USDA United States Department of Agriculture
Foreign Agricultural Service

GAIN Global Agricultural Information Network

Voluntary Report – Voluntary - Public Distribution **Date:** December 10,2019

Report Number: NZ2019-0023

Report Name: New Zealand Grain and Feed Market

Country: New Zealand

Post: Wellington

Report Category: Agricultural Situation, Grain and Feed

Prepared By: David Lee-Jones

Approved By: Levin Flake

Report Highlights:

Total grain and feed (including oil-seed meal) consumption in New Zealand is currently estimated at around 5.8 to 5.9 million metric tons (MMT). Due to New Zealand's limited land for growing grains and oil-seeds, approximately 63 percent of the total grain and feed supply is imported, with the other 37 percent produced domestically. The dairy sector accounts 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 imported feeds.

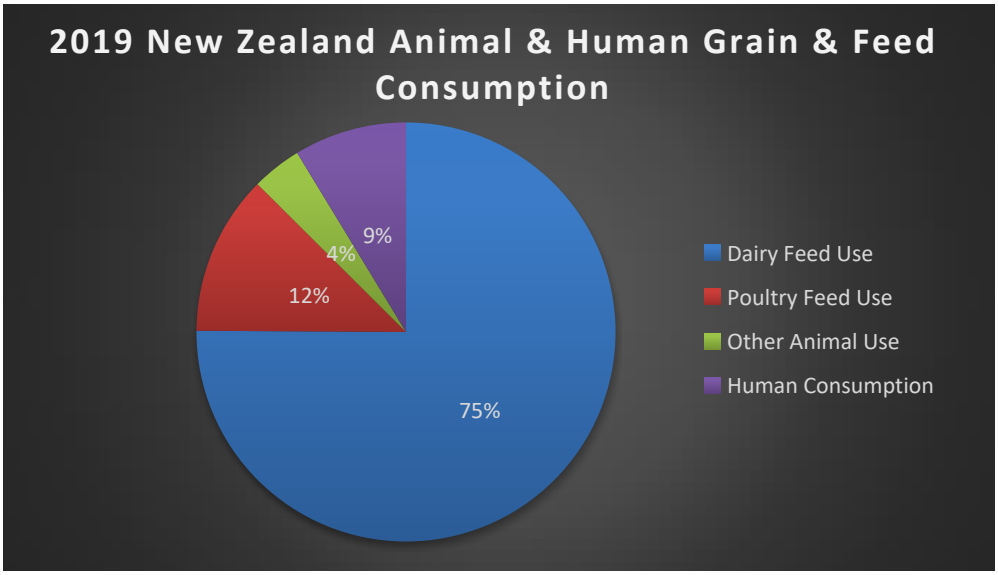
New Zealand Grain and Feed Market: Current Situation and Opportunities for Imported Feed Ingredients

Summary

Total grain and feed (including oilseed meal) consumption in New Zealand is currently estimated at around 5.8 to 5.9 million metric tons (MMT). Due to New Zealand's limited land for growing grains and oilseeds, approximately 63 percent of the total grain and feed supply is imported, with the other 37 percent produced domestically. The dairy sector accounts 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 imported feeds.

Current Situation

Total grain and feed (including oilseed meal) consumption in New Zealand is currently estimated at around 5.8 to 5.9 million metric tons (MMT). This estimate includes all domestically produced grains; imported grains, feeds, and oilseed meal; and domestically produced maize silage, but does not include pasture or pasture silage or hay. Grain and feed consumption has shown strong growth, with consumption at approximately 4.6 MMT in 2013 and only around 3 MMT in the early 2000s. The magnitude of this increase is principally due to rising demand from the dairy sector, which accounts for the bulk of grain and feed consumption. Due to New Zealand's limited land for growing grains and oilseeds, approximately 63 percent of the total grain and feed supply is imported, with the other 37 percent produced domestically. The key consumption areas are:



Source: Industry Sources & FAS/Wellington estimates

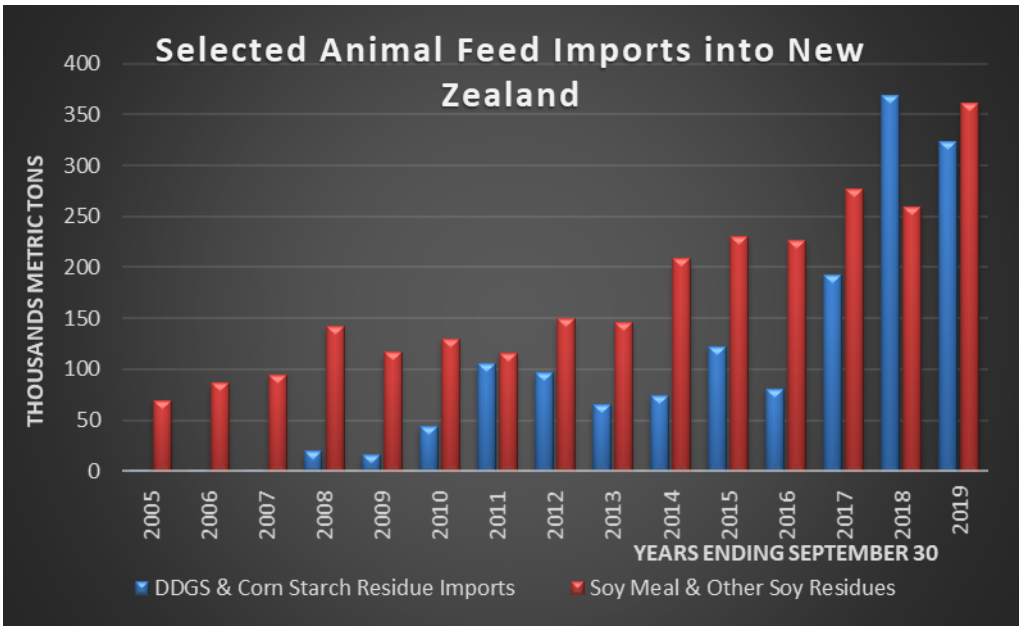
Dairy Sector

The dairy sector dominates New Zealand agriculture, and accounts for 75 percent of grain and feed consumption. At the New Zealand average cow stocking rate on non-irrigated pasture (75-80 percent of total dairy area in New Zealand), most cows' diets would have 20 to 25 percent of the total in some form of supplement to pasture. Approximately 50-60 percent of the feed used (which does not include pasture silage, hay, or forage crops) is imported.

However, the dairy industry is now at a crossroads. Although milk supply grew around 5 percent per annum since the 1990s to 2017, milk supply has now essentially stalled. Initially this was due to low milk prices (2015, 2016), but even as prices have risen, looming environmental regulations are expected to pressure the industry. These include regulations around nitrogen and phosphate discharges to waterways and methane emissions to the atmosphere and have created a real feeling of uncertainty among farmers. Land use conversions to dairy have essentially ceased and the sector is now losing area to urban sprawl, horticulture, or even land use change back to beef finishing.

Poultry Sector (meat and eggs)

There has been consistent growth in feed consumption in the poultry sector since 2013 at about three percent year on year. The poultry sector accounts for approximately 12 percent of the total consumption. This sector is very dependent on imported feed, accounting for 70-80 percent of its needs. The feed mills servicing the sector are mostly well 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 soymeal mainly from Argentina.



Source: trade data monitor 2019

Other Animal Feed
Other animals including pig production, aquaculture, horses, sheep, and companion animals are estimated to use just under four percent of total grain and feed consumption. The total volume is thought to be stable in total although consumption by the pig industry is reportedly decreasing. 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 in New Zealand is relatively stable, around 500,000 MT per year, comprising nine percent of consumption. Nearly all the wheat imported for human consumption originates in Australia. Rice imports also primarily come from Australia and Asia (although U.S. rice accounted for 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.

Key Factors Impacting Dairy Production

The fact that dairy consumes some 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.

Factors that are currently putting pressure on dairy production in New Zealand include:

- **Climate change regulations:** The climate change response "zero carbon" Act has an aspirational target of net carbon emissions at zero by 2050. Currently the Act proposes agriculture will have to reduce biogenic methane (CH4) emissions by ten percent below 2017 levels by 2030 and then will have to reduce its methane emissions below 2017 levels by 24 to 47 percent by 2050. Between 2020 and 2025 the Government has agreed to enter into a formal agreement with iwi/Māori and the agriculture sector to develop a Joint Action Plan to reduce agricultural emissions and support the move to farm-level emissions pricing by 2025. From 2025 the Government will apply an emissions pricing system to CH4 emissions at the farm level, and fertilizer emissions at the processor level. If the upper level for CH4 reduction of 47 percent is landed upon, industry contacts report that it would probably mean the industry would go into long-term contraction.

- **Water quality regulations:** In addition to the rules currently being progressively implemented on a regional scale to limit nitrogen, phosphate, sediment, and pathogen discharges to waterways, the Government is proposing even higher standards for water quality and a tighter time frame to achieve them. The costs to mitigate on-farm effects to comply with the new laws

will be ongoing, high, and could even result in some farms may ceasing to operate as dairy farms.

- **Biosecurity:** There is a major review of the current biosecurity law, which could increase compliance costs and the burdens on farmers in the event of an incursion.

- **Banking and debt:** Of all the agricultural sectors, the dairy sector is carrying more debt as a proportion of farm asset values than any other sector. The banks are now enforcing principal reduction conditions on dairy farm loans. And the Reserve Bank (New Zealand central bank) is proposing to significantly increase the ratio of equity required of the trading banks. This is likely to increase borrowing costs in the long run.

Factors supporting dairy production include:

- **Milk prices:** There continues to be good offshore demand for dairy products at prices which under normal circumstances would be profitable for farmers. In addition, new avenues for higher priced products such as organics and A2 protein milk continue to open up.

- **Productivity:** Ongoing genetic gains continue to increase the productive potential of the national cow herd by 0.5 to one percent per year.

- **Cow nutrition:** Over the last few years many farmers have realized that they can reduce cow numbers and feed the remaining cows a lot better and maintain, if not increase, milk production. There is huge potential in the current cow herd to increase production with better nutrition.

- **Interest rates:** Current bank interest rates remain very low by historical standards.

If on balance the positives listed above can outweigh the effects of the negatives, then the sector could once again achieve milk supply growth somewhere in the stable to 1.5 percent annual increases. If not, the sector is probably facing a long-term decline in milk supply or will struggle to maintain the current volume.

Opportunities for Imported Grain and Feed

Dairy Sector

In the dairy sector, for the next two to four years it looks like milk production will be relatively stable as the environmental constraints will take some time to be implemented and take effect. In the long term (five plus years), dairy feed demand will be highly dependent on the pace of implementation of the incoming environmental regulations. Any long-term changes to annual volumes of feed will not affect imports on a one-to-one basis because there is a continued focus on achieving greater pasture production

and higher utilization of the pasture grown which will buffer changes to overall demand. In addition, domestically grown supplemental feed may also adjust up or down in response to long term demand changes. However, there are expected to be significant opportunities for imported grain and feed due to a number of factors:

- **Declining Palm Kernel Extract (PKE) use:** There is a reasonable likelihood of reduced PKE usage which would bring an opportunity for other supplementary feeds. PKE has been used extensively over the last decade to fill pasture-feed deficits due to its ample availability and attractive price, with imports above 2 MMT in some years. However, there is a move to reduce its use hastened by Fonterra's milk price penalty if the daily non-animal fat content in the milk rises over a set limit. There is also a public perception that the environment is being harmed by rainforests in South East 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. Any long-term reduction in PKE use would create opportunities for other grain and feed imports.

Source: trade data monitor 2019

- **Feed deficit in some regions to support imports:** The heart of the dairy sector is the Waikato/Auckland/Bay of Plenty region with 35 percent of the cows. Land availability for growing corn is becoming scarcer in this region, and as a result it will likely be difficult for producers to access a lot more domestically grown feed. As a result, given the region's proximity to the Tauranga and Auckland ports, imported feed will remain cost effective. Other parts of the North Island have better access to domestically grown feed and logistics for imported

feeds into these regions are expensive. In the South Island (which carries 42 percent of the total cows), the small arable sector can predominately provide grains for the dairy producers.

- **Better cow nutrition:** With cow numbers expected to have peaked, much of the focus for increasing milk supply is on improved nutrition and productivity. Targeted advanced nutrition management to maximize cow health and production is quietly becoming more prevalent. Rather than just filling a pasture-feed deficit with the cheapest feed input that can be found, increasingly feeds with specific nutritional qualities are strategically targeted at certain periods of the milking season. For example, high starch feeds such as corn, cereal grains, or corn silage can be targeted for spring when pasture crude protein levels are significantly above optimum to bring the complete diet back to a nutritionally balanced one. This can then maximize cow health and production.

- **Lifecycle carbon analysis:** From a lifecycle carbon analysis (LCA) point of view a complete pasture-only diet is not ideal, and it has a significantly higher LCA carbon footprint per unit of milk (in terms of CH4 emissions) produced at the farmgate compared to a total mixed ration diet. There is potential to influence the LCA carbon footprint for New Zealand dairy farms by the use of strategic supplements such as a combination of domestically produced grain and silage with imported feeds such as distillers dried grains with solubles (DDGS) to increase production per cow and reduce carbon footprint per unit of production. Farms may well elect to use strategies along these lines to reduce cow numbers but maintain a profitable milk output to help achieve the ten percent CH4 reduction by 2030.

- **High protein supplements:** These supplements such as DDGS are generally not produced domestically and all regions will have demand for a cost-effective product such as DDGS especially in mid-summer into Autumn or in the spring as a highly palatable attractant to cover other cow health/nutrition products such as lime flour or magnesium.

Poultry Sector

It is envisaged that the trend of annual demand growth from the poultry sector will continue for the next two to three years. 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 short to medium term that consumption of chicken will continue to grow. Any threats to domestic meat chicken production from imports or plant-based or analogue proteins, if they emerge, would be in the medium term.

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

New Zealand: Indicative Supply & Demand for Grains, Seeds, & Animal Feeds (MT)	2017	2018	2019
	2016/2017	2017/2018	2018/2019
	Year Begin: Oct 2016	Year Begin: Oct 2017	Year Begin: Oct 2018
Wheat produced	*405,200*	*371,000*	*384,710*
Barley produced	*297,600*	*379,700*	*379,752*
Oats produced	*34,983*	*24,286*	*35,412*
Maize Grain produced	*175,600*	*192,000*	*195,433*
Maize Silage produced	*765,066*	*1,063,167*	*1,146,237*
Total Domestic Production (includes all grains & corn silage)	**1,678,449**	**2,030,153**	**2,141,544**
Wheat And Meslin Imports	*538,500*	*610,934*	*477,428*
Corn (Maize) Imported	*11,523*	*137,769*	*228,134*
Other Cereal Grain Imports	*133,176*	*70,974*	*69,932*
Palm Nut Or Kernel Oilcake & Other Solid Residues Imported	*2,079,052*	*2,195,525*	*1,962,478*
DDGS, Brewers & Starch manuf. Residues Imported	*192,650*	*369,005*	*322,779*
Soybean Meal Imported	*276,756*	*258,858*	*361,492*
Other Seeds & Feeds Imported	*182,034*	*216,681*	*187,238*
Total Yearly Imports	**3,413,691**	**3,859,746**	**3,609,481**
Total Supply	**5,092,140**	**5,889,899**	**5,751,025**
Yearly Exports	**3,917**	**4,702**	**9,466**
Dairy Feed Use & Other Cattle	*3,739,366*	*4,455,872*	*4,293,342*
Poultry Feed Use (eggs & meat)	*670,000*	*689,000*	*706,954*
Other Feed Use (Pork, Aqua, Companion Animals, Sheep)	*220,000*	*220,000*	*220,000*
Total Animal Feed	**4,629,366**	**5,364,872**	**5,220,296**
Planting Seeds	**14,450**	**13,224**	**14,241**
Domestic grain for human cons	*226,593*	*187,005*	*205,849*
Imported wheat for human consumption (est.)	*235,000*	*235,000*	*235,000*
Rice imported	*48,422*	*49,996*	*54,091*
Soybeans imported	*1,892*	*2,100*	*2,082*
Sub-total Imported Grain for Human Consumption	*285,314*	*287,096*	*291,173*
Total Human Consumption (wheat, barley, oats, corn, rice, soy)	**511,907**	**474,101**	**497,022**
Industrial Use (Starch)	57,500	58,000	60,000
Total Food, Seed, & Industrial Consumption/Use	**583,857**	**545,325**	**571,263**
Total Domestic Consumption	**5,213,223**	**5,910,197**	**5,791,559**
Total Distribution	**5,217,140**	**5,914,899**	**5,801,025**

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.