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New Zealand Forestry and Wood Products Report 2019

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Report Highlights:
The log harvest for the year ending September 2018 totaled 35.8 million cubic meters of roundwood, 2.5 percent higher than the previous year and is significantly ahead of the previous government's forecasts. The majority of the increased log harvest is being exported as raw logs to China.

Executive Summary

New Zealand's total plantation forest area has reversed its declining trend that started in 2015. The efforts initiated by the New Zealand government tree planting programs; higher log prices; and increasing carbon credit prices are incentivizing landowners and investors to plant trees at a much greater rate than in the past ten years. Thus, it is likely there will be annual increases in the net plantation forest area between 25,000 to 45,000 hectares (ha) per year over the medium term.

The MY2018* log harvest is estimated at 35.8 million (m) cubic meters of roundwood. For the last five years, the log harvest volume has been growing at a compound rate of 3.9 percent per annum, fueled by continued Chinese demand for raw logs. The surge in log harvest volume is three to five years is ahead of earlier projections. The Ministry for Primary Industries (MPI) harvest forecasts show potentially an annual harvest of 35m cubic meters of roundwood, which could be sustained for a decade.

Total raw log exports for MY2018 is estimated at 21.2 m cubic meters, 17 percent ahead of last year. The export volume is significantly ahead of MPI 2016 projections, which forecast exports of 18m cubic meters by 2020. Since MY2015, raw log exports have increased by 33.5 percent or 5.3m cubic meters driven by strong demand from China, which accounted for 97 percent of this increase.

Domestic production of lumber and wood products, including wood chips, is estimated at 6.2m cubic meters for MY2018 and 6.3m cubic meters for MY2017. This is significantly above the 5.5m to 5.8m cubic meter production during MY2014 to MY2016.

In MY2018 exports of lumber and other wood products totaled 3.7m cubic meters, which is consistent with the 3.6m to 3.8m cubic meters of export volumes since MY2014. The balance of the increased domestic production has gone predominantly into domestic construction.

Forest based industry exports (i.e., log, wood, pulp and paper) in MY2018 totaled USD4.6 billion, which is 16 percent higher than MY2017. Excluding pulp and paper exports, China now accounts for 66 percent of total log and wood product exports by volume.

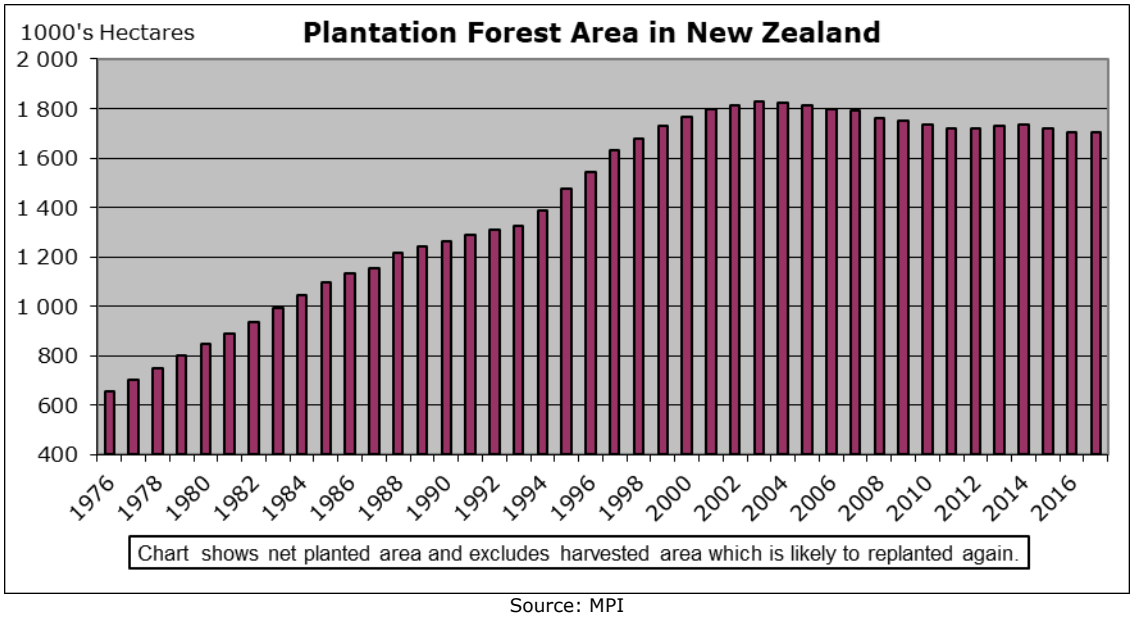
**Note: the marketing year here (MY) is defined as the 12 months to the end September. CY stands for calendar year.*

New Zealand Forests

Forest covers nearly 10.1m or 38 percent of the total 26.6m ha land mass of New Zealand. National or regional parks or private conservation areas include 5.7m ha of the total forest area. Total area of

plantation forest currently destined for timber harvesting is 2.1 m ha. More than 95 percent of the plantation forest comprises exotic tree species such as Radiata Pine. Only 84,000 ha of indigenous forest is permitted to be harvested. According to the most readily available data (April 2017), the estimated standing volume of timber in the plantation forest is estimated at 519 m cubic meters, 3.6 percent above the previous year. The average age of the plantation forest in April 2017 was marginally older at 17.4 years, up from the 2016 year at 17.08 years.

Current Commercial Forest Area and Planting Intentions



Source: MPI

The net planted area of plantation forestry as of April 2017 was 1.706m ha. The dip in net planted area that lasted from 2015 through 2016 has stopped. Under the current government's (led by Prime Minister Jacinda Ardern), new tree planting initiatives (detailed below) the net plantation forest is likely to expand by 25,000 ha to 45,000 ha per year. Other reasons for optimism are:

- Log prices at the forest gate or at the wharf (in New Zealand dollars) have recovered from a dip in MY2015 and have trended upwards. Pruned, clear wood, is in high demand both domestically and in export markets. The good log prices give investors' confidence to increase planting even though it may take up to thirty years before they receive any income.

- New Zealand's Emissions Trading Scheme is also incentivizing farmers to plant trees as carbon prices have risen to nearly NZD25 per unit in mid-January 2019 compared to NZ$1/NZ Unit in October 2012. (1Unit equals 1 ton of Carbon as CO2 sequestered in the trees) Industry participants say that once the NZU carbon price is around NZ$20/NZU it will stimulate planting. By being able to sell carbon credits as the tree grows for meaningful cash flow, makes an investment in forestry is more viable.

- Modern pine plantations are growing at 20 cubic meters of wood per ha per year. A well-tended stand could be gaining net wood value at the rate of NZD1,000 to NZD1,500 per ha per year. This would be better than most sheep and beef farms can obtain, from steep hill country. The drawback for forestry production is the lack of annual cash flow. Normally, the establishment costs are incurred in the first ten years of the investment, but it takes 27 to 32 years to recuperate any returns unless carbon credits can be sold in the interim.

- As environmental limits for nitrates, phosphates, and sediment discharges are tightened up around the country, farmers are taking the opportunity to plant more trees to provide environmental services (i.e. reduce phosphate run-off, reduce nitrate leaching, and reduce sediment run-off). This could offset having to reduce production of milk or meat to meet reduced limits.

- Deforestation, especially on the central volcanic plateau of the North Island, has ceased as returns from land-use change to dairy farming have plummeted and environmental constraints are now a reality in the Waikato River catchment.

There is one factor which may reduce log prices even though Chinese demand for wood products, especially raw logs, remains strong. New Zealand domestic rules for the use of the fumigant, methyl bromide are changing in October 2020. After this date, methyl bromide emissions in New Zealand will need to be recaptured or destroyed without being lost to the atmosphere. An alternative product could be used. To continue to comply with phytosanitary import regulations MPI is discussing various phytosanitary options with New Zealand's trading partners. Another chemical, ethanedinitrile (EDN) currently has an application before the Environmental Protection Authority (EPA) for use in New Zealand.

The New Zealand Government Billion Trees Initiative

The current center-left government, which assumed power in September 2017, announced early in its parliamentary term a goal to plant one billion trees by 2028. The one billion trees program encompasses a suite of policies, initiatives, and grants, which are meant to combat the effects of global warming/climate change. For instance, there are proposals to amend the Emissions Trading Scheme (ETS) legislation to make it more user-friendly and beneficial for forestry participants to claim carbon credits; and direct cash grants for planting trees.

Approximately 50 percent of the trees to be planted (500 million), will replace harvested trees from existing plantation forest. This leaves an additional 50,000 hectares (ha) to be planted annually for ten years. During the 1990s, the number of trees planted for forestry averaged an annual 55,000 ha. During that period, wool and meat prices were very low and the sheep/beef sector was barely profitable. Many sheep farmers situated in the steep hill-country were able to sell to their lands to forestry interests at far better prices than other sheep farmers were prepared to pay. Today, the situation is different as sheep

and beef farmers generally have low debt and are profitable. It is unlikely that these farmers will sell large scale tracts of land for forestry purposes.

Log Harvesting

2018

The log harvest for the year ending MY2018 at 35.78 m cubic meters of roundwood was 2.5 percent above MY2017. For the last five years the log harvest volume has been growing at a compound rate of 3.9 per annum. Chinese demand for raw logs has been driving this growth.

Estimated Roundwood Removals from New Zealand Forests (units: 000 cubic meters of roundwood)										
Natural Forest		Removals from Planted production Forests								
Year Ended	Total Removals	Saw Logs	Peeler Logs	Small Logs	Pulp Logs	Export Chips	Export Logs	Total Plantation Removals	Total Removals	Year Ended Total Removals
Sep-13	**7**	1 944	288	322	885	63	4 380	**7 882**	**7 889**	**29 492**
Dec-13	**5**	1 675	268	300	892	65	4 380	**7 580**	**7 585**	**29 764**
Mar-14	**5**	1 610	276	301	836	48	4 190	**7 260**	**7 265**	**30 257**
Jun-14	**5**	1 875	339	296	848	70	4 309	**7 737**	**7 742**	**30 480**
Sep-14	**6**	2 009	349	318	896	37	3 716	**7 324**	**7 330**	**29 922**
Dec-14	**5**	1675	284	304	915	69	4369	**7 615**	**7 620**	**29 956**
Mar-15	**5**	1850	319	323	844	67	4155	**7 557**	**7 564**	**29 660**
Jun-15	**6**	1993	320	322	890	64	3598	**7 187**	**7 191**	**29 481**
Sep-15	**4**	1750	294	309	899	51	3879	**7 181**	**7 187**	**29 561**
Dec-15	**5**	1745	295	308	908	59	3902	**7 218**	**7 223**	**29 164**
Mar-16	**5**	1730	301	308	908	59	3902	**7 209**	**7 214**	**28 814**
Jun-16	**6**	2056	233	328	505	92	4364	**7 577**	**7 583**	**29 206**
Sep-16	**7**	2033	266	335	728	58	4809	**8 229**	**8 236**	**30 256**
Dec-16	**6**	1863	244	315	891	89	4353	**7 755**	**7 760**	**30 989**
Mar-17	**3**	2192	252	308	892	58	3943	**7 644**	**7 647**	**31 399**
Jun-17	**4**	2016	314	328	875	74	4938	**8 546**	**8 549**	**32 191**
Sep-17	**5**	2230	334	332	932	63	4896	**8 787**	**8 792**	**32 749**
Dec-17	**6**	1964	291	330	904	78	5439	**9 007**	**9 013**	**34 001**
Mar-18	**5**	1833	285	314	852	56	4744	**8 083**	**8 088**	**34 442**

Jun-18	**2**	2154	307	322	900	62	5254	**8 998**	**9 001**	**34 893**
Sep-18	**6**	2242	336	341	908	82	5767	**9 676**	**9 681**	**35 782**

Source: MPI

Harvest Volumes in the Longer Term

Previous reports by the Ministry for Primary Industries (MPI) that forecast the annual harvest volumes to reach 32.4m cubic meters by 2020 have been well and truly surpassed. Some future scenarios now modelled by MPI based on surveyed harvesting intentions suggest that an annual harvest of 35m cubic meters of roundwood could be sustained for approximately 10 years.

Wood Disposal 2012 to 2018 – Where Did All the Logs Go?

New Zealand Wood Supply & Disposal Reconciliation							
In millions cubic meters							
Years Ending September 30	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Wood Production from Log Harvest	26.46	29.49	29.47	29.04	30.46	32.75	35.78
Disposed of by:							
Logs Directly Exported	12.89	16.15	16.57	15.89	16.95	18.13	21.2
Wood Chips exported	0.36	0.35	0.22	0.26	0.25	0.28	0.28
Timber & Wood Production	5.59	5.49	5.26	5.31	5.52	6.02	5.95
Pulp & Paper Production	3.53	3.44	3.43	3.53	3.53	3.59	3.56
Residual (to energy use, minor uses, or waste)	4.09	4.05	3.98	4.05	4.2	4.73	4.79

Source: MPI, StatsNZ, GTA, Post estimates

Note: The residual row includes offcuts from the processing sector which gets used for energy co-generation; smaller niche end-uses such as sawdust for animal bedding; and that which goes to waste.

Exports versus Domestic Usage

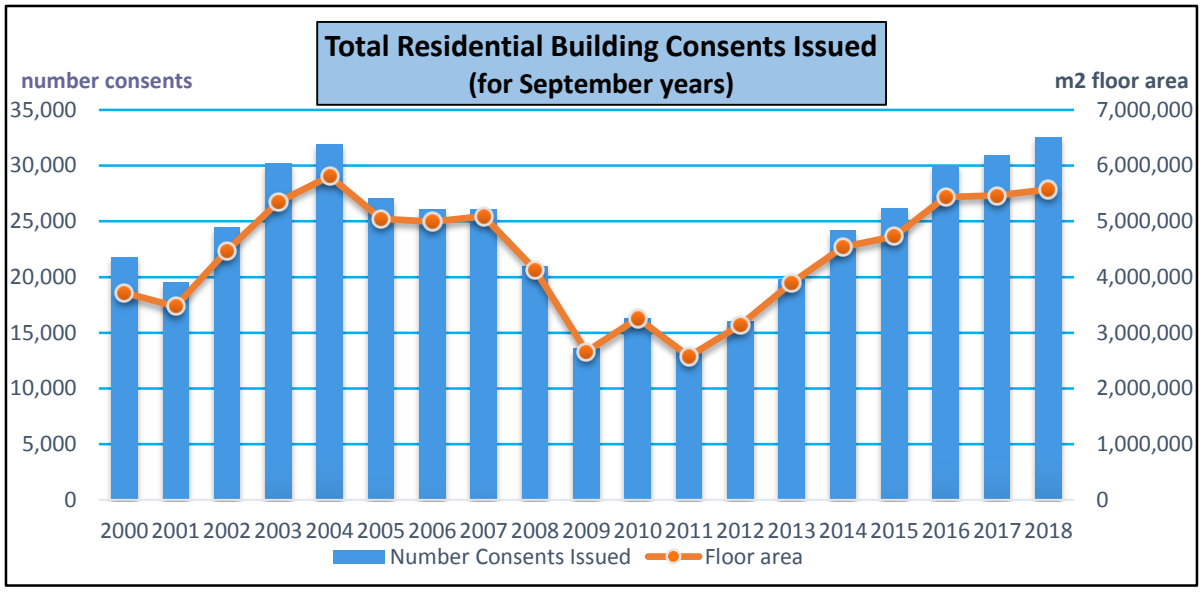
Total New Zealand Wood Processing Classified to Broad Product Type				
Shown as the proportion of quantity produced in the year to September for each type is of total output of wood processed				
Product Category	**Lumber Production**	**Veneer incl. for use in Plywood & LVL Production**	**Particle Board Produced**	**Fiber Board Produced**
% of each type 2003	71.7%	10.4%	3.6%	14.4%
% of each type 2013	73.1%	11.0%	2.9%	12.9%
% of each type 2014	71.4%	12.8%	2.8%	13.0%
% of each type 2015	72.0%	11.6%	2.8%	13.5%
% of each type 2016	73.6%	9.9%	2.8%	13.7%
% of each type 2017	76.4%	8.4%	2.6%	12.7%
% of each type 2018	76.2%	8.0%	2.6%	13.2%

Source: MPI, StatsNZ

The Domestic Scene

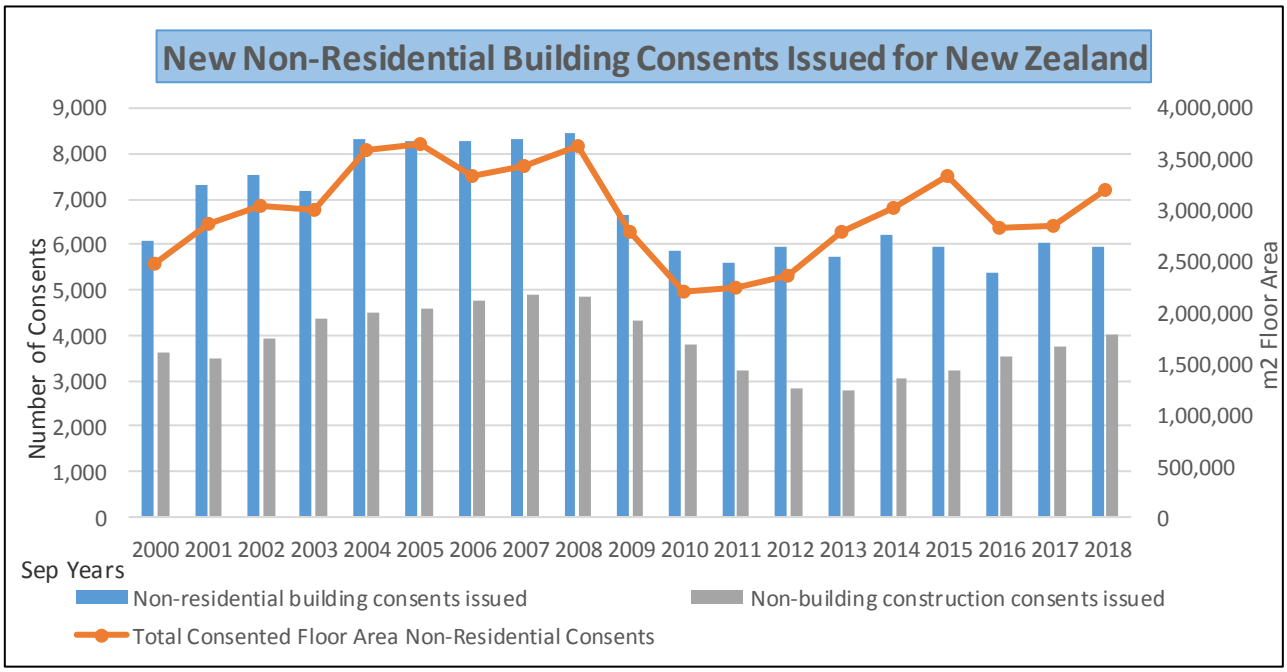
Issuance of residential building consents jumped to 32,548 in MY2018, a 141 percent increase from the low point in 2011. Non-residential building consent numbers hovered in a range 5,900 to 6,055 per annum for the last two years, which is only seven percent up from the low in MY2011 but the total floor area, at 3.2m square meters, consented is 45 percent greater than the low point in MY2010. With economic growth levelling off to 2.5-2.75 percent per annum, it seems unlikely that non-residential building will get back to the highs recorded back in MY2005 and MY2008 of 3.6 million square meters.

The current government is keeping its 2017 election promise to build 100,000 new houses and/or apartments over a ten year period from 2018. It appears likely that residential building will exceed the 35,000 houses per annum said to be needed to realistically address the supply/demand imbalance. There has not been a government intervention in the housing market of this scale or nature since the State House Building program of the late 1930's. Regulatory change at national and regional level is still needed solve consenting time delays and compliance cost escalation. Pre-fabricated wood buildings could address speed of build and cost escalation issues. However it is yet to be seen whether private sector house building will ease back as the government becomes the dominant house builder.



Sources: MPI, StatsNZ

Domestic wood processing volumes formerly in a range 5.5 m to 5.8 m cubic meters between MY2014 to MY2016 have increased to 6.2 m to 6.3 m cubic meters for the last two years. Post estimates volumes reaching 6.4 m to 6.5 m cubic meters to accommodate the increased demand for timber-built structures. The increased domestic demand for lumber should be met by the current log harvest volumes. However, the increased demand for pruned logs, has pushed the prices for domestic grade P1 pruned logs up sharply over the last 18 months.

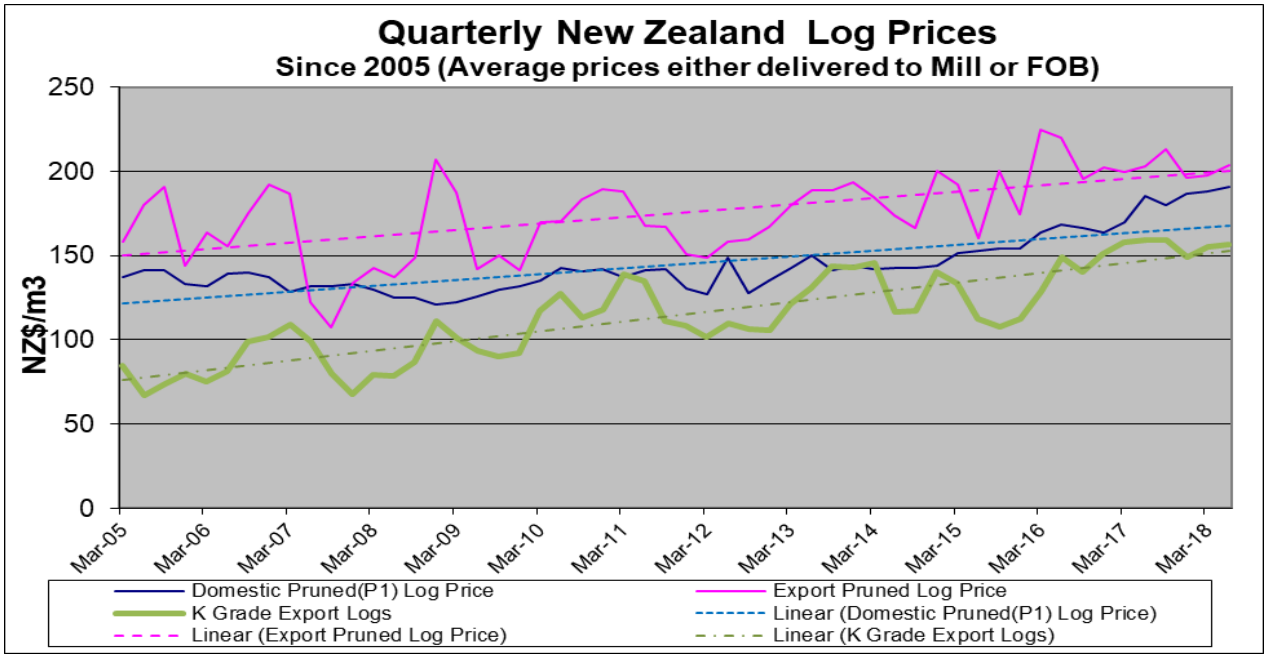


Sources: MPI, StatsNZ

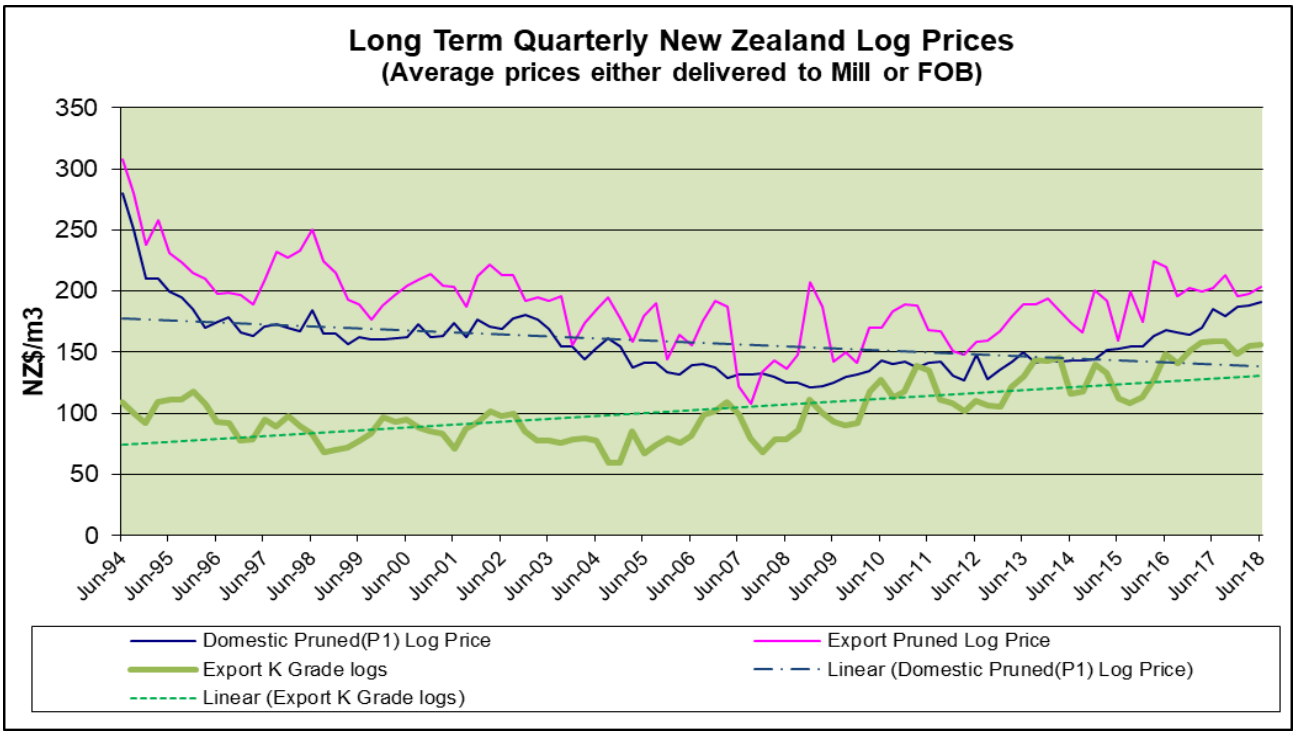
Source: GTA, StatsNZ, MPI

Log Prices

Reportedly domestic wood processors are claiming that because of high Chinese demand for raw logs and their willingness to pay higher prices, they are driving up prices for domestic logs. This, in turn, makes domestic wood processors financial margins very slim and is harming re-investments in new technology and is limiting opportunities to take advantage of increased export and domestic demand.



Source: MPI



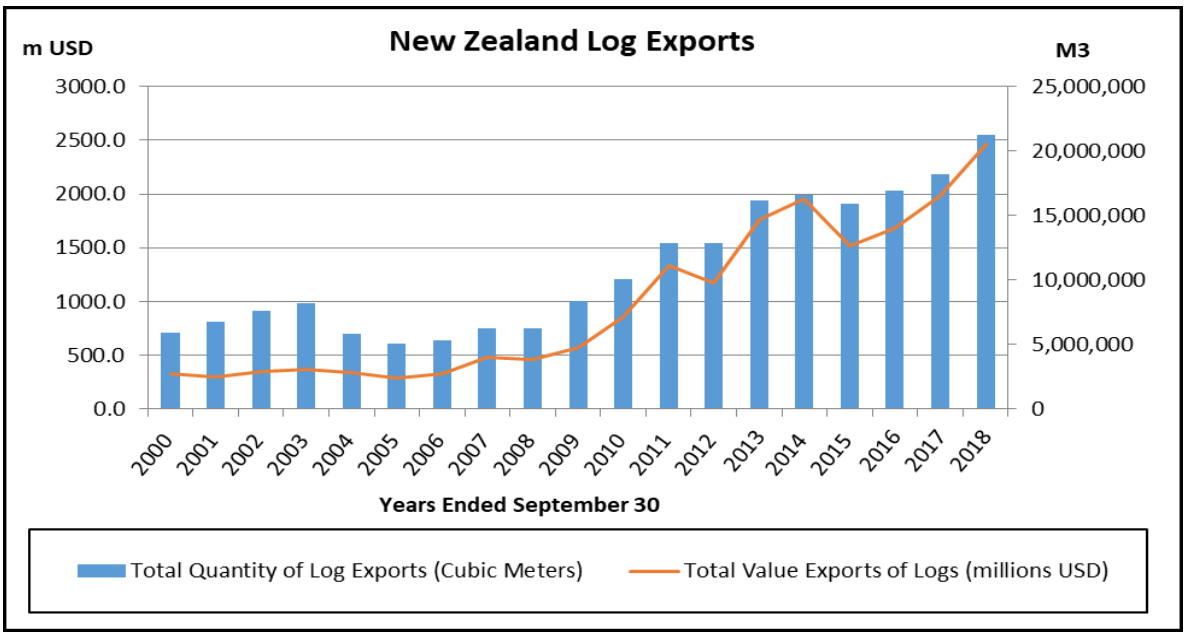
Sources: MPI, StatsNZ

New Zealand Exports and Trade

Total raw log exports for MY2018 is estimated at 21.2m cubic meters, which is 17 percent higher than the previous year. The chart below shows the rapid increase in raw log exports over the last three years.

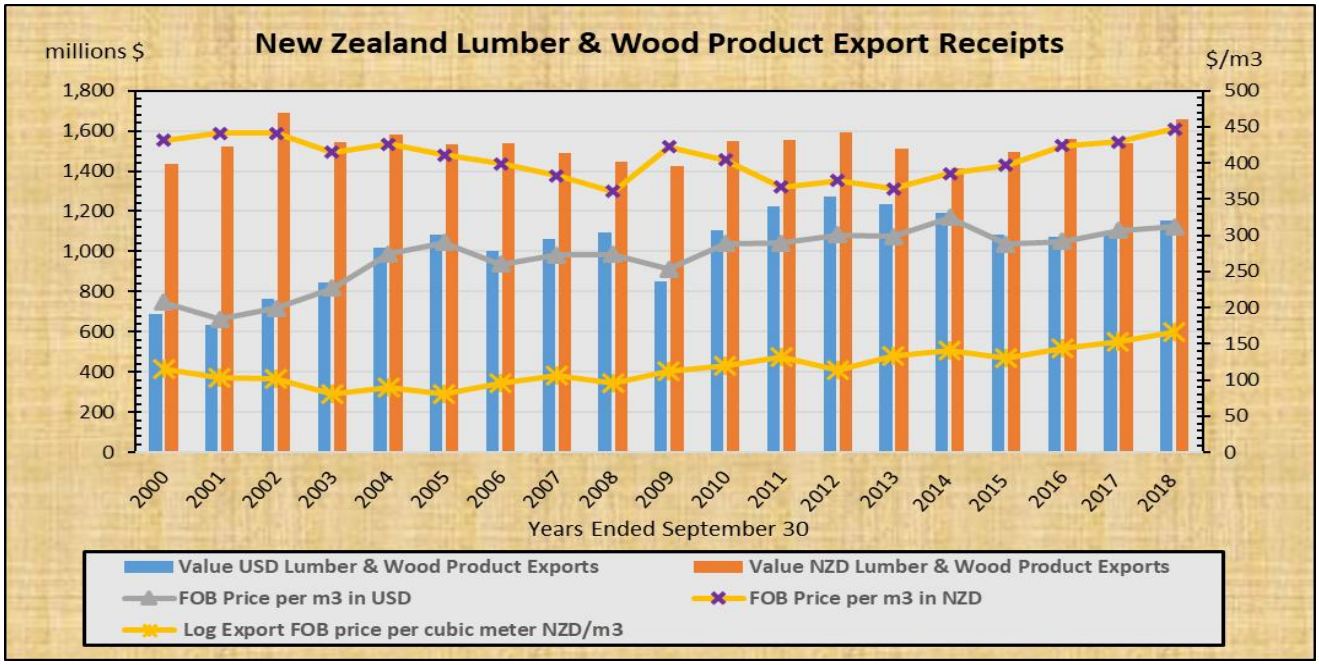
The volume of exports are significantly ahead of MY2016 projections, which forecast log exports at 18 m cubic meters by MY2020. Since MY2015 raw log exports have increased by 33.5 percent or 5.3m cubic meters. The increases in exports to China have taken 97 percent of this increase. Overall, China accounts for 76 percent of the total raw log exports. With the log harvest now at what would be considered a ceiling, it would appear that future raw log exports will plateau.

Total lumber and wood product exports from New Zealand have been relatively stable since MY2014 varying in a range between 3.6m to 3.8m cubic meters. For MY2018, at 3.7m cubic meters, wood product and lumber exports were three percent greater than the previous year. Even though lumber and wood product production is higher now than the era 2009 to 2016 the increased production is being used domestically especially in construction.



Source: GTA

At the individual lumber/wood product category level, sawn lumber over six millimeters thick, makes up 52 percent of all exports and the total volume exported in MY2018 stands at 1.92m cubic meters, which was up nine percent on the previous year. Back in MY2015, the lumber category comprised 54 percent of exports. Fiberboard exports in MY2018, at 0.6 m cubic meters, were up six percent and comprised 16 percent of total lumber and wood product exports. However, this volume of exports is well below the peak of 0.75m cubic meters shipped back in MY2006. Also grouped with the lumber and wood products is chipped wood destined for fuel wood or for further processing. This group comprises 18 percent of the total volume exported in the lumber and wood products group for MY2018.



Source: GTA

New Zealand Export Destinations for all Wood Products excluding Pulp/Paper by FOB Value							
Year Ending: September							
Partner Country	United States Dollars			% Share			% Change
	2016	2017	2018	2016	2017	2018	18/17
China	1,281,379,167	1,573,082,698	2,006,974,040	46.47	50.87	55.42	27.58
Japan	248,889,222	258,735,088	276,485,228	9.03	8.37	7.63	6.86
Korea South	273,789,192	303,469,909	271,547,161	9.93	9.81	7.50	- 10.52
Australia	263,253,360	245,960,157	252,995,816	9.55	7.95	6.99	2.86
United States	158,078,717	173,807,308	169,617,150	5.73	5.62	4.68	- 2.41
India	192,872,812	182,287,066	160,366,624	6.99	5.89	4.43	- 12.03
Hong Kong	13,556,306	6,803,794	53,964,531	0.49	0.22	1.49	693.15
Vietnam	49,273,069	53,264,510	53,616,467	1.79	1.72	1.48	0.66
Taiwan	43,397,904	43,433,357	53,096,646	1.57	1.40	1.47	22.25
Singapore	5,308,973	3,470,090	50,910,662	0.19	0.11	1.41	1367.13
All Other Destinations	227,532,729	248,221,984	272,132,308	8.25	8.03	7.51	9.63
World Total	**2,757,331,451**	**3,092,535,961**	**3,621,706,633**	**100.00**	**100.00**	**100.00**	**17.11**

Source: GTA

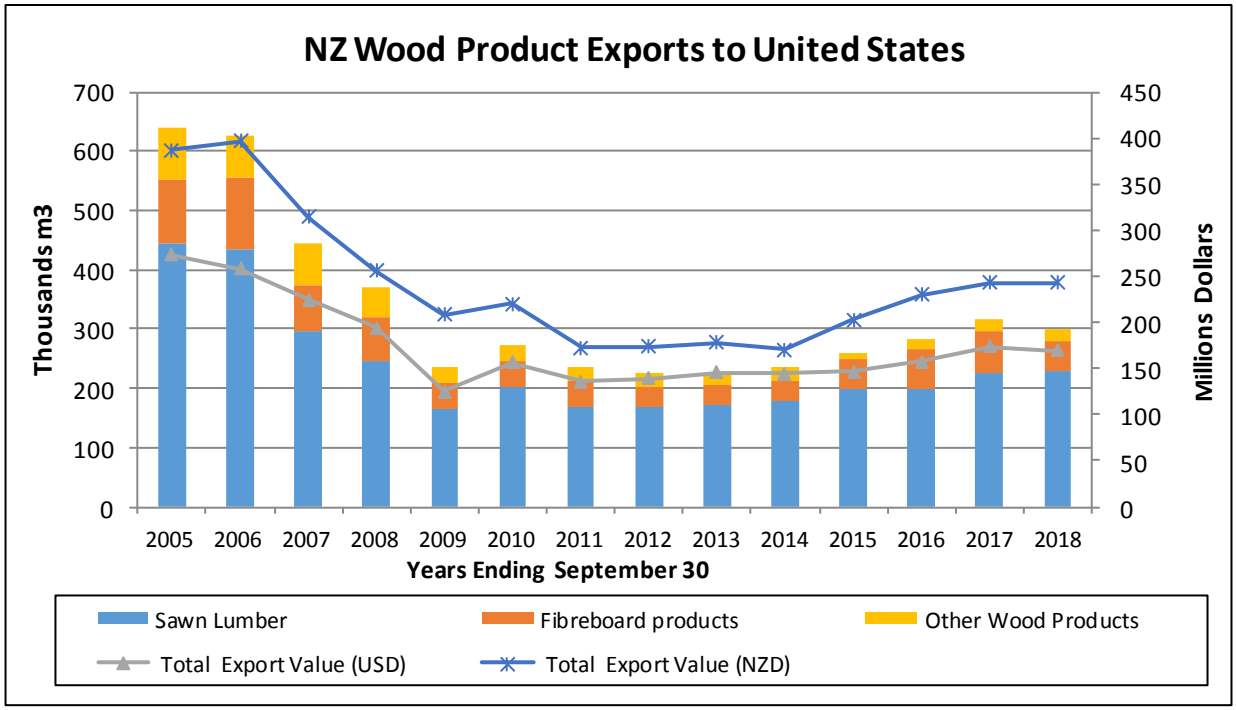
New Zealand Export Destinations for Wood Pulp & Paper by FOB Value							
Year Ending: September							
Partner Country	United States Dollars			% Share			% Change
	2016	2017	2018	2016	2017	2018	18/17
China	191,500,209	214,945,547	231,830,003	23.24	24.30	23.66	7.86
Australia	237,970,539	228,837,818	226,274,758	28.89	25.87	23.09	- 1.12
Indonesia	64,011,174	89,707,867	94,939,259	7.77	10.14	9.69	5.83
Thailand	29,614,921	42,396,152	65,893,045	3.59	4.79	6.72	55.42
Korea South	57,349,851	49,084,531	64,309,952	6.96	5.55	6.56	31.02
Malaysia	29,781,662	29,575,550	51,138,336	3.61	3.34	5.22	72.91
India	29,153,892	39,162,587	46,961,837	3.54	4.43	4.79	19.92
Japan	38,792,352	43,047,230	30,234,279	4.71	4.87	3.09	- 29.76
Philippines	22,761,950	23,967,696	24,929,862	2.76	2.71	2.54	4.01
Taiwan	19,081,828	18,927,380	22,098,165	2.32	2.14	2.26	16.75
All Other Destinations	103,824,310	104,959,301	121,319,143	12.60	11.87	12.38	15.59
World Total	**823,842,688**	**884,611,659**	**979,928,639**	**100.00**	**100.00**	**100.00**	**10.78**

Source: GTA

China

Source: GTA

United States



Source: GTA

Note: This analysis does not include wood chips which are relatively minor.

Useful Websites:

MPI: http://www.mpi.govt.nz/

NZ Forest Owners Assn: http://www.nzfoa.org.nz/

Wood Processors Association of New Zealand: http://www.wpa.org.nz/

Structural Timber Innovation Company (STIC): http://www.stic.co.nz/home

Cross Laminated Timber: http://nzwood.co.nz/industry-news/2011/07/05/cross-laminated-timber-comes-to-nz/