Issue no. 006
ISSN: 1449-2652

WOOL DESK REPORT - SEPTEMBER 2005

Kimbal Curtis and Keith Croker
Department of Agriculture, Western Australia

TABLE OF CONTENTS

DISCLAIMER

SUMMARY

A survey of 1700 Australian sheep producers with 500 or more sheep was carried out during March 2005 to collect demographic data on the national sheep flock as well as information on the time of lambing and shearing and the size of the wool stockpile.

While flock and clip size varied considerably between producers, 60 per cent of producers surveyed had 1000-4000 sheep and nationally each bale was produced from an average of 46 adult sheep. Twenty-one percent of producers indicated an intension to increase their Merino flock. Adult Merino ewes dominated flocks in all States while, nationally, wether sales were higher than ewe sales. Eighty per cent of producers joined ewes up to five years old while less than 30 per cent of producers joined ewes that were more than seven years old. Nearly three-quarters of Merino ewes were joined to Merino rams with the majority of the remainder joined to traditional terminal sires for prime lamb production. The use of new terminal or dual-purpose breeds and shedding or fat-tail ram breeds was limited, with Western Australia reporting the highest use of these ram breeds.

Nationally, there was a wide spread of lambing times with Tasmanian producers lambing within the shortest time frame. Late winter or spring was the most common time of shearing, except in Western Australia where shearing was more evenly distributed between late autumn and spring. Depending on the State, producers had 3-16 per cent of their annual wool production stored on-farm while nationally about 20 per cent of wool produced remained in-store at the time of the 2005 survey.

BACKGROUND

While past issues of the Wool Desk Report have presented survey results from sheep producers in the agricultural region of Western Australia, this issue has a national focus and contains the results of the March 2005 Australian sheep producer survey. The national survey was carried out to better understand the dynamics of the Australian sheep industry. The survey results will assist producers, traders and wool processors to better manage their businesses and will also inform policy makers and industry planners of the state of the Australian sheep industry.

The purpose of the March 2005 survey was to collect demographic statistics on the Australian sheep flock. Such data are needed to develop and calibrate a flock model that will enable changes in the national flock to be predicted and therefore new market opportunities to be anticipated. In addition to the sheep industry demographic data, information was also collected about the time of lambing and shearing and the size of producers' wool stockpiles.

The Australian Sheep Industry Co-operative Research Centre (Sheep CRC) and Australian Wool Innovation supported the Australian sheep producer survey. The Wool Desk also appreciates the support provided by the many sheep producers who contributed to the survey.

METHODOLOGY

During March 2005, a national phone survey of 1700 sheep producers across Australia was carried out by Market Equity Pty Ltd, on behalf of the Department of Agriculture WA and the Sheep CRC. Similar surveys have been carried out across WA since March 1998. The number of producers surveyed in each statistical division was determined by the relative proportion of producers in each area, as recorded in the June 2001 Australian Bureau of Statistics (ABS) agricultural census. The surveyed statistical divisions represent 85 per cent of the Australian sheep population. Each producer interviewed was asked to nominate the nearest locality to their property and this was then used to map the distribution of producers (Figure 1).

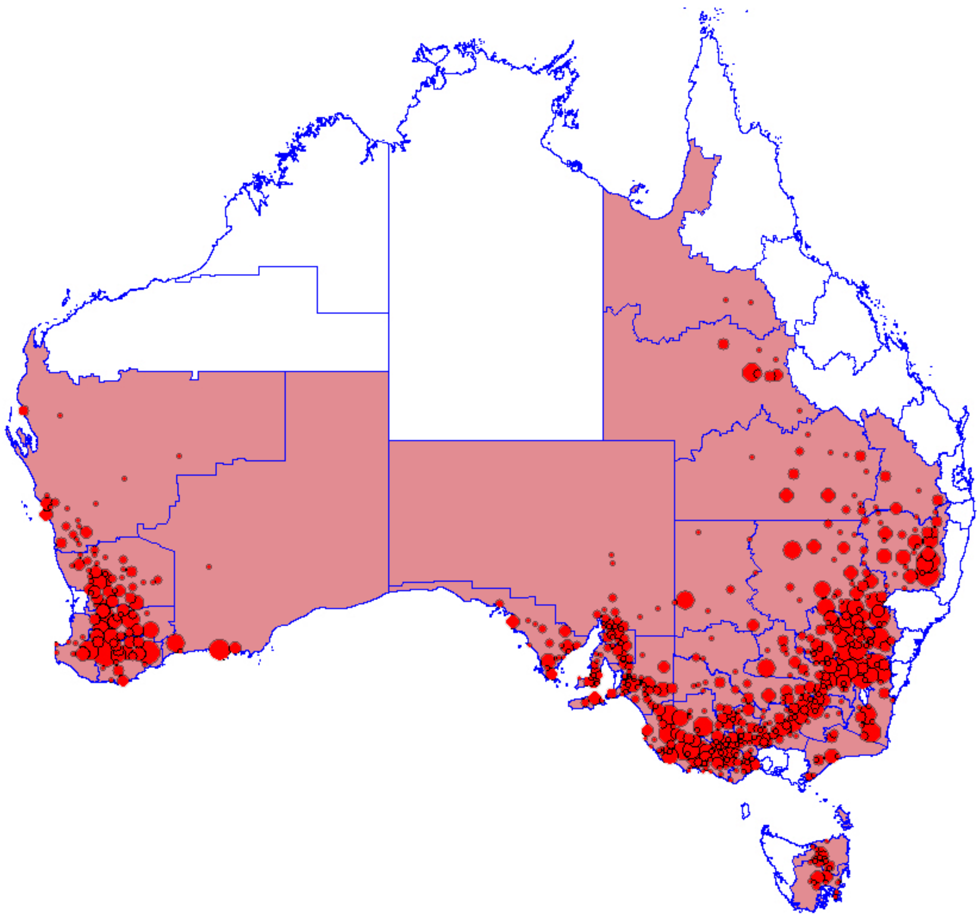

Figure 1. Distribution of the statistical divisions surveyed (shaded areas) and of the survey participants (red dots). Larger red dots indicate multiple producers from the same locality.

Interviewers used a set of standard questions and only producers with 500 or more sheep on their property during 2004 were included in the survey. This minimum sheep number was chosen to ensure the flock demographics were representative of commercial sheep producers.

RESULTS

SURVEY COVERAGE

The 1700 producers surveyed produced 153,000 bales of wool from 4.8 million adult sheep and 1.8 million lambs shorn during the 2004/2005 financial year. This represented about 4.5 per cent of the sheep producers in Australia during 2003 (about 38,000) and about 6 per cent of the bales offered at auction 2004/2005 (about 2.5 million). The survey results are therefore sufficiently representative of the national sheep flock and can be used to estimate changes in the Australian sheep production sector with reasonable precision.

ON-FARM SITUATION

Sheep shorn and bales produced

Each producer was asked how many bales of wool they produced or expected to produce (if shearing had not been completed) and how many adult sheep and lambs were shorn, or were expected to be shorn, during the financial year 2004/2005. Median values by State for these questions, along with the sample size, are presented in Table 1.

Table 1. Median values by State for bales produced and adult sheep and lambs shorn per producer during the financial year 2004/2005

	NSW	QLD	SA	TAS	VIC	WA	AUST
Bales produced	60	100	50	90	60	91	65
Adults shorn	1800	3500	1300	3000	1925	2800	2000
Lambs shorn	700	1050	600	740	600	1110	800
No. of producers	622	70	265	45	332	337	1672

Both flock and clip size varied considerably between producers (Figure 2 and Figure 3). The eight producers who shore no sheep and therefore produced no bales had more than 500 sheep during 2004 but had decided to get out of sheep production. This represented an exit rate of less than 0.5 per cent.

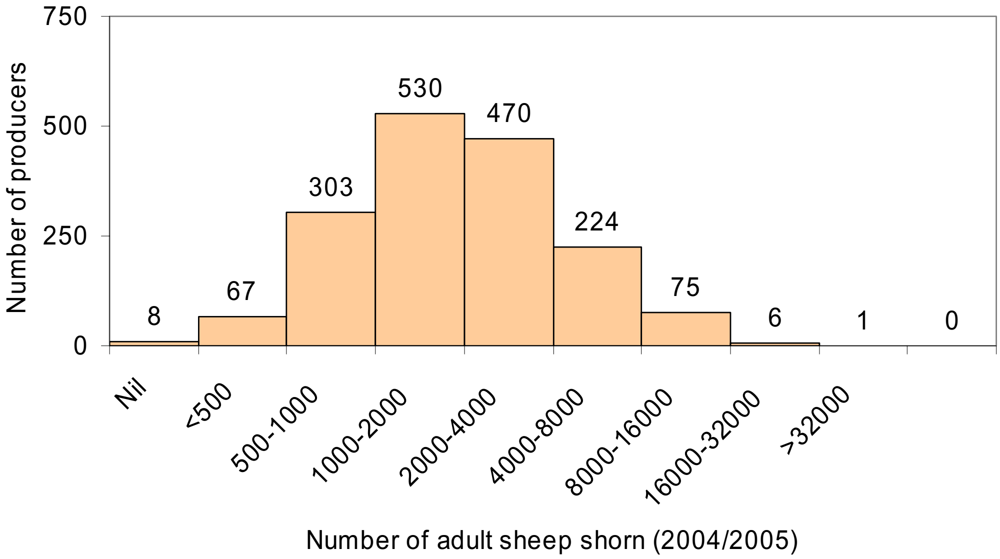

Figure 2. Size of the adult flock shorn per producer during 2004/2005. Data are from 1684 producers surveyed across Australia.

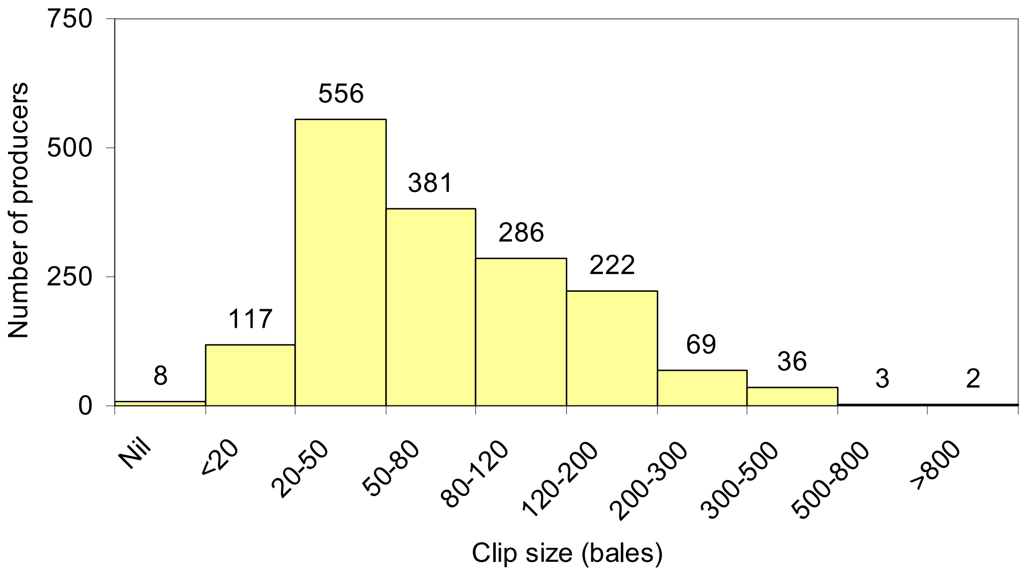

Figure 3. **Number of bales produced per producer during 2004/2005. Data are from 1680 producers surveyed across Australia.**

Figure 4 plots median bales produced against median adult sheep shorn in 2004/2005. The straight line of best fit (R^2 = 97.5%) is also plotted. A slightly better fit (R^2 = 98.7%) occurred when shorn lambs were included at 0.7 of an adult. Using this combination, the slope indicated 46 adult sheep equivalents were required per bale. However, this value varied between States and across genetic lines.

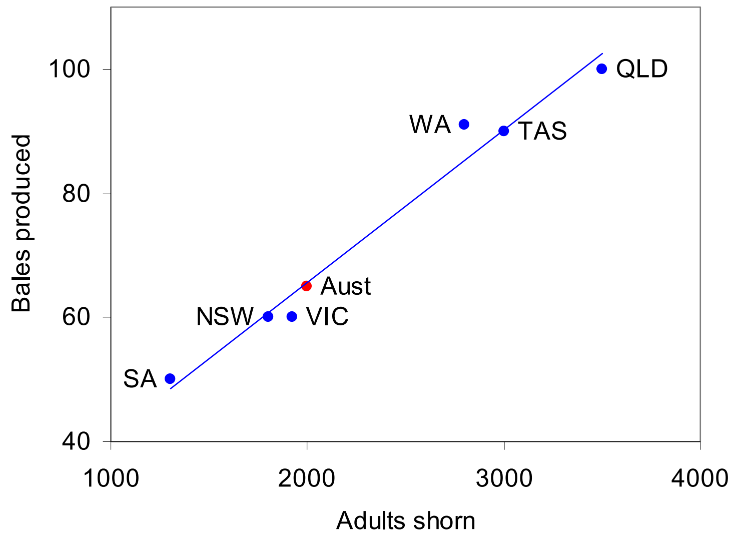

Figure 4. **Relationship between median number of bales produced and median number of adult sheep shorn across Australia during 2004/2005.**

Merino flock intention

To gauge producer sentiment toward wool and Merino sheep in particular, producers were asked if they were planning to increase their Merino flock during the next 12 months (Figure 5). Twenty-one per cent of the total number of producers surveyed indicated they would be increasing their Merino flock within the next 12 months. Queensland, New South Wales and Tasmania displayed the highest proportion of positive responses, which was considered to reflect the need to rebuild flocks following adverse seasons.

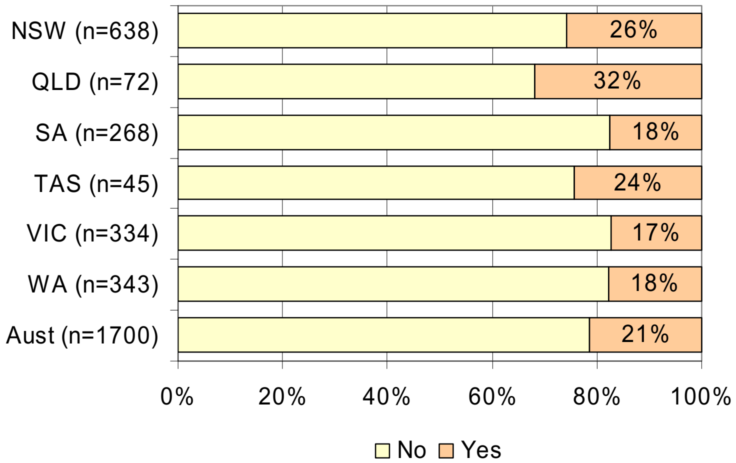

Figure 5. Proportion of Australian producers intending to increase their Merino flock within the next 12 months.

Producer stockpile

Harvesting, transporting, testing and selling of wool are sequential activities that all take time and as a result, at a State or national level, there is always a quantity of wool that remains on-farm and in-store. This quantity varies throughout the year in line with shearing patterns, transport scheduling and sale rosters. Producers' impressions of market conditions can also impact on the size of the stockpile as they withhold wool in expectation of better prices or dispose of it quickly if prices are high or are expected to fall. On-farm wool largely reflects shearing and transport-to-market logistics while variation in wool levels in-store reflect sale rostering and producer reactions to market conditions.

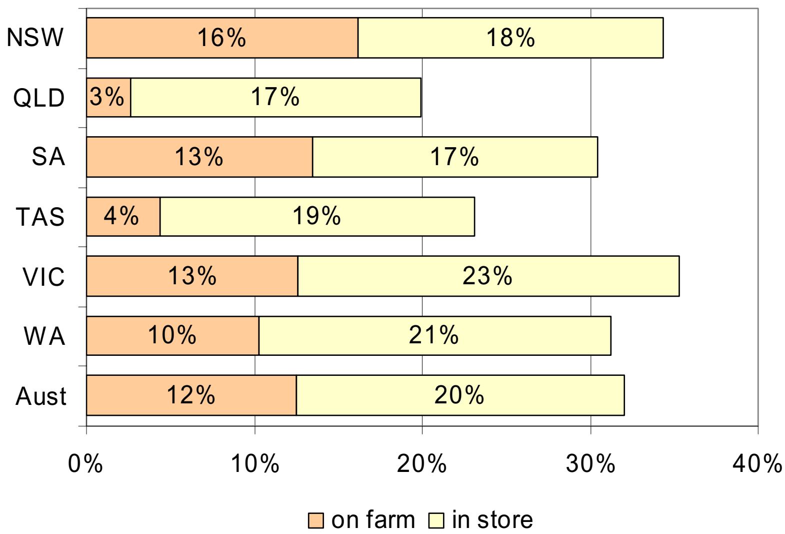

Figure 6. Average proportion of annual wool production (bales) held on-farm and in-store, at the time of the March 2005 survey.

On-farm and in-store stockpile data have been collected during previous surveys of WA producers from September 2001 to June 2004. For WA, the on-farm stockpile has varied from 8 per cent (September 2002) to 16 per cent (December 2003) and the in-store values have ranged from 17 per cent (September 2002) to 33 per cent (December 2003) as a percentage of annual production. The WA levels recorded during the March 2005 survey were nearer the lower end of the range previously recorded in WA.

Low levels in September relate to the start of spring shearing while high levels in December relate to the large volume of wool harvested during spring shearings and waiting to be sold.

FLOCK STATISTICS

The following sections present the results of survey questions aimed at quantifying the status of the national sheep flock and the factors that determine wool production and future flock size and composition. These factors include weaning and death rates, sales and purchases and the current flock composition.

Such data will enable the development of a model to forecast flock demographics and can also be used to project future flock size and composition. In addition, the survey data allow an examination of the impact of flock management decisions on wool, meat and live sheep production.

Flock composition

The composition of the sheep flock largely determines the products, such as wool, meat or live-export sheep, that can be produced. Flock composition at a national and State level is presented in Figure 7. The data presented exclude lambs and represent flock compositions at the time of the survey, March 2005. The high proportion of ewes in the flocks can be attributed, in part, to the increasing prime-lamb market and also to producers reducing their flock to core breeding stock in response to recent adverse seasons.

Previous WA surveys (September 2002 and December 2003)[1] found adult ewes accounted for 67 per cent and 66 per cent of the adult flock and these figures are similar to those found during the March 2005 national survey (Figure 7). WA and SA carried fewer wethers as a proportion of the total flock than did other States, perhaps reflecting the significant live sheep export trade from WA and SA.

[1] Available from www.agric.wa.gov.au – search for "wool desk report".

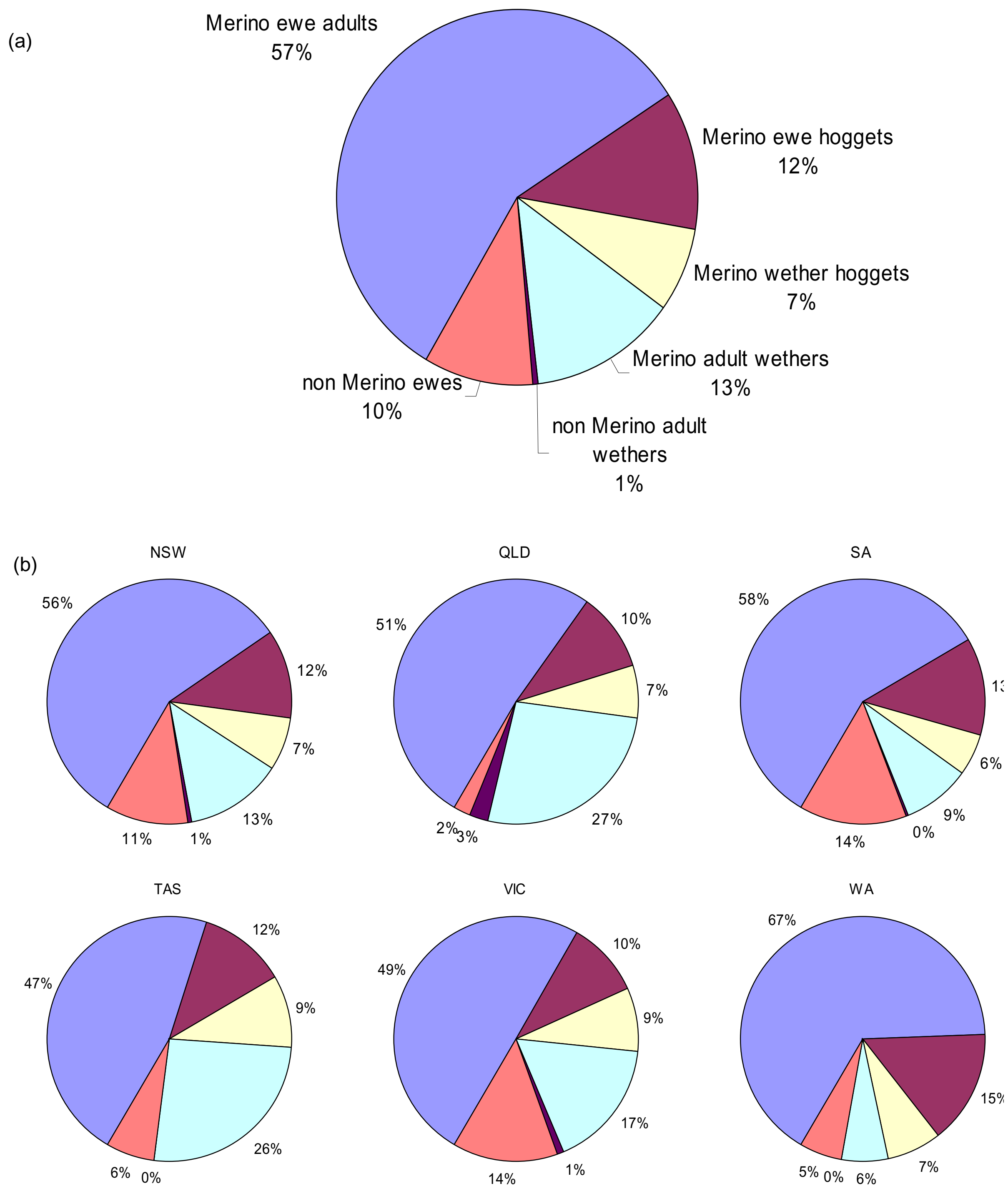

Figure 7. Composition of the adult sheep flock (a) Australia-wide and (b) by State.

Non-Merino adult sheep made up 12 per cent or more of the flocks of New South Wales, South Australia and Victoria - reflecting the greater emphasis on prime lamb production, and in particular the production of second cross lambs, in these States. Merino ewes dominated across all States highlighting the flexibility that Merino ewes offer for wool and prime lamb production. In many cases both prime lamb and Merino wool production were being pursued on individual properties.

Weaning rates

Weaning rates were estimated for each State and each ewe by ram combination based on the number of ewes joined and the number of lambs weaned during 2004 (Table 2). However, despite the relatively large sample of producers interviewed across Australia, the sample size for some combinations is small even when all Australian data are pooled.

Table 2. Lambs weaned (per cent) for each ewe and ram combination by State and for Australia. The last column contains the number of responses included in the Australian result. Missing cells in the table indicate that no producers undertook that specific cross

Ewes	Rams	NSW	QLD	SA	TAS	VIC	WA	AUST	n
Merino									
	Merino rams	74	68	82	82	78	81	77	1215
	Traditional terminal sires	91	116	94	90	82	90	89	805
	Dual purpose rams	134	54	98		83	110	109	87
	Shedding and fat tail rams	99	58	84		78	70	76	20
Non Merino									
	Merino rams	92		99		119	83	97	17
	Traditional terminal sires	111	100	105	115	99	99	106	369
	Dual purpose rams	99	68	104	105	101	101	98	38
	Shedding and fat tail rams	106		200		93	93	74	12

Merino death rates

Death rates reported in Table 3 are average figures for all producers in each State or Australia-wide. Considerable variation in death rate exists between individual producers with the rates reflecting the poor seasonal conditions experienced during 2004 as well as carry over seasonal effects from 2003, an adverse season in most of eastern Australia.

Table 3. Sheep death rates across Australia during 2004, expressed as a percentage of opening sheep numbers

	NSW	QLD	SA	TAS	VIC	WA	AUST
Adult ewes	5.4	6.7	4.1	5.1	3.7	4.3	4.8
Adult wethers	5.6	7.3	4.1	6.4	3.8	6.8	5.7
Ewe hoggets	6.2	4.8	6.5	5.2	5.1	4.2	5.4
Wether hoggets	5.6	5.4	8.4	6.2	5.0	4.8	5.6
Ewe lambs	5.1	3.6	2.5	4.6	3.8	3.8	4.1
Wether lambs	4.7	5.0	2.2	4.3	4.0	3.7	4.0

Sheep sales

Producers were asked how many ewes and wethers they sold during 2004. Sales were recorded for Merino adults, hoggets and lambs and also for prime lambs (Table 4). Sales of non-Merino adults and hoggets were not recorded.

In all cases, wether sales were higher than corresponding ewe sales for Merino classes. Sales of Merino ewe-lambs were low indicating ewe lambs were being retained to build the breeding flock. Over a third of adult wethers are sold each year in the four States with the largest flocks, although it must be noted that adult wethers formed only a small part of the flock. The high proportion of adult wethers in WA is consistent with the significant export trade in live-sheep that occurs out of Fremantle.

Table 4. Sheep sales expressed as a percentage of total sheep numbers present at 1 July 2004 (adults and hoggets) and as a percentage of number weaned (lambs)

	NSW	QLD	SA	TAS	VIC	WA	AUST
Merino							
Adult ewes	13.6	11.0	15.6	15.0	13.8	15.4	14.3
Adult wethers	37.5	21.3	35.0	24.0	35.0	54.3	36.3
Ewe hoggets	11.7	9.9	15.0	4.8	6.1	12.1	11.1
Wether hoggets	31.1	19.1	35.1	13.0	16.7	43.3	31.0
Ewe lambs	4.4	1.5	4.3	0.9	1.2	3.8	3.4
Wether lambs	27.4	22.8	37.0	6.5	5.4	16.8	21.1
Prime lambs	61.3	58.1	67.6	79.2	64.4	62.3	63.6

Sheep purchases

Not all sheep sold went to slaughter or for live export. Table 5 summarises the purchases of Merino sheep as a percentage of opening numbers for each State and Australia-wide. These numbers reflected both restocking activity and the purchasing practices of producers who did not breed their own replacements.

Table 5. Average purchases of Merino sheep in each State expressed as a percentage of opening numbers (%)

	NSW	QLD	SA	TAS	VIC	WA	AUST
Adult ewes	6.0	3.9	4.5	1.5	3.5	5.5	5.0
Adult wethers	11.4	5.0	12.0	1.5	7.6	6.7	8.2
Ewe hoggets	2.1	2.9	3.3	2.8	3.4	2.0	2.5
Wether hoggets	7.9	36.6	20.6	0.6	5.9	3.0	8.3
Ewe lambs	0.5	1.2	1.6	0.0	0.1	0.5	0.6
Wether lambs	3.5	3.3	10.9	0.0	2.2	2.0	3.6

Age of oldest ewes joined

The average age of the oldest ewes joined was 5.9 years for Merino and 5.6 years for non-Merinos, with only small differences between the States.

Table 6. Average age (years) of the oldest ewes joined in each State

	NSW	QLD	SA	TAS	VIC	WA	AUST
Merino ewes	5.7	6.0	5.8	6.3	5.9	6.1	5.9
Non-Merino ewes	5.8	5.7	5.7	5.9	5.4	5.2	5.6

Between producers there was a large spread in the age of the oldest ewes joined. Figure 8 shows that for both Merino and non-Merino ewes more than 80 per cent of producers joined ewes up to five years old while fewer than 30 per cent of producers joined ewes over seven years old.

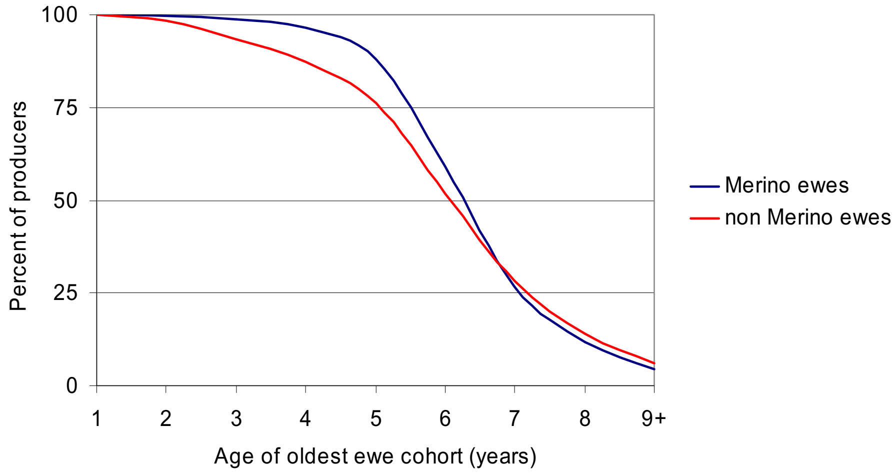

Figure 8. Percentage of producers joining Merino and non-Merino ewes of specific ages during 2004.

Joining ewes less than 12 months old

Joining ewe weaners (ewes under 12 months old) is a practice recommended in some circumstances. The practice enables an extra lamb to be returned from the ewe and therefore aids flock rebuilding. The key requirement is that the weaners are grown fast enough to reach maturity in time for joining. A separate joining to that of the adult flock may be required, which may raise additional animal husbandry issues.

The 2005 survey results (Figure 9) indicated producers were joining fewer Merino ewe weaners than non-Merino weaners. This probably reflects the slower growth rates of Merinos.

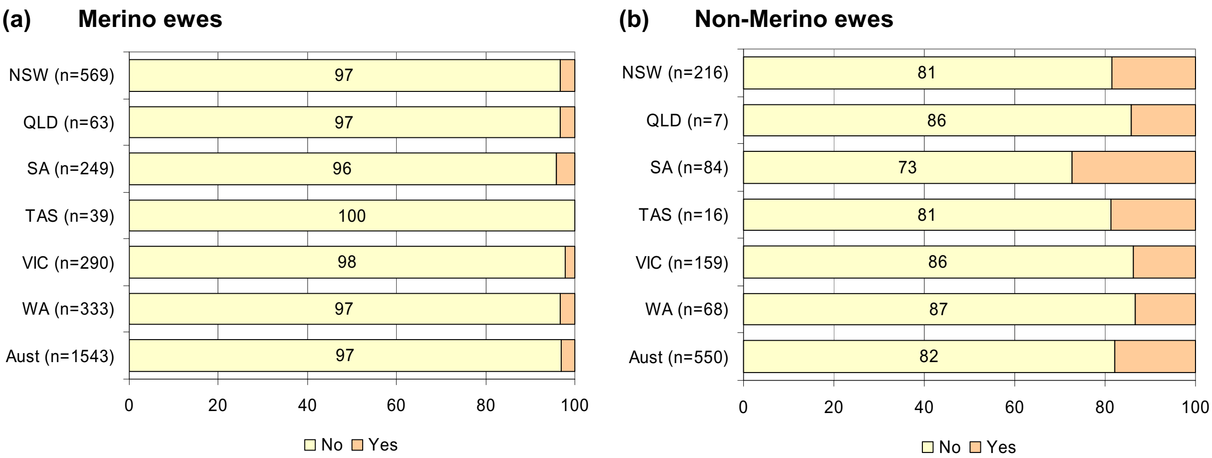

Figure 9. Proportion (%) of Australian producers that joined (a) Merino and (b) non-Merino ewes that were younger than 12 months during 2004-2005.

Lamb turn-off

Producers were asked at what age they sold both Merino and prime lambs. Figure 10 shows the results for Merino wether and ewe lambs and for prime lambs in each State. Australia-wide, prime lambs were sold at a younger age (6.4 months) than Merino wether lambs (9.1 months) or Merino ewe lambs (9.9 months).

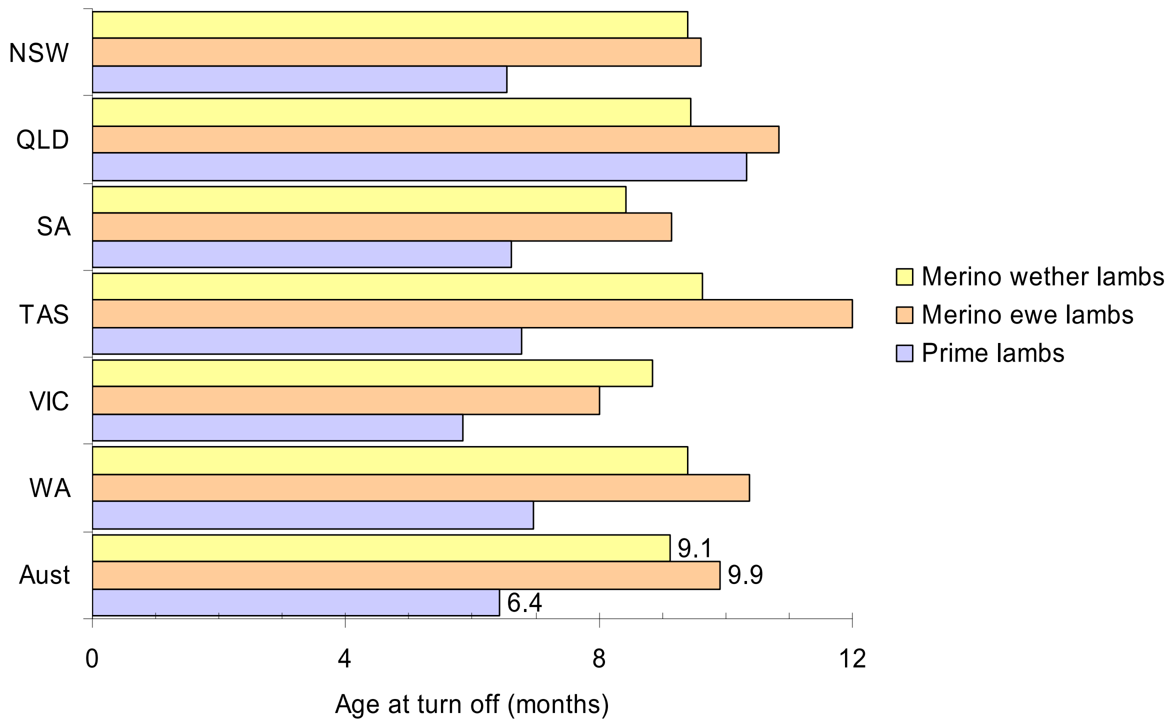

Figure 10. Average age at which Merino wether lambs, Merino ewe lambs and prime lambs were turned off across Australia during 2004-2005.

Most surveyed producers sold more Merino wether lambs (566 producers) than Merino ewe lambs (138 producers), which is consistent with the increasing need for producers to keep ewe lambs for replacements while disposing of wether lambs due to the decreased emphasis on wool. The intermediate number of producers (415) selling prime lambs reflected the trend for fewer producers to undertake first cross production.

SHEEP MANAGEMENT

Ram choice

With the majority of the Australian sheep industry based on Merino ewes, ram choice has a major impact on the sheep flock and the type of product that is produced. Merino rams are used where the emphasis is on wool production and also to maintain Merino ewe numbers. Excess Merino wethers are sold for meat or live export. Other ram breeds are mainly used for prime lamb production. This reduces the number of Merino ewe-lambs available as replacements and therefore limits the capacity of producers to build up breeding ewe numbers. Prime lamb turn-off and the live export of young wethers results in reduced numbers of mature wethers and leads to ewes making up a larger component of the flock.

Surveyed producers were asked how many Merino and non-Merino ewes they joined to Merino rams, traditional terminal sires[2], new terminal or dual-purpose rams[3] and shedding or fat tail rams[4].

Figure 11 shows the survey results at a national level for ram choice for Merino and non-Merino ewes. The figures have been weighted according to the number of ewes joined to each sire type.

Nationally, 73 per cent of Merino ewes were joined to Merino rams, although this varied by State (Figure 11). In States other than Queensland, 20-31 per cent of Merino ewes were joined to traditional terminal sires for first-cross lamb production (Figure 12). The results indicated that the use of new terminal/dual purpose breeds and shedding or fat tail sheep over Merino ewes is limited in all States with WA recording the highest level at just 7 per cent.

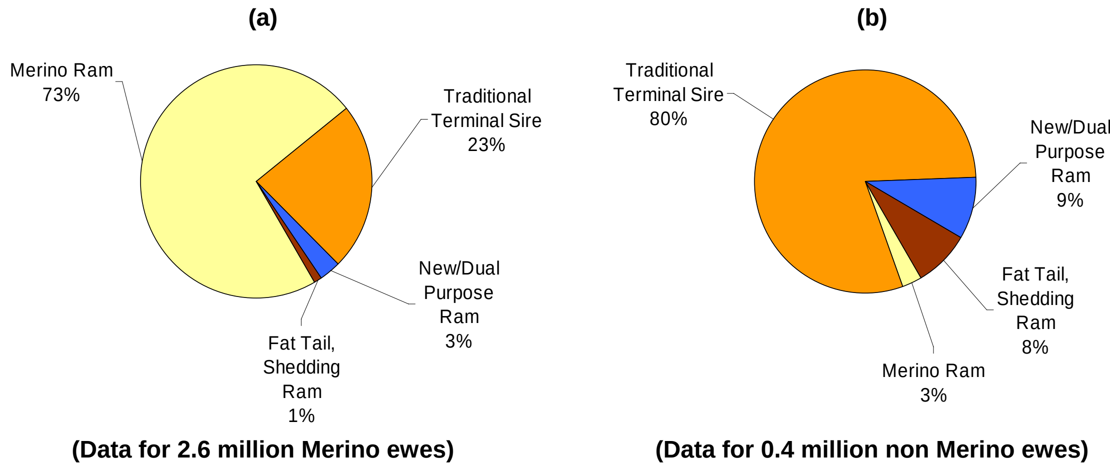

Figure 11. Breed of ram mated to (a) Merino or (b) non-Merino ewes across Australia during 2004-2005. Results were calculated on a total ewes basis.

[2] Traditional terminal breeds to include Poll Dorset; Border Leicester; Suffolk; White Suffolk; any other Suffolk; Texel.

[3] New terminal/dual purpose breeds to include SAMM (South African Meat Merino); Dohne; East Friesian; Finn; Coolalee; Affrino

[4] Shedding or fat tail breeds to include Dorper; Damara; Karakul; Awassi; Afrikaner; Namaqua; Wiltshire Horn; Meat Master

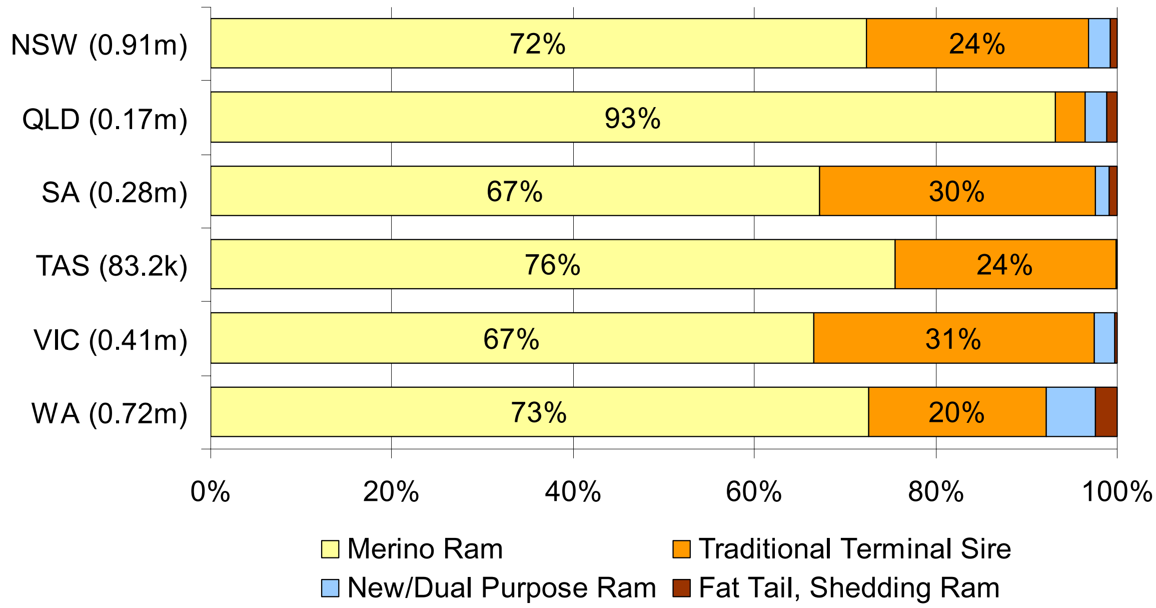

Figure 12. Breed of ram mated to Merino ewes within each Australian State. Numbers in brackets after each State indicate the total number of ewes (recorded by the surveyed producers) in millions (m) or thousands (k).

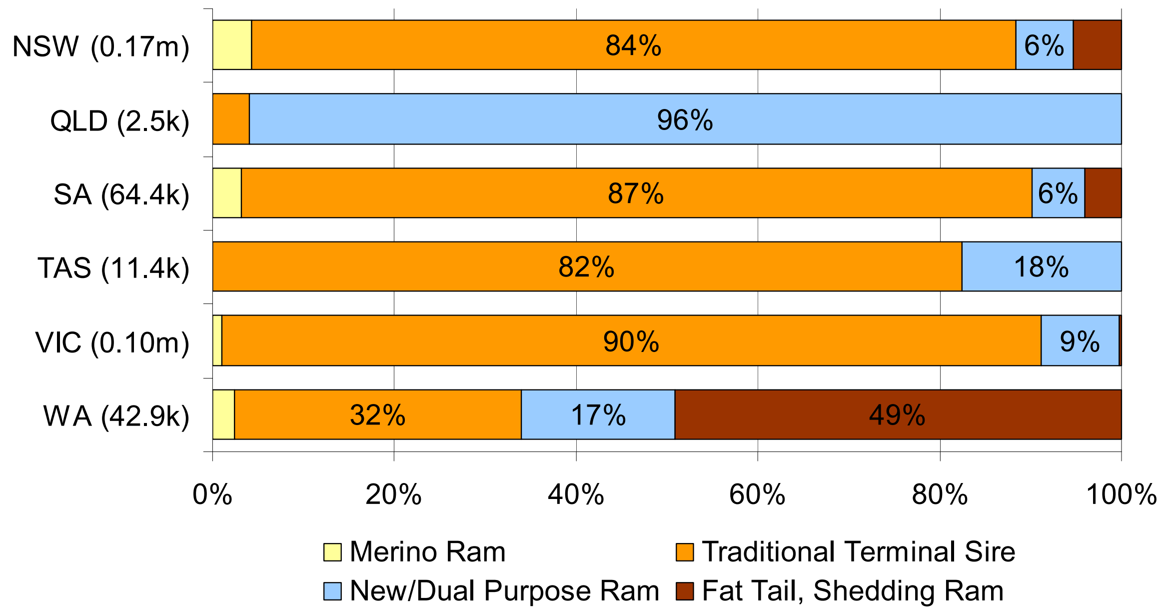

Figure 13. Breed of ram mated to non-Merino ewes within each Australian State. Numbers in brackets after each State label indicate the total number of ewes (recorded by the surveyed producers) in millions (m) or thousands (k).

For non-Merino ewes (Figure 11 and Figure 13), traditional sires dominated in NSW, SA, TAS and VIC. New or dual-purpose breeds dominated in QLD, while in WA about half the non-Merino ewes were joined to shedding or fat tail rams. However, the results for non-Merino ewes are based on a relatively small sample size and therefore could be skewed by the small number of producers surveyed, particularly if the producers had adopted one production system across the whole flock.

Figure 14 combines the Merino and non-Merino crosses and describes them on the basis of the lambs produced. Sixty-three per cent of all matings targeted production of pure Merino lambs and 24 per cent targeted a first cross lamb. However actual lamb production is complicated by weaning percentage, which in turn is affected by twinning and survival rates.

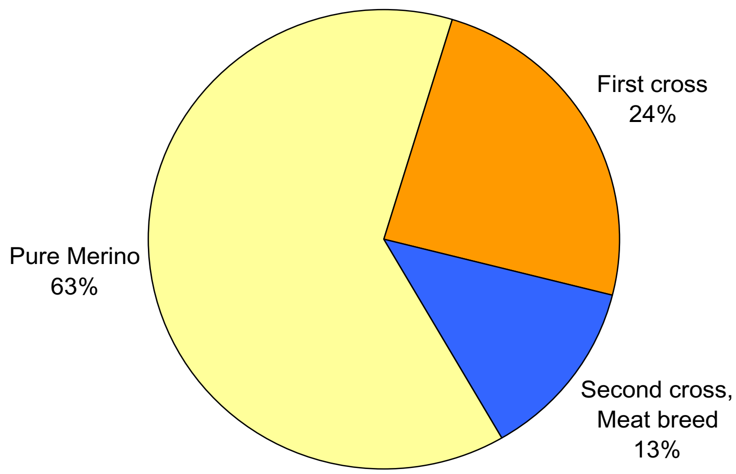

Figure 14. Type of lamb produced (%) across Australia during 2004-2005.

Surveyed producers were classified according to the proportion of their Merino ewes that were joined to Merino rams (Figure 15). This classification provided an indication of the proportion of producers that were managing for a self-replacing Merino flock. Depending on weaning percentage, culling rate and number of times ewes are joined, about 70-80 per cent of Merino ewes need to be mated to Merino rams to achieve self-replacement. In individual years, opportunistic joining to non-Merino rams to take advantage of (expected) market conditions can be a useful tactic. However, in subsequent years it would then be necessary to revert to using more Merino rams if the Merino ewe flock needed to be rebuilt.

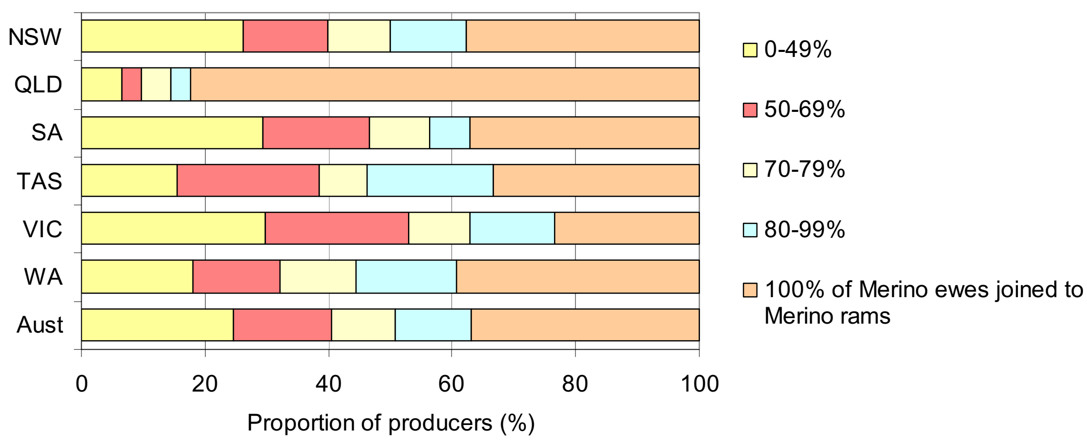

Figure 15. Producers were allocated to one of five groups (0-49%, 50-69%, 70-79%, 80-99%, 100%) depending on the proportion of their Merino ewes joined to Merino rams during 2004. The figure shows the proportion of producers in each group across Australia.

In all States except Queensland, more than 30 per cent of producers surveyed were joining less than 70 per cent of their Merino ewes to Merino rams. Victoria had the highest incidence at over 50 per cent of producers, indicative of the first cross and second cross lamb production systems being undertaken in this State.

Time of lambing

Time of lambing is a critical decision in the annual calendar of sheep management. Choice of lambing time will be influenced by several factors including:

- ewe condition at joining;
- feed availability and quality during late pregnancy and through lactation;
- weather conditions or risks at lambing;
- conditions for finishing or growing weaned lambs and;
- market conditions at the intended date of turn-off.

In many cases, interaction with the management needs of other enterprises will also influence the time of lambing decision.

As expected, the combination of these factors resulted in a large spread in lambing time among the producers surveyed (Figure 16). New South Wales had a wide spread of lambing times, in part due to the range of climates in sheep producing regions of this State. In contrast, Tasmanian producers lambed in a narrow window from late winter through spring.

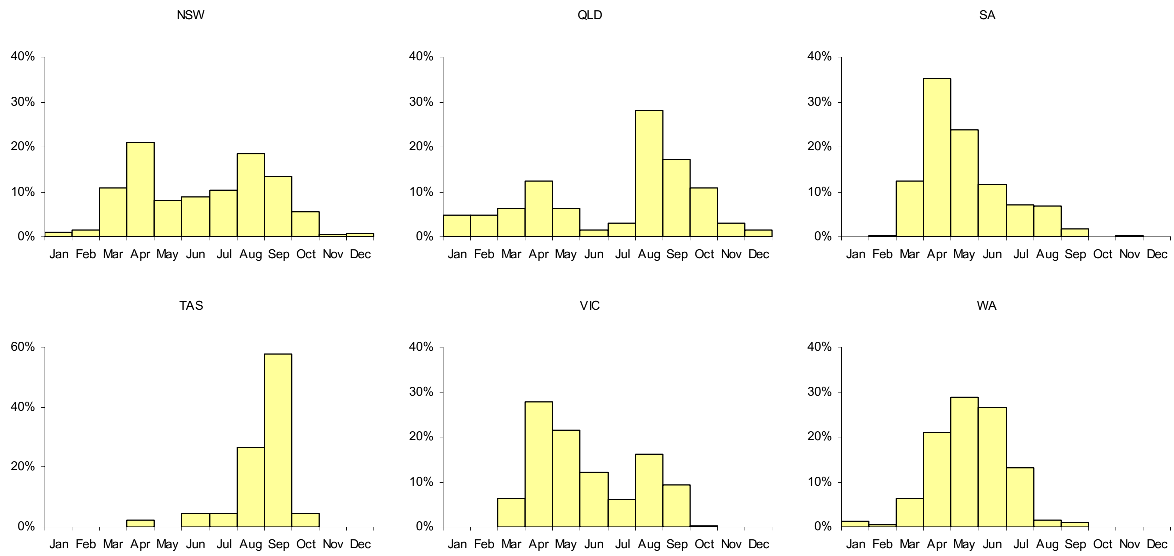

Figure 16. Proportion of producers (%) in each Australian State that commence lambing during each calendar month.

Time of shearing

Time of shearing is another management practice that is influenced by many factors. Shearing time can influence wool quality and also impact on wool growth rates. Shearing must fit in with other management activities, some of which may relate to other enterprises. In addition, the availability of shearers also affects when flocks can be shorn.

Of the surveyed producers, late winter or spring shearing was the most common practice in all States except Western Australia where shearing was more evenly split between spring and autumn (Figure 17).

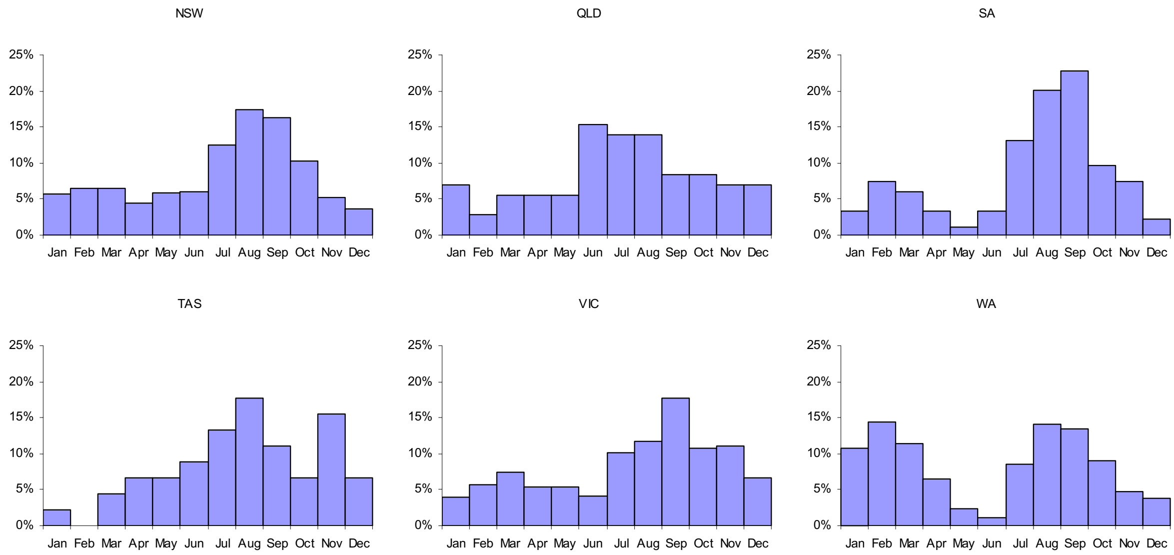

Figure 17. Proportion of producers (%) in each Australian State that commence shearing during each calendar month.