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Report Name: New Zealand Fertilizer and Products

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Report Highlights:

In 2022, New Zealand spent the most it has ever in one year on fertilizer imports, at almost NZ\$1.5 billion (US\$900 million). However, the total volume imported was 250,000 metric tons (MT), less than the historical average of 2.1 million metric tons (MMT). New Zealand is consistently one of the world's largest exporters of dairy products and 6th for beef and veal. As a result, the country heavily relies on fertilizer inputs to maintain production. The softening of farm gate prices for farm produce and the increase in national interest rates by the Reserve Bank of New Zealand in the current market year (MY) has resulted in a significant downturn in expenditure on fertilizer. To date, imports in the first 10 months of 2023 are 23 percent down compared to last year on all products.

Executive Summary

In 2022, New Zealand spent the most it has ever in one year on fertilizer imports, at almost NZ\$1.5 billion (US\$900 million). However, the total volume imported was 250,000 metric tons (MT) less than the historical average of 2.1 million metric tons (MMT). Approximately 50 percent of New Zealand's landmass is utilized for agriculture, with systems heavily reliant on pasture production. New Zealand is consistently one of the world's largest exporters of dairy products and ranked 6th for beef and veal. As a result, the country relies heavily on fertilizer inputs to maintain production.

In 2023, the softening of farm gate prices for produce and the increase in national interest rates by the Reserve Bank of New Zealand, have resulted in a significant downturn in expenditure on fertilizer at almost 46 percent. In addition, imports in the first 10 months of 2023 are 23 percent down in volume compared to the same time last year on all products.

New Zealand has production capabilities for superphosphate. However, in 2023, imports for Moroccan phosphate rock were 59 percent less than the previous year due to high unit pricing. Domestic processors are looking for alternative sources to meet demand from deposits in Australia, South Africa, and Nauru. New Zealand still relies on a handful of countries to source most of its fertilizer requirements, such as Saudi Arabia for urea, Canada for potash and China for compound products.

The New Zealand government has recently set plans to limit fertilizer use. The government's position is based on environmental concerns with runoff and leaching into water bodies, and on-farm Greenhouse Gas emissions.

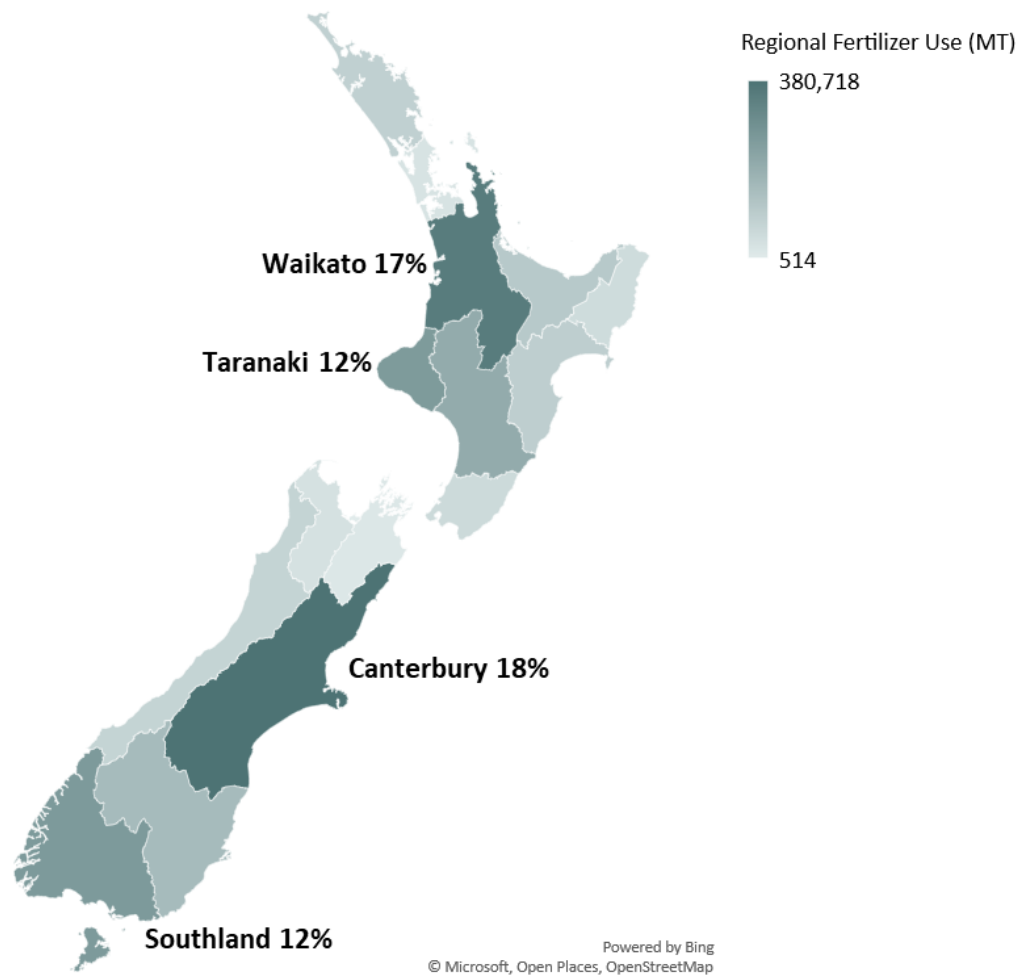
Note: The GAIN Dairy Marketing Year (MY) is the same as the calendar year (CY), January 1 to December 31. For the purpose of this report always refer to MY unless otherwise stated. For foreign exchange rate between New Zealand Dollar and United States Dollar, the rate used in this report is NZ\$ 1.00 = US\$ 0.60.

Background

Pastoral farming in New Zealand began with the arrival of the early settlers in the late 1700s. However, the first farms were only operational in the 1840s, and large expansion took place over the next 100 years. Farmers sowed pasture seeds and applied fertilizer, creating high-producing pastoral grassland, which today remains the country's largest land use (approximately 50 percent). Despite New Zealand having young soils compared to other parts of the world, pastoral farming regions rely on nutrient inputs for phosphate, potassium, sulfur, and other trace elements.

Figure 1 shows the fertilizer use by region for New Zealand. It displays the concentration of the country's more intensified dairy and cropping regions, Canterbury, Waikato, Taranaki, and Southland, as the largest consumers of fertilizer (collectively 59 percent)- followed by Manawatu and Otago at 9 and 7 percent, respectively.

Figure 1: Fertilizer Use by Region in 2022 (Metric Tons)



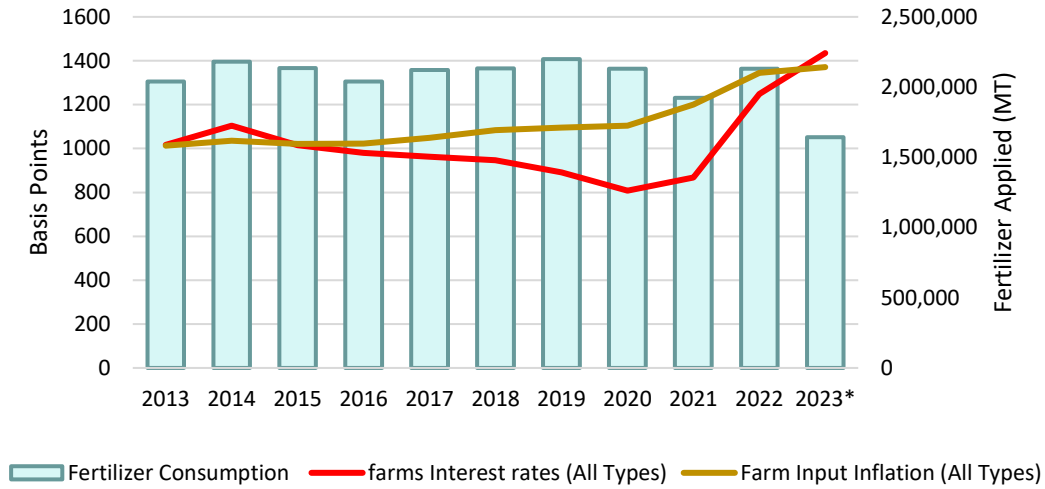
Source: Statistics New Zealand, All Fertilizer Products

Consumption

Statistics New Zealand reports that over the last 20 years, national farmland area has decreased by ~1 percent per year. However, the annual fertilizer consumption of fertilizer has remained relatively stable, averaging 2.1 MMT and reflecting a long-term increase in production per hectare. FAS/Wellington estimates that fertilizer consumption in 2023 will significantly reduce to levels not seen since the 2008 global financial crisis. This situation results from a significant increase on farm interest rates in the last 2 years, coupled with rising inflation across all farming inputs (see Figure 2).

The 2022 marketing year had favorable commodity pricing for dairy and livestock producers compared to the softening of these prices at farm gate in 2023. As a result of the now lower prices, rising interest rates, and inflation on the price of necessary inputs – gross margins are forecasted to be severely impacted.

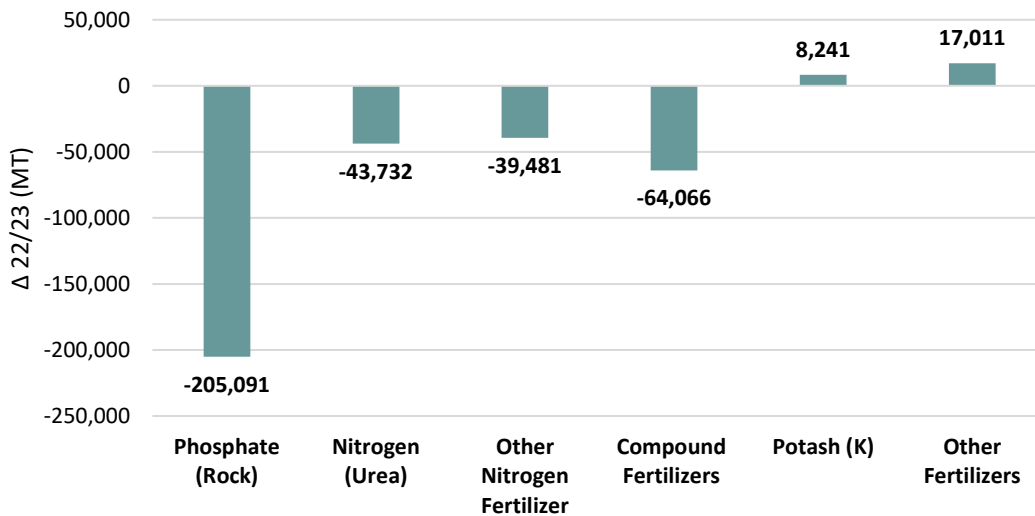
Figure 2: Fertilizer Consumption and Economic Impacts on New Zealand Farms



Source: Statistics New Zealand, *FAS/Wellington Estimate

Fertilizer represents a large operating expense for New Zealand farmers. Feedback from farmers this year has highlighted cutbacks of ~20 percent on the previous year’s volumes to absorb the pressures of the current economic cycle. This trend has already been seen in the difference in major fertilizer imports from January to October this year, compared to the same period in 2022 (Figure 3). Domestic fertilizer processors underscore that this has been paired with higher stocks heading into spring, following the adverse weather events that impacted large areas of farmland early in the year causing disruptions to being able to apply product.

Figure 3: Jan to Oct Fertilizer imports to New Zealand 2022 vs 2023



Source: Trade Data Monitor LLC

Production

Superphosphate

New Zealand began manufacturing superphosphate for agricultural uses in the 1880s. Superphosphate is one of the most used fertilizers in New Zealand. It is manufactured by dissolving phosphate rock in sulfuric acid. Superphosphate production from rock product occurs because the phosphate is not readily available to plants in its raw form. By the late 1970s, New Zealand had 12 plants producing 1.8 million metric tons (MMT) annually. Today, New Zealand has two superphosphate manufacturing companies – Ballance Agri-Nutrients (BAN) and Ravensdown Fertiliser Co-op (RFC), which operate four plants. Both businesses are farmer-owned cooperatives and supply the majority of the market for fertilizer. With very small amounts of phosphate deposits domestically, for most of the 20th century, manufacturers sourced phosphate rock internationally from Nauru, Christmas Island, and North Africa. Since the turn of the century, Morocco has been the primary phosphate rock exporter to New Zealand (Figure 4).

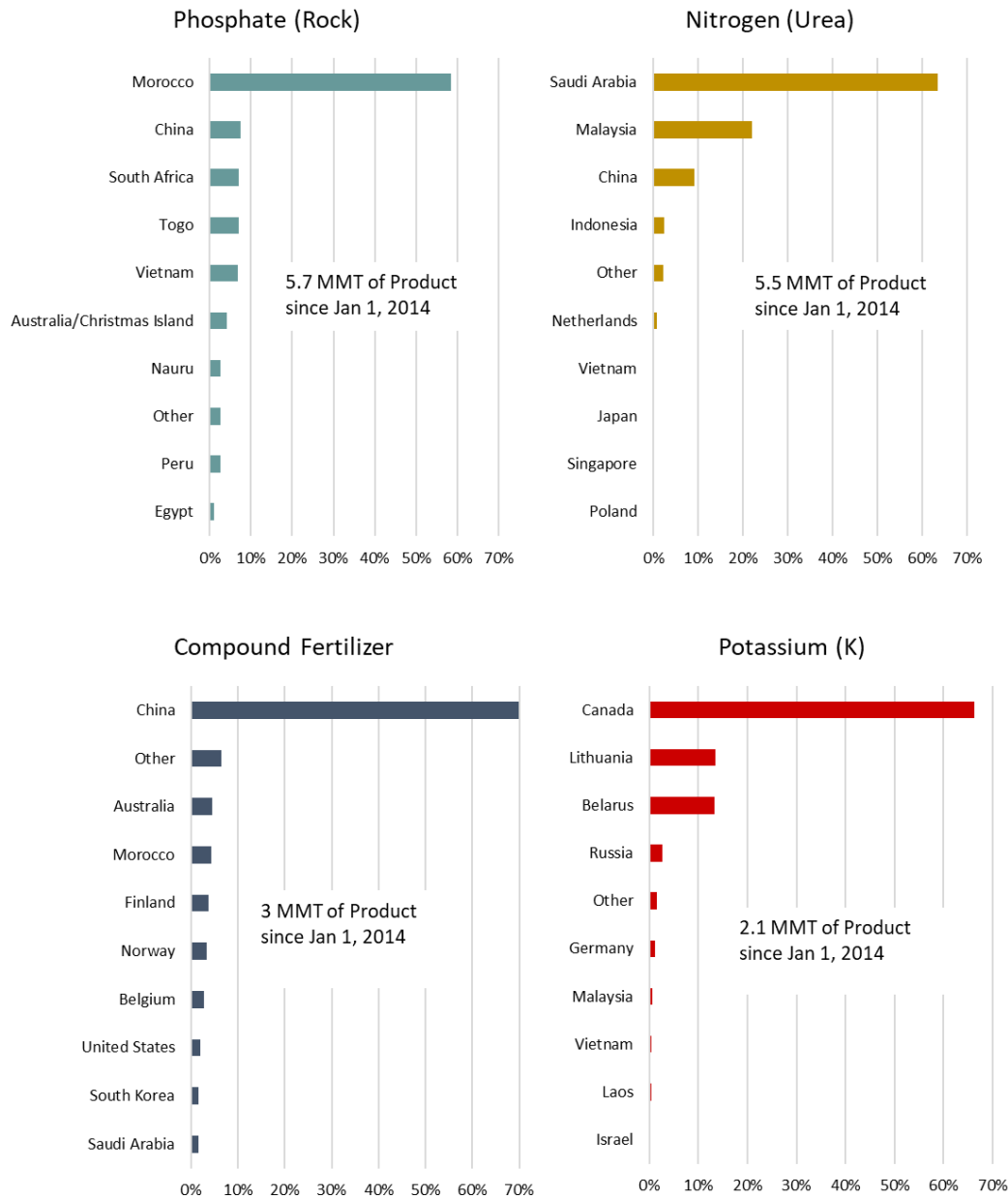
Urea

BAN owns and operates an ammonia-urea plant in Kapuni, Taranaki. This plant was commissioned in 1982 and produces between 220,000 MT and 250,000 MT annually, depending on maintenance schedules. The plant was built due to the New Zealand Government's economic strategy at the time to fund eight large petrochemical and energy related projects. The Kapuni Plant has since proved to be one of the most successful of these projects, still operating today. The purpose of the plant was to utilize the natural gas fields in the region for the supply of Urea fertilizer for agriculture, with a very small portion of production destined for other uses. The volumes produced at the facility represent approximately a third of the country's Urea consumption.

Imports

New Zealand is a net importer of fertilizer products for its largely pastoral-based agricultural sector. With most of the world's nutrient deposits and fertilizers manufacturing concentrated in certain countries, New Zealand has relied on particular trading partners over the last 10 years. Such as Morocco for phosphate rock (58 percent), Saudi Arabia for urea (63 percent), Canada for potash (66 percent), and China for compound fertilizer products with multiple nutrients (70 percent).

Figure 4: New Zealand Fertilizer Bulk Imports Since January 2014



Source: Trade Data Monitor LLC

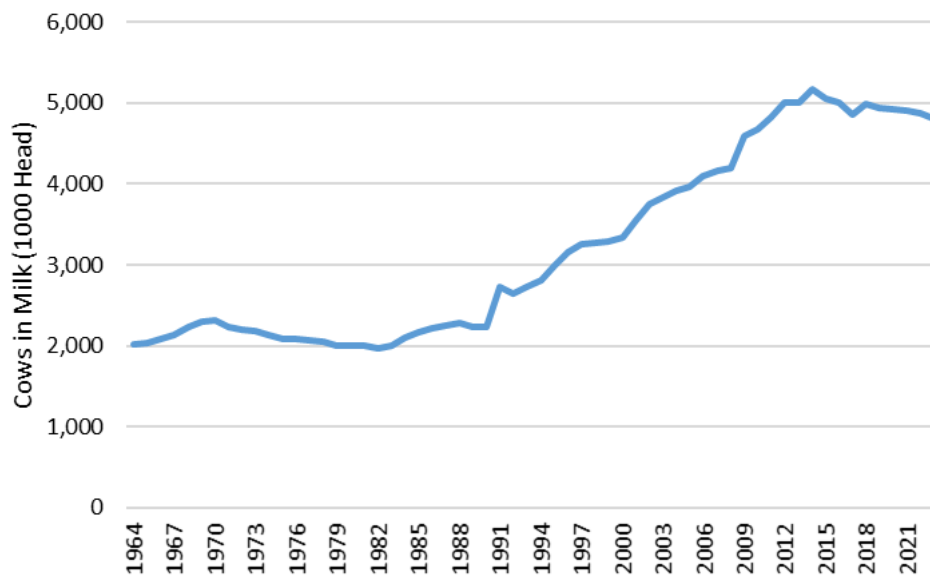
From January to October this year, New Zealand’s fertilizer imports fell significantly – 23 percent less on all products for the same time last year. This situation follows 2022, the year with the highest cost of fertilizer imports to New Zealand, valued at just under NZ\$1.5 billion (US\$900 million). Feedback from industry contacts indicate the recent downturn is due to softening farm gate returns in 2023, the significant rise in interest rates on lending by rural banks, and the surplus of feed in the northern parts of the country following a very wet summer. Fertilizer import expenditure for the first ten months of 2023 reached NZ\$673 million, a 46 percent fall for the same time last year.

Nitrogen

Urea is the most common form of nitrogen fertilizer used in New Zealand's agriculture. Most of the nitrogen fertilizer used in New Zealand is for dairy (63 percent), livestock (28 percent), and cropping farms (6 percent). Prior to the 1990s, the country relied predominantly on clover for the fixation of nitrogen; however, with the substantial growth in the national dairy herd following this period, demand grew for nitrogen fertilizer (figure 5). Urea is currently one of the most consumed fertilizer products by volume each year and is almost always applied as a dry granular product.

Ammonium Sulfate (AMS) is the second most imported nitrogen fertilizer to New Zealand; particularly, as already mentioned, the country's agriculture sector has high sulfur requirements. AMS was initially a byproduct of steel production; today, AMS is also produced in other manufacturing industries, such as textiles. As a result, the largest AMS fertilizer exporters to New Zealand are China and South Korea.

Figure 5: National Herd of Cows in Milk



Source: Official USDA Estimates

2023

In the first ten months of 2023 MY, import volumes of Urea are 13 percent behind the previous year. According to industry contacts this situation has been driven by factors already mentioned and the declining trend in farmgate milk prices of 20 percent over the last 18 months. Of countries where the Urea is sourced, Saudi Arabia's imports are down 6 percent, Malaysia is 33 percent less and China's is increased by 47 percent, although it represents only a very small proportion of total imports. The price per MT of Urea has come back substantially in 2023, with the unit price per MT now at NZ\$611(US\$373) from 2022, when the price was NZ\$1,108 MT (US\$665). There is also a difference of NZ\$1.33 per kilogram (kg) of N compared to NZD\$2.41 kg of N last year.

AMS imports were 24 percent down from January to October last year which has also seen a decrease of 46 percent on import pricing in the current marketing year from NZ\$581 MT (US\$348) in 2022 to NZ\$306 MT (US\$183).

Phosphate

New Zealand pastoral soils are naturally low in phosphorus and sulfur. As a result, the industry has historically utilized superphosphate fertilizer to provide these elements to farmers. Livestock farmers are the largest consumers of phosphate fertilizers in New Zealand at 59 percent, followed by dairy (36 percent). Regarding livestock farms, large volumes of superphosphate is applied aerially in a granulated form (Image 1) because the inaccessible topography limits ground-spreading equipment.

Image 1: Aerial Application of Fertilizer in New Zealand

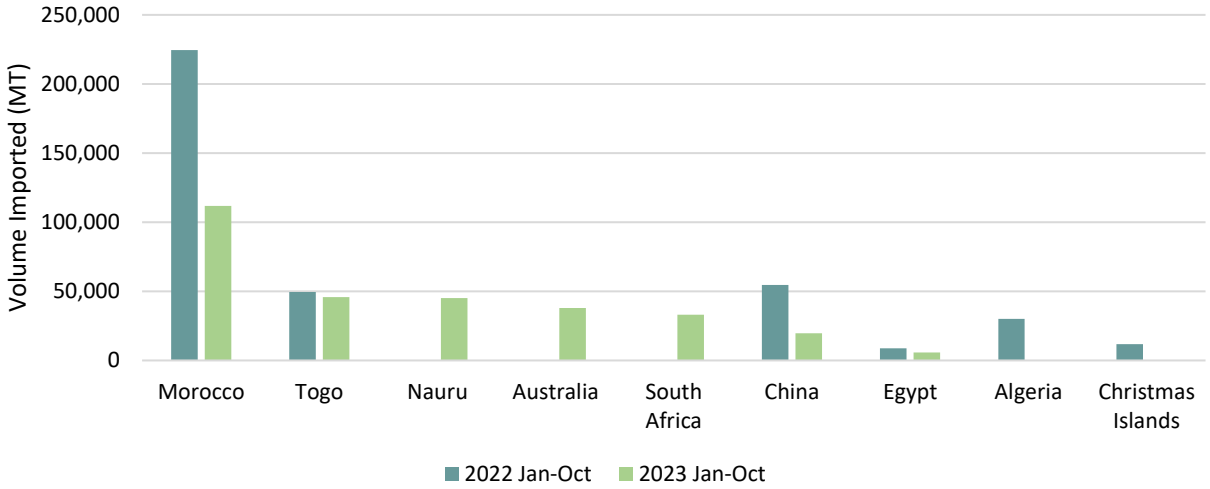


Source: New Zealand Agricultural Aviation Association

2023

Phosphate rock imports from January to October 2023 are currently 41 percent less than the same period last year. Imports from Morocco in 2023 year to date are 59 percent behind the same period in 2022 (see Figure 6). According to industry contacts, this situation is largely due to Morocco's recent shift in its strategy for phosphate rock exports. Morocco has 70 percent of the world's reserves. This includes deposits in the Western Sahara region – Boucraa mine, from which New Zealand has historically sourced large volumes of phosphate rock. With the significant decrease in imports from Morocco in 2023, shipments have been sourced alternatively from Nauru, Australia, and South Africa to meet processing demand (Figure 6).

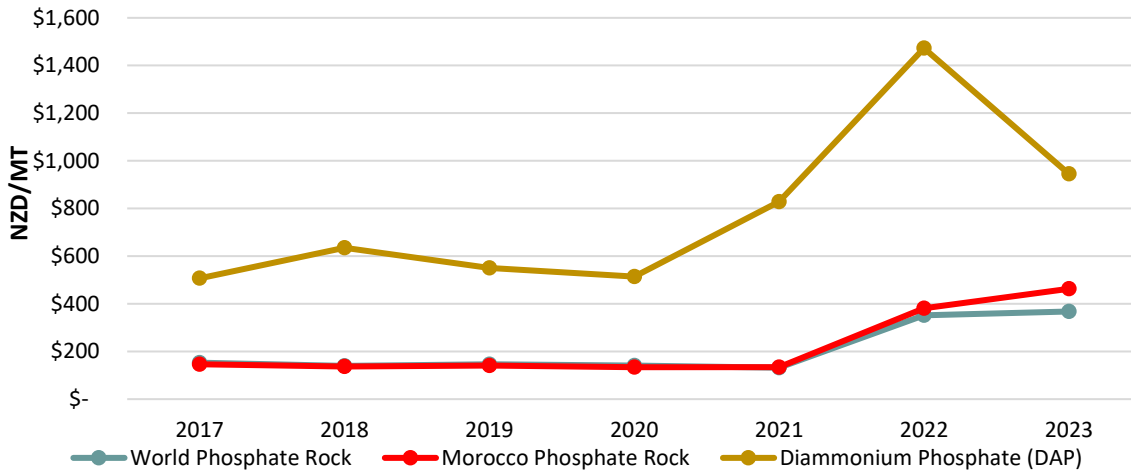
Figure 6: New Zealand Phosphate Rock Imports January to October



Source: Trade Data Monitor LLC

Since 2022, the price of phosphate rock from Morocco has increased 36 percent to NZ\$460 MT (US\$276 MT). Much higher than other nations New Zealand sources from, where the average price for phosphate rock has been NZ\$368 MT (US\$220 MT). Alternatively, Diammonium Phosphate (DAP) has also decreased in price in the current market year, 35 percent to NZ\$945 MT (US\$567) (Figure 7). Feedback from the New Zealand fertilizer companies is these prices have further driven alternative sourcing of phosphate rock. FAS/Wellington estimates that year to date, the alternative sourcing of phosphate rock from Morocco, although 40 percent less than the previous year, has saved the industry an estimated NZ\$10 million (US\$6 million)

Figure 7: New Zealand Phosphate Imports Unit Price



Source: Trade Data Monitor LLC

Potassium

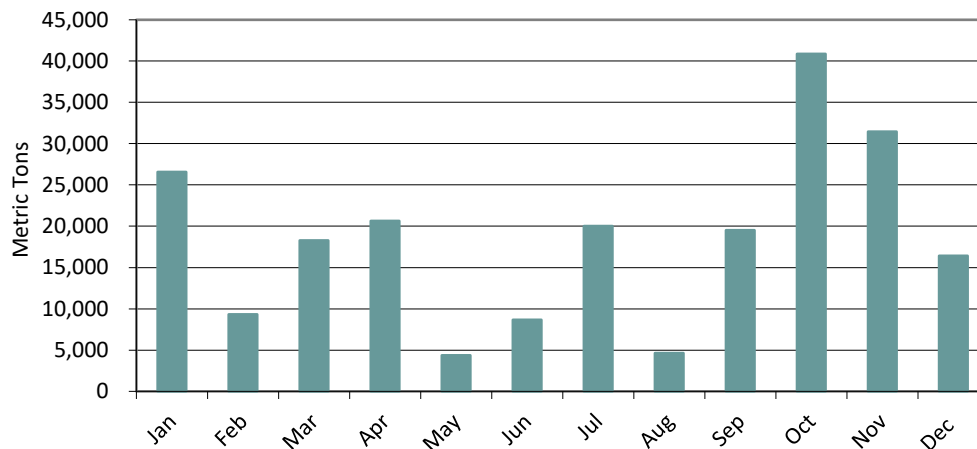
With the extensive reliance on pastoral farming in New Zealand and the use of perennial legumes, potassium is a vital nutrient for maintaining productivity. Dairy farming is the largest consumer of potassium fertilizer at 56 percent; this is due to the large amount of silage and supplement feed produced by the industry. Livestock farming represents 32 percent of consumption, relying heavily on clover-incorporated pasture and supplement feed for winter months.

Potassium chloride (potash), is the largest consumed potassium fertilizer in New Zealand. Canada is consistently the largest exporter of potash to New Zealand, representing 66 percent of products imported in the last 10 years. New Zealand no longer sources potash from other major deposits in Russia, Belarus, and Lithuania.

2023

In the current marketing year, potash imports are up 6 percent from January to October last year. Historically, 40 percent of potash imports occur in the last quarter of the year due to spring pasture surpluses being grown for silage and supplement, and for most crops grown from September to December (see Figure 8). In 2023, the unit price for imported potash is currently 39 percent lower than 2022, with import price now averaging at NZ\$743 MT (US\$445 MT).

Figure 8: New Zealand Average Monthly Potash Imports



Source: TDM

Other Fertilizers

The New Zealand fertilizer industry imports 324,000 MT of compound fertilizers with two or more elements on average. This includes diammonium phosphate (DAP), which is, on average, 78 percent of compound fertilizer imports. These compound fertilizers also include specialty products used in the cropping and horticulture industry.

China consistently represents 70 percent of imports for these products and is the primary source of DAP fertilizer. In 2023, import volumes are currently 29 percent less than the same period in 2022, reflecting the current trend with other major bulk fertilizer products.

Other Products

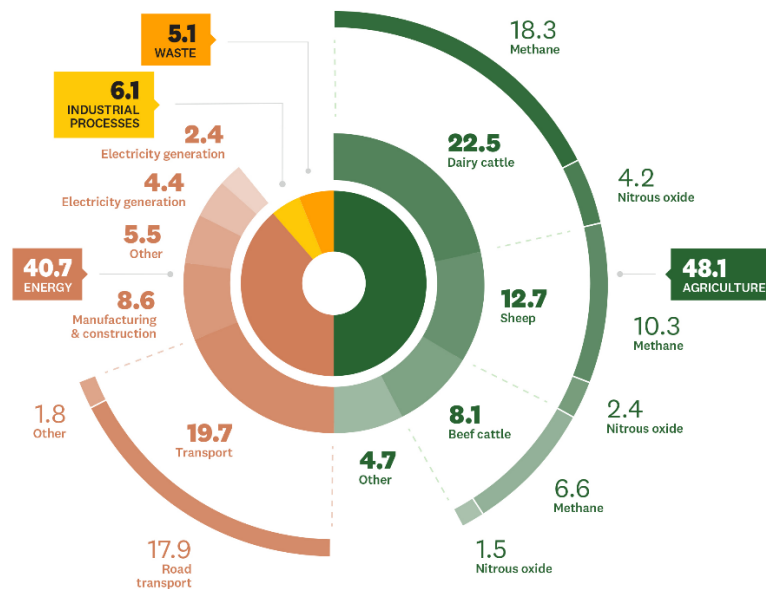
Urease Inhibitor

As urea dissolves, it goes through several chemical changes. The conversion of urea to ammonium and then nitrate forms of nitrogen, can result in significant losses to the atmosphere as ammonia. Urea fertilizer coated with a urease inhibitor has been sold in New Zealand since 2001. Use has increased significantly over the past decade, to now ~60 percent of urea applied being mixed with an inhibitor. To reduce volatilization losses of ammonia from urea use, maximize nitrogen available for uptake contributing to mitigating greenhouse gas emissions. In addition, fertilizers that use urease inhibitors are recognized for reducing nitrogen loss for farms modeling environmental impacts.

Policy

Studies on New Zealand Greenhouse Gas (GHG) emissions emphasize that due to the scale of the agriculture sector in the economy, it contributes to almost 48.1 percent of the national GHG emissions (Figure 9). As a result, fertilizer use in farming has come under immense scrutiny by the national government in recent years.

Figure 9: New Zealand's Greenhouse Emissions



Source: Ministry for the Environment (MfE)

This is due to the contribution of fertilizer use to New Zealand's Greenhouse Gas emissions, from volatilization and increased feed production, resulting in increased enteric emissions from livestock. In addition, there are also environmental concerns with run off and leaching into water

bodies such as streams, rivers, and lakes. As a result, the New Zealand Government has begun the implementation of specific regulations.

-- Agricultural Emissions Pricing:

Over the last four years, the New Zealand Government has been working with industry to reduce and price agricultural emissions. 2022 saw the release of several regulations, including the NZ First [Emissions Reduction Plan](#), the response from the [NZ Primary Sector Climate Action Partnership](#), and recently a government-released [proposal to reduce agricultural emissions](#).

Outside of pricing emissions, the focus is on controlling nitrogen fertilizer application rates and stock numbers. Following the most recent government elections, the new government plan to implement a fair and sustainable pricing system for on-farm agricultural emissions now by 2030. This would include an independent board – with a power of veto retained by the Ministers of Climate Change and Agriculture.

National Policy Statement for Freshwater Management 2020 (NPSFM):

This statement sets out the objectives and policies for freshwater management under the Resource Management Act 1991, which came into effect on September 3, 2020. These regulations intend to mitigate against the risk of sediment loss, phosphate runoff, nitrogen leaching and E. coli. This plan sets out to limit the amount of fertilizer that farmers can apply, focusing on reducing concentrations of nitrogen and phosphorous found in water bodies.

Appendix 1: Harmonized System Codes for Common Fertilizer Products

Description	HS Code
Fertilizers	31
Natural Calcium Phosphates, Natural Aluminum Calcium Phosphates and Phosphatic Chalk	2510
animal or vegetable fertilizers, including mixed or chemically treated; fertilizers made by mixing or chemically treating animal or vegetable products	3101
Mineral Or Chemical Fertilizers, Nitrogenous	3102
mineral or chemical fertilizers, phosphatic	3103
Mineral Or Chemical Fertilizers, Potassic	3104
Mineral Or Chemical Fertilizers with Two Of The Three Fertilizer Elements; Fertilizers Nesoi; Fertilizers in Packs Etc.	3105
Urea, Whether or Not in Aqueous Solution	310210
Ammonium Sulfate	310221
superphosphate, containing by weight 35% or more of p2o5	310311
other superphosphates	310319
phosphatic mineral or chemical fertilizers, nesoi	310390
Potassium Chloride	310420
potassium sulfate	310430
mineral or chemical fertilizers containing the three fertilizing elements nitrogen, phosphorus, and potassium	310520
diammonium phosphate (DAP)	310530

Appendix 2: Table of Imports (Source: Trade Data Monitor LLC)

Description	Unit	2017	2018	2019	2020	2021	2022	2022 (Jan-Oct)	2023 (Jan-Oct)	Δ 22/23	Total	5Yr Ave. (2017-2022)
Bulk Product Imports												
Phosphate (Rock)	T	546,371	665,518	527,584	471,978	673,176	645,781	504,460	299,369	-41%	4,334,237	588,401
Nitrogen (Urea)	T	640,512	594,079	633,938	629,770	554,713	439,184	335,989	292,257	-13%	4,120,442	582,033
Other Nitrogen Fertilizer	T	215,393	210,928	201,292	212,162	222,416	217,601	197,839	158,358	-20%	1,635,989	213,299
Compound Fertilizers	T	315,599	378,291	340,118	368,116	313,781	227,765	222,539	158,473	-29%	2,324,682	323,945
Potash (K)	T	244,617	237,922	234,151	197,337	271,813	154,039	133,116	141,357	6%	1,614,352	223,313
Other Fertilizers	T	68,321	56,017	59,284	65,123	36,120	68,996	34,397	51,408	49%	439,666	58,977
Total	T	2,030,813	2,142,755	1,996,367	1,944,486	2,072,019	1,753,366	1,428,340	1,101,222	-23%	14,469,368	1,989,968
Import Unit Price (value for duty)												
Phosphate (Rock)	NZD/T	\$153	\$140	\$147	\$141	\$132	\$352	\$344	\$368	7%		\$178
Nitrogen (Urea)	NZD/T	\$339	\$419	\$411	\$397	\$707	\$1,094	\$1,110	\$611	-45%		\$561
Other Nitrogen Fertilizer	NZD/T	\$327	\$350	\$362	\$308	\$384	\$714	\$690	\$443	-36%		\$408
Compound Fertilizers	NZD/T	\$571	\$694	\$626	\$583	\$872	\$1,588	\$1,575	\$1,100	-30%		\$822
Potash (K)	NZD/T	\$347	\$414	\$475	\$414	\$524	\$1,249	\$1,227	\$743	-39%		\$571
Other Fertilizers	NZD/T	\$474	\$531	\$583	\$547	\$749	\$921	\$1,119	\$673	-40%		\$634
Import Value (value for duty)												
Phosphate (Rock)	NZD	\$83,806,128	\$93,114,637	\$77,356,877	\$66,621,751	\$88,877,198	\$227,381,747	\$173,296,702	\$110,097,753	-36%	\$920,552,793	\$106,193,056
Nitrogen (Urea)	NZD	\$216,836,256	\$248,933,308	\$260,796,787	\$250,019,006	\$392,452,945	\$480,572,933	\$372,943,676	\$178,576,124	-52%	\$2,401,131,035	\$308,268,539
Other Nitrogen Fertilizer	NZD	\$70,527,593	\$73,846,432	\$72,897,778	\$65,276,810	\$85,303,824	\$155,393,126	\$136,411,486	\$70,231,086	-49%	\$729,888,135	\$87,207,594
Compound Fertilizers	NZD	\$180,249,194	\$262,632,167	\$212,788,994	\$214,657,328	\$273,687,345	\$361,644,414	\$350,503,557	\$174,398,321	-50%	\$2,030,561,320	\$250,943,240
Potash (K)	NZD	\$84,820,581	\$98,416,517	\$111,254,327	\$81,722,416	\$142,470,394	\$192,447,899	\$163,326,318	\$105,096,521	-36%	\$979,554,973	\$118,522,022
Other Fertilizers	NZD	\$32,358,045	\$29,769,126	\$34,563,305	\$35,651,616	\$27,063,169	\$63,534,421	\$38,501,740	\$34,615,674	-10%	\$296,057,096	\$37,156,614
Total	NZD	\$668,597,797	\$806,712,187	\$769,658,068	\$713,948,927	\$1,009,854,875	\$1,480,974,540	\$1,234,983,479	\$673,015,479	-46%	\$7,357,745,352	\$908,291,066

Attachments:

No Attachments.

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