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Report Highlights:

New Zealand beef production is forecast to fall slightly in 2022, following two straight years of record production. This is a result of less anticipated slaughter, especially of heifers and steers. In addition, lower carcass weights are also expected. As a result of smaller beef production, exports are also forecast to fall from the records set in 2021 and 2020.

Executive Summary

After two record production years, New Zealand beef production is forecast to fall slightly in 2022 due to reduced cattle slaughter. FAS/Wellington is forecasting total slaughter for 2022 at 4.55 million head, two percent less than 2021. The primary factor for this decline is that heifer and steer slaughter numbers are expected to drop by around ten percent. Less adult cattle as a proportion of the total kill is also expected to reduce the overall average carcass weight by 1.4 percent. Beef production for 2022 is forecast at 704,000 metric tons (MT), four percent less than 2021.

New Zealand beef production for 2021 is now estimated to surpass previous expectations to reach 730,000 MT, 0.5 percent greater than the 2020 total and another new record. This level of production is driven by a total slaughter estimated at 4.65 million head, which is 0.6 percent above 2020. The biggest influence on both slaughter numbers and beef production is the significant increase in heifer and steer slaughter resulting from a temporary increase in calf retentions back in 2018 and 2019.

Beef exports for 2022 are forecast at 616,000 MT carcass-weight-equivalent (CWE), four percent less than 2021. Because domestic consumption is relatively stable in New Zealand, the primary driver in the export forecast drop is the four-percent reduction in total beef production.

Beef exports in 2021 are estimated at 640,000 MT CWE, a significant revision which, if realized, would be another record. Primarily this is the result of the upward revision to both slaughter numbers and beef production and domestic consumption remaining stable.

The aggregate volume of beef shipped to China and the United States continues to comprise over 70 percent of total New Zealand beef exports. Reportedly, demand remains strong in both the major markets so there is no reason to expect any significant changes to volumes being shipped to either of the United States or China. In addition, export prices have been strengthening. Nevertheless, nervousness still remains among New Zealand exporters over new COVID-19 outbreaks, especially through Asia, and how this will affect demand and supply chains. COVID-19 induced shipping delays and supply chain pressures remain and reportedly are not likely to improve significantly until late 2022 or into 2023.

Note: The Marketing Year (MY) is the calendar year; the MY2021 marketing year is shown as 2021. Data included in this report is not official USDA data. Official USDA data is available at: *https://apps.fas.usda.gov/psdonline*

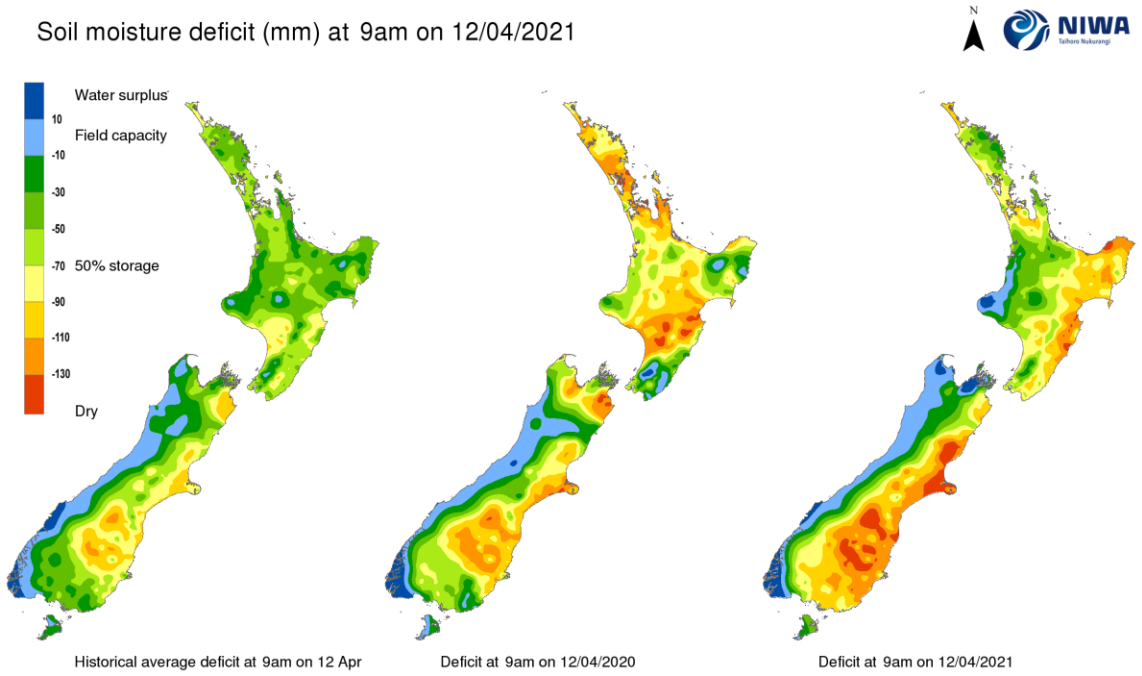
Cattle Situation

Seasonal Pasture Production

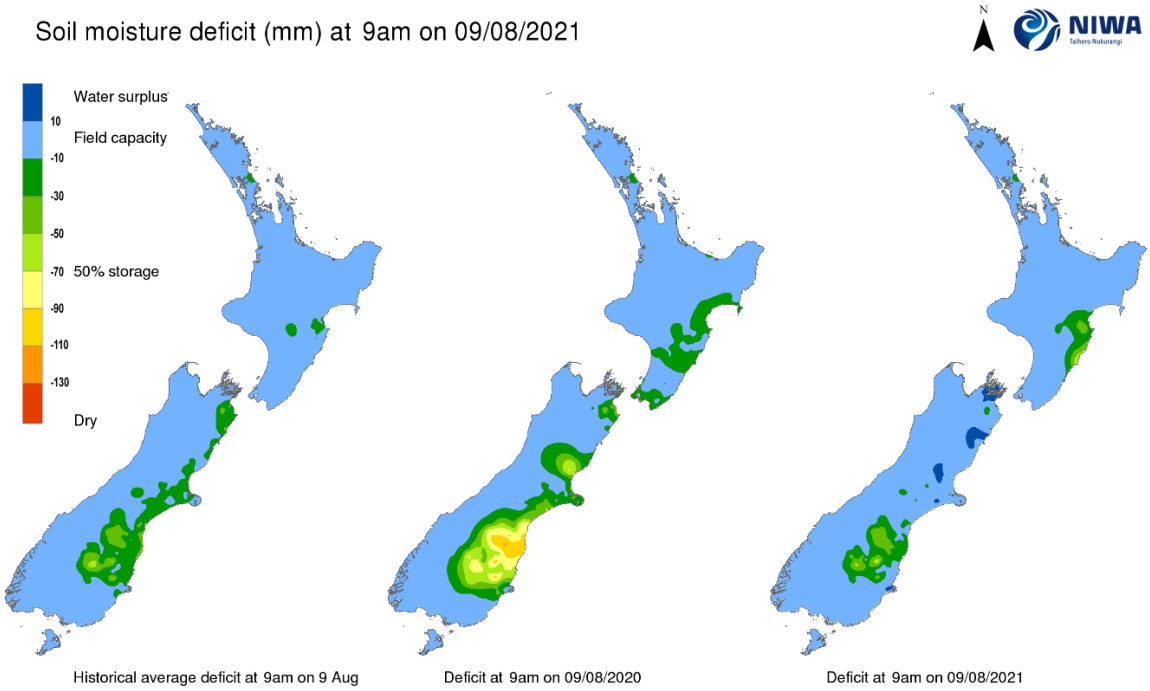
Compared with 2020, the North Island is recovering from the summer dry better in 2021 (see map below). However, because the dry conditions on the east coast of both islands persisted later than historically normal, pasture supplies in those regions going in the winter were lower than what is desired. While early August soil moisture levels were consistent with long term averages (see second map below), winter pasture growth in most beef and sheep farming areas have been less than 2020.

Looking ahead, the National Institute for Water and Atmospheric Research (NIWA) is forecasting soil moisture and rainfall through until the end of October 2021 more likely to be average to below average. If rainfall dips below average in November-December, this would tip the eastern regions very quickly into drought mode. However, they are also reporting that there is some evidence of another La Nina weather pattern that could emerge over summer, which can bring more rain to the eastern areas.

Soil Moisture on April 12th – Historical Average, 2020 and 2021



Soil Moisture on August 9th – Historical Average, 2020 and 2021



Cattle Production and Inventory Changes
2022

FAS/Wellington forecasts 2022 total cattle slaughter at 4.55m head, which if realized would be two percent less than the total kill estimated for 2021. The dynamics behind the changes are:

- The primary cause is that both the steer and heifer slaughter numbers are anticipated to decrease by nine and eleven percent, respectively. The bulge in numbers for these two classes of cattle stems back to extra retentions in 2018 and 2019, and most of these will have been slaughtered in 2021.

- Cow numbers in both the national dairy and beef herds are forecast to be stable, which would support a total cow kill of around one million head. Despite looming environmental regulations, both milk and beef prices are supportive of farmers maintaining stable herds in order to maximize profit in the short term. Even though since 2017, 114,000 hectares (ha) of hill country pasture-land has been or is in the process of being planted in trees and has been de-stocked, many other farmers have taken up the slack by adding a few extra beef cows in their herds.

- The calf kill is forecast to be stable at 1.9 million (m) head, and at this stage there are no indications yet of material changes to the number of progeny that may retained as replacements for either the dairy or beef herds.

- The bull kill is forecast up on 2021 by nearly three percent, on the basis that some drought affected two-year-old bulls may not make a marketable weight prior to the end of 2021 but will be killed in the first half of 2022.

- The number of heifers exported live is forecast at 100,000 head for 2022. Even though the Government of New Zealand has regulated that by April 30, 2023 exports of livestock by sea have to stop, reportedly demand remains strong and the pace of shipping is not expected to slow until the actual cessation date.

Total cattle inventory is forecast at 10.07m head for 2022, one percent less than 2021. Once the bulge of extra steers and heifers coming from the extra retentions in 2018 and 2019 has gone through the system, the base herd numbers will be almost the same as 2020. It is expected that the numbers of dairy and beef cows will be relatively stable.

2021

FAS/Wellington now estimates a significant change to the total cattle slaughter at 4.65 million (m) head in 2021, 0.6 percent above 2020 slaughter levels. This is six percent above the previous estimate, and key reasons include:

- The calf kill is now estimated at 1.9m head, nearly one percent greater than 2020 and 12 percent greater than the previous estimate. This is predicated on the basis that farmgate prices for calves have increased significantly in 2021, making it more economic for dairy farmers to supply this market. In addition, there are anecdotal indications less calves are being retained from the dairy cow natural increase for replacements to the beef herd.

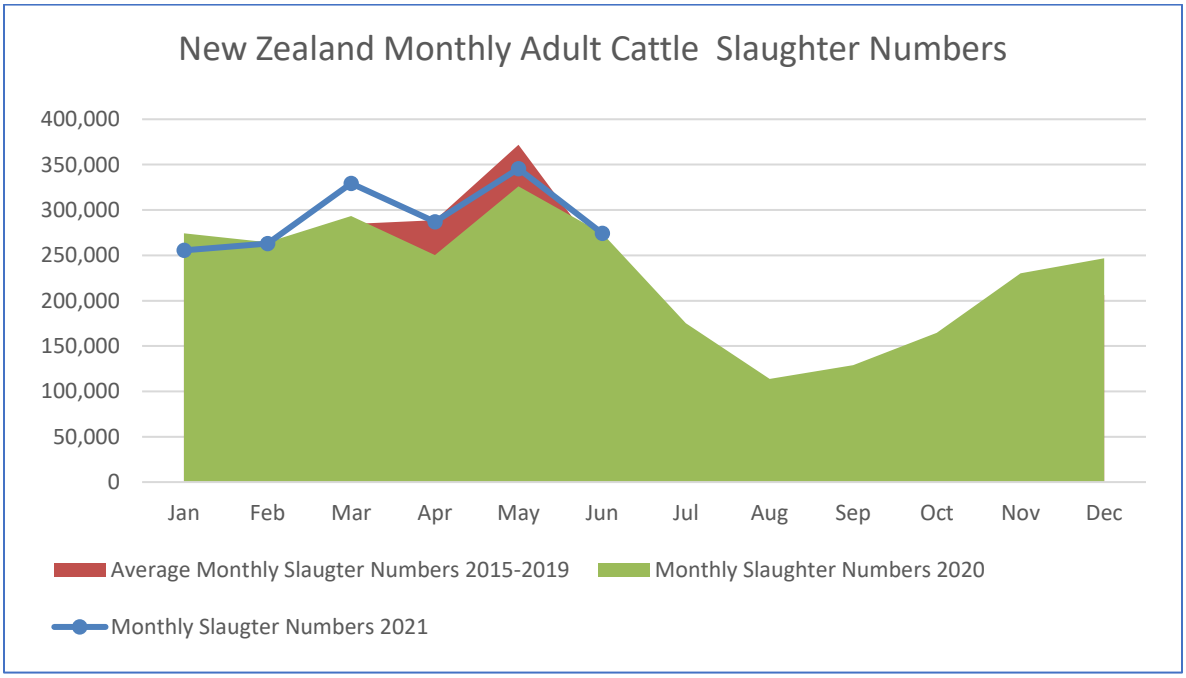
- Other adult cattle slaughter is estimated at 1.755m head, three percent greater than 2020 and ten percent greater than the previous forecast. This is led by significant increases to the steer and heifer kills. For the first half of the year the kill increases for steers and heifers over the same period in 2020 are up 16 percent and nearly 18 percent, respectively. For the full year it is estimated the steer and heifer kills will be up compared to 2020 by seven and five percent, respectively. The increase in numbers of these types of cattle, which industry sources believe in the past has not been adequately accounted for in public statistics, stems back to 2018 and 2019 when a significantly greater number of calves from the dairy cow herd were retained into the beef herd as well as a material increase in beef calves born to beef cows in 2019. These extra cattle are now two years old and maturing ready for slaughter.

- The cow kill is estimated to fall by 4.5 percent from the 2020 total, down to 995,000 head. Both the dairy and beef cow herds are expected to remain relatively stable, which would reduce the annual kill back toward a status quo slaughter number rather than the higher number killed in 2020. Cow slaughter in 2020 was elevated as dairy and beef cow numbers were reduced because

of drought conditions.

- Live heifer exporting became a significant factor during 2020 as demand for beef dairy cross heifers took off. Even though new animal welfare regulations (for instance space on export ships) have been implemented, live exports have continued a brisk pace in 2021. Already for the half year to June 2021 56,379 head have been shipped. Demand reportedly remains strong and on that basis FAS/Wellington anticipates at least 105,000 head will be shipped for the year. This number of cattle shipped could have a moderating effect on the number of heifers being slaughtered.

The total 2021 ending cattle inventory is forecast at 10.18m head, up 1.2 percent on 2020. Total cow numbers are estimated to be relatively stable. Another year of high dairy prices forecast for 2021/2022 are encouraging dairy farmers to maintain cow numbers even though environmental regulatory pressure is for them to reduce.



Source: Stats NZ

Longer Term: Looming Freshwater Quality Regulations, Climate Change, & Forestry Encroachment

Freshwater Quality Regulations

New strict regulations aimed at halting any further declines in the quality of New Zealand's freshwater, and ultimately improving it, are now in place. The rules most likely to affect the sheep and beef sector are:

- Regulations on low-slope land cattle exclusion from waterways: The original rule set down that all land that was on average less than ten-degree slope would need to have its permanent waterways fenced off. This rule has been shown to be un-workable and the rule has been modified to only require land less than five-degree slope to have waterways fenced off. In addition, a new more specific map of the qualifying land has been generated.

- Winter forage crop grazing rule: Forage crops destined to be grazed during the winter months will be required to have consents with various environmental conditions attached such as the distance they must be from waterways or lakes and the date by which the bare land must be replanted. In addition, there will be a limit on the steepness of land that may be cropped. This will limit some farmer's activities and place increased costs on others. The on-the-ground implementation of this rule has been deferred until May 2022.

- Certified Freshwater Farm Plans: There is a requirement yet to be implemented where all farms will have to have a farm plan setting out the resources they use, the risks to freshwater this poses, and an ongoing plan to mitigate or remove the risk factors.

Intensive winter grazing of fodder beet crop in the hill country of the South Island. Most of the land occupied by sheep and beef farms is hill country like this. In the future the waterway on the right of the photo would have to have a permanent pasture berm around it (un-grazed in the winter) and the cattle will need to be grazed coming toward the water way not away from it. The big risk for erosion and sediment loss comes once soil cannot hold any more rainfall and there is run-off.

Climate Change Response

The "The Climate Change Response (Zero Carbon) Amendment Act 2019" separates the treatment of biogenic methane from the other greenhouse gases with specific targets for each to:

- reduce net emissions of all greenhouse gases (except biogenic methane) to zero by 2050,
- reduce emissions of biogenic methane firstly by 10 percent below 2017 levels by 2030, and ultimately by a still to be decided 24–47 percent reduction below 2017 levels by 2050.

Alongside this is the "He Waka Eke Noa" (HWEN) program, a private sector and Government initiative tasked with developing a farm level system to account for and reduce agricultural methane and nitrous oxide emissions. The Government requires of HWEN that by January 2025, all farms in New Zealand will be using a system for farm-level accounting and reporting of 2024 agricultural emissions at farm level. Net emissions will then be subject to a carbon tax. If implemented New Zealand is believed to be the only country which has decided to directly tax farmers for the methane and nitrous oxide emissions their livestock and operations produce.

Many involved in the sector do not believe the 2030 goal of ten percent reductions to methane emissions is possible with the current suite of technologies available to sheep and beef farmers without reducing livestock numbers. In the longer term, many believe that using genetic progress to breed for lower methane animals seems to be the best option for cost efficiently reducing emissions until a vaccine is commercialized.

Forestry Encroachment

Carbon credits generated from forestry plantings after 1990 may be purchased by high-level Greenhouse Gas emitters (fossil fuel importers, Industrial, and large coal or gas users etc.) to offset their emissions under the Emissions Trading Scheme (ETS). The ETS is a cap-and-trade scheme whereby emitters must give the Government each year New Zealand Units (one NZU equals one ton carbon dioxide) which equate to the value of their emissions. There is no limit to the level of offsets emitters may purchase by way of forestry carbon credits. As carbon prices have risen in New Zealand there has been somewhat of a gold rush to purchase farmland to plant in trees, mostly exotic pine trees.

Since 2017, 92,118 ha has been purchased by forestry interests. Of this approximately, 66,700 ha was pasture that is either planted or in the process of being planted to trees. In addition, another 47,382 ha of pastureland has or is being planted into trees by the existing sheep and beef farming landowners. The financial returns appear so good for this type of investment that forestry investors can generally outbid sheep and beef farmers for hill country land and much of the forests grown are not intended to be harvested as the returns from the carbon credits dominate the financial analysis. This is an average of 28,500 ha per year.

The Climate Change Commissions (the Governments Advisor) forecasting work suggests 25,000 ha of exotic species forests would be planted each year through to 2035. This could mean by 2035 150,000 to

200,000 cattle could be displaced, most likely breeding cows. In turn, this would have a negative effect on slaughter of somewhere around 100,000 to 150,000 head per annum.

Ramifications of the rule and policy changes

In the short term (one to two years) the freshwater rules will have the most immediate impact and cause some changes to how cattle are managed through winter, and some farmers who have not already fenced off waterways will face the expense of doing so. However, these rules on their own are unlikely to affect overall cattle and beef production but they will have an effect on farmer optimism.

In the medium to longer term, the climate change regulations and loss of land to carbon forestry will be a negative influence on production volumes. The Climate Change Commission's recent report stated a "favored demonstration path" for emissions reductions, and in it suggests that sheep and beef cattle numbers would likely reduce by 13 percent but with only a one percent reduction in total red meat production. Forestry encroachment is likely to cause sheep and beef cow numbers to reduce by around 150,000 ewe equivalents per year. This reduction in livestock numbers may well comprise half of the methane emissions reductions needed by the sector to reach the ten percent emissions reduction 2030 goal.

FAS/Wellington anticipates these changes to have a much greater impact on lamb/sheep production than beef production (which could even continue to increase). Even though the numbers of beef cows may decline, the decreased supply of beef-bred progeny will be replaced with surplus progeny from the dairy herd, currently slaughtered as 4-day year old calves. This is a trend which has been going on for many years, and currently around 60 percent of the adult cattle slaughtered are from a dairy origin. The trend is set to continue with beef genetics being used to sire greater proportions of the calves bred from dairy cows. In addition, the majority of farms which would be taken out of dairy production will likely to go into beef production with the remainder either being converted to horticulture, broadacre crops or urbanization.

Production Supply & Distribution – Cattle Numbers

Animal Numbers, Cattle	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Total Cattle Beg. Stocks (1000 HEAD)	10151	10151	10063	10063	0	10180
Dairy Cows Beg. Stocks (1000 HEAD)	4876	4876	4737	4736	0	4800
Beef Cows Beg. Stocks (1000 HEAD)	1105	1105	1065	1065	0	1050
Production (Calf Crop) (1000 HEAD)	5135	5135	5000	5352	0	5065
Total Imports (1000 HEAD)	0	0	0	0	0	0
Total Supply (1000 HEAD)	15286	15286	15063	15415	0	15245
Total Exports (1000 HEAD)	113	118	80	105	0	100
Cow Slaughter (1000 HEAD)	1042	1042	995	995	0	1000
Calf Slaughter (1000 HEAD)	1883	1883	1700	1900	0	1900
Other Slaughter (1000 HEAD)	1700	1700	1700	1755	0	1650
Total Slaughter (1000 HEAD)	4625	4625	4395	4650	0	4550
Loss and Residual (1000 HEAD)	485	480	523	480	0	525
Ending Inventories (1000 HEAD)	10063	10063	10065	10180	0	10070
Total Distribution (1000 HEAD)	15286	15286	15063	15415	0	15245
(1000 HEAD)						

Not Official USDA Data

Beef Production

2022

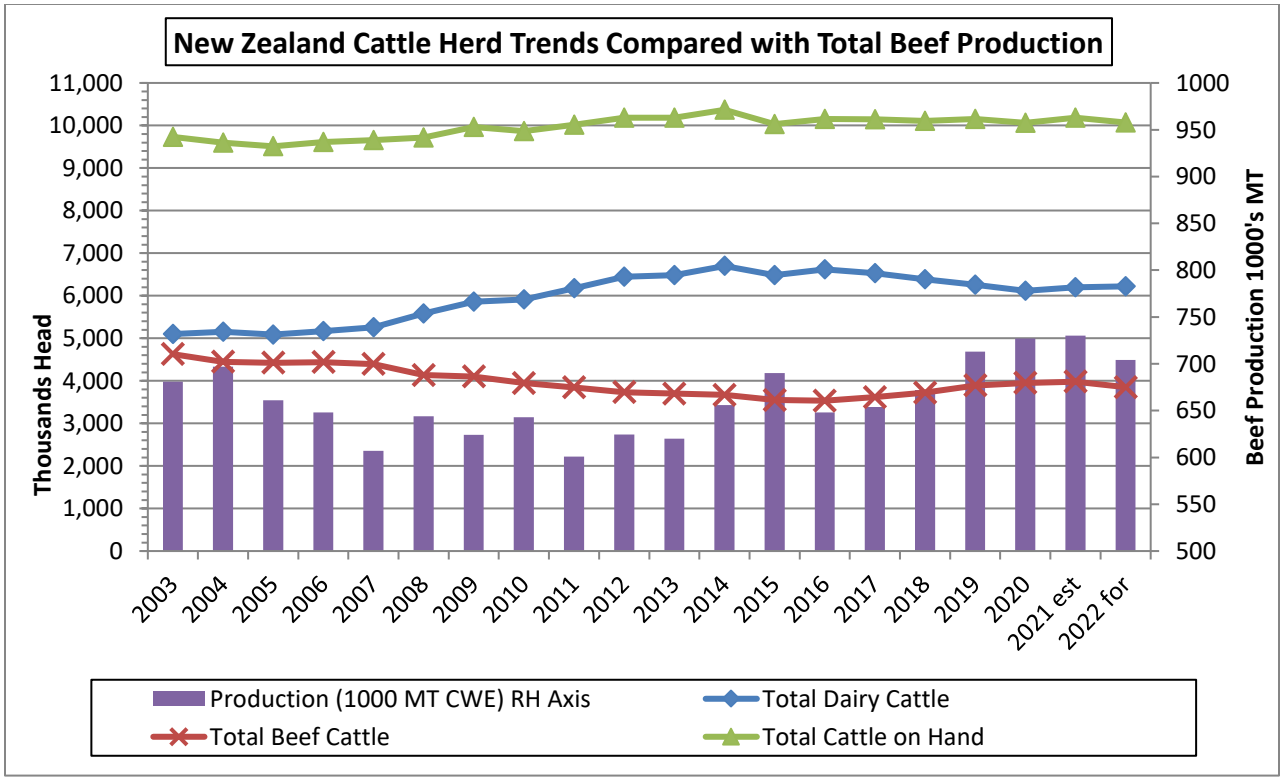
FAS/Wellington is forecasting beef production in 2022 at 704,000 MT carcass weight equivalent (CWE), down four percent from 2021. Essentially, this is due to the expected heifer and steer slaughter numbers dropping by around ten percent. The reduction in adult cattle as a proportion of the total kill is also expected to reduce the overall average carcass weight by 1.4 percent.

2021

Beef production for 2021 is now estimated at 730,000 MT CWE, nearly 0.5 percent above 2020, also a two percent upward revision from the previous forecast. The main driver behind this increase is the sharply higher slaughter numbers for steers and heifers, which will largely be slaughtered by the end of the third quarter. This is due to the retention of calves during 2018 and 2019 (which was previously underestimated) now being killed. For the first six months of 2021, total beef production was 434,730 MT, nearly six percent ahead of the prior comparable period in 2020 at 410,729 MT. This increase is not expected to last through to the end of the year as steer, heifer, and bull kill numbers are expected to reduce in the fourth quarter back to a lower level than in 2020. So far this year, overall average carcass weights are tracking closely to 2020 so are not expected to be materially different over the whole year.

New Zealand Beef Production Table									
Marketing Year		2020	Actual		2021	Estimated		2022	Forecasts
Category	CW kgs/ hd	Numbers to kill (1000's)	Total tons Beef	CW kgs/ hd	Numbers to kill (1000's)	Total tons Beef	Est. CW kgs/ hd	Numbers to kill (1000's)	Total tons Beef
Cow Slaughter	202.3	1,042	210,813	200.0	995	199,000	200	1,000	200,000
Calf Slaughter	16.0	1,883	30,153	16.0	1,900	30,400	16.0	1,900	30,400
Heifer Slaughter	243.1	531	129,147	243.0	560	136,080	243	500	121,500
Steer slaughter	311.3	616	191,687	311.0	660	205,260	312	600	187,200
Bull Slaughter	298.1	553	164,736	297.0	535	158,895	300	550	165,000
Other Adult Cattle Subtotal	285.7	1,700	485,570	285.0	1,755	500,235	287	1,650	473,700
Total Slaughter	157.1	4,624	726,537	156.9	4,650	729,635	154.7	4,550	704,100
% Change from Previous Year									
Cow Slaughter	1.1%	3.0%	4.1%	-1.1%	-4.5%	-5.6%	0.0%	0.5%	0.5%
Calf Slaughter	1.0%	4.0%	5.0%	-0.1%	0.9%	0.8%	0.0%	0.0%	0.0%
Heifer Slaughter	0.6%	3.6%	4.1%	0.0%	5.4%	5.4%	0.0%	-10.7%	-10.7%
Steer slaughter	-0.4%	4.2%	3.8%	-0.1%	7.2%	7.1%	0.3%	-9.1%	-8.8%
Bull Slaughter	-0.6%	-4.1%	-4.7%	-0.4%	-3.2%	-3.5%	1.0%	2.8%	3.8%
Other Adult Cattle Subtotal	-0.3%	1.2%	0.8%	-0.2%	3.3%	3.0%	0.7%	-6.0%	-5.3%
Total Slaughter	-1%	3%	2%	-0.1%	0.6%	0.4%	-1.4%	-2.2%	-3.50%

Source: StatsNZ, B+LNZ, FAS/Wellington Estimates



Source: StatsNZ, B+LNZ, FAS/Wellington forecasts and estimates

Production Supply & Distribution – Beef Production

Meat, Beef and Veal	2020		2021		2022	
Market Year Begins	Jan 2020		Jan 2021		Jan 2022	
New Zealand	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Slaughter (Reference) (1000 HEAD)	4625	4625	4395	4650	0	4550
Beginning Stocks (1000 MT CWE)	0	0	0	0	0	0
Production (1000 MT CWE)	727	727	713	730	0	704
Total Imports (1000 MT CWE)	12	12	12	11	0	12
Total Supply (1000 MT CWE)	739	739	725	741	0	716
Total Exports (1000 MT CWE)	638	638	635	640	0	616
Human Dom. Consumption (1000 MT CWE)	101	101	90	101	0	100
Other Use, Losses (1000 MT CWE)	0	0	0	0	0	0
Total Dom. Consumption (1000 MT CWE)	101	101	90	101	0	100
Ending Stocks (1000 MT CWE)	0	0	0	0	0	0
Total Distribution (1000 MT CWE)	739	739	725	741	0	716
(1000 HEAD) ,(1000 MT CWE)						

Not Official USDA Data

Domestic Consumption and Imports

Beef consumption for 2022 is forecast to be stable at 100,000 MT CWE. For 2021, beef consumption is now estimated at 101,000 MT CWE, the same as 2020. Shipping delays have had some negative effects on processors/exporters moving product through their supply chains and at times, in order to control inventory, some export cuts have been discounted and sold through the supermarkets. This is likely to have had some minor positive effects on consumer demand and supported overall consumption. With plentiful supplies of beef being maintained, it is unlikely there will be increased demand for imports with year-to-date imports for 2021 being below the pace in 2020.

Domestic consumption accounts for only approximately 14 percent of the beef produced in New Zealand. Population growth from immigration, which has been a key feature in the New Zealand economy for several decades, has come to a halt in the wake of the COVID-19 response and subsequent pause for all immigration. It is likely that consumption will be stable unless there is some change to the pricing relativities with other protein sources.

Imports, which come almost exclusively from Australia, have been in a range from 11,000 to 15,000 MT per year and are forecast to remain at the bottom of this range, especially while beef in Australia is at such high prices.

Exports and Trade

2022 – Beef Exports

FAS/Wellington forecasts 2022 beef exports at 616,000 MT CWE, which would be nearly four percent less than 2021. This is solely a result of the similar four-percent reduction in total beef production. China and the United States are expected to continue to be the dominant markets for New Zealand beef.

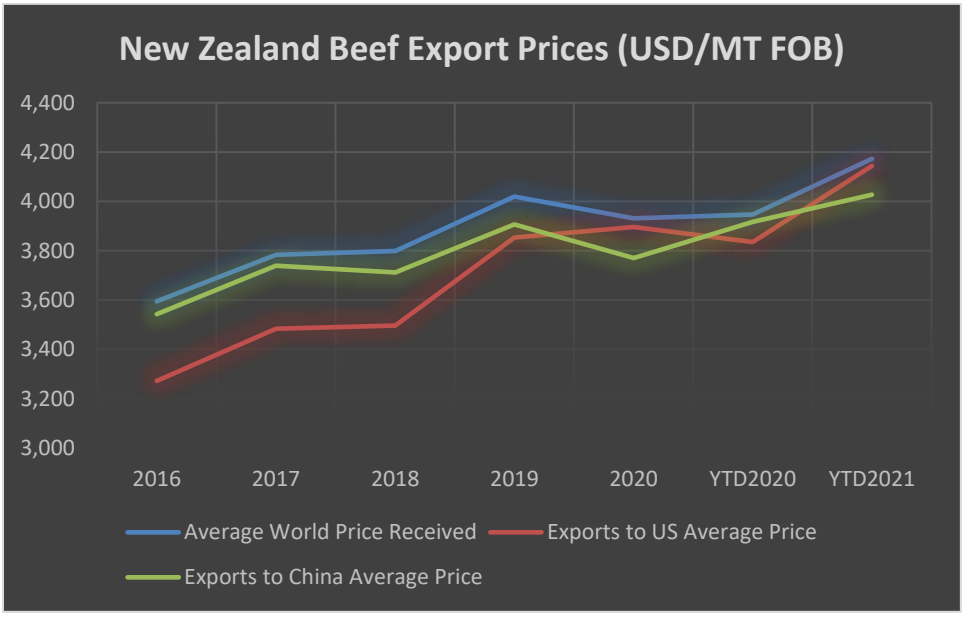
2021- Beef Exports

FAS/Wellington estimates beef exports for 2021 at 640,000 MT CWE, under one percent up on the volume shipped in 2020 and an upward revision on the previous forecast. If realized, this would be another record. Primarily this is the result of the upward revision to both slaughter numbers and beef production and domestic consumption remaining stable. Beef exports during the first half of 2021 are already up five percent from last year's record pace, although exports are expected to slow during the second half of the year.

Overview - Beef Exports

Beef export prices out of New Zealand have been strengthening, nevertheless nervousness remains among New Zealand exporters over new COVID-19 outbreaks especially through Asia and how this will affect demand and supply chains.

The trend established over the last two years of the aggregate total beef shipped to the China and U.S. markets being over 70 percent of the total beef shipped has not changed in the first half of 2021. Demand from China for New Zealand beef does not seem to have waned at all. Additionally, demand from the United States for New Zealand beef remains strong due to less competition from Australian lean beef supplies due to the herd rebuild there. There is some concern in New Zealand that exporters in general are over-exposed to the Chinese markets. However, some exporters have reported that enquiries from Chinese importers are so strong they could sell New Zealand's entire beef production to China. New Zealand exporters are well aware of the perils of being over reliant on any one market. The growth of exports to China, and the ability to sell more profitable cuts of beef, has reduced the overall number of New Zealand export markets. For example, prior to 2016 exports went to around 94 countries, but now New Zealand ships to about 75 countries.

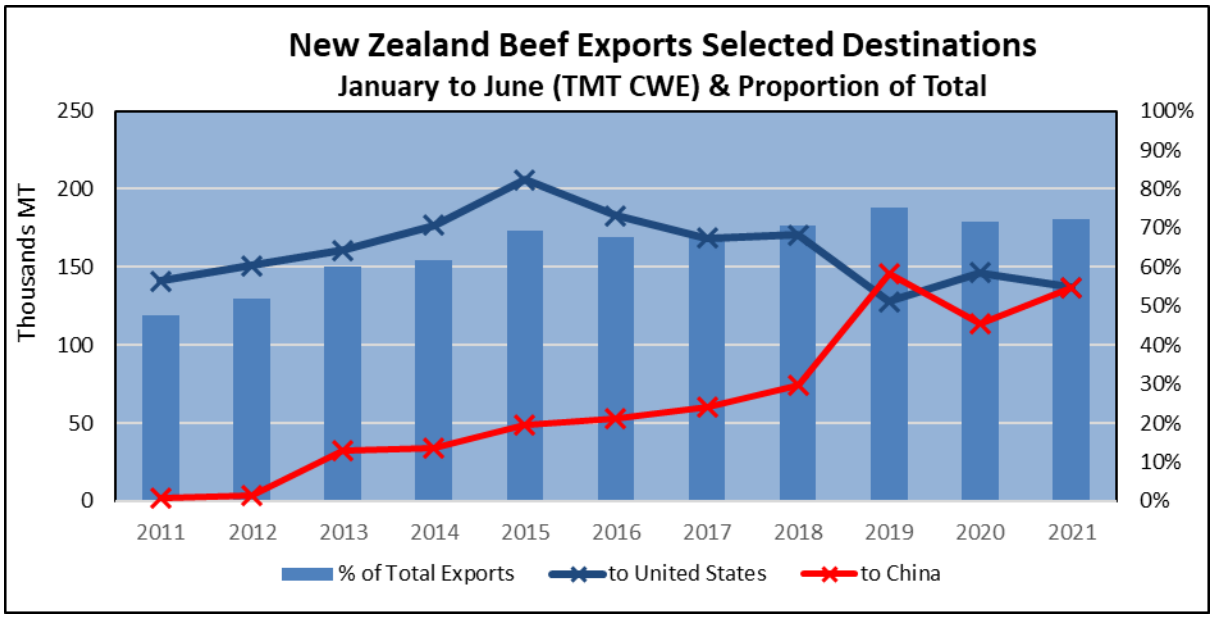


Source: TDM LLB

While China and the United States may not be, on average, the highest paying markets per se (see chart above), because of the sheer volumes they are, by far, the most valuable.

COVID-19 induced shipping delays and supply chain pressures remain and reportedly are not likely to improve significantly until late 2022 or into 2023. The delays from changing shipping schedules, availability of containers, and slow port discharging has increased costs for the exporters. Up to now it seems that demand in export markets has been strong enough for exporters to recoup these increased logistical costs through higher export pricing.

New Zealand exporters marketing their beef with grass-fed and antibiotic-free claims continue to exploit a profitable niche especially in the United States where there is established demand. Even though nearly all of New Zealand's cattle have been essentially grass-fed, by emphasizing this aspect to consumers, exporters are hoping to be able to upgrade the value of their cuts and increase the amount of product going directly into retail. This effort has been encapsulated into a brand developed by Beef+LambNZ called "Taste Pure Nature NZ – New Zealand Beef and Lamb". The United States and China have been targeted initially with digital media campaigns but eventually the promotional material and technical backup will be extended for use in all markets.



Source: TDM LLB

New Zealand Beef Export Statistics								
Harmonizing Codes: 0201, 0202, 021020, 160250 by Carcass Weight Equivalent Shipped								
Destination Country	Calendar Year: 2016 - 2020					January-June		
	2016	2017	2018	2019	2020	2020	2021	%Δ 2021/20
United States	264,904	263,300	256,729	180,011	238,838	146,494	136,970	-6.5
China	89,484	106,355	146,293	280,469	211,398	113,576	137,031	20.65
Japan	24,210	22,753	24,471	26,131	31,529	19,624	24,536	25.03
Taiwan	34,981	28,738	32,615	23,208	27,962	17,054	14,188	-16.81
Canada	24,745	27,138	24,948	16,124	26,548	13,903	8,233	-40.78
South Korea	29,326	25,993	27,082	15,780	21,318	11,315	11,612	2.62
Australia	13,309	13,688	13,922	13,380	19,567	7,899	12,200	54.45
Indonesia	15,347	8,043	8,366	7,776	8,507	5,274	6,281	19.09
Malaysia	6,616	7,277	7,584	6,032	6,057	3,434	1,045	-69.57
Philippines	5,584	7,576	7,710	4,310	4,119	2,486	2,488	0.08
Rest of the World	51,158	53,085	52,094	49,468	41,799	21,371	24,143	12.97
Total for World	**559,664**	**563,946**	**601,814**	**622,689**	**637,642**	**362,430**	**378,727**	**4.5**

Source: TDM LLB

Attachments:

No Attachments