stronger euro could provide an additional headwind moving forward.

Closer to home milk production is expected to pick up, but low carry-over inventory provides exporter flexibility. Chinese demand remains critical, especially for WMP prices. It's difficult to see SMP price moving with plentiful Europe/US supply. Chinese milk production has remained soft and stock levels near historic norms. This suggests import demand should remain solid and in line with seasonal norms. Such an environment would seem to support a stalemate for WMP prices.

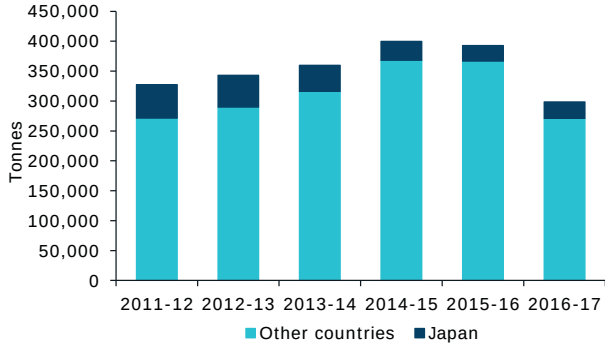
KEY COMMODITIES: BEEF AND LAMB

Figure 1: US calf crop and beef production



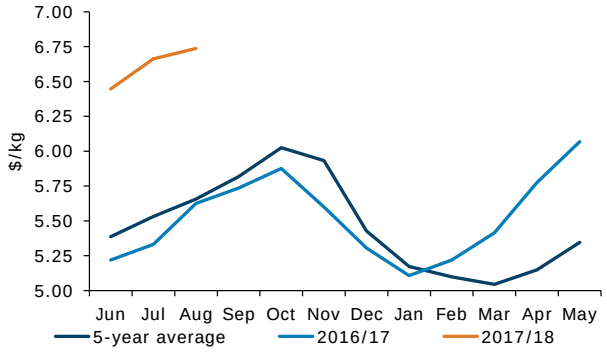
Source: ANZ, USDA

Figure 2: NZ beef exports to Japan



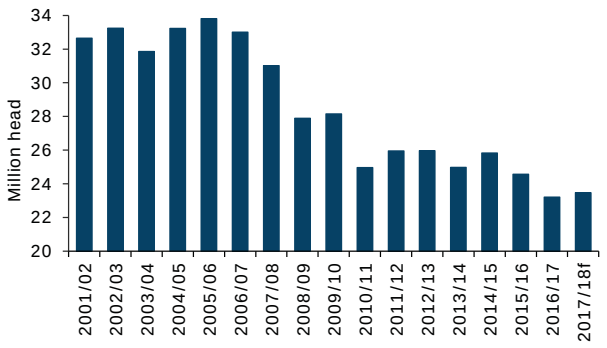
Source: ANZ, Beef + Lamb NZ, Statistics NZ

Figure 3: NZ farm-gate lamb prices



Source: ANZ, AgriHQ

Figure 4: NZ lamb crop



Source: ANZ, Beef + Lamb New Zealand

Higher US and Australian supply is going head-to-head with robust demand in major markets. Imported US manufacturing beef prices have fallen (10-15%) in sync with other US beef prices indicators. Combined with the NZD/USD moving toward the mid-0.70s this placed down pressure on farm-gate prices.

Increasing US supply will remain a focal point into 2019. The expansion in the US beef herd has produced a 36.3m head (+3.5%) calf crop for 2017, the largest in 10 years. Along with high imports of feeder cattle from Mexico this has led to a steady increase in the number of cattle placed on feed since May, which will lift US supply more aggressively (2-4%) into year-end.

Australian beef supply has increased too, with pasture conditions deteriorating in eastern regions. Production is set to remain above a year ago into the end of 2017. **So far, strong retail demand, in part due to more promotion, has helped limit wholesale price falls. This and a lower NZD/USD should support farm-gate prices, but further pressure could occur as NZ seasonal supply lifts in November.** Due to tighter supply and solid domestic demand, local trade schedules should track at a premium to export prices.

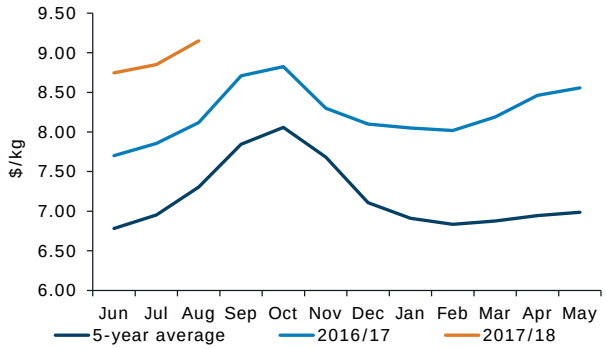
In Asia the major focus point is the increase in tariffs on frozen beef exports to Japan until 31 March 2018. The Japanese market accounts for around 9% of export volumes and 10% by value. Of this, around 70% is frozen, where import tariffs have lifted from 38% to 50%, triggered by high US exports. It's unlikely these costs can be passed on, especially with Australian product not subject to the increase, meaning NZ returns will suffer and/or some product is shifted into other Asian markets, such as China.

Most indicators continue to track favourably for lamb schedules, which are set to trade in the low $7/kg range into October to meet Christmas peak chilled demand in Europe. Tight local supplies, a lower NZD/GBP/EUR and reasonable demand is expected to provide support. The offset is higher local UK supplies (forecast at 5% y/y in Oct-Dec) and some supermarkets deciding to only stock local product. Both factors appear to have already placed some downward pressure on leg prices. In response, exporters are expected to continue focusing limited supply on other European markets such as France and Germany.

Once the chilled window for Christmas closes and new season production lifts, the normal seasonal decline in schedule prices is expected. However, prices are expected to remain in the low-to-mid $5/kg range. Support is being driven by still-tight local supply (2017 lamb crop expected to only lift 1.1%), low frozen inventory carry-over, a lower NZD and solid demand from the Middle East, China and US. The only soft spots would appear to be higher UK and Australia supplies and affordability challenges for some cuts. These would appear fairly manageable, especially with seasonal factors moderating wholesale prices.

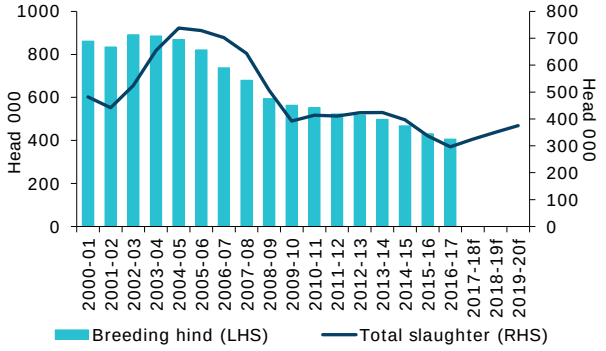
KEY COMMODITIES: VENISON AND WOOL

Figure 1: NZ farm-gate venison prices



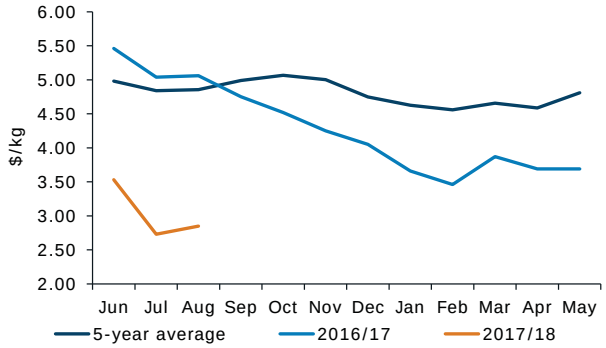
Source: ANZ, AgriHQ.

Figure 2: NZ venison production



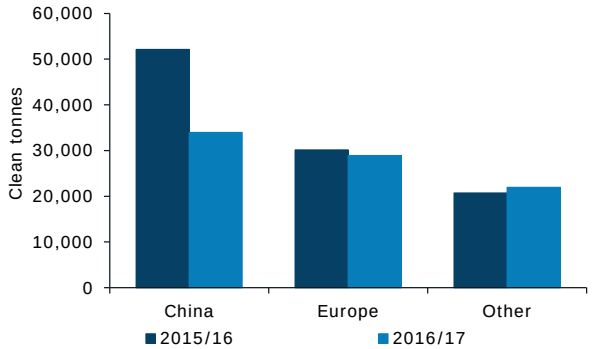
Source: ANZ, Statistics NZ, DINZ

Figure 3: Coarse fibre wool prices



Source: ANZ, Wool Services International

Figure 4: NZ wool exports by major market



Source: ANZ, Beef + Lamb NZ, Statistics NZ

Venison farm-gate schedules are set to push to new records of $10kg+ during peak seasonal demand from Europe. Very tight supply, low inventory levels, a more favourable NZD, less wild game competition and inter-market competition are all combining to push schedule prices to record highs. The main risk is wholesale and retail prices get stretched too far, risking substitution on the part of chefs and end consumers.

New Zealand venison production hit a 20-year low in 2016/17 of 296,550 head (-12% y/y). While supply has picked up in recent months, low inventory levels and capped breeding hind numbers mean production will stay low throughout 2017/18 (albeit not as low as 2016/17). This means schedule prices aren't expected to collapse when the European game season finishes, instead easing toward the mid $8/kg range in early 2018.

In-market demand signals remain strong across both Europe and the US. The German economy and job market look to have improved further in 2017, supporting foodservice demand. The US market continues to grow, capitalising on trends of rising demand for natural grass-fed, high-quality, healthy proteins that do not have antibiotics, are not genetically modified, and have no hormone growth promotants. All of this suits New Zealand's production systems. The other benefit is limited domestic competition from local supply compared with Europe, where there is wild venison available during the main consumption period. Investment is also continuing into China which remains a long-term opportunity due to the need to educate consumers and current low prices.

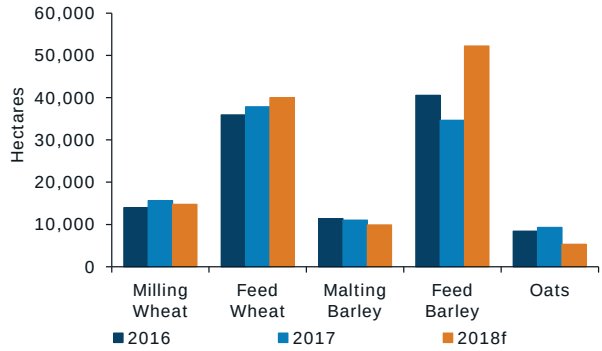
In contrast, coarse fibre wool prices continue to struggle as more domestic supply is released into a very weak export market. Prices are unlikely to recover until at least the middle of next year, if not longer. A recovery looks like a long way off due to high inventory levels of semi-processed and raw wool in both China and New Zealand.

In the case of local supplies, exports declined 18% last year, but production is expected to have fallen only 3%. This implies around 15,000 mt of clean wool (or 18% of total exports in 2016/17) is sitting in warehouses or woolsheds throughout the country waiting to be sold sometime in 2017/18.

China inventories are still being worked through with an increase in seasonal demand (Northern Hemisphere autumn/winter) facilitating some draw down. There has also been steady demand for woollen floor coverings in the US as housing activity gradually improves. Additionally, current low prices are expected to stimulate some substitution away from synthetics. However, this all takes time and with limited demand growth elsewhere doesn't offer much hope of a price improvement in the short term.

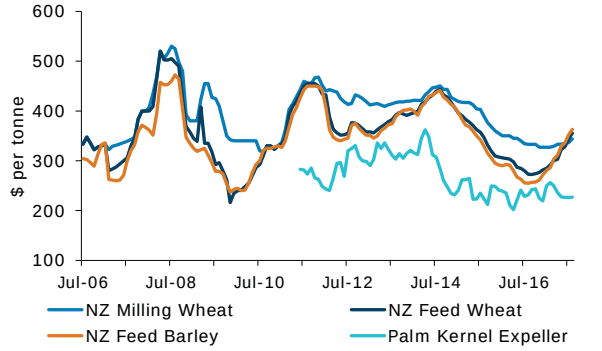
KEY COMMODITIES: GRAINS

Figure 1: Local planting intentions



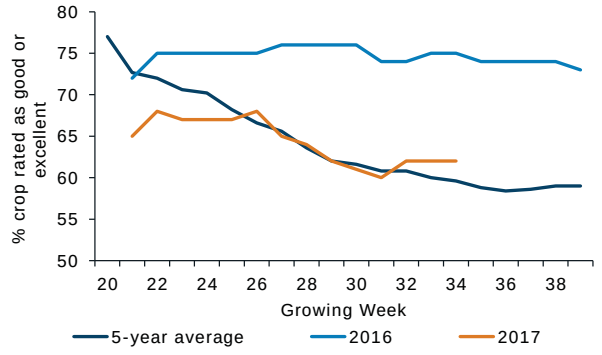
Source: ANZ, Foundation for Arable Research

Figure 2: Key NZ grain prices



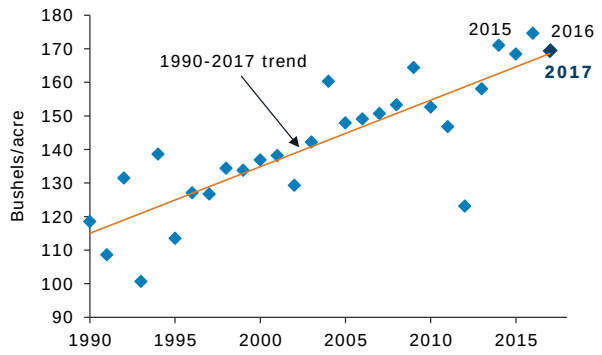
Source: ANZ, AgriHQ

Figure 3: US corn crop conditions



Source: ANZ, USDA

Figure 4: US corn yields



Source: ANZ, USDA

Local grain prices have continued to push higher due to strong dairy sector demand and the shortage of local barley. The current local supply-demand balance suggests prices could well push higher if wet weather conditions extend. Beyond this, low international prices and a larger local feed wheat and barley crop in 2018 is likely to moderate prices.

While the area sown in autumn/winter feed wheat and barley was back on earlier expectations due to the wet soil conditions (limiting planting), growers still intend to sow a larger area. **According to the latest AIMI survey, growers are intending to plant 6% y/y more feed wheat and 51% y/y more feed barley for harvest in 2018.** If the wet soil conditions continue to delay spring wheat planting, even more barley could yet be planted. The increase in the barley area seems rather large, but is more in line with the historical area planted. Barley also yields less than wheat. So if there is simply a switch in area this would limit overall feed supplies, supporting prices.

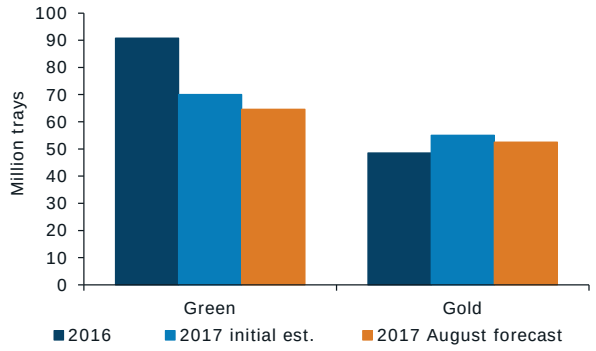
On the demand side, the wet soil conditions have been supporting dairy feed demand, especially for barley and palm kernel (PKE). With much improved cash flow more dairy farmers are expected to fill any feed gaps that emerge this year with brought-in supplement. **In this regard PKE prices have edged up to $250/t in recent weeks.** Offshore availability seems okay, but both NZ and European demand has lifted, suggesting higher offtake than recent years. This could potentially lower stocks into the seasonal lull for production in Malaysia and Indonesia and support prices into the summer period.

Global grain markets have been watching Northern Hemisphere weather conditions in recent months. **In general these have been favourable, pressuring prices lower during August.** In the US corn crop conditions have improved as the growing season has progressed. Currently the USDA is expecting average yields in line with the long-run trend. This implies a 2017 crop around 14.2 bn bu, which combined with carry-over stocks of 2.4bn bu implies a stockpile of 16.6bn bu. This is second only to last year's record of 16.9bn bu.

Global coarse grain supplies also remain large due to a significant improvement in South American output. Global ending stocks carried into 2017/18 declined only 2% to 198 million MT, which is still 50% larger than in 2011 and 2012. Production is forecast to decline only slightly leaving total supply availability near last year's record (-1.1%). Looking ahead, the hefty global balance sheet and the record Black Sea wheat crop seem likely to keep offshore grain markets under pressure, at least in the short term. **In the longer term, it seems a major crop failure or consecutive years of below-average production will be needed if grain prices are to find sustained strength.**

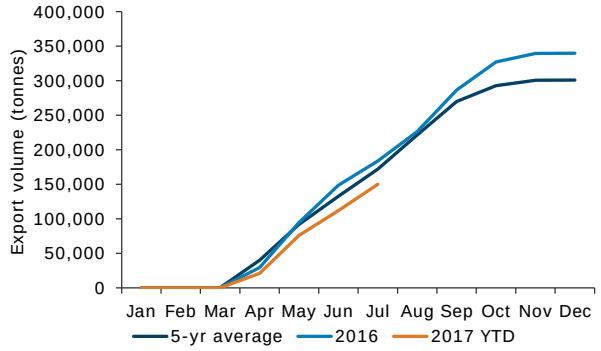
KEY COMMODITIES: HORTICULTURE

Figure 1: NZ kiwifruit supply forecasts



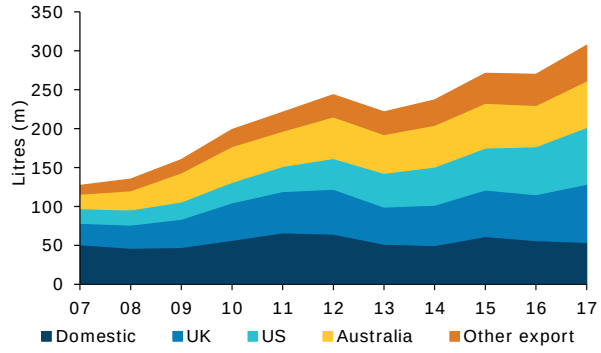
Source: ANZ, Zespri

Figure 2: Sales progress of Green kiwifruit supply



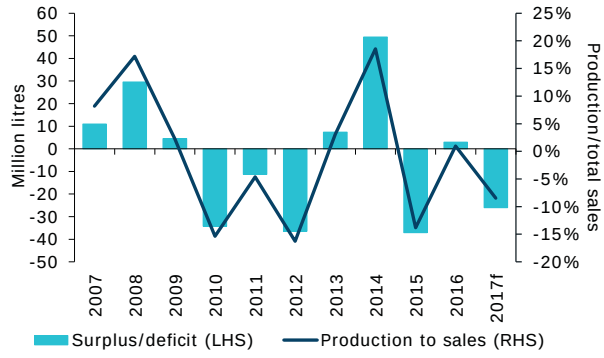
Source: ANZ, Statistics NZ

Figure 3: NZ wine destinations



Source: ANZ, Statistics NZ

Figure 4: NZ wine supply deficit/surplus



Source: ANZ, NZ Winegrowers

Zespri have narrowed down the orchard gate price forecasts for the 2017 crop. Green is expected to return $5.84/tray and Gold $9.28/tray. Average orchard revenue for Green growers is expected to be $52,100/ha (-3% y/y). The higher per-tray returns are helping to largely offset lower yields. In contrast, average orchard revenue for Gold is expected to lift to $105,000/ha (+6% y/y). A higher per-tray return provides the boost due to steady yields.

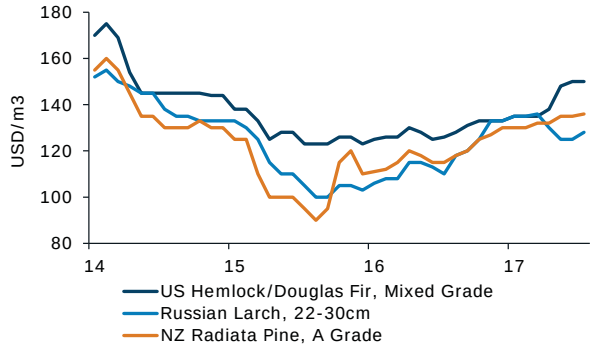
Interestingly, the Green forecast is in the middle of the June guidance range of $5.65-$6.15/tray, yet there has been a further material downgrade in the size of the 2017 crop to 64.6m trays, making it the smallest crop since 2006. Reject rates have been higher than expected as a result of wind rub from the high spring and summer winds, as well as the impact of Cyclone Cook. The seasonal conditions have also produced a larger-sized profile (average tray size of 29 vs 33 in 2016), which appears to be having some in-market impact on prices. That said, the substantially smaller crop supply should lead to a better marketing mix oriented toward higher-paying Asian markets. A smaller Italian crop should also reduce local supplies in European markets, leaving the market emptier for longer, supporting end-of-season NZ prices. **So our inclination is there could be better prices yet. For Gold it's a similar story with crop volumes being downgraded 5% from earlier expectations.** This has left many markets shorter supplied than expected. A late start for Green picking has also supported marketing activities and prices.

In the viticulture sector, a strong export performance across all major markets managed to shift the large 2016 vintage. Overall the standout market remained North America with volumes growing 18% y/y and average value per litre only falling 5% y/y. The UK experienced the largest volume growth of 27% y/y, but average values per litre fell 19% y/y. However, the lower UK returns were solely currency driven, due to Brexit seeing the NZD/GBP jump 24% y/y. Examining the in-market export price shows little difference between the last two years. The Australian market saw more modest volume growth of 13% y/y and both in-market and NZD returns declined. Other export destinations' share of total exports remained fairly steady at 19% and domestic sales declined (-4%).

The strong sales performance means only a small 3 million litre surplus (1% of sales) from New Zealand's second-largest crop ever is carried over into the new season. If a similar performance were maintained with the smaller 2017 crop, a deficit of 26 million litres (8% of sales) would be created. So expectations are the industry will be trying to produce a larger 2018 crop to replenish stocks, which we have falling to the lowest level since 2012.

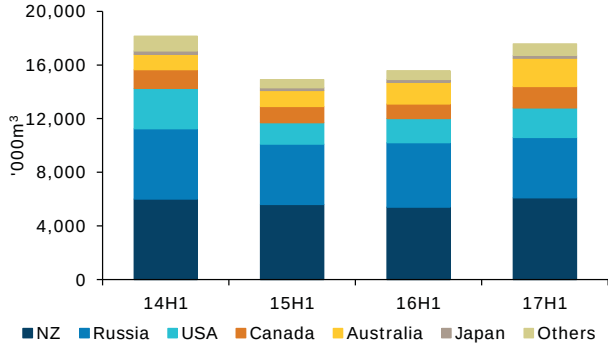
KEY COMMODITIES: FORESTRY AND OIL

Figure 1: China softwood log prices



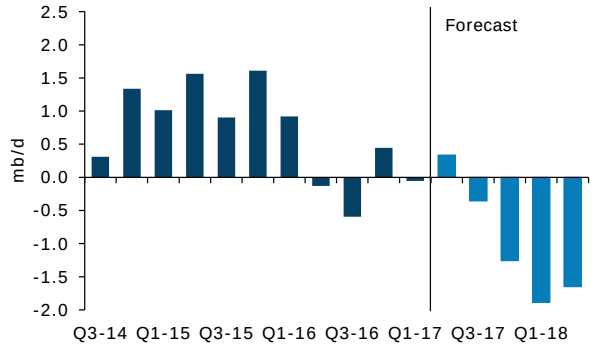
Source: ANZ, Wood Markets

Figure 2: China softwood log imports



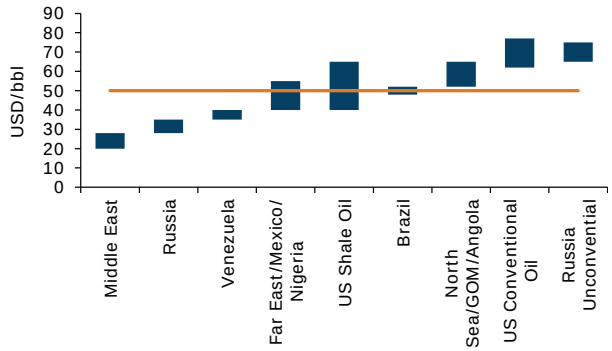
Source: ANZ, China Customs

Figure 3: Global oil market balance



Source: ANZ, EIA, OPEC, Bloomberg

Figure 4: Global oil industry cost structure



Source: ANZ, PIRA, EIA

Domestic and export log and lumber prices both continue to track favourably. Structural log prices have pushed up to new records and further gains into year-end are expected. Pruned log prices are tracking in line with last year and A-grade export prices slightly above. Both are well above long-run averages. Roundwood is still one of the brightest areas of the market. The horticulture, viticulture and construction sectors continue to display very strong demand for posts and poles.

NZ log export volumes are strong, having lifted 14% y/y over the first half of 2017. After a weak start, lumber exports have strengthened as the year has progressed, and are now tracking 2% ahead year-to-date. Construction activity in China has entered its normal seasonal lull, reducing port offtake levels. Total log stocks on port have been tracking slowly down over recent months and radiata pine has been steady around 2 million m^3. **New Zealand replaced Russia in the first half of 2017 as the largest log supplier to China.** New Zealand export volumes grew 11% y/y over this period and average values increased 10% to USD$129/$m^3$. China's log imports from North America (32%) and Australia (31%) also grew strongly over the first half of 2017. In contrast, Russia export log volumes declined 1% y/y and average values grew 7% y/y. However, it was a different story for lumber, where Russian imports increased 28% y/y and contributed to nearly 60% of the 3 million m3 in total growth. The growth in Russian lumber and other log exports highlights plenty of competition.

Looking forward, the largest new risk (China slowdown aside) would appear to be a more sustained slowdown in New Zealand construction activity as housing (read Auckland) prices cool. This is probably more a 2018 story if it does occur. **That said, export opportunities should continue to provide support.** The US continues to look attractive for lumber exports. US housing starts are tracking favourably, local supply is currently short and Canadian lumber exports (the largest supplier) are being pinched with fires in British Columbia, as well as NAFTA uncertainties.

Oil prices continue to tread water around USD50/bbl. Prices have traded a USD45-55/bbl range over the last 16 months. US shale oil production is very sensitive to moves within this range, with the higher end increasing supply and the lower end reducing it. However, **we still expect the market to tighten significantly in the second half of the year, supported by OPEC production constraints, which have been extended to the end of March 2018.** This sending a strong signal OPEC is committed to re-balancing the market by reducing stockpiles to a more manageable level. Overall disruptions to supply have been unusually low too and a pick-up is expected.

BORROWING STRATEGY

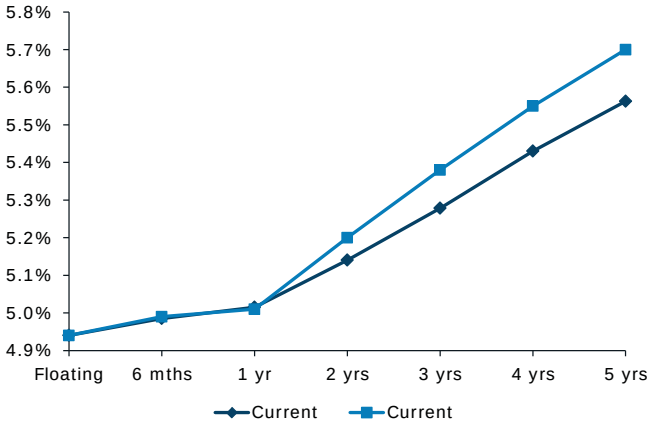
SUMMARY

Indicative rural lending rates have changed little since our last edition, but we have seen the yield curve flatten further. The floating rate remains the lowest rate, and although we expect the RBNZ to leave the OCR on hold for longer, which will keep floating rates steady for the next year or so, long-term rates are back at lows for the year. That said, they are not as low as they were this time last year, when they hit all-time lows. While we see merit in longer terms given the certainty and lower rates on offer, low inflation and the uncertain global political backdrop suggest some caution is warranted.

OUR VIEW

Indicative rural rates have changed little since our last edition (Figure 1). On average, rural rates are lower and the curve is flatter (with just 0.62%pts separating the floating rate and the 5-year rate, compared to 0.75%pts previously).

Figure 1. Indicative rural lending rates



Source: ANZ, Bloomberg

Our Reserve Bank OCR forecast has also changed since our last edition. We have pushed out our expectations for the first OCR hike from May to November 2018. All else equal, that suggests floating rates will remain steady for the next year or so, allowing borrowers to continue to enjoy low floating rates (which are the cheapest point on the curve) for longer.

With stability in the OCR expected for an extended period, this means there is not likely much financial difference between choosing to float or fix for 6 months, or 1 year. **However, with the risk profile skewed to the OCR being on hold for even longer (potentially 3 years) and wholesale floating rates remaining stable** (and we should stress that an eventual OCR cut can't be ruled out given the housing slowdown, low global inflation backdrop and haphazard global scene), time looks to be on the side of borrowers. With the RBNZ talking about the "neutral" OCR being much lower than it once was, when it comes, the upcoming rate hike cycle will be far more muted than the cycles we have seen in the past. All else equal, that should temper the desire to fix.

The bigger question is; is it worth adding to hedges now that 3-5 year rates are at (or close to) fresh lows for the year? As was the case when we published our last edition, breakevens portray fixing in a better light. They show that interest rates would not need to rise by much over the next few years before one might regret not having fixed.

Rural Lending Rates (incl. typical margin)		Breakeven rates			
Term	Current	in 6mths	in 1yr	in 2 yrs	in 3 yrs
Floating	4.94%				
6 months	4.99%	5.05%	5.20%	5.49%	5.81%
1 year	5.02%	5.12%	5.27%	5.55%	5.89%
2 years	5.14%	5.27%	5.41%	5.72%	5.99%
3 years	5.28%	5.42%	5.57%	5.84%	
4 years	5.43%	5.56%	5.70%		
5 years	5.56%				

Consider, for example, the choice between fixing for 2 years or 4 years. Break-evens show that the 2 year rate would need to rise by only 0.58%pts (from 5.14% to 5.72%) over the next 2 years before a pair of back-to-back 2-year fixes ended up costing more than a single 4-year fix. **That's not hard to envisage given how low rates are in a historical context. The trouble is, expecting rates to rise just because they are low has been an expectation for some time now**, and one that has been dashed time and time again!

To be sure, our forecasts (which are predicted on cycle norms and are, by definition, our central scenario) **have New Zealand term interest rates rising slowly.** However, we are now close to nine years into the so-called post-GFC "recovery", but we are yet to see a sustained return of inflation pressures despite much lower levels of unemployment (here and across the other major developed economies). Given those considerations, and with the global political backdrop very uncertain (think US politics, North Korean tensions and the like) and global monetary policy settings still very easy, **some caution with regard to taking strong views on where interest rates are headed is warranted.**

We continue to favour a disciplined approach (i.e. adding to cover on dips etc.), but we are also mindful of the complex global economic picture. These complexities will not just impact interest rates, but business prospects too, and when things change, flexibility can be as important as certainty.

ECONOMIC BACKDROP

SUMMARY

The economy is showing late-cycle behaviour, with capacity constraints and a moderation in the housing market crimping growth. However, the economy has enough impetus from other areas (commodity prices, fiscal policy and household incomes) for the economic expansion to extend. We expect modest GDP growth over the years ahead. While some imbalances have built up (i.e. Auckland house prices and debt accumulation), the trigger to a correction (which has historically been hikes in the OCR) is absent.

OUR VIEW

The economy continues to exhibit late-cycle behaviours. Growth is respectable but skilled labour is becoming harder to find. Spare capacity is being absorbed. Demand is not the problem; meeting the demand is. Typically that leads to inflation, higher interest rates and a turn in the business cycle.

But this cycle is different on numerous levels:

- Growth has been less exuberant at the top of the cycle; excesses have built up, but not to extreme levels.
- The current account deficit is contained.
- We are not seeing a consumption boom in combination with a housing one. The combination of this dynamic plus a high NZD and technological advancement is suppressing inflation; the RBNZ is firmly on hold.
- Policymakers have been far more proactive reining in excesses (and the banking sector too); credit growth has eased.
- We can't build enough houses; late in the cycle we typically build too many.

This combination leaves us comfortable that the business cycle will extend and we won't see an aggressive turn for the worse, as has been the historical tendency.

So far, a turn in key pro-cyclical sectors – such as housing – is not impacting the wider economy. Auckland house prices have eased 4% in six months. House price momentum across the wider country is still solid, but less stellar. Credit is harder to obtain. Despite this, business and consumer confidence remain at elevated levels and our composite measure points to good growth prospects. That's a sign of a broad-based economic expansion in operation.

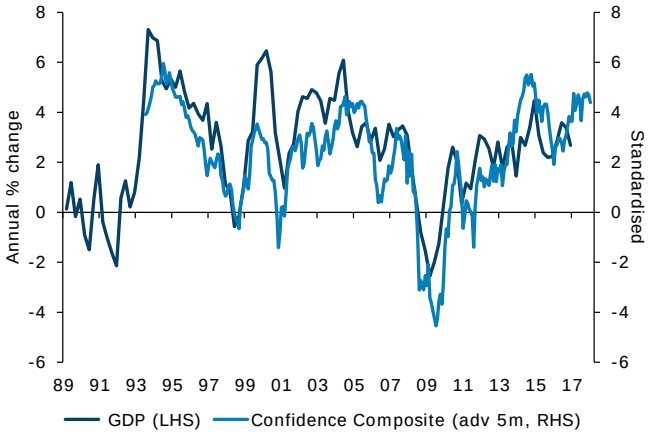
The economy will pivot over the coming two years as the drivers of growth shift. There are the obvious focal points such as migration and tourism. Construction is facing capacity constraints so will take less of a lead role. Fiscal policy is moving to an expansionary stance, putting money in peoples' pockets with electioneering in full swing. The terms of trade (the ratio of export prices to import prices) are set to hit all-time highs which will boost incomes. Commodity prices are elevated.

The RBNZ is expected to keep the OCR on hold for an extended period. Outside of housing, inflation is benign. With prudential policy doing the work of the OCR in slowing the housing market, and inflation outside of housing low, the OCR might not be moving at all.

The election is looking like a close-run thing. This has the potential to cause unease in the business sector but we don't believe it will amount to much. Policy platforms are reasonably centralist and sensible.

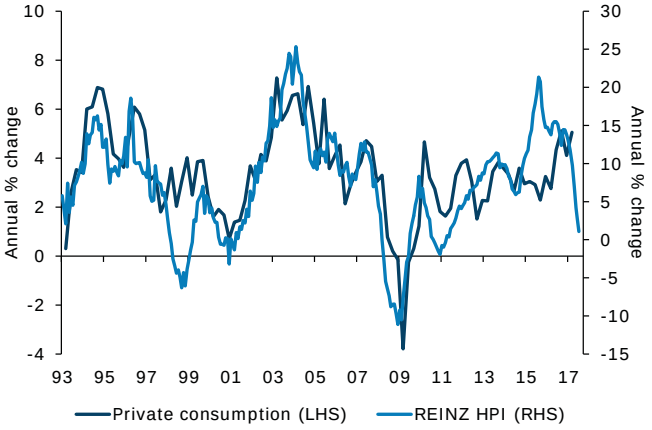
The greatest risks reside offshore and there is no shortage of candidates to foster a turn in the global economy. Growth momentum, for now, is modest. However, global debt levels are a concern and geopolitical hotspots are numerous.

Figure 1. GDP vs Confidence Composite



Source: ANZ, Roy Morgan, Statistics NZ

Figure 2. House prices and real private consumption



Source: ANZ, Statistics NZ, REINZ

EDUCATION CORNER: FARMING UNDER NUTRIENT LIMITS

SUMMARY

We assess some of the modelling that has been conducted on reducing nutrient losses and the impact on profitability of different levels of abatement for the various regions, sectors and farm types. The results show there is no 'one size fits all', with a number of unknowns requiring further science, research and new innovations if current nutrient losses are going to be reduced to the desired level of the community.

Trends that show up in the research include:

1. There is often scope for a 5-10% reduction in nitrogen losses with minimal impact on profitability. However, the cost of mitigation beyond 10% tends to step up quickly.
2. Some farms have less capacity to reduce nutrient losses than others. This may be due to low starting nutrient losses, a very high cost to mitigate certain nutrients, practical implications of mitigations, and an inability to model.
3. The effectiveness of specific mitigations varies by sector and nutrient.
4. Farms with higher baseline nutrient losses tend to have more mitigation options, and these mitigations are usually more effective, versus farms with lower baseline nutrient losses.
5. The impacts on profitability of specific mitigations often vary by farm and sector.

For farmers, the modelling suggests planning and action is required sooner rather than later. Some first steps include:

1. Knowledge of local regional council plans and what activities are being regulated.
2. If resource consent to farm is likely to be required, apply early.
3. Factor in water access and any other possible water-quality restrictions into financial decisions.
4. Model nutrient flows in the business and understand the key drivers.
5. Complete a farm environmental plan.
6. For any new capital investment (such as stand-off areas), understand the environmental impacts and roll in meeting regional council plan changes.
7. Understand best management practices and how they might practically be applied in your own business.
8. If you need to come up to speed quickly, ask for quality professional advice if in doubt.

INTRODUCTION

The terms of farming's social license to operate continues to be debated by the community and end consumer. The trend seems to be towards a step-up in regulatory and market requirements across a range of social issues.

In the water-quality space, the debate and implementation of the National Policy Statement for Freshwater Management continues at varying speed up and down the country. While there is plenty of policy uncertainty regarding where the final settings will land, and the actual implementation/interpretation of these, the overall direction is clear: **the step-up in on-farm water management practices has much further to go, and the rules are expected to become tougher and much more complex over time.**

The purpose of this research is not to examine the specific regional plan rules for different regions – which are very complex – but instead take a look at some of the accompanying on-farm modelling for reducing nutrient losses. Specifically, most of this modelling has been looking at the current known mitigation options for reducing nutrient losses to water (specifically nitrogen and phosphate) and the associated financial implications of different levels of abatement.

The modelling is complex due to the different biophysical aspects of individual farms (i.e. soil type, topography, rainfall, climate, and aspect); chosen farming practices/farm system; current capabilities/science of modelling tools, such as Farmax and Overseer. In addition, different modelling techniques are being applied by various analysts. The science and knowledge is also continuing to evolve, making mitigation cost curves very dynamic.

That said, the modelling gives a sense of the task at hand for farmers, especially when the current abatement curves are compared with the often ambitious intentions of different regional plans.

THE THEORY

Examining the analysis that has been conducted for various regional plans shows each sector is using slightly different modelling techniques. This is often due to the current modelling abilities of software to cope with multiple mitigation strategies for certain farm types and particular crops. Analysts are also using different methodologies and mitigation strategies to model impacts – each of which have their own pros and cons.

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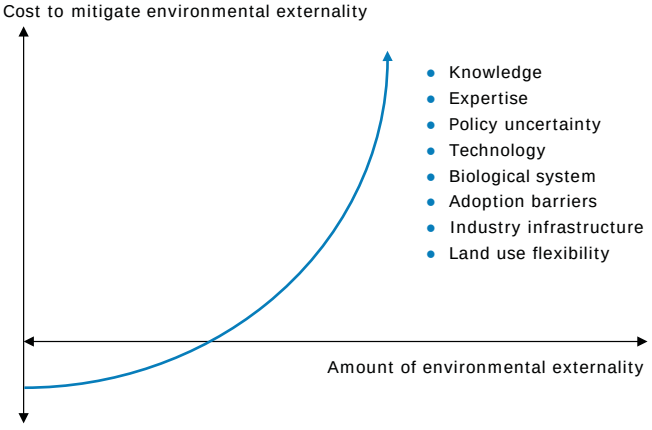
In simple terms, what most of the analysis is trying to examine or construct is a cost-mitigation curve for reducing a targeted environmental externality. In most cases the targeted environmental externality is either nitrogen or phosphate losses to water (or both at same time). The science and modelling for nitrogen loss to water tends to be more advanced than that for phosphate. This makes it possible to model a wider range of mitigation options and farm systems/practices where nitrogen loss is being targeted for reduction. At present the reduction in other environmental externalities, such as phosphate, sediment and pathogens, is more about specific best-management practices related to certain farming practices (e.g. buffer zones between crops and waterways, or direct tillage techniques to reduce sediment run-off). The relative shifts in cost and production outputs for the different mitigation strategies can then be mapped to profit.

Figure 1 shows a stylised cost-mitigation curve. In some cases certain changes in farm management practices can reduce an environmental externality at no, or even negative cost (i.e. is profit enhancing) making them a 'no-brainer'. However, there is a tipping point beyond which reducing an environmental externality starts to add incrementally higher costs and/or impacts greatly on production/productivity metrics.

Figure 1: Stylised cost mitigation curve

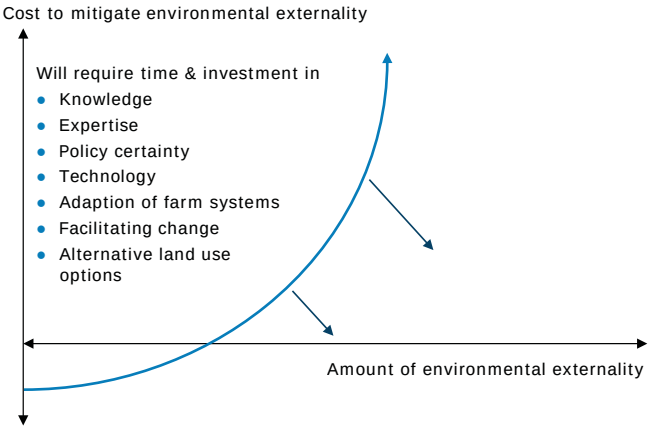


Source: ANZ

The shape of the curve (i.e. its steepness) is determined by a wide range of factors related to the biophysical aspect of a specific farm, but also to current known industry-wide knowledge, technology and farming practices. As industry-wide practices, knowledge, technology and so forth change, so too does the cost of reducing environmental externalities.

At present the general perception and actual modelling of case-study farms suggest the cost-mitigation curve is rather steep. Or put another way, it is expensive to reduce nitrogen and/or phosphate losses to water under current farm management practices and land use. The challenge is, through the application of new science, innovation, farm management practices/systems and different land use, to flatten this curve. Looking at the range of new science and knowledge coming forward we are quietly optimistic about the ability of the different sectors to adjust over the long term.

Figure 2: Stylised cost-mitigation curve – the challenge is to flatten it quickly



Source: ANZ

The other challenge is adoption/knowledge transfer. Everyone has inherent biases toward doing things certain ways. It's no different in farming, where individuals favour one farming practice over another because of personal or other emotive factors, rather than economic or environmental drivers. There are often other practical implications of certain farm practices that need to be considered too. While models might suggest something is more profitable and environmentally sound, the practical realities might not support it.

This challenge is emphasised by what's known as the 'management gap'. This is the gap between where a farm is currently being operated and its true potential for profitability and environmental externalities. This 'management gap' is shown as between point A and point B on figure 3, but equally this could move from point A to anywhere between point B and C on the optimised curve, depending on what is being optimised. For example, point B represents more profit for the same loss of an environmental externality, while point C represents lower environmental externalities for the same profit as A, or current situation. Both points are optimised relative to point A, the current situation, but require a higher level of management capability to achieve.

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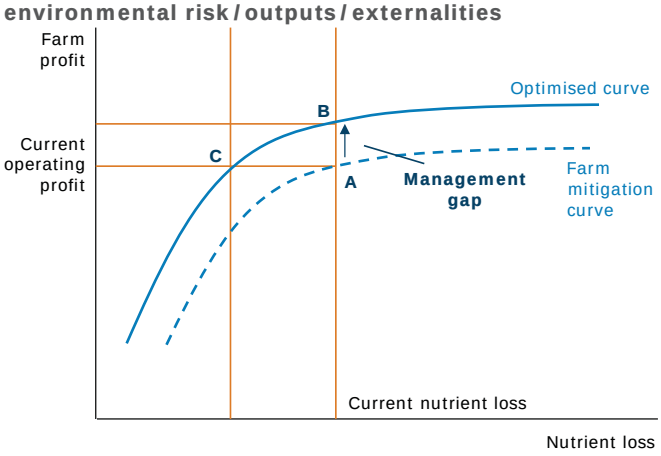
Figure 3: Stylised profit curve at different levels of environmental risk / outputs / externalities



Source: ANZ, Dairy NZ

THE MODELLING

What follows is some of the modelling that has recently been completed by consultants and primary sector industry bodies for Southland, Waikato and Horizon's plan changes.

SOUTHLAND

The Southland Regional Council[1] and all the major industry organisations have recently completed a study of 95 different farms and the effects different levels of environmental abatement for nitrogen and phosphorus have on returns. The case studies were representative of the different biophysical areas in the region and various farm types. Of the total case studies, 46 were drystock (7 deer), 41 dairy, 4 arable and 4 horticulture. Dairy grazing was captured under drystock, where it was incorporated with other farming activities in most cases. It is the first time research has included farms from across a region, and it is one of the largest farm analyses of its type to date. It's also the first time all the major industry groups have collectively been involved in research of this type.

The farm case studies were created using a two-stage process. In the first stage, two baseline files were developed for each farm using computer software programmes (OVERSEER and FARMAX) that estimated existing nutrient losses and profitability. In the second stage, the input data for each farm's nutrient budget and financial files were altered to simulate a range of on-farm mitigation scenarios.

Each industry used the farm baseline files to model a set of industry-specific mitigations. For the sheep and beef, deer, and arable farms, individual mitigations were modelled for nitrogen and phosphorus losses. For horticulture, individual mitigations were modelled for nitrogen losses only. For the dairy farms, combinations of mitigations were modelled to achieve percentage reduction targets in nutrient losses (e.g. from -10% to -40%) within the existing farm system and before land needed to be retired.

Due to limited space we have concentrated on paraphrasing the main results for each major land use. If interested in further detail we suggest taking a look at the full report.

The main results by land use:

Drystock

The mitigation options considered for the drystock case studies were:

Nutrient Inputs: altering the timing and amount of both nitrogen and phosphorous fertiliser inputs. Using supplements and/or reducing stock numbers to compensate for lower pasture production in certain situations.

Crop policy: improving cropping practice/changing crop grown. Reducing area of crop grown (by up to 25%). Replacing lost dry matter production by increasing baleage harvested on farms and/or decreasing stock numbers.

Stock policy: shifting heavier stock (mixed age cattle) off vulnerable slopes. Reducing/removing dairy stock numbers. Reducing all stock numbers by 10%.

Fence pacing and wallowing for deer farms: assume 10% of the total farm area with identified waterways is fenced.

The results from the different mitigation practices to reduce nitrogen and phosphate losses, as well as the flow-on impacts to farm profit are presented in figures 4 & 5. The individual mitigations are shown by farm because of the complexity involved with linking each individual one together.

[1] http://waterandland.es.govt.nz/setting-limits/research/southland-economic-project

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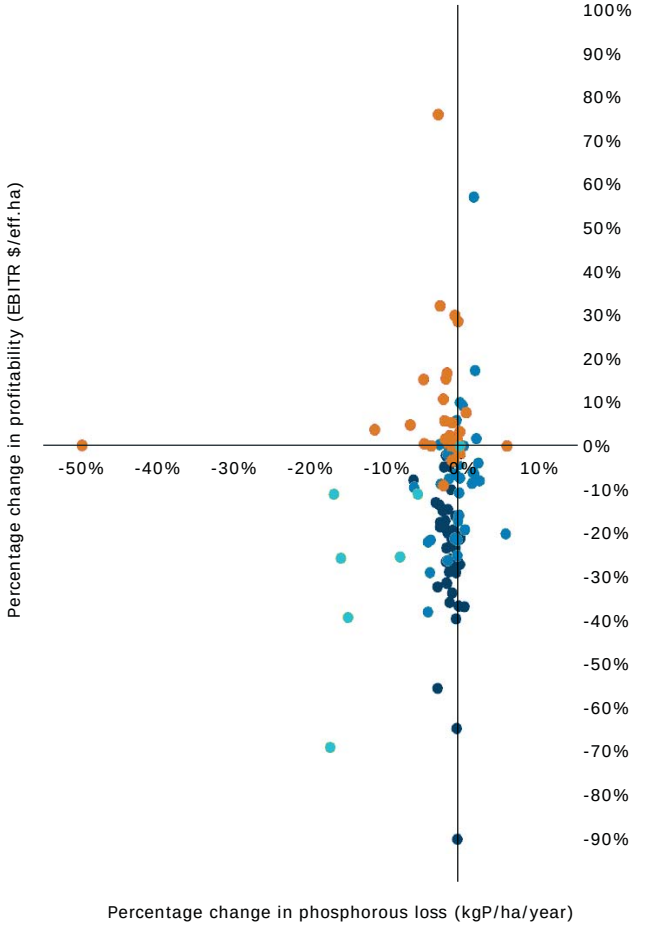
Figure 4: Change in nitrogen loss and profitability from different mitigation practices

Source: Environment Southland, Beef + Lamb NZ

Figure 5: Change in phosphate loss and profitability from different mitigation practices



Source: Environment Southland, Beef + Lamb NZ

We have chosen to show the percentage change movements. However, care needs to be taken, as with the baseline nutrient losses often being relatively low to start with, a large percentage change can often mean only a small absolute change that is within the margin of error for the modelling.

Overall there is considerable variation in the changes in nutrient loss and profitability between both the farms and mitigation practices.

Changing a farm's nutrient inputs (i.e. its fertiliser use) either reduced, or had no effect on, nitrogen loss and achieved small reductions in phosphorus loss. This mitigation was not an option for some farms because in the 2013-14 year, 11 farms did not use any fertiliser and 16 farms used phosphorus but not nitrogen fertiliser. The mitigation increased profitability on many, but not all farms – simply as a result of reduced fertiliser

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expenditure (the analysis covers one financial year). On average, profitability increased by 7% on the sheep and beef farms and by 14% on the deer farms. However, longer-term reductions in fertiliser use would most likely result in lower farm productivity and profitability.

Changing a farm's crop policy was relatively effective (in comparison to the other mitigations modelled) for reducing nitrogen losses on most farms, but had a negative impact on profitability. The results appear to show a positive relationship between the proportion of effective area in crop on a farm and the reduction in nitrogen loss achieved through the cropping mitigation. For most farms, phosphorus losses did not appear to respond to this mitigation. The crop policy mitigation decreased profitability on average by 9% on the sheep and beef farms and had no impact on the deer farms on average (although there was some variability).

Reducing a farm's stock numbers by 10% had little effect on nutrient losses because all but one farm already had stocking rates of less than 15 SU/ha. The average stocking rate for the 43 farms was 9.4 SU/ha. This mitigation resulted in relatively small reductions in nitrogen loss on most farms, with little or no reductions in phosphorus loss, but it had a considerable impact on profitability. Average profitability decreased by 24% on the sheep and beef farms and by 33% on the deer farms. In drystock farming there is a strong relationship between stock numbers and profitability because, at least in terms of meat production, a farm's livestock are its product. As well, most farmers spend little on imported feed so there were limited cost savings from lower stock numbers.

For deer farms, the fence pacing and wallowing mitigation was more effective in reducing phosphorus than the other mitigations modelled. Reductions in phosphorus loss ranged from 0% to around 15%. However, farm profitability decreased by an average of 27%. The effectiveness of this mitigation and its impact on profitability was directly related to the length of unfenced waterways on a farm. The use of OVERSEER to model mitigation options may also overlook on-farm livestock management methods and does not reflect critical source areas for nutrient loss or events that cause mass soil movement (and associated phosphorus loss).

Dairy

There were 41 case-study dairy farms used, with a diversity of farm system and management systems. The modelling looked at the different costs for a range of mitigation options to separately reduce nitrogen and phosphorous losses by 5% increments to 40%. Not all farms were able to achieve the targeted nutrient loss reduction before significant farm system, infrastructure or land use changes were required. **Approximately 80% of farms could not achieve a 20% reduction in phosphorous loss before having to retire land.**

While the broad mitigation process was similar, there were differences in the mitigations modelled between farms due to their individual characteristics. The mitigation strategies were developed based on experience and farm systems knowledge within the modelling team at DairyNZ.

This study focused primarily on stage one mitigations, although at higher mitigation levels, e.g. 40%, there could be significant changes to a farm system through fewer inputs e.g. supplementary feed.

Stage 1 = within farm system changes: a process in which reductions in farm inputs are sequentially applied on the case-study farm.

Stage 2 = farm system changes: significant changes to the farm system or significant capital investment. It includes (but is not limited to) barns, wetland construction, changes in wintering practices and significant changes in effluent storage and disposal.

The results are shown in the figure 6 & 7. As higher levels of reduction are required, there is generally a larger distribution of costs and it is more expensive. The figures show how many farms in the sample of 41 farms are able to reach the indicated reduction level. For example 19 farms were able to reach a 15% reduction in phosphorus loss and this reduced operating profit by 20% on average, but this varied between 1% and 54%.

Perhaps surprisingly, there was no obvious identifying characteristic of the farms that can achieve the higher nutrient loss reductions. For example, not all of the currently lower nitrogen-leaching farms drop out of the sample at the higher percentage reductions of nitrogen leaching. Nor is there any particular group of farms that have a higher or lower cost. It is not a particular group of farm input systems, specific regions, or soil types that have the highest cost or that can more easily reach the higher nutrient loss reductions.

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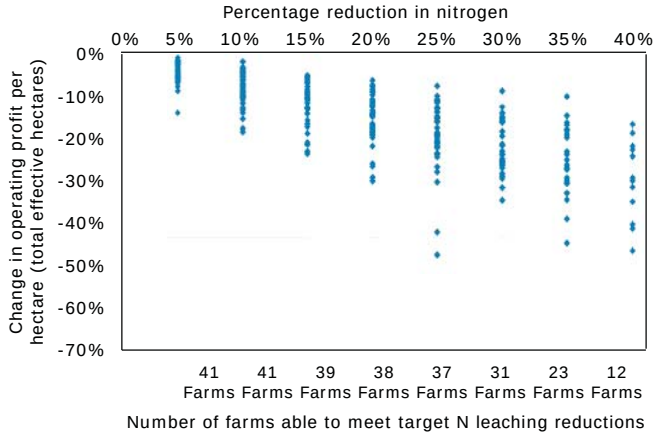
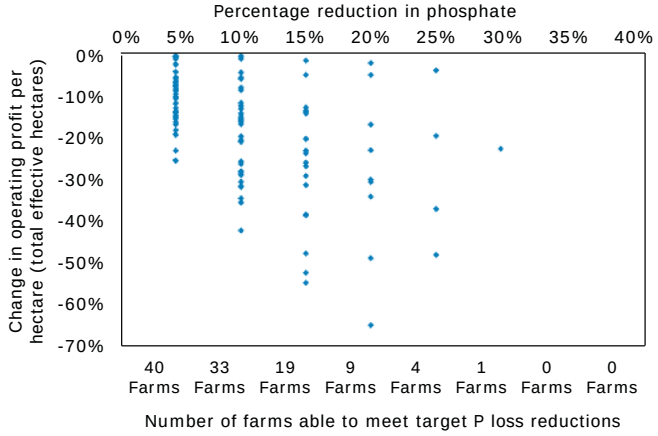
Figure 6: Change in nitrogen loss and profitability from different mitigation practices



Source: Environment Southland, Dairy NZ

Figure 7: Change in phosphate loss and profitability from different mitigation practices



Source: Environment Southland, Dairy NZ

A different milk price significantly influences the ability of a farm to pay for mitigation. This is particularly relevant given the volatility in the milk price, especially if chosen mitigation options require extra capital investment. This analysis was conducted with a $6.50/kg MS milk payout.

Arable

Southland arable farms are usually highly complex and flexible farm systems based around different seasonal crops and stock options (trading, winter dairy grazing etc) according to market signals.

The arable modelling was divided into two parts. First, four farms were surveyed across Southland and this information was used to model baseline nutrient losses and the impact of different nitrogen and phosphorus mitigations. Second, a model farm for Southland was created to explore the relationship between nitrogen inputs, nitrogen loss and crop yield for wheat and barley.

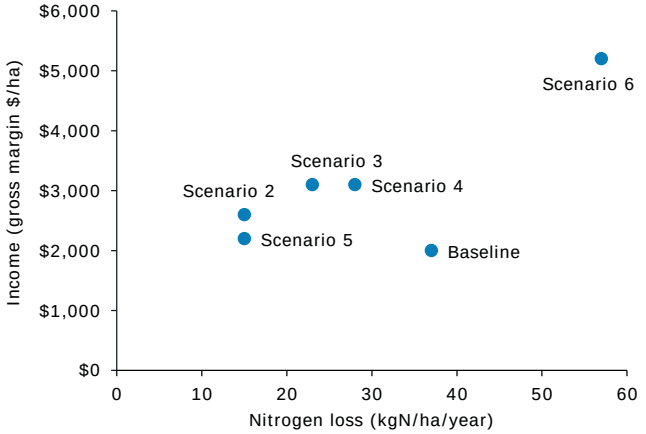
For the dairy-grazing farm, six different scenarios from a base case of 743 dairy cows on 44 hectares of kale, with 17 hectares of cut and carry lucerne, were considered. These were:

1. Replacing all dairy grazing with winter wheat and spring barley and cut/carry forage and fodder crops (lucerne, annual ryegrass and fodder beet);
2. Dairy grazing restricted to 9 hectares (15% of area) and all of the rotations included winter wheat and cut/carry crops (lucerne, fodder beet, and annual ryegrass);
3. Dairy grazing on fodder beet; 380 cows on the heavy soil type;
4. Dairy grazing on fodder beet; 380 cows on the light soil type;
5. Dairy grazing on kale; 153 cows on the light soil type.
6. Dairy grazing on fodder beet; 1,858 cows on the whole block as comparison with base.

The results shown below in figure 8 & 9 indicate a lower environmental footprint, often with better gross margins. Scenario six shows the opposite, with an increase in dairy-grazing stocking rate over the entire block.

The analysis concluded the most likely way nutrient losses from the farm will be reduced is by the selection of crop and stock options in the rotation. Crop choice is also influenced by supporting local infrastructure for processing grains and seed crops.

Figure 8: Change in nitrogen loss and profitability from different mitigation practices



Source: Environment Southland, Foundation for Arable research

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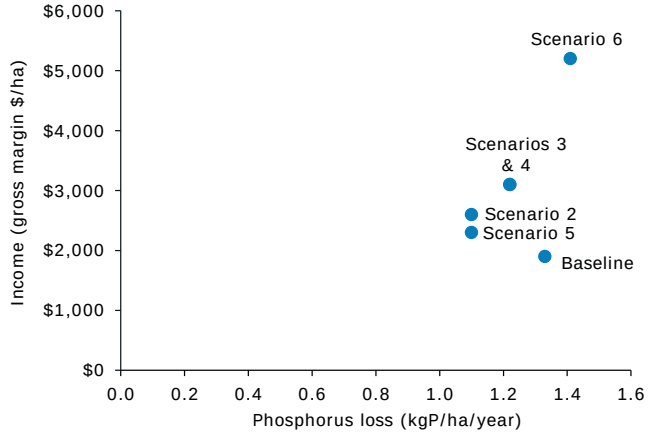
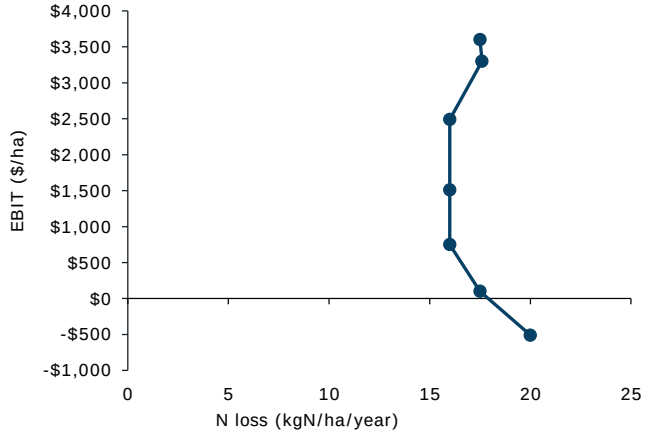
Figure 9: Change in phosphate loss and profitability from different mitigation practices



Source: Environment Southland, Foundation for Arable research

The model farm that was created for Southland also examined the impact on wheat and barley crop yields of changes in nitrogen supply. The results indicate that a restriction on nitrogen inputs has a direct negative impact on the profitability of arable enterprises because yields are constrained. The results also indicate that restricting nitrogen inputs does not necessarily reduce nitrogen loss. Reductions in nitrogen loss only come about when farmers understand the dynamics of the nitrogen cycle, particularly mineralisation processes and the supply of nitrogen from the soil, and are able to match their fertiliser applications to crop demand accordingly.

Figure 10: Change in nitrogen loss and profitability from lower use of nitrogen fertiliser

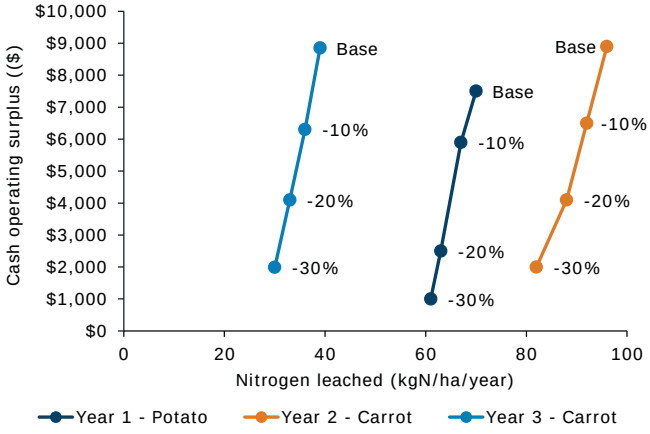


Source: Environment Southland, Foundation for Arable research

Horticulture

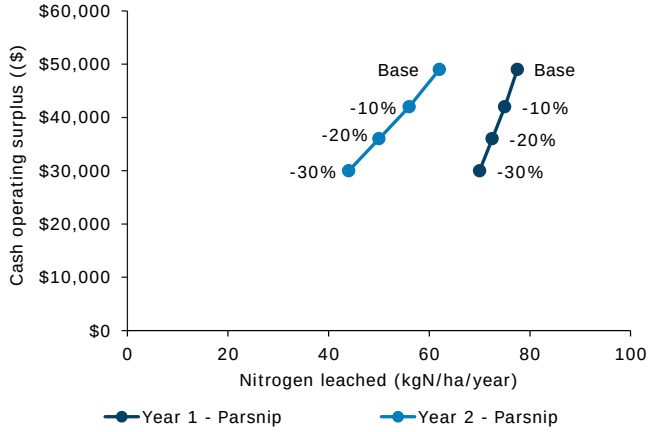
Three different farm models were examined, involving a carrot, parsnip and tulip rotation (although the underlying model was based off onions), with pastoral enterprises over 12-13 year timeframe. For vegetables the main mitigation options for nutrient losses are based around improving nutrient use efficiency, such as selection, timing, placement and irrigation efficiency. However, given the current modelling limitations of OVERSEER the only practice examined was altering the amount and timing of nitrogen fertiliser applied, and its impact on crop yields. Further work is underway to develop a more robust tool for modelling the various horticulture crops, as some work has shown up to half of the crops sown in Canterbury aren't currently an option in OVERSEER.

Figure 11: Change in nitrogen loss and profitability from lower use of nitrogen fertiliser for carrots



Source: Environment Southland, Horticulture NZ

Figure 12: Change in nitrogen loss and profitability from lower use of nitrogen fertiliser for parsnips



Source: Environment Southland, Horticulture NZ

WAIKATO REGION

Dairy

In a similar fashion to the Southland modelling, Dairy NZ conducted modelling for reducing nitrogen losses in the Waipa-Franklin and Upper Waikato regions.[2] The analysis looked at 26 farms in total and used a $6.50 milk payout. A composite farm for the two regions was also constructed from the individual

[2] www.waikatoregion.govt.nz

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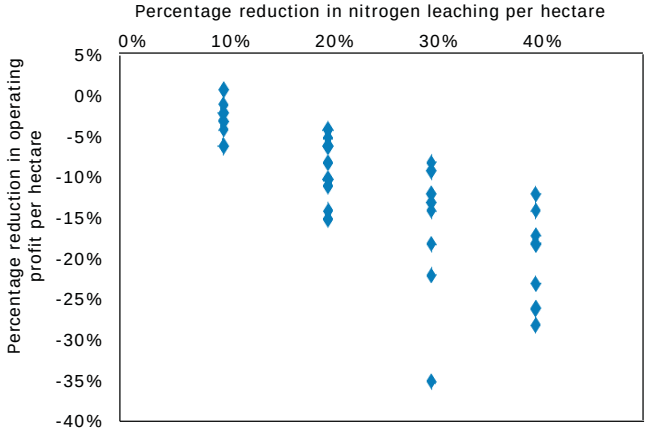
case-study farms. The mitigation process firstly involved looking at de-intensification through four tactics:

1. If the farm had an existing feed pad or stand-off pad, the use of this was optimised;
2. Autumn nitrogen fertiliser applications were reduced and then removed;
3. Spring nitrogen fertiliser applications were reduced and then removed;
4. Imported supplements were reduced (up to a 20% reduction from the base).

The second stage involved incorporating a stand-off pad into each of the above scenarios. If a farm had a large crop area used to winter cows, crops with a lower nitrogen leaching risk factor were also used as a mitigation option in some cases. For each of the steps taken feed demand is reduced, impacting on stocking rate or the amount of feed eaten per cow, which flows through to milk production and farm costs.

The results for Waipa-Franklin showed that the average nitrogen leaching was 30kg N/ha. Based on the above mitigations the composite farm could achieve a 10% reduction in nitrogen leaching per hectare with a minimal impact on profit and production. This level of nitrogen reduction would reduce profit per hectare by 2% and production in milksolids by 3%. **Any further mitigation measures beyond the 10% level of nitrogen reduction impacts profit and production more significantly.** Reductions in nitrogen leaching of greater than 20% generally have an impact on profit and production of more than 10%. Mitigation strategies involving de-intensification would allow the farm to achieve a reduction in nitrogen leaching of 27%. This level of reduction in nitrogen through the strategies used would reduce profit per hectare and production by 11%.

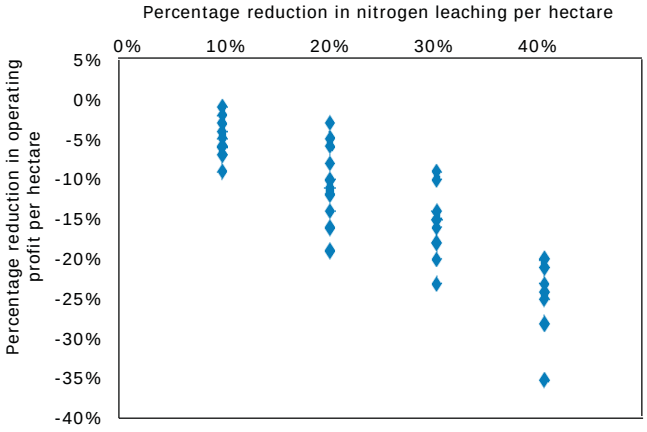
Figure 13: Change in nitrogen loss and profitability from different mitigation practices for Waipa-Franklin



Source: Dairy NZ

For the Upper-Waikato, average nitrogen leaching was around 40kg N/ha. Based on the above mitigations, a 10% reduction in nitrogen leaching per hectare can be achieved with a 5% reduction in profit and 3% reduction in production. A further 10% nitrogen loss reduction impacts profit and production by a similar proportion. Reductions in nitrogen leaching of greater than 20% generally have an impact on profit and production of more than 10%. Mitigation strategies within the current farm system would allow the farm to achieve a reduction in nitrogen leaching of 24%. This level of reduction in nitrogen through the strategies used would reduce profit per hectare by 13% and production by 9%.

Figure 14: Change in nitrogen loss and profitability from different mitigation practices for Upper Waikato



Source: Dairy NZ

Drystock

In a report to the Technical Leaders Group[3] for Healthy Rivers a series of model type farms with specific mitigation strategies were analysed. The analysis uses 10-year average price and expenditure data. The results largely speak for themselves.

[3] www.waikatoregion.govt.nz/community/whats-happening/healthy-rivers-plan-for-change/

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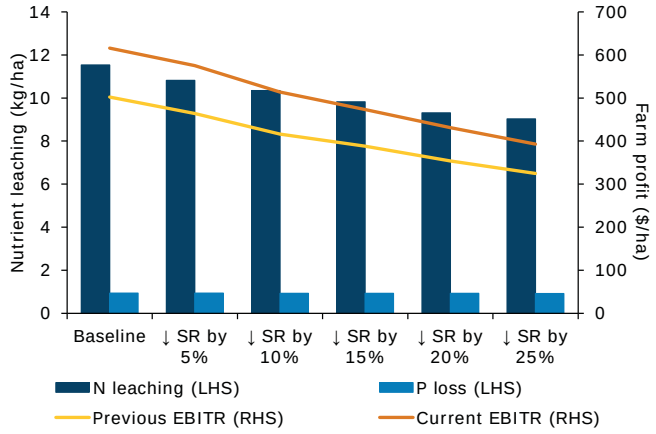
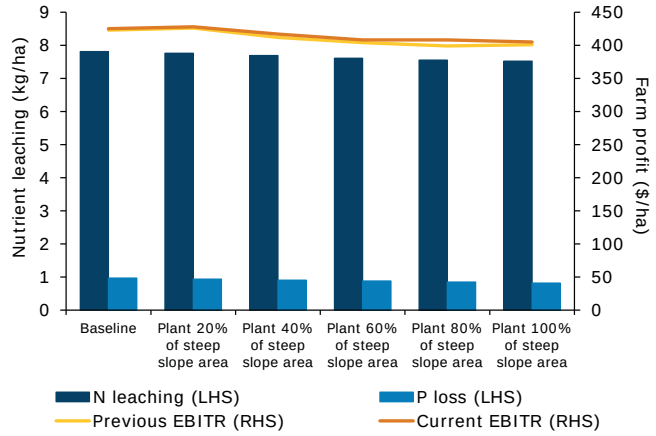
Figure 15: Change in nutrient losses and profitability for lower stocking rates (based on small drystock property with beef finishing operation)



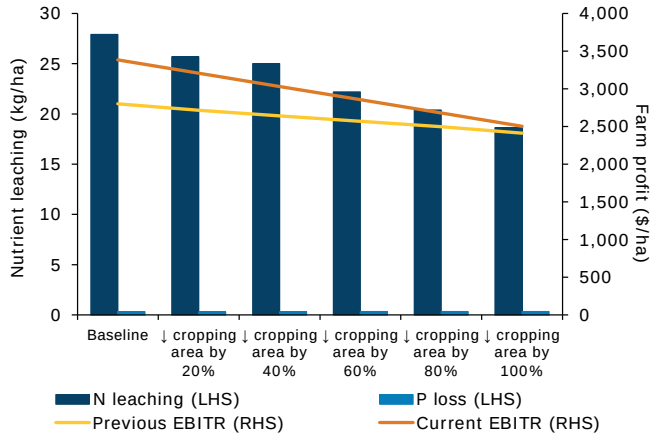
Source: Waikato Healthy Rivers

Figure 16: Change in nutrient losses and profitability from planting less productive areas of farm in trees (based on traditional hill country property with some bull finishing)



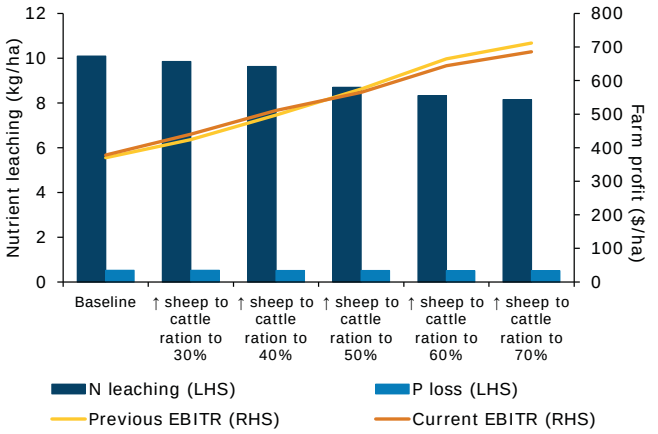
Source: Waikato Healthy Rivers

Figure 17: Change in nutrient losses and profitability from substituting cropping area for pasture (based on hill country beef breeding/finishing with maize silage cropping for dairy support)



Source: Waikato Healthy Rivers

Figure 18: Change in nutrient losses and profitability from increasing sheep to cattle ratio at a constant stocking rate (based on hill country sheep and beef breeding with pasture-based dairy support)



Source: Waikato Healthy Rivers

Horticulture

The Agribusiness Group did some modelling of three different horticulture rotations for lower Waikato in early 2014 (supposedly the first of its kind).[4] Again there were some technical limitations around the types of crops that could be modelled, time frequency of management practices being applied (i.e. monthly management practices are difficult to model), and limitations of modelling certain practices.

With this in mind three cropping rotations were modelled:

1. Rotation one was designed to represent the more extensive rotation of growing major large-scale crops. It is estimated that this rotation represents approximately half the area grown in the Lower Waikato.

   The rotation was: Potato (summer) > Onions > Carrots > Squash > Oats and Rye > Barley (grain) > Oats and Rye.

2. Rotation two was a more intensive rotation with the inclusion of more green crops. It is estimated that this rotation represents approximately 45% of the area grown in the Lower Waikato.

   The rotation was: Squash > Broccoli > Oats and Rye > Lettuce (summer) > Mustard > Onions > Oats and Rye > Potato (Winter).

3. The traditional market garden rotation is more intensive and designed to represent the sort of rotation grown in market gardens, but was

[4] Nutrient performance and financial analysis of lower Waikato Horticulture Growers. The Agribusiness Group prepared for MPI and Horticulture NZ.

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somewhat limited by the range of crops that could be modelled. It is estimated that this rotation represents approximately 5% of the area grown in the Lower Waikato. The rotation was: Broccoli > Mustard > Lettuce > Cabbage > Mustard > Spinach > Cauliflower > Cabbage > Mustard.

Three mitigation techniques were modelled:

1. Limiting nitrogen application to 80kg N/ha per month.
2. Reducing nitrogen applications by 10% to 40% and crop yield by an amount determined by reference to research reports and grower experience.
3. Active water management: test the impact of altering the irrigation practices to apply only the amount of water required by the crop.

Table 1: Summary of nitrogen loss and gross margin impacts:

	Baseline	Mitigation					
		1	2 (-10%)	3 (-20%)	4 (-30%)	5 (-40%)	6
Rotation 1	64	66	59	57	53	49	59
Rotation 2	65	61	57	54	51	47	63
Traditional Market Garden	73	69	65	59	51	44	65
	Gross Margin($/ha)						
Rotation 1	$3,591	$3,578	$1,870	-$787	-$2,397	-$3,884	$611
Rotation 2	$4,540	$4,527	$1,348	-$921	-$3,593	-$5,496	$1,560
Traditional Market Garden	$3,274	$3,137	$1,110	-$666	-$2,497	-$3,940	$294

Source: ANZ, Agribusiness Group

The results show that as the intensity of the current rotations increases (and the amount of nitrogen used increases) so too do the nitrogen losses. However, there was inter-year variation depending on the intensity of the rotation. Only a small reduction was achieved by limiting the amount of nitrogen applied to 80kg N/ha per month (mitigation one). In one case this actually increased nitrogen losses in years when it was applied during the winter period. There was virtually no impact on gross margins either. The results of the mitigations that trialled a range of reductions in nitrogen inputs indicate that there is a strong correlation between the volume of nitrogen applied and subsequent losses. There is also a substantial negative financial impact from lower crop yields. Losses are incurred when nitrogen applications are reduced by 10 to 20%. The last mitigation, active water management, has some small effect on nitrogen losses, but comes with an extra fixed cost (sensor technology etc) that impacts on returns.

HORIZONS

Given the recent Environment Court Declaration that Horizons was unlawfully implementing The One Plan when issuing consents for intensive land use, we thought it might be worthwhile considering some of the potential financial impacts. As part of the Horizons review process, an assessment of the potential financial impacts was recently provided by KapAg[5] for six different farm types in the region.

The six farm types analysed were self-contained dairy, low-intensity/moderate/high dairy, arable with livestock, and arable with potatoes. A baseline environment and economic performance was established for each. Through a series of mitigations the farm system/practices were then adjusted until the nitrogen loss profile met the current plan's target for year 20. The initial adjustment in nitrogen losses required in year 1 to 5 is where most of the decrease needs to occur regardless of the long time-frame.

Table 2: The mitigations applied in order on the dairy farms were:

Mitigations	Dairy Farm System			
	Self contained	Low intensity	High intensity	Irrigation and high intensity
Operational practice changes				
Remove nitrogen fertiliser from the effluent area	✓	✓	✓	✓
Remove winter applications of nitrogen (April to July inclusive)	✓	✓	✓	✓
Reduce nitrogen to a maximum of 60 kgN/ha	✓	✓	✓	✓
Aggressive summer culling of cows	✓	✓	✓	✓
Replace high protein feed with low protein	✓	✓	✓	✓
System practice changes				
Spread effluent to reduce rates to 100kgN/ha	✓	✓		
Remove all nitrogen fertiliser and export surplus feed	✓	✓		
Irrigation applications optimised				✓
Winter cows off the farm	✓	✓		
Reduce cow numbers and bring grazed off heifers home to replace them	✓	✓	✓	✓
Reduce overall stocking rates	✓	✓	✓	✓
Use a stand-off pad in wet winter weather			✓	✓
Structural practice change				
Covered feed pad			✓	✓
Housed cows with duration controlled grazing			✓	✓

[5] An impact assessment of One Plan policies and rules on farming systems in the Tararua District and the Manawatu Wanganui Region. KapAg

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Table 3: The mitigations applied in order on the arable businesses were:

Mitigations	Arable Farm System		Notes on Overseer
	Arable with livestock	Arable with potatoes	High intensity
Operational practice changes			
Use minimal tillage and direct drilling between crops in rotation	✓	✓	Able to be modelled in Overseer
Minimise nitrogen applications to industry good practice	✓	✓	Able to be modelled in Overseer
Apply nitrogen fertiliser in side dressings		✓	Not able to be modelled
Spread nitrogen applications of over 45kgN/ha over several weeks	✓	✓	Difficult to model
Add a bund between the block and waterways to catch runoff	✓	✓	Difficult to model the effect of a bund but reduced crop area can be included
System practice changes			
Install moisture metering probe and move to active water management	✓	✓	Able to be modelled in Overseer
Replace fallow periods with actively growing crops or 'green mulch'	✓	✓	Able to be modelled in Overseer
Remove livestock	✓		Able to be modelled in Overseer
Harvest and export surplus green feed as fodder	✓	✓	Able to be modelled in Overseer
Replace heavy nitrogen feeding crops with grain crops		✓	Able to be modelled in Overseer

A summary of the end results are shown below and largely speak for themselves.

	Self-contained dairy	Low-intensity dairy	Moderate-intensity dairy	High-intensity with irrigation dairy	Arable with livestock	Arable with potatoes
Base Profit ($/ha)	$1,627	$1,848	$2,283	$2,456	$915	$3,192
Adjusted Profit ($/ha)	$629	$1,064	$1,745	$1,850	$477	$1,152
% change	-61%	-42%	-24%	-25%	-48%	-64%
Base Nitrogen loss (kg N/ha/yr	32	42	54	64	45	50
Adjusted Nitrogen loss (kg N/ha/yr)	18	17	17	17	20	19
% change	-44%	-60%	-69%	-73%	-56%	-62%

Source: KapAg

At a Horizons Regional Council Strategy and Policy Committee meeting on 9th August, Council staff reported back on their approach to consenting remaining farms in the region.

The key points reported by DairyNZ were:

1. For those with a resource consent already in place there won't be any impact until renewed.
2. For those without the consent, processing will resume with the expectation that applications will fulfil one of the following requirements:
   - Meet the nitrogen leaching requirements currently set out in The One Plan and be processed as a controlled activity consent.
   - Where existing use occurs on land with 50% or more in land use capability class IV to VIII and greater than 1,500mm annual rainfall, the farm will need to detail a plan to reduce contaminant loss as much as practicable. This can be processed as a restricted discretionary consent.
   - Where nitrogen-leaching requirements cannot be met in year one and the above exception does not apply, the farm must detail a plan to manage down to The One Plan targets within 4 years from date the consent was due. This application will also be processed as a restricted discretionary consent.

Longer-term the committee endorsed Horizon's staff recommendation to investigate options for a plan change. However, this will take time and the final outcome will be uncertain.

SO WHAT HAS BEEN LEARNED?

Some of the key take-outs from the research that has been conducted in this space shows there is certainly no 'one size fits all' fix. **The important aspects depend on the plan-change specifics around:**

1. **The bottom-lines being set for containment losses to water;**
2. **The allocation mechanism being used** (i.e. cap and reduce, or land use capability);
3. **The adjustment period(s);**
4. **The reporting requirements** (timing, specific requirements); and
5. **The consenting process, if required.**

There are many potential practical and financial considerations in the interaction of these rules with:

- **the specifics of a particular farm's biophysical aspects (i.e. soil type, topography, rainfall, climate, and aspect);**

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- **chosen farming practices / farm system;**
- **current capabilities / science of modelling tools; and**
- **a wide range of good management practices (or mitigations).**

Although modelling is very specific to the above factors, some general observations from the modelling that has been completed can be made.

- **The modelling is largely restricted to nitrogen losses due to the limited capabilities of OVERSEER.** Changes in phosphate losses from certain good management practices have been modelled, but these are usually of a more generic nature. For many arable and horticulture crops further research is required to effectively model nutrient flows and thus potential mitigation practices. In terms of reducing other environmental externalities, such as sediment and pathogens, these haven't been modelled but are looking to be addressed through specific best-management practices.
- **Generally speaking, there is often scope for an up to a 5-10% reduction in nitrogen losses with minimal impact on profitability.** However, the cost of mitigation beyond 10% tends to step up quickly as mitigation practices wind back farm intensification.
- **Some farms have less capacity to reduce nutrient losses than others due to:**
    1. **lower starting nutrient losses**, which reduce the effect of mitigations;
    2. **the impacts on profit from the modelled mitigations being very high;**
    3. **mitigation options not being applicable to a particular farm;** and
    4. **farms, or specific practices not actually being able be modelled, due to a number of complexities.**
- **The effectiveness of specific mitigations varies by sector and nutrient.** For example, reducing stocking rates was not well suited to drystock because stocking rates were generally already within the carrying capacity of the land.
- **Within most industries, farms with higher baseline nutrient losses tend to have more mitigation options, and these mitigations are usually more effective, than for farms with lower baseline nutrient losses.**
- **The impacts on profitability of particular mitigations often vary by farm and industry.** For example, for pastoral farming the mitigations that had the least impact often related to fertiliser use (timing and application rates), but similar mitigations had a considerable impact on cropping activities because of the close relationship between fertiliser and crop yields and quality.

WHAT SHOULD FARMERS DO?

For farmers, the modelling suggests planning and action is required sooner rather than later. This can take a number of forms, but at a minimum some of the first steps include:

1. **Remaining up to speed with local regional council plans.** This includes knowing what regional plan applies to a particular farm and its implementation status (i.e. notified or in consultation phase).
2. **Understanding what activities are being regulated and where changes / investment are required to make a farm compliant.**

    What activities are being regulated? They include the likes of water takes, effluent discharge, specific containment losses to water (nitrogen, phosphate, sediment and faecal contaminants), stock access to waterways and other particular farm activities (i.e. silage pits/storage) as a land use.

    The second aspect is, how are these activities being regulated? Specifically, where are the bottom lines being set for containment losses to water? What is the allocation mechanism being used (i.e. cap and reduce, or land use capability)? What is the adjustment period(s)? And what are the reporting requirements (timing and other specific requirements such as expert advice on hydrogeological aspects of a property)?
3. **If resource consent to farm is likely to be required in the future, apply early, even if it costs now.** Key to success here is understanding what type of consent is required, by when, the likely duration of consent, and possible restrictions that could be imposed on intensification.
4. **Factor the ability to access water and any other possible water-quality restrictions into financial decisions.** This includes the likes of purchasing a new block of land in a 'sensitive' catchment for possible intensification, or any capital upgrades, such as effluent.
5. **Model nutrient flows in and understand the key drivers.** From this, formulate possible mitigation strategies and an investment/capital spending plan. **Benchmark key metrics, such as N loss to water, against other farms. The highest-leaching farms are likely to be hit hardest and earliest, but the potential to improve is often the largest too.**

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6. **Complete a farm environmental plan** and make it part of broader business planning. There is a range of approved templates available through industry organisations, such as Beef + Lamb NZ, Dairy NZ, Horticulture NZ etc.
7. **For any new capital investment (such as stand-off areas), understand the environmental impacts and roll in meeting regional council plan changes.**
8. **More research is now available on what good management practices look like for different farming practices** (for example Industry-Agreed Good Management Practices Relating to Water Quality[6] or A guide to good environmental management on dairy farms[7] or Horticulture NZ's Code of Practice for Nutrient Management[8]. Understand these and how they might practically apply in your own business. Apply applicable practices where they might suit.
9. **Ask for quality professional advice if you need to come up to speed quickly.**

From an industry-wide perspective the current abatement curves suggest there needs to be a step up in investment of new science, innovations and knowledge transfer, as it's not just going to be farmers who will need to deliver in order to improve water quality. Some recent developments in the animal genetics and forage/crop areas offer real hope over the next 10 years and leave us optimistic on the ability of the agricultural industry to maintain profitability and reduce environmental externalities at the same time.

[6] www.ecan.govt.nz
[7] www.dairynz.co.nz
[8] www.hortnz.co.nz

KEY TABLES AND FORECASTS

FX RATES	ACTUAL			FORECAST (END MONTH)						
	Jul-17	Aug-17	8-Sep	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
NZD/USD	0.749	0.715	0.725	0.72	0.70	0.69	0.68	0.67	0.67	0.66
NZD/AUD	0.939	0.906	0.900	0.97	0.96	0.96	0.94	0.94	0.94	0.94
NZD/EUR	0.638	0.603	0.603	0.61	0.58	0.58	0.59	0.60	0.58	0.55
NZD/JPY	82.78	79.10	78.54	82.8	78.4	75.9	71.4	67.0	67.0	66.0
NZD/GBP	0.570	0.555	0.553	0.55	0.53	0.53	0.53	0.53	0.52	0.50
NZ TWI	77.1	73.7	75.4	75.6	72.9	72.5	71.5	70.7	70.1	68.4

INTEREST RATES	ACTUAL			FORECAST (END MONTH)						
	Jul-17	Aug-17	8-Sep	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
NZ OCR	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	2.00	2.25
NZ 90 day bill	1.95	1.96	1.94	1.96	1.97	1.98	1.99	2.08	2.34	2.50
NZ 10-yr bond	2.98	2.90	2.76	2.80	2.80	2.85	2.95	3.15	3.30	3.30
US Fed Funds	1.25	1.25	1.25	1.25	1.50	1.50	1.75	2.00	2.25	2.25
US 3-mth	1.31	1.32	1.32	1.40	1.65	1.75	2.05	2.20	2.45	2.45
AU Cash Rate	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
AU 3-mth	1.69	1.72	1.74	1.70	1.70	1.70	1.70	1.80	1.80	1.80

ECONOMIC INDICATORS	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19
GDP (% q/q)	0.5	**1.0**	**0.8**	**0.8**	**0.7**	**0.7**	**0.6**	**0.6**	**0.6**	**0.6**
GDP (% y/y)	2.5	**2.7**	**2.7**	**3.2**	**3.3**	**3.0**	**2.8**	**2.6**	**2.5**	**2.4**
CPI (% q/q)	1.0	0.0	**0.2**	**0.2**	**0.8**	**0.6**	**0.7**	**0.3**	**0.7**	**0.6**
CPI (% y/y)	2.2	1.7	**1.6**	**1.3**	**1.2**	**1.8**	**2.4**	**2.5**	**2.4**	**2.3**
Employment (% q/q)	1.1	-0.1	**0.7**	**0.5**	**0.5**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**
Employment (% y/y)	5.7	3.1	**2.4**	**2.2**	**1.6**	**2.1**	**1.8**	**1.6**	**1.4**	**1.3**
Unemployment Rate (% sa)	4.9	4.8	**4.8**	**4.7**	**4.6**	**4.5**	**4.4**	**4.4**	**4.3**	**4.3**
Current Account (% GDP)	-3.2	**-3.0**	**-2.8**	**-2.8**	**-2.5**	**-2.7**	**-2.9**	**-3.1**	**-3.1**	**-3.1**
Terms of Trade (% q/q)	3.9	1.6	**-0.1**	**-1.0**	**-0.9**	**-0.7**	**0.1**	**0.1**	**0.1**	**0.1**
Terms of Trade (% y/y)	6.4	10.3	**11.6**	**4.3**	**-0.5**	**-2.7**	**-2.5**	**-1.4**	**-0.4**	**0.4**

Figures in bold are forecasts. q/q: Quarter-on-Quarter, y/y: Year-on-Year

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