



Fortnightly Agri Update

21 March 2018



Plenty at steak

There has been growing awareness of the rise of synthetic and alternative proteins in recent years. As a traditional agricultural exporter, dominated by dairy and meat production, New Zealand's agricultural sector can't be complacent about these developments. The sector will not only need to both keep up to speed with changes that are taking place, but also be front footed in responding to both the threats and opportunities these developments create. A recent Beef and Lamb NZ report delves into the issues.

Recently Beef and Lamb NZ released its report "Future of Meat – How should New Zealand's red meat sector respond to alternative protein advancements?". It's the organisations chance to add a 'New Zealand' angle to the growing conversation around alternatives to meat consumption. In particular, it attempts to identify the threats and opportunities for New Zealand's red meat sector amongst increasing acceptance of alternative and synthetic protein products. Or, as strategically branded in some quarters, "clean meat".

Synthetic meat itself is not a new concept. Churchill was prophesising about the prospect of escaping "the absurdity of growing a whole chicken in order to eat the breast or wing" as far back as 1931. In fact, we're running well behind the timeline he envisioned. Churchill imagined we would be "growing these parts separately under a suitable medium" by the 1980s. Yet it wasn't until 2013 that the world's first lab grown beef pattie was unveiled.

Cultured meat is only one (arguably the most hyped and least developed) type of alternative protein. At the most mature end of the spectrum are plant-based alternatives attempting to replicate traditional products. An example is the myriad of alternatives available to cow's milk at any local supermarket, vegan sausages or nut based vegan cheese. These types of products are amongst the most well-developed meat alternatives, often produced with familiar ingredients. They have been around for some time and are increasingly popular in places like the US and Europe.

A second type of alternative proteins are those used as an ingredient, often in more traditional products. Algae supplements or cricket powder added to your smoothies might raise the odd eyebrow, but more common plants are also being widely used to add protein to products. Peas or soybeans are popular choices. This market has also grown in recent years, maturing from a focus on protein bars for athletes to more general consumer products.

But it has been lab-grown synthetic meat which has been grabbing media attention and, increasingly, investment dollars. For example Memphis Meat, a high profile food technology company aiming to produce sustainable cultured meat, has attracted investment from high profile backers such as Sir Richard Branson and Bill Gates, as well large US-based agricultural trading company Cargill Protein (previously more likely to be known as Cargill Meats – a name change that speaks for itself).

Unlike other alternative proteins, already widely available in commercial quantities and at competitive prices, we're not "there" yet when it comes to lab grown meats. There are still multiple hurdles to overcome before cultured meat is

an option in the weekly supermarket shop. Price is perhaps the most obvious one. Although it has fallen significantly, Memphis Meat's cost of production for cultured beef was reported to be around \$US 5280/Kg as of June 2017. Other challenges include consumer acceptance, creating a vegan product by using alternatives to stem (or stem like) cells as a protein source, reducing the energy required to produce synthetic meat to ensure its environmental credentials, regulatory acceptance and more generally improving the product (for example burger patties are far easier to replicate than choice beef cuts).

But while we might not be there yet, technological improvements and growing demand from consumer for alternative protein sources means the sector is certainly evolving rapidly.

Demand for synthetic meats is being fuelled by changing consumer preferences. The millennial generation in particular are at the forefront of changing diets and behaviours. The health benefits of consuming less meat and more plant based proteins are being widely recognised, and animal welfare concerns are garnering much more attention. In addition, global population growth, which is putting increasing pressure on productive resources such as land and water, along with environmental concerns are motivating greater government involvement in the sector. Add to the mix the significant investment which is funding the rapid technological progress, and few would doubt that change is a'coming.

How will the development of alternative proteins influence demand for NZ product?

It's not a matter of if, but when, the growing availability of alternative proteins starts to have significant implications for New Zealand's agriculture sector. Nailing down the size, scope and timing of the impact is much trickier. Beef and Lamb NZ's report suggests that it's probable that cellular burgers are 5-10 years away from larger scale production. Other developments are imminent.

So where to from here? The Beef and Lamb NZ report considers four alternative scenarios.

- Red meat is pushed to the side of the plate, becomes a rarely consumed niche product
- Red meat becomes an expensive specialty product
- Red meat is a reluctant choice for consumers (consumers wish they could 'do better' but alternatives aren't competitive)
- Red meat remains an everyday choice

Inevitably, the future won't fit nicely into one clearly defined box. It will contain some elements of all of these scenarios (and probably some others as well). And so the report highlights a number of potential responses by the meat industry (along with the issues associated with each). While there's no clear winner, the scenario where meat becomes an expensive specialty product will clearly have some appeal.

Undoubtedly New Zealand farmers will need to continue to get "smarter" with their operations. Most importantly, by advancing technology which reduces the environmental impact of their farms. They will need to be able to adapt to changes in consumer demand, tailoring their offerings and

helping shape how those preferences change. And they will also need to be able to differentiate their offering on the global stage, leveraging New Zealand's strong international reputation and trade relationships with strategic economies such as China. For New Zealand's red meat sector to remain viable, not only must consumers want to choose "real" meat. They must also want to choose real New Zealand meat.

None of this will be easy. Achieving success on a global scale may be helped by a coordinated response from the NZ red meat industry. Something that initiatives to date have struggled to elicit. But the sector doesn't have to look too far afield for examples of local successes. The development of A2 milk, or the success of Zespri Gold spring to mind. We will watch with interest how the sector tackles the challenges synthetic proteins will bring.

Anne Boniface

Senior Economist

GlobalDairyTrade Auction Results, 21 March 2018

	Change since last auction	Price index USD/Tonne
Anhydrous Milk Fat (AMF)	0.0%	6,249
Butter	0.0%	5,281
Butter Milk Power (BMP)	n.a.	n.a.
Cheddar	-3.9%	3,609
Lactose	n.a.	590
Rennet Casein	-2.9%	4,948
Skim Milk Powder (SMP)	-8.6%	1,887
Whole Milk Powder (WMP)	0.1%	3,226
GDT Price Index	-1.2%	1,036

Farmgate milk price forecasts

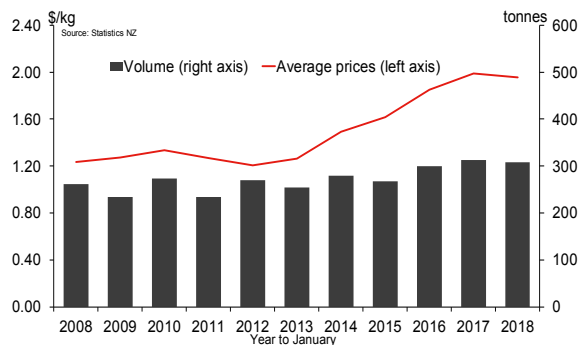
	2017/18		2018/19
	Westpac	Fonterra	Westpac
Milk Price	\$6.55	\$6.55	\$6.50

Beyond the farm gate

Apples

	Current price level compared to 10 year average	Next 6 months
Trend	High	→

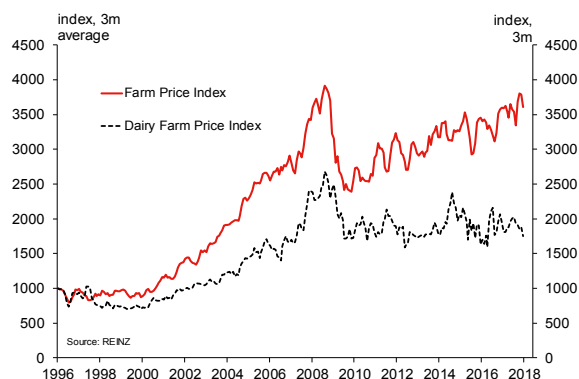
New Zealand apple growers are in a buoyant mood. Many are in the midst of their harvest period (which generally runs from mid-February to April depending on variety). Growing conditions have been very favourable. In addition, prices have been supported by the industry's continued shift away from traditional varieties, toward a much wider range of higher value varieties. New Zealand Apples and Pears reports that while Royal Gala and Braeburn apples accounted for almost 80% of New Zealand's exports in 2005, today no one variety accounts for more than 30%. Yet while the sector generally has a positive outlook, one challenge has been labour shortages on the back of New Zealand's tight labour market. An official seasonal labour shortage was declared in the Hawke's Bay, clearing the way for visitors to New Zealand to apply for a variation to their visa allowing them to undertake seasonal work in the horticulture industry.



Farm prices

	Current price level compared to 10 year average	Next 6 months
Trend	Average	↘

Farm prices eased in February. Most notably REINZ's dairy farm price index (which attempts to adjust for the composition of farm sales) is now almost 10% below levels of a year ago. While farmgate dairy prices have been relatively robust, we have been expecting farm prices to come under pressure as farmers face up to the increasing cost of environmental regulations and foreign buyer restrictions bite. The overall farm price index rose 0.2% in the 3 months to February compared to the year before.

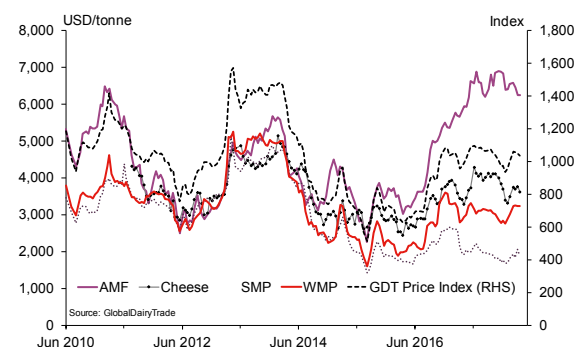


Dairy

	Current price level compared to 10 year average	Next 6 months
Trend	Average	↘

Fonterra has revised up its farmgate milk price forecast today to \$6.55 with the release of its interim results (previously \$6.40). It has also issued dividend guidance of 25-35 cents per share. This change brings Fonterra's outlook in line with our own forecast (which has been for a milk price of \$6.50). At this point in the season, with the bulk of product sold, the difference in forecast is immaterial, and we have formally shifted to a \$6.55 forecast.

Dairy prices continued to ease in last night's GlobalDairyTrade auction. Prices fell for most products on offer, with the aggregate price index declining 1.2%. Within this, the biggest move was for skim milk powder prices. These fell 8.6%, not quite reversing the spike observed in the previous auction. (The previous auction's headline lift in SMP prices was driven by an unusually large increase in UHT SMP prices. GlobalDairyTrade subsequently investigated this move and it was found to reflect genuine strong demand for the product. Prices for UHT SMP returned to February levels in last night's auction). SMP prices have been under pressure more generally due to the large European stockpiles of product which have built up in recent years as EU authorities have sought to insulate European farmers from the impact of weak dairy prices. There are currently almost 380,000 tonnes of SMP in storage.



Whole milk powder prices were broadly flat in last night's auction. Looking ahead, we expect dairy prices to continue to ease gradually in the coming months as global supply continues to expand at a relatively steady pace and demand is expected to remain relatively robust. A weaker NZ dollar should also boost local prices and while it is early days yet, we're forecasting a \$6.50 milk price for the 2018/19 season.

Note: Trend arrows indicate direction of change in world prices.

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