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Report Name: New Zealand Grain and Feed Market Situation

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Report Highlights:

Total grain and feed (including oilseed meal) consumption in New Zealand is currently estimated at 5.8 million metric tons (MMT) for marketing year (MY) 2020, up nearly one percent over MY2019. Total consumption for MY 2021 is forecast at 5.6 MMT, down three percent with reduced dairy sector demand because of better pasture supplies. Due to New Zealand's limited land for growing grains and oilseeds, approximately 60 percent of the total grain and feed supply is imported, with the other 40 percent produced domestically. A number of factors are resulting in a changing mix of imported feeds.

New Zealand Grain and Feed Market Situation

Summary

Total grain and feed (including oilseed meal) consumption in New Zealand is currently estimated at 5.8 million metric tons (MMT) for marketing year (MY) 2020, up nearly one percent over MY2019. For MY2021 total consumption is forecast at 5.6 MMT, down three percent as a result of reduced dairy sector demand for feed because of better pasture supplies. Due to New Zealand's limited land for growing grains and oilseeds, approximately 60 percent of the total grain and feed supply is imported, with the other 40 percent produced domestically. The dairy sector continues to account for nearly 75 percent of grain and feed consumption. A number of factors are impacting this sector, some of which are also presenting opportunities for a changing mix of imported feeds.

(**Note**: the marketing year is October to September.)

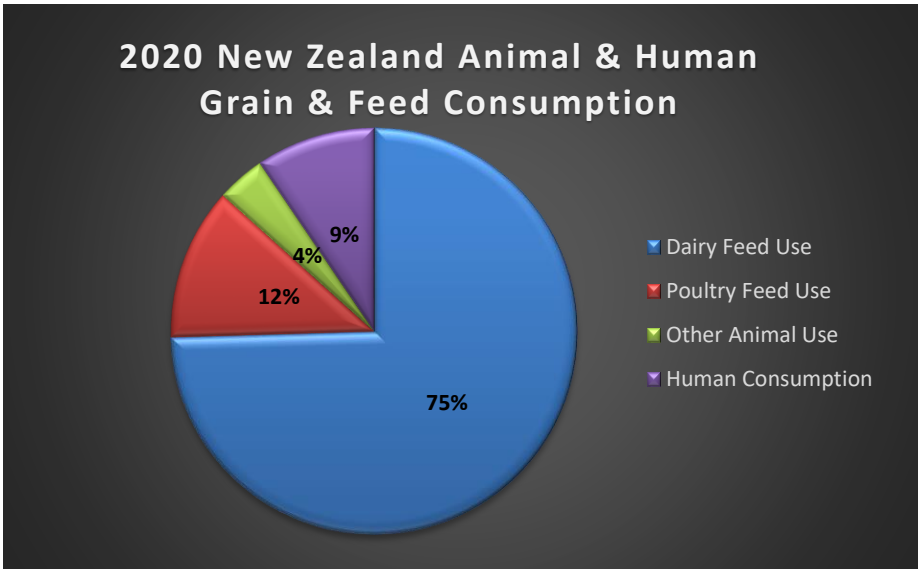
Situation in MY2020

Domestic production of grain and feed in New Zealand during MY2020 amounted to 2.28 MMT, up nearly two percent on 2019. Wheat production was the prime mover, up 21 percent, due to a record average yield of 10.9 MT/hectare - nearly 15 percent better than the five-year average. This high wheat yield is a culmination of gradual plant genetic advancement, continued improvements to management techniques, as well as an ideal growing season in the main growing region of Canterbury in the South Island.

Total imports of feed and grain totaled 3.49 MMT, which increased only slightly from 2019 despite the severe drought in the North Island from January to May 2020.

Total grain and feed (including oilseed meal) consumption in New Zealand is estimated for MY2020 at approximately 5.77 million metric tons (MMT). This volume is essentially the same as the estimated consumption for 2019. Grain and feed consumption had shown strong growth over the last two decades, rising from around 3 MMT in the early 2000s to 4.6 MMT in MY2013, and peaking at 5.9 MMT in MY2018. Increasing animal feed consumption had been the major driver of the growth, principally from the dairy sector, which accounts for the bulk of grain and feed consumption. Since MY2018, however, consumption growth has stagnated as expansion of the dairy sector came to an end. (**Note:** This analysis includes all domestically produced grains; imported grains, feeds, and oilseed meal; and domestically produced corn silage, but does not include pasture or pasture silage or hay.)

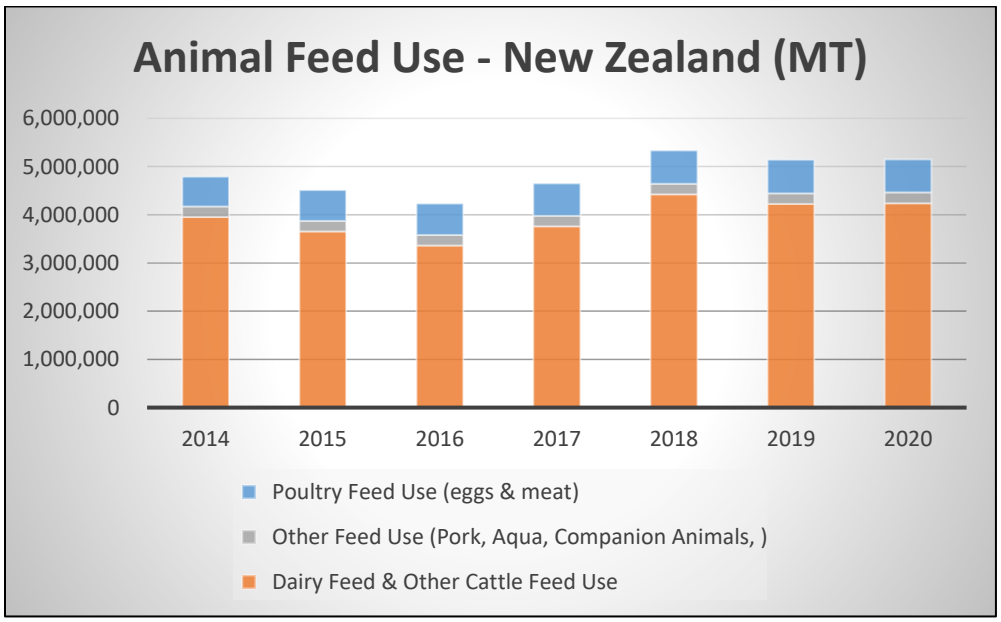
Due to New Zealand's limited land for growing grains and oilseeds, approximately 60 percent of the total grain and feed supply is imported, with the other 40 percent produced domestically.



Source: Industry Sources & FAS/Wellington estimates

Dairy Sector

The dairy sector dominates New Zealand agriculture, and accounts for 75 percent of grain and feed consumption. In general, the diet of most cows on non-irrigated pasture (75-80 percent of total dairy area in New Zealand) would have 20 to 25 percent of the total in some form of supplement to pasture, including grain, corn or pasture silage, hay, forage crop, or vegetable/fruit waste. Approximately 50-60 percent of the supplementary feed purchased onto farms is imported.



Source: Industry Sources & FAS/Wellington estimates

The New Zealand milk supply grew around 4.8 percent per annum from 1990 to 2014. However, this supply growth has to some extent stalled, recording less than 1 percent annual growth between 2014 and

2020. Initially this was due to low milk prices (2015, 2016), but even as prices have risen, looming environmental regulations have caused considerable uncertainty in the sector.

The drought which covered much of New Zealand during January to May 2020 was particularly severe in the North Island. As the dry period dragged on it was expected that demand for imported feed would increase significantly. However imported grain and feed volumes were only up 36,000 MT (1 percent). For example, Palm Kernel Extract (PKE) is the dominant dairy supplementary feed, but PKE imports for MY2020 were only 6,000MT (0.35 percent) above MY2019 at 1.813 MMT.

The reason imports did not increase more was because dairy farmers began January 2020 with high pasture volumes and high levels of conserved feed. Essentially this extra on-farm pasture and conserved feed was almost all used up during the fall period (February to May 2020) rather than being stored for winter utilization (June to August). Despite farmers having to go into winter with less stored feed, weather over the winter was very mild and conducive for high pasture growth, which significantly reduced the volume of imported feed that was needed.

Although feed imports were somewhat subdued during these periods, they did bounce back in the spring (October to December), with distillers dried grains (DDGs) imports up 42 percent compared with the prior comparative period in 2019. PKE imports were also up 22 percent for the same period compared with 2019.

Poultry Sector (meat and eggs)

There had been consistent growth in feed consumption in the poultry sector between MY2013 and MY2019, amounting to approximately three percent growth annually. However, during MY2020 chicken meat production fell as result of the ceasing of exports to Australia in 2019 because of an Infectious Bursal Disease (IBD) outbreak at an egg production facility. Additionally, during 2020 the response to COVID-19 impacted the quick-service restaurant sector and food service, reducing chicken demand. Feed use by the poultry sector (including both egg and chicken meat production), peaked in MY2019 at approximately 700,000 MT, but FAS/Wellington estimates feed use in MY2020 fell slightly to around 690,000 MT.

The poultry sector uses approximately 12 percent of the total grain and feed consumption. It is very dependent on imported feed, accounting for 70-80 percent of its needs. The feed mills servicing the sector are mostly located close to the main ports. At the moment imported feed is sourced from several origins: wheat from Australia, corn from Eastern Europe and the United States; and soybean meal mainly from Argentina.

Other Animal Feed

Other animal feed use - which includes pig production, aquaculture, horses, sheep, and companion animals - is estimated to comprise four percent of total grain and feed consumption. The total volume is thought to be stable, although consumption by the pig industry is decreasing as production and pig

numbers track downward. However, this is offset by growth in demand by other animals in this category. Despite New Zealand having a very large sheep herd, only a small amount of grain is used in this sector.

Domestic Human Consumption

Human consumption of grain and pulses in New Zealand has been growing slowly at approximately two percent annually since 2013. The provisional estimate for MY2020 is 539,000 MT and accounts for nine percent of total consumption of grain and feed. Nearly all the wheat imported for human consumption originates in Australia. Rice imports, up nearly 16 percent in MY2020, also primarily come from Australia and Asia (although U.S. rice maintained its market share at eight percent of the total). In New Zealand there is an effort to try and source more of the milling wheat demand domestically. In fact, one of the two large supermarket chains is now using only flour made with New Zealand wheat in its in-store bakeries. In addition, Goodman-Fielder the largest bread maker is sourcing a greater proportion of the flour it needs from milled domestic wheat.

Looking Ahead – The Year 2021 and Further Out

MY2021

Grain and feed domestic production is forecast at 2.1 MMT for MY2021, nearly nine percent down on MY2020. This is based on the initial arable sector survey, which suggests an overall planted acreage reduction of five percent on MY2020 - driven mainly by farmers indicating a 7.5 percent corn area reduction. For the forecast, FAS/Wellington is assuming yields based on five-year averages.

Imports of feed and grain are forecast at 3.5 MMT, essentially the same as MY2020. While there could be some substitution of additional imported wheat to make up for an anticipated reduced domestic supply of milling wheat, this is likely to be a relatively small amount.

The dairy sector demand for supplemental feed is unlikely to be any greater than MY2020 and is actually forecast down around five percent because of ample pasture supplies. Dairy farms over New Zealand have started the second half of the current production season, January to May 2021, with high pasture levels and plenty of conserved feed on farm. But what is different to a year ago is that there was plentiful rain during December 2020 and early January 2021 and soil moisture levels were relatively high, guaranteeing good pasture growth at least through the end of January.

With regard the poultry sector, it is expected that exports to Australia will recommence around mid-2021, but volumes are initially likely to be small. Poultry meat domestic consumption is likely to continue to recover during 2021, as the restrictions imposed by the COVID-19 response are lifted. Feed demand is expected to be similar to 2020.

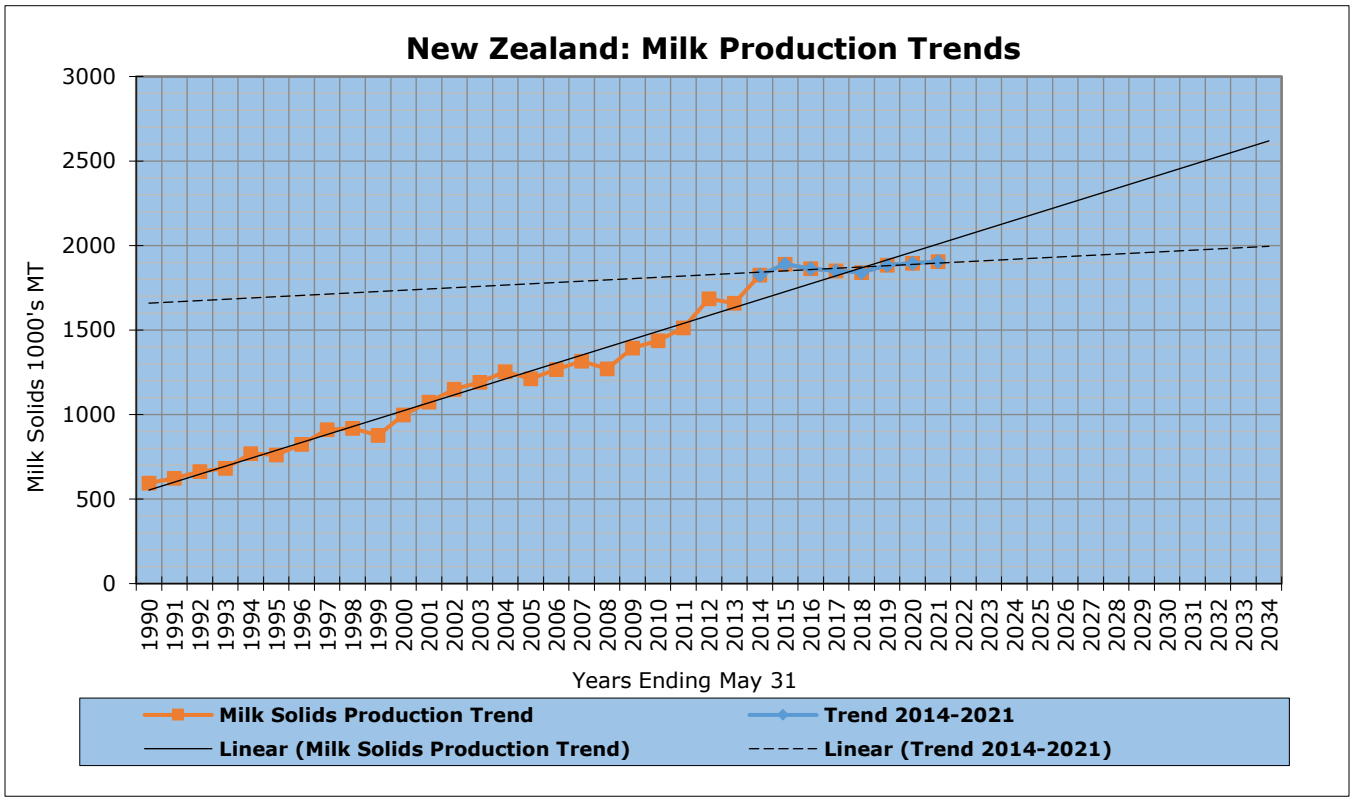
Because of reduced animal feed demand for MY2021, overall grain and feed consumption is forecast down three percent to 5.58 MMT. Human consumption is expected to continue on its gradual upward trend of nearly two percent growth per annum and is forecast at 548,000 MT.

2022 and Beyond

The fact that dairy consumes close to 75 percent of the total feed and grain consumption in New Zealand means that any material changes to demand from the dairy industry will have significant impacts on the entire grain and feed situation in New Zealand.

Dairy Sector: Key Factors Impacting Production and Consequently Feed Demand

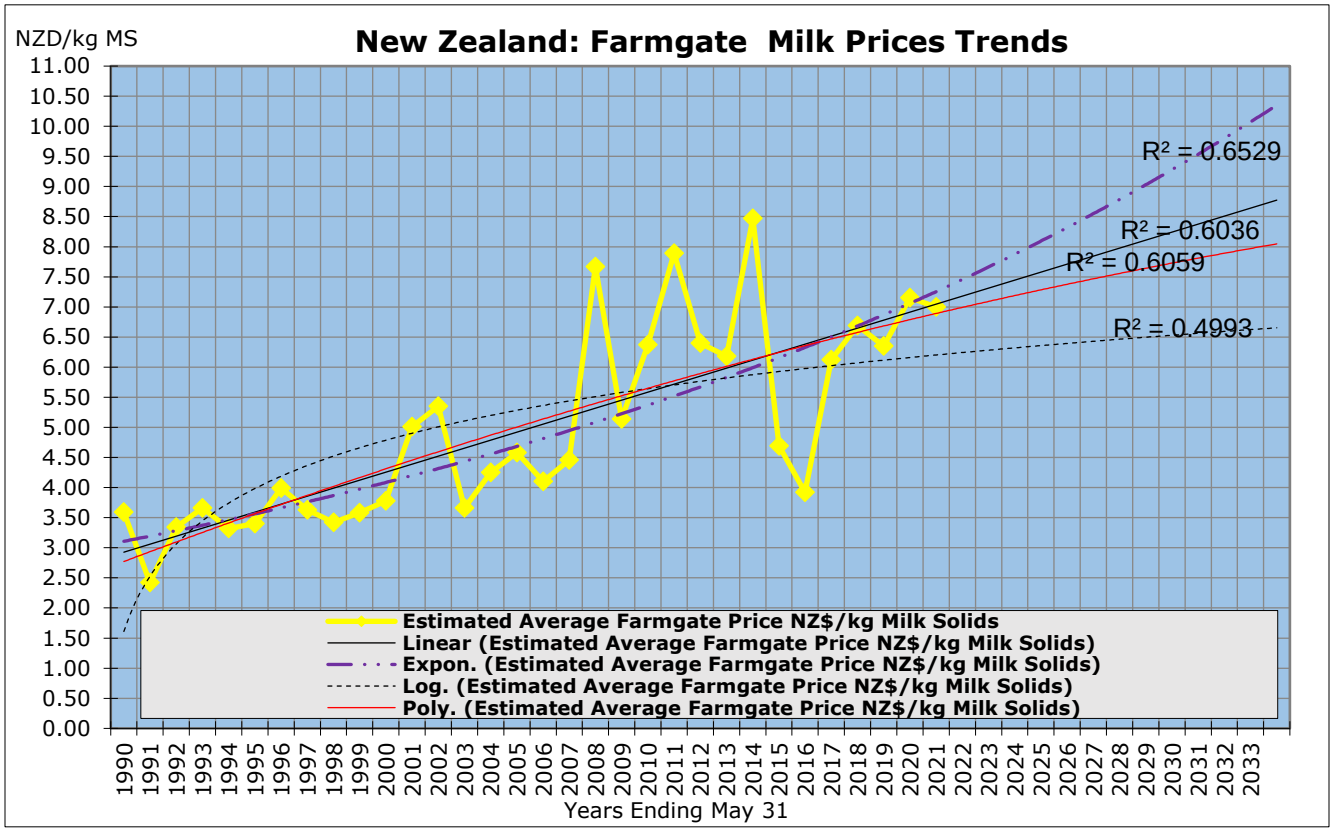
The growth of dairy production slowed considerably in recent years, increasing at below 1 percent (0.64) annually over the last six years. Although it is likely that New Zealand has already reached its peak in dairy cow numbers, and cow numbers may even decrease slightly during the next five years, milk production is expected to continue to slowly expand due to higher efficiency. Milk production is expected to continue to expand at around 0.5 percent annually.



Source: DCANZ

This level of production growth is supported by current milk prices being well in excess of breakeven and interest rates being at historical lows. Despite the enormous fluctuations in milk prices between years, the overall trend is upward and it appears this will continue.

The major obstacle to further growth in production is expected to be environmental regulations. Although greenhouse gas emission regulations are not expected to have much effect until 2025, there is now some certainty regarding freshwater regulations.



Source: NZ dairy companies, FAS/Wellington

The following freshwater package of regulations are now in place or will come into force over the next two to three years:

- Land use change: Essentially there are now bans on farmers converting areas greater than 10 hectares from sheep/beef to dairy or from forestry to pasture based grazing use unless a conditional consent can be obtained. This may be relaxed in 2025.

- Winter grazing on fodder crops: From 2021 use of winter forage crops will be regulated. This will tend to limit the extent of the practice and may lead to some farmers investing in wintering barns where the liquid and solid manure can be contained and the feed is brought to the animals. As long as any manure can be stored until soil conditions are reasonably dry it can then be spread on the pasture area.

- Feedlots and feed pads: Essentially feedlots/pad used for more than 80 days consecutively that cannot contain the liquid and solid manure will be banned. Again, this may encourage farmers to construct barns where they can contain the manure or perhaps look to grazing their cows off-farm during the winter.

- Nitrogen fertilizer cap: From 2021 farms will be restricted to using a maximum of 190 kilograms of nitrogen per hectare. This may be relaxed in 2024. This will have an effect especially on the

irrigated farms in the South Island where many have been using volumes of nitrogen in excess of the limit. However, there are a number of innovative solutions which can be instituted to maintain pasture production at pre-ban levels. Additionally, some farms may find it is more cost effective to feed cows some grain/compound feed during milking to make up lost pasture production.

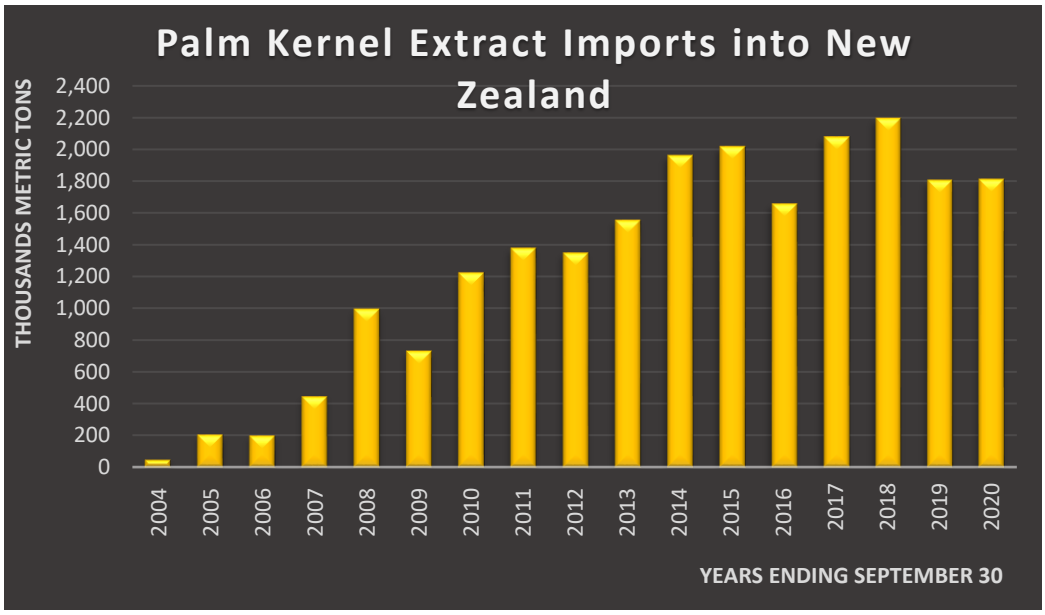
- Fencing off waterways: From 2023 all cattle, pigs, and deer are to be excluded from waterways wider than one meter. Nearly all dairy farms have already completed the fencing required.

While these regulations are likely to increase costs, even if it is just for the administration costs of obtaining the necessary consents, at present farmers are in a position to absorb these costs and it is unlikely that the freshwater regulations will on their own cause national dairy production to deviate from the trajectory postulated above.

Because there is a sizeable minority of dairy farmers who are heavily indebted, the cost of debt is very important to the sector as a whole. The Government's COVID-19 response in New Zealand has helped interest rates drop to historically low levels. This has had a significant positive impact on profits not just for heavily indebted farmers but for nearly all farmers. This factor will tend to drive more investment back into their farms to increase productivity and strengthen their balance sheets.

Considering these factors, it is likely dairy sector demand for feed will level off but remain in a range between four million and 4.5 million MT consumed annually, with year-to-year variations dependent on pasture growth levels.

Dairy Sector: Opportunities for Imported Grain and Feed



Source: trade data monitor

While the overall volume of feed used may fluctuate from year to year, there is unlikely to be sustained volume growth over the next five years. However, the mix of feeds utilized is likely to change. Usage of PKE has reduced from the peak (2018) but is still the major supplementary feed used. How long this will continue is not known but there are factors against the continued high usage. For example, Fonterra has a milk price penalty for producers if the daily non-animal fat content in a farm's milk rises over a set limit. This has effectively set an upper limit for PKE usage among Fonterra suppliers. There is also a public perception that the environment is being harmed by rainforests in Southeast Asia being cleared to make way for palm oil trees. From a lifecycle carbon analysis (LCA) point of view Fonterra's calculations suggest that the effect of land use change and transport of PKE increases the milk production carbon footprint in New Zealand. Also, PKE contains a significant proportion of nitrogen/crude protein, which unless used in the milk output adds to the nitrate that is potentially available to leach into waterways. In addition, over the last three years there has been a bit of "back to basics" approach to focusing very much on grazing/pasture management to utilize the pasture grown as fully as possible, which is reducing the aggregate demand for PKE to some extent. As a result industry analysts believe PKE usage will continue to wane over the next five years.

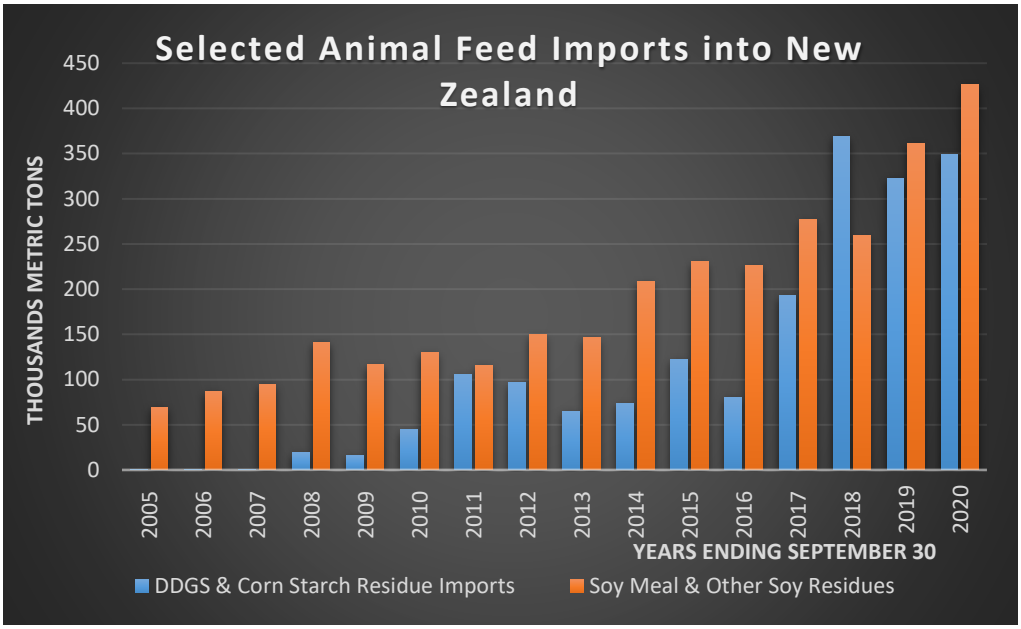
The feeds substituting for PKE are mainly DDGs, soybean hulls, tapioca, and to a lesser extent some other non-specified feeds. The quantity of soybean hulls imported from South America have risen substantially over the last three years to reach approximately 175,000 MT in MY2020 compared with a negligible quantity imported in MY2016. Soybean hulls are a good substitute for PKE and reportedly give a better milk supply response from the cows. However, at present soybean hulls are still more expensive on farm than PKE on a per ton basis.

High protein supplements such as DDGS are not produced domestically and all regions will have demand for a cost-effective product such as DDGS especially in mid-summer into Autumn to balance the protein content reduction in dryland pasture, or in the spring as a highly palatable attractant to cover other cow health/nutrition products such as lime flour or magnesium. The growth of DDGs imports have been strong in recent years, and the United States has dominated the supply of this product. I MY2020, 82 percent of DDGS imports originated from the United States, with Australia being the other primary supplier with wheat-based DDGs.

Poultry Sector

The poultry sector, especially meat chickens, is expected to recover by MY2022 from the impacts of the temporary closing of the Australian market and the negative effect of the COVID-19 response in New Zealand on quick service restaurants and food service. By MY2022 exports to Australia should be picking up pace and it is hoped that the border will begin to open again by late 2021 to allow international tourists to return to New Zealand. This could mean there will be strong poultry production growth in MY2022, which could drive up feed demand by up to five percent over MY2021. This would equate to total feed use by the sector in the region of 720,000 to 730,000 MT. Over the medium term it

is envisaged that the trend of annual feed demand growth of approximately 15,000 MT to 20,000 MT per annum will resume.



Source: trade data monitor

The feed mills that service this sector are well placed to continue using imports for the majority of their ingredients. The New Zealand population continues to grow and poultry meat is the most cost-efficient for consumers, which is likely to mean in the medium term that consumption of chicken will continue to rise.

The poultry sector is heavily reliant on imported feed (70-80 percent of total usage). With the anticipated return to production growth in MY2022 it is likely the demand for imported wheat, corn, and sorghum, and soybean meal will increase.

Appendix: New Zealand Grain and Feed Production, Supply, and Demand

New Zealand: Indicative Supply & Demand for Grains, Seeds, & Animal Feeds (MT)	2017	2018	2019	2020	2021 Forecast
	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
	Year Begin: Oct 2016	Year Begin: Oct 2017	Year Begin: Oct 2018	Year Begin: Oct 2019	Year Begin: Oct 2020
Wheat produced	*405,200*	*371,000*	*398,100*	*482,063*	
Barley produced	*297,600*	*379,700*	*383,700*	*380,905*	
Oats produced	*34,983*	*24,286*	*26,824*	*18,870*	
Maize Grain produced	*175,600*	*192,000*	*196,000*	*182,000*	
Maize Silage produced	*765,066*	*1,063,167*	*1,196,350*	*1,182,500*	
Pulses & Protein seeds produced	*0*	*0*	*37,501*	*35,000*	
Total Domestic Production (includes all grains & corn silage)	**1,678,449**	**2,030,153**	**2,238,475**	**2,281,338**	**2,083,000**
Wheat And Meslin Imports	*538,500*	*610,934*	*477,428*	*436,560*	
Corn (Maize) Imported	*11,523*	*137,769*	*228,134*	*140,694*	
Other Cereal Grain Imports	*133,176*	*70,974*	*69,933*	*107,124*	
Palm Kernel Extract Imports	*2,079,052*	*2,195,525*	*1,806,334*	*1,812,603*	
DDGS, Brewers & Starch manuf. Residues Imported	*192,650*	*369,005*	*322,779*	*349,128*	
Soybean Meal Imported	*276,756*	*258,858*	*361,492*	*426,056*	
Other Seeds & Feeds Imported	*182,034*	*216,681*	*187,238*	*217,159*	
Total Yearly Imports	**3,413,691**	**3,859,746**	**3,453,338**	**3,489,324**	**3,500,000**
Total Supply	**5,092,140**	**5,889,899**	**5,691,813**	**5,770,662**	**5,583,000**
Yearly Exports	**3,917**	**4,702**	**9,466**	**7,434**	**7,500**
Dairy Feed Use & Other Cattle	*3,757,578*	*4,425,921*	*4,223,161*	*4,241,600*	
Poultry Feed Use (eggs & meat)	*670,000*	*689,000*	*701,000*	*690,000*	
Other Animal Feed Use	*220,000*	*220,000*	*220,000*	*220,000*	
Total Animal Feed	**4,647,578**	**5,334,921**	**5,144,161**	**5,151,600**	**4,954,000**
Planting Seeds	**13,779**	**13,271**	**13,820**	**12,794**	**13,000**
Domestic grain for human cons	*226,593*	*187,005*	*206,866*	*244,732*	
Imported wheat for human consumption (est.)	*217,459*	*264,904*	*251,326*	*229,195*	
Rice imported	*48,422*	*49,996*	*54,092*	*62,608*	
Soybeans imported	*1,892*	*2,100*	*2,082*	*2,299*	
Sub-total Imported Grain for Human Consumption	*267,773*	*317,000*	*307,500*	*294,102*	
Total Human Consumption (wheat, barley, oats, corn, rice, soy)	**494,366**	**504,005**	**514,366**	**538,834**	**548,000**
Industrial Use (Starch)	57,500	58,000	60,000	60,000	60,000
Total Food, Seed, & Industrial Consumption/Use	**565,645**	**575,276**	**588,186**	**611,628**	**621,000**
Total Domestic Consumption	**5,213,223**	**5,910,197**	**5,732,347**	**5,763,228**	**5,575,000**
Total Distribution	**5,217,140**	**5,914,899**	**5,741,813**	**5,770,662**	**5,583,000**

Sources: Trade data is from Trade data monitor. Production numbers are from trade data NZ AIMI, StatsNZ, NZFMA, and Industry Sources. Estimates for consumption are from FAS/Wellington.

Note: Inventories are not taken into account in this table and movement in inventory volumes would balance up supply and demand each year. New Zealand pasture hay and silage and other fodder crops are not taken into account in this table as sufficient data is not available.

Attachments:

No Attachments.