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THE INTERNET OF THINGS

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK FOR 2017/18

We take our annual detailed look at the key forces shaping the price outlook for NZ's major agricultural sectors. Generally the outlook is positive despite a challenging global backdrop. The operating environment looks positive for the key livestock sectors; we are most cautious on beef, with a large supply increase anticipated from the US and Brazil. For dairy, current market indicators suggest a high-\$5/kg MS to high-\$6/kg MS range for the milk price. We're biased towards the upper end with demand expected to be able to absorb the anticipated increase in supply at reasonable prices. The main horticulture sectors had challenging growing and harvesting conditions this year, impacting on the overall quality of crops. That said, decent prices are still expected, supporting overall revenue.

RURAL PROPERTY MARKET

The REINZ's all-farm measure of property prices has nudged up over recent months and turnover has remained robust. Dairy land prices have softened since the summer period with prices back to \$35/kg MS, compared with low-\$40/kg MS earlier. We're not expecting improved cash-flow in 2017/18 to see the market back into behaviours of old with a surge in prices: interest rates, policy uncertainty and continued balance sheet repair are capping the upside. Finishing and arable prices have also softened a touch from the summer period. Grazing prices have moved back up to long-run averages recently. Horticulture remains a standout.

FINANCIAL MARKET VARIABLES

There are good reasons for the NZD's elevation with numerous fundamentals such as booming terms of trade and weak USD in its favour. However, we believe that "good" story is fully factored at current levels and we still favour the NZD slightly lower 12 months out – but we are talking movements lower of only a few cents. Short-term interest rates are expected to continue oscillating, with the OCR on hold. We still see US yields higher by year end, and the same for New Zealand rates, but movements are set to be glacial with movements in a 2-up, 1-down fashion as opposed to trending.

BORROWING STRATEGY

Indicative rural lending rates have fallen across the board, led by the long end. At the moment, breakevens look as favourable as they have done for some time, and tend to make fixing look attractive. However, market volatility and global political risks suggest some caution is warranted even if rates are mathematically more attractive.

ECONOMIC BACKDROP

The economy is buoyant and forward growth indicators remain positive. We expect momentum to ease over late 2017 as credit constraints and difficulty finding skilled labour bite. History shows New Zealand could be in for a correction in 2018. We think the ten-year boom-bust cycle will be averted; households, regulators and banks are behaving differently. House price inflation is expected to remain subdued over the coming years. The RBNZ will not shift the OCR for quite a while yet.

EDUCATION CORNER: THE DIGITAL TSUNAMI

Technology continues to pervade business and change the way many things are done. It's no different down on the orchard or farm with apps being increasingly used to support a range of business practices. There are an estimated 2.8 million available in the Google play store and 2.2 million in the Apple app store. We take a look at 65 different 'apps' in the primary sector that are changing business practices and digitising thoughts and paper trails.

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

AGRICULTURAL PRICE PREVIEW					
June Year End	2014/15	2015/16	2016/17p	2017/18f	% change
Dairy (\$ per kilogram of milksolid) after retentions					
Fonterra Milk Price	4.40	3.90	6.15	6.75	+9.8%
Dividend per share after retentions	0.25	0.40	0.40	0.40	Unchanged
Tatua	7.10	6.20	7.00	7.00 plus	Unchanged
Westland	4.80	3.80	5.15-5.25	6.50	+21.5%
Open Country Dairy	4.61	3.94	6.15	6.75	+9.8%
Synlait	4.54	3.90	6.15	6.75	+9.8%
Wool (\$ per kilogram greasy, whole of clip net of costs)					
Fine (<24 micron)	9.30	9.70	11.05	11.00	Unchanged
Medium (25-31 micron)	5.70	7.40	5.85	5.85	Unchanged
Crossbred (>31 micron)	3.90	4.35	3.25	3.15	-3.1%
Sheep (\$ per head, weighted averages, GST exclusive and net levies at farm gate)					
Lamb (17.5 kg carcass)	91	89	94	98	+4.3%
Mutton (24.5 kg carcass)	66	56	66	69	+4.5%
Stores (LW 30-35 kg)	60-90	60-85	60-100	65-85	-6.25%
Beef (\$ per kilogram of carcass weight, weighted averages, GST exclusive and net levies at farm gate)					
Steer (296-320 kg carcass)	4.65	5.10	5.05	4.60	-8.9%
Heifer (195-220 kg carcass)	4.50	4.80	4.75	4.40	-7.4%
Bull (296-320 kg carcass)	4.40	4.65	4.65	4.25	-8.6%
M Cow (160-195 kg carcass)	3.20	3.35	3.40	3.00	-11.8%
Deer (\$ per kilogram of carcass weight, weighted averages, GST exclusive and net levies at farm gate)					
Stag (60 kg carcass)	6.30	7.15	7.75	8.50	+9.7%
Hind (50 kg carcass)	6.25	7.05	7.65	8.40	+9.8%
Velvet (\$ per kg)	125	120	100	110	+10%
Grains (\$ per tonne, AgriHQ prices grower bids delivered nearest store or mill, net levies and freight to this point)					
Milling Wheat	400 to 450	340 to 400	325 to 340	320 to 390	+6.8%
Feed Wheat	370 to 445	290 to 360	270 to 325	300 to 375	+13.4%
Feed Barley	360 to 445	265 to 350	255 to 335	300 to 375	+14.4%
Maize Grain	390 to 460	345 to 390	340 to 410	400 to 450	+13.3%
Palm Kernel	225 to 310	200 to 250	220 to 255	225 to 260	+2.1%
Kiwifruit (\$ per tray OGR, crop year)					
Zespri™ Green	6.01	5.13	4.36	6.00	+37.6%
Zespri™ Gold	9.80	8.21	8.64	9.00	+4.2%
Apples (Weighted FOB returns \$ per TCE, crop year, % change 2015 to 2016 crop)					
Braeburn	24.4	26.1	28.4	29.0	+2.1%
Royal Gala	27.9	30.0	33.9	32.0	-5.6%
Fuji	32.0	34.0	41.1	43.0	+4.6%
Jazz™	31.4	31.3	33.8	37.0	+9.5%
Pacific Rose	38.2	46.2	38.7	38.0	-1.8%
Grapes (\$ per tonne, national average, vintage year, % change 2015 to 2016 vintage)					
Sauvignon Blanc	1,605	1,689	1,779	1,750	-1.6%
Merlot	1,768	1,753	1,679	1,700	1.3%
Pinot Noir	2,931	2,992	2,965	3,000	1.2%
Chardonnay Mendoza	1,692	1,829	1,688	1,690	Unchanged
Chardonnay Other	1,690	1,613	1,579	1,580	Unchanged
Pinot Gris	1,530	1,535	1,595	1,575	-1.3%

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

SUMMARY

The outlook for key agricultural sectors remains positive heading into 2017/18. The global macro economy looks challenging, but most sectors have been trading off their own individual supply-demand dynamics since the start of 2017. Key global uncertainties include the outlook for China and policy (political) uncertainty, which is not conducive for global growth. A potential 'game changer' is US trade and tax policies.

In terms of key commodities:

- We expect a milk price of \$6.75/kg MS. Whole milk powder prices have settled into a US\$2,800/t to US\$3,400/t range. With the NZD/USD trading 0.68 to 0.72 this indicates a high-\$5/kg MS to high-\$6/kg MS range for 2017/18. We're biased towards the upper end, with demand expected to be able to absorb the increase in supply at reasonable prices. However, if supply increases more than expected due to conducive weather this could push estimates back towards \$6.00/kg MS. Our medium-term view remains \$5.50 to \$6.50/kg MS for the milk price (page 4).
- We expect farm-gate lamb prices to push toward mid-\$6/kg in the winter period and hold through to the start of the new season. Beyond this prices are expected to moderate back toward the low-to-mid \$5/kg mark as peak seasonal flows are processed. An improvement in Australasian lamb supplies is expected later in 2017. That said, an overall steady demand backdrop; low frozen inventory levels; and the fact the increase is off near all-time lows in New Zealand is expected to see the market absorb the increase. An improved outlook for the GBP and Euro helps too (page 12).
- We expect beef bull prices to hold around the mid-\$4/kg mark into late 2017, before adjusting down into the low-\$4/kg (net of levies and GST) range. The supply of beef from both the US and Brazil is forecast to rise more aggressively into 2018. While demand indicators look robust across a range of markets, the size of the increase and Australasian supply biased higher leaves us cautious for 2018. We expect prime steer prices to hold around the \$5/kg mark into late 2017, before adjusting down to the low-to-mid \$4/kg mark (page 16).
- Coarse wool prices are expected to remain low until the Northern Hemisphere winter leads to a substantial drawdown in raw wool inventories. In-market prices have found a (low) base, supported by favourable valuation metrics versus other fibres and farmers withholding supply awaiting better prices. This, combined with steady demand for woollen floor coverings in the US, should support a recovery in prices towards the 5-year average of mid-\$3/kg (greasy). Finer micron prices could face pressure from higher Australian supply. Demand growth from both the US and China for luxury items is expected to provide an offset (page 22).
- Tight New Zealand venison production and low inventory levels are expected to support farm-gate returns moving toward all-time highs in 2017/18, with expectations of at least mid-\$9/kg during the chilled/game season peak, with a stronger EUR/GBP. Beyond this farm-gate prices are expected to settle back toward low-to-mid \$8/kg (page 25).
- The domestic feed market is returning to a better balance after prices hit rock bottom this time last year. Drivers have been lower maize grain, maize silage and barley production, a lift in dairy offtake and lower inventory levels. The tighter local feed supply conditions could well lead to a spike in grain prices during the spring or summer period if pasture conditions are affected by weather developments. That said, gains will be capped by still-low international grain prices and likely cautiousness from the dairy sector (page 28).
- Green kiwifruit prices are expected to bounce back toward \$6/tray and SunGold to move near \$9/tray this season. For Green the biggest driver of the bounce back is a better marketing mix oriented toward Asian markets with substantially lower New Zealand supply. Lower Italian production is also expected to support returns from Europe and American countries. For SunGold lifting volumes are about extending penetration in core markets. Long-term the premium aim for Gold over Green is 20 to 40%, but current indications suggest it could be higher until competition increases (page 31).
- The pipfruit sector has experienced a tremendous run since 2012 with all apple varieties achieving marked lifts in prices. This season the price outlook is a little more mixed depending on the supply-demand balance for each variety and timing of harvest (page 34).
- A strong export performance in 2016/17 combined with a smaller crop in 2017 will allow wine exporters to be choosier in 2017/18. This, combined with lower bulk wine exports through the secondary market, should support average earnings per bottle for wineries. All up, these dynamics provide support for grape prices, but they have trended up at recent harvests, implying lower margins for the winery part of businesses. With this in mind, Sauvignon Blanc grape prices are expected to ease slightly towards \$1,750/t for the 2017 vintage. Other varieties are expected to either ease slightly or be relatively stable (page 37.)

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

THE BIG PICTURE

The strong cyclical upswing in global and New Zealand commodity prices that began in early 2016 is at a delicate juncture heading into 2017/18. As China growth strengthened in 2016, commodity prices did too. Further impetus in many markets was driven by supply reductions and increased Chinese/South East Asian imports to restock and service solid end-demand. An extra tailwind into the New Year period was provided by generally better global economic conditions, especially in developed countries, and the Trump Bump (proposed fiscal package) boosting the reflation trade.

Many of these forces now seem to have matured, or are fading as we enter 2017/18.

In some cases prices are becoming too stretched, risking substitution occurring (to other sources, or different products). Momentum in China is easing (financial stability concerns are turning policymakers' attention to slowing debt accumulation down) and Donald Trump's fiscal package of reforms is uncertain. Oil (a commodity bellwether) has retraced to below ~US\$50/bbl and other parts of the commodity complex have seen prices recede. This raises the question of whether we are set for a wider correction. Certainly, some hard commodity prices (eg. iron ore) are undergoing precisely that.

For New Zealand's main commodities it feels like an upper range is nearing for many, but a substantial pullback doesn't seem imminent either. For many sectors, while supply is anticipated to improve modestly, it is expected the market should be able to absorb increases with generally low inventory levels and solid end demand in many cases. Depending on the extent of supply improvements and seasonal conditions this could weigh on in-market prices at certain times, but an offset for farm-gate prices in many cases is expected to be a capped NZD. This points to 'steady as she goes'.

Key global uncertainties include a) China (slowing, indebted and susceptible to movements in US interest rates) and **b) policy** (political) **uncertainty**, which is not conducive for global growth. Firms need certainty and stability to invest and the global political and policy platform doesn't provide that. Forward indicators of global growth, which turned up in late 2016, are now showing signs of peaking, and price action across some hard commodities is bearing this out.

A major potential 'game changer' remains US trade and tax policies amidst a shift from "free" to "fair and balanced" trade. No one really knows what that means, but the trade rulebook is being rewritten. The deterioration in Mexican/US relations is already having an impact on global meat, grain

and dairy markets, due to Mexico being the largest export market for most of these US products – often by a substantial margin. We will be watching North American trading developments for signs of direction given the US administration's first port of call is the renegotiation of NAFTA.

There are a number of possible outcomes from tit-for-tat trade disputes involving the US, ranging from a general trade recession (negative for all commodity prices) to sector-specific impacts, including potentially improved opportunities and less competition for a range of New Zealand products into Mexico or elsewhere due to reduced US access. This and other geopolitical events are likely to remain influential in 2017/18 and beyond.

DAIRY

We expect a continuation of the 2016/17 trends seen for international dairy prices in the new season. More specifically, we expect skim milk powder prices to remain capped by record-high intervention stocks, high in-market inventory levels and Europe/US continuing to focus on a SMP/milkfat mix. Milkfat prices are expected to stay high until late in 2017 before moderating as buying pressure from the holiday consumption period subsides. Whole milk powder has been trading at a broad US\$2,800/t to US\$3,400/t range since September last year. Broadly speaking, our view is that Chinese and Middle East demand will absorb the anticipated increase in New Zealand supply, especially with buyers reportedly currently buying hand to mouth. We expect a season average price of around US\$3,200/t.

The NZD/USD is trading a broad range of 0.68 to 0.72, a range we see sticking around. Taken with the other product price assumptions this indicates a high-\$5/kg MS to high-\$6/kg MS range for 2017/18. At present we are at the top of this range at \$6.75/kg MS. We're biased towards the upper end, with demand expected to be able to absorb the anticipated increase in supply at reasonable prices. If supply increases more than expected due to conducive weather conditions this could push estimates back toward the bottom of this band. Our medium-term view remains \$5.50 to \$6.50/kg MS for the milk price.

THE SWING FACTOR

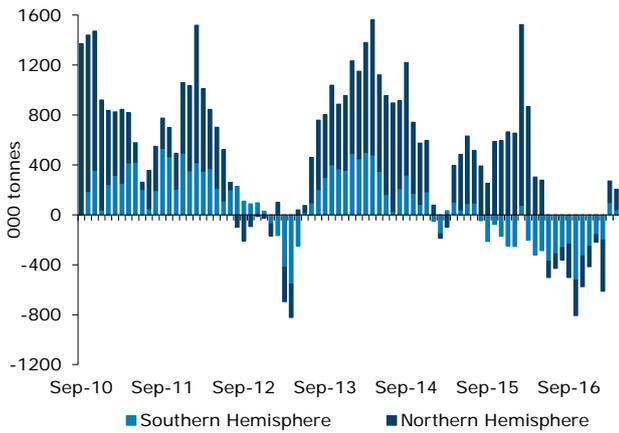
Milk supply is a key risk for bulk ingredient prices over the second half of 2017.

Southern Hemisphere supply has been slightly lower (-0.4%) in the last three months compared with the same time last year. Stronger New Zealand production has been offset by continued softness in Australia and Argentina. **Production in**

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

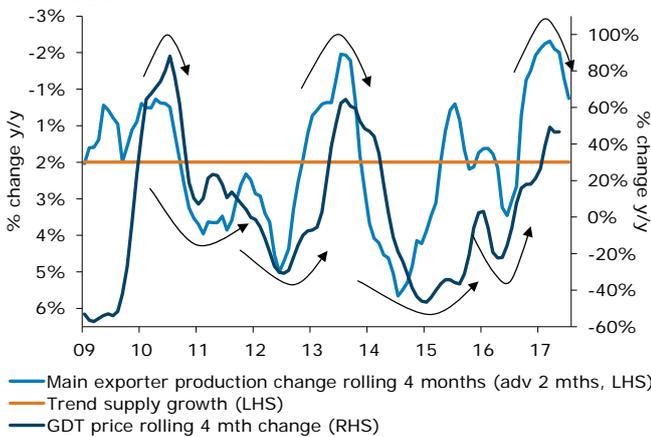
the Northern Hemisphere has been only 0.1% behind in the last three months compared with the same time last year. Softness in the major European producing regions has been offset by the US and more peripheral parts of Europe. In Europe a cold spring, as well as dry conditions, have curtailed production in some of the larger producing states such as Germany and France through the seasonal peak for production.

FIGURE 1. MILK PRODUCTION GROWTH FOR MAJOR EXPORTERS



Source: ANZ, Dairy Australia, DCANZ, CLAL, Datum, USDA, European Commission

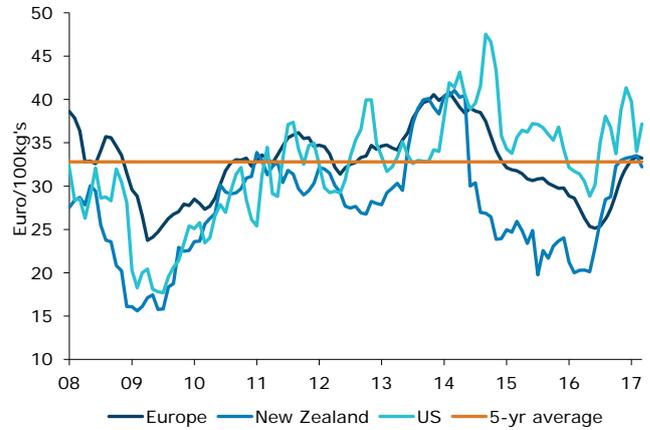
FIGURE 2. MILK PRODUCTION GROWTH VS GDT PRICE CHANGES



Source: ANZ, Dairy Australia, DCANZ, CLAL, Datum, USDA, European Commission

Looking forward, short-term milk flows are driven by farm-gate returns/margins, seasonality (weather and usual seasonal cycle) and supplementary feed prices. In general farm-gate returns are back above five-year averages across the major producing regions and supplementary feed prices are below five-year averages. So both factors point towards more milk, but exactly how much will be determined by weather conditions. The fact that weather capped the seasonal uplift in European production appears to have been quite influential in supporting dairy prices over the last two months.

FIGURE 3. STANDARDISED MONTHLY FARM-GATE PRICES



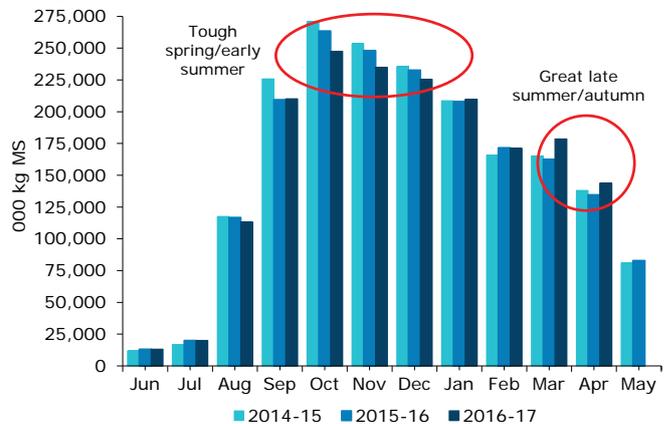
Source: ANZ, Datum

New Zealand

New Zealand supply is expected to finish the 2016/17 season only 0.5% down on last year at 1.853bn kg MS. Interestingly, milk production in New Zealand hasn't changed a great deal over the last four years averaging 1.857bn kg MS. The 2016/17 season will finish very close to this and the other years have been +/-1.7% around this level.

Looking forward it's highly likely early season production will be better than last year's troublesome start, especially in the North Island. Reported better cow condition and pasture conditions should help. The risk is a cold/wet winter leaves sodden soils and negatively impacts pasture quality during the spring. However, the ability to use supplementary feed to plug any feed deficits and improve diet balance should be better this spring, given improved cash flow. This reduces the weather risk for spring production compared with last year.

FIGURE 4: MONTHLY NEW ZEALAND MILK PRODUCTION



Source: ANZ, DCANZ

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

Longer-term trends in milk production suggest average seasonal conditions could lead to milk supply growth of between 2% to 3.5% in 2017/18. Recent national growth has averaged around mid-3% per year. Productivity growth has contributed around 1.3% and extra cows the rest (2-2.2% depending on the time frame).

The contribution from extra cows is likely to be less going forward with new dairy conversions slowing due to the diminishing availability of suitable land and environmental constraints (specifically regional water quality restrictions). That said, we expect some increase in average stocking rates in 2017/18 given the improvement in returns. **All up, seasonal conditions will continue to hold sway, but longer-term trends point to between 2% and 3.5% growth in 2017/18, especially with better cash flow enabling farmers to fill any feed deficits that emerge during the spring.**

Australia

For the 2016/17 season Australian production is expected to have fallen 6% to 8%. The fallout from the 2015/16 season will continue to affect the industry next season, with lower overall cow numbers. **But prospects do look better, driven by high water storage levels, low supplementary feed costs, improved farm-gate returns and some rebuilding of cow numbers in certain areas.** An increase in cow numbers is highlighted by female cattle culling rates currently being at their lowest level on record.

At the processor level, Murray Goulburn has ditched its scheme to claw back payments after it dropped its milk price in 2015/16, in an effort to retain existing suppliers and entice other suppliers back to the company. Murray Goulburn has been tracking about 20% y/y behind on milk supply. Fonterra plans to compensate its Australian suppliers who were impacted by the sharp drop in the milk price at the end of 2015/16 by paying a bonus 40 cents on top of the AUD5.30-5.70/kg MS it has forecast for 2017/18. These efforts will no doubt help confidence, even though balance sheets took a hit in 2015/16 and cashflow still remains tight.

Europe

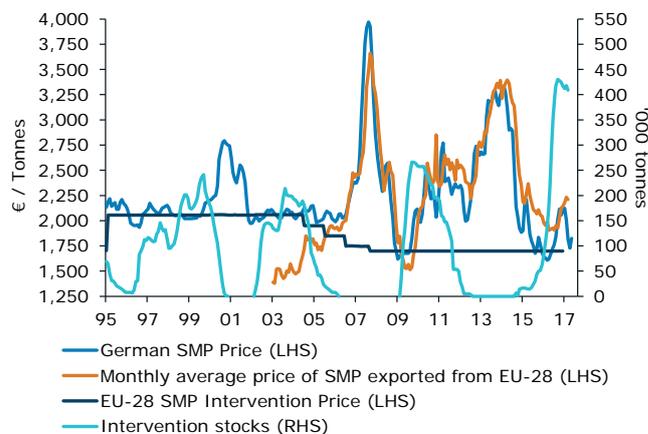
Production in Europe is always difficult to judge from afar. In the first quarter of 2017 production was 2.2% behind the same period last year. **The European Commission is forecasting growth of 0.6% for 2017. To achieve this, growth of 1.5% y/y would be required over the remainder of 2017.** This seems achievable given production fell 2.7% y/y

over the second half of 2016 (driven by low returns and European Commission incentives to reduce production). Farm-gate pricing across the region is also back at the 5-year average and has been tracking 15-20% above the same time last year during the first quarter. Additionally, while feed prices have risen compared with last year, they remain below 5-year averages.

But while the financial indicators point to an improvement, seasonal conditions will be important too. More recently the European Union's peak milk production period has been flatter than usual. Milk production in Europe typically builds up to peak in May, before starting to ease away again. Spring was late across Europe this year, affecting milk production, particularly in Germany, France and even the Netherlands. Netherlands output is expected to drop away further as more cows are culled or exported to neighbouring Eastern countries as the tighter environmental rules come into play. Milk production grew in a number of eastern and Mediterranean states, helping to mitigate the losses in the larger milk-producing states.

Any lift in milk supply is likely to be turned into skim milk powder/milkfat (separation of milkfat and protein components). The combination of skim milk powder and butter would seem the most attractive due to high demand for butter and the guaranteed price offered by the European Commission intervention program. At present only a small amount of skim milk powder has been offered into intervention this year (7,937/t) as open-market pricing (US\$2,050/t) has been above the intervention price (US\$1,850/t). The intervention program allows for up to 109,000 tonnes to be bought each year.

FIGURE 5: EUROPEAN SKIM MILK POWDER DYNAMICS



Source: ANZ, CLAL, IHS

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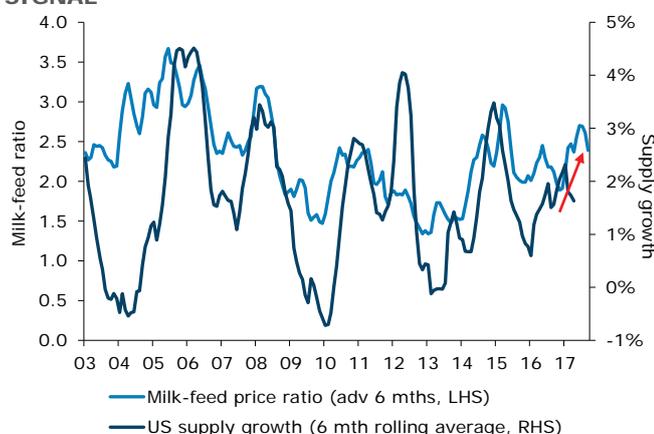
That said, the European Commission is still grappling with what to do with last year's aging stockpile. Currently there are nearly 408,700 tonnes of skim milk powder in intervention storage (including private aid). This is the largest stockpile ever and equivalent to nearly all of New Zealand's annual exports.

So this product still needs to work its way through the system, and with more supply to come from both Europe and the US it's difficult to see skim milk prices moving sustainably higher over the coming year. So far the tenders offered since last December have yielded few sales of intervention stocks, with prices below the Commission's expectations. Given that 220,000 tonnes, or nearly half of the product, is now over a year old, it is becoming less likely it will be sold for human consumption. Skim milk powder has a shelf life of approximately two years. The less-discerning markets may be prepared to accept aged product for human consumption, but these are the most price-sensitive markets too. Other options are food aid programs, stock feed, or blending or manufacturing it into other products.

United States

US milk supply has been growing at around a 2% annualised rate so far in 2017. A similar sort of growth rate is expected throughout the rest of the year. Growth is being driven by farm-gate returns sitting above the 5-year average and historically low feed prices supporting margins. Cow numbers have also increased to multi-decade highs and milk per cow continues to improve by 1.3% y/y. To put 2% growth into perspective this volume amounts to 9% growth for New Zealand.

FIGURE 6: US SUPPLY GROWTH VS. PRICE MARGIN SIGNAL



Source: ANZ, USDA

The key, as always, is how much of the marginal increase reaches the international marketplace, and in what form. In recent years a strong domestic market has soaked up excess milk supply, leaving US exports fairly stable as a proportion of total production. High domestic prices for the likes of cheese and butter relative to international prices have meant the domestic market has been prioritised over international sales.

Since early 2016 the butter market has been driven by US consumers moving back toward natural products, with research and health practitioners increasingly saying it's a better choice than the alternatives that took market share over past decades. High tariff barriers and quotas limit the amount of butter that can be imported into the US, with Europe having significantly better access to this market than New Zealand does. Nonetheless, this has allowed New Zealand to focus on the Greater China and South-East Asian markets with less competitive pressure.

Cheese demand has been driven by a quite different trend of robust foodservice demand, where many menu offerings have a cheese component (pizza, burgers etc). Growth in this area is more aligned with the improved labour market conditions in the US.

That said, competitive pressure from the US is expected to once again increase over the coming year as the gap between international and domestic prices for cheese and butter has closed (see Figure 9). On the cheese front it looks like the domestic market is now struggling to absorb the extra supply. Cheese prices fell at the start of 2017 and stocks are sitting at record highs, 10% above last year. The pressure on butter won't be quite so intense with international prices playing catch-up to the US, internal demand expected to increase by 7% in 2017, and stocks in line with long-run averages. Also, while some of the extra milk could be channelled into whole milk powder, processing capacity is a limiting factor.

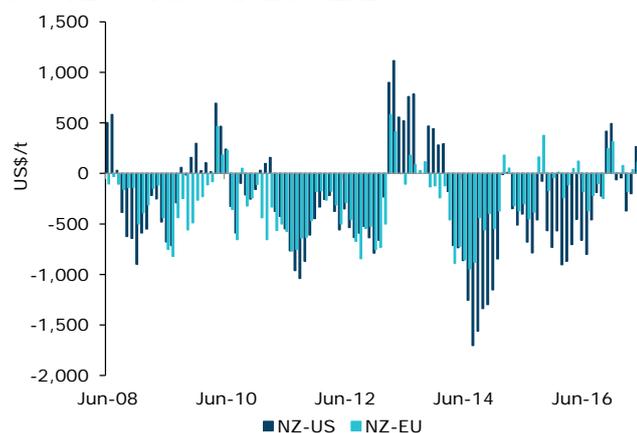
The other area of challenge for US dairy exports is trade tensions with Mexico, who accounted for 25% of total export returns in 2016 (their largest market by some margin). On the skim milk powder front Mexico accounts for nearly half of US exports. So any dislocation in US trade will need to be watched, as this could increase competitive pressure into South-East Asian markets where US exporters have existing trade/business relationships. Whether New Zealand or Europe will pick up the slack into Mexico could depend on how quickly improved market access is negotiated – all adding to marketplace volatility.

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

PRICE COMPETITIVENESS

In general the current price spreads between the major exporters for all the main products are more in line with one another than they have been for some time. This means no one really has a head start into 2017/18.

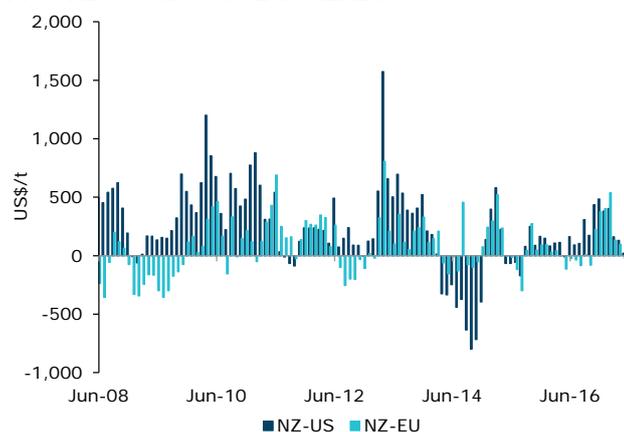
FIGURE 7: WMP PRICE SPREADS



Source: ANZ, USDA, Datum

New Zealand whole milk powder usually trades at a discount to Europe and US product. The gap with Europe (second-largest exporter) has closed post quota removal, but domestic demand, which accounts for around 40% of production, usually helps provide a premium.

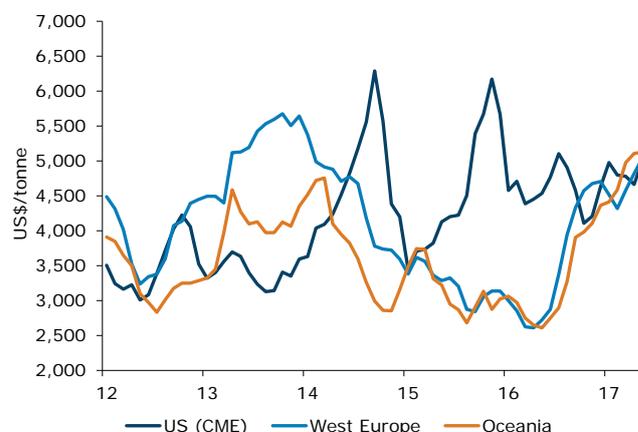
FIGURE 8: SMP PRICE SPREADS



Source: ANZ, USDA, Datum

On the skim milk powder front, on the other hand, New Zealand product usually trades at a premium to Europe and US. The gap widened due to restricted New Zealand supply in 2016/17. Some buyers need to source New Zealand product to fit with brand and ingredient requirements on their product (i.e. New Zealand branding on the tin). There are also contractual arrangements for some buyers too.

FIGURE 9: BUTTER PRICE MOVEMENTS



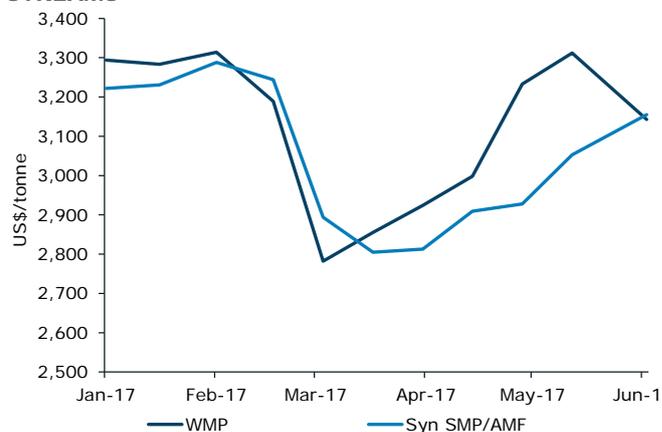
Source: ANZ, USDA, Datum

As previously mentioned, the main difference from recent years is the closing of the gap between US and international milkfat prices. **This means if the US domestic market falters at any point there will be more international competitive pressure from US product than in recent years.** This is reportedly already occurring for cheese.

PRODUCT MIX

While milk supply is important, so too is the mix of products produced. In this regard, while milkfat prices have recently made new records, the capped nature of skim milk powder prices has made whole milk powder a more attractive option for New Zealand manufacturers. This recently led to additional product being added to the auction platform, moderating the price differential. If the general outperformance occurs during the seasonal peak for New Zealand milk flows this could lead to even more whole milk powder production and extra supply being added to the GlobalDairyTrade platform, potentially negatively impacting on prices.

FIGURE 10: RELATIVE PRICE SIGNALS FROM MILK STREAMS



Source: ANZ

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

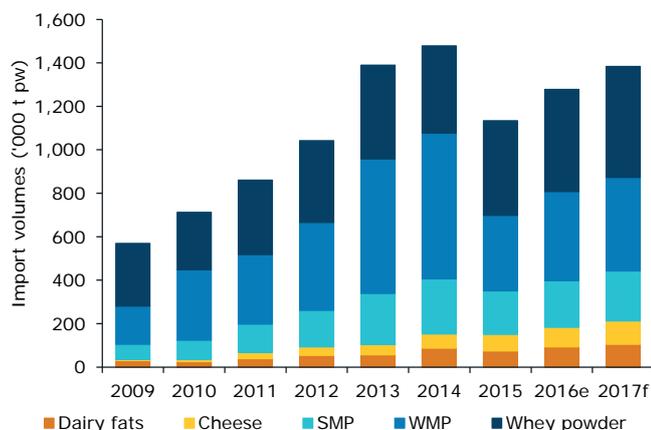
New Zealand processors will also be cognisant that Europe and the US will be more focused on a SMP/milkfat mix.

That said, with export markets screaming out for more milkfat the choice probably won't be so black and white while prices hold up, but any moderation could be a signal for materially more whole milk powder. Milkfat price moderation is most likely to occur post demand subsiding for the holiday period (usually around November).

EXPORT DEMAND

Improved demand from the Greater China region and other strategic South-East Asian markets has been crucial in 2016/17. Generally, import demand from the Middle East/North Africa region has been softer due to ongoing conflicts, political uncertainty in many countries and lower energy prices all weighing on some economies. The exceptions are Algeria and Libya, where imports of milk powder have surged to make up for a local deficit in fresh milk. It's difficult to see these trends changing much in the short term.

FIGURE 11: CHINESE DAIRY IMPORTS BY PRODUCT



Source: ANZ, Chinese Customs

Export performance into China and the broader South-East Asian region will remain key in 2017/18. The consensus view seems to be that Chinese imports will lift by another 10-20% in 2017 as local supply struggles to meet additional demand growth. In China, local milk supply fell in 2016, with dry conditions in the North-West (the main producing region) impacting fresh milk supply and supporting imports. Imported product also remains nearly half the price of local product, which should support imports at the expense of a strong bounce-back in local supply. But as always, uncertainty is high and import demand for milk powder to supplement fresh milk supplies will continue to swing with local supply conditions.

High participation at recent auctions during the seasonal peak for local production continues to suggest a local deficit remains. **The recent financial struggles of large-scale dairy operations in China also highlight the current difficulties in expanding local supply.** The financial viability of many of these businesses appears to be restricted by management capability, environmental restrictions and the cost of quality feed. **With this as the backdrop it's difficult to see whole milk powder prices pushing back below US\$2,800/t for an extended period even if there is more exportable supply to come in 2017/18.**

A changing import mix into China is also underpinning growth as consumer trends change and regulation shapes sourcing relationships. The infant formula category continues to grow despite regulatory change to reduce the number of brands and boost breast-feeding rates. An increasing birth-rate from changes to the one-child policy appears to be providing a tail wind. In this space New Zealand continues to see a rise in not only direct infant formula sales, but also bulk base formula powder that manufacturers then use to produce infant/child formula.

The other growth area that shone through in Fonterra's financial results this year is consumer and foodservice sales in Greater China. Indeed, volumes have expanded by 40% in the nine months year-to-date. **So it seems the targeted strategies of sending products into specific market segments where the Co-operative has a competitive advantage is paying off.**

The foodservice strategy, for example, is focused on the bakery, hotel, restaurant and café channels, with five product categories of UHT cream, cream cheese, butter, mozzarella and speciality products. The reality is these segments – and particularly the westernised component where dairy more easily fits in – are only a small part of the out-of-home food market, but market share gains, combined with organic growth, make for a favourable mix. The same sort of strategies into other focus markets in South-East Asia and Latin America look to be providing demand support too (as seen in Fonterra's financial results and trade statistics).

Longer-term demand is about population and income growth. The potential across the major developing markets varies considerably, but population growth, the lift in real incomes occurring in emerging countries, urbanisation, modernisation of emerging countries' food industries and the shift to more westernised diets generally makes for a favourable long-term mix. Other opportunities that

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could be back on the horizon include better market access to Mexico and Japan through a Trans Pacific Partnership agreement – minus one (the US).

PRODUCT PRICE ASSUMPTIONS

For international dairy prices it looks like we'll see a continuation of trends seen in 2016/17, namely the under-performance of skim milk powder, but a solid performance for milkfat and wholemilk powder. The main risk is that milk flows from New Zealand, Europe and the US all increase too much over the second half of 2017, overwhelming all tradable markets.

The main risk for wholemilk powder seems to be that domestic milkfat demand in the US and Europe can't completely soak up the increases in marginal milk. This would lead Europe and US to compete more vigorously in New Zealand's main

milkfat markets (reducing prices) and the price signal would incentivise both European and New Zealand producers to substitute towards producing more wholemilk powder (limited wholemilk powder capacity aimed largely at the domestic market limits the same direct risk for the US). **The other main risks are substantially higher New Zealand supply, lower Chinese demand and a general downturn in all commodity prices.**

Generally our view centres around skim milk powder prices remaining capped by record-high intervention stocks, high in-market inventory levels, and Europe/US continuing to focus on a SMP/milkfat mix. Generally more competitive pressure from the US is expected too as the gap between domestic and international prices closes, as well as lower cheese prices diverting marginal milk into these and other products.

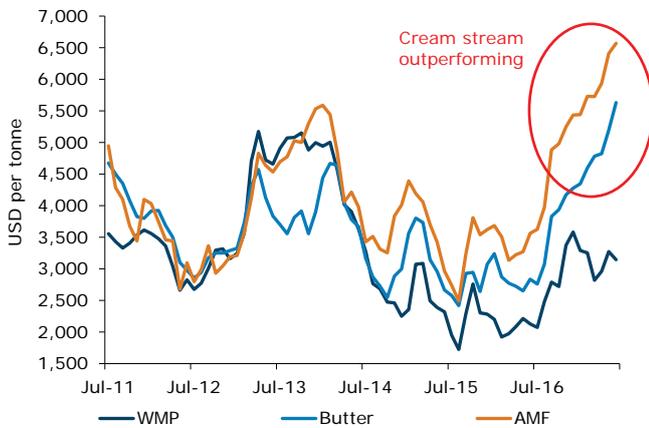
TABLE 1: NEW ZEALAND DAIRY EXPORTS – 12 MONTHS TO APRIL 2017

MILK POWDER			MILK FAT			OTHER		
Country	Last 12 months	% y/y	Country	Last 12 months	% y/y	Country	Last 12 months	% y/y
China	1,871	9%	China	414	15%	China	785	31%
Algeria	649	59%	Mexico	279	72%	US	731	-12%
UAE	401	1%	Philippines	217	30%	Japan	404	-10%
Malaysia	316	-4%	Australia	158	58%	Australia	346	7%
Sri Lanka	272	18%	Russia	151	220%	Korea, Republic of	141	12%
Thailand	243	1%	Egypt	123	-24%	Philippines	126	-3%
Indonesia	213	14%	Saudi Arabia	118	-8%	Indonesia	121	-6%
Bangladesh	209	66%	Indonesia	105	23%	Netherlands	117	-24%
Singapore	180	-3%	Vietnam	83	23%	Malaysia	94	4%
Taiwan	177	9%	Malaysia	80	6%	Mexico	94	-7%
Nigeria	164	16%	UAE	78	62%	Egypt	78	-11%
Vietnam	141	-26%	Taiwan	76	20%	Saudi Arabia	70	5%
Saudi Arabia	133	-39%	Thailand	76	13%	Taiwan	67	3%
Philippines	132	-17%	Azerbaijan	58	-14%	Thailand	65	9%
Egypt	100	-18%	Iran	56	-49%	Chile	48	115%
Libya	67	94%	Morocco	52	44%	Singapore	45	-39%
Australia	65	23%	Algeria	47	4%	Trinidad and Tobago	36	11%
Sudan	59	35%	Denmark	43	-8%	Hong Kong	34	16%
Hong Kong	43	-31%	US	43	-28%	Germany	29	-25%
Mauritius	41	1%	Turkey	37	-32%	Vietnam	26	15%
Oman	40	-32%	Singapore	37	-22%	Brazil	22	16%
Yemen	36	131%	Canada	36	-5%	UAE	22	-4%
Cuba	36	-48%	Japan	34	-26%	Canada	22	69%
Pakistan	35	-1%	Hong Kong	34	22%	Algeria	18	-7%
Venezuela	34	-86%	Chile	25	8%	South Africa	17	15%
Total	6,172	2.3%		2,768	12%		3,793	0%

Source: ANZ, Statistics NZ

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

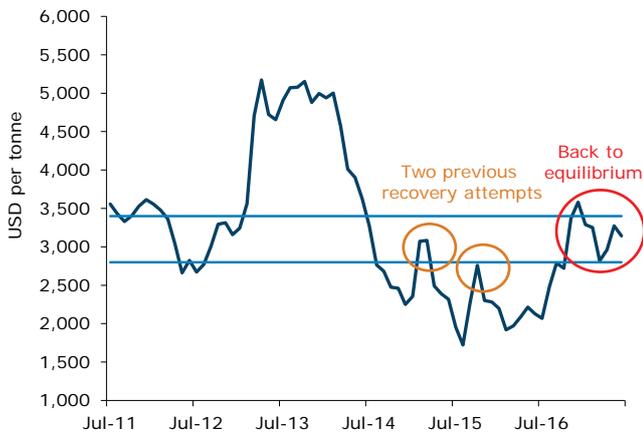
FIGURE 12: MILKFAT PRICES TO THE MOON?



Source: ANZ, GlobalDairyTrade

We see milkfat prices staying high until late in 2017 before moderating as buying pressure for the holiday consumption period subsides. Supply pressures are also expected to ease around this time, but generally demand is expected to remain firm, especially through the foodservice channels in emerging markets.

FIGURE 13: WHOLEMILK POWDER PRICE BANDS



Source: ANZ, GlobalDairyTrade

This brings us to the swing factor for farm-gate milk prices – wholemilk powder. This has been trading at a broad US\$2,800/t to US\$3,400/t range since last September. This range is also our medium-term view. **Broadly our view is Chinese and Middle East demand will absorb the anticipated increase in New Zealand supply, especially with buyers reportedly currently buying hand to mouth. This looks set to deliver a season average price around US\$3,200/t.** The bottom or top of the range could come into play with stronger or weaker New Zealand supply, or Chinese demand.

SO WHAT DOES IT ALL MEAN FOR FARM-GATE RETURNS?

The NZD/USD is trading in a broad range of 0.68 to 0.72, which we broadly see sticking around. Taken with the other product price assumptions above this indicates a high-\$5/kg MS to high-\$6/kg MS range for 2017/18.

At present we are at the top of this range at \$6.75/kg MS, with the view that demand will be able to absorb the expected increase in supply over the second half of 2017. If supply increases more than expected due to conducive weather conditions, this could push estimates back toward the bottom of this band. Our medium-term view remains \$5.50 to \$6.50/kg MS for the milk price.

TABLE 2: POSSIBLE MILK PRICE SCENARIOS

		Milk Price Component Scenarios (NZ\$ per kg MS)			
		NZD/USD			
		0.67	0.68	0.69	0.71
WMP (US\$/t)	2800	6.15	6.00	5.90	5.70
	2900	6.30	6.20	6.10	5.85
	3000	6.50	6.40	6.25	6.00
	3100	6.70	6.55	6.45	6.20
	3200	6.85	6.75	6.60	6.35
	3300	7.05	6.90	6.80	6.55
3400	7.25	7.10	6.95	6.70	

Source: ANZ

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SHEEPMEAT

We expect farm-gate lamb prices to push toward the mid-\$6/kg level in the winter period and hold there through to the start of the new season. Beyond this, prices are expected to moderate back toward the low-to-mid \$5/kg mark as peak seasonal flows from the 2017 lamb crop are processed.

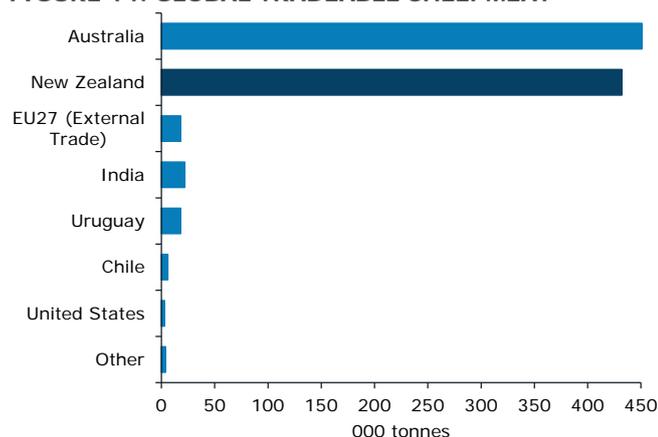
An improvement in overall Australasian lamb supplies is expected later in 2017, which will reduce some of the procurement and inter-market competition. That said, an overall steady demand backdrop; low frozen inventory levels; and the fact that the increase is off near all-time lows in New Zealand is expected to see the market absorb the increase relatively easily. More relief for farm-gate returns looks set to be provided by an improved outlook for the GBP and euro.

While Brexit impacts will continue to be felt, the currency impact is not expected to be so acute in 2017/18. A continued positive performance from China, the Middle East and US markets is also expected to support demand and prices.

TRADABLE SUPPLY TO REMAIN TIGHT FOR NOW

Global supply of tradable lamb is dictated by New Zealand and Australia. That said, domestic production in key export destinations such as China, the United Kingdom and Europe also matters for price direction. **Both Australian and New Zealand supply is expected to remain tight** into the new season period supporting both in-market and farm-gate prices.

FIGURE 14: GLOBAL TRADEABLE SHEEPMEAT



Source: ANZ, Beef + Lamb NZ, Global Trade Atlas

Looking to the new season, supply conditions for sheep meat, and lamb in particular, are expected to improve. Total export-available Australasian lamb supplies could increase by up to 20,000 tonnes (+4%). But given the current season's low levels of supply and low carryover

frozen inventory levels, the increase is expected to be absorbed without too much difficulty.

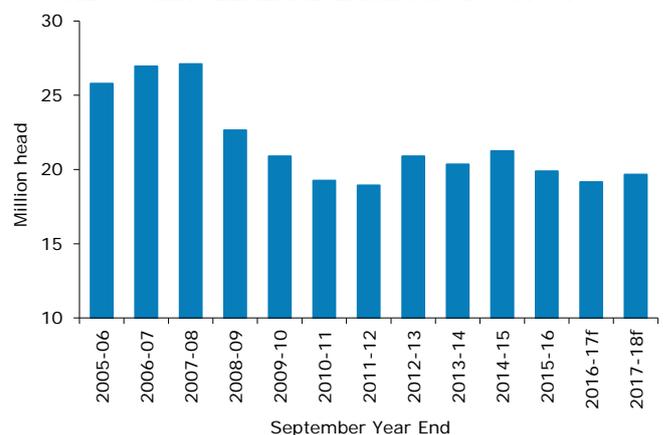
New Zealand supply

New Zealand sheepmeat supplies are likely to challenge the multi-decade low set in 2011/12. Current industry expectations are for export supply of 22.78 million head (-4% y/y), split between a reduction in lamb supply to 19.16 million head (-3.6% y/y) and a fall in mutton to 3.62 million head (-5.6%). Lamb supply is running behind this, implying some catch-up during winter, especially in the North Island.

The main risk would seem to be that 2017 hogget retentions for breeding in North Canterbury and the major breeding regions of the North Island could be higher than expected (currently anticipated to be unchanged from 2016). Many of these regions have seen a run-down in stocking rates due to adverse seasonal conditions and below-average returns in recent years. But this season's pasture conditions are some of the best seen in years heading into the winter period and store cattle are expensive. Both factors could well encourage higher hogget retentions.

If this does occur export lamb production could slip below the 19 million head mark (last seen in 2011/12). Mutton production is largely running in line with expectations, but could drop lower over the final quarter too, driven by the same factors.

FIGURE 15: NEW ZEALAND LAMB PRODUCTION



Source: ANZ, Beef + Lamb NZ

While it's still early days, an improvement in lamb supply in the 2017/18 season can be expected, but mutton production will likely hit multi-decade lows with an overall smaller flock and some rebuilding. Topping conditions were substantially better in the main breeding regions this autumn, suggesting higher scanning rates than last year. This could deliver a record-high lambing percentage. The number of lambs from hoggets is

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also expected to increase with better weights this year allowing more mating to occur. That said, the increase will be capped by the fact there's been little change in the number of breeding ewes mated this year.

Overall early expectations are that the number of lambs tailed in 2017 could be 500,000 to 800,000 head higher, an increase of 2.2% to 3.4% on 2016. This could push export supply back toward the 19.5 million head mark, depending on hogget retentions. From an overall sheepmeat perspective this will be somewhat offset by lower mutton production, with current industry expectations being for production between 3.3 to 3.4 million head in 2017/18. Seasonal conditions will dictate weights.

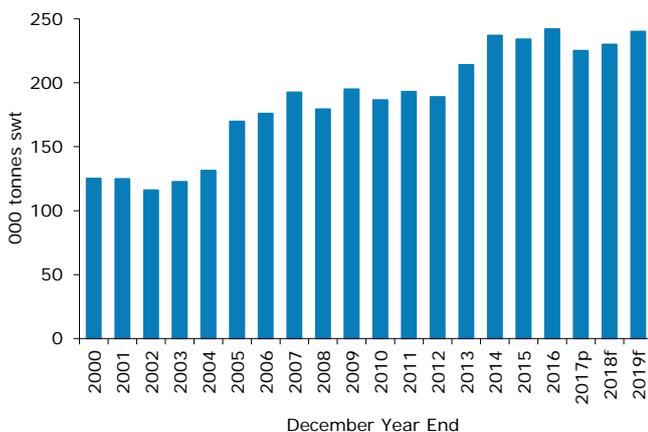
Australian supply

Australian lamb supply is expected to contract to 21.5 million head in 2017 (-6%), the first drop below 22 million head since 2013. **Mutton production is also expected to fall 17% to 5.8 million head – the second-lowest on record.**

The decline is being driven by high farm-gate returns for lamb and fine wool leading to higher retentions of ewes and Merino wethers for wool production. Combined with a poorer lambing in the final quarter of 2016 it is anticipated supply will be particularly tight through to at least September 2017.

With Australia's domestic market proving resilient, this will have an even larger impact on product available for export. **Overall sheepmeat exports are expected to decline 11% to 327,000 tonnes in 2017.** From the recent peak in Australian exports in 2014 this is a decline of 96,000 tonnes, which is equivalent to around a fifth of New Zealand's current exports.

FIGURE 16: AUSTRALIAN LAMB EXPORTS

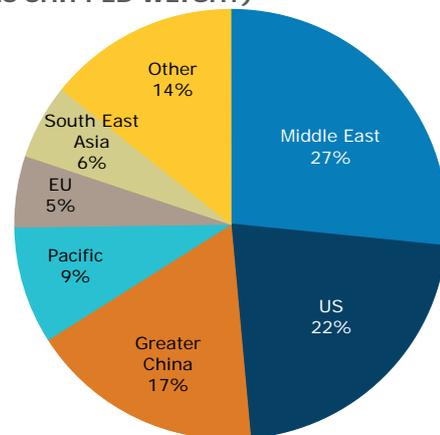


Source: ANZ, Meat & Livestock Australia

Of course higher retentions of breeding ewes now will lead to extra supply in future years.

Overall lamb supply is expected to lift back toward 22 million head in 2018. Combined with normalising ewe/hogget retentions this is expected to push total sheepmeat supply up 3.4% to 641,000 tonnes in 2018. An even larger increase (8.3%) is anticipated in 2019. **The domestic market is expected to soak up some of the increase in 2018, but beyond this their industry is projecting larger increases in exports once more.**

FIGURE 17: AUSTRALIAN LAMB EXPORT MARKETS (TONNES SHIPPED WEIGHT)



Source: ANZ, Meat & Livestock Australia

In terms of Australian export markets, the Middle East, the US and China are the most important and absorbed most of the increased supply during the 2014 to 2016 period.

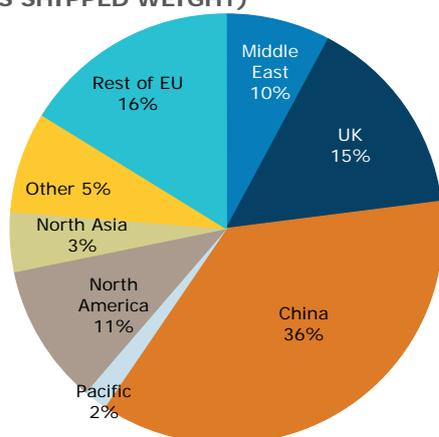
The Middle East has seen a 10% y/y drop in exports this year with a softening in exports to Jordan and Bahrain. In late 2015 Bahrain removed a government subsidy on imported Australia lamb, prompting a shift from lamb to mutton carcasses. The offset has been a lift in exports to the UAE and Qatar. North American exports (-6% y/y) have also slowed, as presumably the market has reached a plateau after a strong period of growth and lower available supply. The Greater China area posted growth with a bounce-back in lamb exports to China (+30% y/y), but mutton exports have still faced pressure (-27% y/y). Total Chinese imports started to drop in the second half of 2015 as the domestic flock was reduced. This led to high inventory levels that were only cleared in the second half of 2016 following the main consumption period (winter).

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STEADY MARKET OUTLOOK

New Zealand has maintained a fairly stable market mix in recent years. However, lower supply, Brexit impacts, further market access gains in China for chilled product, Silver Fern Farms' change of capital structure and other meat processor marketing initiatives could see the marketing mix change over the next several years. The 2016/17 season so far has seen a lift in market share for China and a bigger focus on Europe at the expense of the UK.

FIGURE 18: NEW ZEALAND EXPORT MARKETS (TONNES SHIPPED WEIGHT)



Source: ANZ, Beef + Lamb NZ

UNITED KINGDOM AND EUROPE

The United Kingdom and European markets remain critically important to farm-gate returns, accounting for 31% of total export volumes and 41% of earnings so far in 2016/17. However, tough economic conditions in Continental Europe and a low euro and GBP (and high NZD) have seen year-to-date lamb export volumes drop 13% in 2016/17. The biggest fall has been to the UK, with year-to-date lamb export volumes down 17% as higher-returning European markets have been prioritised.

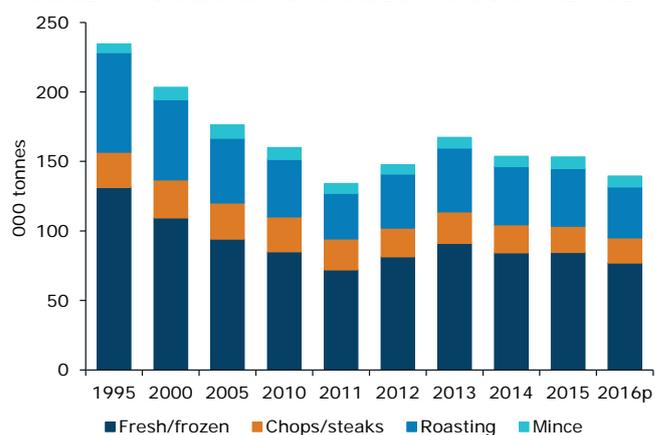
Looking forward, the political and economic picture looks less skewed to the downside in 2017/18 with both Europe and the UK showing reasonable economic momentum. **Combined with NZD softness this is set to provide some currency relief.** But Brexit impacts also seem to be going head-to-head with some structural challenges for sheepmeat consumption, especially in the UK and French markets.

United Kingdom

While specialty occasion sales that occur during the Easter and Christmas period remain a crucial part of the UK landscape, and have been fairly steady in recent years, there remains a downward trend in total retail consumption of

lamb. This channel accounts for around 80% of New Zealand's UK trade. Part of this reflects availability, but changing demographics, competition from other meat proteins, changed eating habits for younger generations and affordability challenges have also played a part.

FIGURE 19: UK LAMB PURCHASES THROUGH RETAIL



Source: ANZ, AHDB

These structural shifts have combined with higher availability of local product, a drop in beef prices and Brexit impacts to pressure New Zealand's export volumes in 2016/17.

Brexit impacts have mainly been currency related, but worryingly, a small number of supermarkets pushing for a point of difference have jumped on the nationalist bandwagon deciding to stock only locally-produced product.

Looking forward, the UK consumer is expected to fare reasonably well in 2017/18 with a robust labour market supporting spending. Longer term there are still opportunities to lift demand by repositioning lamb for the casual/quick service foodservice channels, growing demand from the Muslim community, and targeting the younger generation with appropriately branded products.

Competition-wise, local supply is expected to increase over the second half of 2017, before dipping again in early 2018. Part of this reflects a return to a more normal seasonal production pattern. The UK lamb crop is expected to be only slightly lower in 2017, with a small increase in breeding numbers being offset by a slightly lower lambing percentage. Some disease issues are expected to have weighed on production. While UK production has increased slightly in recent years, stronger exports and lower imports reflect lower overall lamb consumption in the UK.

Over the long term Brexit impacts on farm support programmes and market access are the two focal points. Both are very political in nature and it is therefore difficult to anticipate final

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

outcomes. Farm support programmes are reportedly to be left unchanged until 2020, but beyond that less support seems likely. On the trade front nothing dramatic will change until Brexit negotiations are completed, which has been flagged for early 2019. Not too much change in New Zealand's market access is anticipated (in part due to WTO rules), but improved access for Australian product is likely as they line up for bilateral deals with Europe and the UK. This will increase competition with New Zealand product given similar seasonal production patterns.

Europe

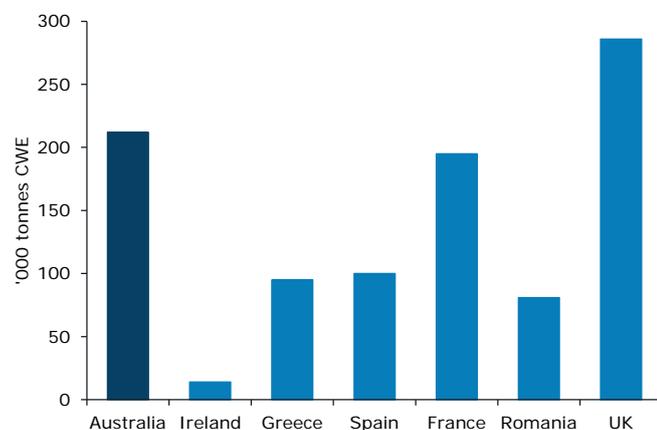
The overall production and consumption of sheepmeat in Europe remains fairly stagnant.

The overall sheep breeding flock in December 2016, which gives an indication of production developments for 2017, was virtually unchanged from the year before. Of the significant producing countries, only Romanian and Italian flocks have shown any growth. **Sheepmeat production declined almost 2% in the EU in 2016. A small recovery of around 1% is anticipated in 2017 mainly due to seasonal dynamics.**

In New Zealand's larger European markets, French sheepmeat production is edging up at present driven by a more stable and productive flock. However, as consumption is still in long-term decline, imports have taken a hit. In fact overall imports have fallen by over 5% per year since 2015.

A more positive picture of lamb demand is evident in Germany, with consumption increasing, helped by the influx of Muslim migration. As domestic production is low, and does not change very much from year to year, the increased demand is being met by higher imports from both the UK and New Zealand.

FIGURE 20: EUROPEAN SHEEPMEAT CONSUMPTION



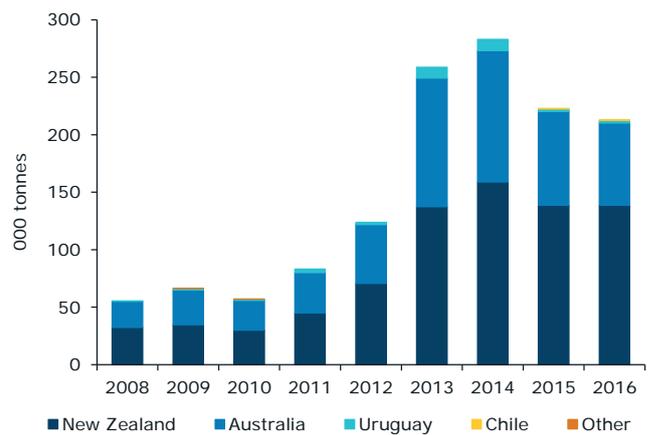
Source: ANZ, Meat & Livestock Australia

CHINA

Consumption of sheep meat in China has had a boost from falling prices since 2014 and increased product availability. However, prices have begun to move higher again in 2017 and could start to challenge affordability again.

Domestic consumption is focused on mutton, which is widely produced in China. It is supplemented by imports of not only mutton, but also lamb. Per capita sheep meat consumption in China rose by over half a kilo between 2006 and 2016 to reach 3kg retail weight. This increase, combined with a larger population over this period, equated to the sheep meat market growing by almost 1.1 million tonnes in carcass weight (cwe). This is nearly 2.5 times New Zealand's total current annual production! Over 80% of this additional supply was produced domestically, but imports have still risen by over 200,000 tonnes cwe per annum over that period.

FIGURE 21: CHINA SHEEPMEAT IMPORTS



Source: ANZ, Meat & Livestock Australia

New Zealand and Australia account for the vast majority of imports (circa 95%). Imports fell in 2015 due to disease issues, food safety regulatory changes and some smaller farmers exiting at high prices leading to an oversupply of domestic product, which hung over the market until the second half of 2016. More recently balance has been restored with solid consumption during the last two winter periods when more hotpot cuisine is prepared (perceived to generate 'internal heat' according to traditional Chinese medical thinking).

Wholesale mutton prices trended consistently lower from the middle of 2014 through to late 2016. Now prices are rising again with tighter supplies domestically and from Australian and New Zealand. A rise in Chinese pork prices has also put upward pressure on sheepmeat prices; the premium has been reduced, so demand is increasing.

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Due to a lack of accurate information on flock numbers, slaughter rates and inventories, the China market is subject to a high degree of uncertainty. However, the reduction in breeding ewe numbers in 2015 should result in tighter local supply. Combined with improved demand signals, this should support import requirements through to early/mid-2018.

Long-term China demand drivers remain attractive. With improved chilled access, New Zealand product will be able to compete more on freshness. This is a top purchasing attribute that New Zealand hasn't been able to service with frozen product. While price is the other important factor when purchasing meat, more affluent consumers are willing to pay more for attributes such as delicious taste, food safety, consistent quality standards, environmental sustainability and better animal welfare standards. Consumer numbers in this bracket continue to increase and combined with new processing partnerships and improved market access, should provide plentiful opportunities.

NORTH AMERICA

Total lamb imports into the United States continued to push to new records in 2016, mainly due to higher earlier imports of Australian product. The drivers have included the US sheep flock continuing to contract (now at multi-decade lows), which accounts for around 50% of supply. Low local supply, combined with robust foodservice and high-end retail demand, has supported imports. Demand for lamb, one of the highest-priced meats, is being driven both by the upper-end US consumer being in good heart and also by changing consumption patterns toward 'healthier', 'natural', 'grass-fed' and 'wholefoods', lifting lamb's appeal.

Lamb is also becoming more popular amongst younger US consumers looking for a more pronounced flavour than that offered by pork and poultry. The other growth area is for traditional ethnic cuisines due to growing Indian, Muslim, African and Hispanic populations. This creates opportunities for other cuts (i.e. forequarters) outside of what New Zealand has traditionally supplied (racks and loins).

MIDDLE EAST

Despite geopolitical challenges and the downturn in energy prices, red meat demand is still being driven by urbanisation, growing disposable incomes, westernisation, religious considerations, a young population and large expatriate populations. In more politically stable

areas, such as Dubai and Saudi Arabia, tourism demand in the high-end foodservice sector is growing for chilled lamb cuts such as boneless loin, rack and shank. Market access has also just resumed for small volumes into Iran, which used to be a 100,000 tonne market.

This, alongside lower Australian mutton and improved Chinese demand, should provide some stability despite the depressed state of general economic conditions in this region. One area to watch is changes to government food programs, with Bahrain stopping its subsidy for sheepmeat in late 2015, which has increased retail prices and lowered consumption.

BEEF

The supply of beef from both the US and Brazil is forecast to rise more aggressively into 2018. While demand indicators look robust across a range of markets, the size of increase and Australasian supply being biased higher leaves us cautious on beef prices heading into the first quarter of 2018.

Our expectation is beef bull prices hold around the mid-\$4/kg mark into late 2017, before adjusting down into the low-\$4/kg range (net of levies and GST). On the prime steer front we expect prices to hold around the \$5/kg mark into late 2017, before adjusting down to the low-to-mid \$4/kg mark.

Demand indicators in the US remain robust and wholesale/retail prices are competitive with pork and poultry. The challenge is expanding domestic supplies of beef, but also all other meat proteins. From the low in 2013/14 annual US beef production is expected to expand by an additional 1.4 million tonnes by 2017/18. Most of this is expected to come through over the next 12-18 months and be absorbed within the US market. There are plentiful opportunities across Asian markets though.

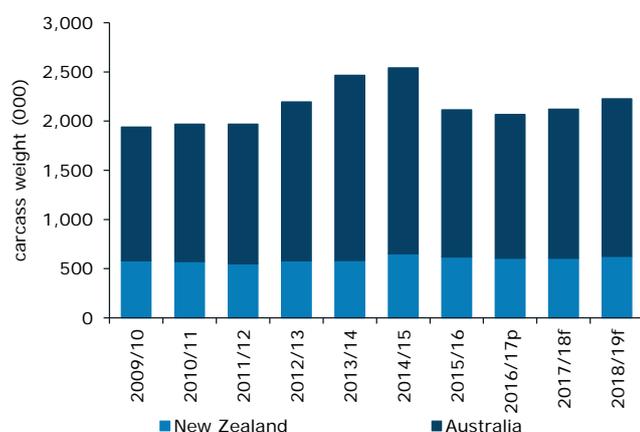
TRADABLE SUPPLY

New Zealand's preferential market access that has long sheltered it from some key low-cost producers is being incrementally eroded. Brazil, US and Australia have all improved their access to many of New Zealand's traditional and new Asian markets (i.e. China). **This is making for a more competitive landscape.**

More supply is expected from the US, South America and Australia over 2017/18. The expected size of the increase is likely to challenge prices even with a robust demand backdrop.

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FIGURE 22: AUSTRALASIAN EXPORT SUPPLY



Source: ANZ, Beef + Lamb NZ, Meat & Livestock Australia

Australian supply

Australian supply remains tight in 2017 and is expected to register a 12-year low. The main reason is farmers continuing to retain cows in response to higher farm-gate prices and to rebuild herd numbers that were run down during 2014 and 2015 due to drought in the major breeding regions. Most of the near-term decrease in 2017 is cows and heifers due to strong rebuilding intentions. This is keeping manufacturing supplies particularly tight and has seen a 44% y/y fall in Australian exports to the US.

Supply conditions are expected to improve in 2018 (+3%), but return to long-run averages only in 2019. The increase in overall production is expected to see export volumes lift by 56,000 tonnes in 2018 and a further 88,000 tonnes (cwe) in 2019.

New Zealand supply

Industry expectations are for New Zealand export supply to decline by 1.8% (11,400 tonnes) in 2016/17. However, year-to-date production has run well behind this, implying some catch-up through the winter period. The main areas of shortfall have been cull cows and bulls. We expect some catch-up of cull cows has already occurred through to the end of May as dairy herds have been dried off to maintain body condition and avoid overgrazing sodden soils. Some finishing farmers have also likely brought culls (due to high store prices and excess grass) to add weight during the winter period before either turning them off (spring), or reselling back into the dairy herd. Still, all up it seems cull cows will be in shorter supply than expected with the better farm-gate price outlook. On the bull beef front some further catch-up is expected to have occurred as target weights have been reached recently. Many regions experienced tough spring/early summer conditions, which impeded early season growth rates.

Looking forward, of New Zealand's current production nearly 70% is estimated to be of cattle of dairy origin and the remaining 30% traditional beef breeds. Of this, dairy farmers account for around 40% of direct supply and red meat farmers the remainder. Of the red meat farmers' contribution, just under half is of dairy origin and the other half traditional beef breeds.

On the dairy front, while the outlook for better returns will once again encourage higher retentions of cows and heifers to increase stocking rates, we think the majority of this will occur in 2016/17. This leaves turn-off rates closer to historical norms in 2017/18.

While there is likely to be a marginal pick-up in new dairy conversions, lifting demand for cows too, this is expected to be fairly limited and somewhat offset by environmental restrictions impacting stocking rate decisions elsewhere. **All up, with average seasonal conditions we suspect dairy culls will be flat to slightly higher in 2017/18.**

Higher production is likely from more dairy bulls/steers. Higher farm-gate returns and earlier low milk prices has encouraged the rearing of more dairy calves over the last two years. These will start to show up more in 2017/18 and beyond.

The offset is the lagged impact of a nearly 9% decline in the number of traditional beef cows over the past three years. This will start to have a larger impact on production over the next two seasons. The impact could be larger than just the drop in calf numbers as a continuation of good pasture conditions in breeding regions and solid farm-gate prices would encourage further heifer and cow retentions to rebuild stock numbers.

All up, with average seasonal conditions we expect NZ production will remain fairly stable in 2017/18.

SOUTH AMERICA

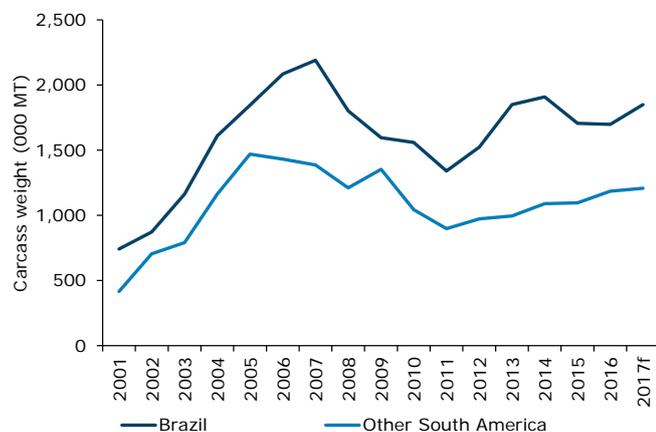
Recent food safety and reputation challenges aside, improved market access for Brazil and other South American exporters is increasing competition in two of New Zealand's key markets: US and China.

In 2017, Brazilian exports are forecast to increase close to 10%, driven by a lower currency and higher demand in Asia, notably China. Further productivity gains and a total cow herd numbering 95.5 million head (with annual growth around 1%) suggest there is further capacity to increase exports over coming years. The Brazilian Government and meat processors continue to intensify trade missions to other key New Zealand markets such as Thailand, Taiwan and Indonesia. How

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successful they will be in light of the recent crackdown on tainted meat exports is difficult to gauge, but will be important for future competition dynamics.

FIGURE 23: SOUTH AMERICAN EXPORTS



Source: ANZ, USDA

Beef exports from other South American suppliers have been steadily increasing in recent years. Notably, exports from Argentina and Uruguay are both growing again. Argentinian exports are being driven higher by:

- soft domestic demand, with inflation still high and weaker consumer purchasing power;
- increasing domestic supplies of less-expensive alternative or complementary meats such as poultry and pork;
- growing cattle and beef supplies; and
- new export rebates on beef, which improve exporters' returns by 5.3-5.8%, depending on the product.

However, future increases will be limited by a scarcity of heavy steers for export, an exchange rate that makes it hard to be competitive in the region (Argentina has the most expensive cattle in USD terms), growing production costs due to high inflation, and a low price of by-products such as offal and hides.

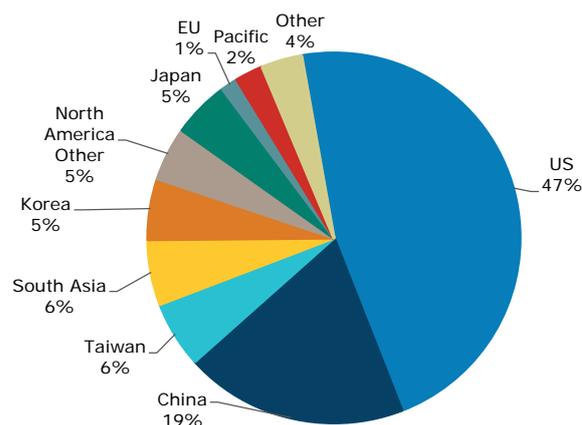
OFFSHORE MARKETS

Lower manufacturing beef prices and fewer cull dairy cows have seen a reduction in New Zealand exports to the US in 2016/17. However, the US still accounts for around 47% of total export volumes and 42% of total earnings, much of which is manufacturing beef destined for foodservice products. This means it is still an important barometer for the direction of farm-gate pricing in New Zealand.

The next most important region is Asia, with its much wider variety of end markets and consumer drivers for beef consumption. The Greater China region (China, Taiwan, Hong Kong)

is now New Zealand's second-largest beef market, accounting for 26% of total export volumes and 28% of total earnings. Next are South Korea and Japan. These two markets have been under pressure due to improved market access for Australian and US product in recent years.

FIGURE 24: NEW ZEALAND EXPORT MARKETS (TONNES SHIPPED WEIGHT)

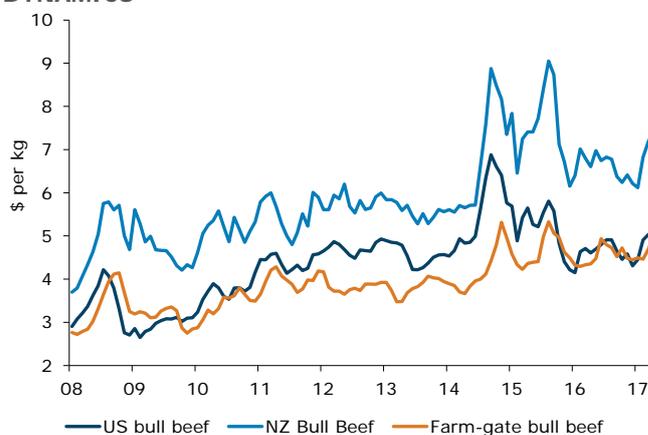


Source: ANZ, Beef + Lamb NZ

THE US

Since US manufacturing beef prices adjusted lower in late-2015 they have been trading at levels very similar to the 2011 to early-2014 period. Looking at the supply-side dynamics between the two periods highlights lower domestic US production since late-2015 compared with the preceding period, but higher cold-storage inventory levels and imports. On the demand side, while manufacturing beef has been less price competitive at wholesale compared to poultry and pork substitutes, foodservice demand has been fairly steady and retail demand higher due to more promotional activity (lowering retail prices back to similar levels seen during the 2011 to early 2014 period).

FIGURE 25: US MANUFACTURING BULL BEEF PRICE DYNAMICS



Source: ANZ, AgriHQ

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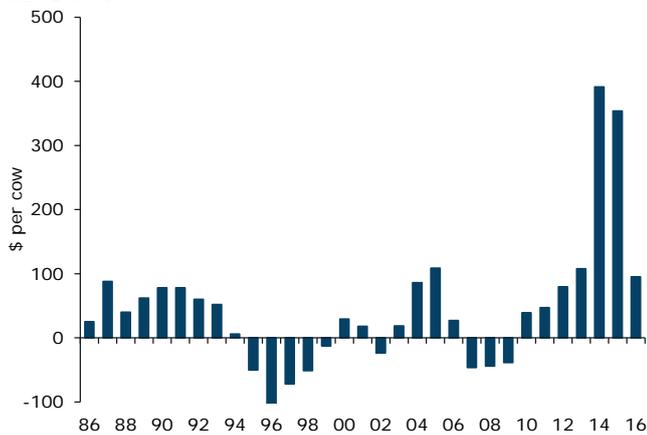
Looking forward, things are set to change, with higher volumes of domestic US beef anticipated through 2017/18, but somewhat lower imports.

The key question is whether end-demand is robust enough to absorb the extra supply at recent prices. **We suspect prices will remain robust through to the spring/early summer period, but there is likely to be some renewed downward pressure with the seasonal lift in US cull cows (last quarter).** The offset for farm-gate prices could be a slightly lower NZD. This has been a key difference for farm-gate returns recently with the NZD/USD averaging 0.70, compared with 0.81 between 2011 to early-2014. Other things remaining the same this has added nearly 17% to farm-gate returns.

Domestic supply

The US has been in herd-rebuilding mode since early-2014, driven by lower feed costs, good pasture conditions in breeding regions, record high cow-calf returns and lower cattle feeder imports. These dynamics continue to drive the retention of beef cows and heifers, but not to the same extent as earlier with the likes of cow-calf returns dropping back to USD95/cow in 2016. Nevertheless, more cows mean more calves, and combined with low feed prices (ability to add extra weight), this is leading to increased beef supply.

FIGURE 26: ESTIMATED AVERAGE COW-CALF RETURNS

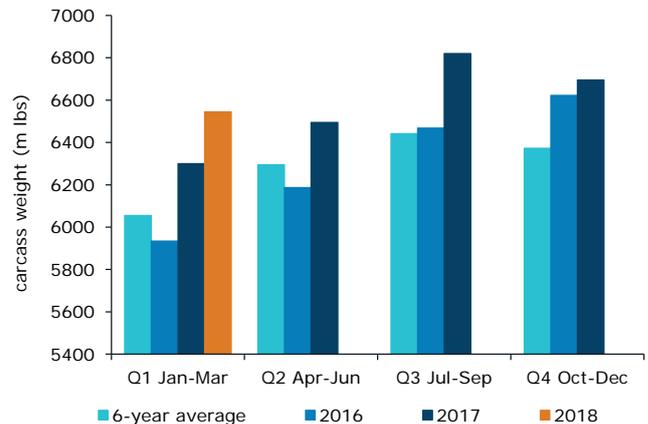


Source: ANZ, USDA-AMS

Overall US beef production is expected to have expanded by 6.5% or 720,000 tonnes in 2016/17. The USDA forecast a further increase of 3.6% or 421,000 tonnes in 2017/18. From the lows of 2013/14 the increase is anticipated to be 1.4 million tonnes, equivalent to 68% of Australasia's export supply. There is no quarterly breakdown of forecast imports and exports, but the annual estimates suggest around three-quarters of the increase will be absorbed on the domestic market in

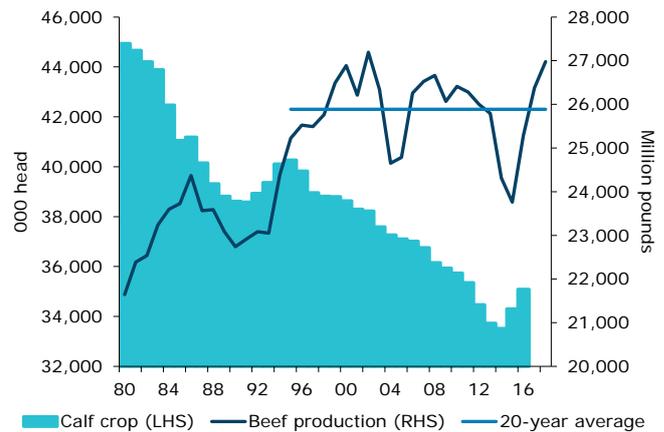
2017 and the other quarter exported. Lower imports are expected to account for around a quarter of the increase in domestic supplies too. Looking ahead to 2018 nearly the entire increase is expected to be absorbed by the domestic market.

FIGURE 27: US QUARTERLY BEEF SUPPLY



Source: ANZ, WASDE

FIGURE 28: US BEEF PRODUCTION

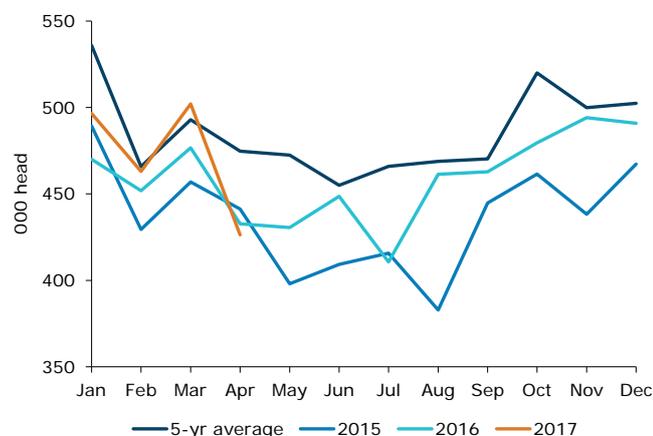


Source: ANZ, WASDE

While overall beef supply has some impact (via cut and consumer substitution) the other important supply information is US manufacturing beef supply and imports. **On this front, supply remains tighter than the overall picture, but has started the year back at 5-year averages after spending the last two years 5-10% below this (April is Easter-affected).** Dairy cow slaughter has been fairly stable, but beef cow slaughter is lifting as more "normal" cull rates take hold across a larger breeding herd.

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FIGURE 29: US MONTHLY COW SLAUGHTER



Source: ANZ, USDA

The offset to higher domestic production has been lower imports over the last year (-11%). Weakness in imports has centred on Australia, New Zealand and Uruguay during this period (with imports from these countries down 31% y/y and export share dropping to 47% from 60% the year before). While supply conditions in all three countries are not expected to bounce back aggressively in 2017/18, they are stable-to-increasing slightly.

Additionally, South American producers have moved to fill the void. Imports from the main South American producers have risen 28% y/y. Both Mexico (due to a lower peso) and Brazil (improved market access) have led the charge.

While Brazilian imports will increase, they are somewhat capped as they have only gained part of an "other country" quota, which has to be shared with four other countries – and the duty rate outside the quota (26.4%) seems prohibitively high for other exports. Brazilian plants also need to be individually accredited and convince end-users of their food safety credentials (which would have taken a hit from recent events), so this will take time. Longer-term market access will be reviewed in 2020, when access could further improve.

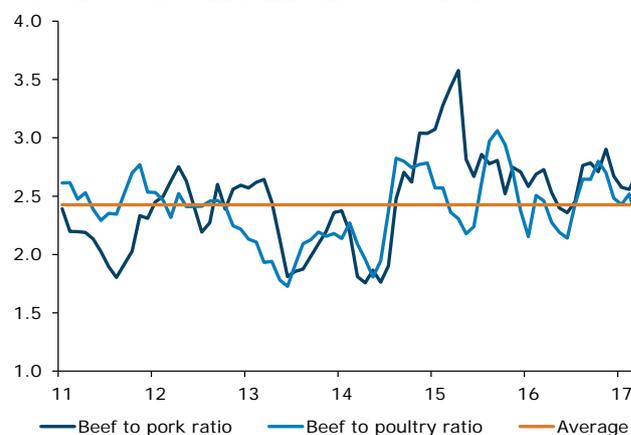
Competing meats

The other concern for beef remains plentiful pork and poultry supplies. Both are forecast to continue to expand into 2018. Export demand remains critical to absorbing the increases and supporting prices.

However, while there is a risk higher pork and poultry supplies could drive prices lower, the current wholesale price relativities versus beef aren't too far off recent averages (since 2011). In fact the beef-to-pork ratio is slightly below the average since 2011 and poultry a bit above. This

suggests there is some scope for pork and poultry prices to head lower before substitution pressures would start to increase from restaurants and retailers.

FIGURE 30: WHOLESALE MEAT PRICE RATIOS



Source: ANZ, USDA

Domestic demand

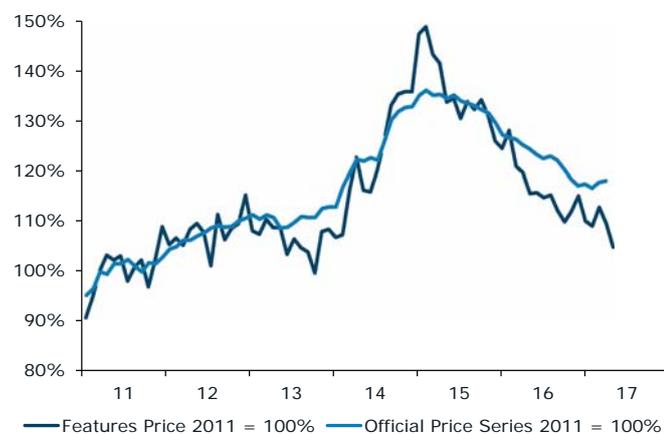
While the US meat supply picture looks challenging, the other piece of the puzzle is demand. On this front, forward-looking indicators appear robust.

Decent increases in real per capita disposable incomes, robust labour market indicators and elevated levels of consumer confidence (particularly in the age brackets with spending power) are helping drive consumer spending. This is supporting customer foot traffic through foodservice outlets. This is positive for beef as such outlets account for nearly a third (by volume) of overall meat protein sold by foodservice establishments and this is where the vast majority of New Zealand beef ends up.

The improvement in the US economy has also seen an increasing number of new start-up foodservice restaurants in recent years. Many of these have new formats aimed at the 'make your own burger' trend, or premium end. This has not only created more choice for consumers, but also increased the end price, both allowing higher prices for key ingredients such as beef. The expansion in burger competition is highlighted by recent research, which showed for every traditional and fast casual burger chain (i.e. McDonalds etc) in the US there are 19 other types of outlets offering burger options within 10 minutes.

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FIGURE 31: RETAIL GROUND BEEF PRICE INDICES



Source: ANZ, Steiner Consulting Group

The other driver of manufacturing beef prices spiking more recently has been heavy promotional activity through the retail channel.

Indeed in May the retail feature price of 80-89% ground beef was nearly 10% below last year and just 5% higher than the 2011 average. This is increasing demand leading into the peak consumption period and lifting manufacturing prices. While retailers are now raising the price of featured beef due to slimmer margins, it does highlight a positive demand backdrop and ability to somewhat absorb higher supply if prices are lower.

OTHER KEY MARKETS IN BRIEF

China

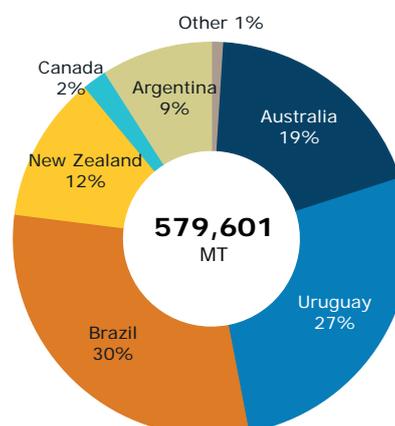
China is set to surpass the US as the largest beef import market in 2017. Imports have surged in recent years due to strong demand growth, limited local supplies and expanded formal access for a wider variety of export countries.

Brazil is now the top supplier (30%), followed by Uruguay (27%), Australia (19%) and then New Zealand (12%). The US has said to have recently regained full access after being banned in 2003 due to BSE. This will add further competitive pressure, but volumes are expected to be somewhat limited due to traceability limitations within the US system (i.e. there is no mandatory system) and strict restrictions on the use of hormones, which are still widely used in the US. Individual meat processing plants also need to be accredited.

Looking forward, Chinese import demand is expected to continue to expand driven by urbanisation and income growth, limited capacity for significant local production expansion and further market liberalisation (i.e. US export access). Indeed, the number of affluent consumers who can afford to regularly buy imported

beef is expected to double over the next 5 years. This is helping lift per capita consumption by up to 1kg per person. Such a lift is equivalent to Brazil's total current export supply.

FIGURE 32: CHINESE BEEF IMPORTS 2016 (MT)



Source: ANZ, China Customs

New Zealand's market share was just 12% over the past year. New Zealand's free trade agreement – with tariffs at zero for beef from 2016, compared with 12-25% for other competitors – provides some buffer against lower-cost alternatives. But increasingly, success will depend on better segmenting this large and complex market to seek out the best returns. Higher-margin channels are likely to be western-style foodservice and upmarket hot pot restaurant chains. In part this is due to less familiarity on how to cook beef, leading to higher consumption when eating out. The e-commerce and hypermarket channels are also likely to offer opportunities. A key element of success in seeking out the higher-margin markets will be driven by New Zealand meat processors' strategic partnerships and the new ownership structure for Silver Fern Farms.

Japan

Exports to Japan have stabilised over the last year after several years of decline. The main reason has been increased competition from US supply as it has enjoyed improved market access. The largest supplier, Australia, also enjoys a tariff benefit, having signed a free trade agreement.

Japan has an ongoing need for beef imports to meet demand. The market is very diverse, taking prime cuts through to beef offal. Retailers are expanding their range of cooked meals for small households and time-constrained consumers. In this category beef is often used for roasts, curry, and marinated stir-fry dishes, as well as steaks.

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The foodservice channel is also very diverse with many opportunities. Fast food chains (hamburgers and gyudon beef rice bowls) are volume outlets for brisket and manufacturing beef, while family restaurants and fine dining use a range of cuts. Yakiniku (Japanese/Korean style barbecue) restaurants are some of the largest customers for beef offal products. **Overall beef, pork and poultry consumption continues to grow due to versatility and a gradual shift away from more expensive seafood.**

South Korea

New Zealand exports to South Korea have stabilised recently, but our overall market share of imports has slipped. Both Australian and US product have been competing aggressively for market share with domestic product. They have a tariff advantage over New Zealand, with an earlier and better free trade arrangements.

Of total consumption it is estimated that around 280,000 tonnes was produced locally and nearly 360,000 tonnes imported in 2016. Growth in local supply is expected to remain limited over coming years due to farmer uncertainty over future cattle prices.

The local marbled Hanwoo beef is most favoured by consumers, but imported product continues to gain market share through a variety of channels. Both the retail and foodservice channels are well developed, providing opportunities for cuts ranging from manufacturing beef through to chilled grass-fed prime cuts.

WOOL

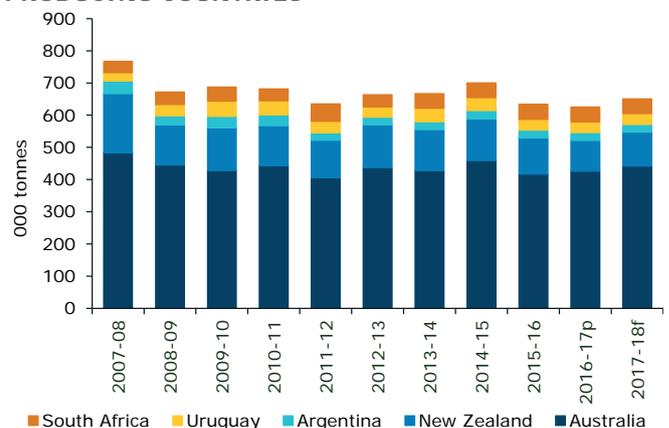
Fine wool prices are expected to remain at low levels until the Chinese and Northern Hemisphere winter period (higher seasonal consumption) leads to a substantial drawdown in semi-processed and unprocessed raw wool inventory. In-market prices have found a (low) base supported by favourable valuation metrics versus other fibres and farmers withholding supply as prices have fallen below the cost of production. This, combined with steady demand for woollen floor coverings in the US as housing activity continues to improve, should support an eventual recovery in prices back towards the 5-year average of mid-\$3/kg (greasy).

At the finer end of the clip, prices could face some pressure from higher Australian supply, but demand growth from both the US and China for luxury items is expected to provide an offset.

GLOBAL SUPPLY SITUATION

The low in global wool production appears to have been hit over the last two years. Stabilising to slightly higher flock numbers and better seasonal conditions supporting fleece weights is expected to see higher production emerge in 2017/18.

FIGURE 33: WOOL EXPORTS FROM MAJOR PRODUCING COUNTRIES



Source: ANZ, ABARE

Total New Zealand wool production is expected to improve to 143,000 tonnes (+3%) in 2017/18. Slightly higher fleece weights due to better seasonal conditions than in recent years, as well as higher breeding ewe and retained hogget numbers are driving the increase. A larger lamb crop is also expected to increase fleece and slipe production (see sheepmeat section for more detail). **The improvement has to be put in the context of an estimated 18% decline in total production between 2012/13 and 2016/17 (-4.6% per year).**

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While supply is lifting off a low base, potential export volumes are higher in 2017/18. This is due to very low export volumes in 2016/17 (-20% ytd) because of poor prices. In many cases wool hasn't been sold, with prices below the cost of production through the seasonal peak for sales.

In Australia production forecasts vary between stable to increasing. The broad thrust is production improved in 2016/17 (+6%) driven by better seasonal conditions in major producing regions and the retention of breeding ewes and Merino wethers in response to seasonal conditions and high farm-gate returns (for both meat and wool). The increase in sheep numbers is expected to support wool production in 2017/18, but average yields could moderate a touch with normal seasonal conditions. Export volumes appear relatively well aligned with production over recent years. This suggests normal inventory levels and a direct pass through from production changes into export volumes.

COMPETING FIBRES

Wool is now considered a niche product in the global textiles manufacturing industry, accounting for less than 1.5% of total fibre consumption. Synthetic fibres and – to a lesser extent – cotton account for the bulk of fibre consumed. Wool is mainly used in higher-valued textile and clothing products. **Current manufacturing technology supports a degree of substitutability between different fibres, with the degree of substitution influenced by relative prices.** As the chart below shows, major movements in cotton prices have led to swings in both directions for strong wool prices.

FIGURE 34: STRONG WOOL VS. COTTON/POLYESTER PRICES



Source: ANZ, Wool Services International, World Bank

In USD terms the price spread between strong wool and cotton (an average of 1.37 since the start of 2017) is at the lowest level since

the 2010/11 period, and well below the long-run average of 2.0. More recently this has led to speculative buying, placing a floor under the market.

The outlook is for cotton prices to stay firmer in 2017/18. This is because for the third year in a row consumption will exceed production, reducing global stocks. The USDA expects global production to rise by nearly 7%, despite marginally lower average yields, as the area planted rebounds to its highest level in three years. Production is forecast to rise in all major producing countries, led by the United States (+2.0 million bales) and India (+1.5 million bales).

Global cotton consumption is forecast to rise, supported by forecast higher competing fibre prices and strong demand for raw cotton from non-OECD textile and garment sectors.

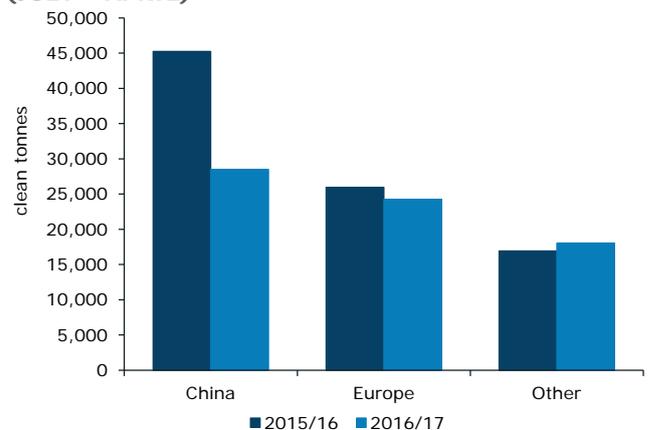
Ending stocks are forecast to fall, led by China, but slightly offset by other countries. So China's decision to discourage production and dispose of excess government stocks appears to be helping rebalance the market.

If cotton prices hold steady or push higher, and the ratio to strong wool pushes back to 2.0, this would imply a 50% lift for in-market prices back to US\$3.80/kg.

END MARKETS

The 2016/17 season has seen a dramatic (-37% y/y) decline in exports to China, badly hurting in-market prices. Exports to other destinations actually rose a touch (+1% y/y). Within this, European exports declined 7%, but other destinations rose 7%, providing an offset.

FIGURE 35: NEW ZEALAND WOOL EXPORT VOLUMES (JULY – APRIL)



Source: ANZ, Beef + Lamb NZ

There have been numerous suggestions for why Chinese demand might have been weaker: lower-end product demand in Europe/UK, a weaker RMB,

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

changed sourcing patterns to cheaper product from UK and Mongolia, liquidation of local cotton stocks, and general high prices the year before leading to fibre substitution and changed local fashion trends.

With little data to substantiate the exact drivers, it's difficult to say with any certainty what factors are more important.

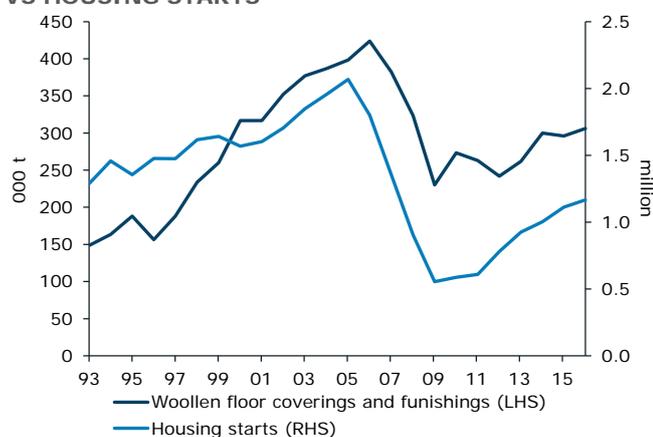
Now prices have fallen so far, drivers such as sourcing product elsewhere and substitution to other cheaper fibres have started to operate in reverse over recent months. So with wool looking cheap, speculative buying, combined with farmers withholding supply, has at least placed a floor under prices.

The issue for price recovery is that the gap left by China is too large for others to fill. So until China has substantially reduced its semi-processed and unprocessed wool stocks, a more sustainable price recovery won't be able to occur. Given the seasonal nature of sales for many products, the first chance for this to occur will be around the Chinese/Northern Hemisphere winter period (New Zealand summer). While China is an important buyer of raw wool, local demand for finished product is also estimated to account for more than half of China's product (and growing), making it an important driver of end demand too.

Coarse wools

End demand for coarse types of wool outside of China looks fairly steady. US import demand for woollen floor coverings has posted its fourth year of growth as housing activity continues its steady recovery. The US housing market has been slowly improving since 2009, albeit in fits and starts. The US is the largest importer of wool floor coverings and New Zealand strong wool is estimated to be used in 45% of all wool carpet consumed in the US.

FIGURE 36: US WOOLLEN FLOOR COVERING IMPORTS VS HOUSING STARTS



Source: ANZ, USDA, Bloomberg

Looking forward, still-low interest rates (albeit rising), low vacancy rates, demographics, low unemployment, rising wages and valuations metrics such as prices to household incomes or rents are supportive of housing activity returning to more normal levels over coming years (i.e. more consistent with long-term household formation rates of around 1.5m annualised). This should bode well for end demand.

In China a lot of construction/infrastructure activity has occurred over the last 10 years, but more is still required over coming decades.

The normal drivers – population growth, societal preferences and demographics in developed economies – are still important drivers of long-term capital and construction/housing formation in China. But continued urbanisation, a rapid lift in consumer purchasing power, and a need to enhance the economy's overall efficiency/productivity add additional drivers.

That's not to say there won't be ups and downs.

Near term there are challenges in the form of an overhang of housing stock, especially in lower/3rd-tier cities, and financial stability concerns arising from a build-up of excessive debt and rising non-performing loans. State and local government regulatory settings play an important role in the cycles of construction/housing activity in China and the risk is we will see a near-term correction due to excessive tightening. There is also the reality that history shows few emerging-market economies successfully make the difficult jump out of the middle-income trap to reach 'developed' status.

Over the longer term, we expect housing markets in the 1st and 2nd-tier cities to continue to expand, driven by these areas having the highest share of mid-to-high income households. **These households should provide continued demand growth for high-end furnishings such as woollen carpets.**

Finer wools

At the finer end of the clip, most of New Zealand's product is being sold via private channels and through long-term contracts connected to an end brand/retailer. These contracts provide a more stable pricing environment and premium step-ups for meeting certain standards and quality dimensions. More of New Zealand's coarse wool is also being channelled into similar marketing programmes to help improve returns. Such contracted programmes are helping to reduce the fragmentation in reaching the final consumer, improving information and price feedback from retailers and manufacturers, and repositioning wool as its own category with distinctive features compared with alternatives.

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In-market fine wool prices have been supported by lower Australian supply, a pick-up in US woollen apparel demand, and continued demand growth for luxury items within China. The divergence in fine and coarse wool types is highlighted by the difference that has emerged between New Zealand and Australian farm-gate prices over the last two years.

FIGURE 37: FARM-GATE WOOL PRICES



Source: ANZ, ABARE

US imports of woollen apparel have increased 10% over the last three years, the best period of growth since the early-2000s expansion. The increase has been fuelled by improving disposable incomes, buoyant labour market conditions, high consumer confidence and lifts in asset prices.

In China apparel sales continue to grow strongly too. A recent Australian wool company report noted China will provide even more opportunities for “premium” clothes in the future. The “premium market” for clothing is defined as persons who traditionally spend about USD2,000 per annum on clothes and have a household income of more than USD125,000 per annum or USD100,000 in China.

According to recent research, this segment makes up 9% of the global population and it is concentrated largely (85%) in three geographical areas: North America, Western Europe and affluent Asia (eg. Japan, South Korea, Hong Kong, Singapore). China is currently only a very small proportion of this market, contributing just 1%.

But even given moderate growth for China over the next 10 years, the number of consumers defined as being in the “premium market” would lift from 1% to 6% of the global population, adding a staggering 20 million extra consumers with a household income of more than USD100,000. Affluence combined with a cooler climate provides plenty of opportunities for premium wool products.

DEER

Tight New Zealand venison production and low inventory levels are expected to support farm-gate returns approaching all-time highs in 2017/18. The industry has had some success in growing demand in non-European markets as well as products/channels outside the game season in more traditional markets.

We expect farm-gate prices to push towards at least the mid-\$9/kg mark during the chilled/game season peak with a stronger euro and GBP helping. Beyond this, farm-gate prices are expected to settle back toward the low-to-mid \$8/kg.

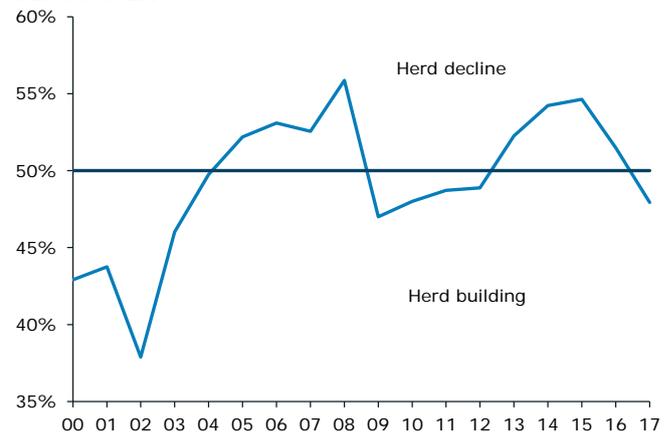
A better marketing mix with higher participation from Korea, reduced regulatory uncertainty in China this season, and a lower NZD are expected to support velvet prices back toward \$110/kg in 2017/18.

NEW ZEALAND SUPPLY

New Zealand venison production has plunged from the low-400,000 head mark to low-300,000 head over the last two years (June year).

Low production is likely to continue in 2017/18 before hind retentions that started last year begin to once again lift production. Current industry expectations are production will take 5 years to get back to the low-400,000 head mark.

FIGURE 38: PROPORTION OF FEMALES IN DEER SLAUGHTER



Source: ANZ, DINZ

Herd rebuilding has been supported by improved returns for venison and velvet (despite lower prices last season), better seasonal conditions in major breeding regions and farmers looking at alternatives when sheepmeat and dairy grazing were both under pressure. High farm-gate returns, better seasonal conditions and low starting stocking rates are expected to support herd rebuilding for at least the next two years.

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FIGURE 39: NEW ZEALAND BREEDING HIND NUMBERS AND PRODUCTION



Source: ANZ, Statistics NZ, DINZ

In the immediate future, production is expected to remain tight due to breeding hind retentions and lower weaner numbers carried into 2017/18. National figures show a 6% drop in breeding hind numbers for 2016/17, and even with better reported fawning rates, such a drop still implies lower weaner numbers entering 2017/18. Beyond this, hind numbers are expected to start increasing, which will start to support higher weaner numbers entering 2018/19.

IN-MARKET DYNAMICS

Lower supply has led to a tightening marketing mix with processors purposely moving away from some lower-paying segments within the seasonal European game trade.

Priority is being given to new markets and channels that offer long-term opportunities to grow demand at high prices. The challenge when supply eventually starts to lift again will be maintaining prices. If a large proportion of the increased supply in 2018/19 has to go back into the seasonal European game trade it could have quite a negative impact on average farm-gate prices.

The specific areas for future market growth are North America, wealthier parts of Asia and Scandinavia. The biggest mover amongst these markets so far has been North America, with its total volume share now at 30% and value share at 25% over the last year. This makes North America (specifically the US) the largest volume market, having recently overtaken Germany.

TABLE 3. TOP 15 NEW ZEALAND VENISON MARKETS

	Volume (tonnes)			NZD FOB million		
	2016	2017	% change	2016	2017	% change
United States	2,424	3,454	43%	27	36	33%
Germany	4,368	2,692	-38%	54	39	-27%
United Kingdom	1,285	1,096	-15%	13	11	-16%
Belgium	1,147	1,075	-6%	19	19	1%
Netherlands	974	737	-24%	20	15	-22%
Switzerland	929	730	-21%	16	13	-19%
Finland	1,032	611	-41%	8	4	-50%
Sweden	538	453	-16%	5	5	-13%
Canada	405	405	0%	4	4	10%
Austria	266	377	42%	2	4	70%
China	667	320	-52%	4	2	-46%
Austria	143	252	76%	1	2	100%
Italy	166	243	46%	2	2	0%
Singapore	121	105	-14%	2	2	0%
Australia	122	49	-60%	1	1	0%
Other	483	365	-24%	4	5	25%
Total	15,565	14,224	-9%	174	182	5%

Source: ANZ, Statistics NZ

The strategy in North America is to continue trying to capitalise 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.

While the North American market is growing versus Europe, the latter region remains important, accounting for 64% of volume and 70% of total value. Within Europe priority has been given to the higher-returning markets/segments, given lower supply. This has seen exports to the United Kingdom, Belgium, the Netherlands, Switzerland, Sweden and France hold up reasonably well. Interestingly, export volumes to Germany have dropped 38%, but average export values have firmed to \$14,635/t (+18%). The drop in volume is one of the largest for all markets, but the price increase is also one of the biggest.

Looking forward to this year's game season, demand indicators appear robust with the German labour market strong, low frozen inventory levels and some European buyers who had sourced alternative

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

lower-quality, cheaper game meat in recent years having returned for quality and consistency reasons, improving demand.

Elsewhere, volumes to China have tapered off, given lower supply. Average returns out of China are the lowest of all the major markets, suggesting it is only lower-value cuts and offal that is currently being sent. Volumes and values could increase further with the new Silver Fern Farm partnership (largest venison exporter) improving its distribution channels. Processors are currently trying to target the high-end restaurant and hotel trade to extract more value.

The one area venison is vulnerable to in all major markets is the margin between venison and competing meat protein prices. This has widened, with price falls for other meat proteins contributing just as much as venison price lifts. Should the gap continue to widen, we may see restaurateurs re-examining their margins and contemplating lower-priced protein alternatives. This will require more promotional activity to ensure restaurateurs retain venison on their menus.

VELVET

Velvet prices slipped 20% to \$100/kg in the last season. In-part this was currency driven, with a higher NZD/KRW during the October period when sales were negotiated. However, in-market prices also slipped, with regulatory changes for the importation of velvet into China disturbing early season trade and a slightly less favourable marketing mix, with reduced Korean purchases.

FIGURE 40: NEW ZEALAND VELVET PRODUCTION AND PRICE

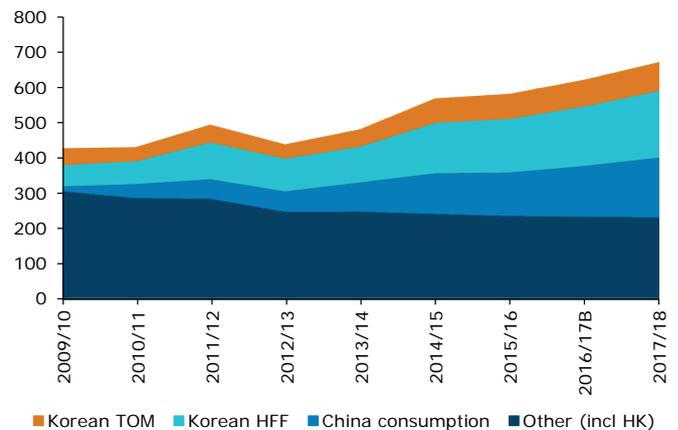


Source: ANZ, DINZ

Looking forward, some improvement in prices toward \$110/kg in 2017/18 is expected. A higher proportion of Korean purchases is expected with lower end of season sales leaving reduced inventory levels heading into the new sales season. This will provide a better marketing mix and early season pricing with reduced regulatory uncertainty in China this year too. Both dynamics are expected to support better inter-market competition. The NZD/KRW is also at a lower level, which should support farm-gate returns too.

Long-term pricing will depend on the success of growing alternative sale channels to match increased New Zealand supply. Production continues to increase, reaching 650 tonnes in 2016/17. Further increases are expected in 2017/18. Around 70% of the product is still sold via the commodity channel, but the continued efforts to broaden the product's appeal into the functional food category seems to be bearing some fruit, especially in Korea. This will be critical to supporting long-term velvet prices above \$100/kg in the face of expanding supply.

FIGURE 41: VELVET MARKET CHANNELS



Source: ANZ, DINZ

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

GRAINS

The domestic feed market is returning to a better balance after prices hit rock bottom this time last year. Lower maize grain, maize silage and barley production, a lift in dairy sector offtake, and lower unsold inventory levels post the 2017 harvest have been the main drivers of the price improvement.

The tighter local supply conditions for feed could well lead to a spike in grain prices sometime during the spring or summer period if pasture conditions are affected by adverse weather developments. That said, any gains will be capped by still-low international grain prices and likely cautiousness from the dairy sector.

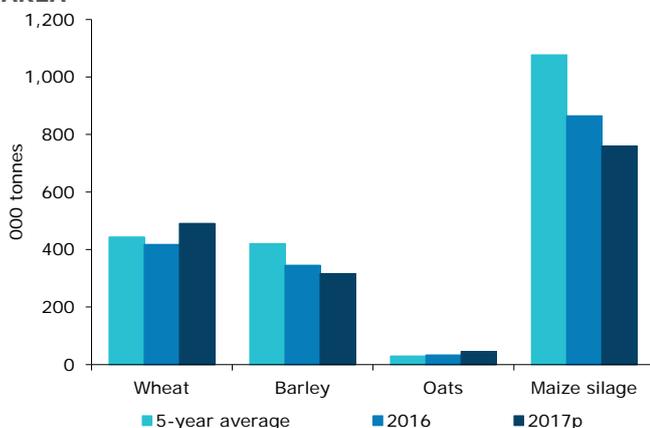
DOMESTIC SUPPLY SITUATION

The domestic feed market is returning to a better balance. Lower maize grain, maize silage and barley production, a lift in dairy sector offtake and lower unsold inventory levels post the 2017 harvest have been the main drivers of the price improvement.

The latest Arable Industry Marketing Initiative (AIMI) cereals survey confirmed a good growing season for 2017 with high yields achieved for most crops. But this didn't totally compensate for a 7% reduction in the planted area for grain crops and lower maize yields.

The total tonnage of feed wheat (including unharvested grain) was up 18% compared to last year, reflecting both increased area and better yields. Feed wheat hectares were up 13% for the 2017 harvest, while yields lifted to 9.9t/ha from 9.5t/ha. At April 1, the total amount of unsold feed wheat from the new season harvest and carried over from the year before was 91,900 tonnes, well below last year's 174,000 tonnes (-47%).

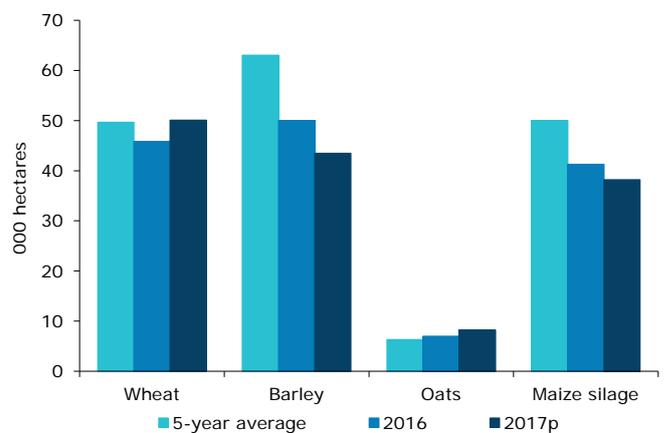
FIGURE 42: NATIONAL CROP HARVEST – ESTIMATED AREA



Source: ANZ, Arable Industry Marketing Initiative

Total tonnage of feed barley (including unharvested grain) was down 12% compared to last year, due to a reduction in the growing area. An increase in average yields offset some of the impact on total volumes. The feed barley area fell 17% y/y and average yields were 7.2t/ha (compared to 6.6t/ha last year). At April 1, the total amount of unsold feed barley from the new season harvest and carried over from the year before was 111,600 tonnes, which is 36% less than the same time last year.

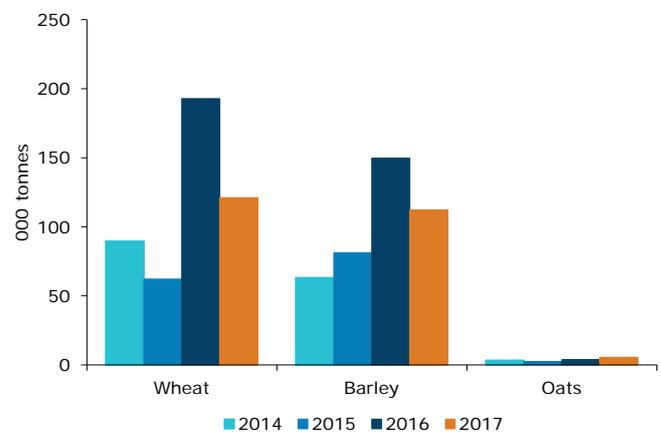
FIGURE 43: NATIONAL CROP HARVEST BY FEED TYPE



Source: ANZ, Arable Industry Marketing Initiative

The total milling wheat crop was 16% larger than last year. This was due to better yields with the planted area virtually unchanged. Average yields soared to 9.6t/ha from 8.5t/ha. The quality of the crop was high too, meaning low rejection rates. But millers appear well supplied meaning some of the unsold stock could end up as stock feed. Malting barley total tonnage was up by 5% y/y with 74,700 tonnes harvested. The area was up by 4% y/y, while yields improved to 7.5t/ha from 7.2t/ha.

FIGURE 44: UNSOLD GRAIN AT 1 APRIL



Source: ANZ, Arable Industry Marketing Initiative

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

The maize grain harvest was still ongoing at the end of May. Wet weather initially delayed planting and then contributed to crops taking a long time to dry, exacerbated by a lack of heat at key times. The late summer cyclones delayed the start of harvesting, making for a stop-start affair and an extremely late season. This series of events has adversely affected yields by 10 to 20% for both maize grain and silage. In some cases crops had to be abandoned altogether due to accessibility issues, sprouting, or sodden soils, particularly in the Whakatane and Edgecumbe areas. Many growers believe it has been one of the most difficult growing seasons ever, due to there being issues at every stage of the season.

Many growers are expected to have limited spare crop for spot sales this year due to the underperformance in yields. This means higher imports could be likely as demand from the dairy sector lifts with better revenue prospects.

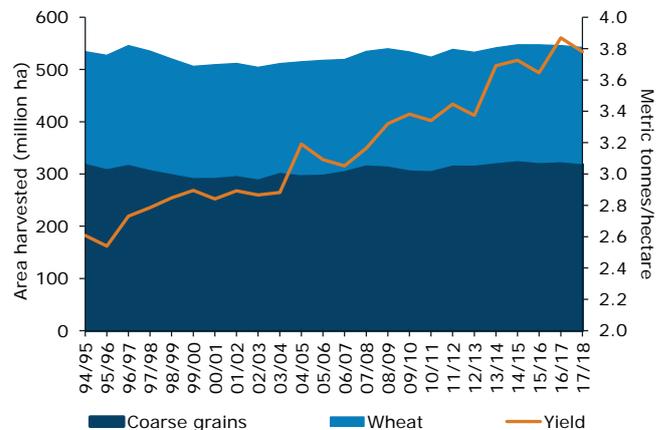
Looking further forward, autumn planting looks to have caught up recently. There have been a few forward contracts for 2018, mostly feed wheat, though some feed barley has also been contracted. **Prices for these have risen a little, but volumes contracted haven't been large.** More contracting activity seems likely for spring planting, especially with prices biased higher.

INTERNATIONAL SUPPLY SITUATION

International grain markets are expected to remain well supplied in 2017/18 with high carry-over stocks from the year before.

However, lower planted areas of corn and wheat, as well as an expected moderation in yields from record highs in many cases, are expected to provide some balance. Consumption is expected to nudge up further, driven by increased animal feed use and human consumption in emerging countries. Industrial use for the likes of ethanol production in the US is expected to increase with strong export demand from Brazil, India, Philippines, and the UAE.

FIGURE 45: GLOBAL GROWING AREA AND YIELD

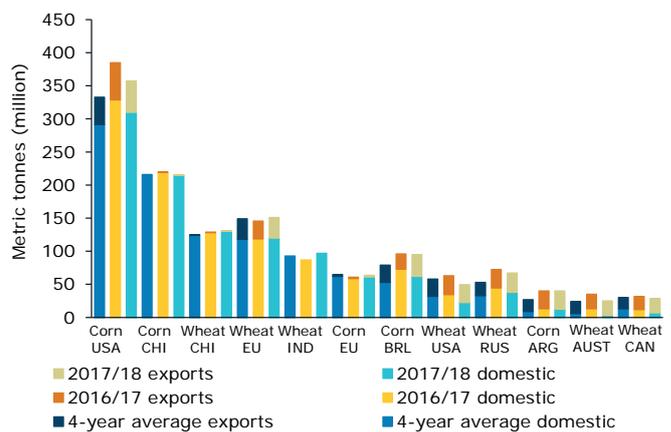


Source: ANZ, USDA

The global grain market is currently in weather-watch mode ahead of the harvest for winter-planted crops, including winter wheat, as well as implications for growing conditions for new season crops.

Global corn production is forecast to be down from a year ago, with the largest declines in China and the US. Partly offsetting these declines are forecast larger crops for the EU and Canada. Global corn use is expected to increase with a notable rise in imports from Vietnam, Egypt, the EU, Saudi Arabia, Mexico and Iran. Global corn stocks are forecast to reduce from last year's record high and on current forecasts would be the lowest since 2013/14.

FIGURE 46: MAJOR GRAIN CROPS

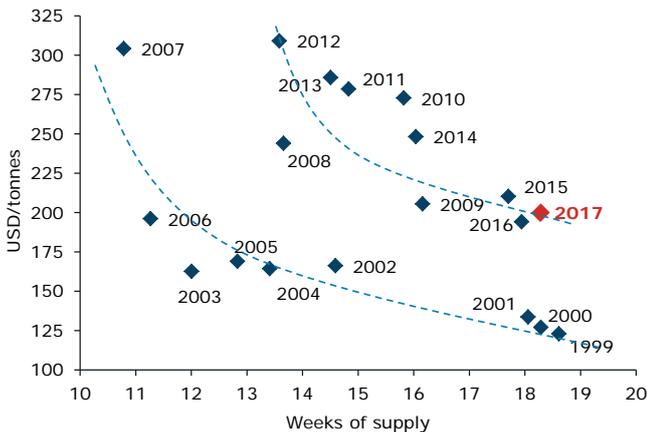


Source: ANZ, USDA

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

In the US the vast majority of this season's corn crop has been planted. Current expectations are that the growing area will be 4% lower. Assuming trend yields this will deliver a crop of 14.07 billion bushels (-7% y/y). The smaller corn crop is partly offset by the largest projected beginning stocks since 1988/89, leaving total corn supplies down from a year ago but still the second-highest on record. Projected feed and residual use are expected to decline as a smaller crop and increased use of ethanol by-products more than offsets growth in grain-consuming animal units. Exports are also expected to be softer with more aggressive sales from Brazil and Argentina. Corn used to produce ethanol is forecast to lift however, leaving overall US consumption unchanged. A lot can change by October and growing conditions will be closely watched to determine direction.

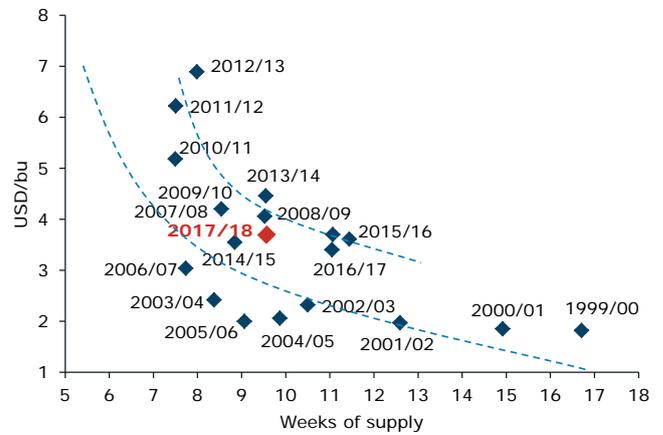
FIGURE 47: END STOCKS TO USE WHEAT



Source: ANZ, USDA

Global wheat supplies are projected to decline fractionally as higher beginning stocks are more than offset by a production decline following last year's record. Total wheat production is projected to be 737.8 million tonnes, the second-highest total on record. Global wheat consumption is projected to be down slightly from last year's record, with reduced feed and residual usage partially offset by increased food use. Global imports are expected to be a record for the fifth consecutive year. However, the projected year-on-year increase of 3 million tonnes in global wheat stocks at the end of 2017-18 continues to weigh on prices.

FIGURE 48: END STOCKS TO USE CORN

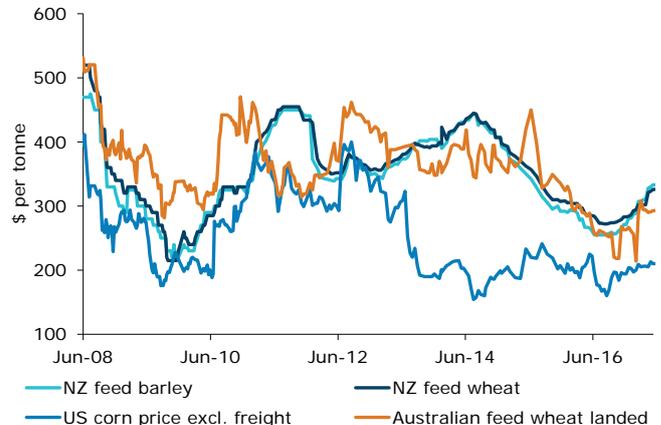


Source: ANZ, USDA

DOMESTIC DEMAND SITUATION

Tighter local supply conditions for feed could well lead to a spike in grain prices sometime during the spring or summer period if pasture conditions are affected by weather developments. That said, gains will be capped by still-low international grain prices and likely cautiousness from the dairy sector.

FIGURE 49: NEW ZEALAND VS INTERNATIONAL GRAIN PRICES

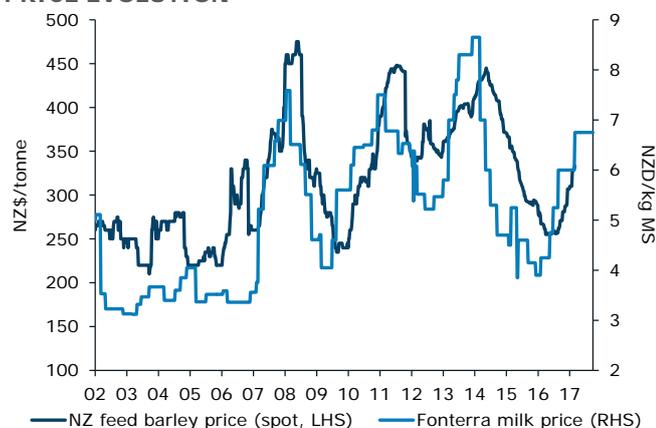


Source: ANZ, AgRIHQ, USDA

The latter is likely to stem from management changes put in place during the dairy downturn to trim supplementary feed inputs and focus on pasture production/management. Some of the improved returns will also be funnelled into debt repayment and repairs/maintenance catch-up. **That said, there has always been a strong relationship between the milk and barley price. The barley price has already lifted to \$330/t and given current milk price forecasts and tight maize supplies there should be further upside toward the mid-\$300/t during the spring and summer.**

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

FIGURE 50: MILK PRICE AND FEED BARLEY GRAIN PRICE EVOLUTION



Source: ANZ, AgriHQ

The other support factor for local grain prices could be Fonterra's voluntary guideline to feed cows only 3kg/day/cow of palm kernel.

Testing and reporting via a fat evaluation index on milk dockets started in May. Palm kernel prices have been trading in the \$225 to \$250 range since the start of the year. There have been higher prices for some regions at certain times when pasture/weather conditions deteriorated.

Palm kernel prices have generally tended to be higher over the late-summer to autumn period and softer over the winter through to early-summer period. This seems to be driven largely by seasonal supply and demand pressures. Dairy demand has been highest during the late-summer and autumn periods; Malaysia enters its seasonal lull for production in early-summer and Indonesia a touch later. This year the usual seasonal pickup in South-East-Asian supply has reportedly been slower, which could support prices if it persists.

Structurally, dairy and the poultry industry are the two sectors that have lifted feed demand in New Zealand since 2009. **Poultry demand is expected to continue to increase and dairy demand will swing with milk price and seasonal conditions.**

Domestic poultry meat production has been growing around 6% per annum over the last five years, increasing feed demand. The layer flock appears to have lifted by a similar amount over this period too. Growth looks set to continue with the likes of Tegel looking to build out an export business into a number of markets. However, the larger poultry businesses – where expansion is occurring – source much of their feed from the international market.

On a long-term basis domestic pork production and feed demand has been fairly stable. This isn't expected to change much in the near term despite intense competition from cheaper imports and poultry products.

KIWIFRUIT

Green kiwifruit prices are expected to bounce back toward \$6/tray and SunGold to move near \$9/tray this season.

For Green the biggest driver of the bounce back is a better marketing mix oriented toward Asian markets in association with substantially lower New Zealand supply. Lower Italian production is also expected to support returns from Europe and American countries. Long-term the focus remains on maintaining premiums through superior tasting and quality fruit, but also promoting the fruit digestive health benefits, improving convenience and brand positioning in terms of product packaging/configuration and offering it to retailers as part of a balanced portfolio.

For SunGold lifting volumes is about extending penetration in core markets. Over the last two seasons the orchard-gate price premium between Gold and Green has been nearly 80%. Long-term the premium aim is for 20 to 40%, but current indications suggest this could be higher until more meaningful competition from Northern Hemisphere producers emerges.

NEW ZEALAND KIWIFRUIT SUPPLY

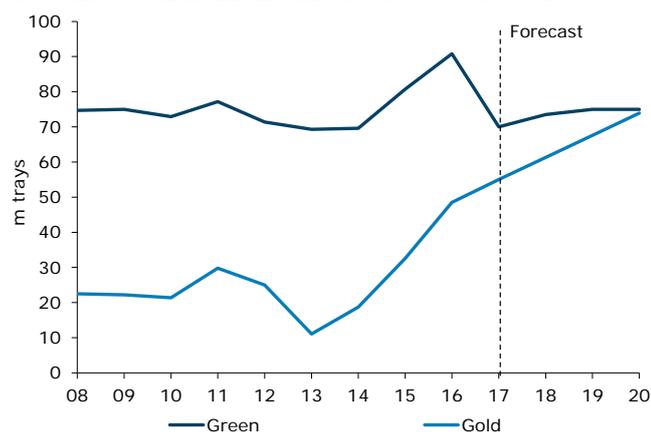
Total New Zealand kiwifruit supply is set to fall back from last year's record to around the low-130 million tray mark. A lower bud break due to a warmer winter, lower light levels the previous summer, and vine exhaustion in the wake of two extraordinary seasons for Green has seen average yields drop toward 9,400 trays per hectare. This compares with the 11,270 trays/ha average from the last two years. **This means total Green production will be around the low-70 million tray mark (-23% y/y).** In contrast, Gold volumes are expected to increase to around the mid-50 million tray mark as new vines come into production and other earlier established canopies reach maturity.

In terms of the quality of fruit, it is generally of larger than average size with the lower bud break and the delayed maturity due to cloudy, wet weather over late summer both contributing. The taste standards for kiwifruit continue to be lifted (i.e. increased dry-matter content

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

requirements) in response to the latest consumer research. This has been required to ensure a quality eating experience each time, with much of the Zespri retail model built around repeat purchasing. This highlights industry tension between a volume and premium game in determining overall grower revenues.

FIGURE 51. NEW ZEALAND KIWIFRUIT SUPPLY



Source: ANZ, Zespri

Longer-term the industry is anticipating Green supply to be stable around 70 million trays, while SunGold supply is expected to lift to around 90 million trays. This will push total New Zealand volumes toward 165 million trays. Given the variation in Green yields (higher due to improved management practices in a Psa world) in recent years we suspect supply from one year to the next could be slightly more dynamic than sitting stable around the 70 million trays mark.

The growth in SunGold volumes will be delivered through a larger growing area (both through conversions and greenfield plantings) and growth in average yields to over 15,000 trays/ha. The increase in growing area will be subject to the varieties on-going success though. To-date, Zespri has released 800 hectares of New Zealand SunGold licences with another three tranches of 400 hectares flagged for the next three years. The release of the additional licences will be subject to an annual review of its performance at the end of each season.

There are inherent risks for any new product. Central to the marketing strategy and success of SunGold is achieving high dry-matter content to maintain taste standards. New taste settings will be introduced in the coming seasons as more consumer market research is undertaken. This could affect yield outcomes and overall supply depending on seasonal conditions. Additionally, while much has been learnt to date, teething problems can still occur as growers

understand and adapt to optimal management techniques to meet taste settings, deliver more early supply and maintain appropriate storage/shelf life.

INTERNATIONAL SUPPLY

There is expected to be strong growth in the supply of Zespri-branded non-New Zealand produced fruit in countries such as Italy, France, Japan and South Korea too. This is expected to fill the shoulders of the season for New Zealand supply, maintaining retail shelf space and continuing to provide customers through the retail channel with product all year round. With expanding domestic supply and increased volumes into markets such as China, more counter-seasonal supply is required. Current offshore Green production is 9.7 million trays and Gold 3.9 million trays.

Overall Northern Hemisphere Zespri Global Supply (ZGS) Gold volumes are set to increase strongly as an additional 1,800 hectares of SunGold licences have been announced for release in Europe over the next three years. This will near double ZGS production to 40 million trays over the next five years taking total Zespri supply to 205 million trays.

Looking further out there are targeted global sales in 2025 of \$4.5 billion, which would equate to volume supply of around 260 million trays. New Zealand volumes are expected to be around 180 to 200 million trays by this period. Alongside the growth in SunGold volumes, an additional contributor to sales growth toward the end of the period to 2025 will be the potential commercialisation of a new proprietary Green variety, as well as potential red and other novel varieties.

TABLE 4: TOP 10 KIWIFRUIT PRODUCING COUNTRIES

Country	Average Volume 2013-16
China	1,216,667
Italy	484,072
New Zealand	404,112
Chile	193,353
Greece	160,933
France	60,935
Iran	58,333
Turkey	42,545
Japan	31,075
United States	24,419
Total	2,733,795

Source: ANZ, World Kiwifruit Review

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

In terms of direct competition, Chile remains the one to watch. Chile continues its recovery from Psa and severe frosts in 2014. Chile's performance this season is expected to be better than the previous two with market feedback that fruit quality is reasonable. The Chilean Kiwifruit Committee has recently implemented new taste standards to try to compete with New Zealand product so it will be interesting to see this develop.

Long-term an expansion in its growing area will be influenced by the relative profit signals for various land uses. The growing area rose by about one-third between 2008 and 2013. However, this expansion slowed as Chile coped with PSA outbreaks, adverse weather and the effects of a strong peso. However, the last two of these negatives have weakened since 2013.

While Chile has not so far been able to breed its own premium kiwifruit varieties, it has been, and will continue to be, a leading choice as a partner for any new cultivars developed by Northern Hemisphere breeding programs. This is due to its ability to exploit off-season markets in the Northern Hemisphere, and to compete with New Zealand product in growing Asian markets.

In contrast European supplies are expected to be lower with Italian kiwifruit growers having been affected by frost events. Initial observations are that Italian SunGold production could be down 20% and Green volumes will be affected too. A better estimate of damage will become available in July once vines come through post-flowering fruit growth and impact on fruit shape and pollination viability are assessed. **Italian fruit sets the tone for prices across Europe as they account for around two-thirds of trade.**

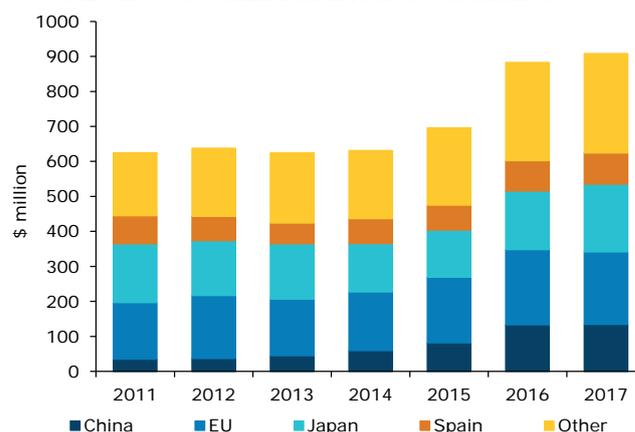
China is the world's largest kiwifruit producer, but most of it is for local supply. **Zespri has ambitions to make this New Zealand's largest market. It anticipates selling some 34 million trays by 2020, which would be close to 20-25% of the total crop.** This means it will be a critical market in determining future returns. Zespri has had its fair share of challenges in China, meaning nothing should be taken as a sure bet. The largest challenges would appear to be local competition, counterfeit product, regulatory issues and getting the distribution/marketing model right. In this regard Zespri have changed their marketing/distribution model to what has been used in other markets, so it will be interesting to see if it can work in China too. Local supply won't be able to compete with the quality of

New Zealand produce in the short term, but could do so in the future as better orchard management practices and grading standards are more widely adopted. They have managed to do this with other horticultural crops in recent times.

IN-MARKET DYNAMICS

With a substantially smaller Green crop this season the focus will be on optimising the marketing mix. While orchard-gate returns in Europe are usually lower than other markets, a reduced Italian crop could well support higher market returns later in the selling season. Other important Italian export markets are the Americas and parts of Asia. Otherwise the traditionally higher returning markets in China, Japan and South-East Asia will be the focal points to maximising returns from a smaller crop.

FIGURE 52: TOP GREEN KIWIFRUIT MARKETS

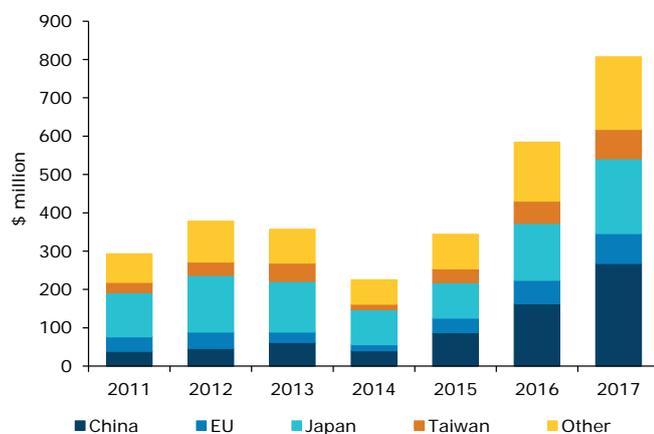


Source: ANZ, Statistics NZ

Long-term it will be a similar story with marketing efforts likely to be focused on Japan, South-East Asia and China. This should provide price tension with Europe. For Green, the taste is an important differentiator for New Zealand's offering, supporting a price premium above Chinese and Chilean product. However, given its greater commodity nature, this can only be pushed so far and others are likely to catch up in time. **Other focus areas alongside maintaining the fruit taste and quality include researching and promoting the digestive health benefits of Green kiwifruit, improving convenience and brand positioning in terms of product packaging/configuration and offering it to retailers as part of a balanced portfolio.**

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

FIGURE 53: TOP GOLD KIWIFRUIT MARKETS



Source: ANZ, Statistics NZ

With lifting volumes for SunGold it's about successfully extending penetration (depth and breadth) within the sectors 27 core strategic markets to ensure solid demand ahead of increasing volumes. This involves higher marketing costs and more market research (i.e. taste sensory testing to expand knowledge of consumer preferences by market) to optimise product attributes to consumer demands. This will mean on-going modification to taste settings and early season programmes to maintain current market premiums.

Over the last two seasons the orchard-gate price premium between Gold and Green has been nearly 80%. Long-term the premium aim is for 20 to 40%, but current indications suggest this could be higher until more meaningful competition from Northern Hemisphere producers emerges. At present there is very limited competition for SunGold, but long-term China and others are investing heavily in new cultivars, which, if successful, could divert buyer attention from SunGold and more traditional varieties.

PIPFRUIT

The pipfruit sector has experienced a tremendous run since 2012 with all apple varieties achieving marked lifts in prices. This season the price outlook is a little more mixed depending on the supply-demand balance for each variety and timing of harvest.

Early season prices were a touch softer than the year before, but things have picked up with more challenging late season conditions impacting on anticipated volumes. The European market has also improved with frost conditions anticipated to have an impact on their new season supplies. Growth into higher-value Asian markets appears to be maturing and higher volumes means more fruit needs to be sold into emerging Asian markets where it's difficult to stretch values too far. However, these returns are still very attractive for growers and plenty of further volume growth at attractive prices is expected over coming years.

NEW ZEALAND SITUATION

It was a record-sized pipfruit crop of 571,000 mt (+6.7% y/y) in 2017, but it wasn't without its growing and harvest challenges. An expanded harvest area with more club varieties coming into production and this season being a biennial bearing "on" year made for a larger crop.

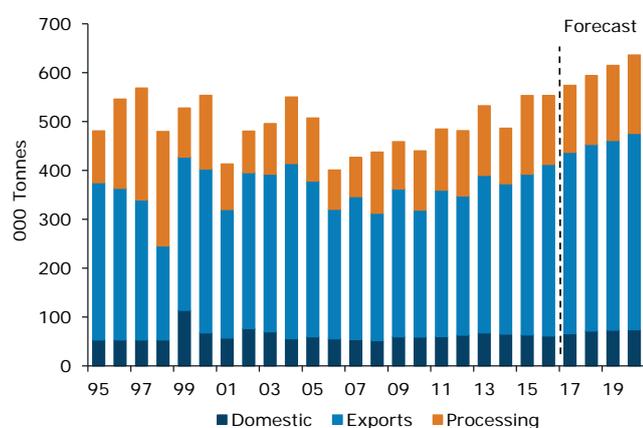
In terms of the growing season, the bud break was delayed and compressed in Hawke's Bay when late season winter conditions turned cold and wet. Some orchards' fruitsets were adversely affected by wet soils during this period. From September until mid-February there were ideal fruit-growing conditions with very little rainfall in Hawke's Bay. In Nelson spring rainfall was higher than normal through to October, but it then turned drier from November to February making for good fruit growing conditions.

Early season packout rates of export fruit were high with good diurnal temperature regimes leading to very good colour. Soluble solids were high too which supports eating quality and storage longevity. **As the harvest progressed conditions became more challenging with the heavy rain and cloudy days that arrived from mid-February. This adversely affected colour, but did increase the average size.**

All up, a larger crop with high packout rates despite some late harvest challenges is expected to see exports lift by 6% to 371,000 tonnes in 2016/17.

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

FIGURE 54: NZ PIPFRUIT PRODUCTION



Source: ANZ, Pipfruit NZ

Looking forward the sector remains in a growth phase. Indications are that the planted area will grow by 3% to 4% per year (300 ha to 400 ha) until 2020. In addition, the trend to more club varieties with higher yields and colour, such as Royal Gala sports, new Fuji varieties, Pacific Queen, and Envy is expected to continue. Other new varieties continue to emerge too with the New Zealand Apple and Pear Breeding Program releasing “Dazzle” in December 2016. It is a big, high colour, very sweet apple aimed at Asian tastes and markets.

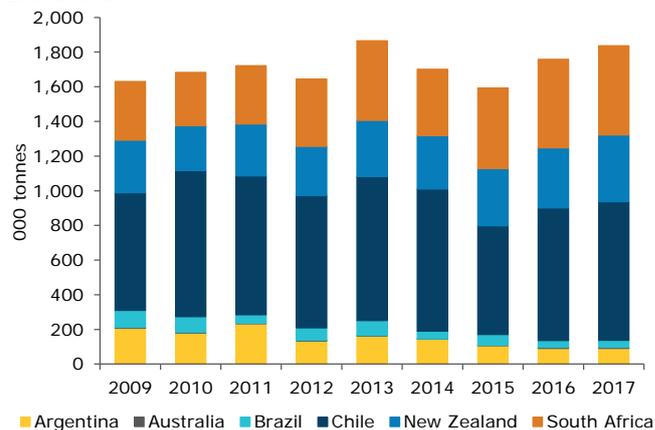
COMPETITOR SITUATION

Southern Hemisphere apple exporters – especially Chile, South Africa, and New Zealand – compete with one another to supply the counter-seasonal window into the Northern Hemisphere. Thus volatility in annual export prices in the Northern Hemisphere is driven by a combination of end-of-season stocks and supply availability from Southern Hemisphere growers.

The United States Department of Agriculture (USDA) forecast Southern Hemisphere apple exports to increase nearly 4% in 2017 for the major producers. While half of this increase is expected to come from New Zealand, Chilean production has increased too. Chile is the Southern Hemisphere’s largest exporter and New Zealand’s main competitor, particularly with North American consumers, Chile’s largest export market. Overall Chilean export volumes are expected to lift by nearly 5% in 2017, but there has been some disease pressure and quality challenges for certain varieties. Control of the disease pressures through fungicides is expected to restrict export potential in some Asian and European markets. These restrictions could place more supply pressure on other markets, such as North America.

Elsewhere frost and hail impacted other South American export nations. South African exports were stronger in 2016 as new plantings matured, but due to extensive droughts this growth is expected to be difficult to replicate this season.

FIGURE 55: SOUTHERN HEMISPHERE PIPFRUIT EXPORTS



Source: ANZ, USDA

In the Northern Hemisphere, a cold spring in Northern and Eastern Europe which caused frosts during the full bloom stage is anticipated to have a negative impact on this year’s fruit production and quality. While the full scale of the impact is not yet known, it is expected to be material, if not significant.

Current stocks in Europe are slightly below the same time last year (-2.6%), but still above the five-year average (14%). It’s a similar story in New Zealand’s main markets, such as France, Germany, the Netherlands and Belgium where stock levels are similar to the year before (1%) and above the five-year average (12%). Generally the pricing environment has tracked in a more positive direction in France and Germany than the year before. **Lower domestic production in these markets, as well as the knock-on impact to quality and colour should support demand and prices for New Zealand product at the end of this season and start of next season.**

In the US, domestic production improved by 3% to 4.686 million tonnes in 2016. Better production in the Western and Central states more than offset losses suffered in the Eastern states from damaging frosts and a summer drought. Higher available supplies have boosted exports to Mexico, India and Middle Eastern markets. Imports on the other hand are slightly lower in total, but this is mainly due to lower processing volumes from China. **Fresh apple imports have actually increased with higher volumes from New Zealand and Canada, offset**

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

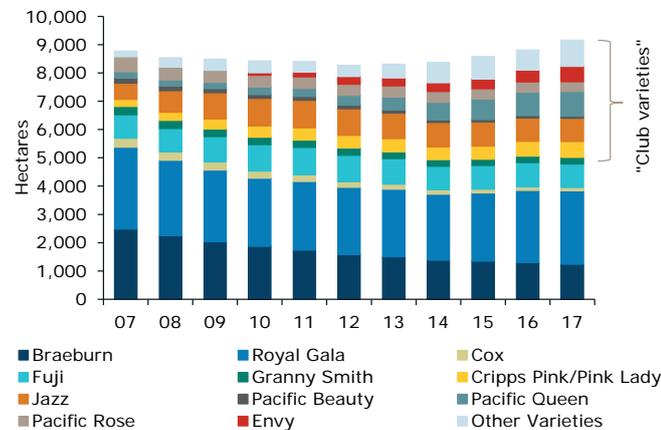
to some degree by lower Chilean volumes. The last piece of the puzzle is stocks, which are tracking above last year and long-term averages. But despite the more competitive local supply environment, New Zealand is only a small proportion of overall consumption and given the recent strength in exports and average prices achieved, appears to be hitting the right notes with the various club varieties.

EXPORT TRENDS

In 2016 the industry achieved an impressive 5.5% growth in export volumes and 8.2% increase in average prices. Increased production area (2.7%) and climatic conditions conducive for fruit growing boosted the volume of high-quality fruit. The total export receipts for New Zealand's pipfruit in 2016 was \$718 million with an average growth rate of 18% per annum since 2012.

Key has been the expansion of club varieties which sell for higher prices than traditional varieties. This provides incentives for growers to align production with such demand. Club varieties such as Envy, Jazz and the suite of Pacific varieties accounted for 21% of New Zealand's export mix in 2010; they made up 34% of the mix in 2016 and are set to reach 39% in the coming year.

FIGURE 56: NEW ZEALAND APPLE VARIETIES

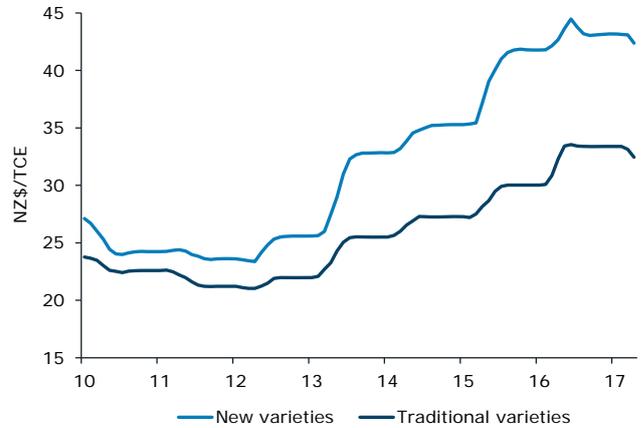


Source: ANZ, USDA

Prices for club varieties achieve 32% higher prices¹ over traditional varieties. Club varieties sold for an average of \$43.2 per tray carton equivalent (TCE) in 2016 compared to \$33.4/TCE for traditional varieties. Of the main club varieties the highest selling price is Envy at \$61.7/TCE. This variety has increased 18% in export volume over the last year. Despite selling for lower prices on average, traditional varieties sold for 11.2% y/y more in 2016.

¹ Average price premium over the last four calendar years.

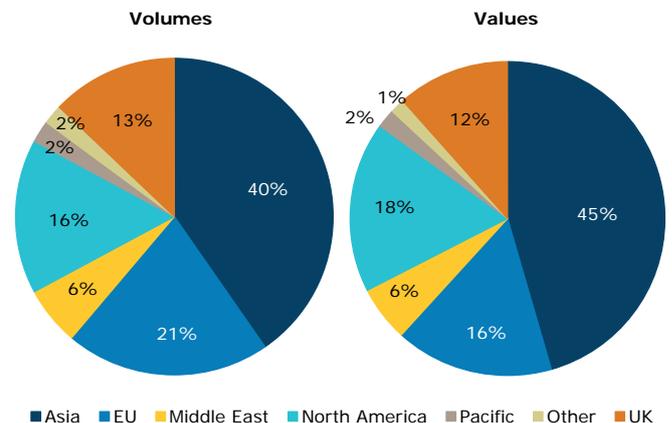
FIGURE 57: EXPORT PRICE FOR NEW AND TRADITIONAL VARIETIES



Source: ANZ, Statistics NZ

Asian and North American markets have a higher proportion of club varieties and achieve higher prices than traditional European and Pacific destinations. The average price to Asia and North America has been \$40/TCE over the past year, whereas European and Pacific markets achieved closer to \$30/TCE. Asian volumes increased 5% in 2016, whereas the amount of apples sent to North America bounced back an impressive 40% y/y. Marketing strategies and variety mix will continue to be tailored to the specific taste preferences of export markets to optimise exporter returns.

FIGURE 58: NEW ZEALAND'S EXPORT MARKETS



Source: ANZ, USDA

PRICE OUTLOOK

Higher export volumes will have some impact on the marketing mix in 2017. The more favourable pricing environment in Europe and UK this year is likely to attract more of the traditional varieties, while there are continued growth opportunities for club varieties into North America and Asia.

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

The latest export data shows a levelling off in average prices for club varieties and slight step down for traditional varieties. Club varieties have plateaued around \$42 to \$43/TCE over the last year. Traditional varieties have had a tremendous run in recent years too, but have slipped \$1/TCE (-3%) since the peak last year.

The plateauing in value growth is in part likely to reflect a maturing in the growth prospects for high-value Asian markets (i.e. the highest-value markets have been tapped), but also the increasing volumes of club varieties that are now being pushed into lower-income emerging markets and segments within the Asian region. However, these returns are still very attractive for growers.

In terms of Asia, while the super-high returns reached in recent years may be difficult to maintain with increasing volumes there is still plenty of volume growth potential at profitable prices. Indeed a consumption increase of just 0.80 kg/capita across non-producing pipfruit markets such as Thailand, Indonesia, the Philippines and Malaysia equates to nearly all New Zealand's current export supply of fresh apples.

All up, the price outlook remains generally favourable but depends on supply-demand balance for each variety and timing of harvest. Early season prices were a touch softer than the year before, but things have picked up with the more challenging late season conditions impacting on anticipated volumes. The European market has also improved with frost conditions anticipated to have an impact on their new season supplies. This should support late season prices and early new season prices next year too.

With a relatively stable currency through the main sales period the in-market trends are being reflected in NZD returns too. The total average NZ return is likely to be on par, if not higher than the year before though due to a higher proportion of club varieties.

VITICULTURE

A challenging growing and harvesting period has led to a smaller grape crop in 2017. Current estimates vary from 380,000 to 410,000 tonnes, which would be 6% to 13% below last year's crop. The impact of the challenging growing and harvesting conditions hasn't been evenly spread, with the Hawke's Bay and Gisborne regions experiencing a larger fall in yields compared with other regions.

A strong export performance in 2016/17 combined with a smaller crop in 2017 will allow wine exporters to be choosier in 2017/18. This, combined with lower bulk wine exports through the secondary market, should support average earnings per bottle for wineries. Both the North American and domestic markets are expected to remain buoyant over the next year.

All up, these dynamics provide support for grape prices, but they have trended up at recent harvests, implying lower margins for the winery part of businesses. With this in mind, Sauvignon Blanc grape prices are expected to ease slightly towards \$1,750/t for the 2017 vintage. Other varieties are expected to either ease slightly or be relatively stable, depending on the supply-demand balance for each.

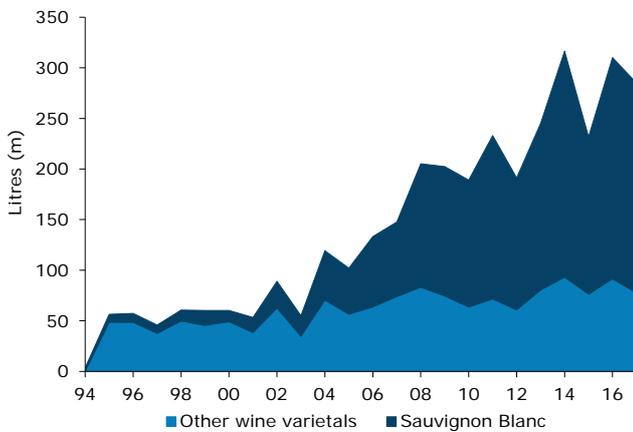
NEW ZEALAND SUPPLY

This year's growing season was one of the more challenging, with adverse weather impacting each stage. Adverse weather affected flowering periods for many, and then summer had extended periods of dry, plus high wind levels over much of the country. These early summer conditions were then followed by a series of major rain events during a drawn-out and humid harvest. This led to a late harvest with disease pressures and ripening challenges negatively affecting crops in Gisborne, Hawke's Bay and Marlborough. Additionally, the Marlborough region had to deal with infrastructure damage from last year's series of earthquakes. **The end result is lower average yields and brix levels than historically have been achieved. That said, most varieties have reportedly shown good flavour.**

The current forecast range for this year's vintage is 380,000 to 410,000 tonnes. This would be 6% to 13% below last year's crop. But the impact of the challenging growing conditions hasn't been evenly spread, with the Hawke's Bay and Gisborne regions experiencing a larger fall in yields compared with other regions.

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

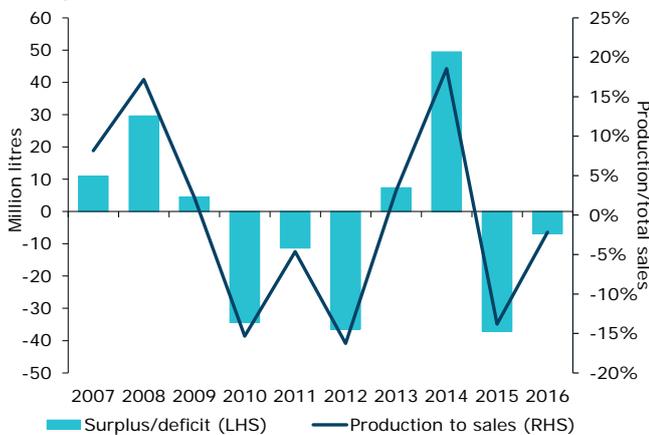
FIGURE 59: NEW ZEALAND WINE PRODUCTION



Source: ANZ, New Zealand Winegrowers

In terms of the supply/demand balance, a very strong export performance to North America, UK and Australian markets is likely to have cleared most of the 2016 vintage. Indeed if the year-to-date export performance is maintained for the last two months of 2016/17, this would imply a small deficit of 7 million litres from what was New Zealand's second-largest crop in 2016.

FIGURE 60: NEW ZEALAND WINE SUPPLY SURPLUS/DEFICIT



Source: ANZ, New Zealand Winegrowers

This means wine exporters will be able to be choosier in 2017/18 with a small crop. It will also mean less bulk wine sold for the secondary market. Indeed, looking at where the previous season's harvest is ending up, while there was a strong lift in export sales during 2016/17, year-to-date bulk wine sales have lifted 41% y/y, whereas packaged wine has increased by only 8% y/y. This means bulk wine sales have accounted for 40% of exports, whereas they were only 34% the year before.

If lower-quality bulk wine increases too much in any given period this can pressure packaged product prices and weigh on average returns. This evidently spills over into lower grape prices to support winery margins. **This doesn't appear to have happened over the last year though, with both packaged and bulk wine prices lifting.** The practice of shifting excess wine in bulk by discounting has diminished with large wineries now exporting a proportion of their wine in bulk and then bottling it in the destination country under their premium brands/labels to take advantage of cheaper bottling and freight costs.

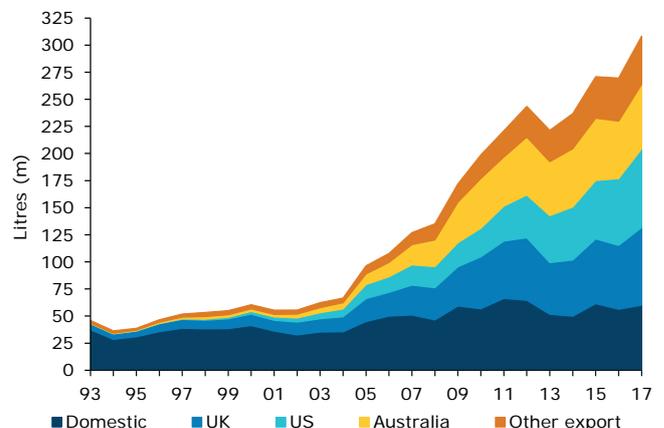
Further supply growth is expected over the coming years with new greenfield investment being led by the larger wine companies.

Planting surveys by New Zealand winegrowers suggest the vineyard area is set to expand by as much as 7,000 hectares or 20% by 2020/21. Some of this expansion is currently underway with an estimated 1,800ha (or 5%) additional plantings already in the ground and coming into production by vintage 2018. Sauvignon Blanc is expected to continue to dominate plantings, rising 8% to 21,900 hectares (58% of total growing area) in 2018.

EXPORT MARKETS

New Zealand's domestic market and top three export markets of Australia, the US and the UK account for 86% of total wine sales and 81% of total sector revenue. While other markets such as the Netherlands, Canada, and parts of China are slowly increasing their market relevance, the top four markets are expected to continue to dominate overall sales into the 2020's. This is due to supplier/ownership relationships with other parts of the supply chain and strong prospects for Sauvignon Blanc and premium wine within these markets.

FIGURE 61: NEW ZEALAND WINE DESTINATIONS



Source: ANZ, New Zealand Winegrowers

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

In our June 2016 *Agri Focus* we provided a detailed overview of New Zealand's top wine export markets and prospects. A key take-out was that there exists scope for more growth from consumers looking for sophisticated foods and beverages, a new generation of younger consumers coming through, and a trend towards 'premiumisation'. On the other side health concerns around the amount of alcohol being consumed are having an impact too. However, many consumers appear to have opted for a 'quality over quantity' attitude. All of these trends suit New Zealand's product and market positioning.

Distribution channels are also changing. Tasting rooms, wine clubs, online marketing and other direct sales channels that reach consumers through the internet, mobile apps and social media are growing strongly and offer new channels to market.

On a short-term basis New Zealand's domestic market and North America are likely to attract even more product in the short term. Spending on premium food and wine products is expected to be supported by favourable economic growth and labour market conditions, as well as tourism activity within New Zealand.

US

The US market remains one of the stand-outs, with year-to-date exports having increased a further 20% y/y. The US is now New Zealand's largest market, accounting for 30% of export volumes and 32% of returns. Sales have more than doubled since 2011 when its share of volumes and returns were just 21% of total exports.

Prospects for further growth remain strong with the trend towards 'premiumisation' continuing to favour New Zealand's market position. On a per capita basis, US consumption has crept up to 11 litres per year. This is likely to continue to grow in the short term driven by increasing sales to the under-40's cohort and baby boomers maintaining consumption levels. However, consumption growth will moderate as consumers favour premium versus generic/lower-priced wine and as more of the baby boomer cohort begins to retire. Retirement generally coincides with a more rapid decline in alcohol and wine consumption.

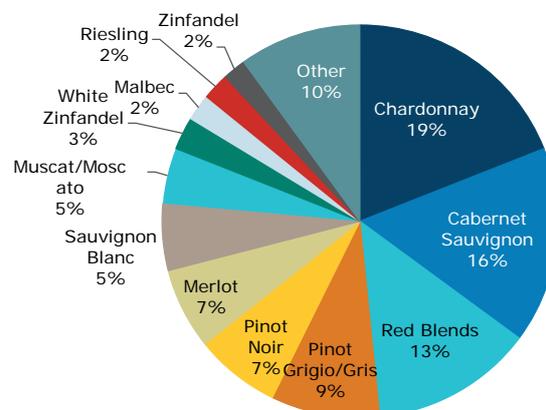
The growth part of the market, especially for Sauvignon Blanc, is the under-40 cohort who are looking for more sophisticated foods and beverages. This naturally favours wine, given its wide range of flavours and ability to be paired with different food. The challenge is that this cohort is more discerning, with access to a wider array

of market intelligence via information technology. This provides improved opportunities for imported products by breaking down traditional marketing and distribution channels (i.e. more online sales), but also creates fierce competition from direct competitors and other products, such as alcohol blends, cider, craft spirits and beer.

Some of the biggest trends in the US market are the movement toward 'premiumisation' and growth in availability of mid-tier priced wines. Indeed, there is double-digit growth in the USD10 to USD20/bottle range at the expense of the under USD10/bottle, which still makes up 75% of total sales. The majority of volume growth for Sauvignon Blanc is occurring in the USD8-15/bottle price category.

This shift is being fuelled by the US consumer being in a better place due to an improved labour market and wealth effects of higher equity and house prices. The growth in the availability of mid-tier priced wine is also creating a bridge for the under-40's cohort looking for a more individualised yet still affordable palate offering.

FIGURE 62. OFF-PREMISE WINE SALES IN THE US BY VARIETAL - 2015



Source: ANZ, AC Nielsen, Statista

Sauvignon Blanc accounts for only around 5% of total sales, but is one of the fastest growing. Blends are hot items as consumers want to try new flavours that are more interesting than a single varietal.

UK

Wine sales to the United Kingdom have fared better than first feared following Brexit. Year-to-date export volumes have increased by 26% y/y and in-market prices are little changed. However, the higher NZD/GBP has cut local returns 21% to \$5.19/l. This means that while higher volumes have been sold, total earnings in NZD terms are little changed. New Zealand wine already sits at the premium end of the

FEATURE ARTICLE: FARM-GATE PRICE OUTLOOK

price point spectrum, so while there is an opportunity to increase sales, it's much more difficult to shift the end price point to compensate for the higher NZD/GBP.

Overall the UK remains New Zealand's second-largest export market on a volume basis, but due to the higher NZD/GBP it has slipped to second place on a value basis.

Health concerns, along with changing lifestyles and demographics, mean that the volume of wine consumed per capita in the UK has been in slow decline. There seems to be a split market, with many consumers having traded down to less-expensive wines in recent years, but many others choosing to reduce consumption and opt for better-quality wines.

In recent years there has been an increased focus on reducing youth binge drinking and awareness of the health implications of daily recreational wine drinking by the middle aged. This has prompted government policy changes such as increased excise duty and minimum pricing policies (i.e. no loss-leading by retailers, similar to some of the changes in the domestic market). Preferences for more sophisticated and unique styles of wine have also been driven by educational promotion on the different types of wine and their combination with food.

The majority of UK wine sales (around 80%) are through the off-trade channel. The main reason for the dominance of off-trade sales is that the average price is 60% lower than on-trade channels. The majority of off-trade sales are through the major supermarket retailers, such as Tesco, Sainsbury's, Marks & Spencer, Asda, Morrison etc. However, there is somewhat of a polarisation, with retail discounters such as Aldi and Lidl attracting price-conscious consumers at one end, and independent liquor stores/merchants at the other, attracting consumers interested in spending more due to a special occasion, or for better quality.

The largest suppliers through the retail channel are Australia, Italy, US and France. New Zealand ranks 8th, but achieves the highest average price per bottle (GBP7.33/bottle) of the top 10 suppliers. This places New Zealand wine at the premium end of the market with the vast majority of wine sold in the GBP3-6/bottle range.

UK consumers are generally very price-sensitive when shopping for wine in supermarkets, and will often only trade up to mid-priced/premium brands when they are heavily discounted. Private labels are important too, accounting for around 15% of sales through the off-trade channel. This is a larger proportion than other alcoholic drinks. Supermarkets offer a wide selection of private labels, often filling the

gap between economy and premium categories.

Sauvignon Blanc and Pinot Grigio/Gris continue to take market share from Chardonnay in the white category. Sauvignon Blanc has around an 8% market share by volume and New Zealand-sourced product accounts for around half of this.

AUSTRALIA

The Australian market is viewed as the most mature of the big 'three' export markets. Year-to-date exports have increased by 14% y/y. The increase caused in-market prices to slip 6% y/y and due to a stronger NZD/AUD local returns are back 8% y/y.

New Zealand product accounts for around 15% of the total value and 10% of the total volume of wine sales in Australia. Australian consumers have a strong preference for still white wines (50% of sales), still red wine (34%) and sparkling (10%). **The major white varietals are Sauvignon Blanc, Chardonnay and other white blends.** The major red varietals are Syrah, Cabernet Sauvignon and Cabernet Merlot. **New Zealand's largest share is for Sauvignon Blanc (around 70% of volume) followed by Pinot Gris (20-25%) and Pinot Noir (30-35%).** Other more minor varietals are Chardonnay, Riesling and Merlot.

The majority of New Zealand's sales are through the retail and online sale channels, as opposed to foodservice (i.e. restaurants, wineries etc). The two largest supermarket chains, Coles and Woolworths, dominate total sales with an estimated 70% share. The domestic market share of private labels of both major retailers is around 15%, whereas in New Zealand it's less than 2%. Although consumers are able to benefit from lower-priced private label products, this tends to squeeze margins for others in the supply chain and can inhibit innovation for fear a new product won't be accepted by the two dominant retail players.

Premium wine products continue to grow at the expense of cheaper bulk wine, with increased sales through online channels. Online wine retailers have increasingly stocked premium, niche and independent wine labels that are not available from the major retailers. The major growth is in the AUD10-25/bottle price segments. Consumers are also attracted by online wine clubs, offering members better deals and the chance to be a part of wine events, creating an immersive wine experience.

New Zealand wine dominates Australian sales of imported wines, accounting for around 60% of total volumes, with France the next-largest supplier at 17% (but nearly double on a total value basis due to higher returns).

RURAL PROPERTY MARKET

SUMMARY

The REINZ's all-farm measure of property prices has nudged up over recent months and turnover has remained robust. On an annual basis the all-farm measure has been fairly stable in 2016/17 compared with the previous two years.

Dairy land prices have softened since summer with prices back to \$35/kg MS, compared with the low-\$40/kg MS earlier. We're not expecting improved cash-flow in 2017/18 to see the market launch back into behaviours of old with a surge in prices. Higher interest rates, policy uncertainty and continued balance sheet repair cap the upside. Finishing and arable prices have also softened a touch since the summer period. Grazing prices have moved back up to long-run averages recently, reflecting better seasonal conditions and improved red meat prospects.

Horticulture remains a standout with solid cash-income prospects, more corporate-type and Māori investment, a diminishing area of suitable land in key regions, and migration out of expensive urban areas

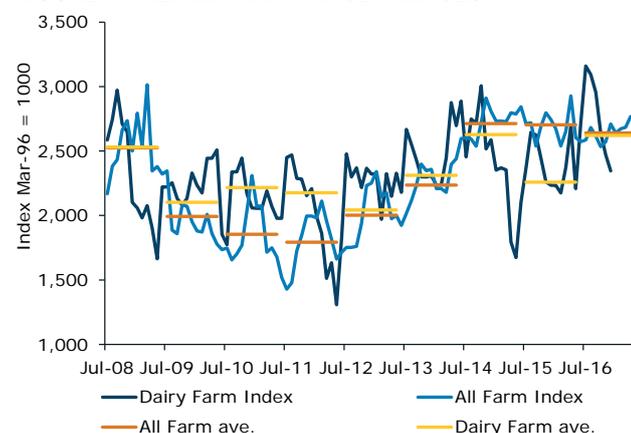
in search of lifestyle options all combining in various measures to support valuations.

The REINZ all-farm measure has been relatively stable around \$28,000/ha over recent months.

A more cautious tone in the rural property market has been noted since the start of the year, however. This seems to now be manifesting itself in slightly lower dairy, finishing and arable property prices, though that's off peaks during the summer period. **Indeed, dairy property prices have moved back to \$35,000 to \$38,000/ha in recent months.** On a milk-solids basis the median has dropped to \$35/kg MS (from low-\$40/kg MS during the summer period). Part of this could be compositional, with higher sales in Northland where some lower-quality dairy units are moving back to beef or dairy support. **Finishing and arable property prices have also softened a touch.** Again part of this is likely to be compositional. **Elsewhere, grazing property prices have lifted back to \$15,000/ha and horticulture properties continue to trade at robust valuations.**

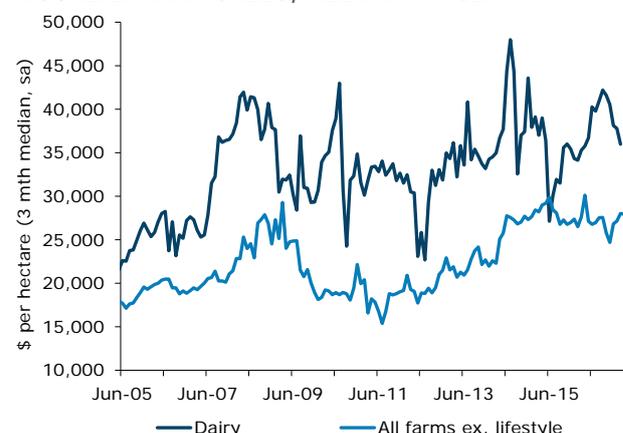
FARM SALES BY FARM TYPE								
3-Month Seasonally Adjusted		Current Period	Previous Period	Last Year	10-Year Average	Chg. P/P	Chg. Y/Y	Chg. P/10yr
Dairy	Number of Sales	71	73	37	60	↓	↑	↑
	Median Price (\$ per ha)	36,000	37,800	34,100	34,300	↓	↑	↑
Livestock – Finishing	Number of Sales	114	89	75	71	↑	↑	↑
	Median Price (\$ per ha)	27,800	28,400	26,700	18,700	↓	↑	↑
Livestock – Grazing	Number of Sales	150	172	151	185	↓	↓	↓
	Median Price (\$ per ha)	15,000	18,000	15,000	15,600	↓	↔	↓
Horticulture	Number of Sales	58	55	70	43	↑	↓	↑
	Median Price (\$ per ha)	241,300	281,900	212,300	163,400	↓	↑	↑
Arable	Number of Sales	31	35	36	23	↓	↓	↑
	Median Price (\$ per ha)	33,300	32,300	71,500	33,700	↑	↓	↓
All Farms ex. Lifestyle	Number of Sales	441	457	378	411	↓	↑	↑
	Median Price (\$ per ha)	28,300	27,900	30,100	22,900	↑	↓	↑
Lifestyle	Number of Sales	2,069	2,114	2,276	1,576	↓	↓	↑
	Median Price	623,000	616,000	553,000	483,000	↑	↑	↑

FIGURE 1. REINZ FARM PRICE INDICES



Source: ANZ, REINZ

FIGURE 2. FARM SALES, MEDIAN PRICE



Source: ANZ, REINZ



RURAL PROPERTY MARKET

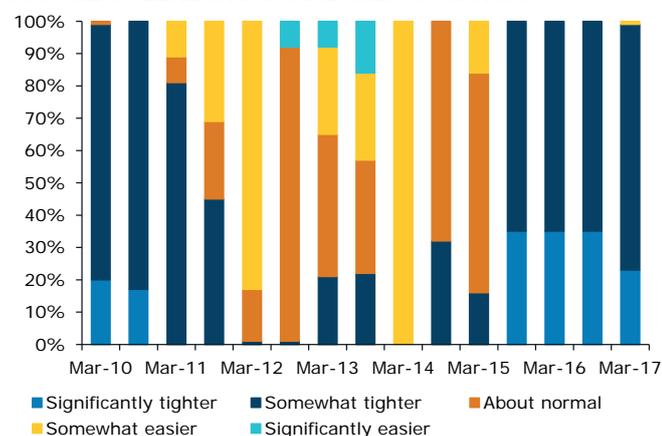
There has been a more careful tone prevalent in the rural property market since early 2017 for livestock enterprises. This now appears to be manifesting itself in slightly lower prices where earnings and valuations have been more stretched namely dairy, arable and finishing. However, the softness has been off recent peaks and compositional changes are likely to be playing a part too.

So the question now becomes, what might 2017/18 hold, given improved cash-flow prospects for dairying? We have cash flow for the average fully-shared Fonterra supplier increasing from \$5.85/kg MS to \$6.70/kg MS in 2017/18.

The rural land market has historically been notorious for trading off a one-year-ahead price-to-earnings ratio, so higher cash flow implies potential for an increase for dairy-aligned land. However, we believe 'steady as she goes' is more likely when wider forces are taken into account. These other parameters that impact on earnings or feed into the overall investment proposition look, in most cases, slightly more challenging heading into 2017/18.

First, while interest rates are still at historical lows, they are biased gradually higher. Low interest rates have been a big support factor for all asset prices over recent years and have provided additional cash-flow support for dairy farms despite higher underlying debt levels. But this influence is fading with not just wholesale rates biased gradually higher, but margins too. This is due to a combination of factors, including a domestic savings shortfall pressuring deposit rates, RBNZ & APRA regulatory changes, and some catch-up with a lower sector credit rating from the downturn. This combination was reflected in the RBNZ's latest credit conditions survey, which noted lending conditions have tightened with more prudent price standards. Further changes could be coming with the RBNZ's capital review. Interestingly, non-price lending measures were fairly stable for the primary sector, whereas most other sectors experienced a slight tightening.

FIGURE 3: LENDING STANDARDS FOR AGRICULTURE



Source: ANZ, RBNZ

Second, there could be some policy uncertainty going into this year's general election and as the dust settles following it. A National-New Zealand First Government, for example, would have quite a different feel and could see a further tightening of skilled labour migration rules and foreign investment. Foreign investment has already experienced a tightening, with demonstrating "economic benefit" now requiring more than just direct investment into a property to change its land use, or improve current performance. Access to overseas labour remains important for dairying and the main horticulture sectors. Higher costs here reduce earnings. Of course, a Labour-Greens Government could mean similar, or more tightening for both factors too, but would also likely result in more action sooner on environmental issues such as freshwater quality and carbon emissions. Time will tell, but such changes will be important for valuations. In the case of large-scale operations where the buyer pool is smaller, foreign investment rules are especially important.

Third, the dairy expansion is maturing and there is still some damage repair from the downturn to work through. A certain amount of the improved cash flow will be allocated to debt repayment (working capital and Fonterra loan repayments), maintenance catch-up and increased cyclical costs (i.e. grazing, supplementary feed).

But there are still a number of businesses with strong balance sheets that will be in a position to expand and feeling more confident with improved returns. However, on the flipside there are still a number of businesses with stretched balance sheets. Some of these require a change of capital structure, which will often involve selling assets (some or all), meaning the supply of properties should be adequate. Those in a position to buy are also likely to be more conservative in their valuation parameters, having refrained from buying in recent years at higher multiples.

There is also an element of the dairy expansion maturing, given new freshwater regulations and reduced availability of suitable land. Often during an expansion phase valuation multiples are pumped up as new capital is attracted into a sector and future return expectations (including land development in this case) are captured in valuations (i.e. the price of land and livestock). But once the expansion phase is complete it then becomes a slower grind, with valuations dictated by the actual earnings outlook. It feels like the dairy sector is entering the more mature stage, potentially taking some air out of valuation multiples from the past 15 years. **So all up, while higher returns suggest better land prices in 2017/18, there are plenty of other competing forces to consider too.**

ECONOMIC INDICATORS

EXCHANGE RATES

	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
NZD/USD	0.695	0.707	0.680	↓	↑
NZD/EUR	0.629	0.662	0.601	↓	↑
NZD/GBP	0.538	0.566	0.468	↓	↑
NZD/AUD	0.935	0.929	0.930	↑	↑
NZD/JPY	78.00	79.15	74.06	↓	↑
NZD/TWI	75.35	75.19	71.31	↑	↑

NZD BUYS USD

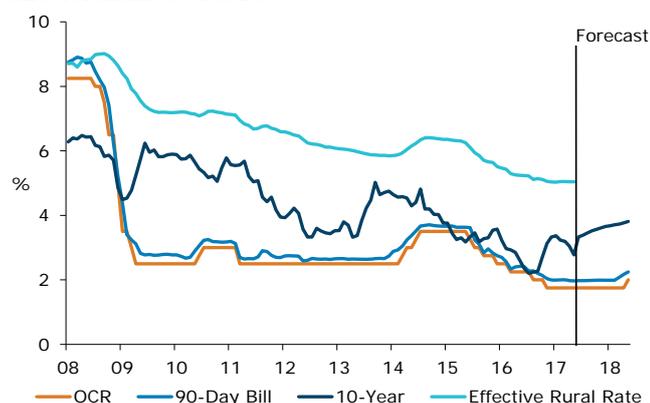


Source: ANZ, Bloomberg

NZ INTEREST RATES

	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
Official Cash Rate	1.75	1.75	2.25	↔	↓
90 Day Bill Rate	1.97	1.99	2.42	↓	↓
2 yr	1.95	2.14	2.10	↓	↓
3 yr	2.09	2.34	2.11	↓	↓
5 yr	2.46	2.49	2.17	↓	↑
10 yr	2.78	3.16	2.61	↓	↑
Effective Rural Rate	5.04	5.05	5.24	↓	↓
Agricultural Debt (\$b)	59.25	59.28	57.67	↓	↑

KEY INTEREST RATES



Source: ANZ, RBNZ

There are good reasons for the NZD's elevation.

We note:

- The rubber band is not taut. Across our long-run specifications, the NZD/USD is slightly undervalued and it is only slightly overvalued against the AUD.
- The terms of trade sits at the highest level since the 1970s, and the rise in the past decade has a secular look about it; manufacturing and technology goods are the new commodities.
- Locally, 3-4% GDP growth needs to be respected and New Zealand's current account is in check.
- Microeconomic policy is becoming more relevant as a driver. New Zealand stands tall here. The USD not so much. Same for the euro and pound.
- Volatility is contained.
- There are signs the Trump growth bump is fading, and with that, prospects for hike(s) from the Fed are dissipating.

We believe that "good news" story is fully factored at current levels and we still favour the NZD slightly lower 12 months out, but we are talking movements lower of only a few cents.

- Market pricing for the Fed is massively disconnected from the FOMC's views. The Fed's 'five hikes by the end of 2018' is too many, but the market's 'two' looks too light.
- China, commodities and the AUD all look vulnerable.
- We're not buying into the low-volatility signals. Policy uncertainty is high. This means the time-value option for firms is in waiting to put cash to work. Ultimately we expect this to manifest in softening economic data and volatility.
- Risk appetites look susceptible to reassessment, given stretched asset valuations and the need for the Fed to get on with the job at hand.

Short-term interest rates are expected to continue oscillating. With core inflation sitting at 1.5%, housing slowing, the NZD elevated and global uncertainty high, the OCR is on hold. The next move is up (strength across the economy is hard to ignore), but that's a mid-2018 story.

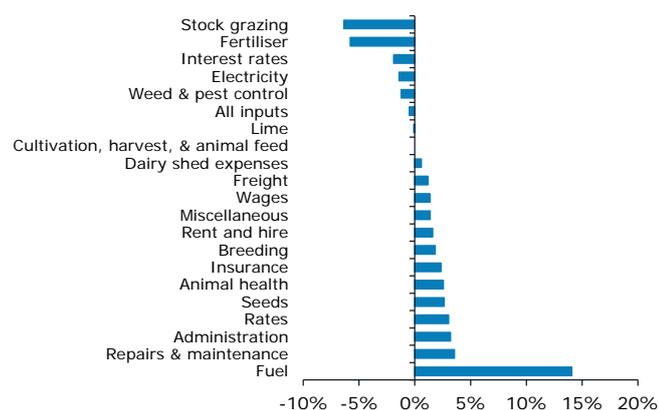
Longer-term wholesale rates have eased lower, following movements offshore. The oil-induced lift in global inflation is not morphing into core inflation and commodities have eased back. Global activity indicators, after lifting in early 2017, are starting to soften. Politics is creating uncertainty.

We still see US yields higher by year end, and the same for New Zealand rates, but movements are set to be glacial with movements up in a 2-up, 1-down fashion as opposed to trending.

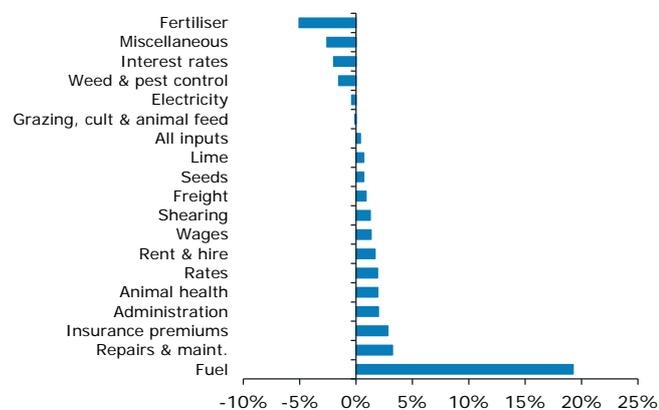
ECONOMIC INDICATORS

INFLATION GAUGES					
Annual % change	Current Qtr	Last Qtr	Last Year	Chg. Q/Q	Chg. Y/Y
Consumer Price Index	2.2	1.3	0.4	↑	↑
Farm Input	0.4	0.0	-0.7	↑	↑
Net Imp. Margins PPI	12.2	4.1	-4.2	↑	↑

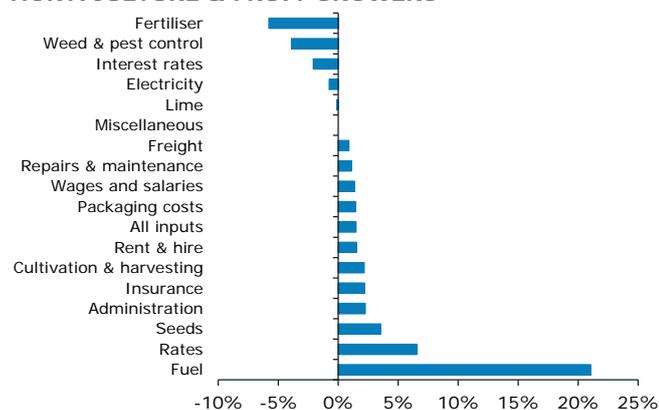
FARM EXPENSES MOVEMENT 2016/17 - DAIRY



FARM EXPENSES MOVEMENT 2016/17 – MEAT & FIBRE



FARM EXPENSES MOVEMENT 2016/17 – HORTICULTURE & FRUIT GROWERS



Source: ANZ, Statistics NZ

Statistics NZ's latest survey of on-farm cost movements for 2016/17 showed an annual increase of just 0.3% for the "all farms" measure (excluding livestock). This was well below general inflation for the broader economy (+2.2%). **Low inflationary pressures for farm costs have been an important support factor for margins and profits in recent years. In fact the "all farms" measure of on-farm costs has increased by only 0.6% over the last four years.** Headline inflation in New Zealand has increased by 4.4% over the same period.

Cost pressures were felt slightly differently across the various sectors in 2016/17. **Horticulture & fruit growers experienced the largest increase, of 1.5%.** This was the largest rise since 2011/12 and well above the 5-year average of 0.4% y/y. **In the meat & fibre sector costs increased 0.4% in 2016/17. This was below the 5-year average of 0.9% y/y. In contrast the cost of inputs fell 0.5% in 2016/17 for dairy farms.** This was the second year of decline, with cyclical expenses taking a hit when cash flow was tight. Some of these expenses will rebound in 2017/18.

By sector the breakdown was fairly similar. For dairy farms fuel increased 14.1%. Interestingly, this was the least of all major sectors. The increase has to be kept in context: it was the first since 2011/12 and prices remain 20% below their 2010/11 peak. Repairs & maintenance (3.6%), administration (3.2%) and rates (3%) were the next biggest movers. Three of the biggest expenditure categories – stock grazing (-6.4%), fertiliser (-5.8%) and interest rates (-1.9%) – all experienced a decline in 2016/17. Combined with lower expenditure in these areas, this has helped to lower cash cost structures.

In the meat & fibre sector cost increases were for fuel (19.3%), repairs & maintenance (3.2%), insurance (2.8%) and administration (2.0%). The biggest declines were for fertiliser (-5.0%), interest rates (-2.0%) and weed & pest control (-1.5%).

For horticulture & fruit growers the largest increases were for fuel (21%), rates (6.6%) and seeds (3.6%). The cost of rates will reflect rising valuations (i.e. land prices) for businesses close to growing urban areas such as Auckland, Hamilton and in the Bay of Plenty. Rates have increased by a hefty 19% over the last five years, or 3.8% per year. Given rates are a fixed cost, this will be an area of concern for growers facing higher bills. The higher cost of seeds is likely to reflect increased capacity pressures for nurseries from expanding sectors such as kiwifruit, pipfruit and viticulture. The biggest declines were for fertiliser (-5.8%), weed & pest control (-3.9%) and interest rates (-2.1%).

BORROWING STRATEGY

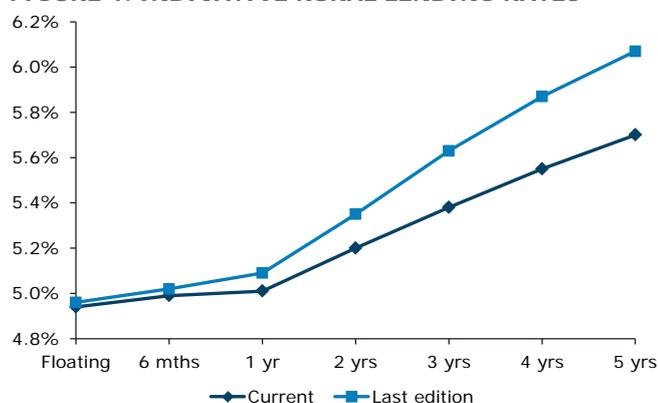
SUMMARY

Indicative rural lending rates have fallen across the board since our last edition, led by the long end. As a consequence, there is now just three quarters of a percentage point separating the floating rate from the 5-year rate. We expect the Reserve Bank to leave the OCR on hold for the remainder of the year at least, anchoring the short end. But with the long end biased higher led by global rates, the recent fall offers borrowers a fresh opportunity to add to hedges. We have been of the view that term rates would rise gradually for around a year now, and while they have risen, the fact that the rise has been punctuated by pullbacks speaks for the need to take a cautious approach. At the moment, breakevens look as favourable as they have done for some time, and tend to make fixing look attractive. However, market volatility and global political risks suggest some caution is warranted even if rates are mathematically more attractive.

OUR VIEW

Indicative rural rates are lower across the board in comparison to levels prevailing when we published the last edition of the *Agri Focus* in March (Figure 1). **Floating remains the lowest rate, and the curve rises incrementally with term, albeit less aggressively than was the case in March.**

FIGURE 1. INDICATIVE RURAL LENDING RATES



Source: ANZ, Bloomberg

The most obvious consequence of recent changes has been the narrowing of the gap between floating and the 5-year rate (which now stands at just 0.75%pts) which has occurred as the curve has flattened. Given that this flattening has all been as a result of longer-term rates falling (as opposed to short-term rates rising, or both), at face value, fixing now looks more attractive. Those who missed the boat towards the end of last year are certainly likely to welcome the changes, especially for terms like 5 years, where rates have fallen by close to 0.40%pts.

The flatter curve has improved breakevens and portrays fixing in a more attractive light, at least mathematically speaking. Consider, for example, the choice between fixing for 2 years or 4 years. Back in March, the 2-year rate was 5.35% and the 4-year rate was 5.87%. Given those rates, if you considered the maths alone (i.e. disregarded other factors such as rollover risk) you would only have selected the longer 4-year rate if you thought the 2-year rate in 2 years' time (the 2yr/2yr breakeven) was likely to be above 6.39%. As we noted at the time, that felt like a big ask, especially as we were well into the journey higher in interest rates. As it happens, rates have fallen since then, with the 4 year down around twice as much as the 2 year. **As a consequence, the 2yr/2yr breakeven is down a staggering 0.49% to 5.90% (see breakeven table below). Mathematically, that's far more attractive, and if you think rates will go up, the hurdle for "regretting" fixing for longer is higher.**

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%	5.02%	5.30%	5.67%	5.96%
1 year	5.00%	5.16%	5.39%	5.77%	6.04%
2 years	5.20%	5.37%	5.58%	5.90%	6.15%
3 years	5.39%	5.55%	5.73%	6.02%	
4 years	5.55%	5.70%	5.86%		
5 years	5.69%				

However, as we also noted in our last edition, **interest rate markets tend to be volatile, and we think it makes sense only to hedge when opportunities like the current episode arise.** But even then some caution is required. We say this mainly because the recent slide in interest rates has caught many by surprise, and goes against the grain of cyclical factors like the direction of the monetary policy cycle and gradually acceleration in global growth.

As such, while we see more merit in fixing than we did a couple of months ago – purely because the value proposition is better – we remain cautious of other considerations, including the global political environment. Such factors have the potential to alter the magnitude of the business cycle as well as the direction of interest rates.

Accordingly, we favour taking a disciplined approach that not only considers the mathematical costs (and opportunity costs) of hedging, but also takes into account volatility (i.e. acknowledging that timing matters) and the potential impact uncertainty may have on business prospects (i.e. qualitative factors).

ECONOMIC BACKDROP

SUMMARY

The economy is buoyant and forward growth indicators remain positive. We expect momentum to ease over late 2017 as credit constraints and difficulty finding skilled labour bite. History shows New Zealand could be in for a correction in 2018. However, we think the ten-year boom-bust cycle will be averted; households, regulators and banks are behaving differently. House price inflation is expected to remain subdued over the coming years. The RBNZ will not shift the OCR for quite a while yet.

OUR VIEW

The economy accelerated in 2017 relative to the end of 2016, despite housing activity easing. The unemployment rate has fallen below 5%. Momentum across the broader economy is strong.

Forward indicators are positive. Business and consumer confidence are elevated. Our Truckometer is showing forward momentum. Migration numbers remain strong. Tourism is booming.

New Zealand's terms of trade have surged to the highest level since 1973. That boosts spending power. Commodity prices have picked up and it's broader than dairy. There is a secular story here too. New Zealand exports dairy, meat, apples and seafood products. We import technology, clothing, cars and manufactured goods. The latter group are the new commodities.

We expect growth to moderate over the back half of 2017, while remaining respectable. Financial conditions have tightened and a sizeable funding gap (too few deposits relative to credit growth) flags continued pressure for credit growth to slow and relative prices to shift more towards savers at the expense of borrowers. This funding gap is implicitly forcing a savings-deficit nation to fund its investment needs more locally. This caps investment growth and means the economy needs to save more, which implies spending less. That trades off growth today for growth in the future.

Labour (skill shortages) bottlenecks are coming more to the fore. We still expect the unemployment rate to fall further over 2017 and wage growth to lift. There is the potential for some bow-wave demands for wage increases, given rising inflation, spill-over from industry settlements and highly-skilled migration tweaks.

History shows that New Zealand could be due for a correction in 2018. The economy runs on a 10-year cycle and we can certainly identify some similarities to previous cycles, including housing excesses, rapid credit growth, high leverage and rampant inflation in some pockets (construction).

However, we think this pattern will be averted through the combination of housing shortages (we normally have excess supply late in the cycle), tamed

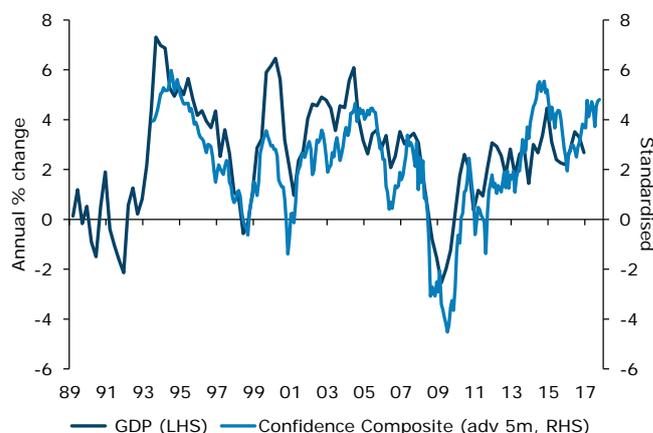
inflation (RBNZ at bay), regulatory action (loan-to-value restrictions), and banks reining in credit growth at the top of the cycle. Such forces are tempering demand at a time when that's probably helpful.

Housing market activity has slowed, notably in Auckland. We expect this consolidation to last a while, with the impact of rising interest rates to lean against key ongoing drivers such as population growth. While we are expecting house price inflation to ease as interest rates bite, we expect residential construction activity to remain strong.

The RBNZ is expected to keep the OCR on hold until mid-2018. Outside of housing, inflation is benign. With banks lifting retail interest rates already, the RBNZ will sit on the sidelines for a while yet.

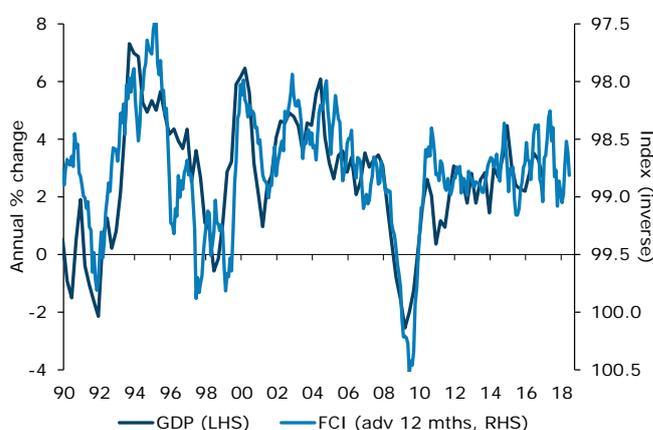
We continue to have concerns over the global scene, which presents the biggest economic risk. The US Fed is hiking. Central banks appear more alert to the side-effects of keeping rates low for too long. Regulatory headwinds continue to emerge. The resentment vote is leading to questionable policy decisions. China has considerable leverage. Politics is taking centre stage and economic policy is suffering.

FIGURE 1: GDP VS CONFIDENCE COMPOSITE



Source: ANZ, Roy Morgan, Statistics NZ

FIGURE 2: GDP VS FINANCIAL CONDITIONS INDEX



Source: ANZ, Statistics NZ, Bloomberg

EDUCATION CORNER: THE DIGITAL TSUNAMI

SUMMARY

Technology continues to pervade society and change the way things are done. It's no different down on the orchard or farm, with apps being increasingly used to support a range of business practices. There are an estimated 2.8 million available in the Google play store and 2.2 million in the Apple app store. It's a real (profitable) career for many and kids will continue to be drawn to it.

We take a look at 65 different apps for the primary sector that are changing business practices and digitising thoughts and paper trails. These apps are split into six categories: finance/accounting; enterprise management; planning/recording; regulatory/compliance; supply chain partners; and everyday/other.

There are many touted benefits for each app, but broadly they tend to fall under the banner of one or more of: improving business productivity, enhancing decision making, meeting regulatory/compliance requirements, driving cost efficiencies, mitigating risks, shaping supply chain relationships, and generally making it easier to do business. This all aims to help the bottom line.

There has been notable growth in the number of apps used to record a range of core farm management data, manage tasks & staff, and meet regulatory requirements. In part this reflects a move from paper-based to digital record keeping, but also the changing landscape of farm ownership, increasing complexities within many businesses, and rising compliance requirements. There is also a move to more open platforms with collaboration occurring across various app providers. This is often aimed at improving the functionality and broadening the horizons of apps currently focused on one specific management practice/area. This is pushing many down the enterprise management route.

The rate of change and functionality of the various apps will expand over coming years. Mastering the use of such technology within a business will be important.

INTRODUCTION

Technology continues to pervade society and change the way things are done both in the day-to-day life of individuals and businesses. For businesses it continues to reshape, or indeed completely remake, how many core functions operate. It is also reshaping entire supply chains and the channel to market for many products and services. It is changing the way revenues and profits are split across the different business entities within each channel. From a consumer's point of view it

continues to improve the functionality of existing products and services, as well as create new ones. Its disruptive nature introduces new forms of competition for incumbents, but also creates new opportunities.

It's no different in the primary sectors, where, it could be argued, technology impacts are set to speed up the rate of change in many cases.

A simple example of technology pervading society and business is the increasing use of apps. We've taken a look at some of the apps being used by various businesses. While not an exhaustive list, they cover a range of core functions – some that are coupled with other technology developments – to improve business productivity, enhance decision-making, meet regulatory/compliance requirements, drive cost efficiencies, mitigate risks, shape supply chain relationships, and generally make it easier to do business. This is all aimed at improving the bottom line.

We group the apps under areas of focus, cover the key functions of each, and highlight any future development areas. Some of the apps have been around for a while and continue to evolve in terms of functionality and format, but many others have only emerged in the last few years. We'd also note that many are going down the open platform route and/or are beginning to amalgamate with other apps to improve functionality and offer a wider range of enterprise management options.

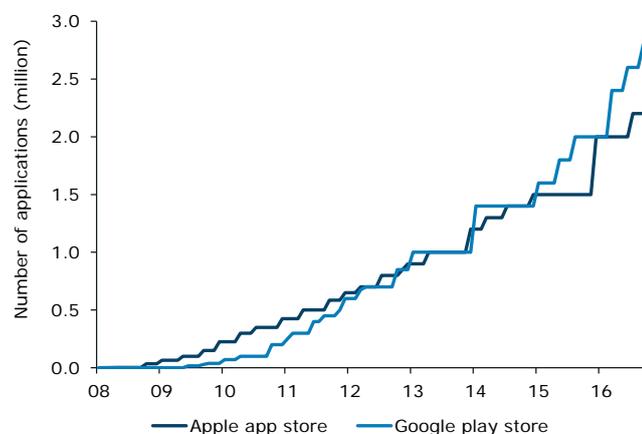
We have steered clear of looking at the technical functionality (operating system etc) of each app, its usability or intuitiveness, and the cost. Things such as whether it can work without an internet connection, hardware requirements, general software functionality, and cost are all important considerations when adopting a new piece of technology, but are beyond the scope of this piece. In addition, we have not tested these apps and are explicitly not making recommendations, merely providing what we hope is a useful inventory of what's out there.

WHAT IS AN APP?

"App" is an abbreviation for "application". It is the modern term for software applications or programs that can run on the internet/cloud, desktop computer and/or mobile devices (i.e. tablet, mobile phone, laptop). While many believe the term app refers solely to software applications and programs that run specifically on mobile devices, it actually applies more broadly, as apps can be downloaded onto a desktop computer, as well as run directly on the internet with cloud technology.

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FIGURE 1: NUMBER OF APPS AVAILABLE



Source: ANZ, Statista

The number of apps has proliferated: there are now an estimated 2.8 million available in the Google play store and 2.2 million in the Apple app store. Of course there will be overlap between the two, but over the last seven years the annual compound growth in the total number of apps available has been circa 60% y/y across the two platforms. It's a likely career for a lot of kids. Kids of 5 are now tablet and app savvy.

We focus on the apps that are designed specifically with the primary sectors in mind.

This article provides a broad overview of the diversity of software applications available to make primary sector businesses more efficient, make it easier to do business, mitigate risks, meet regulatory/compliance requirements and ultimately, improve profitability.

Apps are split into six categories: finance/accounting; enterprise management; planning/recording; regulatory/compliance; supply chain partners; and everyday/other.

FINANCE/ACCOUNTING

In the accounting and finance space there is a range of software applications to help budget, analyse cash flows, and compile financial accounts for tax and benchmark purposes. These help businesses to track financial performance, improve tactical and strategic decision making, and meet regulatory requirements (specifically tax and payroll).

Cashmanager Rural (www.crssoftware.co.nz)

Has functions related to cashflow budgeting (review and forecasting); financial reporting (benchmarking, balance sheet configuration etc); physical performance tracking and reconciliation for milk and livestock; automation of data collection and compliance tasks (such as GST and PAYE); multi-farm reporting and consolidation; invoicing; and wagebook

(leave entitlements, holidays, deductions, PAYE etc). It can integrate with Xero and MYOB to conduct various accounting functions.

Figured (www.figured.com)

Integrates with Xero to conduct various accounting functions and automatically load data from various sources. By integrating with Xero, it brings stock reconciliation with performance tracking for milk, livestock and crops; cashflow (review and forecasting); income statement; balance sheet configuration; formal accounts; and tax statements all together on the same platform. It has been built on an open platform offering opportunities for integration with other on-farm agritech tools, as well as for benchmarking and scenario planning.

Redsky (www.redskyagri.com)

Has functions related to cashflow budgeting (review and forecasting); financial reporting (benchmarking, balance sheet configuration, accounts etc); detailed physical performance tracking for milk, livestock, crops; and an information-sharing network with key advisors and others, including benchmarking comparisons across specific groups.

DairyBase (www.dairynz.co.nz)

Has functions related to benchmarking the financial and physical performance of dairy businesses through time and against other dairy farms. Reports are customisable and include a range of different benchmark groups such as regions, systems, herd size and profitability groups. This allows farm performance trends and improvement opportunities to be identified, which leads to more confident and effective strategic decision-making. There are pilot trials underway with Cashmanager Rural to provide more timely benchmarks related to expenditure.

iAgri Money/Farm/Diary (www.iagri.com)

Has functions related to on-farm management tools such as feed budgeting and tracking livestock information (milk production, live weight, health treatments etc); farm mapping of activities such as fertiliser applications, irrigation and pest & disease control; and a general farm diary for recording weather, key contacts and other information.

It also includes financial management functions for cashflow budgeting (review and forecasting); wagebook to track employee's earning history, (including pay periods, leave entitlements, holidays, deductions, PAYE); and GST reporting. Transactional data can be automatically uploaded from bank statements. Some of these functions fall under the enterprise management category too.

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Practical Systems Software (www.practicalsystems.com.au)

Has four separate functions related to financial management, livestock management, farm management and farm planning. The livestock management component includes tracking individual livestock performance and history (breeding information, live weight performance, fertility etc) with data uploaded via electronic identification technology, as well as a stock reconciliation.

The full financial management component includes cashflow budgeting (review and forecasting); financial reporting (benchmarking, balance sheet configuration, accounts etc); GST and payroll functions; gross margin/what-if analysis of various enterprises; multi-farm reporting; and auto upload of transactional data from bank statements.

The farm management functions include some similar aspects to the financial component, with gross margin, cost of production and what-if analysis. It also includes compliance and quality assurance monitoring of key farm activities (fertiliser usage, livestock movements, machinery/chemical usage etc).

Farm mapping can track infrastructure locations, landcare, crop rotations and paddock activities (i.e. spraying, fertiliser applications etc). Some of these functions fall under the 'enterprise management' and 'regulatory/compliance' categories.

IPayroll (www.ipayroll.co.nz)

A payroll system that records and manages deductions (PAYE, child support, student loans, WINZ and KiwiSaver); payment elements to staff according to timesheets or regular hours worked; employee leave; and other relevant information. It integrates with a number of other software systems including Cashmanager, Xero, MYOB and more.

ENTERPRISE MANAGEMENT/OPTIMISATION OF PARTICULAR MANAGEMENT PRACTICE

Many of the apps have been designed to help provide analysis and answers for what a change in a particular management practice might mean for the physical and financial performance of a business or particular practice/activity.

This helps guide day-to-day and strategic decision making to increase business efficiencies, optimise performance, and increase profitability.

Others are more focused on the efficient recording and monitoring of core management activities. This information is then analysed to identify areas for improvement across specific management functions.

Farmax (www.farmax.co.nz)

Has functions related to detailed feed budgeting (forecast pasture cover and feed requirements based on livestock policies, live weight, livestock movements etc); what-if analysis to determine biological and financial feasibility of short and long-term farm system changes; multi-farm reporting; financial and physical performance benchmarking for sheep, beef and deer farms; and a pasture growth forecaster.

PasturePro (www.bakerag.co.nz/pasturepro)

A tool designed to assist on-farm monitoring and support a structured decision-making process to improve the timing and accuracy of decisions. Uses Farmax in conjunction with Baker and Associates' PasturePro database to provide regular, standardised recording of physical farm data. This is then used to identify strategies to manage feed-supply variability and address feed deficits and surpluses at certain times of the year. It can also be used to complete accurate cost-benefit analysis for various stock policies and feed-supply options.

FARMIQ (www.farmiq.co.nz)

Has a wide array of functions and a number of linkages to other software applications, such as Farmax, NAIT, Cashmanager Rural, Jenquip and meat processors. Initially focused on sheep, beef and deer sectors, it now also has a number of applications suitable for dairy. It has an interactive map and a lot of the software involves interaction with the mobile app, which works offline.

Key functions include staff management, covering: a diary to track events and assign tasks; keeping staff records; and managing rosters and timesheets and leave. Farm management tools exist to create specific plans; complete detailed feed budgeting (forecast pasture cover and feed requirements based on stock policies, live weight, livestock movements etc with link to Farmax); what-if/gross margin analysis to determine biological and financial feasibility of short and long-term farm system changes.

Compliance functions include recording and reporting of animal health treatments; a Farm Assurance Plan (coming soon); health & safety monitoring and reporting such as recording staff training and meetings, inducting contractors, handling visitors, registering hazards and incidents, and creating an emergency plan; and environmental planning, which includes an initial risk assessment associated with erosion, phosphorus, nitrogen and faecal bacteria, along with managing biodiversity, that can then be acted on, and reviewed and updated when required.

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There is a mapping and recording system by paddock for fertiliser & chemical applications; planting & harvesting details for pasture and crops; soil tests; irrigation and view against consented water takes; effluent and its application; and weather variables.

There is detailed monitoring and tracking of animal performance with automatic upload of electronic identification data. Mob recording can also be done. Livestock monitoring and tracking includes movements (sales, purchases, deaths etc) and livestock reconciliation; automatic NAIT notification of stock transactions; performance measurement (group liveweight movements and overall production); health issues, breeding information and condition scores. There is also market-linked reporting that can be matched with animal management history (start weight, average processing date, days to kill, liveweight gain, end weight, carcass weight, \$ per head and \$/kg CW). There is a link to Silver Fern Farms' BeefEQ programme too.

Additional functions include third-party access (consultants, accountants etc) and multi-farm reporting/consolidation.

Hectre (www.hectre.com)

Orchard management software currently used by apple growers in New Zealand and Australia, but the technology is applicable to most types of orchards.

Its main current functions include the collection of picking data while out in the field using a mobile device. It syncs with a hand-held mobile printer to produce waterproof bin cards on the go. Staff hours and efficiency are recorded, and managers can print daily reports, saving substantial administrative time during the picking season. It also GPS tracks the picking data to build heat maps of orchard productivity. This allows growers to compare year-on-year results and help guide decision-making of management practices to achieve better results.

The application is relatively new and additional features are now being incorporated. This includes a focus on tagging management practices to individual areas/trees, which will provide a more precise picture, monitoring record and traceability when it comes to fertiliser applications, insecticide use, thinning, pruning, disease spread, and location-based management tasks. More individual tailored solutions for grower specific situations are being built too.

UDDER (www.udder4win.com)

Is a simulation model that predicts milk production of dairy herd's grazing pasture under different management systems. Its main functions can be used to test how management changes would affect

farm profits. Management options that can be tested include calving & drying off strategies, stocking rate, supplementary feeding programs, fodder conservation strategies, cropping programs and dry stock management.

PocketPAM2 (www.fairport.com.au)

Has a number of applications that record and monitor information related to general farm information; cropping activities (planting & harvesting records, fertiliser & spray applications, machinery events etc); weather records; irrigation; crop scouting; livestock events (trading movements, shearing, veterinary treatments etc), pasture monitoring, inventory of farm consumables; and a time-keeper for specific events and staff tasks.

Agrigate (www.agrigate.co.nz)

Launched at the start of 2017, this app is a combined platform of Farm Source, MINDA Live and Metservice data, with more partners to be added. Farm Source main functions include milk production and quality information; Fonterra company updates, news and event information; and online shopping/rewards through Farm Source. MINDA Live main functions include: pasture monitoring, feed budgeting and herd information (cow condition, timing of pregnancy, health treatments, monitoring young livestock weights etc).

Future development plans are to incorporate a wider range of partners to include fertiliser companies, financial software and real-time sensor/monitoring technologies. The inclusion of more partners will widen benchmarking and whole farm monitoring capabilities. In time this will allow the financial implications of management decisions/changes to be analysed.

Precision farming (www.precisionfarming.co.nz)

In the spring, Ballance Agri-Nutrients, in partnership with Precision Farming Ltd will be announcing a new combined platform to provide New Zealand farmers with a comprehensive nutrient management solution via PC, tablet and smartphone.

In a single integrated system farmers will be able to see their soil tests, nutrient budget and fertiliser & application plans, usage to date, and cumulative NPKS records. Then with Precision Farming, they can see their pasture walk and feed wedge, soil moisture and temperature, and other data relevant to making informed nutrient application decisions.

Farmers can then send their orders to trucks and aircraft via Precision Tracking or TracMap, and receive back fact-based electronic Proof of Application (not

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mere “proof of ordering”) records for immediate checking and later reporting such as preparing Overseer, environment council or milk or meat company reports.

Autogrow (www.autogrow.com)

Integrates with a range of greenhouse/indoor technology to remotely monitor and control a range of key variables to optimise crop quality and yield. Monitoring can cover temperature, humidity, light levels, carbon dioxide, electrical conductivity, pH and moisture levels. It can also control a range of these variables through altering the settings for light banks, air conditioner, heater, dehumidifier, humidifier, extraction fans, foggers, dosing systems for different nutrients/additives plus pH adjuster and irrigation.

ReGen (www.regenerated.co.nz)

Has functions related to nitrogen, effluent and irrigation management. Specifically, calculates the response rate from planned nitrogen applications and what level of effluent should be applied according to various farm/environmental factors. Calculates optimum irrigation for a five-day period taking into account a range of environmental factors, soil water holding capacity and the capability of irrigation infrastructure.

IQ irrigation (<https://agriculture.trimble.com/precision-ag/solutions/irrigation/>)

Optimises irrigation and effluent applications through GPS-controlled systems, taking into account a range of environmental factors. Can use real-time feedback from soil and weather data around linear and pivot irrigation systems to model optimum irrigation patterns.

Grass2Milk

Allows dairy farmers to see whether they are feeding their herd enough to reach daily milk and body condition score targets, and helps plan supplementary feed allocations for the day. Uses herd information such as number of cows, breed, age, condition score and time of lactation cycle to predict average cow daily metabolic energy requirements. This is then compared with daily feed intake from pasture, crops and additional supplements. This assists in identifying what the actual daily energy requirement of a herd is (energy is the most limiting component of grass-fed cows) and allows ‘what if’ questions to be asked if there is insufficient pasture.

Pasture Coach (www.pasturecoachnz.co.nz)

A pasture management tool specifically focused on analysing the best use of pasture (not entire feed budget). Generates a pasture feed wedge that

allows the identification of future surpluses/deficits and allows users to analyse the impact of different grazing-management decisions. All individual pasture growth measurements are retained and can be used to monitor how each paddock is performing. This helps with the formulation of pasture renewal plans and identifying factors that might improve future pasture yield – cultivars, fertility, drainage and grazing management.

There are advanced feature options on the feed wedge prediction tools to give four different time frames with separate management changes, including conservation and topping assumptions. The rotation and break calculator can be used in the paddock to support daily operational decisions – working with the paddock area, herd size, how much grass should be allocated. It gives immediate feedback on the right response for rotation area and pasture allocation.

ProductionWise (www.productionwise.co.nz)

An online farm-management platform for arable growers and their advisors to better manage cropping and grain-storage activities. The system provides full traceability reporting, from paddock-specific inputs to end-product handling to assist with regulatory auditing and quality assurance. It offers paddock operation and input recording. Detailed gross margin information is captured at paddock scale to assess cost of production and capture associated income from cropping activities. Advisers can connect with their growers through the platform to report on paddock visits, observations made and assign recommendations for paddock activities. Using the templates to enter paddock operations, growers can develop farm plans to assess growing season rotations and associated inputs, quantities and costs to highlight the requirements for financial resourcing throughout the season.

For New Zealand users, it continues to be developed in conjunction with Foundation for Arable Research NZ (FAR) to provide a recording system for arable farmers to maintain their farm management practices digitally, improve on-farm efficiencies and to assist industry reporting and regional benchmarking.

Zespri Product Compatibility (<https://itunes.apple.com/nz/app/product-compatibility-app>)

Helps kiwifruit growers choose what spray products and combinations are safe for tank mixing and phytotoxicity, where data is available. Work is ongoing to fill the gaps where there is no data for certain product combinations, particularly around efficacy.

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Zespri OPC Productivity Calculator (<https://itunes.apple.com/nz/developer/zespri-opc/id806054904>)

This fresh weight and dry matter calculator provides kiwifruit growers with a predicted outcome at harvest for weight, count size, expected dry matter and taste Zespri grade. Growers need to enter full bloom date, sample date, harvest date, sample weight and sample dry matter percentage. Additionally, growers have the option to enter up to two girdle dates.

The same information can be used to guide fruit thinning decisions to minimise certain fruit sizes and influence the quality and quantity of the final crop. It can't estimate dry matter for Gold3 due to the complexity of the taste-by-size relationship.

Zespri Orchard Gate Return Estimator (www.nzbackpocketgrower.co.nz/ogrcultivars.asp)

A web-based app that takes a grower's crop sample measurements and gives an estimated orchard gate return for three different harvest dates. This helps growers understand some of the financial implications of harvest timing, especially around taste-by-size for Gold3.

Agricom (www.agricom.co.nz/beet-guru)

A forecasting tool to more accurately predict the yield from a fodder beet crop. Includes a benchmarking tool against region and through time.

Vintrace (www.winery-software.com)

At its core, provides daily work-order management, traceability through the supply chain and monitors compliance requirements. There is additional enterprise planning functionality for larger wine producers too. All operations from fruit intake, crush, blending, through to bottling can be scheduled. Freight and shipping can be reserved during this process, allowing the winemaker to quickly see available tank space at any given point in time. Cellar notes can be compiled using a mobile device and a work schedule is created and then completed. Once scheduled tasks have been completed the winemaker has instant access to history and blend information on the wine. Overall it allows winemakers to track the secrets behind their best vintages, learn what works and improve efficiencies throughout their business.

Vinsight (www.vinsight.net)

A manufacturing and sales/inventory app focused on traceability, verification, compliance and management functions for wineries and other beverage producers. Includes day-to-day operational tools, such as daily work schedule, chemical analysis recording, sales/purchasing management (blend tracking, sales reporting, warehouse/inventory management), and

gross margin tracking through sales performance and internal costing data. Combined the management reporting and planning tools functions help support decision making.

Vinwizard (www.vinwizard.us)

Integrates software and hardware to manage wine ferments. System allows vintners to specify and enforce precise conditions for fermentation, maintain detailed records of inputs and outputs for subsequent analysis and demonstrate label integrity. Efficiencies result from minimising winery running costs through monitoring and control of plant and machinery such as temperature, plant, pumpover, stirrer/agitator, ganimede and press.

AKVA Group (akvagroup.com)

Has a range of software tools for managing seafood/aquaculture operations. Fishtalk control provides a complete overview of the biological status of production. It keeps track of all management activities from unit and farm level through to office.

Fishtalk plan provides optimal production plans according to production and market strategies. This gives a business a unique basis for making qualified operational decisions based on various scenarios for a specific species being farmed.

Fishtalk finance enables simulation of the financial effects of the planned activities. This provides in-depth information according to the biological plans, budgets and forecasts – all based on a set of different scenarios.

iControl integrates equipment, sensors and technical installations with software to control all aspects of production and management.

PLANNING/RECORDING

Planning and recording of activities in many businesses has become more important for two main reasons.

Firstly, compliance requirements, both market and regulator-driven, have increased, meaning there is a need for more advanced record-keeping to track and monitor these.

Secondly, many businesses have become larger, often with multiple properties and more staff than the traditional owner-operator model.

This has added more complexity and increased management requirements. **Ownership structures have also changed** with the addition of external shareholders who want to be kept informed too. This includes family members who don't directly work in the business.

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AgRecord (<http://agrecord.co.nz>)

Allows farmers to collect, store and share their day-to-day and operational information in one central place. This information can be shared with stakeholders, management and staff. It is designed to mimic the way farmers have traditionally managed their information. Data can be collected offline with the ability to take a photograph and then load it against an entry (i.e. job list or a hazard). Sheep and beef farmers are the main users, but dairy, mixed cropping and agricultural contractors are also using it.

The main areas of focus are general records (stock treatments, livestock movements, chemical applications and paddock information); planning (diary, calendar, weekly planner, farm notices); human resources (time sheets, forms, recording leave); health & safety records; and information storage (farm maps, key phone numbers, copies of meeting notes etc).

iCloud shared calendar (www.icloud.com)

A simple calendar that can be used to record all farm events, activities and tasks for the week, month and year. It syncs with multiple apple devices to form a staff planner for different tasks/activities.

Agrismart (www.agrismart.co.nz)

Its main functions relate to the recording and monitoring of information on dairy farms related to health and safety (identifying and recording risks, emergency plan, notification of incidents, management of tasks arising from risks and incidents etc); staff and general farm tasks; and time management of staff (allocation of tasks, roster builder, timesheets to monitor hours).

It acts as a central information registry for these functions over multiple farms and individuals involved in day-to-day activities. They are currently developing a simple payroll function for release in June, whilst looking to integrate with a third party for full payroll capability. Future developments include looking to incorporate budgeting and cashflow tools, broadening functionality.

Job Done (www.jobdone.nz)

Its main functions relate to the recording and tracking of day-to-day and operational information for employees (specific tasks and health & safety) in one central place. This information can be shared between management, staff and contractors/visitors. Initially designed for dairy farmers, but work is underway to make templates etc specific to other primary sector groups (i.e. drystock, horticulture, aquaculture etc).

The main areas of focus are job planning and scheduling (diary, calendar, work planner, task allocation to specific staff); communication (notices); human resources (time sheets, activity management), and health & safety (hazard/incident identification & management, on-job safety procedure reminders, emergency procedures, contractor/visitor induction and management etc).

Agworld (www.agworld.nz)

Its main functions relate to farm mapping and scheduling/recording of agronomic, financial and compliance information/data for specific paddocks or blocks. This includes crop plans and seasonal budgets for each.

Ravensdown Maps (www.ravensdown.co.nz/services/my-ravensdown/smart-maps)

Records farm information by paddock, block or management zone. Information recorded can include things such as fertiliser applications, spraying, pasture measurements and soil tests.

Agri Maps (www.agrimap.com)

Its main functions are related to the recording, documentation and reporting of all general information for a business. It is based around an interactive farm map and can be used to manage health and safety requirements, as well as task and time management.

AMS Platform (www.ams.io)

Effectively a do-it-yourself software platform that can be customised to capture and transfer information through mobile devices as required. Can be customised so employees can collect a range of information on mobile devices, such as stock movements, animal health treatments, timesheets that can be transferred to a computer, or other software applications. This allows the two-way sharing of customised information such as listed above, or diaries, work planners etc between different employees and shareholders.

HALO Farm Systems (www.halofarm.co.nz)

Combines hardware and software to monitor water, milk, effluent and weather information. Specifically monitors milk vat temperature, vat volume, primary cooler and chiller performance, hot wash temperature, refrigeration status, inlet and outlet valve position. For effluent, can monitor storage pond level, application amounts, pump and stirrer status. For water, can monitor and control water level and flows at specific points in a system.

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Pure farming (www.purefarming.com)

Captures a range of livestock (individual and mob) information from a farm's electronic devices. This includes livestock movements and treatments for traceability and farm assurance; recording of weights that provides mob data analysis and calculations building a visualization of weight gain over time; condition score and pregnancy scans for individual animals; and full NAIT integration, avoiding double-entry of data for cattle and deer.

Asset.guru (<http://asset.guru/>)

An asset management system that can be used to track a range of information on key assets, such as valuation reviews, user manuals, receipts, warranties, asset photos, invoices, maintenance guides, safety certificates and compliance documents.

REGULATORY/COMPLIANCE

While this category has some overlap with all the other sections, and many of the apps already covered have some regulatory angle, this section focuses on those apps more specifically targeted at addressing particular regulatory tasks/issues.

The benefits of these apps are fairly obvious, such as reducing costs (direct, fines and management time) with meeting regulatory and compliance requirements and avoiding any potential risks (business, legal etc) associated with not fulfilling these obligations.

Safely (www.safely.nz)

Used to monitor, report and manage a range of health and safety risks. Specifically records and monitors meeting details; company information and key documents (insurance details, consents, permits, staff details etc); hazards and their management requirements; incidents that occur and their investigation, as well as future mitigation strategies; staff training requirements; and equipment maintenance and quarantine obligations.

Onside (www.onside.co.nz)

Used to monitor, report and manage a range of health and safety risks on farms and orchards. Specifically records and monitors hazards and their management requirements; incidents that occur; movements of staff, contractors and other service providers; and an emergency plan, procedures and contacts. Includes a mapping function of business to identify and manage specific health and safety risks. All staff can use and update information in real time.

Zero harm farm (www.zeroharmfarm.com)

Focused on all aspects of health and safety on farms. Key features include the ability of farmers to induct visitors or contractors, notify them of potential known dangers and sign them in to bring them up to speed of any current hazards; hazard mapping with interface for Google map directions and user location; templated Hazard Register solutions which are fully editable and WorkSafe process-aligned for risk assessment; auto farm-focused Health and Safety Policy creator; hazardous substance register; full training records for staff with auto training material provided; ability for any staff or contractor to notify farm manager(s) of a new hazard or issue; and incident reporting. Much of the set up and operation is fully automated through dashboard wizards, direct data entry from third parties and industry-specific templated solutions, which guide the unfamiliar and time poor through all aspects of the new Health and Safety at Work Act 2015.

Overseer (www.overseer.org.nz)

OVERSEER is an agricultural management tool that assists farmers and their advisers to examine nutrient use and movements within a farm to optimise production and environmental outcomes. The computer model calculates and estimates the nutrient flows in a productive farming system and identifies risk for environmental impacts through nutrient loss, including run-off and leaching, and greenhouse gas emissions.

NCheck (www.canterburywater.farm/gmp/ncheck)

NCheck has been approved for regulatory use in the Selwyn Te Waihora catchment. An easy and simple way to determine a property's nitrogen losses, and to work out if a consent is required to operate. It can help farmers establish if their nitrogen losses are over 15kg/ha/year and a consent to farm is required. It is particularly useful for arable/horticulture farms as OVERSEER is currently difficult to use for such operations. It draws on less farm information than a full OVERSEER budget. It is not suitable for situations where different land use or mitigation options need to be explored to look at abatement options.

Employment contracts (www.employment.govt.nz/starting-employment/employment-agreements/employment-agreement-builder)

The employment agreement builder helps pull together a draft employment agreement for employees. It covers all the key areas and clauses such as duties, type of employment, hours of work, payment of wages, public holidays, leave entitlements, redundancy and a range of other aspects that any standard employment agreement should include. Perhaps not quite an app per se, but a useful online tool all the same.

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Animal Data Transfer (<https://am.gallagher.com/nz/products/farm-information-tools/Z00003>)

Sends animal information from an electronic identification reader to a mobile device or computer, which can then be sent to NAIT via its exchange software.

Seespray (www.seespray.co.nz)

Spray notification and spray management software. It automatically advises neighbours on orchard boundaries by text, email or phone call of a grower's spraying activity that is near them, based on its job log. Provides a record of spray activity.

SUPPLY CHAIN PARTNERS

A range of businesses have specific apps to transfer information to and from suppliers, as well as conduct transactions. Many of them allow for the seamless transfer of digital information (eg. transactional data, audit information and general news) between parties. This increases transparency, replaces paper-based information, and improves the speed of information transfer.

The next step for many of the enterprise management, recording and compliance apps is the integration of this information with other supply chain partners, such as processors, distributors, retailers etc to offer consumers verification and traceability of a product's quality, safety and social responsibility standards.

StockX (<http://yes.stockx.co.nz/>)

An online platform setup to specifically buy and sell livestock. Livestock are listed with automated alerts sent to interested buyers. Buyers then place bids. Once accepted, StockX facilitates the payment between the parties and the buyer usually organises transport. StockX manages any disputes that arise from a transaction.

Farm Alliance (www.alliance.co.nz)

Livestock producers that supply Alliance Group can see real time livestock-processing results; access their latest detailed processing information for the last six months; keeps a record of annual processing information; make booking requests; check statistics and schedules; and receive industry updates. Further features are reportedly on the way too.

FlockFinder (<http://portal.beeflambnz.com/tools/FlockFinder>)

Finds information on sheep breeders who are recording animal performance and conducting genetic evaluations using the SIL genetic engine. Can search for ram breeding flocks on the basis of

breed, geographical location, flock name, SIL flock number, owner name, stud prefix, DNA parentage or on traits being recorded. Developed by Beef & Lamb NZ Genetics.

Packhouse apps

Some packhouses have specific apps available to their supplying growers & staff only. These allow growers to track their crop through the processing and storage stage of the supply chain. A grower can get real-time information on the processing of their crop such as fruit loss, size, Zespri taste grade etc. This real-time information feed has been developed as some growers still request to be at the packhouse to watch their crop go through the sorting machine and be packed.

Farmlands

(www.farmlands.co.nz/Contactus/Farmlands-App)

Allows users to receive latest news from Farmlands including promotions, events and product updates; weather forecasts; find Farmlands stores and business units throughout the country; locate card partner information nationwide including rebates, discounts and directions on how to get there; request quotes directly from card partners and Farmlands stores; and ask questions about a Farmlands account, products or communicate with card partners.

Open Country Dairy (www.opencountry.co.nz)

Dairy farmers supplying Open Country Dairy can access milk production data, milk quality information and receive company information/notifications.

Ballance with Hill laboratories

Ballance nutrient specialists via a mobile phone app can request and submit all relevant information for soil and herbage tests from Hill laboratories. These tests can then be GPS mapped against a farmer's property/paddocks where they can be compared over time, essentially digitising the soil and herbage testing process from its original paper-based method.

Zespri Crisis Management (<https://itunes.apple.com/nz/app/product-compatibility-app>)

Easy access to Crisis Management documents and key contact details during an emergency. It also allows for "push" notifications to be sent out to key people in the event of a crisis, with the ability to track responses.

Hoofprint (www.abacusbio.com)

Collects a broad range of performance indicators from farmers and processors in order to calculate the efficiency of livestock performance, predict methane and nitrous oxide emissions from livestock,

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fertiliser and energy, and measure sequestration through forestry. Endorsed by global retailers Marks & Spencer, J Sainsbury and Metro.

EVERYDAY AND OTHER

Depending on one's interests, there are a range of everyday apps that are in use. These can take on the form of entertainment or personal interest through to conducting day-to-day life admin. Some that are more applicable to the primary sector are:

Rural weather apps

(<http://about.metservice.com/our-company/ways-to-get-the-weather/weather-on-your-mobile/smartphone-apps%20&%20www.irrimet.niwa.co.nz>)

The weather plays a big part in all primary sectors. Many use the Metservice, or other weather apps to monitor day-to-day developments. More often than not other technology is now being incorporated with weather information to forecast production implications and required management adjustments (eg. timing of chemical and fertiliser applications, irrigation management, pasture production, harvest timing etc).

Banking apps

(www.anz.co.nz/personal/ways-bank/gomoney)

Easy and simple way to manage banking facilities and payments with various supply chain partners.

Price discovery apps i.e. Fuel Watch, Trademe, Store specific etc

There are a range of apps that have improved the time and ease of comparing the prices and service propositions of different products and services. These help businesses, especially owner-operators, achieve the best value for money when using various products and services. Examples include: Fuel Watch, Trademe, Store specific (i.e. Your Warehouse), Price Me, Price Spy etc.

Farmboss (<http://www.onefarm.ac.nz/resources/toolbox/farmboss>)

Its main functions are a range of 22 calculators that cover different facets of farm management such as feed budgeting, stock performance, equipment use and other general information.

Weed ID (www.agriculture.basf.com/gb/en/Crop-Protection.html)

While not New Zealand specific, it's an interesting concept of an online encyclopedia of UK broad and grass-weeds. The main functions include an extensive weed library (140+ species and 1000+ images); full

description of each weed species at cotyledon, young plant and mature plant growth stages supported by accompanying pictures aiding identification; detailed grass-weed line drawings to highlight distinguishing features; and a mapping tool to help pinpoint location of weeds and size of patch.

Disease ID (www.agriculture.basf.com/gb/en/Crop-Protection.html)

Similar to the Weed ID, but identifies common diseases for UK cereal production. It allows users to have immediate access to information about common diseases of cereal crops, enabling in-field identification and understanding of the pathogens. Includes photographs of diseases, typical symptoms, disease life cycle and importance of the disease.

Shear Pace (www.shearpace.com)

Records information related to a shearer's tally and average pace throughout the day.

General and Industry news – wide range

There are a wide range of general and industry news apps to keep producers up-to-date on industry and global developments. Industry or company specific apps include the likes of Zespri Kiwiflier and Fencepost, as examples.

THE BOTTOM LINE

That's a non-exhaustive list, but offers plenty of food for thought on the various software tools available to make a specific management function more efficient. The key message is that a technology tsunami is upon the primary sectors. Farmers and growers need to embrace the changes these new technologies bring as they are all aimed at increasing the bottom line and perhaps just as importantly, improving the ease of doing business.

Adoption of a new piece of technology into a business can sometimes involve a leap of faith for the non-tech savvy. But this adoption burden can often be eased through upfront research of the various apps followed by a free trial. This doesn't mean full commitment and can allow ease of use, fit for business, functionality, intuitiveness, cost/benefit all to be assessed in a 'feeling out' period. So we would encourage farmers and growers to pick out at least one or two of these apps and give them a go. **The rate of change and functionality of the various apps looks set to only expand over coming years. This means the mastering of the use of such technology within a business will be a key part of success in the future.**

KEY TABLES AND FORECASTS

FX RATES	ACTUAL			FORECAST (END MONTH)						
	Apr-17	May-17	13-Jun	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18
NZD/USD	0.687	0.712	0.720	0.70	0.69	0.68	0.68	0.68	0.67	0.67
NZD/AUD	0.917	0.954	0.955	0.92	0.93	0.94	0.94	0.93	0.91	0.89
NZD/EUR	0.630	0.635	0.643	0.63	0.60	0.60	0.62	0.63	0.63	0.63
NZD/JPY	76.55	78.83	79.13	76.3	75.9	76.2	78.2	78.2	77.1	77.1
NZD/GBP	0.530	0.554	0.569	0.54	0.52	0.54	0.54	0.55	0.54	0.54
NZ TWI	73.3	75.4	77.7	73.6	72.5	72.4	73.5	73.7	72.6	72.3

INTEREST RATES	ACTUAL			FORECAST (END MONTH)						
	Apr-17	May-17	13-Jun	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18
NZ OCR	1.75	1.75	1.75	1.75	1.75	1.75	1.75	2.00	2.25	2.25
NZ 90 day bill	1.98	1.97	1.93	2.00	2.00	2.00	2.10	2.30	2.50	2.50
NZ 10-yr bond	3.04	2.78	2.78	3.30	3.50	3.70	3.70	3.90	3.90	4.00
US Fed Funds	1.00	1.00	1.00	1.25	1.50	1.50	1.50	1.75	2.00	2.25
US 3-mth	1.17	1.20	1.24	1.20	1.45	1.70	1.70	1.95	2.20	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	1.75	1.74	1.73	1.70	1.70	1.70	1.70	1.70	1.70	1.70

ECONOMIC INDICATORS	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
GDP (% q/q)	0.4	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.6
GDP (% y/y)	2.7	2.8	2.8	2.7	2.9	2.7	2.4	2.2	2.1	2.1
CPI (% q/q)	0.4	1.0	0.3	0.6	0.1	0.7	0.5	0.6	0.2	0.7
CPI (% y/y)	1.3	2.2	2.0	2.2	2.0	1.7	2.0	2.1	2.2	2.2
Employment (% q/q)	0.7	1.2	0.6	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Employment (% y/y)	5.8	5.7	3.9	2.9	2.5	1.8	1.6	1.5	1.4	1.3
Unemployment Rate (% sa)	5.2	4.9	4.8	4.7	4.7	4.6	4.5	4.4	4.4	4.3
Current Account (% GDP)	-2.7	-2.6	-2.6	-2.4	-2.4	-2.5	-2.7	-2.9	-3.0	-3.1
Terms of Trade (% q/q)	5.7	5.1	-0.2	-1.0	-1.1	-0.4	0.3	0.1	0.2	0.1
Terms of Trade (% y/y)	6.7	7.7	9.7	9.9	2.8	-2.7	-2.2	-1.1	0.1	0.6

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

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