



REPORT



# NSW WOOL INDUSTRY & FUTURE OPPORTUNITIES

A report to the NSW Department of Primary Industries from Miracle Dog, Poimena Analysis, Scott Williams Consulting and DAFWA

## Supporting Papers

**Paper 2: Changes in the demographics of the NSW sheep flock**



Department of  
Primary Industries

February 2015

Published by the NSW Department of Primary Industries

## NSW Wool Industry and Future Opportunities

*A report to the NSW Department of Primary Industries from Miracle Dog, Poimena Analysis, Scott Williams Consulting and DAFWA*

Authors:

*Russell Pattinson (Miracle Dog)*

*Chris Wilcox (Poimena Analysis)*

*Scott Williams (Scott Williams Consulting)*

*Kimbal Curtis (Department of Agriculture and Food Western Australia)*

First published February 2015

[www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

### Acknowledgments

Photos courtesy of SheepConnect NSW - a project of Australian Wool Innovation Limited and NSW Department of Primary Industries.

JTN 13403

© State of New South Wales through the Department of Trade and Investment, Regional Infrastructure and Services, 2015.

You may copy, distribute and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Primary Industries as the owner.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (February 2015). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser. The report also contains views and recommendations based on estimates and projections, which are subjective and involve uncertainty. As actual events or results may be different to those envisaged in the report, users should take this into account when making decisions.



# Changes in the demographics of the NSW sheep flock

---

(Including Appendix - A national perspective of the ageing of farmers)

## Contents

Introduction .....	1
Situation analysis .....	2
Two decades in transition .....	2
Steady erosion of sheep number and wool production .....	2
Relatively more breeding ewes and lambs, fewer wethers .....	3
Lamb replaces mutton.....	4
Go finer .....	5
Sheep industry transition.....	7
Current snapshot.....	7
Future trends .....	9
Potential implications .....	10
References .....	10
Appendix 1 – A national perspective of the ageing of farmers .....	11
Producers and their age! .....	11
Decline in young farmers .....	12
Sheep industry demographics.....	12
Implications of an ageing sheep workforce.....	13
Implications of farm aggregation .....	13
References .....	13

## Introduction

The NSW sheep and wool industry has undergone significant changes over the last two decades, not just in the size of the flock. This paper builds a context for the current state of the industry through a description of the changes that have taken place over the period since the early 1990s when the minimum reserve price scheme for wool was abolished. The focus is on the changes to the flock demographics, to the wool and sheep meat being produced, and thus the possible implications for the future.

In addition, while no specific NSW data is available, the issue of demographics (ageing) of producers is discussed at a national level and is provided in Appendix 1.

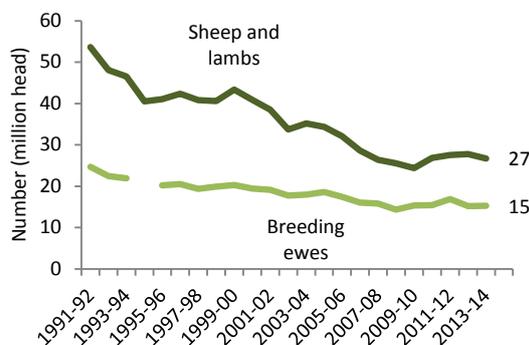
## Situation analysis

The NSW sheep industry is a significant contributor to the NSW economy with a gross value of agricultural commodities produced (GVACP) of \$816 million from wool and \$640 million from sheep and lambs (ABS 75010, 2013-14). These account for 32% and 24% of the national totals for these commodities, respectively. Combined, the almost \$1.5 billion from the sheep industry accounts for 19% of GVACP from agriculture in NSW.

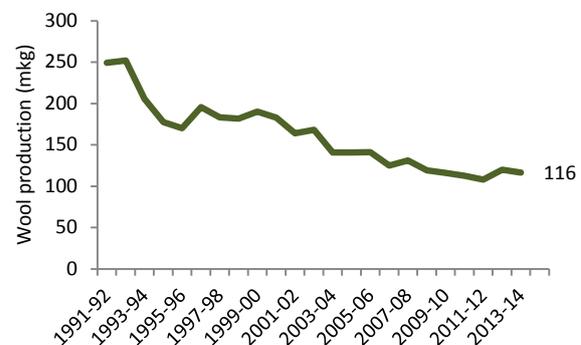
### Two decades in transition

#### Steady erosion of sheep number and wool production

Between 1991 and 2014, the NSW sheep population declined from 59.8 million to 26.7 million sheep and lambs (ABS 71210; ABS 71240; ABS 71110), an overall decline of 55% (figure 1). Over the same period, the total number of breeding ewes declined from 25.7 (1991) to 15.3 million (2014), a decline of 40% (figure 1).



**Figure 1** Number of sheep and lambs (millions), and number of breeding ewes (millions) in NSW (Based on ABS data).

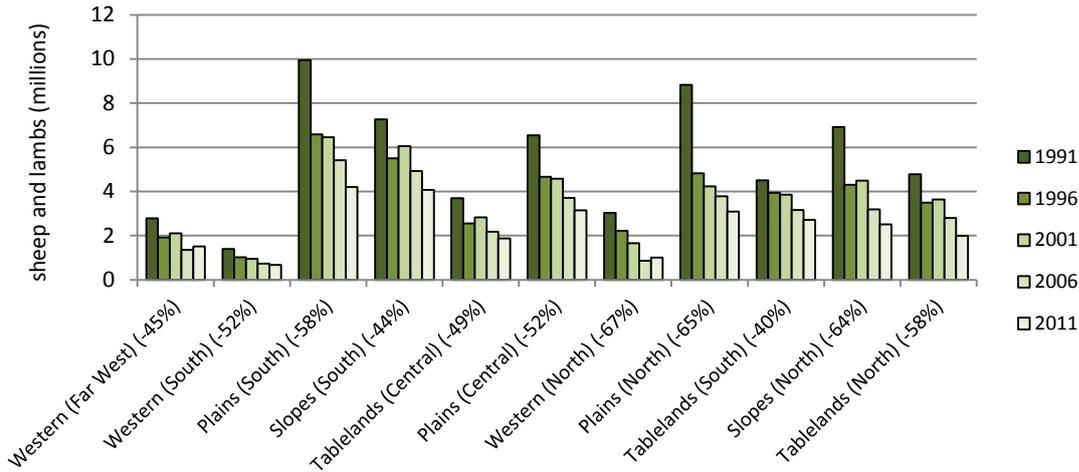


**Figure 2** Annual wool production (million kg) as recorded by receivals of taxable wool by brokers and dealers (Based on ABS data).

Wool production as measured by receivals of taxable wool by brokers and dealers in NSW declined from 314 million kilograms (mkg) in 1990-91 to 108 mkg in 2011-12 and then rose to 116 mkg in 2013-14 (ABS 71250) (figure 2). This 63% decline in wool production is greater than the decline in the number of sheep partly due to a shift in the breed mix (more non wool sheep) and partly due to the change in the composition of the flock (more ewes and lambs, fewer wethers).

The NSW wool receivals by brokers and dealers account for 33% of the national total. ABS advises that state of receival does not necessarily reflect state of production; the NSW Government (2012) estimates that 83% of NSW-produced wool is delivered to warehouses within NSW, while 17% is transported interstate, mainly to Victoria from southern parts of NSW.

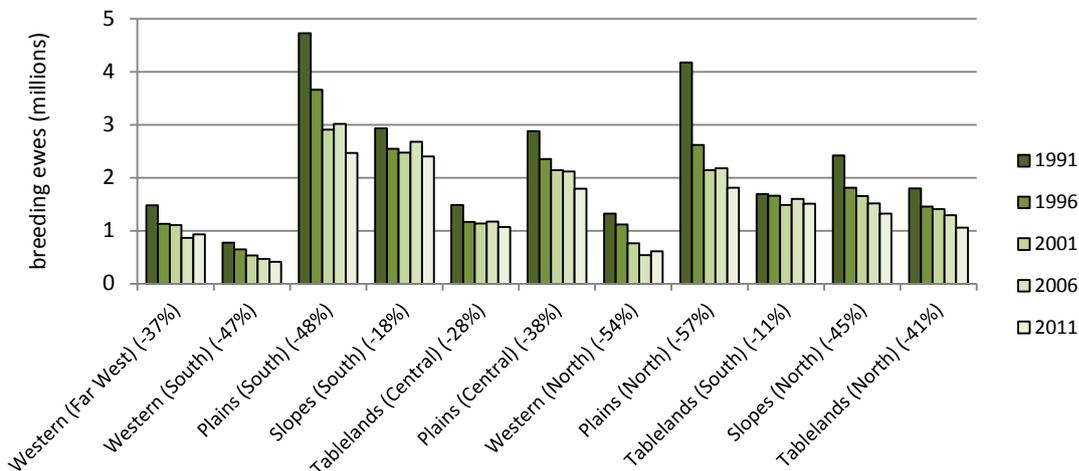
The extent of the decline in sheep number varies between regions from 40% in the Southern Tablelands (1991 to 2011) to a decline of 67% in the northern part of the Western Division (figure 3). The most rapid drop in sheep number, triggered by the discontinuation of the Minimum Reserve Price Scheme and the consequent drop in the wool price, occurred in the first five years (1991-1996) and was most noticeable across the Slopes and Plains.



**Figure 3** Change in number of sheep and lambs by regions in NSW. Values in parentheses after region names indicate the 20 year change in population between 1991 and 2011 (Based on ABS data).

### Relatively more breeding ewes and lambs, fewer wethers

The decline in breeding ewe numbers was less severe in some areas (just 11% in the Southern Tablelands) but up to 57% in the Northern Plains (figure 4). As a result of these generally lower rates of decline, the ewe component as a percentage of the NSW flock rose from 48% in 1990-91 to 63% in 2009-10, before slipping slightly following the ending of the millennium drought (2006-2009). Wethers for wool production have declined from 29% of the flock in 1990-91 to just 9% in 2009-10 (figure 5). The lamb component has also increased due to the higher proportion of breeding ewes, and to a lesser extent higher marking rates from better management and an increase in non-Merino matings. The increase in the proportion of breeding ewes in the flock reflects a swing away from a strong reliance on wool to a dual product (wool and sheep meat) industry.



**Figure 4** Change in number of breeding ewes by regions in NSW. Values in parentheses after region names indicate the 20 year change in population between 1991 and 2011 (Based on ABS data).

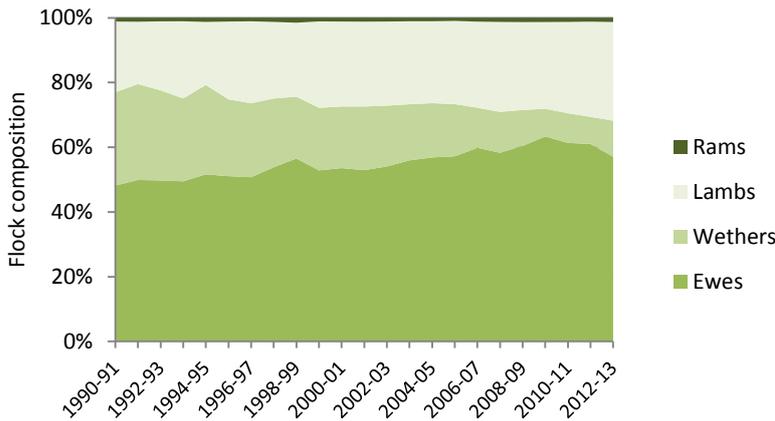


Figure 5 Change in composition of the NSW flock (Based on ABARES data).

Between 1991 and 2000 there was a small increase in the number of mixed enterprise sheep farms while the number of specialist sheep farms decreased by close to 50% (figure 6). Then from around 2000, the number of mixed enterprise sheep farms declined while the number of specialised sheep farms remained close to constant.

Compared to the changes in the number of specialist and mixed enterprise sheep farms, the flock sizes on each have only changed slightly. Over the period 1991 to 2013, specialist sheep farm flocks have declined in size from an average of 3,400 to an average of 2,760, while mixed enterprise sheep flocks have declined from an average of 2,180 to an average of 1,980 sheep and lambs (figure 7). Specialist sheep producers have reduced their average flock size faster than have mixed enterprise sheep producers (though excluding those producers who have de-stocked completely).

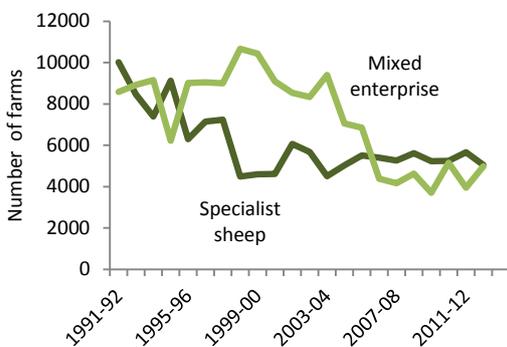


Figure 6 Number of specialist and mixed enterprise sheep farms in NSW (Based on ABARES data).

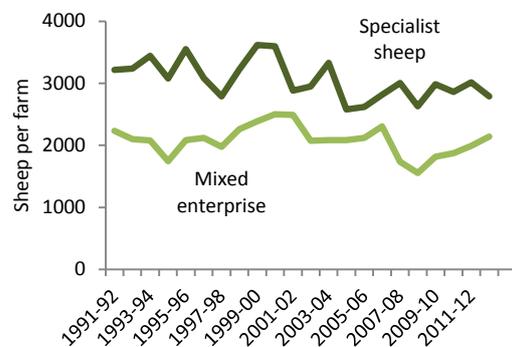


Figure 7 Number of sheep per farm for specialist and mixed enterprise sheep farms in NSW (Based on ABARES data).

### Lamb replaces mutton

During the last two decades, the NSW sheep meat industry has changed from producing mutton as a by-product of the wool industry toward a focus on quality lamb production. This changeover can be seen in figure 8 where lamb slaughter has risen to overtake sheep slaughter in 2003-04. Prior to 2003-04, sheep slaughter had averaged 5.7 million head per year including an annual average sell-down of the NSW flock equivalent to 1.5 million per year. Since 2003-04, sheep slaughter has continued to decline and lamb slaughter has risen



to just under 5 million head in 2013-14. [It should be noted that the ABS slaughter data presented is recorded by state of processing and may not reflect the state of production.]

During this same period, carcass weights for both lambs and mutton have increased by about 5 kg and 3 kg respectively (figure 9). Whereas mutton carcasses averaged 3 kg heavier than lamb carcasses between 1991-92 and 1995-96, since 2011-12, the difference is just 1 kg in favour of mutton.

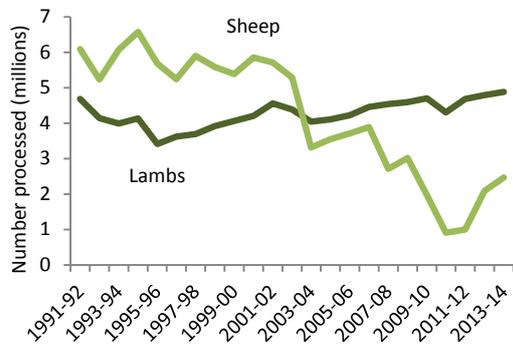


Figure 8 Number of sheep and lambs processed in NSW (Based on ABS data 72180).

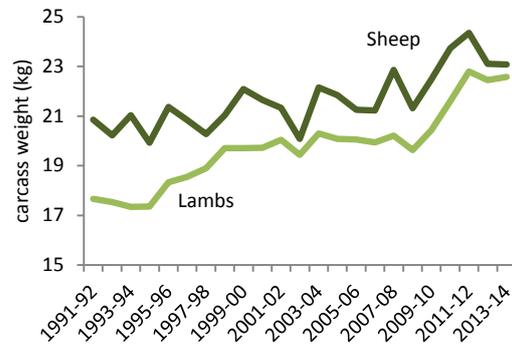


Figure 9 Average carcass weight for sheep and lambs processed in NSW (Based on ABS data 72180).

### Go finer

As wool prices declined, and even as sheep meat demand (and prices) rose, producers responded by reducing their flock size in favour of other enterprises (largely cropping across the slopes and plains), and /or by driving the fibre diameter of their clip finer. The fining of the clip occurred to varying extents in all regions of NSW. Figure 10 shows the change in average diameter of wool for five consecutive 5-year periods between 1988-93 and 2008-13. (Averages for five year periods are used to smooth out the impact of seasons.) While the decline in diameter across the state over the 20+ years averaged a little over 1  $\mu\text{m}$ , individual regions within NSW declined by between 0.5  $\mu\text{m}$  (Central Tablelands) and 2.1  $\mu\text{m}$  (Northern Tablelands).

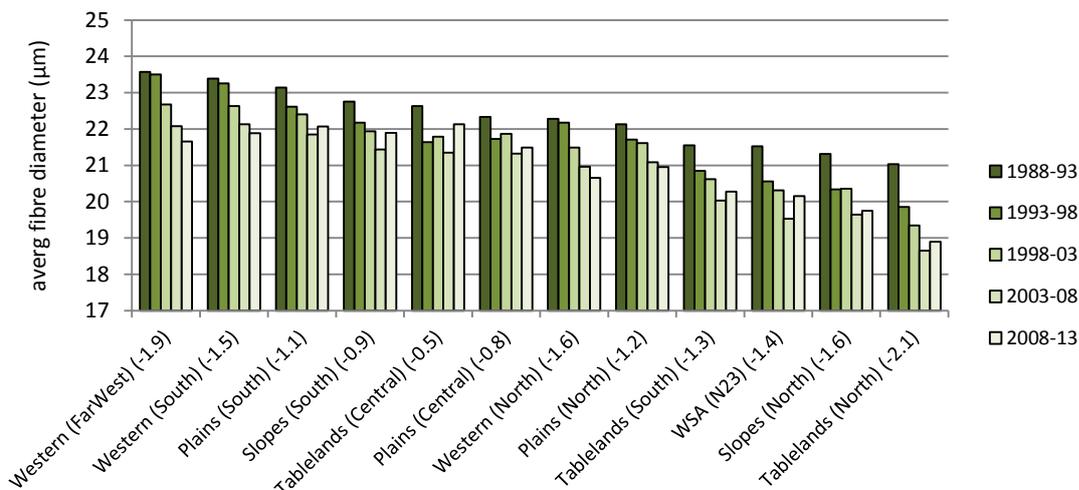


Figure 10 Change in average fibre diameter of wool presented for auction by region and five year period. Values in parentheses after region names are the change in fibre diameter between the last and first periods (Based on AWEX auction data. DAFWA analysis).

Figure 11 shows the fibre diameter distribution of wool offered at auction for five consecutive 5-year periods. This clearly shows the fine end of the clip moving finer with the main peak of the distribution moving from 22 µm (1988-93) to between 19 and 20 µm (2008-13). For the earliest period (1988-1993), fine wool of 19.5 µm or less accounted for 11% of the wool offer, but by the final period reported (2008-13), this had increased to 40%.

At the broader end of the diameter distribution, wool over 25 µm increased its share from 10% to 15% as the upper half of the middle microns (22-25 µm) plummeted from 50% to just 16% across the same period.

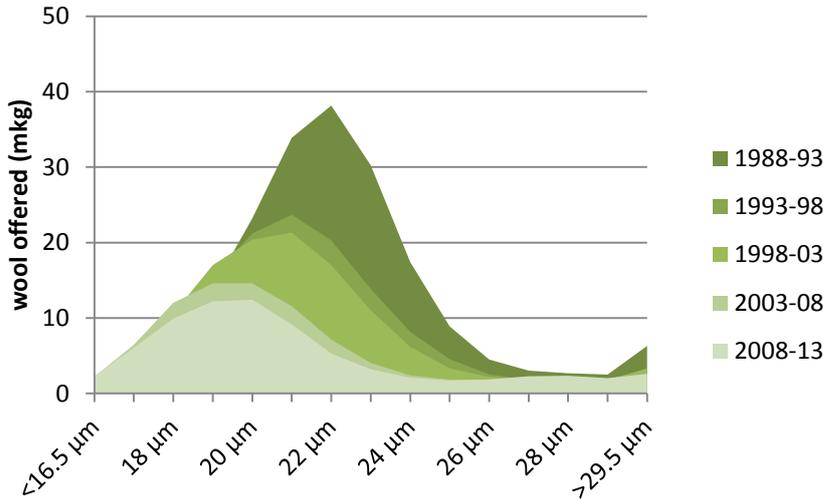


Figure 11 Change in fibre diameter distribution of NSW wool presented for auction, averaged over five year periods. Values in parentheses after region names are the change in fibre diameter between the last and first periods (Based on AWEX auction data. DAFWA analysis).

By 2008-13, in excess of 50% of the wool from the Northern and Southern Tablelands, Northern Slopes and WSA (W20) had a fibre diameter of 19.5 µm or finer (figure 12). This is in marked contrast to 1988-93 when less than 20% of the wool from any region, except the Northern Tablelands (39%), was less than 19.5 µm.

The collapse of the mid micron categories, 20-22 µm and 23 to 25 µm, are shown in figure 13 along with the increase in the volume of the fine wool.

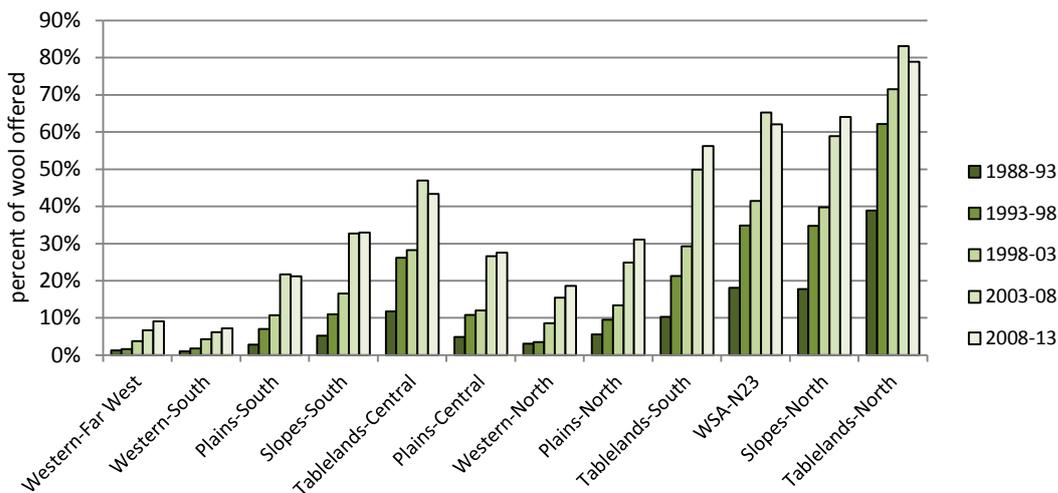


Figure 12 Change in the proportion of wool offered for auction that measured 19.5 µm or finer (Based on AWEX auction data. DAFWA analysis).

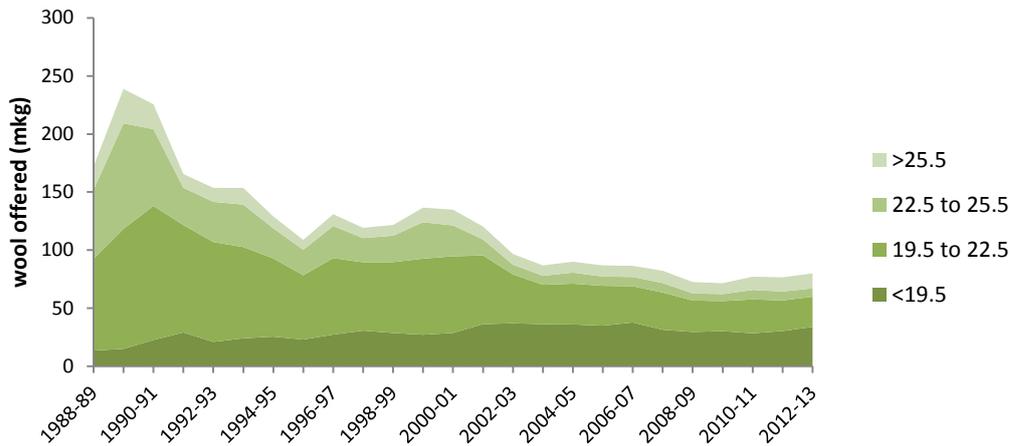


Figure 13 Volume of NSW wool presented for auction by fibre diameter category (Based on AWEX auction data. DAFWA analysis).

### Sheep industry transition

The final proof of the transition to a dual product industry can be seen in figure 14. This shows the convergence of the GVACP for wool and sheep meat in nominal dollars. Prior to 1995, the GVACP from wool was in excess of five times that from sheep meat. Since 2008-09, the GVACP ratio has averaged just 1.3 in favour of wool.

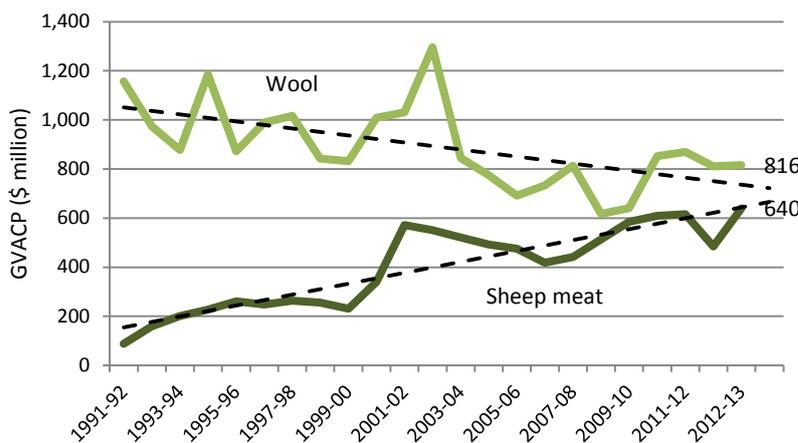


Figure 14 Converging contributions from wool and sheep meat to the gross value of agricultural commodities produced (GVACP) in NSW. Amounts are in nominal dollars (Based on ABS data. DAFWA analysis).

### Current snapshot

At the most recent ABS agricultural census, 2010-11, there were an estimated 26.82 million sheep and lambs in NSW being run by 15,800 businesses (farms with sheep). The following table (table 1) shows the proportion of sheep, breeding ewes, businesses with sheep, and business with breeding ewes by farm flock size at 30<sup>th</sup> June 2011. The 27% of farms with more than 2000 sheep and lambs contributed 71% of the total sheep and lamb population in NSW. Conversely, the 73% of farms with flocks of 2000 or less account for just 29% of all sheep and lambs in NSW (Curtis, 2014).



**Table 1** Distribution of NSW sheep, farms, breeding ewes and farms with breeding ewes by farm flock size

Farm flock size	Sheep and lambs (millions)	Farms (with sheep and lambs)	Breeding ewes (all breeds, millions)	Breeding ewes (Merino, millions)	Farms (with breeding ewes)
Up to 500	1.02	5,569	0.60	0.31	4,743
501 to 1000	1.95	2,641	1.13	0.70	2,482
1001 to 2000	4.75	3,273	2.75	1.85	3,176
2001 to 4000	7.65	2,716	4.39	3.19	2,668
4001 to 8000	6.48	1,194	3.75	2.86	1,181
8001 to 16000	3.56	335	2.05	1.61	330
Over 16000	1.43	59	0.75	0.54	57
<b>Total</b>	<b>26.82</b>	<b>15,787</b>	<b>15.41</b>	<b>11.06</b>	<b>14,637</b>

Of the 15.4 million breeding ewes in mid-2011, 72% were Merino, and these were being run on 10,500 farms. Based on the type of lambs produced, farms were divided into those that produced Merino lambs only, produced Merino and other breed (including first cross) lambs, those that only produced other breed lambs, and those that did not mate any ewes. The proportion of ewes mated, of all sheep and lambs, and of all farms in each category is shown in table 2.

**Table 2** The percentage of (a) ewes mated, (b) sheep and lambs on farms, and (c) farms in NSW that, in 2010-11, produced either Merino lambs only, both Merino and other breed lambs, only other breed lambs, or did not mate ewes.

Farm type based on lamb types produced	Percent of all ewes mated	Percent of all sheep and lambs	Percent of all farms
Merino lambs only	22 Merino	24	17
Both Merino and other breed lambs	24 Merino, 16 Other	37	21
Other breed lambs only	39 Other	35	49
No ewes mated	–	4	13

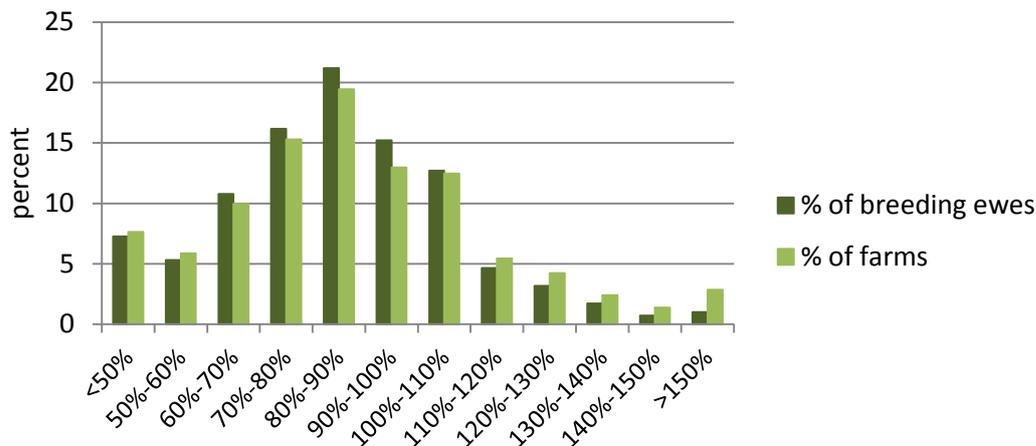
The key findings are:

- 46% of all ewes mated were mated to produce pure-bred Merino lambs;
- 17% of farms, carrying 24% of the sheep and lambs and 22% of the breeding ewes in NSW, produced only pure-bred Merino lambs; and
- 13% of farms, running 4% of the sheep and lambs in NSW, did not mate ewes in 2010-11. These are more likely to be wether only flocks rather than farms running dry ewes (2010-11 was a good season with good growth of paddock feed).

Average marking rates in NSW reported by ABS ranged from 79% in 2005-06 and 2006-07 to 90% in 2010-11 and 2011-12. Merino marking rates for 2010-11 through 2012-13 were between 8% and 12% lower than marking rates across all breeds.

There is a wide spread of marking rates reported for individual farms (figure 15). Of the farms that marked lambs, there was an average of 7% of all breeding ewes on farms

reporting marking rates of less than 50%, while 11% of breeding ewes were on farms reporting marking rates in excess of 110%.



**Figure 15** Distribution of breeding ewes and farms by farm marking rate. Analysis of NSW data for all ewes and for pooled data for years 2005-06, 2006-07, 2008-09, 2010-11 and 2011-12 (Curtis, 2014, based on tables 13 and 15).

Since the 2011 census, the NSW flock is reported to have increased to 27.81 million 2013 (ABS 71210) but is expected to decline in 2013-14 as drought and strong demand drive increased turn-off. Wool production is expected to decline in-line with falling numbers shorn and drought reduced wool cut per head.

## Future trends

- Demand for sheep meat, particularly from Asian countries, is expected to remain firm (MLA, 2014).
- The balance between wool and lamb production will be driven by the perceived relative profitability of each.
- There may be a re-introduction of predominantly wool sheep onto cropping properties (slopes and plains)
  - where herbicide resistant weeds are impacting on profitability, or
  - to build resilience in the face of increased climate variability.
- Flock composition is likely to remain ewe dominant (and mostly Merino). There will be opportunistic joining to terminal sires when lamb price signals are attractive, mostly on the slopes and plains.
- Confidence at the superfine end of the production spectrum is shaken by the recent lack of a premium.
- Mid micron wool in the 21 to 24 micron range is unlikely to return in high volumes, with wool producers continuing to deliver fine and superfine wool. The volume delivered at the broader end, above 25  $\mu$ m, will rise and fall in unison with the uptake of cross-bred prime lamb.
- Wool production in the rangelands will remain an extensive operation with little opportunity to specialise in either superfine wool or prime lamb production due to unreliable seasons and variable feed supply.
- The adoption of non-wool breeds will be explored as a way to reduce labour requirements and animal welfare concerns. However this will remain a challenge because of the reproductive performance required (to match the profitability of a fine



to medium wool enterprise) and because of the climatic conditions in the areas where it is often trialled.

## Potential implications

- Reproductive performance is more important to the profitability of a sheep meat oriented business than to a wool oriented business. Profitability of the sheep meat business is largely tied to the number of prime lambs that can be sold after allowing for replacements. In general, wool production is increased through carrying more wethers and fewer lambs and ewes, hence marking rates are second tier drivers of profitability.
- Wool production may play two important but separate roles (and probably in different regions). In regions with short, variable or unreliable seasons (e.g. Western regions), wool production will remain the risk minimising production system of choice. In regions with more reliable seasons and perhaps less arable land, high quality fine wool production will remain competitive against other enterprises over the long term.
- In traditional wheat-sheep areas, there will need to be a compelling financial (or management) incentive for producers to build sheep numbers, particularly if it is at the expense of crop area.
- Investment is needed if the flock is to grow. This might come about through existing producers for-going cash flow to retain ewe lambs, or it might come from external investors.

## References

ABARES Farm survey data for the beef, slaughter lambs and sheep industries.  
<http://apps.daff.gov.au/MLA/> accessed November 2014.

ABS 75030. [abs.gov.au](http://abs.gov.au) Catalogue number 75030DO001\_201213 Value of Agricultural Commodities Produced, Australia, 2012-13. Released 12-September-2014.

ABS 71210. [abs.gov.au](http://abs.gov.au) Catalogue number 71210DO001\_20122013 Agricultural Commodities, Australia, 2012-2013. Released 30-May-2014.

ABS 71240. [abs.gov.au](http://abs.gov.au) Catalogue number 71240DO001\_201011 Historical Selected Agricultural Commodities, by State (1861 to Present), 2011. Released 6-March-2013.

ABS 72150. [abs.gov.au](http://abs.gov.au) Catalogue number 7215.0 Livestock Products, Australia. Table 7. Brokers and Dealers Receipts of Taxable Wool. Released 18-November-2014.

ABS 72180. [abs.gov.au](http://abs.gov.au) Catalogue number 7218.0.55.001 Livestock and Meat, Australia. Table 5. Livestock Slaughtered - Sheep. Table 6. Livestock Slaughtered – Lambs. Released 7-November-2014.

Curtis, Kimbal (2014) Stocktake of the Australian sheep flock. Meat & Livestock Australia Limited. Project B.LSM.0055, ISBN 9781740362153.

MLA (2014) Australian sheep industry projection 2014.

NSW Government (2012) Transport for NSW. *NSW Freight and Ports Strategy*. November.

## Appendix 1 – A national perspective of the ageing of farmers

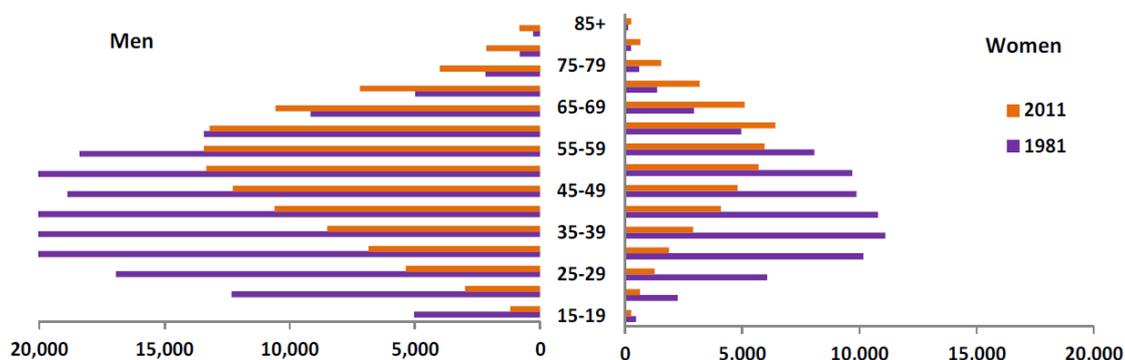
### Producers and their age!

Data limitations make any detailed analysis of the age distribution of farmers, let alone NSW wool (and sheep) producers, problematic. Barr (2014) states “the quality of industry ABS Population Census data varies between major agricultural industries.” The causes of this variation include documented classification changes, undocumented changes in coding practices, issues with farmer definition and the capacity of some farmers to switch industries. Specifically, the sheep industry data is weakened by undocumented coding issues during the 1990s. The cropping and mixed farming industry data is “flawed” because of “undocumented coding changes, inconsistencies in farmer responses to census questions and the capacity of many operators to adjust their businesses in ways that shift them between ABS categories.” This latter category, cropping and mixed farming is responsible for a significant proportion of wool production.

Recognising these limitations, the most recent ABS population and agricultural census collections were each conducted in 2011. The 2011 census found a total of 157,000 farmers, a drop of 40% over the three decades, 1981 to 2011 (ABS 4102.0, 2012). Figure 16 compares the 1981 and 2011 age distributions of Australian farmers, by gender. This figure clearly shows the big decline in farmer numbers and that the proportion of farmers under 55 years of age has diminished considerably since 1981.

The median age of farmers in 2011 was 53 years compared to a median age of 40 for people in other occupations. For farmers, this is an increase of nine years in three decades compared with a six year increase in other occupations. Barr (2014) suggests that due to the rise in the median age of other occupations, much of the rise in the median age of farmers may be due to factors in common with the rest of the country’s workforce.

Almost a quarter (23%) of farmers were over 65 years old in 2011, compared with just 3% of people in other occupations.



Source: ABS Census of Population and Housing

Figure 16 Age profile of Australian farmers – 1981 and 2011. (ABS 4102.0, 2012).

Interestingly, the Australian Farm Institute<sup>1</sup> suggests that the age profile of farmers compared with other occupations can be a bit misleading in that:

- The ABS data includes many ‘farmers’ who run very small enterprises and are ‘not strictly farm “businesses” - most relying almost entirely on non-farm income’ (e.g. tree changers).
- Farming has a significant ‘capital’ barrier to entry.

<sup>1</sup> Australian Farm Institute (2014) [http://www.farminstitute.org.au/\\_blog/Ag\\_Forum/post/farmers-are-getting-older-but-its-not-a-problem/](http://www.farminstitute.org.au/_blog/Ag_Forum/post/farmers-are-getting-older-but-its-not-a-problem/)

### Decline in young farmers

The number of young farmers (<35 year old) fell from 71,200 to 17,700 between 1981 and 2011, a decline of 75%. Barr points out that farm aggregation has resulted in a 51% decline in the number of farms thus accounting for about 68% of the decline in the number of young farmers. The remaining 32% fall is attributed to behavioural changes among young and potential farmers (declining participation of young Australians in the Australian workforce (9%), and changing partnering behaviour, mainly marriage at a later age (2%)) and changed behaviour of mid-career and older farmers (declining rates of exit and increasing entry rates (8%)). Barr suggests that the remaining 14% “may be due to” declining attractiveness (real or perceived) of farming as an occupation. The relative contribution of each factor is shown in figure 17. While this analysis suggests that farming attractiveness plays only a small part in the decline in the recruitment of young farmers, it should be remembered that this analysis applies across all farming sectors and may be different for wool (and sheep) farmers.

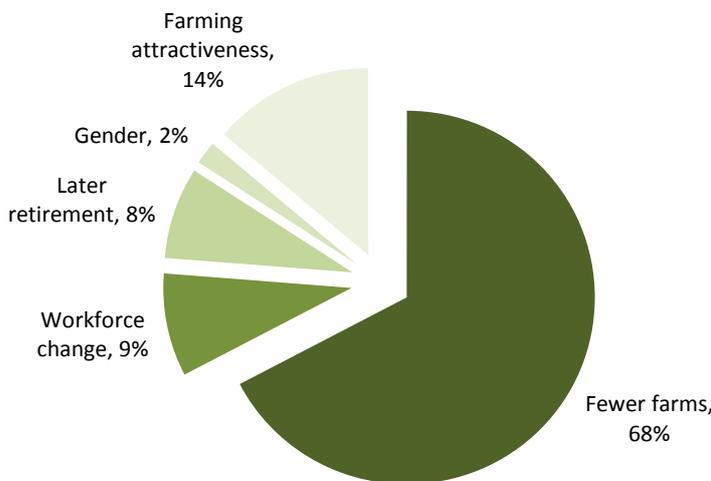


Figure 17 Relative contribution of demographic factors to the decline in the population of younger farmers between 1981 and 2011. (after Barr, 2014).

### Sheep industry demographics

Barr (2014) chose the wool and sheep meat industries as a case study because it represents a sector where both farm aggregation and age differentiated behavioural change appears to have contributed to the large decline in the number of young farmers, though in different periods over the last three decades. Note that this analysis is not specific to NSW, but is the best source that the authors could identify.

The collapse of the Reserve Price Scheme (RPS) and the sell-down of the stockpile are markers that delineate a period that interrupted the pattern of aggregation. Prior to the collapse of the RPS and after the sell-down of the stockpile, exit rates were 3-5% higher than the prevailing entry rates (Barr, 2014). During the period between these markers, the number of young entrants halved while the number of mid and later career entries remained almost unchanged. The wool stockpile depressed younger entry into the industry (to say nothing of those already in the industry!).

In contrast, exit rates have been relatively stable across age groups. Early career exits have been around 4-5% for each inter-censal five year period since 1991-96. Mid-career exits have been stable at around 3% since the 1986 census and late-career exits have fallen by about 2% since the collapse of the RPS.

Barr concludes that the shock caused by the collapse of the RPS led to changes in the entry and exit behaviour resulting in a reduction in the proportion of under 35s in the sheep



industry, and that subsequent performance of the sheep industry has failed to shift the industry to its previous demographic structure.

### **Implications of an ageing sheep workforce**

Concerns over the ageing of the workforce seem to be raised out of concern about whether this will be the last generation of wool producers. Barr (2014) points out that:

- The exit of a farmer does not generally lead to the loss of production of that farm. Generally the farm will be purchased by a new entrant or incorporated into another farm by a farmer seeking to increase scale.
- For food production, the smallest 50% of farms produce just 10% of the value of agricultural production. These smaller farms tend to be operated by older farmers.

### **Implications of farm aggregation**

As farms get larger in order to remain viable, there is an inevitable decline in population. This has implications for the local community and the services it can offer which in turn impact on the attractiveness of the area as a place to live and to do business. Regions without a history of aggregation continue to support many small operators and as they retire they are replaced by mid-career entrants (Barr, 2014) thus perpetuating the older age structure.

### **References**

ABS 4102.0 (2012) Australian farming and farmers. ISSN 1321–1781.

Australian Farm Institute (2013)

[http://www.farminstitute.org.au/blog/Ag\\_Forum/post/farmers-are-getting-older-but-its-not-a-problem/](http://www.farminstitute.org.au/blog/Ag_Forum/post/farmers-are-getting-older-but-its-not-a-problem/)

Barr, Neil (2014) New entrants to Australian agricultural industries –Where are the young farmers? Rural Industries Research and Development Corporation. Publication No. 14/003. RIRDC Project No. PRJ-008875