

Wool Data Book

Data to Support the Wool Working Group

June 2019



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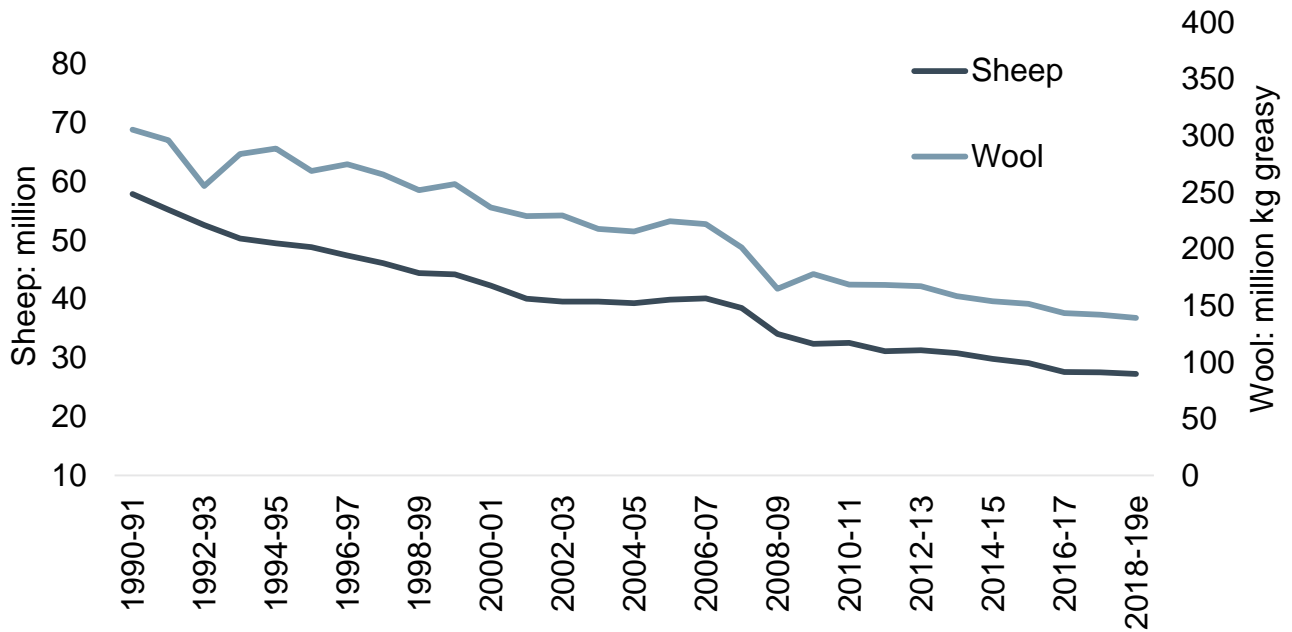
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The Domestic Picture

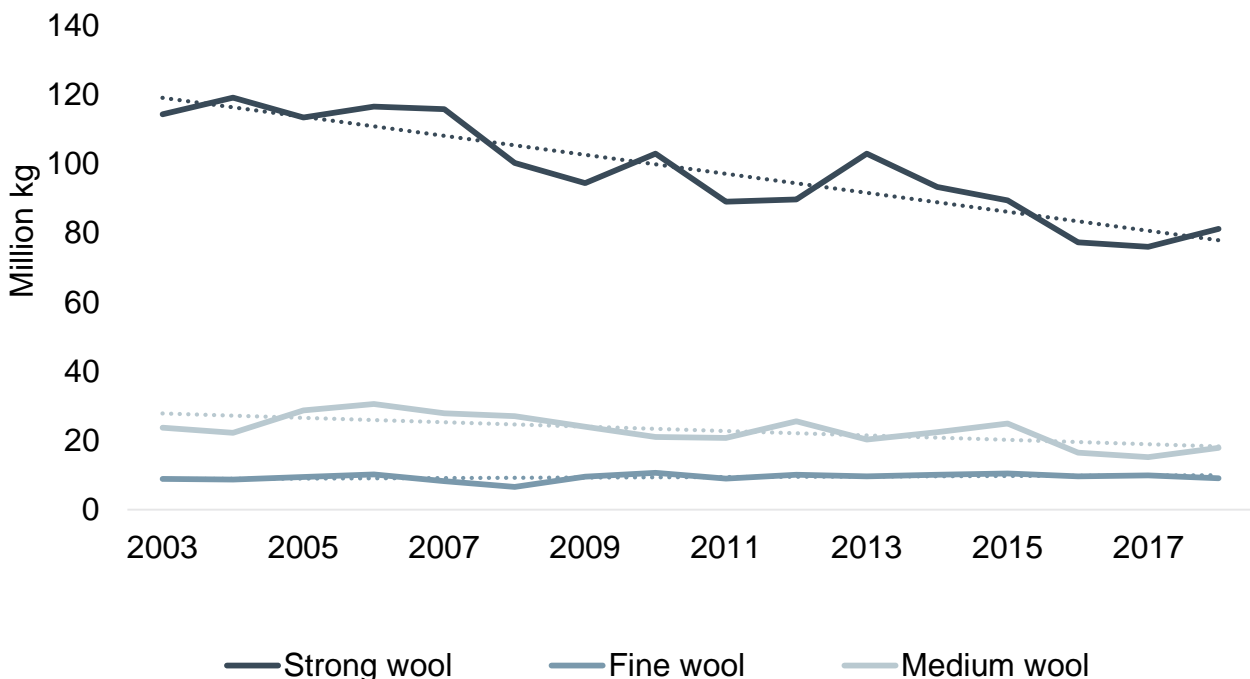
Sheep Numbers and Wool Production



Source: Beef + Lamb New Zealand, Stats NZ Agriculture Statistics

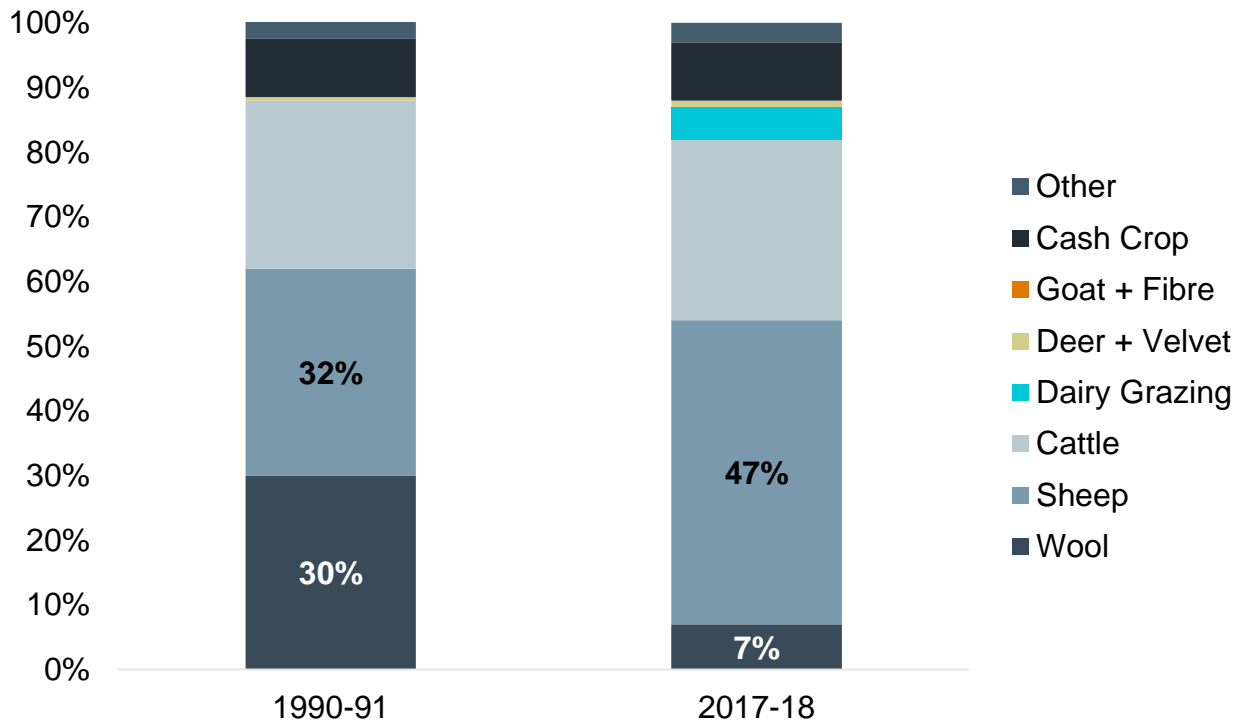
- Since 1990, sheep numbers and wool production have been declining. Export volume has been falling as a result of this.
- Sheep numbers have been falling as farmers pursue on farm activities to maximise their profit.

Export volume 2003 - 2018



Source: Stats NZ

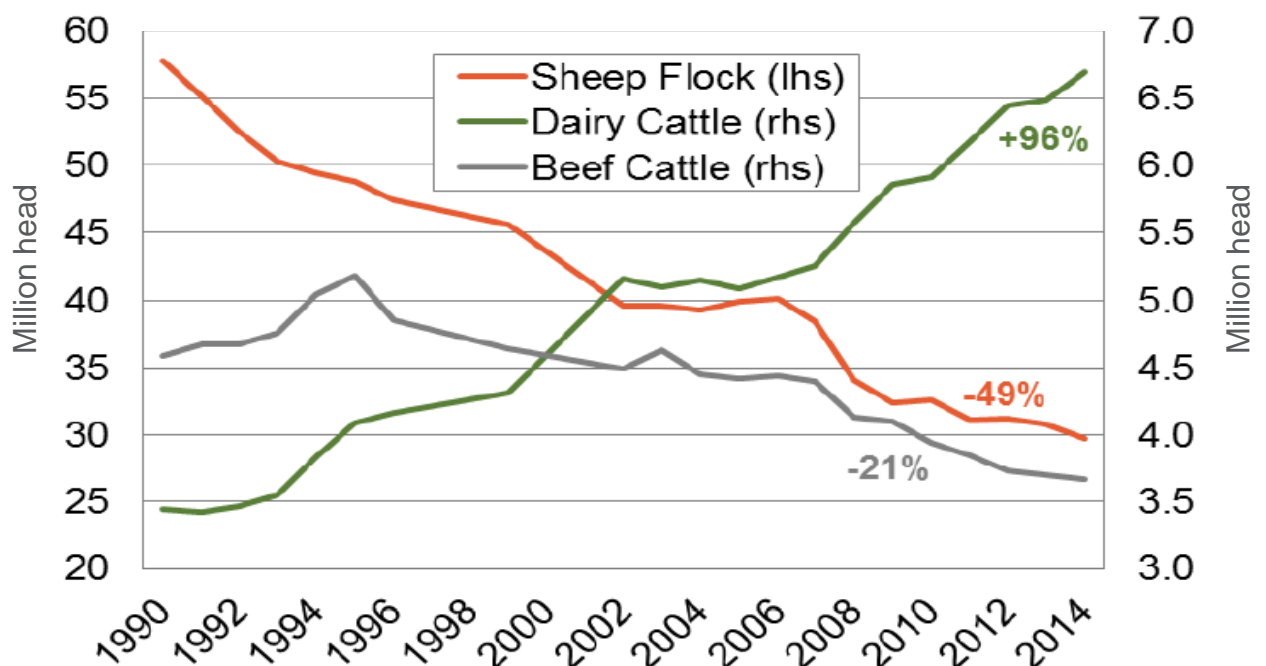
Sheep and Beef Farm Income Source



Source: Beef + Lamb New Zealand

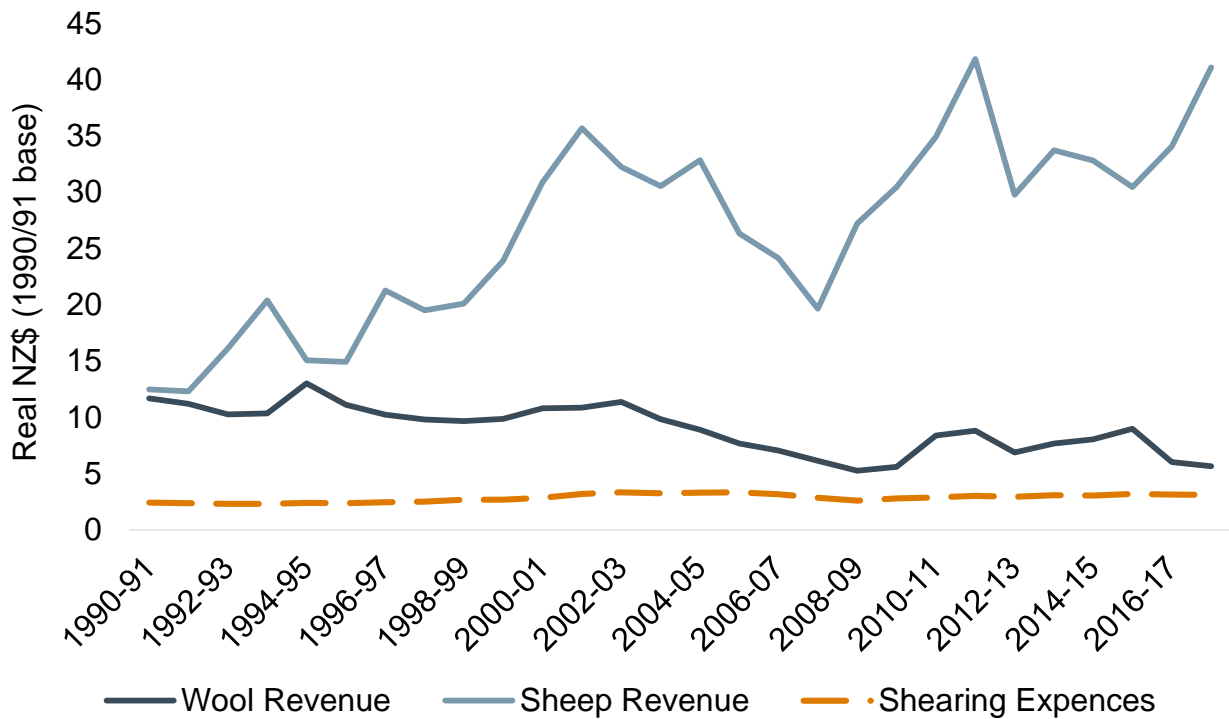
- Wool makes up a significantly lower proportion of farm revenue now than it did in 1990.
- The profitability of sheep meat is now the main driver of NZ sheep farmers, as prices for wool remain low and costs of producing it rise.

NZ Sheep Flock, Beef and Dairy Cattle Herd



Source: Stats NZ

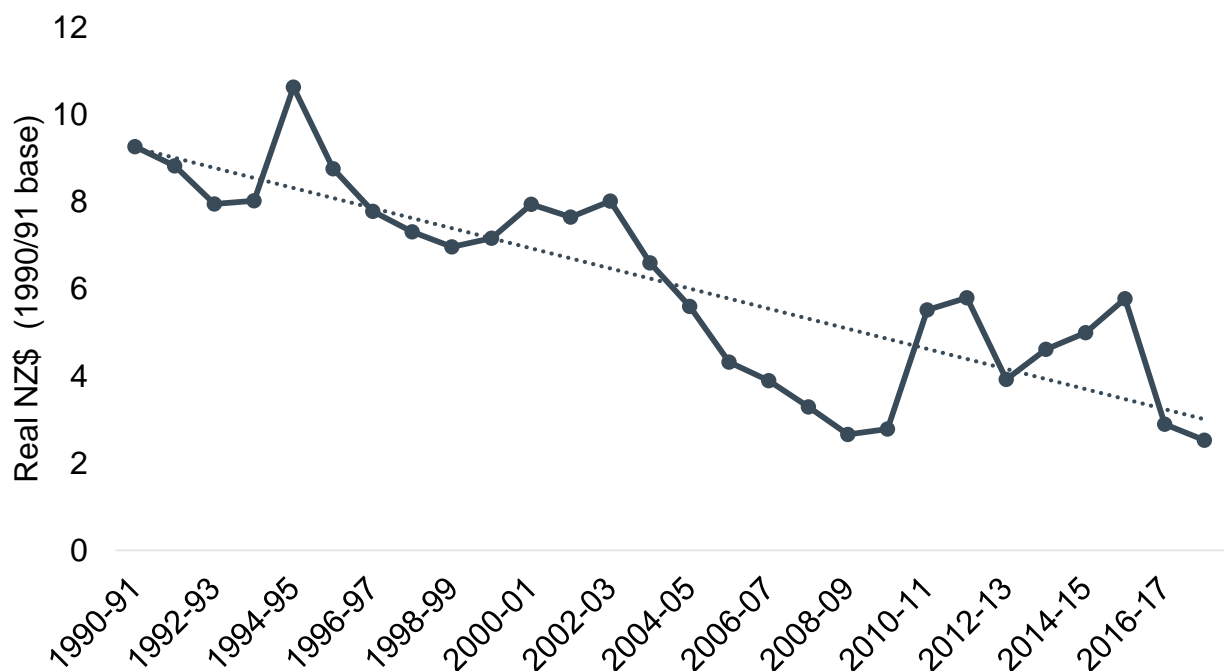
Real Revenue and Shearing Expenses per Stock Unit



Source: Beef + Lamb New Zealand

- Since 1990/91 the real revenue from sheep meat and the real costs of shearing have risen, while real income from shearing has decreased.
- Real income from wool less shearing costs has fallen over this period.

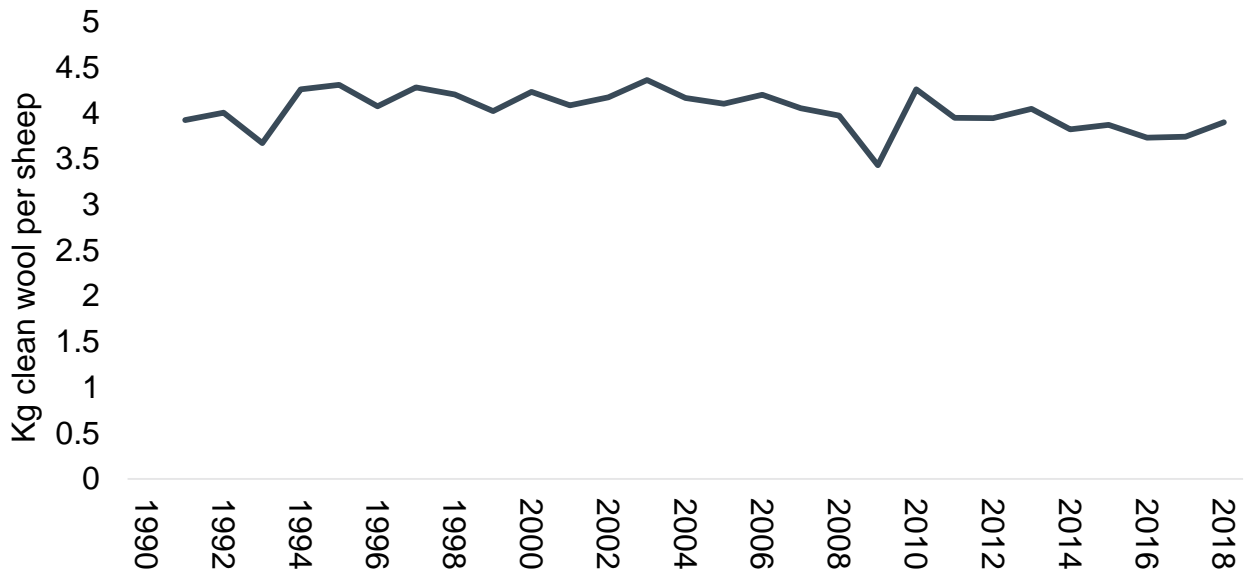
Real Wool Revenue Less Shearing Costs per Stock Unit



Source: Beef + Lamb New Zealand

NOTE: This is an amalgamation of all farm types, and may not reflect the exact circumstances faced by some farms

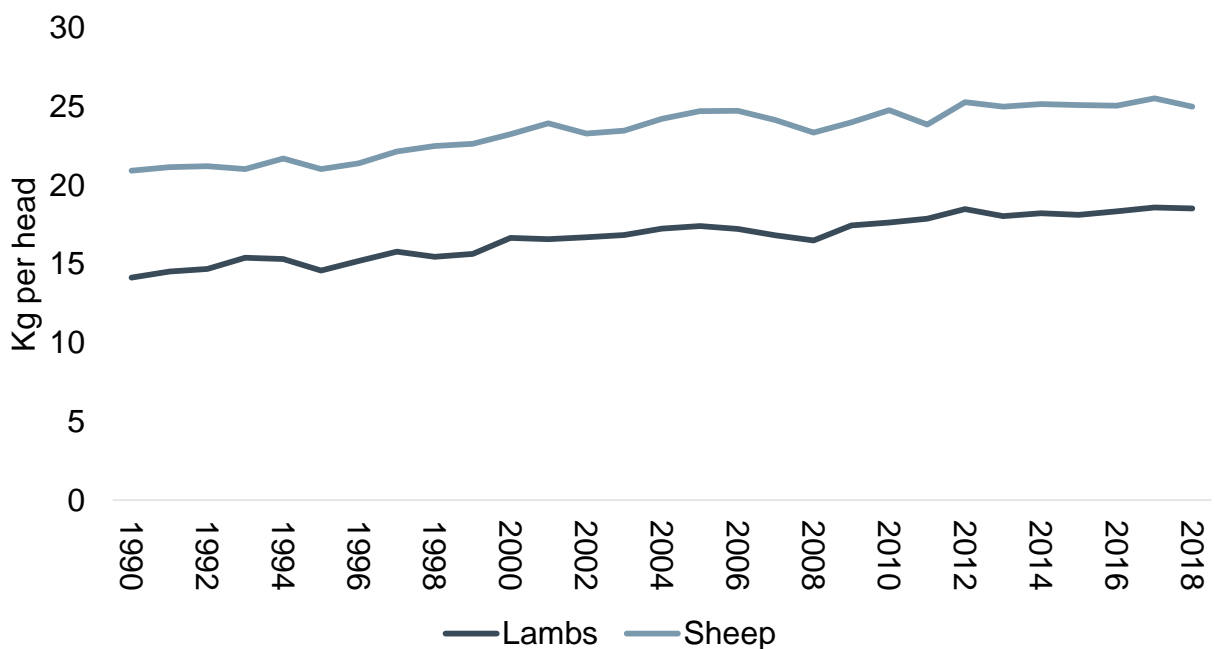
Wool Productivity



Source: MPI Pastoral Supply Response Model

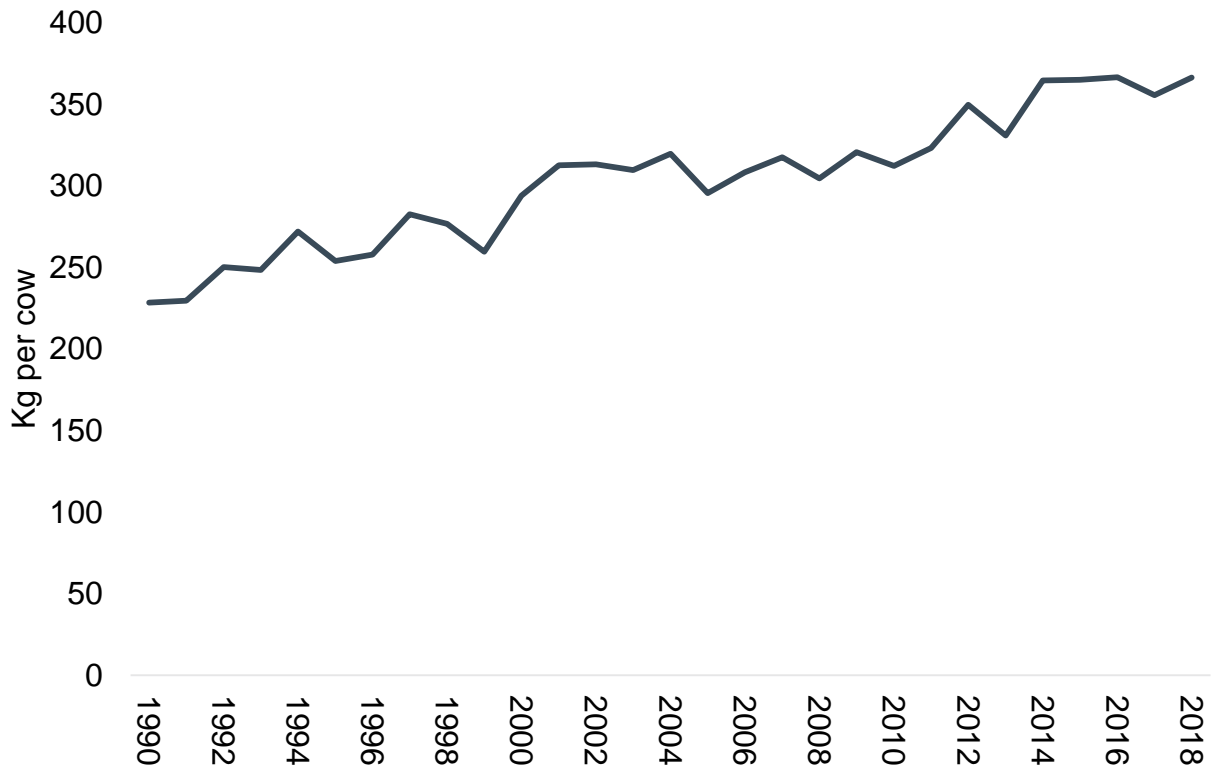
- Productivity has not improved for wool over the last 20 years. Sheep productivity growth in this period has been primarily a result of improvements in meat productivity characteristics such as lambing rate. It should be noted that while dairy and sheep carcass weight has improved, cattle carcass weight has not.
- There is a continuation of the productivity trends identified in the 2000 McKinsey report, which identified that productivity growth for strong wool farmers was being driven by improvements in meat productivity.

Sheep Carcass Weight Productivity



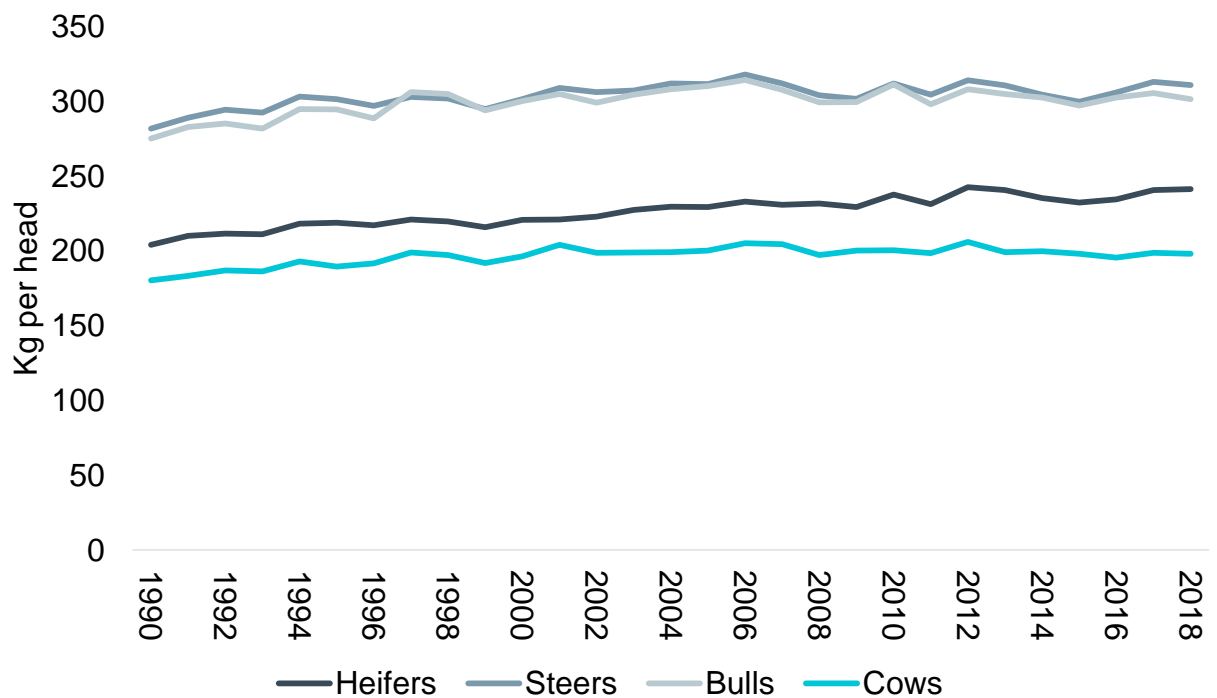
Source: MPI Pastoral Supply Response Model

Dairy Productivity: Milk solids



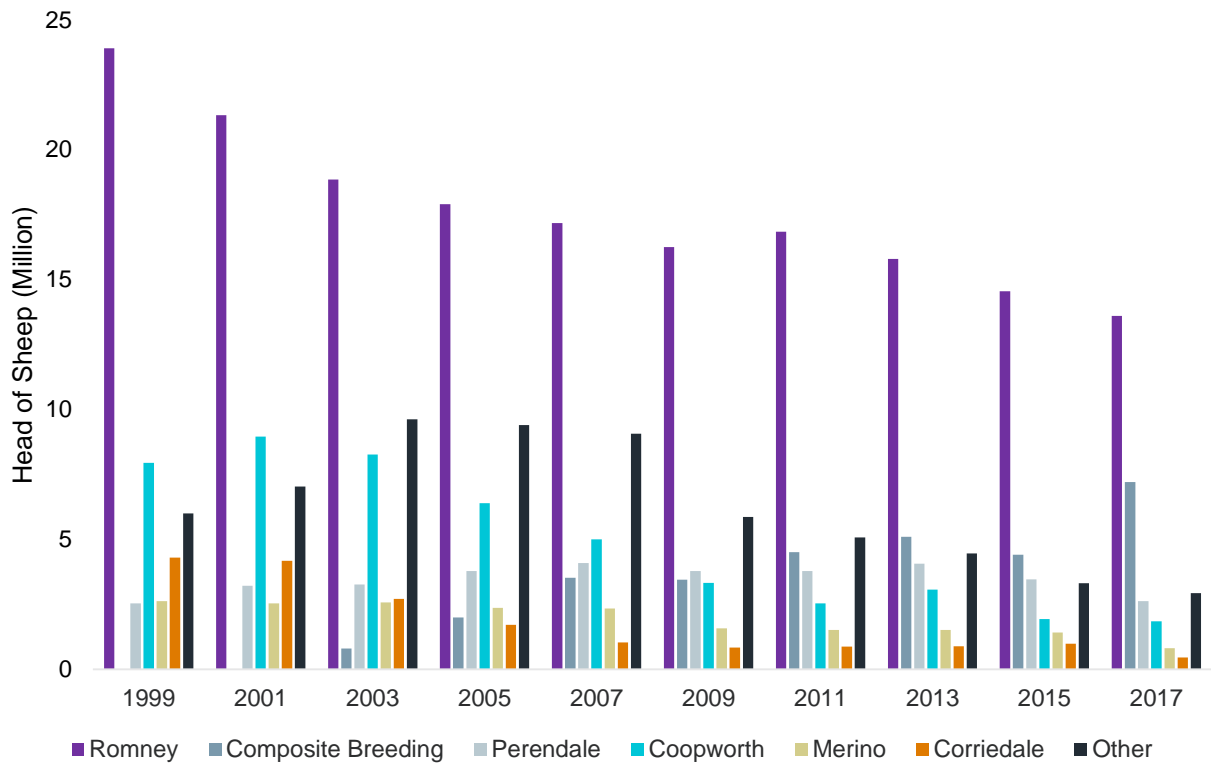
Source: MPI Pastoral Supply Response Model

Cattle Carcass Weight Productivity



Source: MPI Pastoral Supply Response Model

New Zealand Sheep Breeds by Sire

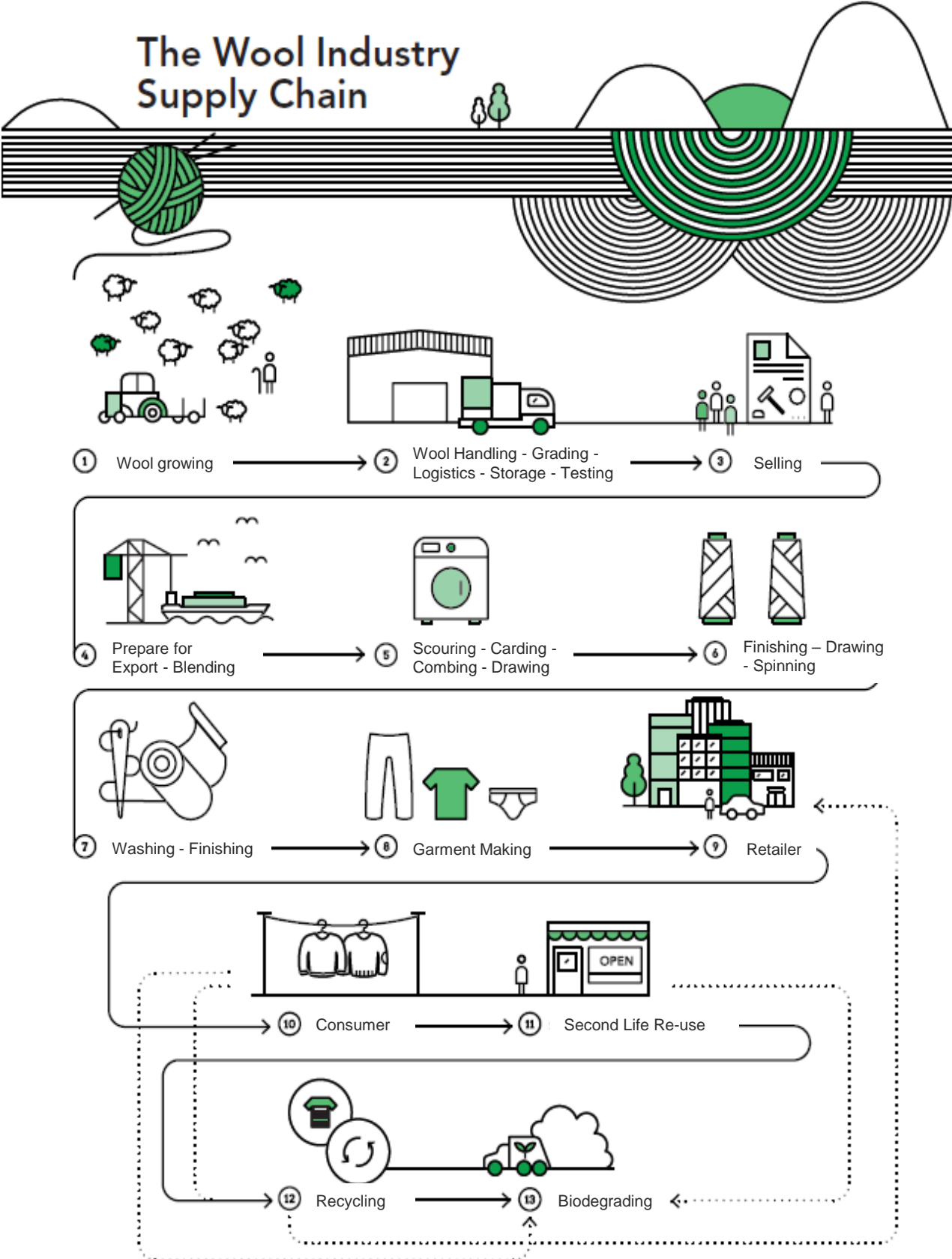


Year	1999	2001	2003	2005	2007	2009	2011	2013	2015	2017
Romney	23.9	21.3	18.9	17.9	17.2	16.3	16.8	15.8	14.5	13.6
Composite Breeding	-	-	0.8	2.0	3.5	3.4	4.5	5.1	4.4	7.2
Perendale	2.5	3.2	3.3	3.8	4.1	3.8	3.8	4.1	3.5	2.6
Coopworth	8.0	9.0	8.3	6.4	5.0	3.3	2.5	3.1	1.9	1.8
Merino	2.6	2.5	2.6	2.4	2.3	1.6	1.5	1.5	1.4	0.8
Corriedale	4.3	4.2	2.7	1.7	1.0	0.8	0.9	0.9	1.0	0.5
Other	6.0	7.0	9.6	9.4	9.1	5.9	5.1	4.5	3.3	2.9
Total (Million Head)	47.3	47.2	46.1	43.5	42.2	35.1	35.1	34.9	30.0	29.5

Source: Beef + Lamb New Zealand

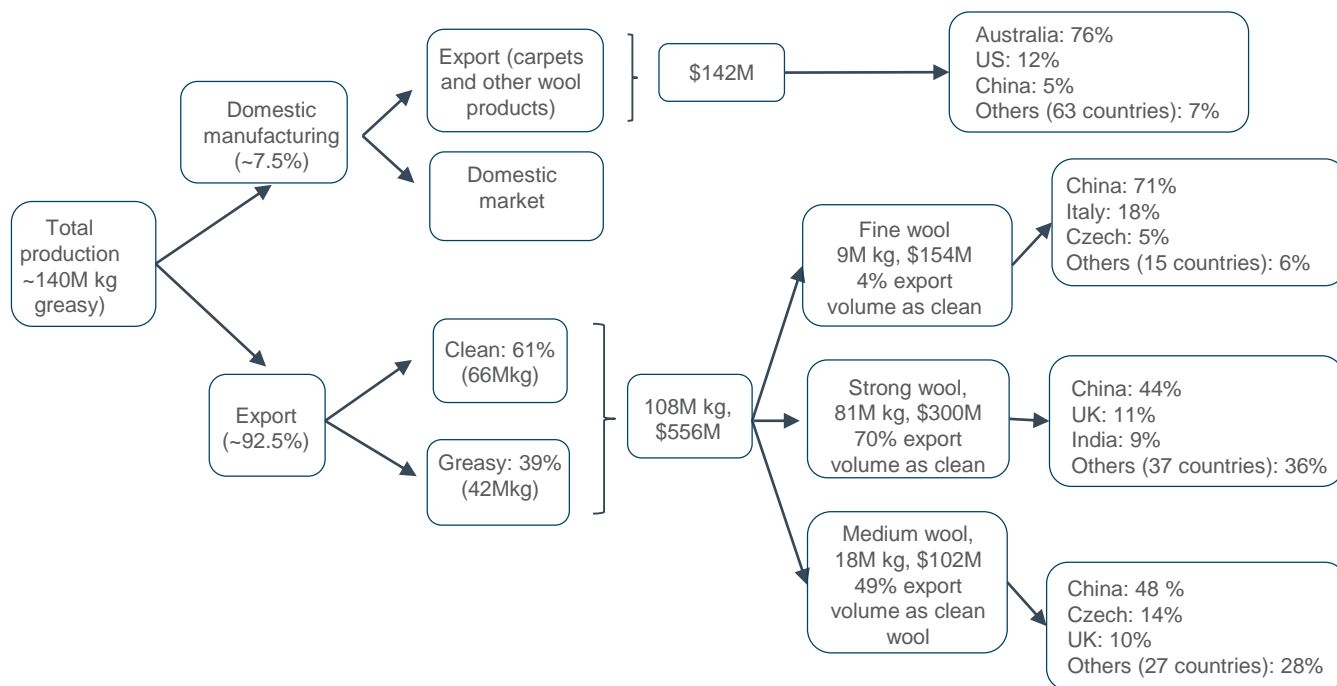
- Farmers that are continuing with sheep are specialising in sheep breeds with high meat yields relative to wool quality yields to take advantage of high meat prices.
- Farmers must make a trade off between meat and wool characteristics when choosing breeds. For example, Merino breeds tend to have a lower lambing rate, but a lower micron of wool.

The Supply Chain



Source: IWTO

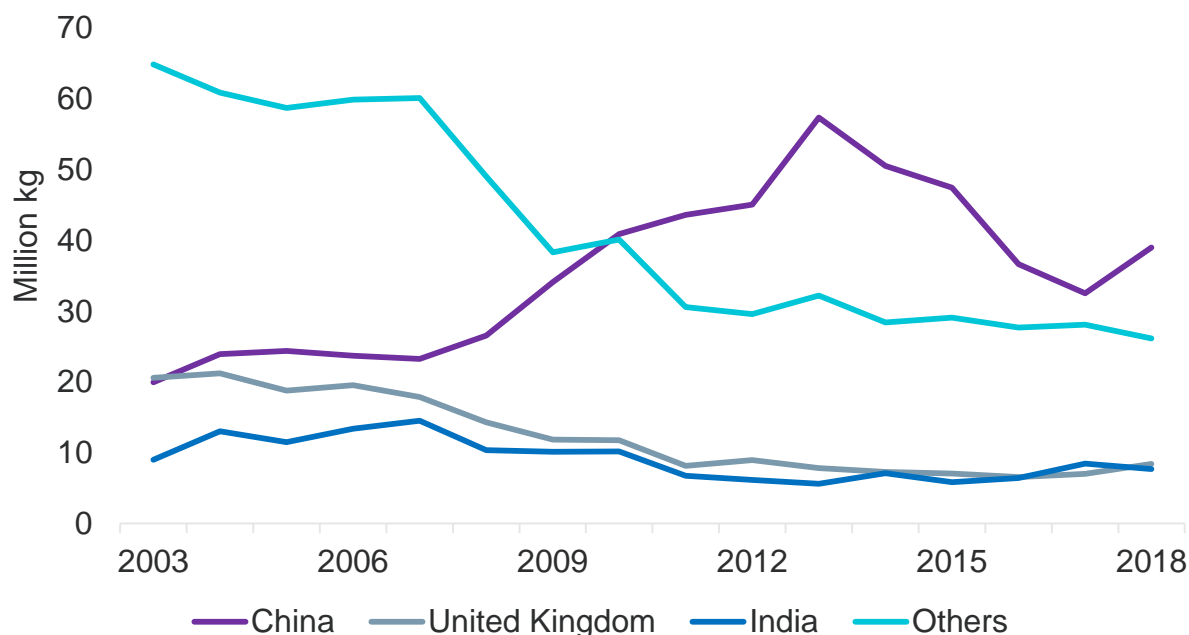
New Zealand Wool Supply Chain 2018



Source: Stats NZ

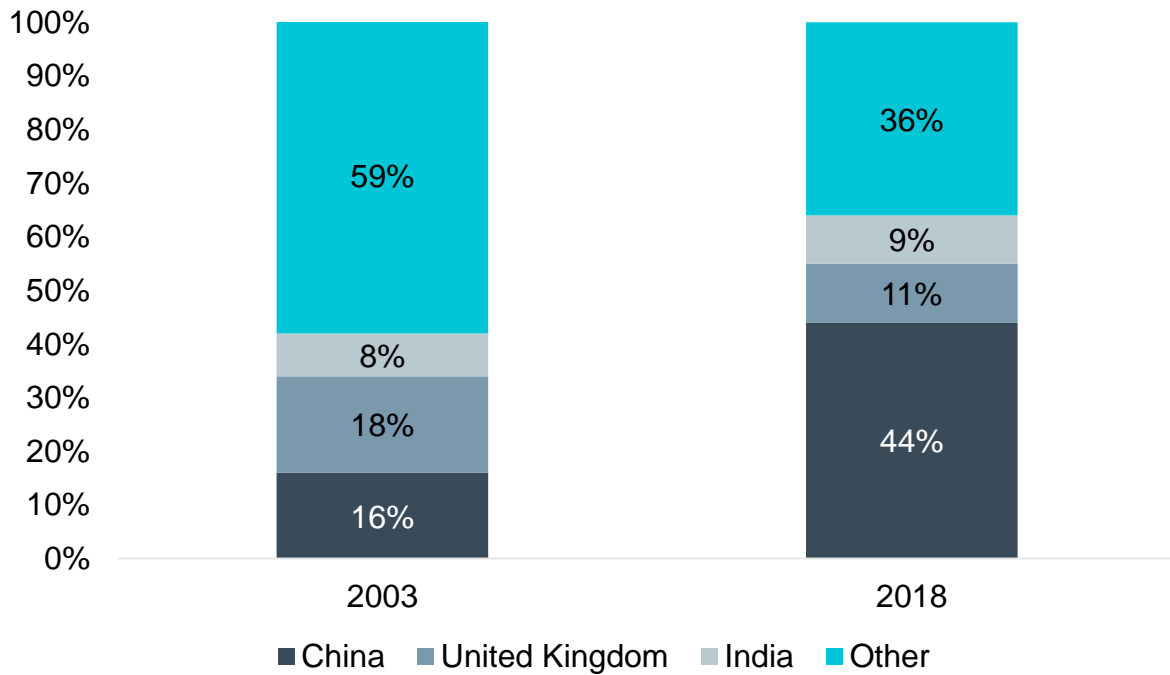
- The majority (92.5%) of the New Zealand clip is exported, with 61% scoured onshore.
- A greater proportion of high value wool is exported greasy, while coarse wool is mostly scoured domestically.
- China's rapid growth as the leading export destination is shown in New Zealand's coarse wool trade statistics. Exports to most other markets has fallen since 2003.

Export volume by markets of NZ strong wool 2003 – 2018



Source: Stats NZ

Strong Wool Export Destinations



Source: Stats NZ

- Diversity of export markets has fallen, as has value.
- While some countries have increased their export share, most have decreased.

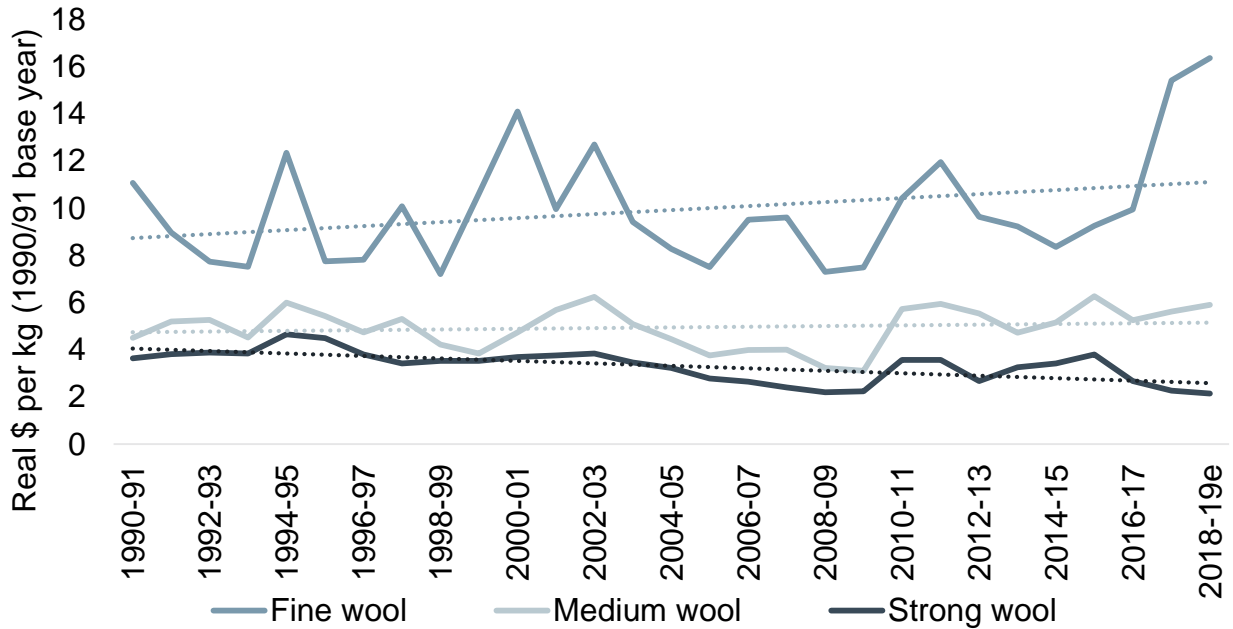
Strong Wool Destinations by Share of Total Export Value, 2003 vs 2018

Share	2003	2018
Top 3	UK: 18%	China: 44%
	China: 16%	UK: 11%
	Australia: 11%	India: 9%
7-8%	India, Belgium	
3-5%	Italy, Nepal, United States, Germany, Japan, Turkey	Italy, Lithuania, Germany
1-3%	Iran, Greece, Egypt	Nepal, Australia, Thailand, France, Japan, Iran, United States, Egypt, Turkey, Belgium, Portugal
0.5-1%	Denmark, France, Pakistan, Thailand, Taiwan, Hong Kong, Syria.	Mongolia, United Arab Emirates, Denmark, Czech Republic
0.1-0.5%	Indonesia, Poland, Netherlands, South Africa, South Korea, Portugal, Philippines, Czech Republic, Spain, Finland, Norway, Canada, Mexico, Lithuania, Estonia, Hungary.	Latvia, Switzerland, Mexico, South Africa, Poland, Iceland, Pakistan, Estonia, Netherlands, Canada, Sweden, Taiwan, Indonesia
<0.1%	Switzerland, Russia, Ireland, Mauritius, Latvia, Sweden, Uruguay, Vietnam, Bangladesh, Chile, Morocco, Argentina.	Bangladesh, Norway, Bulgaria, Hong Kong, Romania, Russia, South Korea
Total	49 countries	41 countries
Total export value	551 million NZD	300 million NZD
Total export volume	114 million kg	81 million kg

Source: Stats NZ

The Global Picture

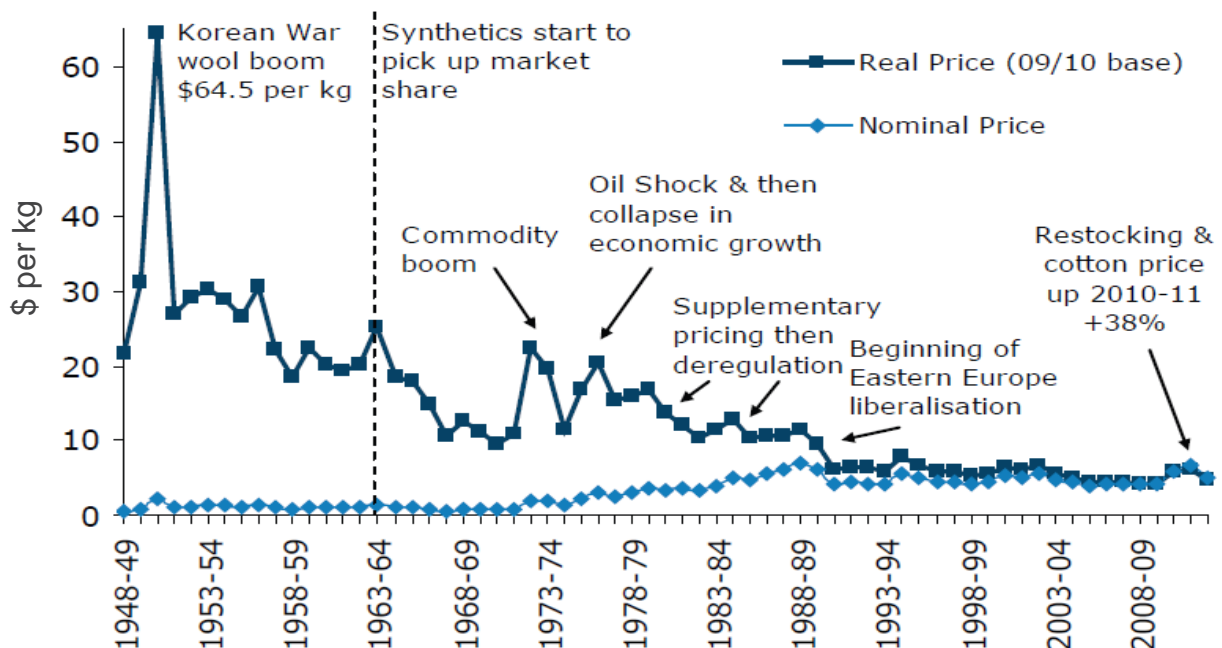
New Zealand Real Price Trend 1990/91 -2018/19e



Source: Beef + Lamb New Zealand

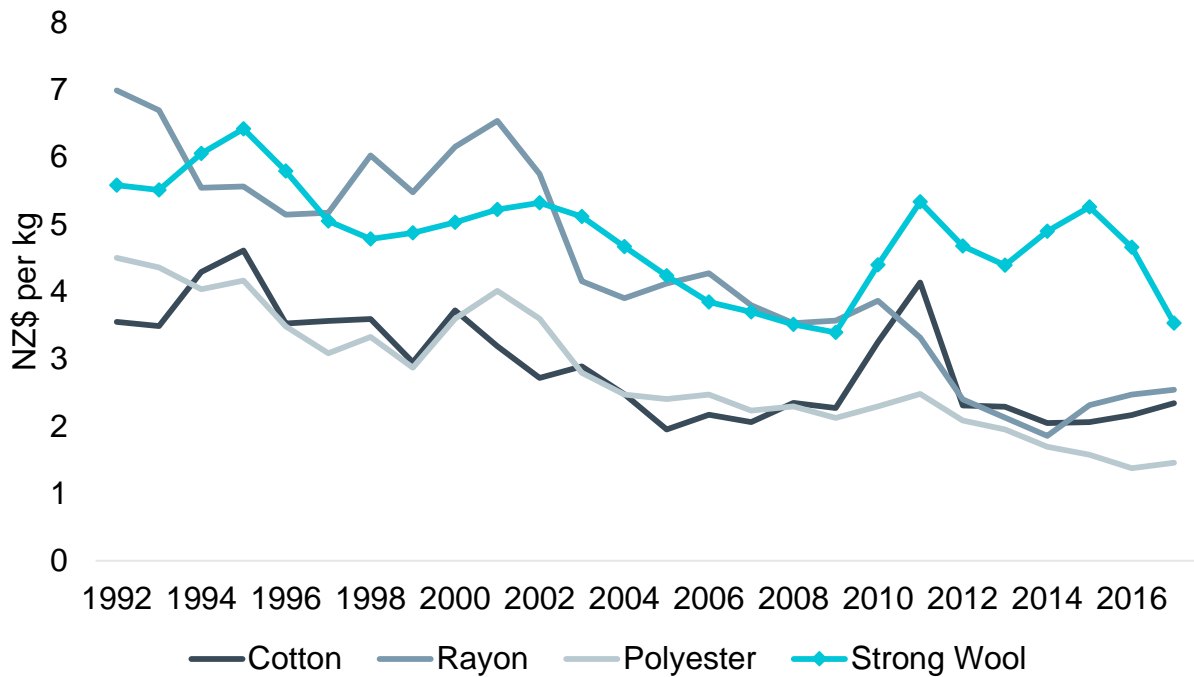
- Since 1990, there has been a downward trend in New Zealand coarse wool prices. Fine wool prices over this period have shown strong positive growth, while mid-micron wool has been relatively stable.
- The decline is not a recent trend, it has been ongoing since 1950, accelerated by the introduction of synthetic fibres.

Wool Auction Price Trend



Source: ANZ, Beef + Lamb New Zealand

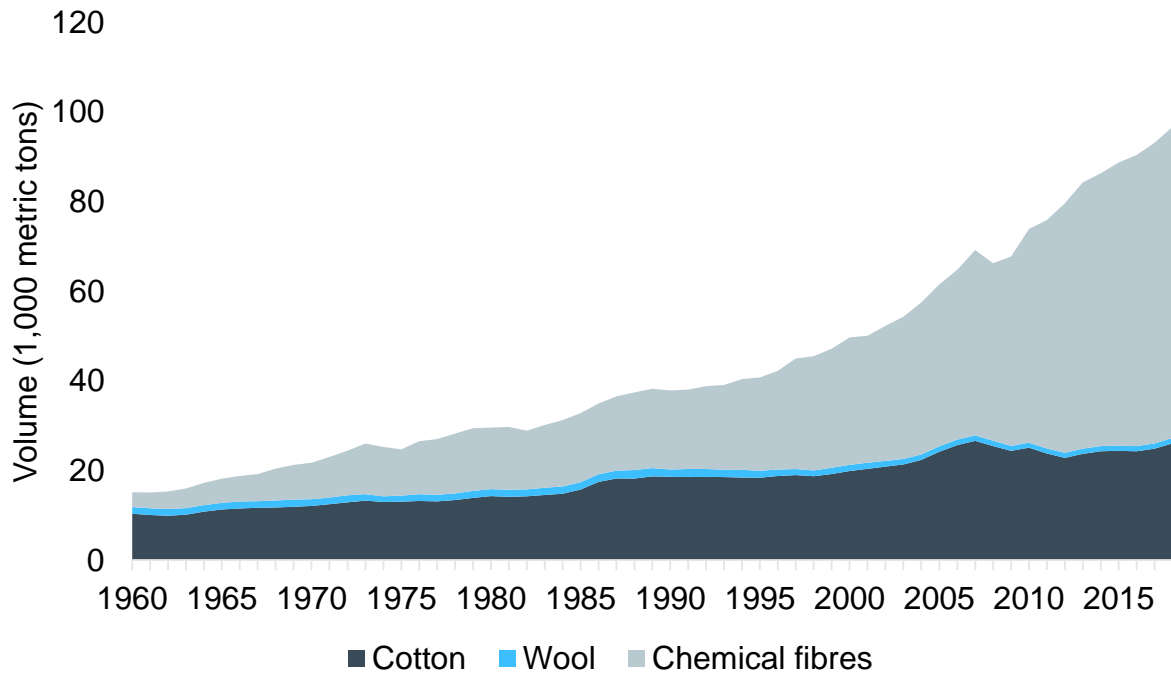
Real Price of World Textile Fibres



Source: World Textile Demand – International Cotton Advisory Committee 2018

- As a fibre producer, strong wool farmers have been outcompeted on price by other fibres.
- The prices of synthetics has continuously fallen making coarse wool comparatively less price competitive. This has had a large substitution effect, pushing manufacturers away from wool.
- Synthetics fibres can also maintain consistent quality and require less processing, making them desirable for manufacturing.
- A price spike in 2010 for wool was driven by a global spike in oil prices and a global shortage of cotton. Producers turned to wool when these inputs became unavailable at commercial prices. This spike in prices should be considered an outlier in a long term downwards trend.

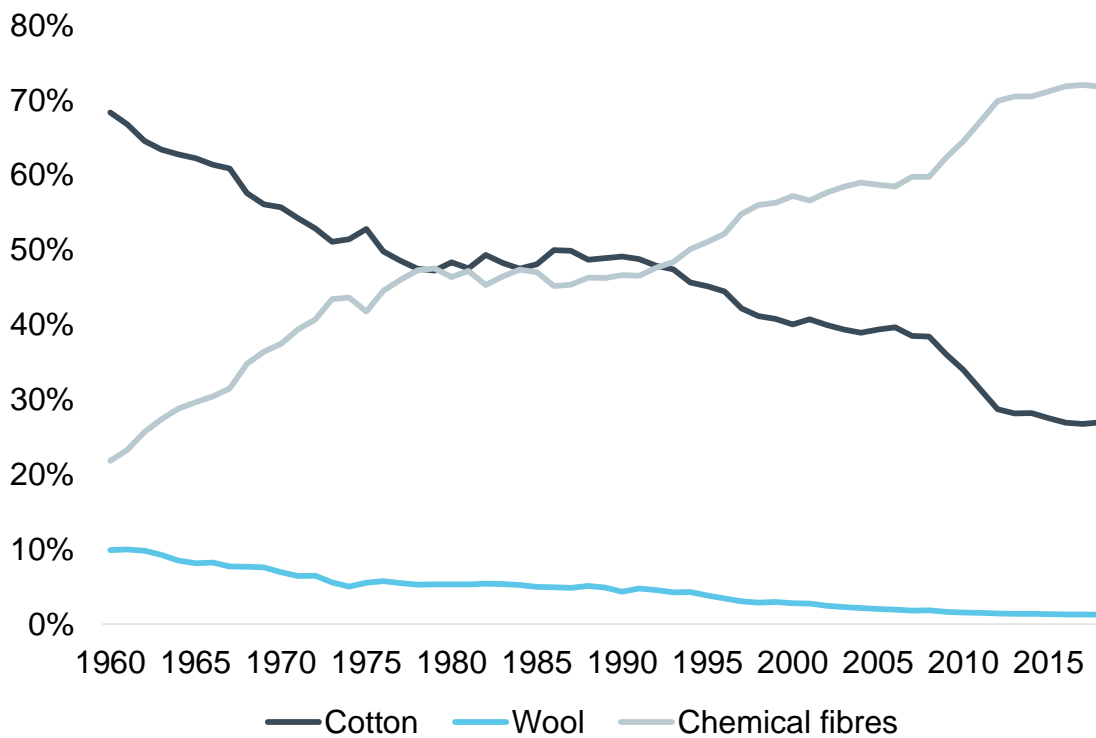
World Consumption of Textile Fibres



Source: World Textile Demand – International Cotton Advisory Committee 2018

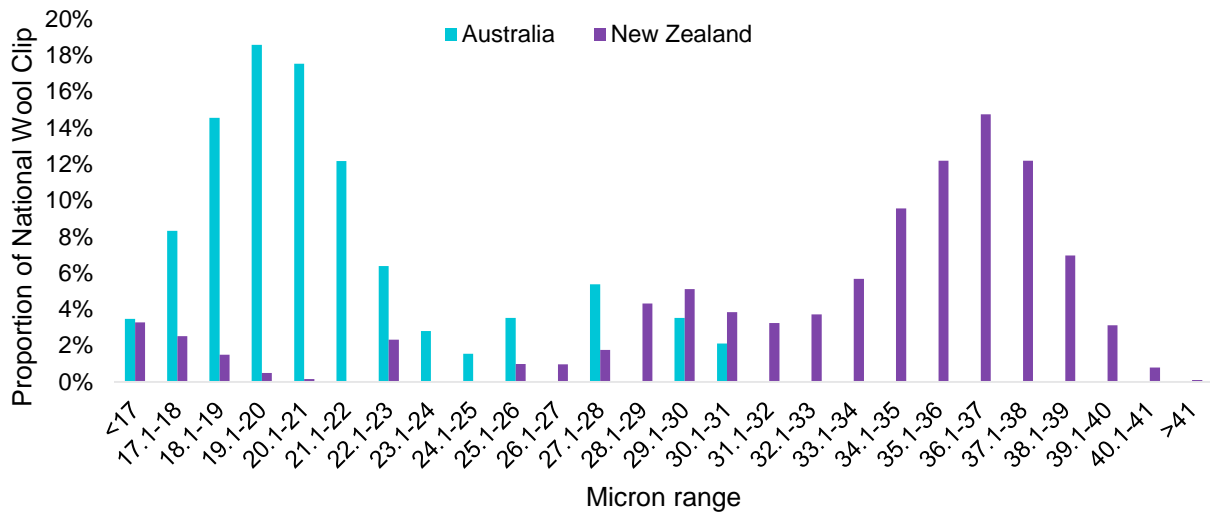
- Since their introduction, synthetic fibres have captured the majority of market growth.

Proportion of Global Fibre Consumption 1960-2018



Source: World Textile Demand – International Cotton Advisory Committee 2018

Australia New Zealand Micron Profile

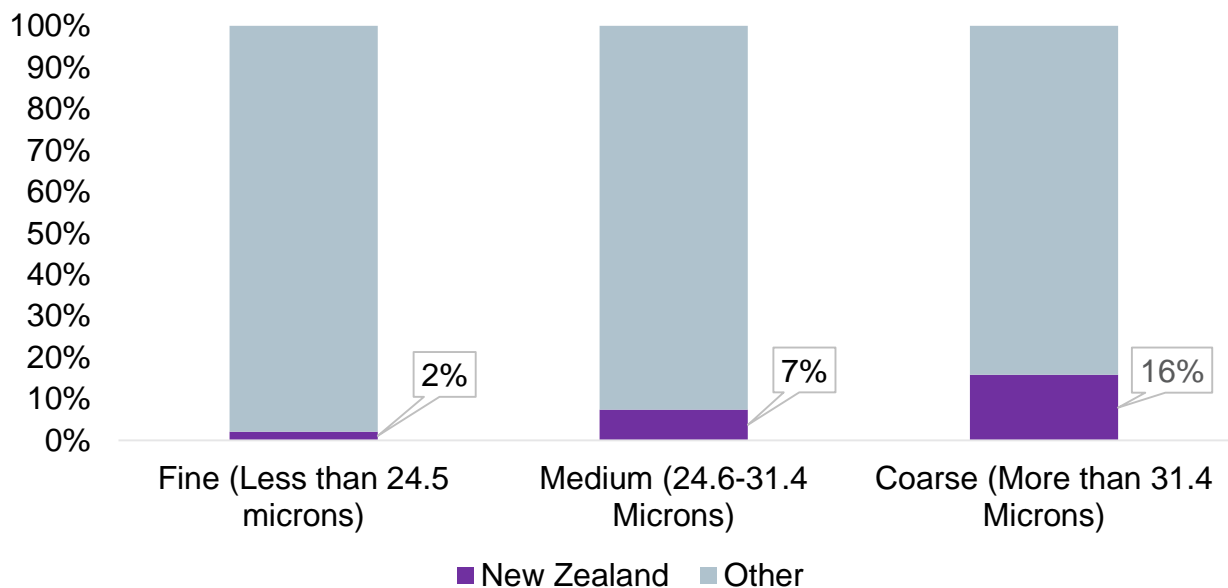


Source: Data Extracted from AWI Wool Production Forecast Report 2017, Data extracted from NZWTA Statistics, EIU calculations

Note: This graph is created from an amalgamation of data from several different sources, extracted from graphs. It is intended to demonstrate micron difference between Australia and New Zealand. Caution should be applied due to underlying different data and gaps in data available.

- National flocks are specialising in either meat or wool production.
- The Australian flock is both significantly larger than New Zealand's and of a finer micron, making New Zealand relatively unimportant in the fine wool market.

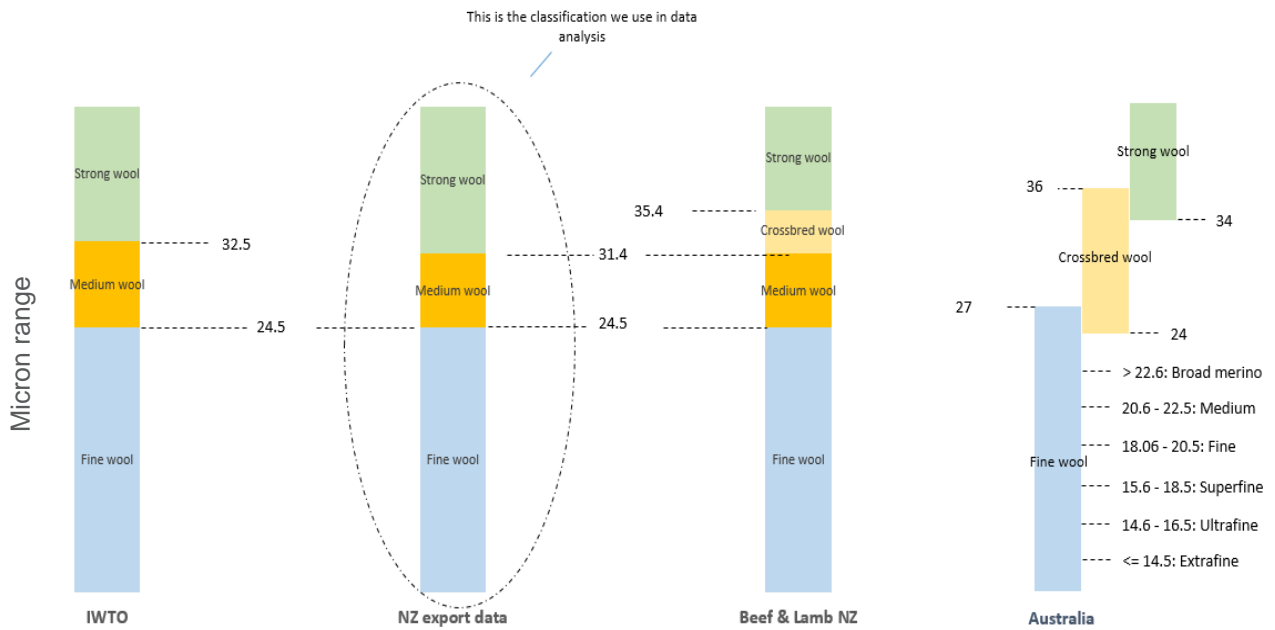
New Zealand Proportion of Global Wool Production



Source: IWTO Market Information Edition 14, NZ Export Statistics, Stats NZ

Note: This uses the New Zealand micron categories for New Zealand wool and IWTO categories for total data – This will slightly inflate the coarse wool proportion, and deflate the medium wool proportion.

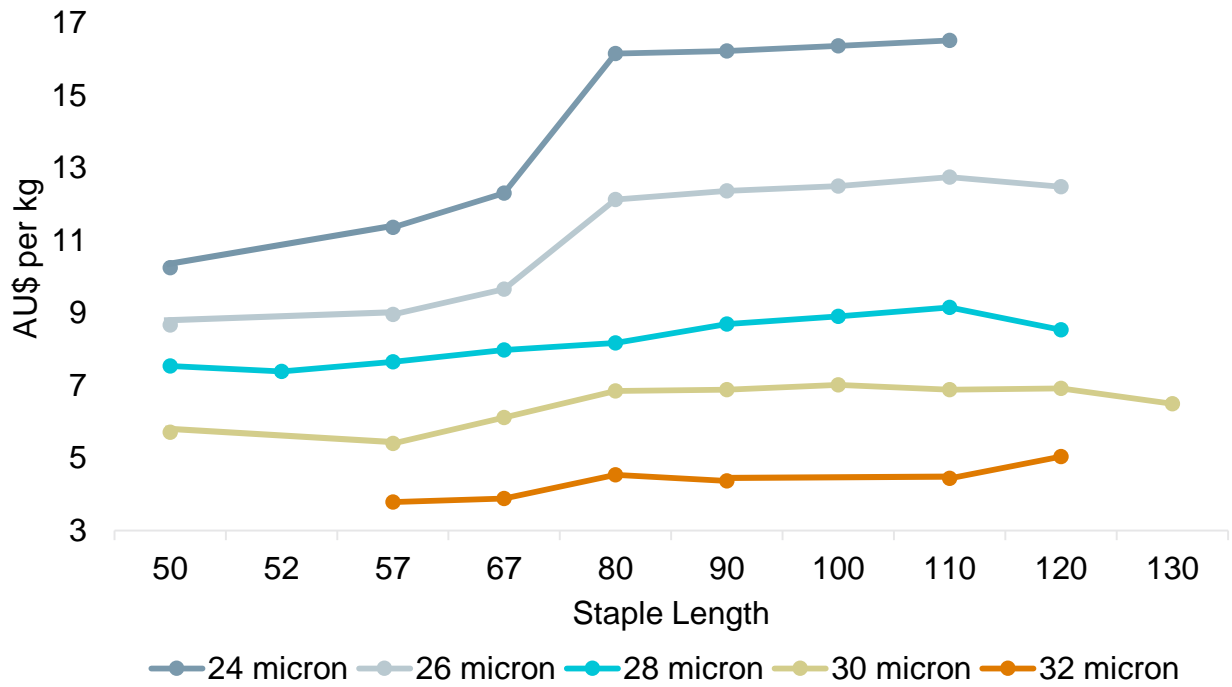
Wool Classification Standards



Source: International Wool Textile Organisation (IWTO), Bi Hub, Beef & Lamb NZ, Australia Wool Exchange, Australian Wool Innovation, The Woolmark Company

- Different Countries and industry bodies use different classes for measurement of wool. They also go into different levels of detail.
- Australia has the most in-depth data, breaking down volume and price by micron.
- The best data available for New Zealand wool prices is the average volume and export price of each category of wool.
- This proved a major barrier in understanding any comparative advantage between national flocks, and for comparing national flocks in terms of micron.

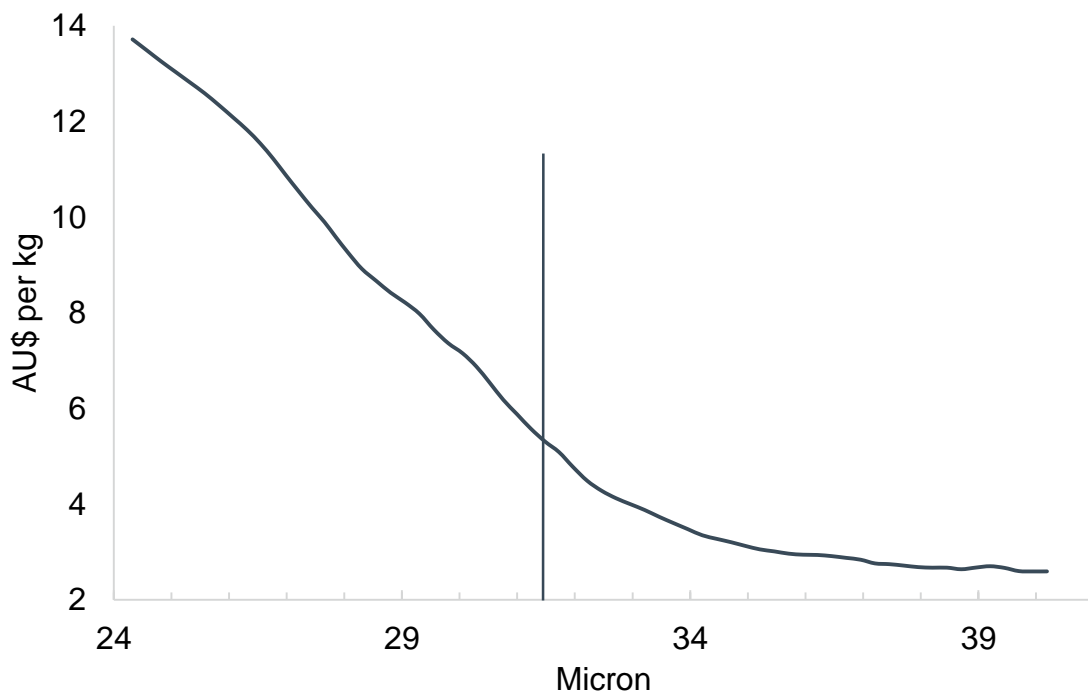
Australian Crossbred Wool Price by Micron and Staple Length, Jan-2019



Source: Mecardo Analysis (AWEX, ICS)

- Micron is the biggest determinant of price for wool fibres, and this is consistent across all classes of wool. To effectively compare prices between countries, pricing must be compared on a micron to micron basis (like for like).
- Because of different micron profiles across countries, and lack of data on sale by micron for most countries, comparing prices for categories between countries will not give valid results.

Australian Crossbred Wool Price by Micron, Jan-2019

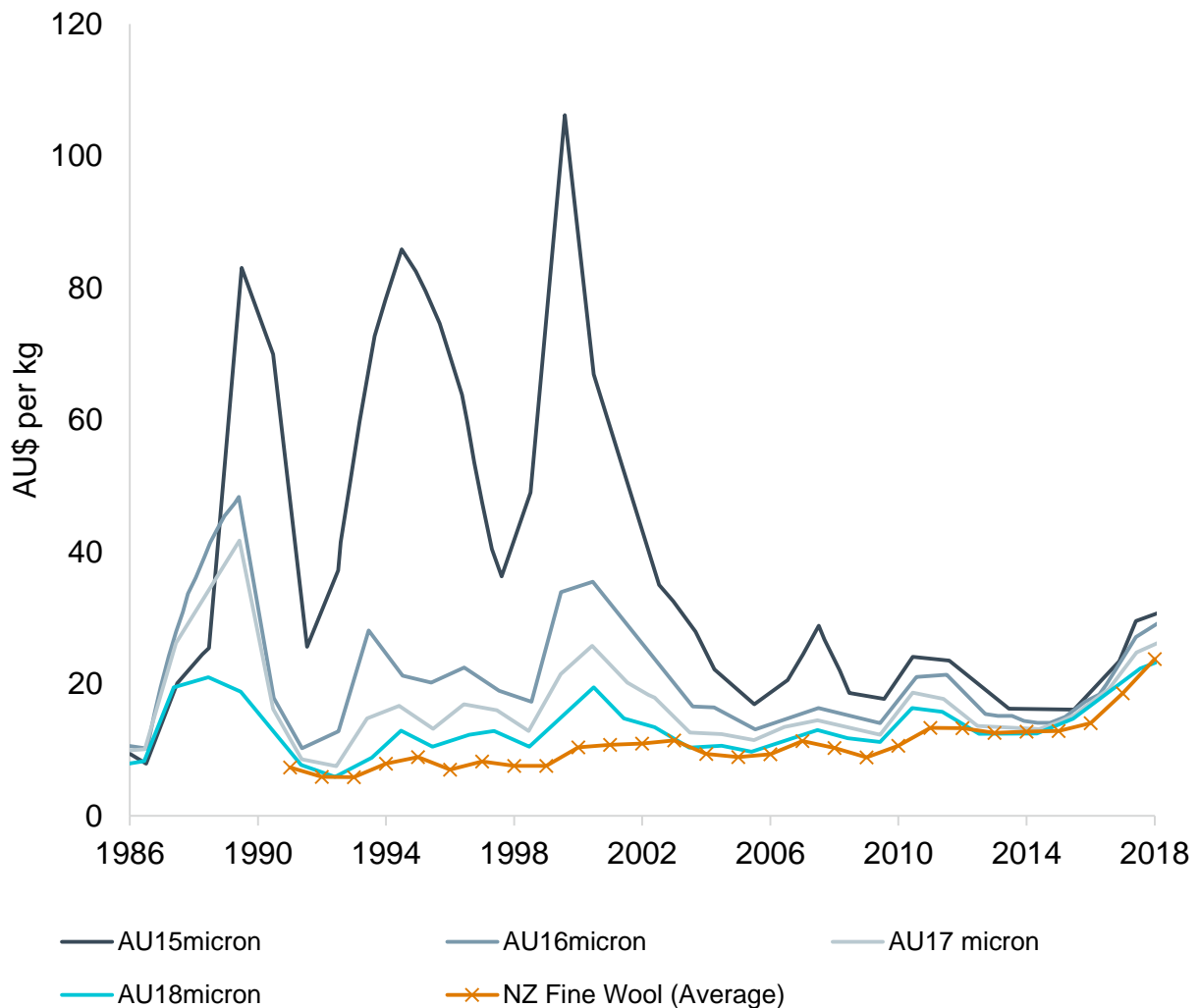


Source: Mecardo Analysis (AWEX, ICS)

Wool Price by Micron

- Australia has very detailed databases with wool price by micron whereas New Zealand has only one average price series for fine wool (< 24.5 μ). Therefore, we cannot quantify the price difference between New Zealand fine wool and Australian fine wools.
- As a result, this is not a direct, like for like comparison, which is required to definitively prove a price premium. Data to carry this out could not be found to support the analysis.
- While the data is limited, there is no visible price premium for New Zealand wool compared to Australian fine wool at 15,16,17, or 18 microns. New Zealand fine wool seems to be a price taker following the Australian trend.

Australia and New Zealand Price of Fine Wool (Nominal Price)

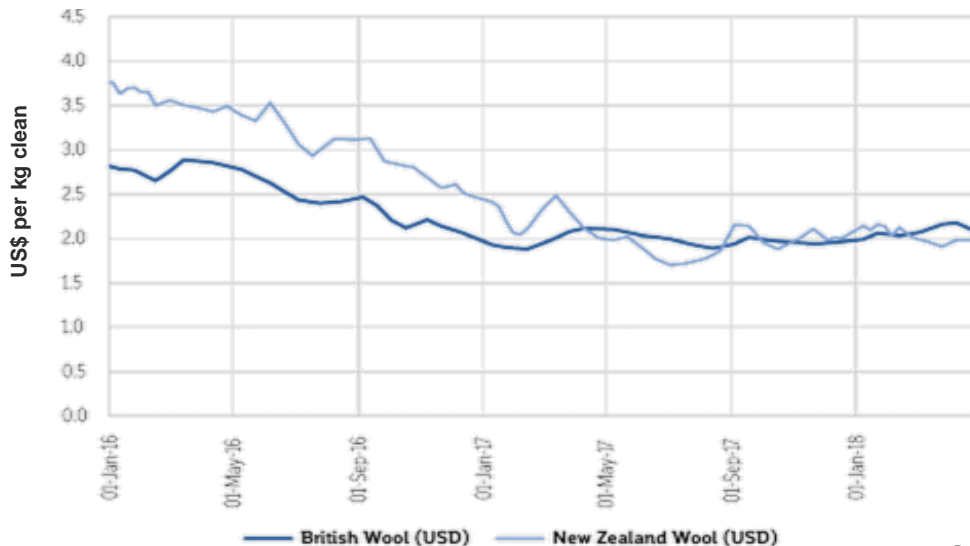


Source: Mecardo Analysis (AWEX, ICS)

Strong Wool Price Comparisons

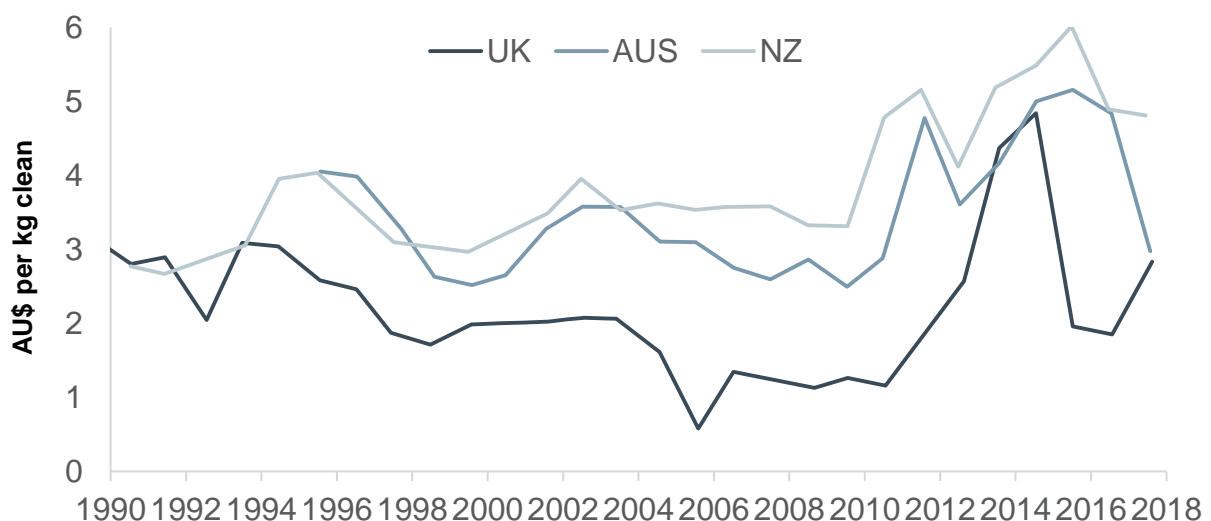
- The following graphs compare New Zealand Strong wool prices (> 31.4 μ), Australian average price of for 36 micron wool, and the average price across all British wool types.
- As this is not a like for like comparison, the difference between countries cannot be accurately determined.
- What can be seen is that Australian 36-micron wool price lines up reasonably well with New Zealand price. Since strong wool accounts for a very small portion in total wool production in Australia, Australia's strong wool is likely a price taker, following the trend of NZ strong wool.
- According to British Wool (2018), British wool price used to be at approximately 20% discount to New Zealand's. However, since 2017 the price gap has disappeared. According to British Wool, this is due to the tactical approach to structuring their auctions that they adopted from the start of the 2017 season has helped support British Wool prices

British and New Zealand Wool Prices - USD



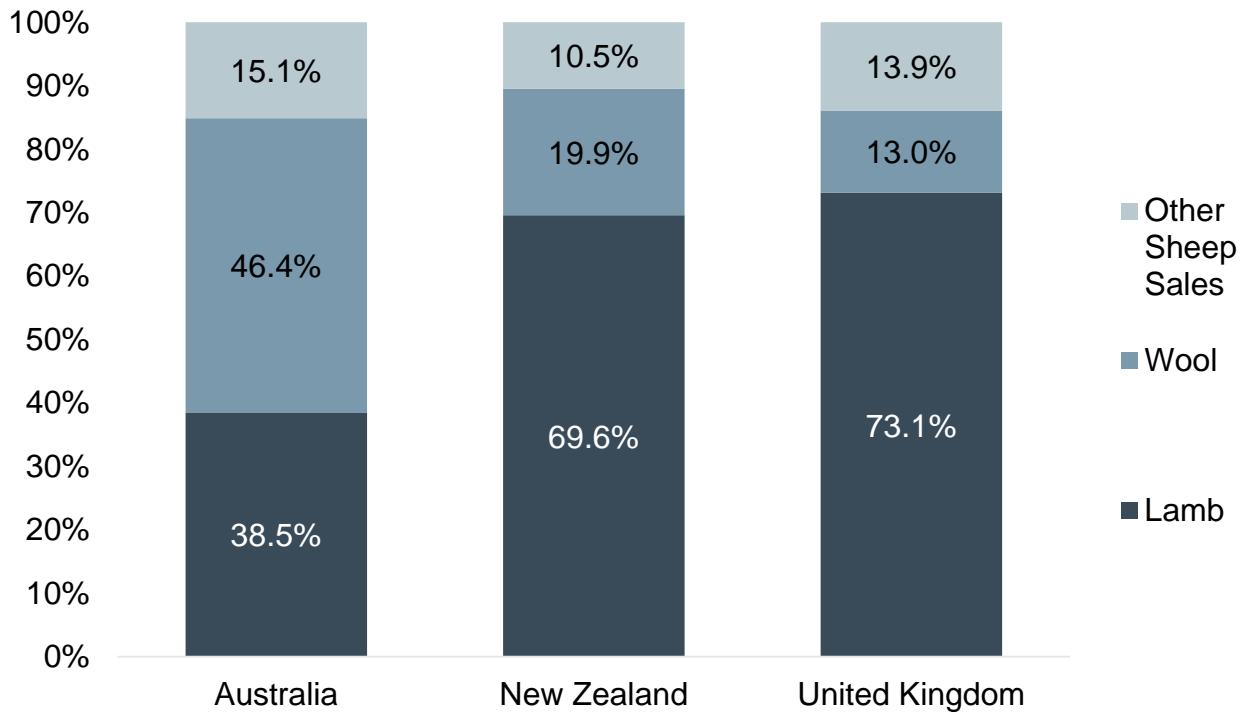
Source: British Wool

Nominal Strong Wool Price Trend



Source: Mecardo Analysis (Eurostat, BWMB, RBA, AWEX, Beef + Lamb NZ)

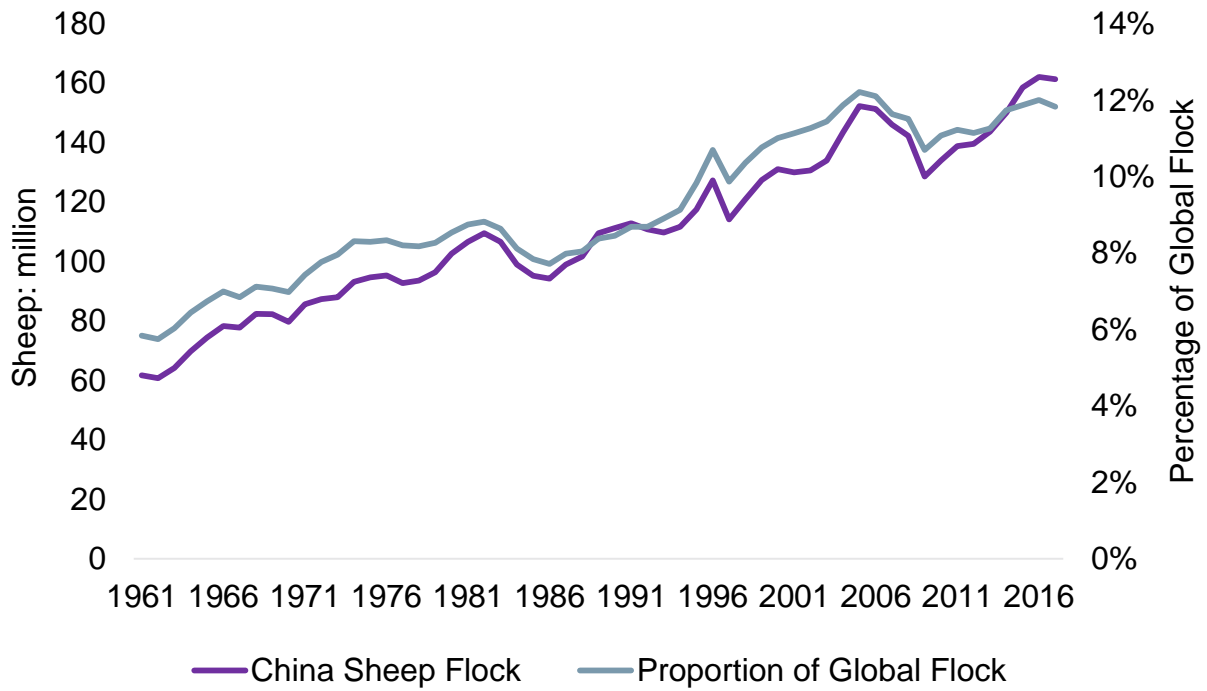
Sheep Farming Revenue Sources By Country



Source: IBIS world reports for sheep farming in Australia, New Zealand and United Kingdom

- The United Kingdom has the most similar structure to the New Zealand sheep industry, focussing heavily on meat production, rather than finer wools, whereas wool products dominate Australian revenue.
- The UK operates a centralised collection, grading, marketing and selling desk, British Wool. It should be noted that we do not see this giving the UK a better price than New Zealand wool.

Chinese Sheep Flock



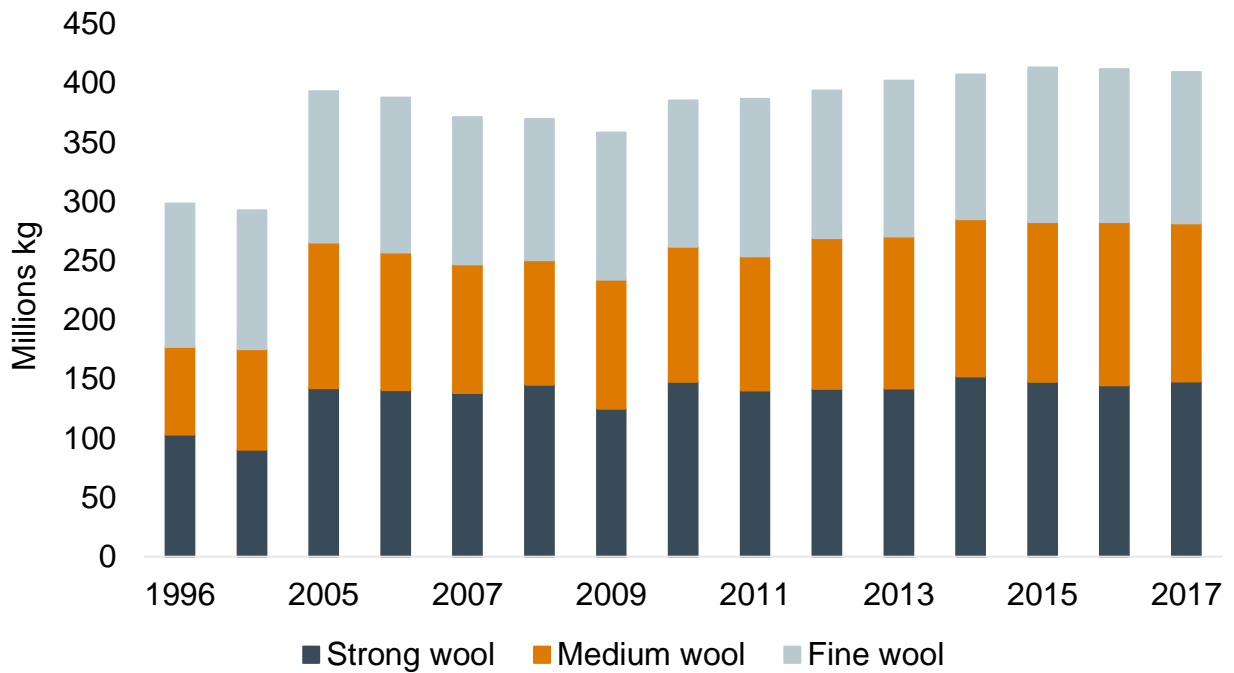
Year	1961	1966	1971	1976	1981	1986	1991	1996	2001
Sheep (million)	62	78	86	95	107	94	113	127	130
% of Global flock	5.8%	7.0%	7.4%	8.3%	8.7%	7.7%	8.7%	10.7%	11.1%

Year	2006	2010	2011	2012	2013	2014	2015	2016	2017
Sheep (million)	151	134	139	140	144	150	158	162	161
% of Global flock	12.1%	11.1%	11.2%	11.1%	11.3%	11.7%	11.9%	12.0%	11.8%

Source: FAO Stat

- China's sheep flock has grown consistently from 1961, and has become one of the leading producers of wool.

Chinese Wool Production



Unit: Million kg

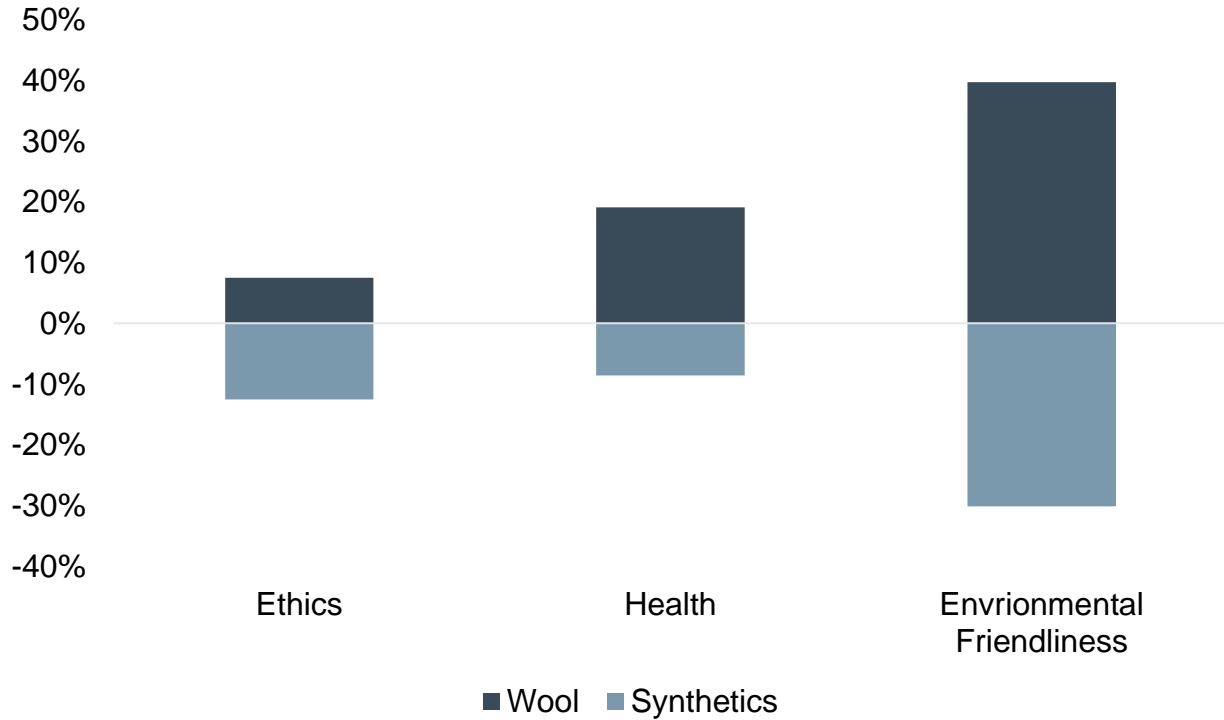
Year	1996	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fine	121	117	128	131	124	119	124	124	133	125	132	122	131	129	128
Medium	74	85	123	116	109	105	109	114	113	127	128	133	135	138	133
Strong	103	90	142	141	138	145	125	148	140	142	142	152	148	145	148

Source: China Statistical Yearbook 2018

- Production of all types of wool has grown in China, showing that there is a focus on both meat and finer grades of wool.

Consumer Perceptions

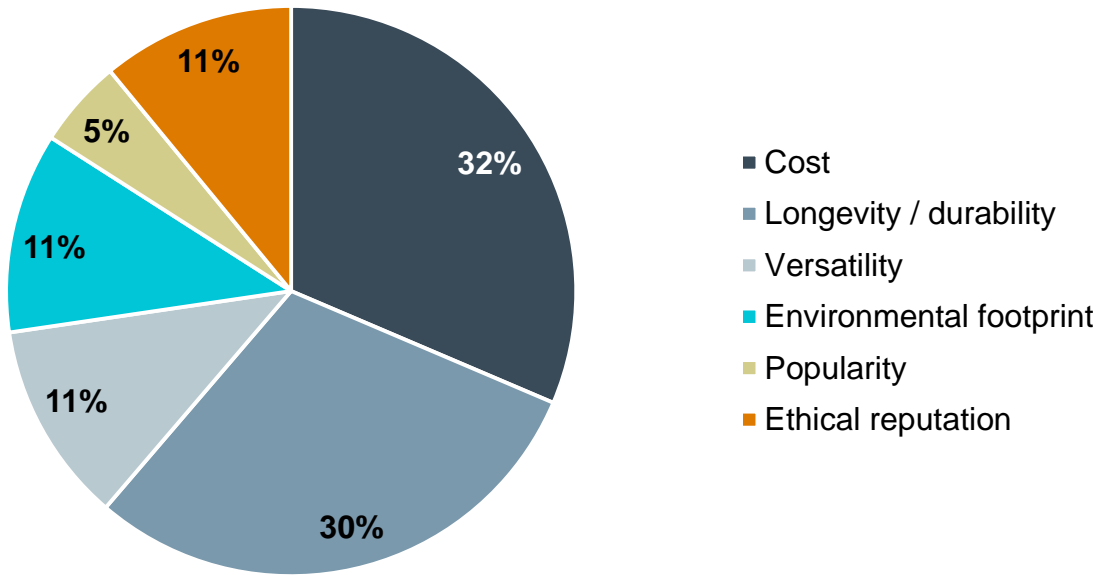
Net UK Consumer Perception



Source: EIU Consumer Surveys 2018

- Consumers perceive wool as having superior credence attributes to synthetic fibres.

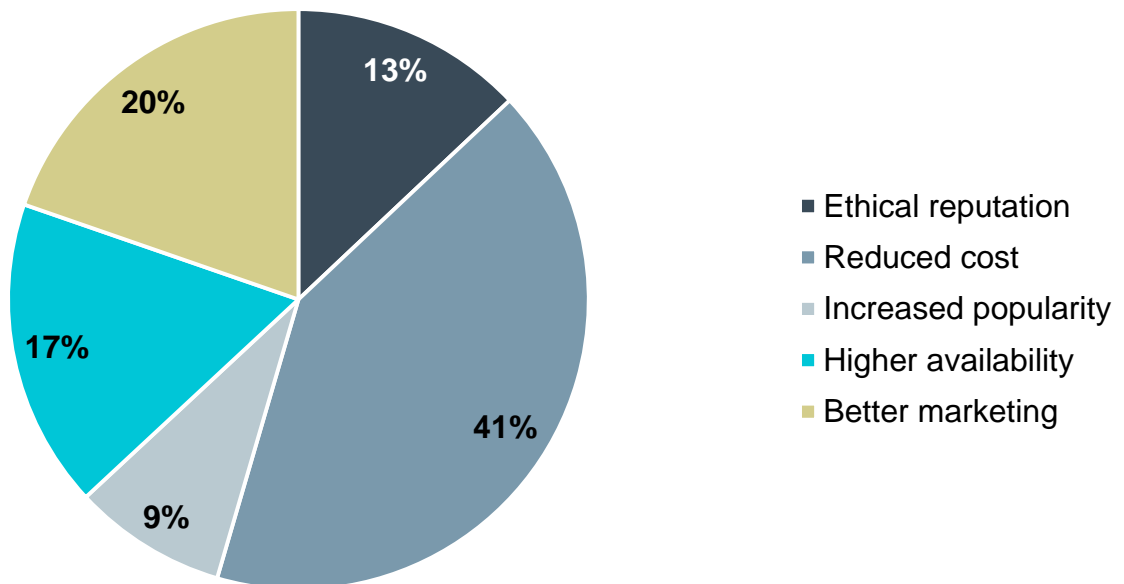
What are the key factors that influence your decision to purchase a particular fabric? (Proportion of responses)



Source: EIU Consumer Surveys 2018

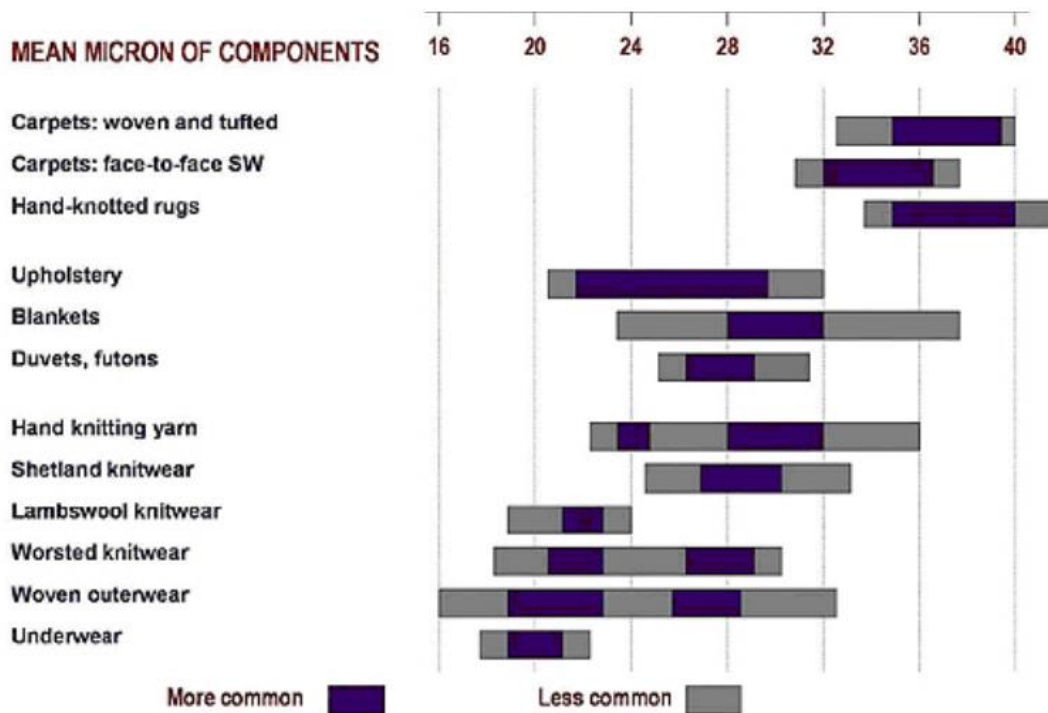
- Even in high income markets such as the United Kingdom and United States, price is the largest determinate of fibre consumption.
- While wool is perceived as having superior credence attributes, this is not a priority for most consumers.
- Merino wool competes on quality rather than cost, meaning it is less impacted by these drivers.

What changes would influence you to purchase more woollen products? (Proportion of responses)



Source: EIU Consumer Surveys 2018

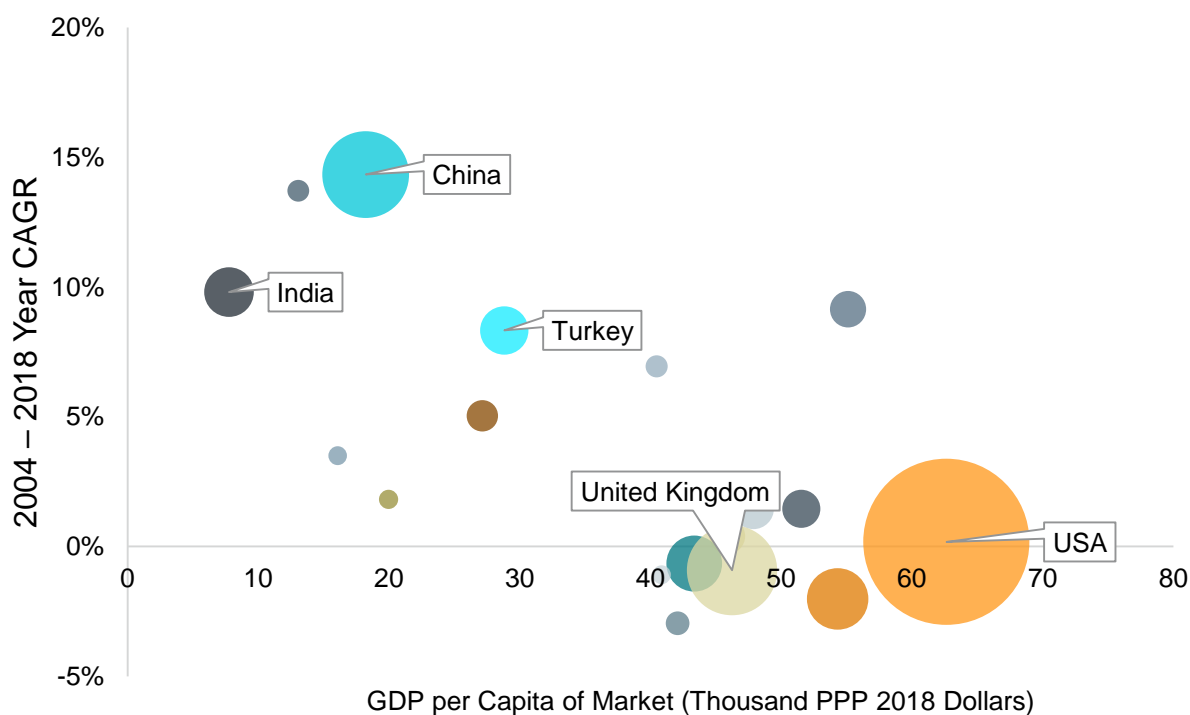
Use by Micron



Source: Value and Use of Wool – Errol Wood (2012), originally from Wood (2007)

- Coarse wool is primarily used in carpets and rugs
- Growth in carpets and floor coverings has been driven by low income countries, who are likely more price sensitive than higher income countries. China dominated growth for this category in the last 5 years.

Market Growth vs GDP per capita - Carpets and Floor Coverings



Source: Euromonitor, World Bank data, EIU calculations

