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Sheep CRC National Farmer Survey Results 2011



SHEEP CRC



An Australian Government Initiative



Anne Jones, Mandy Curnow

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Executive Summary

This report provides a summary of the data collected in a national producer survey conducted on behalf of Program 1 of the CRC for Sheep Innovation (Sheep CRC). The survey was conducted in February and March of 2011 for the purposes of gathering benchmark information on a range of sheep management practices. The intention is that the same survey will be run again late in 2013 and a comparison of the information collected used to show how producers have changed their practices during that time. This information will be used to support arguments regarding the impact of the Sheep CRC's activities on sheep producer's behaviour and production.

One thousand producers, with more than 500 sheep, were surveyed by telephone across southern Australia (excluding pastoral zones). The proportion surveyed in each state and zone was calculated to reflect the distribution of producers across those zones. Thirty three per cent of the respondents were from NSW, 28% from Victoria, 1% from Queensland, 18% from SA, 18% from WA and 3% from Tasmania.

Key Findings

Enterprise and Production:

The three key enterprises – sheep, cattle and winter crops accounted for more than 97.5% of respondent's income. The High Rainfall Zone (HRZ) had the highest average proportion of income from sheep at 72% with the Cereal sheep Zone (CSZ) having the lowest.

The average number of sheep run in wool and dual enterprises is just over 4000 per producer while the prime lamb enterprise run an average of just under 3000 sheep. The HRZ had the highest sheep numbers in any of the enterprise types and the CSZ had the smallest flocks.

Program 1.1 Matching Genetics to Production Systems

The majority of producers buy rams to service their flock (81%). Nationally, 12% of respondents can be classified as "ram sellers", ie. sell rams or semen to others. Twenty three percent of respondents breed rams for their own flock, whether it be as a seller of rams or for their own commercial flocks

There was no difference between enterprise type and how producers selected the source of rams that they purchased except for wool producers who were less likely to access genetic data to make their choice.

Less of the respondents in the HRZ used their regular stud breeder only compared to the CSZ and the Medium rainfall Zone (MRZ), although this was still their most preferred method. Respondents from the CSZ were more likely to use ram sales to select the stud that suited them than respondents from other zones. Respondents from the MRZ were more likely than their counterparts to access genetic data such as ASBVs to select their stud source.

Most ram buyers chose their rams with some combination of how they look, performance data and possibly some genetic information (67%). Nearly half of the wool enterprise buyers chose on how they look and some performance data whereas only 23% of the prime lamb buyers did this. Surprisingly 28% of prime lamb buyers chose rams on how they looked alone, compared to only 9% of buyers from wool enterprises.

Of those producers who chose to go to their regular stud breeder for ram purchases, most were likely to choose rams on how they look or let their agent choose the rams with less producers choosing rams on genetic data.

Wool (at 67%) and Dual (at 72%) enterprises are more likely to use a *combination* of visual and performance or genetic data to select rams (with more emphasis on genetic information for Dual enterprises), while Prime lamb enterprises are divided between using visual selection only (28%), using a combination of visual and performance (23%) and a combination of visual, performance and genetic data (29%).

"Growth rate" and "constitution or doing ability" are the clear favourites among this list of traits with both groups of producers, with "weaning weight" and "lean meat yield" perceived as having lower importance.

One hundred and twenty one producers (12%) indicated that they sold rams. Forty per cent of breeders sold less than 50 rams per year but they accounted for just eight per cent of ram sales. Seventy two per cent of rams were sold by the larger breeders.

Of the twenty nine per cent of ram breeders who sold more than 150 rams, more were prime lamb producers than either Wool or Dual enterprise ram producers. The highest number of rams produced per year was 600 rams with 2 breeders selling this number in 2010.

Prime lamb producers are much more likely to use ASBVs than Wool or Dual purpose producers are, however, there was no difference between larger or smaller breeders in the use of ASBVs. With both Wool and Dual enterprises however larger producers were much more likely to use ASBVs.

The highest rating reasons for not providing ASBVs on all rams sold are the time involved in providing ASBVs and that they believe that their customers don't use them.

There was no difference in the types of producers using contractors for the key activities of the sheep enterprise except in marking where Prime Lamb producers were less likely to use a contractor.

The electronic weigh crate and lick feeders had the highest ownership but had only low or moderately low rank for 'considered using'. Electronic ear tags and auto drafting equipment had low ownership but were the highest rank in terms of being considered, indicating that this would be where growth could occur.

Program 1.2: Improved animal welfare and reproduction rates:

Marking percentages for meat lambs were about 10% higher than Merino lambs which support other data collected on the Australian flock. Interestingly, marking in the HRZ showed the largest difference between Merino and meat marking percentages with meat being more than 20% higher than Merino.

The pattern of time of joining or lambing for each sire type was similar with most flocks being joined between October and March.

Pregnancy scanning is a practice carried out by 44% of respondents, of which 18% scan for litter size. A further 9% of respondents indicated that they only scanned in bad years. Fifty seven percent of wool producers don't scan at all compared to 39% of Prime and 45% of Dual enterprises.

Typically those with the largest flocks were more likely to scan for pregnancy and generally more likely to scan for litter size as well. Only 16% of Wool producers but 22% of the ewes were scanned for multiples and 20% of prime producers scanned for multiples but 32% of the ewes for meat production were scanned for litter size.

All enterprise types had a higher Meat marking percentage than Merino marking percentage. Prime lamb enterprises have a higher marking percentage for their meat lambs than Wool or Dual enterprises indicating that management of their ewes has an impact as well as the genotype on the marking percentage

The marking rates for meat joinings across all enterprise types are significantly higher for those that scan for litter size (103%) than those that don't scan at all (99%).

Of those respondents who scanned for either pregnancy status or litter size, the overwhelming majority managed those scanned mobs individually – either by separating twinning, single and dry ewes or pregnant and not. Of those who scanned for litter size, 84% managed their mobs individually, whereas only 49% of those who scanned for pregnancy status managed their mobs individually.

The most common method of assessment of ewe nutritional status is by a regular visual assessment in the paddock (61%) followed by visually estimating in the paddock with an occasional assessment on a sample of ewes when they are in the yards. These two methods accounted for over 88% of all groups. A relatively small group assessed using a formal measure, drafted and managed ewes to set targets.

Weaner mortality for animals between the age of weaning and 6 months of age ranged from 2% to 4.8% in 2010 and from 2.4% to 3.9 as an average mortality rate.

Generally there was a higher reported mortality in 2010 than 'normal'. The exception to this was in WA where mortality for 2010 was lower than considered normal. There were significant differences between states within zones. There appeared to be no relationship between flock size and weaner mortality.

Seventy six per cent of Merino lambs and 12% of meat lambs were mulesed. Of these, 64% of the Merino lambs and 12% of meat lambs were mulesed with pain relief. SA and WA had the highest proportion of Merino lambs being mulesed. Very few meat lambs were mulesed in 2010 in NSW and sVic. Vic had the highest rate of mulesing with pain relief of meat lambs.

The awareness of the National Wool Declaration (NWD) across all states is very high at nearly 90%. The reported usage of the NWD in this survey is higher than was expected by the public auction records. At least 50% of producers across all zones reported having filling out the mulesing section in the NWD in the last two years.

Program 1.3: Improved parasite control

Faecal worm egg count testing is carried out more by producers in the HRZ and those in the CSZ undertook the least WEC testing. There was some difference between states regardless of the zone in which the respondents were in. Overall there was less testing in WA and more testing in South Australia.

The majority of producers surveyed treat routinely for lice, whether lice are seen or not (56%). Thirteen per cent of respondents never treat for lice.

South Australians were much more likely to treat their flocks for lice routinely (75%) compared to Victorians (35%), however, those in the CSZ were also much more likely to treat for lice routinely than other zones. The HRZ not only treated mostly when lice were seen, they were also more likely to never treat for lice.

Generally all states saw an increase in when lice were seen from 2007 to 2010, SA the only state showing a downward trend in 2010! WA respondents had the highest incidence in 2010 of any of the states.

Backline treatments off-shears were the most popular form of treatment for lice with it being the most used in SA (71%). There has been a move from back-line treatments in the recent years in that most chemicals used in backline treatments show some resistance. NSW had a similar use of backline treatments to Vic and WA however, shower dips were less popular than plunge dips in NSW and Vic.

Most respondents nominated that their flystrike treatment was usually a routine treatment (40%) and the least popular treatment was treating the mob when flystrike was detected (13%).

There is no difference in treatment for flystrike whether the flock is mulesed or not, however, it is more likely that the mob will be treated routinely if the producer has an auto jetting race.

The WormBoss website and newsletter service is now hosted by the sheep CRC. Forty four per cent of producers are aware of the site but only 10% of producers said that they had used it in 2010 and only 2% had subscribed to the newsletter service.

The LiceBoss website is a new service that was established in 2010. Already awareness levels are above 25% with approximately 5% having used the site in 2010.

The FlyBoss website is a new service that was established in 2010. Already awareness levels are 17% nationally with approximately 3% having used the site in 2010.

Awareness of Sheep CRC and attendance at CRC events

Thirty nine per cent of respondents indicated that they had attended a sheep event in 2010 and about 16% of those attending an event had attended at least sheep CRC event in 2010. 16% indicated that they had attended at least one of the nominated Sheep CRC events in 2010 which was just over 40% of those who attended any event.

Acknowledgements

Survey Design: Anne Jones, Mandy Curnow, Andrew van Burgel, Kimbal Curtis, Rob Woodgate, Andrew Thompson, Mark Ferguson and Geoff Hinch

Statistical analysis: Andrew van Burgel

1 Background to the national producer survey

This report outlines the information received from the national producer survey conducted on behalf of Program 1 of the CRC for Sheep Innovation (Sheep CRC). The survey was conducted in February and March of 2011 for the purposes of gathering benchmark information on a range of sheep management practices. The intention is that the same survey will be run again late in 2013 and a comparison of the information collected used to show how producers have changed their practices during that time. This information will be used to support arguments regarding the impact of the Sheep CRC on sheep producers. For further information about the evaluation plans developed for Program 1 of the Sheep CRC, please refer to the relevant reports.

2 Survey responses

2.1 Selection of respondents

Respondents were selected if they had more than 500 sheep and that they resided in one of the five production zones where activities of the CRC were anticipated to occur. Diagram 1 shows these zones and outlines the defining characteristics of each zone. See Appendix 1 for more detail on the sampling and interviewing methodology.

Modelling showed that 1000 respondents across the rainfall zones with an expected distribution across three enterprise types would provide adequate numbers for an analysis with reasonable confidence.

Production Zones

on post code boundaries

- Medium Rainfall Zone (winter rainfall):
 - 6 month growing season
 - 400-600mm rainfall, 6-8t/ha pasture production
 - east Australia; pasture of a mix of annual grasses, perennial rye-grasses and sub clover
 - west Australia; pasture of annual grasses and sub clover
 - 0-50% crop.
- High Rainfall Zone (winter rainfall) –
 - 8 month growing season
 - 550mm rainfall 6-8t/ha pasture production
 - a mix of annual grasses, perennial rye-grasses and sub clover
 - 0-20% crop
- Cereal-Sheep zone –
 - 5 month growing season 2-5t/ha/yr pasture production
 - <400mm, hot summers with no effective rainfall, Up to 70% crop with stubbles available for grazing.
 - a mix of annual grasses, sub clover and medics
- High Rainfall Zone (summer rainfall):
 - >600mm rainfall hot summers and cold winters
 - 6-8t/ha pasture production
 - a mix of perennial grasses, legumes & annual grasses.
- Medium Rainfall Zone (summer rainfall):
 - 6 month growing season
 - 400-600mm rainfall, 6-8t/ha pasture production
- Pastoral Zone (summer or winter rainfall): low rainfall <250mm

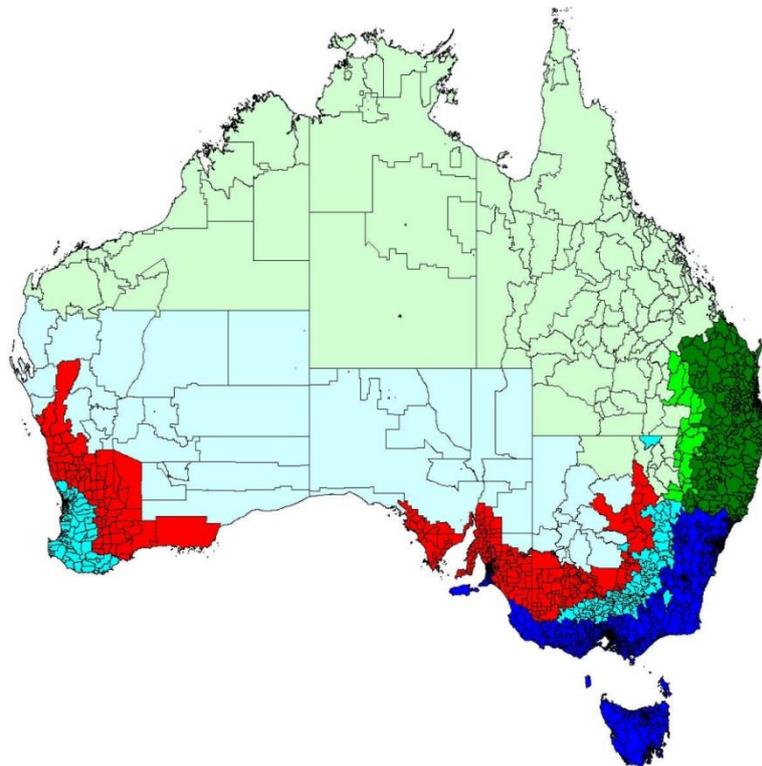


Figure 2. 1 Production zones as defined and used by the Sheep CRC

The medium rainfall zone (winter rainfall), high rainfall zone (winter rainfall) and cereal-sheep zone are considered to be the zones of greatest interest given that much of the economic data and related extension material that will be released by Program 1 of the Sheep CRC will be relevant to the production systems of these zones. In terms of population of producers and sheep, the majority of both can also be found in these three zones.

2.2 Geographic spread of respondents

There are approximately 35,000 sheep producers in Australia. An updated breakdown of the number of producers across Australia will not be available in sufficient detail from ABS until July 2012. New South Wales had the largest number of producers and the Australian Capital Territory the smallest number of producers. The proportion of producers in Queensland that fell with the zones of interest was quite small in that most of the state is covered by pastoral area.

Sheep producers	NSW	Vic	Qld	SA	WA	Tas	ACT	Total
Total for state	10878	6825	890	4518	5018	699	31	28859
In selected regions	8112	6825	250	4215	4587	699	31	24718
Outside selected regions	2766	0	640	304	431	0	0	4141
Proportion by state	33%	28%	1%	17%	19%	3%	0%	100%
Proportion of respondents	33%	28%	1%	18%	18%	3%	0%	

Table 2.2.1 Breakdown of actual respondents compared to the number of producers with the production zones of interest in each state

Table 2.2.2 shows the breakdown of respondents per state in each of the zones. Almost all of the High Rainfall Zone (HRZ) was represented by NSW and Victoria with a small portion of SA and all of Tasmania included. The Cereal Sheep Zone (CSZ) was dominated by SA while the Medium Rainfall Zone (MRZ) was represented across NSW, Vic and WA.

zone	NSW	Vic	Qld	SA	WA	Tas
MRZ	84	72			83	
HRZ	117	155		37		28
CSZ	53	51		138	94	
HRZs	60		8			
MRZs	16		4			
Total	330	278	12	175	177	28

Table 2.2.2 The number of respondents in each zone in each state

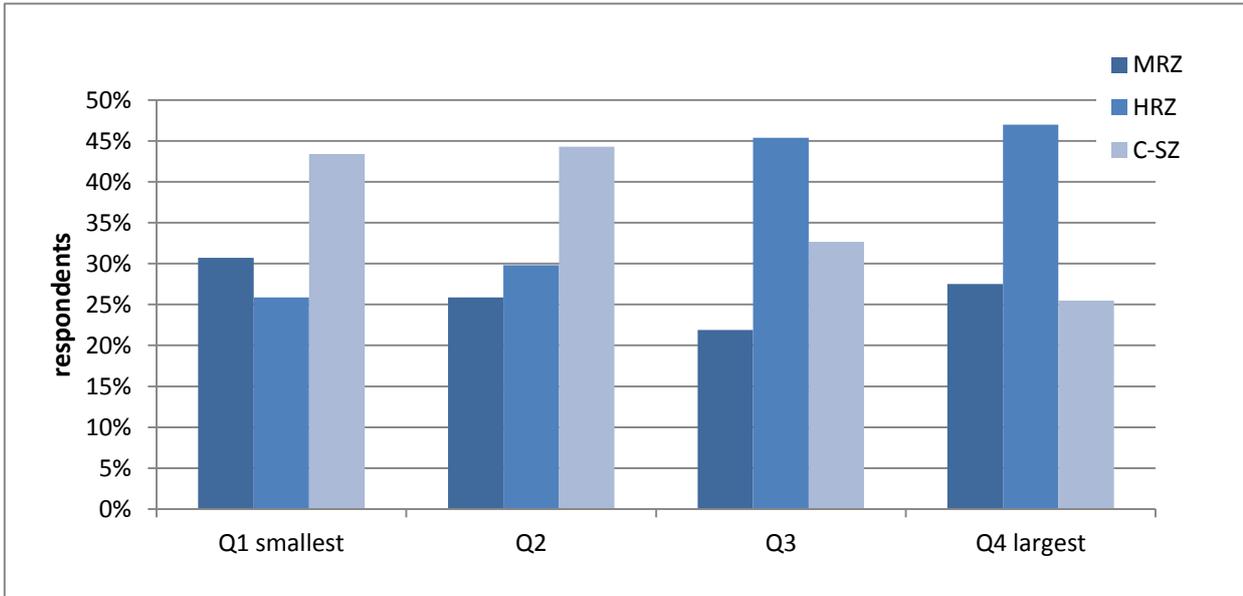
Table 2.2.3 shows the proportion of respondents in each zone and the average number of sheep per farm. Respondents in the HRZ had 40% of the total sheep in the survey with similar numbers of sheep in the other two major zones. The summer rainfall areas (NSW and Qld) only represents about 8% of the national flock and for the purposes of comparing zone responses have been omitted from the most of the report.

Production Zone	# respondents	% of respondents	Average # sheep/farm	% total sheep
MRZ	239	24%	3,965	24%
HRZ	337	34%	4,698	40%
CSZ	336	34%	3,327	28%
HRZs	68	7%	3,496	6%
MRZs	20	2%	3,285	2%
Total #	1000		3,953	

Table 2.2.3 Proportion of sheep and respondents per region.

When sheep flock sizes were looked at by region more of the flocks in the CSZ were in the lower quartiles for flock size, whereas the HRZ had a greater proportion of flocks that were above average in size. The smaller flock sizes in the CSZ fits with industry belief that cropping producers will have some sheep but have a greater focus on other enterprises and will also run lower stocking rates.

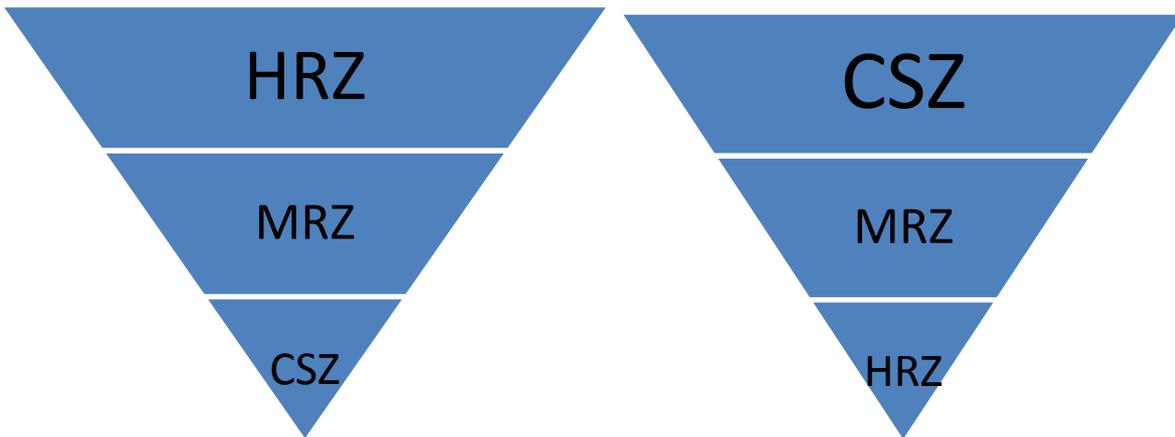
Figure 2.2.2 Flock size of each respondent across the three key production zones



The data was checked for consistency across states and within zones as the definition of each of the zones is quite broad and have some inherent differences. The Medium Rainfall Zone covers areas with similar rainfall and production but in the east is mainly temperate pastures with a large proportion of native pastures and some perennials whereas the same zone in the west has predominantly Mediterranean pastures with very little perennial pasture and no native pastures. Overall there are some production (flock size, farmed area) differences between the states within a zone, however, the trend is generally similar.

Overall Flock size:

Farmed area:



Sheep flock by State: NSW: HRZ > MRZ & CSZ
 Vic: HRZ > CSZ > MRZ
 WA: MRZ > CSZ
 SA: HRZ > CSZ

Farm size by State: NSW: CSZ > MRZ > HRZ
 Vic: CSZ > MRZ & HRZ
 WA: CSZ > MRZ
 SA: CSZ > HRZ

3 General Demographics, Enterprise and Production Results

3.1 Production characteristics

Respondents were also asked about the contribution of a range of enterprises to the overall farm business, including cattle, winter crops, summer crops, other livestock and horticulture. The three key enterprises – sheep, cattle and winter crops accounted for more than 97.5% of income across all states. The HRZ had the highest average proportion of income from sheep at 72% with the CSZ having the lowest.

Zone	State	Sheep%	Cattle %	winter crops %
MRZ	NSW	58	9	33
	Vic	66	8	23
	WA	62	6	28
total		62	8	28
HRZ	NSW	75	20	4
	Vic	72	14	13
	SA	74	18	5
	Tas	58	17	8
total		72	17	8
CSZ	NSW	59	7	29
	Vic	59	5	35
	SA	48	4	46
	WA	48	4	46
total		51	4	42
HRZs	NSW	59	37	4
	Qld	48	35	14
total		58	37	5
MRZs	NSW	62	20	18
	Qld	61	23	16
total		62	21	17
Grand Total		62	12	24

Table 3.1.1. Proportion of income derived from key enterprises per region.

3.2 Enterprise Type

To establish potential points of difference based on production intensity and focus, the respondents to the survey were asked these key questions concerning their production:

What was the total number of sheep on the property at 30th June 2010, including lambs

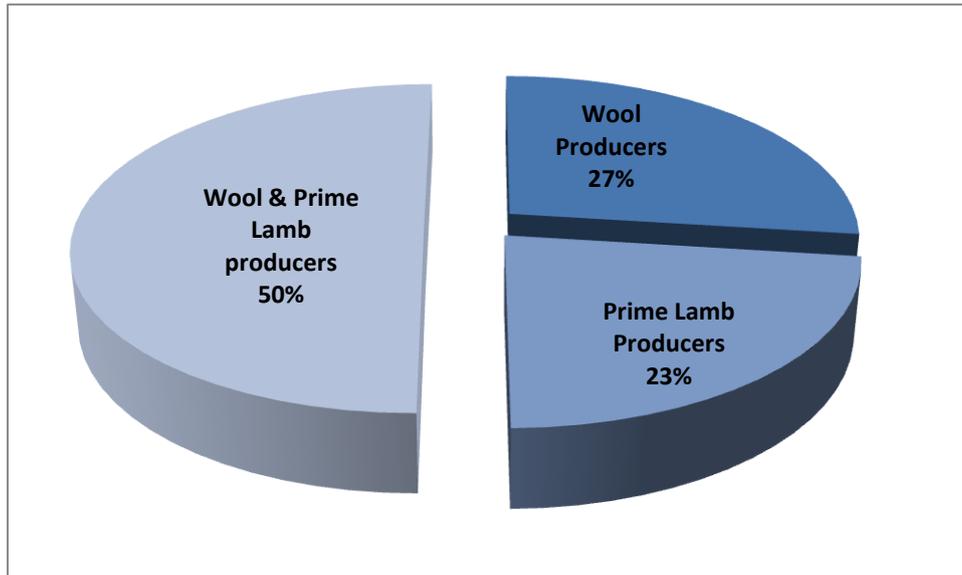
What is the primary purpose of your sheep enterprise (wool production, prime lamb production, or wool and prime lamb production; and

Do you buy rams in for your own flock, breed rams for your own flock or breed rams for sale?

Fifty per cent of respondents identified their main enterprise as being both wool and lamb production. The remainder were nearly equal in their distribution between wool focussed enterprises and lamb enterprises (Figure 3).

The average number of sheep run in wool and dual enterprises is just over 4000 per producer while the prime lamb enterprise run an average of just under 3000 sheep. The HRZ had the highest sheep numbers in any of the enterprise types and the CSZ had the smallest flocks. The Prime lamb flock size in the HRZ was substantially larger (42%) than other zones. There are significant differences between the proportion of wool producers and prime lamb producers across the three main production zones (HRZ, MRZ, CSZ). The HRZ had higher numbers of wool producers compared to the other zones, although there was not a significant difference between the numbers of Prime Lamb or dual enterprise producers in the HRZ and the MRZ.

Figure 3.2.1 Enterprise type across the whole survey population



Production Zone	The average number of sheep per farm business			% respondents in each zone		
	Wool	Prime lamb	Dual	Wool	Prime lamb	Dual
MRZ	4,196	2,374	4,753	22 ^a	28 ^e	50 ^{gh}
HRZ	4,438	4,038	5,257	31 ^b	25 ^{ef}	44 ^g
CSZ	3,688	2,320	3,510	24 ^a	19 ^f	57 ^h
HRZs	4,587	2,243	2,759	43	12	46
MRZs	2,350	2,640	4,267	30	25	45
total	4,139	2,984	4,294	27	23	50
			n=	270	229	501

Table 3.2.1 The proportion of sheep per farm business and producers by enterprise and production zone (n = 1000). Zones, within enterprises, which show the same subscript, are not significantly different.

3.3 Dominant Mating Type

Q4a How many ewes were mated to Merino rams, including Dohnes and SAMMs to lamb in 2010?

Q4b How many ewes were mated to Meat and maternal rams to lamb in 2010?

Respondents were asked about the number of ewes mated to ram type and the results were used to compare the nominated primary enterprise by the respondent to the actual dominant mating type. This was in order to compare responses of people with different focus and also to see how peoples focus might vary within the dominant mating type of “Merino Ram” as Dohnes and SAMM merinos were included but many see these strains as a dual purpose or meat Merino.

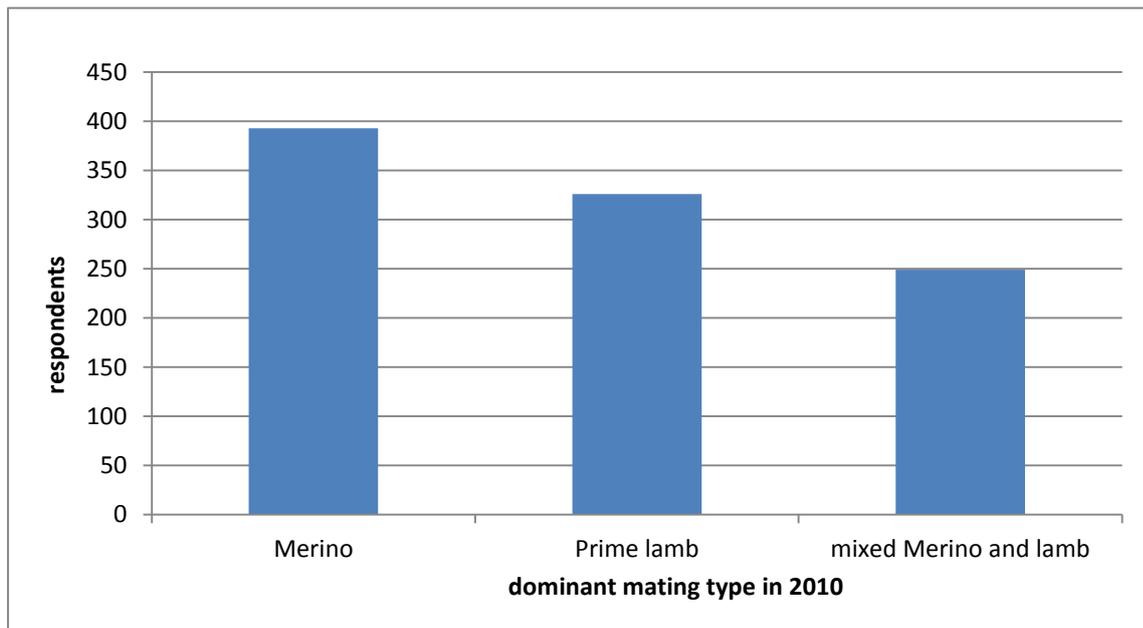
A ‘mating type’ rating was developed with the following parameters;

Merino if > 67% ewes were mated to Merino rams

Dual enterprise if 33-67% ewes were mated to Merino rams

Prime lamb if < 33% of ewes were mated to Merino rams

Figure 3.3.1 Dominant mating types (Merino sires, meat sires or mix of both Merino and meat sires) by respondent



Interestingly, the proportion of respondents nominating “wool” as a primary enterprise who had a Merino dominant mating was 84% and those who nominated “dual” enterprise who had a Merino dominant mating was 35%. The assumption is that these producers were likely to be running dual purpose Merinos rather than a dual purpose enterprise.

<u>Enterprise and mating type</u>	<u>proportion of survey</u>
Wool growers - merino mating	84%
Prime Lamb growers - prime mating	90%
Dual enterprise - dual mating	39%
Dual enterprise - Merino mating	35%
Dual enterprise - meat mating	26%

enterprise type	mating to Merino sires			mating to meat and maternal sires		
	# responds	# of ewes	Av # ewes	# responds	# of ewes	Av # ewes
Wool	254	436692	1719	113	65145	577
Meat	34	41580	1223	218	393142	1803
Dual enterprise	407	695511	1709	444	565993	1275
Total	695	1173783	1689	775	1024280	1322

Table 3.3.2 Joining type for lambing in 2010

4 Data Analysis for Program 1.1 Matching Genetics to Production Systems

4.1 Breeding or selling rams

Respondents were asked to identify their breeding practices and whether they purchased and /or sold rams as part of their sheep enterprise. The main reason for the inclusion of this question is to categorise the respondent's involvement with ram breeding and selling. There are other questions in the questionnaire specifically for commercial producers (those who don't sell rams) and ram breeders. Respondents to this question were allowed to select more than one response to allow for the identification of producers who sell and buy rams.

Do you...

- Run a commercial flock and buy rams
- Breed rams for your own commercial flock
- Breed rams for sale Do not breed/purchase rams or semen

These results show that the majority of producers buy rams to service their flock (81%), which is consistent across all zones. Nationally, 12% of respondents can be classified as "ram sellers", ie. sell rams or semen to others. Twenty three percent of respondents breed rams for their own flock, whether it be as a seller of rams or for their own commercial flocks. Of those 121 respondents who said they sold rams only 102 sold rams in 2010. They were not asked why they didn't sell in 2010.

Figure 4.1.1 The proportion of producers who are ram breeders, buyers or sellers

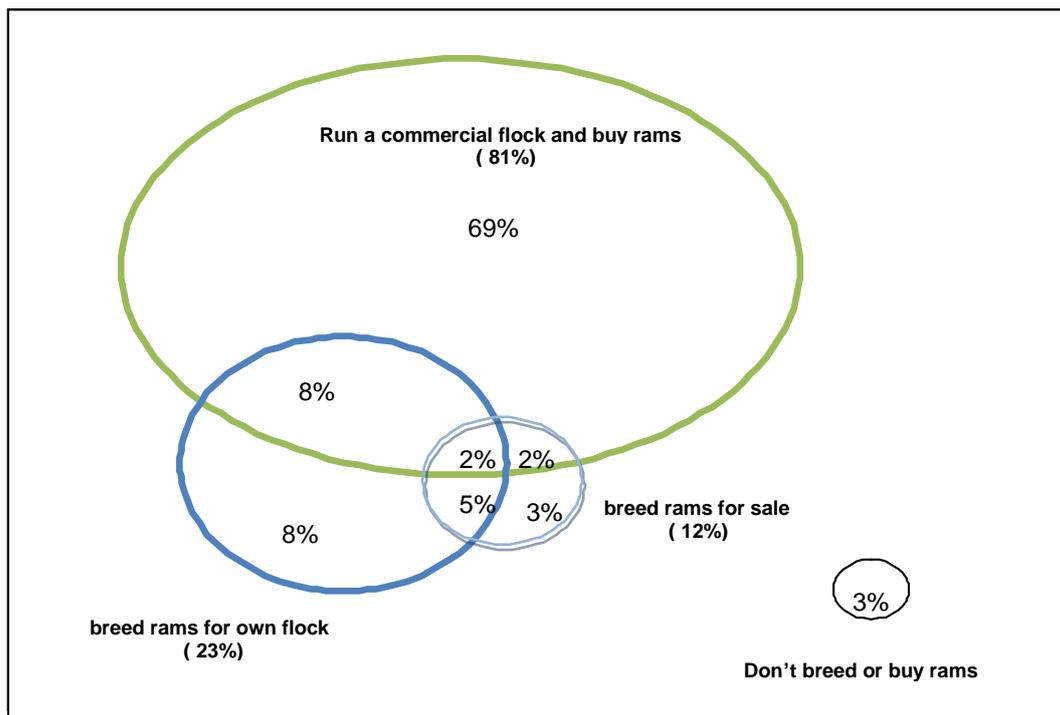


Table 4.1.1 shows the proportion of breeders and sellers and buyers for each nominated enterprise type. Prime lamb producers were less likely to breed rams for the own flock and more likely to buy rams.

	Total %	Wool Producers %	Prime Lamb Producers %	Dual enterprise %
Commercial flock & buy rams	81	75 ^b	83 ^a	84 ^a
Breed rams for own use	23	24 ^d	17 ^e	24 ^d
Breed rams for sale	12	12	13	12
n=	1000	270	229	501

Table 4.1.1 Breakdown of breeding strategy based on whether producers buy or sell rams to others (n = 1000). The superscript denotes significant differences between enterprise types for each category

4.2 Stud and Ram selection

The questions in this section were posed specifically to benchmark practices that Program 1.1: Matching Genetics to Production Systems aimed to influence.

These questions were only asked of those respondents that bought in rams, which includes ram breeders. Only one answer was allowed per respondent. The first question aims to give an indication of the level of thought put in to the selection of ram breeder, whereas the second question is designed to give an indication of the level of thought put in to ram selection. The relevant questions from the questionnaire were as follows:

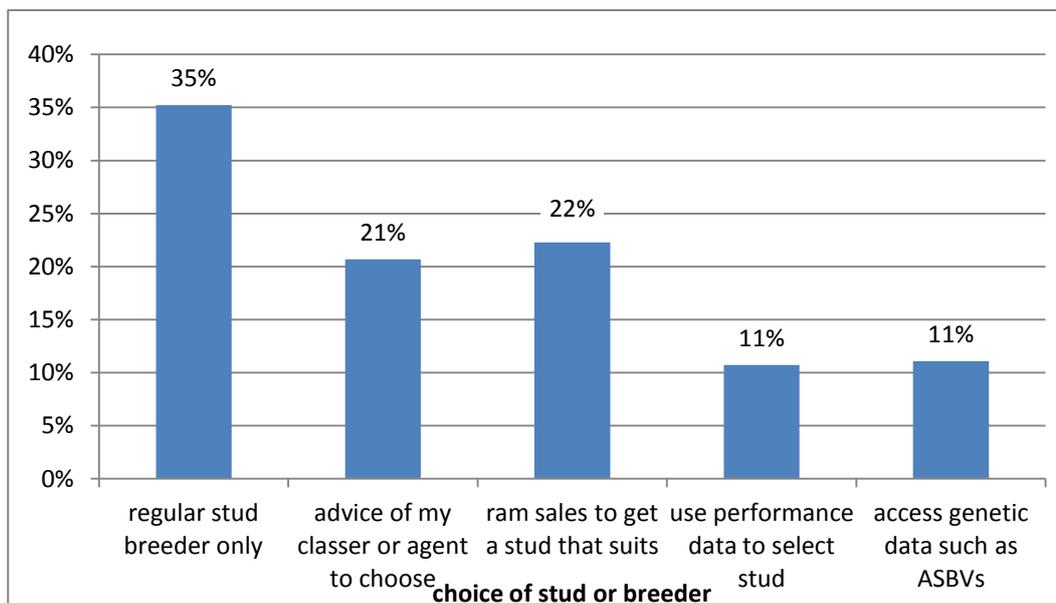
Which ONE of the following statements best describes how you usually select your stud or ram source for your primary sheep enterprise?

- I have never considered going to anyone other than my regular stud breeder
- I choose a stud breeder based on advice from my classer, agent or consultant
- I usually go to the ram sales or shows and select a stud that suits my needs
- I review wether trial data, sire evaluation data, sale reports etc and select a stud breeder that is performing well
- I access genetic information from sources such as Sheep Genetics or Australian Merino Sire Evaluation Association and select a breeder based on their match to my breeding objective

Selection of stud or ram source

This question doesn't discriminate between those who use their regular stud breeder because they have already worked out that their breeding objectives or methods are the best available from those who are using their regular stud breeder because 'that's what they've always done'. Those choosing options 2-5 are indicating that their decisions are still changeable – whatever the method.

Figure 4.2.1 The choice of breeder by respondents nationally



There was no difference between enterprise type and how producers selected the source of rams that they purchased except for wool producers who were less likely to access genetic data to make their choice of breeder. There are a similar number of respondents who either select their breeder based on advice or who select at sales (21-22%). A much smaller number of respondents actually use performance or genetic information to select a breeder to purchase their rams.

Selecting a stud source	Total #	total %	Production zone %		
			MRZ	HRZ	CSZ
regular stud breeder only	286	35%	40% ^a	29% ^b	39% ^a
advice of my classer or agent to choose	168	21%	17%	24%	19%
ram sales to get a stud that suits	181	22%	16% ^e	19% ^e	29% ^d
use performance data to select stud	87	11%	11% ^h	17% ^g	5% ⁱ
access genetic data such as ASBVs	90	11%	16% ^j	11% ^{jk}	9% ^k
	n=812		n=196	n=269	n=277

Table 4.2.1 selecting a stud source by producers who purchased rams (n= 812) (the superscript denotes significant differences within each activity)

There were, however, differences in how producers selected a stud source between zones. Less of the respondents in the HRZ used their regular stud breeder only compared to the CSZ and the MRZ, although this was still their most preferred method. More selected their stud on performance data than producers from other regions. Respondents from the CSZ were more likely to use ram sales to select the stud that suited them than respondents from other zones. Respondents from the MRZ were more likely than their counterparts to access genetic data such as ASBVs to select their stud source.

Choice of breeder	NSW	VIC	SA	WA
regular stud breeder only	35% ^b	28% ^b	37% ^{ab}	46% ^a
advice of my classer or agent to choose	26% ^d	26% ^d	13% ^e	11% ^e
ram sales to get a stud that suits	18% ^h	23% ^{gh}	31% ^g	21% ^{gh}
use performance data to select stud	12%	12%	9%	6%
access genetic data such as ASBVs	9%	12%	9%	15%

Table 4.2.2 selection of a stud source by producers by key state (the superscript denotes significant differences within each activity)

Western Australians were most likely to use a regular stud breeder. NSW and Victorians were more likely than WA and SA to use the advice of their classer or consultant. From a state perspective the dual enterprise respondents were more likely to use ram sales as a way of selecting their stud in SA (34%) with the least likely in NSW (17%) and WA (20%). In Vic the dual enterprise respondents were less likely (18%) to choose a regular stud breeder than Wool (34%) and Prime (38%).

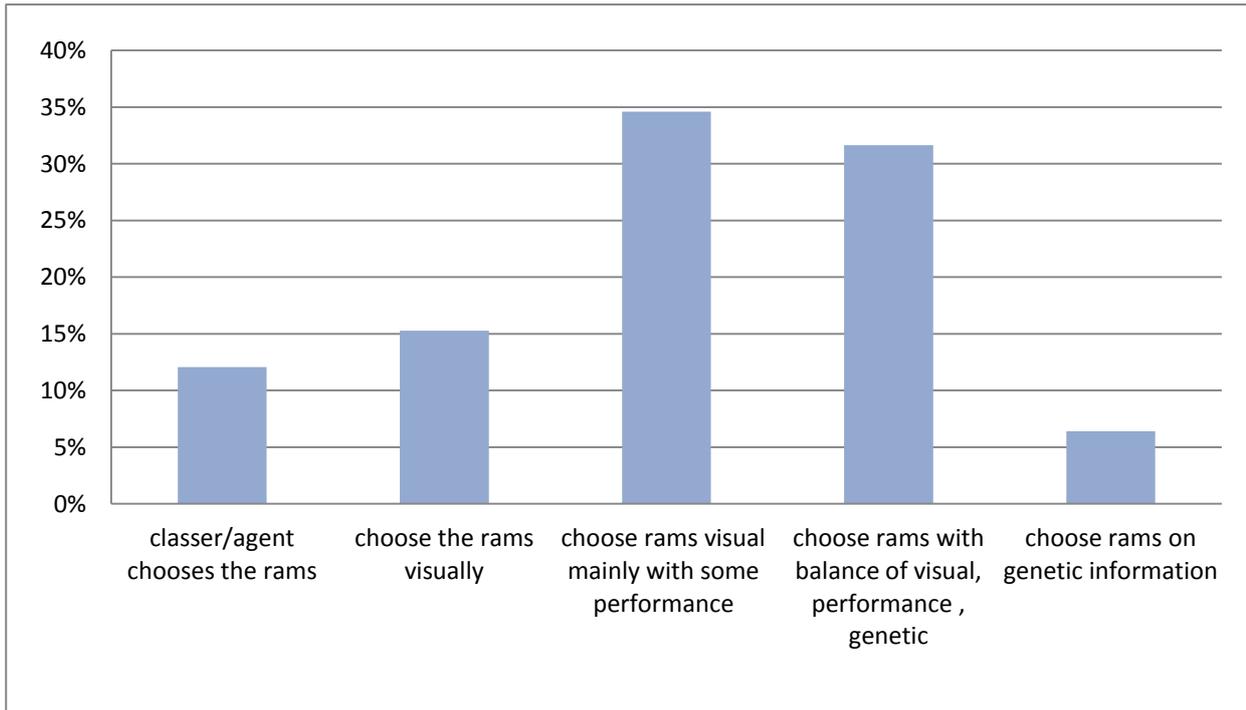
Selection of rams

Which ONE of the following statements best describes how you select rams to buy?

- My classer or agent chooses the rams
- I choose the rams based on how they look
- I choose rams mainly on how they look but use some performance data such as micron, CV or body weight
- I choose rams with a balance of visual appeal, performance data (micron, CV etc) and some genetic information such as ASBVs or breeding values
- I choose rams based on genetic information such as ASBVs, breeding values or selection indexes

Most ram buyers chose their rams with some combination of how they look performance data and possibly some genetic information (67%). Nearly half of the wool enterprise buyers chose on how they look and some performance data whereas only 23% of the prime lamb buyers did this. Surprisingly 28% of prime lamb buyers chose rams on how they looked alone, compared to only 9% of wool buyers. This supports information from field days where body weight and frame size was the preferred method of selecting sires for meat production.

Figure 4.2.2 Approach to selection of sires nationally



There is a significant difference between the Wool and Dual enterprises in terms of selecting rams based on advice from an agent and selecting rams based on a combination of visual and objective data. Dual purpose enterprises are much less likely to rely on an agent to select their rams (10%, as opposed to 18%), and are much more likely to use a balance of visual appeal, performance and genetic data (36%, opposed to 24%).

There is also a significant difference in how prime lamb enterprises select their rams. Compared to other producers they are much more likely to select their rams using more reliance on visual traits than performance or genetic data (although they were more likely than other groups to select their stud source using genetic data). There was no difference between zones except between the HRZ (9%) and CSZ (4%) on choosing their sires based solely on genetic information.

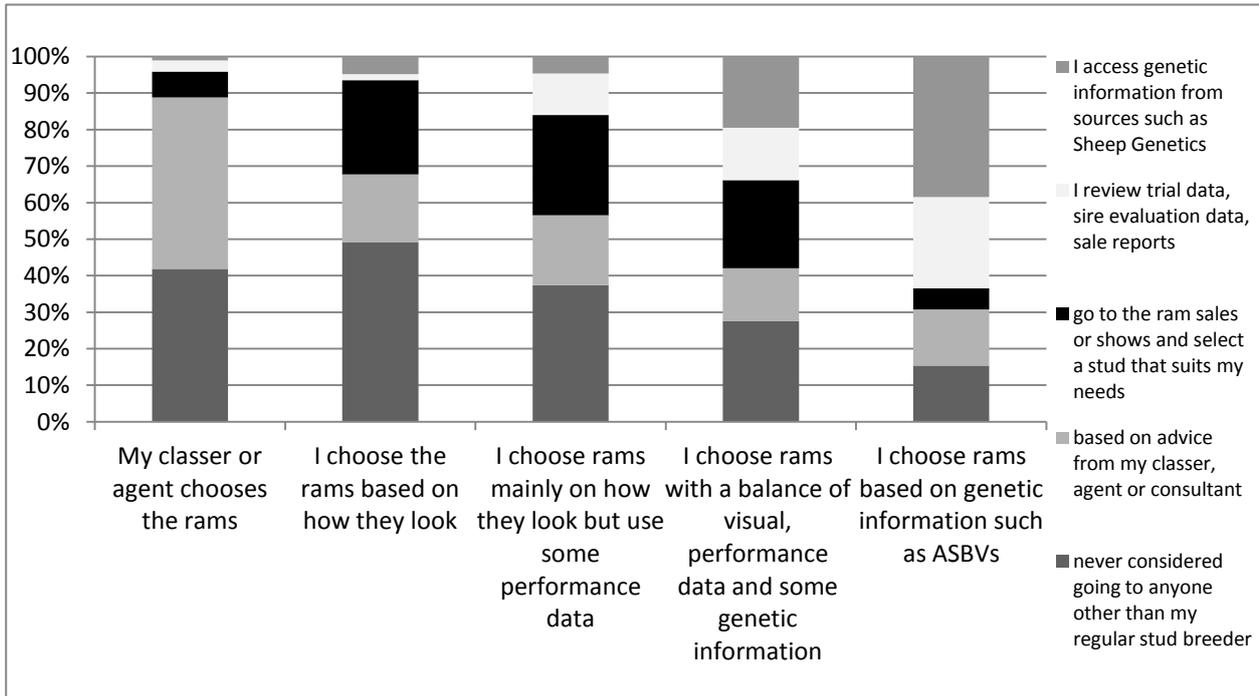
Overall, while there are some differences in the proportion within each enterprise type, the general message from these results is that Wool (at 67%) and Dual (at 72%) enterprises are more likely to use a *combination* of visual and performance or genetic data to select rams (with more emphasis on genetic information for Dual enterprises), while Prime lamb enterprises are divided between using visual selection only (28%), using a combination of visual and performance (23%) and a combination of visual, performance and genetic data (29%).

Ram selection	Total #	total %	Enterprise %		
			Wool	Prime lamb	Dual
classer or agent chooses the rams	98	12%	18% ^a	11% ^b	10% ^b
choose the rams visually	124	15%	9% ^e	28% ^d	12% ^e
choose rams mainly on visual but some performance data	281	35%	43% ^g	23% ^h	36% ^g
choose rams with balance of visual, performance, genetic information	257	32%	24% ^k	29% ^{jk}	36% ⁱ
choose rams on genetic information such as ASBVs or selection indexes	52	6%	6%	9%	5%
Total	812		n=203	n=190	n=419

Table 4.2.3 Approach to selection of ram, of those who buy rams (n = 812) (the superscript denotes significant differences within each activity)

Figure 4.2.3 shows the interaction between the method of choice of ram source and how producers choose the rams once a ram source has been selected.

Figure 4.2.3 the relationship between how producers choose their ram source and how they choose their individual rams



If the respondent selected the response 'go to the sales' then they are much more likely to use data provided by how they look, the sale catalogue or the stud which contains performance data to make ram purchasing decisions.

As expected, of those respondents using genetic data to choose a sire source, they were most likely to choose rams with at least some genetic or performance data. Interestingly there were more prime lamb enterprise respondents who chose their stud on genetic information but were then happy to make a decision on individual rams based on how they look.

Of those producers who chose to go to their regular stud breeder for ram purchases, most were likely to choose rams on how they look, let their agent choose the rams with less producers choosing rams on genetic data. For Merino dominant matings though, of those that chose to go to their regular stud breeder there appears to be no particular link with how they then choose their rams.

For Prime lamb ram dominant matings - if the respondent chose a regular stud breeder then they more likely to choose rams on how they look. If classer or agent chooses the source, they were most likely to use their advice in choosing rams or go on how they look.

4.3 Prime lamb traits

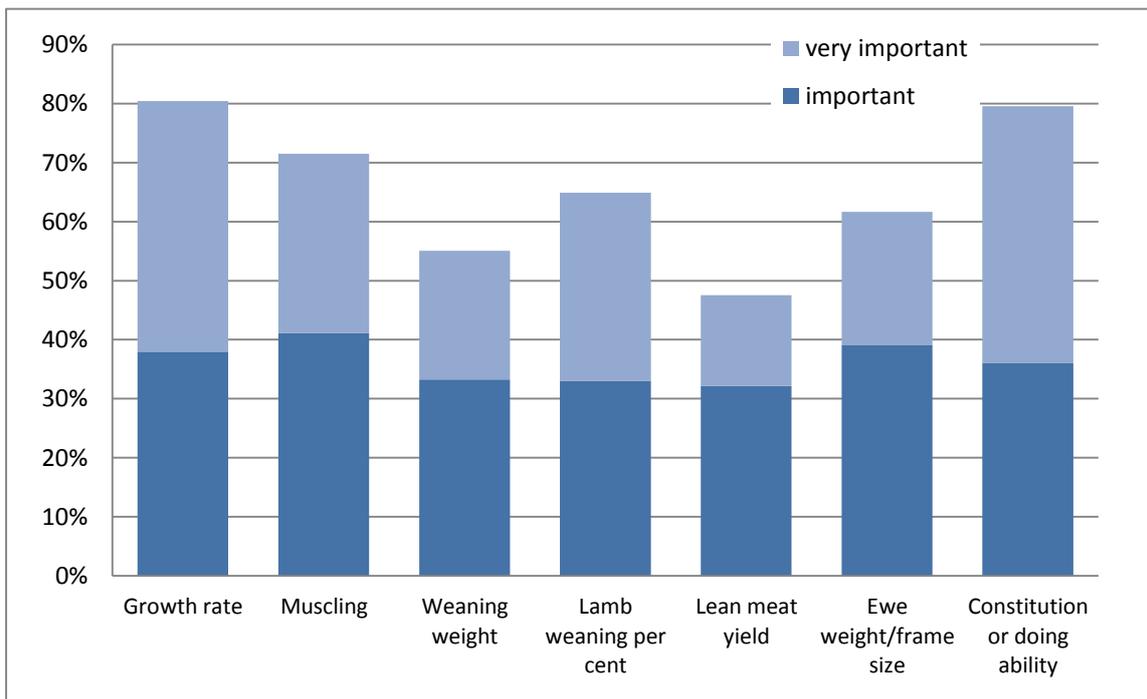
The survey respondents that had identified themselves as prime lamb enterprise (through either selecting the “prime lamb” or “wool and prime lamb” enterprise options) were asked to answer this question about their opinion of the certain prime lamb traits:

On a scale from 1 to 5, please indicate the importance you place on each of these traits when choosing MEAT ram replacements with 1 meaning not at all important and 5 meaning very important:

- Growth rate
- Muscling
- Weaning weight
- Lamb weaning per cent
- Lean meat yield
- Ewe weight/frame size
- Constitution or doing ability

Seven hundred and thirty respondents identified themselves as either Prime lamb producers or Dual enterprise producers. Those who nominated themselves as a wool producer were not asked the question. The percentage of those respondents who considered each trait as important (ie. scored the trait at 4 or 5 out of 5) is shown in Figure 4.3.1

Figure 4.3.1 the ranking of traits for Prime lamb and Dual enterprise producers of key prime lamb traits



“Growth rate” and “constitution or doing ability” are the clear favourites among this list of traits with both groups of producers, with “weaning weight” and “lean meat yield” perceived as having lower importance.

For most of the traits there is no significant difference in percentage perceiving the trait as very important between the two types of enterprises. There is a significant difference for “muscling” – Prime lamb producers see this trait as more important than the Dual enterprises do.

trait	Total	Enterprise (%)	
	(%)	Prime lamb	Dual
Growth rate	42%	46%	41%
Muscling	30%	39% ^a	26% ^b
Weaning weight	22%	22%	22%
Lamb weaning per cent	32%	36%	30%
Lean meat yield	15%	19%	14%
Ewe weight/frame size	23%	24%	22%
Constitution or doing ability	44%	44%	43%
Total		n=229	n=501

Table 4.3.1 Proportion of producers of prime lamb that consider the listed traits as very important (the superscript denotes significant differences within each activity)

Responses to survey questions (2009 MLA survey for Program 1.1)

A similar question was asked of wool producers in a survey of sheep producers held in 2009. Wool quality was rated the highest in Merino ram replacements but constitution and doing ability rated almost as highly and this was also the second highest ranking in the current survey. Ewe weigh or frame size was the next highest of the traits common to both surveys and it was ranked mid-field in both surveys.

Trait	Wool Producer Ranking		
	4 = Important	5 = very Important	4+5
Wool quality	24	66	90%
Constitution/Doing ability	32	53	85%
Fleece weight	36	49	85%
Fibre diameter	34	49	83%
Easy-care	30	45	75%
Ewe weight/frame size	39	34	73%
Plain body	31	40	71%
Lamb growth rate	31	29	60%
Lamb weaning percent	26	29	55%
Muscling	32	19	51%

Table 4.3.2 Percentage of producers ranking traits as important or v. important from a 2009 survey (MLA). Australia-wide responses about Merino ram replacements only. (n >700). Shaded traits are those repeated in this survey.

4.4 Ram sales and breeders use of Australian Sheep Breeding Values

There was also a range of questions that were only posed to those respondents who said that they breed rams to sell (in question 2). This constituted 121 of the survey respondents. The questions asked of all ram sellers are as follows:

How many rams did you sell in 2010?

How many doses of semen did you sell in 2010?

What proportion of the rams that you sold (or sold semen from) in 2010 had Australian Sheep Breeding Values (ASBVs)?

An extra question was asked of those ram breeders who provided ASBVs on less than all of their rams:

What are the reasons for not providing ASBVs for all of your rams?

- Too time consuming
- Too costly
- Too confusing or complex to get ASBVs
- The traits that are important to the sale of my rams are not covered by ASBVs
- ASBVs are not an accurate indication of the quality of my rams
- I am not convinced that ASBVs are a useful marketing tool
- My customers do not use ASBVs to select their rams anyway

The responses were divided according to dominant mating type to determine if there is a difference in approach to Australian Sheep Breeding Values (ASBVs). The results of these questions are shown in the two tables below. One hundred and twenty one producers (12%) indicated that they sold rams, however, only 101 producers sold rams in 2010.

ram sales	Total (%)	proportion of ram sellers (dominant mating)		
		Wool	Prime lamb	Dual
<50	39%	41%	29%	53%
50-150	31%	35%	26%	35%
>150	29%	24% ^b	45% ^a	12% ^b
	n= 101	n=46	n=37	n=18

Table 4.4.1 Ram sale size by ram sellers showing the proportion from each enterprise type who sold rams in 2010 (the superscript denotes significant differences within each activity)

Close to 40 per cent of sellers sold less than 50 rams per year which accounted for just eight per cent of ram sales. Seventy two per cent of rams were sold by the larger breeders. Of the 29 per cent of ram sellers who sold more than 150 rams, more were Prime Lamb producers than either Wool or Dual enterprise ram producers. The highest number of rams produced per year was 600 rams with two sellers selling this number in 2010.

All producers who sold semen also sold rams, with more prime lamb sellers (32% last year) and wool ram sellers (30%) selling semen than dual breeders (0%). There was no difference between zones in the proportion of sellers selling semen doses.

	total	%	ram sellers (dominant mating)		
			merino	prime	dual
ASBVs on all - Number of ram sellers	36	39%	13	21	2
no ASBVs - Number of ram sellers	57	61%	30	13	14
ASBVs on all - Average number of rams	188		155	222	35
no ASBVs - Average number of rams	69		66	62	79
ASBVs on all - Total rams	6752	63%	2018	4664	70
no ASBV s - Total rams	3916	37%	1992	812	1112

n=93

Table 4.4.2 Breakdown of ram sellers with and without ASBVs on their rams and the proportion of rams sold (removed from this data set were 4 sellers who had ASBVs only on a part of the flock sold or who didn't nominate whether they had ASBVs)

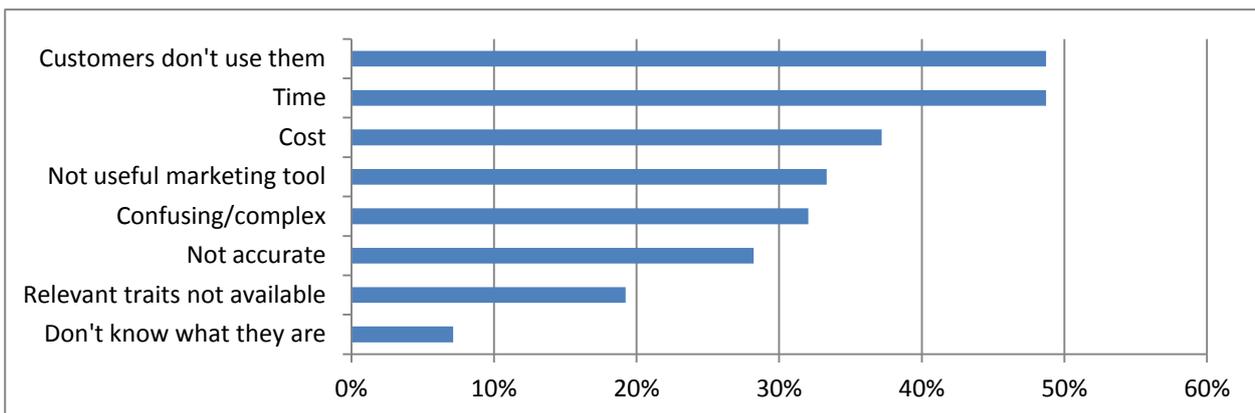
The proportion of ram sellers using ASBVs for all rams is significantly higher for prime lamb producers (63%) compared to wool (30%) and dual (13%). While less ram sellers used ASBV's (39%), they sold more rams (63%) because larger ram sellers were more likely to use ASBVs.

Given that there is a small number of ram sellers and an even smaller number of ram sellers who are not providing ASBVs on all of their rams it is difficult to determine if there is any significant difference in view of reasons for not fully offering ASBVs on their rams. The only significant difference between enterprises is that of the Prime Lamb producers considering that it is not too confusing or complex to get ASBVs, and that the traits that are important to the sale of rams are covered by ASBVs.

Overall, the highest rating reasons for not providing ASBVs on all rams sold are the time involved in providing ASBVs and that they believe that their customers don't use them.

Although it was not asked, it became apparent as producers were providing information on how many of their rams have ASBVs, that not all producers know what ASBVs are. This data has been added to the bottom of the reasons table (#).

Figure 4.4.1 Reasons why not all rams are sold with ASBVs



4.5 Labour as an indicator of production efficiency

In an attempt to quantify the efficient use of time and labour in sheep production a range of questions were asked of all respondents with regards to the number of people and time put in to managing sheep, and the utilisation of labour-saving sheep handling devices. This section covers those questions about the number of people and the time they put in to working with sheep. The questions asked were as follows:

In addition to yourself, how many of the following people work on your property?

- Family members
- Full time employees
- Part time employees

How much of their total time is spent working in the sheep enterprise of the farm business?

- Yourself (ie respondent/interviewee)
- Family members (collectively/overall)
- Full time employees (collectively/overall)
- Part time employees (collectively/overall)

The data from this question was difficult to analyse as many respondent’s data added up to more than was expected in some respondent’s enterprises when compared to the number of sheep run. However, no difference in the type of labour used was observed between enterprises when the whole data set was used. Most enterprises had self employment with support from some family members in running the sheep enterprise.

production zone	Yourself		Family		Full Time employees		Part Time employees		Av sheep/FTE
	#	av %	#	av %	#	av %	#	av %	
Wool	270	62	338	35	81	8	342	15	3310
Prime lamb	229	57	363	31	115	9	237	14	3180
Dual production	501	59	737	35	202	9	825.5	18	3200
Survey Total	1000	59	1438	34	398	9	1405	16	3225

Table 4.5.1 Number of employees and average time spent working on sheep, by enterprise type

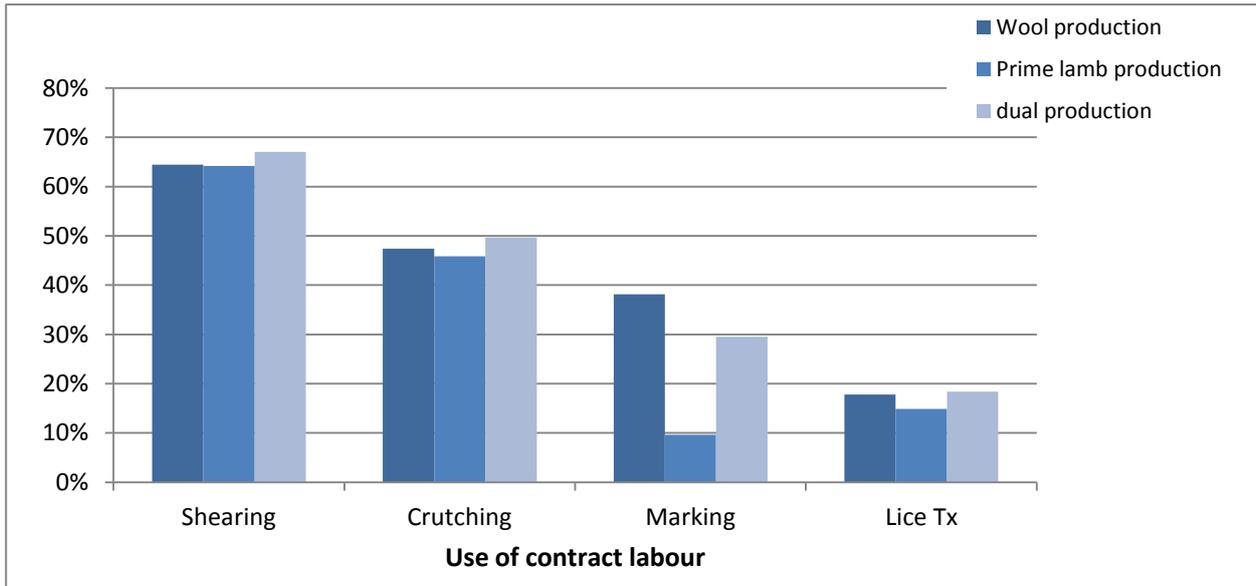
Use of contract labour

Do you use a contractor for...

- Shearing (full contract)
- Crutching
- Marking
- Treating sheep for lice

There was no difference in the types of producers using contractors for the key activities of the sheep enterprise except in marking where Prime Lamb producers were less likely, however, they were also less likely to mules lambs and this may explain lower contract rates in that marking was a much smaller job without mulesing.

Figure 4.5.1 The use of contract labour for key activities by enterprise type



There was a significant positive trend in the use of contract labour for shearing, crutching and marking with increasing flock size. There was no clear trend with the use of lice treatment. Shearing was the most likely activity that contract labour would be used for. There would likely be many producers that also used some contract labour for shearing but did not use full contract. There was no significant difference between enterprise type and the use of contractors.

use of contractors	Total (%)	flock quartile			
		smallest	2	3	largest
shearing (full)	65%	58% ^b	57% ^b	66% ^b	80% ^a
crutching	48%	39% ^f	40% ^{ef}	49% ^e	64% ^d
marking	27%	18% ⁱ	24% ^{hi}	32% ^{gh}	36% ^g
lice treatment	17%	16%	14%	20%	20%

Table 4.5.2 Proportion of respondents that use contractors for the listed activities, by flock size quartile (the superscript denotes significant differences within each activity)

Labour saving devices as an indicator of efficiency

The questions asked to determine efficiency based on use of labour-saving devices were as such:

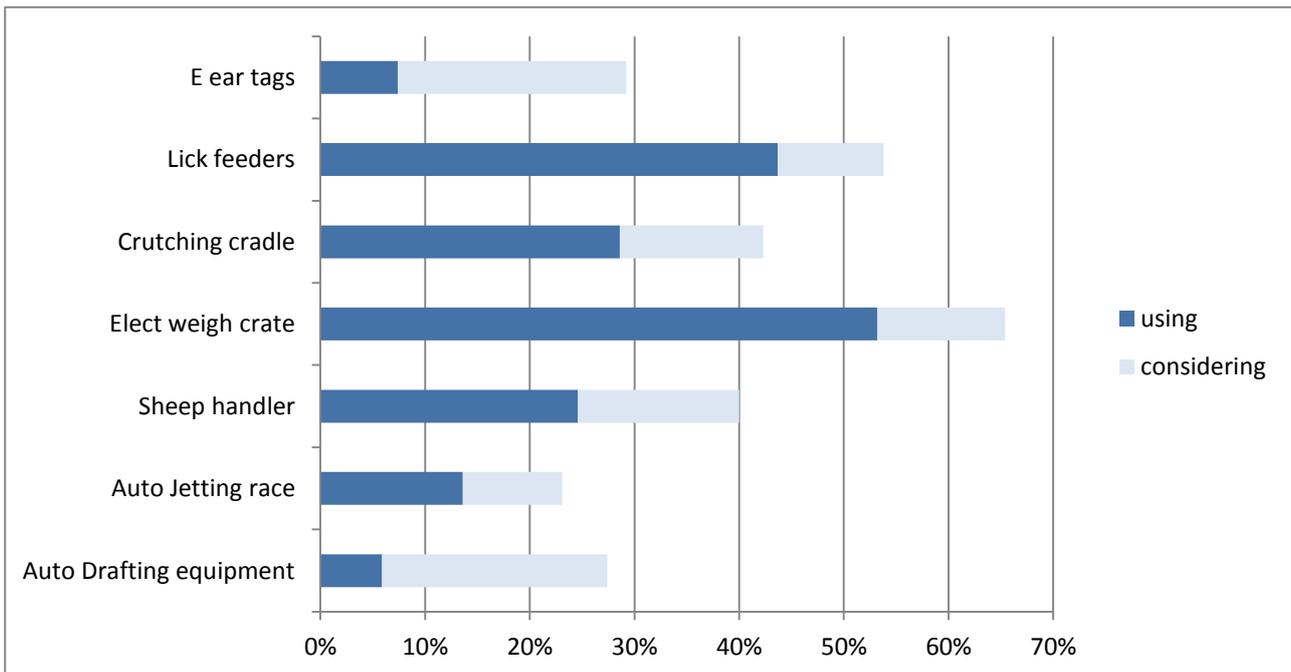
When working with sheep, do you currently use any of the following devices?

- Automatic drafting equipment
- Automatic jetting race
- Sheep handling machine
- Electronic weigh crate
- Crutching cradle
- Lick feeders
- Electronic ear tags

(if no to above) Are you considering using any of these devices?

The use of labour saving devices or devices that provide extra information for the producer to better manage their flock was highly variable but reflect a mix of the perceived value of the device, the time for which the device has been in the market pace, the ease of integration of the device into the farming operation and the cost of the device. The electronic weigh crate and lick feeders had the highest ownership but had only low or moderately low rank for 'considered using'. Electronic ear tags and auto drafting equipment had low ownership but were the highest rank in terms of being considered, indicating that this would be where growth could occur.

Figure 4.5.2 The proportion of respondents who use or are considering using one or more sheep handling devices



The following table (Table 4.5.1) has divided the respondents into categories of "high" and "low" labour use. The division between the two has been made using the median DSE/FTE value of 2142 sheep / full time worker where 'low' labour use means more sheep are run per FTE. There is a significant difference in use of electronic weigh crates, crutching cradles and automatic drafting equipment by high and low labour use respondents. This indicates a more general approach to labour efficiency or greater opportunity to purchase and value the ownership of labour saving devices by this group.

Labour use ranking	Survey total #	Auto Drafting equipment %	Auto Jetting race %	Sheep handler %	elect wt crate %	crutching cradle %	Lick feeders %	E ear tags %
High	497	3% ^b	10% ^d	23%	49% ^f	25% ^h	44%	7%
Low	503	8% ^a	18% ^c	26%	58% ^e	33% ^g	44%	7%
Total	1000	6%	14%	25%	53%	29%	44%	7%

Table 4.5.3 Number and proportion of respondents using labour-saving devices (the superscript denotes significant differences within each activity)

There is a significant difference between those who are ram sellers and those who run a commercial flock and buy in rams. Ram sellers were more likely to own devices or considering owning devices.

device	% using devices		
	Wool	Prime	Dual
Auto Drafting equipment	3% ^b	10% ^a	5% ^b
Auto Jetting race	12%	13%	15%
Sheep handler	21%	28%	25%
Electronic weigh crate	33% ^f	71% ^d	56% ^e
Crutching cradle	24% ^h	27% ^{gh}	32% ^g
Lick feeders	30% ^k	47% ^j	50% ^j
Electronic ear tags	7%	10%	6%

Table 4.5.4 The proportion of respondents by enterprise type and the use of key devices (the superscript denotes significant differences within each activity)

As expected wool producers were less likely than Prime lamb producers to own auto drafting equipment and electronic weigh crates given that these devices would be seen as an aid in the turn off of prime lambs for market. This may also explain the higher use of lick feeders amongst Prime Lamb producers compared to Wool producers.

5 Data analysis for Program 1.2: Improved animal welfare and reproduction rates

5.1 Reproduction

All questions for this section were asked regardless of whether they were in relation to a wool (Merino) enterprise, or a meat (meat and maternal) enterprise.

The questions in relation to wool production were:

How many ewes were mated to Merino rams, including Dohnes and SAMM's to lamb in 2010?
What was the month joining commenced for Merino rams, including Dohnes and SAMMs?
How many Merino lambs were *marked* in 2010? That is lambs from ewes joined to Merino rams?
How many ewes have you joined or intend to join to lamb in 2011 to Merino rams, including Dohnes and SAMMs?

While the questions in relation to meat production were:

How many ewes were mated to Meat and maternal rams to lamb in 2010?
What was the month joining commenced for Meat and Maternal rams?
How many Meat and maternal lambs were *marked* in 2010? That is lambs from ewes joined to meat or maternal rams?
How many ewes have you joined or intend to join to lamb in 2011 to Meat and maternal rams?

The marking percentage in the tables below was calculated using individual marking percentages with values outside of the range of 50-150% removed due to some large inconsistencies with some data points and some respondents indicating that they either bought pregnant ewes or sold pregnant ewes or didn't mate for a particular reason.

Production zone	People with Merino matings	Average Merino lambs	Merino marking %
MRZ	122	1,658	86 ^a
HRZ	205	1,366	81 ^b
CSZ	217	1,267	88 ^a
HRZs	43	1,287	81
MRZs	11	1,395	84
total	597	1,384	84

Table 5.1.1 Responses for the Merino enterprise (the marking percentage was calculated using individual marking percentages with values outside of the range of 50-150% removed) The superscript denotes significant differences within each activity

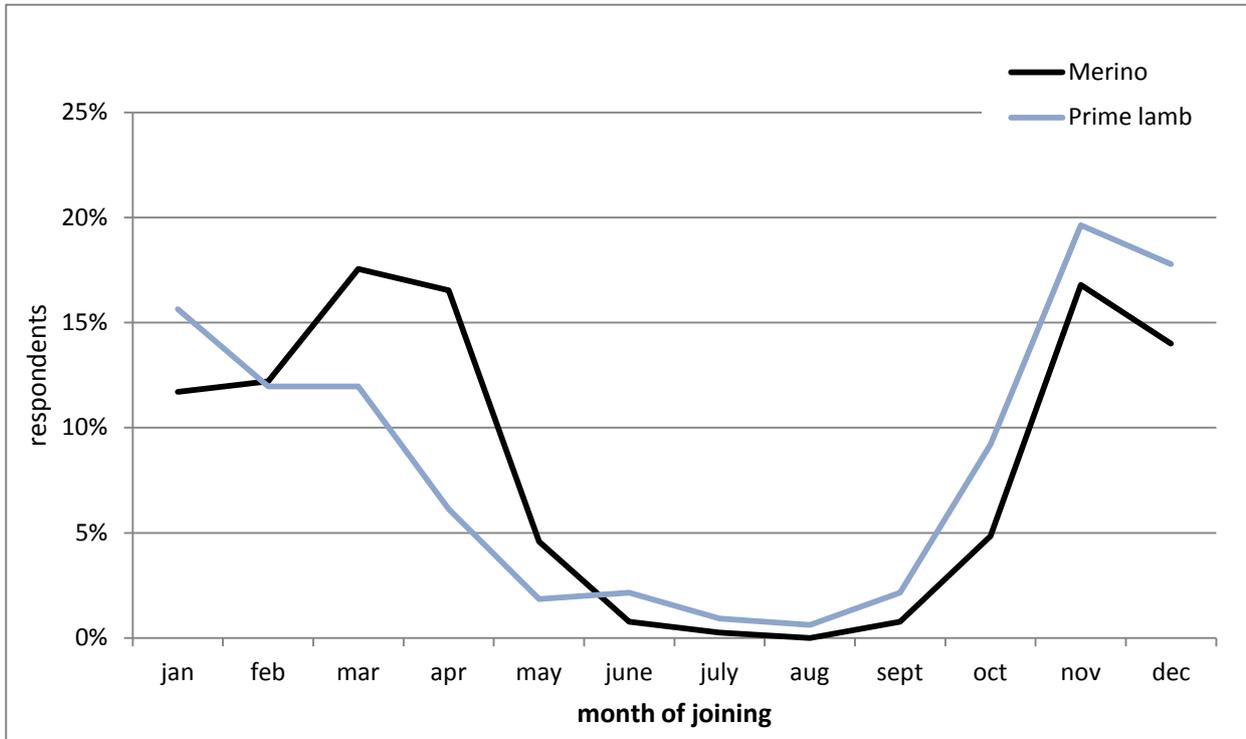
Production zone	People with meat matings	Average meat lambs	meat marking %
MRZ	168	1,434	100 ^{ab}
HRZ	246	1,725	103 ^a
CSZ	213	1,001	98 ^b
HRZs	32	678	93
MRZs	11	662	96
total	670	1,355	100

Table 5.1.2 Responses for Meat and maternal enterprise (the marking percentage was calculated using individual marking percentages with values outside of the range of 50-150% removed). The superscript denotes significant differences within each activity

Marking percentages for meat lambs were about a 10% higher than Merino marking percentages which supports other data collected on the Australian flock. Interestingly, marking in the HRZ showed the largest difference

between Merino and meat marking percentages with meat being more than 20% higher than Merino. This may reflect the higher proportion of second cross ewes and composites in Victoria where the HRZ makes up a significant proportion of the state and WA and SA with their larger proportion of the CSZ where most meat matings would be with a Merino ewe to a terminal sire.

Figure 5.1 Month of Joining for Prime lamb and Merino lambing (by producer)



The pattern of time of joining or lambing for each sire type was similar. Very few producers mated between May and September. The Merino mating peaked in November-December and March-April and had a dip in the months in-between. A similar dip in joining over December and January was not seen in the prime lamb mating. Prime lamb dominant matings peaked in November.

5.2 Pregnancy scanning

Regarding Pregnancy scanning to manage the nutrition of ewe flocks, do you...

- Choose not to use ultrasound scanning
- Only scan in bad years on some sheep
- Scan ewes only for pregnancy status (pregnant or not)
- Scan ewes to detect pregnancy and litter size

Please select the response that best describes what you do with the pregnancy scanning information.

- I don't change my nutritional management
- I manage ewes according to their energy requirements as a single group
- I manage dry, single and twin bearing ewes separately and according to their different energy requirements

Did you scan any ewes that lambed in 2010?

Of the ewes that lambed in 2010, what was the percentage of...

- maiden Merino ewes scanned that were dry (not pregnant)
- adult Merino ewes scanned that were dry (not pregnant)
- maiden meat & maternal ewes scanned that were dry (not pregnant)
- adult meat & maternal ewes scanned that were dry (not pregnant)

What was the scanning percent (number of lambs scanned per 100 ewes joined) for adult Merino ewes that lambed in 2010?

What was the scanning percent (number of lambs scanned per 100 ewes joined) for adult Meat and maternal ewes that lambed in 2010?

Pregnancy scanning is a practice carried out by 44% of respondents routinely of which 18% scan for litter size. A further nine percent of respondents indicated that they only scanned in bad years.

Production Zone	Don't Scan %	Scan in bad years %	pregnancy status only %	Scan for litter size %	Total #	
MRZ	39%	10%	29%	21%	239	
HRZ	47%	8%	21%	24%	337	
CSZ	50%	8%	30%	12%	336	
Total	47%	9%	26%	18%	1000*	*summer rainfall zone respondents removed

Table 5.2.1 The pregnancy scanning practices of respondents by zone

The MRZ had the highest level of scanning with over 60% of producers carrying out at least some scanning, with the national scanning rate being 53%. The highest levels of scanning for litter size were in the HRZ (24%) and the MRZ (21%). The CSZ had rates half of those in the HRZ.

		Grand Total	don't scan %	scan in bad years %	scan for pregnancy %	scan for litter size %
wool	# producers	270	57	7	20	16
	# ewes Merino	436,692	45	10	23	22
prime	# producers	229	39	12	29	20
	# ewes meat	393,142	27	11	30	32
dual	# producers	501	45	8	28	19
	# ewes Merino	683,461	33	12	37	20
	# ewes meat	567,437	34	10	32	24
Total producers		1,000	47	9	26	18

Table 5.2.1 Pregnancy scanning practices for each enterprise type

Fifty seven percent of wool producers don't scan at all compared to 39% of prime and 45% of Dual enterprises, however, this only accounted for 45% of the Merino ewes mated by Wool producers. Similarly although 39% of Prime lamb enterprises didn't scan for pregnancy this represented on 27% of ewes mated to meat and maternal sires.

Typically those with the largest flocks were more likely to scan for pregnancy and generally more likely to scan for litter size as well. Only 16% of Wool producers but 22% of the ewes were scanned for multiples and 20% of prime producers scanned for multiples but 32% of the ewes for meat production were scanned for litter size.

		Grand Total	don't scan %	scan in bad years %	scan for pregnancy %	scan for litter size %
wool	Av Marking-merino	82%	84%	81%	80%	81%
	Av Marking-meat	93%	94%	86%	89%	96%
prime	Av Marking-meat	110%	109%	111%	108%	113%
dual	Av Marking-merino	85%	85%	88%	84%	87%
	Av Marking-meat	97%	96%	95%	98%	100%

Table 5.2.2 Pregnancy scanning practices and the average marking percentages for each enterprise type (the marking percentage was calculated using individual marking percentages with values outside of the range of 50-150% removed)

All enterprise types had a higher Meat marking percentage than Merino marking percentage. Prime lamb enterprises have a higher marking percentage for their meat lambs than Wool or Dual enterprises indicating that management of their ewes has an impact as well as the genotype on the marking percentage.

Scanning for pregnancy and in particular, litter size, is a recommendation of the Sheep CRC as a way of improving reproductive performance. The marking rates for meat matings across all enterprise types are significantly higher for those that scan for litter size (103%) than those that don't scan at all (99%). People may scan for different reasons, not just to be able to manage the nutrition of lambing ewes better. They may do it for pedigree purposes or selection of replacements. The next section investigates whether management practices varied with pregnancy scanning practice.

Management of ewe nutrition using pregnancy scanning status

Management of ewes scanned for pregnancy status or litter size allows producers to remove dry ewes from the mob and either sell or feed lower rates, thereby improving feed conditions for pregnant ewes. Those scanning for litter size have the added option of managing the twinning ewes separately and offering higher nutrition and protection than to those with singletons. The Sheep CRC recognises this as a key management tool in improving lamb survival and asked this question as a series of choices in management. A similar set of questions were asked as part of the lifetimewool survey in 2008 and will be repeated again in 2013 in order to track behavioural change.

Production Zone	Survey total #	Don't change %	Manage as a group %	Manage individually %
MRZ	121	11% ^{ab}	23%	66% ^d
HRZ	151	9% ^b	19%	72% ^d
CSZ	140	19% ^a	28%	53% ^e
Total	442	13%	23%	64%

Table 5.2.3 Management practices of respondents who scanned for status and or litter size (the superscript denotes significant differences within each activity)

Of those respondents who scanned for either pregnancy status or litter size, the overwhelming majority managed those scanned mobs individually – either by separating twinning, single and dry ewes or pregnant and not. Of those who scanned for litter size, 84% managed their mobs individually, whereas 49% of those who scanned for pregnancy status managed their mobs individually. Twenty three percent changed the mobs nutritional management but did not separate the flocks to do this and the remainder (13%) made no change to the mobs nutritional management. It may be assumed that those that didn't change nutritional management scanned for other reasons such as prediction of the lambing rate or for breeding program data. The only region that differed in its management practices were those in the CSZ with a lesser number choosing not to manage ewe flocks individually.

		Scanned ewes total	Don't change	Manage as group	Manage individually
Av marking % - Merino	261	84%	83%	85%	84%
Av Marking % - meat	313	101%	98%	98%	103%
n=	574		58	103	281

Table 5.2.4 Marking rates of respondents who scanned for status and or litter size with nutritional management practices.

There was no difference in marking percentage for Merino flocks with different management practices from scanning. There was a small increase in marking percentage in those mated to meat or maternal sires that were managed separately (98% to 103%).

5.3 Condition Scoring

Regarding methods of monitoring ewe condition including condition scoring, fat scoring or weighing, do you usually...

- Make regular visual assessments in the paddock
- Visually estimate in the paddock and occasionally fat score, condition score or weigh a sample of the ewes when they are in the yards
- Normally condition score, fat score or weigh a sample of each ewe mob and manage to average mob targets for joining/lambing/weaning
- Condition score, fat score or weigh and draft all ewes, manage mobs according to condition to meet set targets for joining/lambing/weaning.

Condition scoring is seen as a useful tool in managing a ewe’s nutritional status throughout the year and many extension programs over the last decade have recommended the practice that producers should do assessments on a regular basis. This question was first asked in the Lifetimewool survey in 2008 to measure change in practice with responses arranged with an increasing level of decision making. This is in order to track changes in decision over time and the same question will be repeated in the 2013 survey.

Production Zone	Visual in paddock %	Visual & occasionally score %	Regularly score %	Score & manage to targets %
MRZ	62% ^a	25% ^e	6%	8% ^g
HRZ	53% ^b	35% ^d	7%	5% ^{gh}
CSZ	68% ^a	23% ^e	5%	3% ^h
Total	61%	28%	6%	5%

Table 5.3.1 The usual practice of condition scoring for three production zones (the superscript denotes significant differences within each activity)

The most common method of assessment of ewe nutritional status is by a regular visual assessment in the paddock (61%) followed by visually estimating in the paddock with an occasional assessment on a sample of ewes when they are in the yards. These two methods accounted for 89% of all groups. A relatively small group assessed using a formal measure, drafted and managed ewes to set targets.

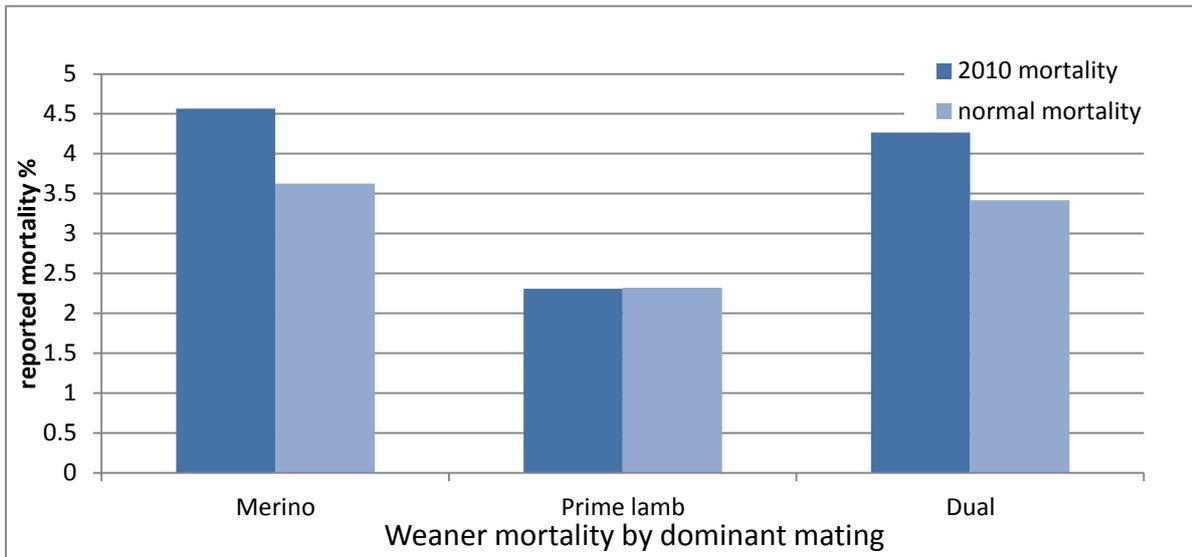
5.4 Weaner mortality

Within the 2010 lamb drop, what was the mortality rate of your weaners between the age of weaning and 6 months of age?

And in general, what would be the average weaner mortality rate between the age of weaning and 6 months of age for your property?

Weaner mortality is a key issue for management of Merino flocks and affects production and profitability of Merino enterprises. Weaner mortality in Prime lamb flocks is considered less of an issue in that many lambs are turned off before the important weaner growth period throughout summer.

Figure 5.4.1 Weaner mortality by enterprise type for 2010 and in general



Wool producers and Dual producers reported similar levels of mortality for weaners. Prime lamb producers had a lower reported mortality.

Generally there was a higher reported mortality in 2010 than 'normal'. The exception to this was in WA where mortality for 2010 was lower than considered normal. There were significant differences between states within zones. Generally WA had lowest rates in 2010, whatever the production zone and NSW and Vic had the highest mortality rates in 2010. The pattern was not as clear in the average rates recorded 'normally' in that there was no difference between states in the CSZ and the CSZ generally had the lowest mortality rates overall. There appeared to be no relationship between flock size and weaner mortality.

Production zone	state	# of producers	av weaner mortality % (2010)	av weaner mortality% (normal)
MRZ	NSW	84	4.6	3.2
	Vic	72	3.6	2.4
	WA	83	2.1	2.5
MRZ Total		239	3.4	2.7
HRZ	NSW	117	4.3	3.5
	Vic	155	4.8	3.9
	SA	37	2.6	2.7
	Tas	28	2.9	2.4
HRZ Total		337	4.2	3.5
CSZ	NSW	53	3.7	2.9
	Vic	51	3.4	2.5
	SA	138	3.4	2.8
	WA	94	2.0	2.9
CSZ Total		336	3.0	2.8

Table 5.4.1 The mortality of weaners in 2010 and on average by production zone and state

5.5 Marking and mulesing practices

How many Merino lambs were *marked* in 2010? That is lambs from ewes joined to Merino rams.

And of those Merino lambs, what percentage were...

- mulesed with pain relief
- mulesed without pain relief
- breech clipped
- not mulesed

How many Meat and maternal lambs were *marked* in 2010? That is lambs from ewes joined to meat or maternal rams.

And of those Meat and maternal lambs what percentage were...

- mulesed with pain relief
- mulesed without pain relief
- breech clipped
- not mulesed

In the last 3 years pain relief application has been available for producers who mules at marking and 2009 saw the introduction of a breech modification called breech clips. These questions were asked in order to determine up take of those new technologies and also to monitor the transition of producers towards non-mulesing, particularly in Merino flocks.

State	% mulesed of Merino lambs	% mulesed with pain relief (of those mulesed)	% mulesed of meat lambs	% mulesed with pain relief (of those mulesed)
NSW	64%	70%	9%	49%
VIC	79%	65%	9%	57%
QLD	30%	0%	25%	0%
SA	88%	75%	24%	35%
WA	89%	58%	8%	33%
TAS	40%	29%	14%	38%
Total	76%	64%	12%	43%

Table 5.5.1 the proportion of mulesed lambs and the proportion of those mulesed with pain relief by sire type

SA and WA had the highest proportion of Merino lambs being mulesed and Queensland the lowest, however, very low numbers of lambs were in the survey from Queensland. Very few meat lambs were mulesed in 2010 in NSW, Vic and WA and of those that were, at least a third were mulesed with pain relief. Vic had the highest rate of mulesing with pain relief of meat lambs. Breech clipping had very few respondents (<1%) and so were removed from the analysis.

Figure 5.5.1 Mulesing practices in 2010 by lamb number

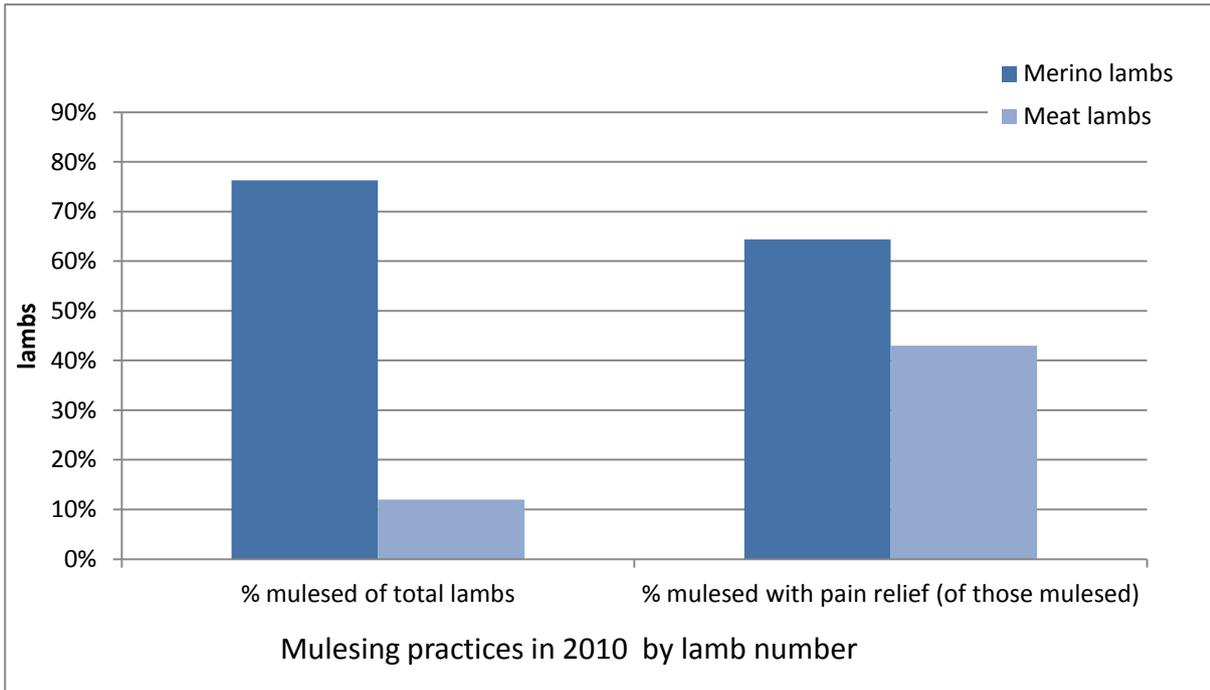
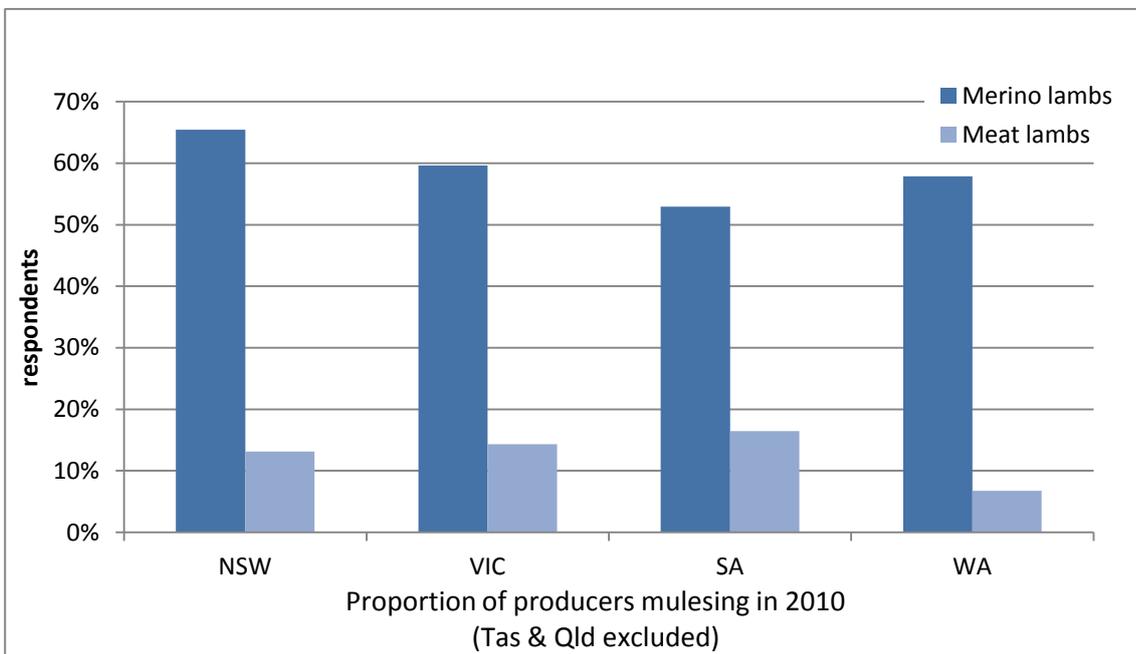


Figure 5.5.2 Mulesing practices in 2010 by producer and lamb type



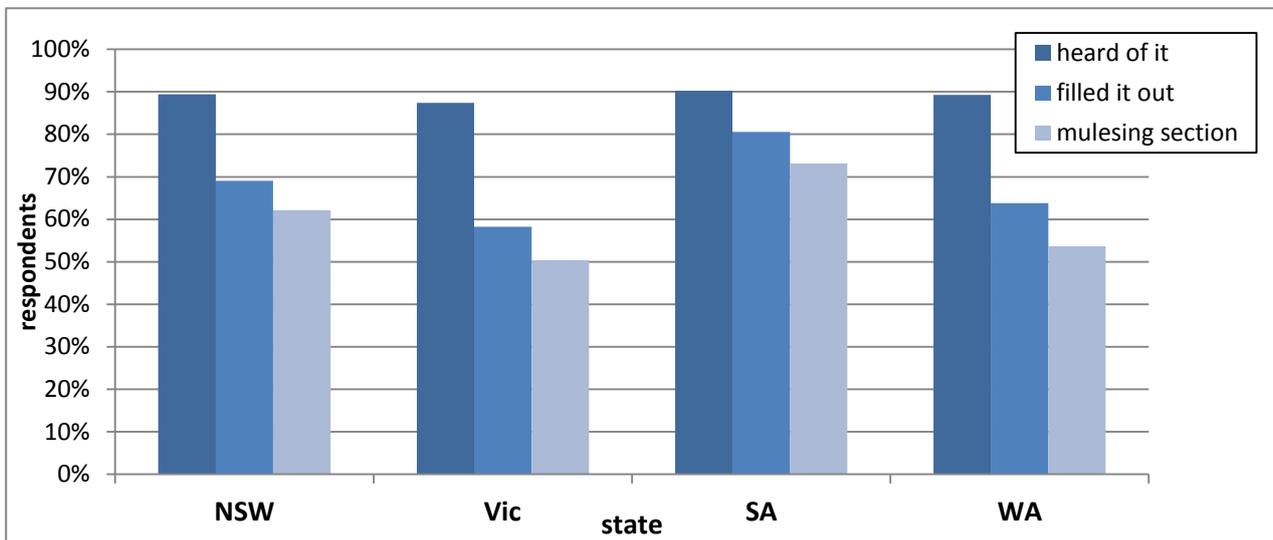
5.6 National Wool Declaration usage

Have you heard of the National Wool Declaration?
 Have you filled in a declaration in the last 2 years?
 Have you filled in the mulesing status on the document?

The National Wool Declaration is a document that accompanies wool to be sold with the wool specification documents and informs the buyers of Dark and Medullated Fibres, chemical usage, mulesing status and pain relief at marking.

There is little difference in awareness of the National Wool Declaration (NWD) form across zones or states. However there was a higher uptake in South Australia compared to other states and a slightly higher uptake in the High Rainfall Zone. Whether respondents had filled in the mulesing declaration did vary with the MRZ having the lowest of the zones and Victoria and WA having lowest of the states at around 50% of producers filling in the mulesing section.

Figure 5.6.1 the reported use of the National Wool Declaration by the major states including the completion of the mulesing status section.



The awareness of the NWD across all states is very high at nearly 90%. The reported usage of the NWD in this survey is higher than was expected by the public auction records. At least 50% of producers across all zones reported having filling out the mulesing section in the NWD in the last two years.

There was no real difference between zones in the awareness and use of the NWD or by flock size nor by enterprise type.

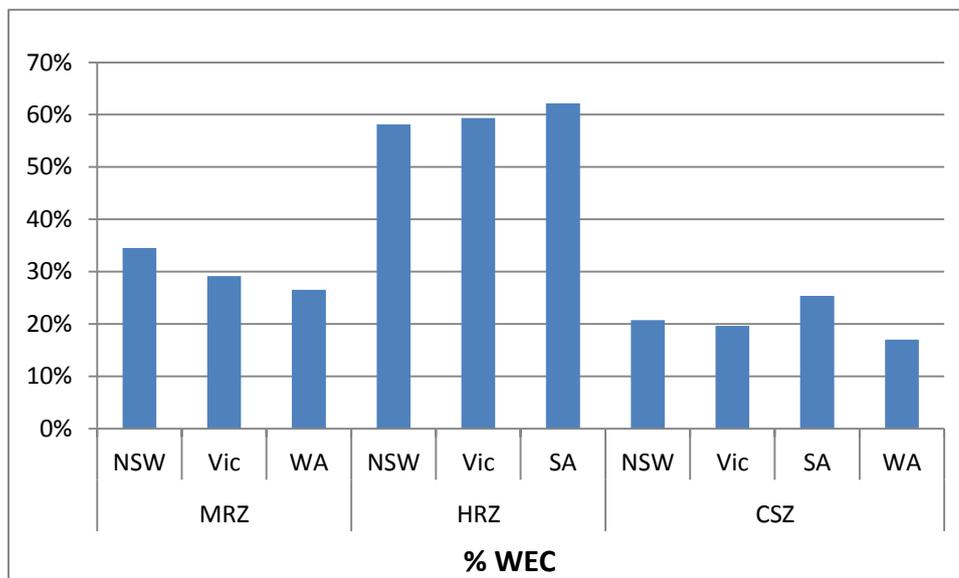
6 Data analysis for Program 1.3: Improved parasite control

6.1 Faecal Egg Worm Counts

Did you do any faecal worm egg counts on any of your sheep in 2010?
 In what month or months in 2010 did you test weaners (2010-drop sheep)?
 In what month or months in 2010 did you test hoggets (2009-drop sheep)?
 If you have wethers, in what month or months in 2010 did you test wethers?
 In what month or months in 2010 did you test mature ewes?

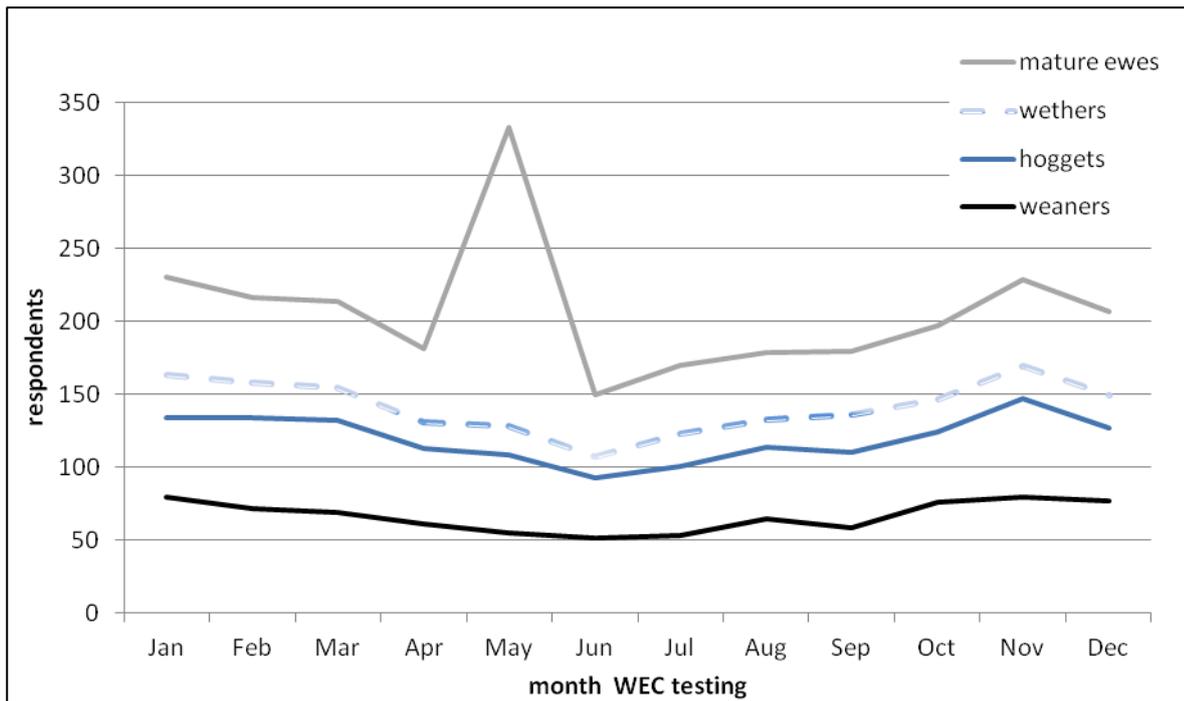
Faecal Worm Egg counts, commonly known as WECs, are a method used to determine overall worm burden in sheep. It is a recommended practice in all states and has greater or lesser importance in weaners, immature sheep and adults in different zones. It is seen as an indicator of adoption of best practice in the sheep industry. Commonly the HRZ is believed to have the highest prevalence of worms and greater impact on productivity and the CSZ the lowest impact or prevalence.

Figure 6.1 The proportion of respondents who conducted a faecal worm egg count (WEC) in 2010 on any of their sheep



As expected producers in the HRZ carried out the most and the CSZ the least WEC testing, reflecting the importance of worms in each environment. There was some difference between states regardless of the zone in which the respondents were in. Overall there was less testing in WA and more testing in South Australia.

Figure 6.1.2 The number of respondents who conducted a faecal worm egg count (WEC) in 2010 per month

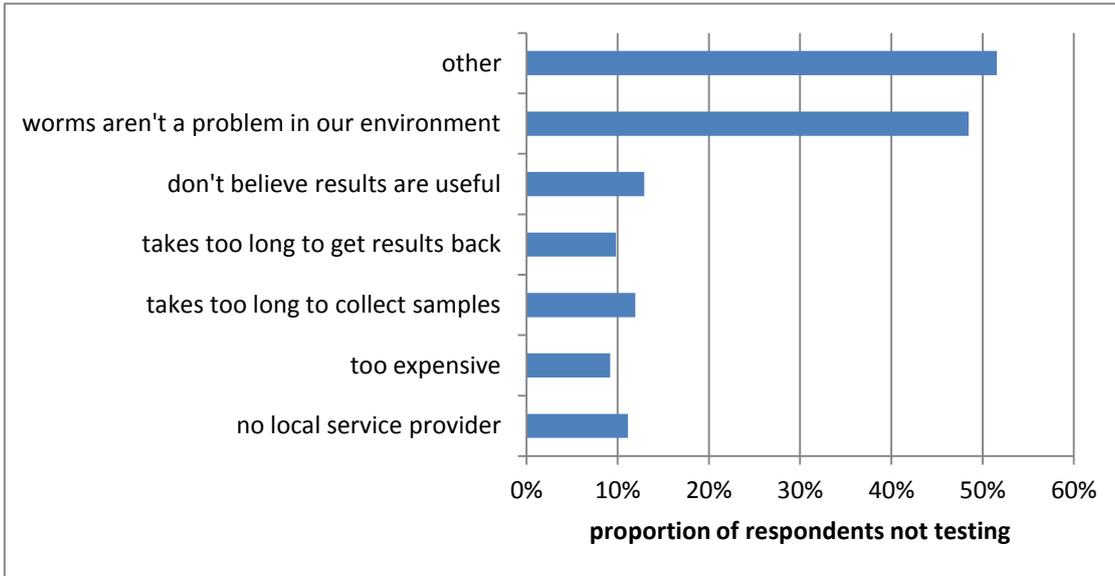


One hundred per cent of producers who carried out WEC testing in 2010 conducted tests at least once on their mature ewes and only 10% of producers carried out tests on the wether flock. This is in line with current recommendations and reflects the likely value of those animals to the producer. Weaners were the next highest category.

Why not? Is it because...

- no local service provider
- too expensive
- takes too long to collect the samples
- takes too long to get a result back
- don't believe results are useful
- worms aren't a problem in our environment
- other

Figure 6.1.3 Reasons that producers didn't undertake a regular FWEC for worms



Of those respondents that nominated “other” as a reason for not testing, there were a large number of reasons given. The key reasons were “drenched anyway”, “not a problem” or “used a visual assessment to determine if the sheep were wormy”.

Of those who cited management issues as a reason for not conducting a WEC, many that cited that if the sheep were in good condition or lightly stocked they didn't need to test, Others said that as they were in drought they didn't get worms or drenched if they had lots of grass.

Many producers were set on routine drenching so felt that testing would be a waste. A proportion had tested in the past and had always had high levels so they drenched anyway.

A large proportion used a visual assessment to judge whether the sheep needed drenching with one citing that ‘if you couldn't tell by looking at them you shouldn't be in sheep’ and another was happy to wait until he saw sheep dying and then “used a old fashion method- post mortem” to determine if it was worms.

Several respondents offered that they were “too lazy” and some said “they just hadn't got around to it”.

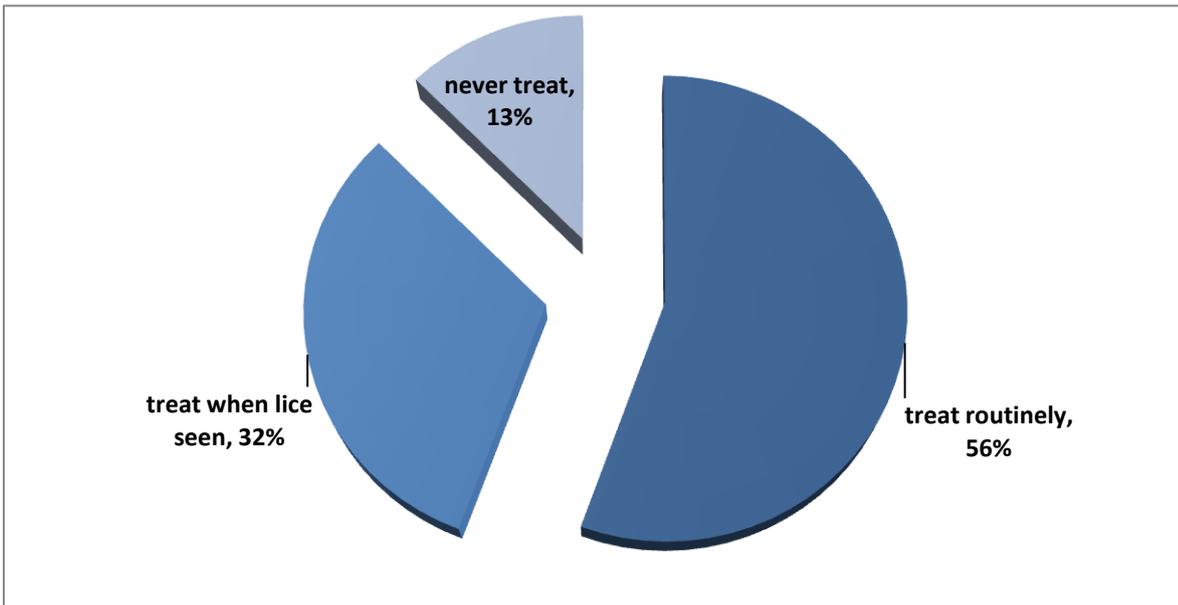
6.2 Lice control

Do you treat your sheep for lice...

- Routinely every year?
- Only when lice are seen?
- Not at all

The majority of producers surveyed treat routinely for lice, whether lice are seen or not (56%). Thirteen per cent of respondents never treat for lice.

Figure 6.2.1 The treatment of sheep for lice by proportion of respondents (n=1000)



South Australians were much more likely to treat their flocks for lice routinely (75%) compared to Victorians (35%), however, those in the CSZ were also much more likely to treat for lice routinely than other zones. The HRZ not only treated mostly when lice were seen, they were also more likely to never treat for lice.

zone	state	treat routinely %	treat when lice seen %	never treat %
MRZ	NSW	61	30	10
	Vic	54	35	11
	WA	47	41	12
HRZ	NSW	41	38	21
	Vic	29	48	23
	SA	49	43	8
CSZ	NSW	70	25	6
	Vic	73	22	6
	SA	82	14	4
	WA	78	19	3
total		57%	32%	12%

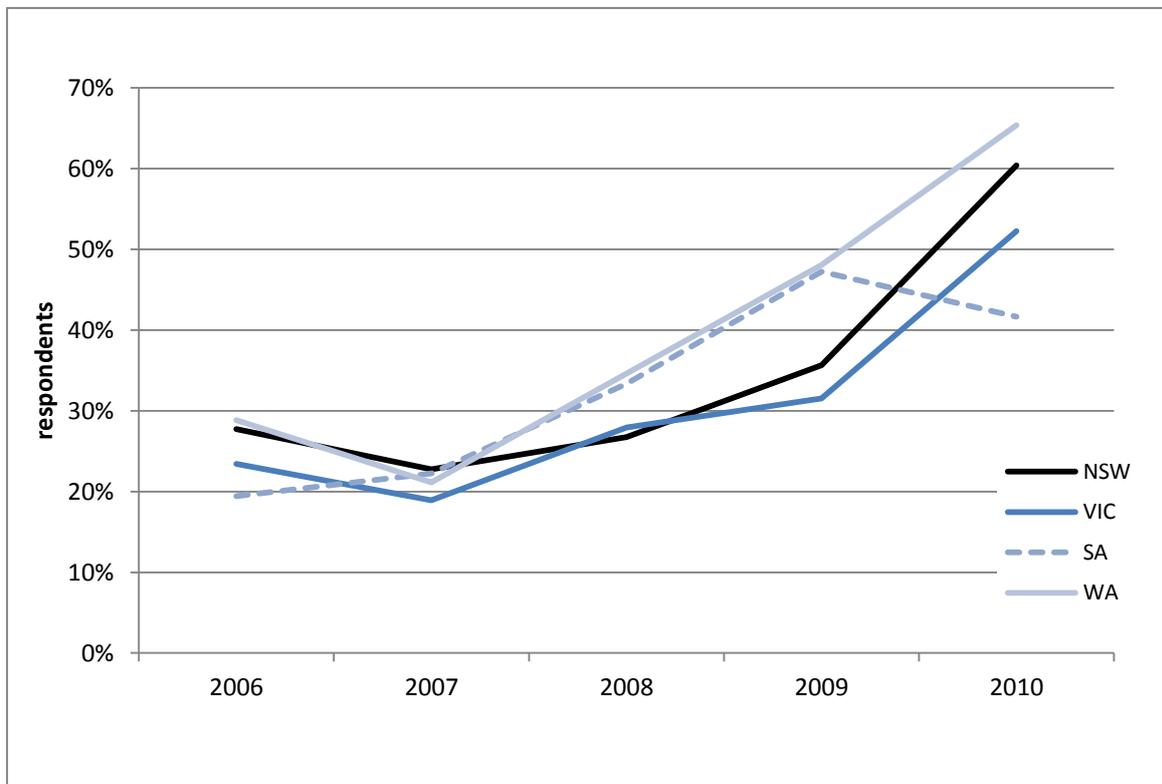
Table 6.2.1 Treatment approaches by key zones and states

Although respondents were slightly more likely to use a auto jetting machine if they treated for lice routinely (15% compared to 11%) and those that treated only when lice were seen were slightly more likely to use a contractor (17% compared to 15%) there was no clear relationship between farm flock size or what enterprise they ran.

- In which years of the last 5 years have you treated your sheep flock for lice?**
- 2006
 - 2007
 - 2008
 - 2009
 - 2010

Respondents that had treated when lice were seen were asked in which of the last five years did they treat. Generally all states saw an increase in when lice were seen from 2007 to 2010, SA the only state showing a downward trend in 2010. WA respondents had the highest incidence in 2010 of any of the states.

Figure 6.2.2 The proportion of respondents who treated lice in each of the last 5 years, of those who treat when lice are seen (n=319)

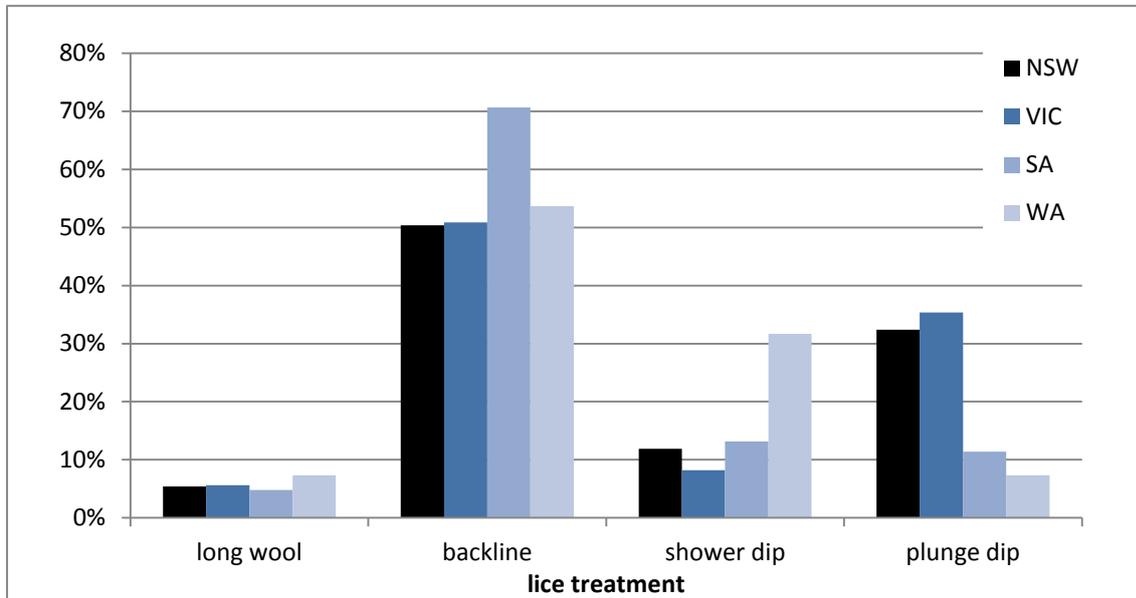


For the latest treatment, did you use...

- long wool treatment
- off shears backline
- off shears shower dip
- off shears plunge dip

What product/s did you use?

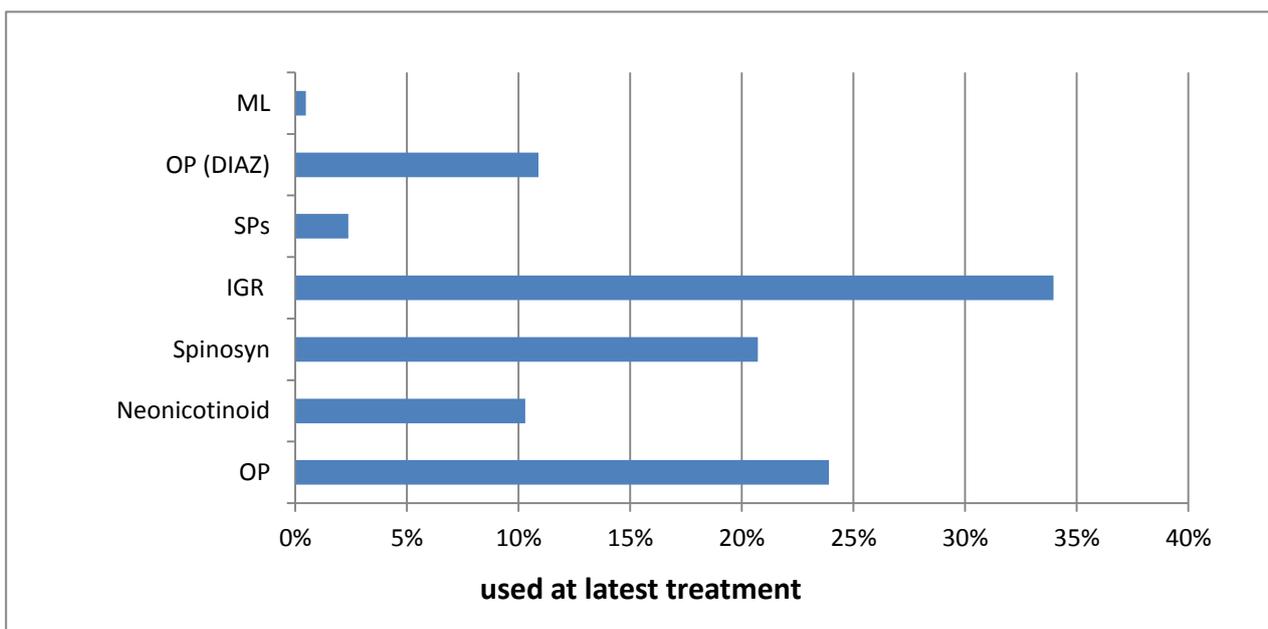
Figure 6.2.3 The latest treatment method producers used to treat lice (n=1000)



Backline treatments off-shears were the most popular form of treatment for lice with it being the most used in SA (71%). There has been a move from back-line treatments in the recent years in that most chemicals used in backline treatments show some resistance. NSW had a similar use of backline treatments to Vic and WA however, shower dips were less popular than plunge dips in NSW and Vic.

Long wool treatment is recommended when lice are seen between shearings and for quarantine treatments.

Figure 6.2.4 The chemical group used at the latest treatment for lice (n=955)



6.3 Flystrike control

- With regards to flystrike, do you...**
- treat your sheep routinely with preventive chemicals for flystrike every year
 - treat your sheep with preventive chemicals only when the risk of flystrike is high
 - treat the whole mob of sheep once flystrike is detected
 - only treat individually struck sheep

Flystrike control is an important activity for managing sheep enterprises however there are many different approaches taken by producers that reflect their flock’s risk profile, their labour availability and environment.

Most respondents nominated that their flystrike treatment was usually a routine treatment (40%) and the least popular treatment was treating the mob when flystrike was detected (13%). The CSZ had the lowest use of “routine treatment” but would be expected to have a lower risk to flystrike but also have less intensively managed sheep enterprises and this is maybe why routine treatment is still reasonably high.

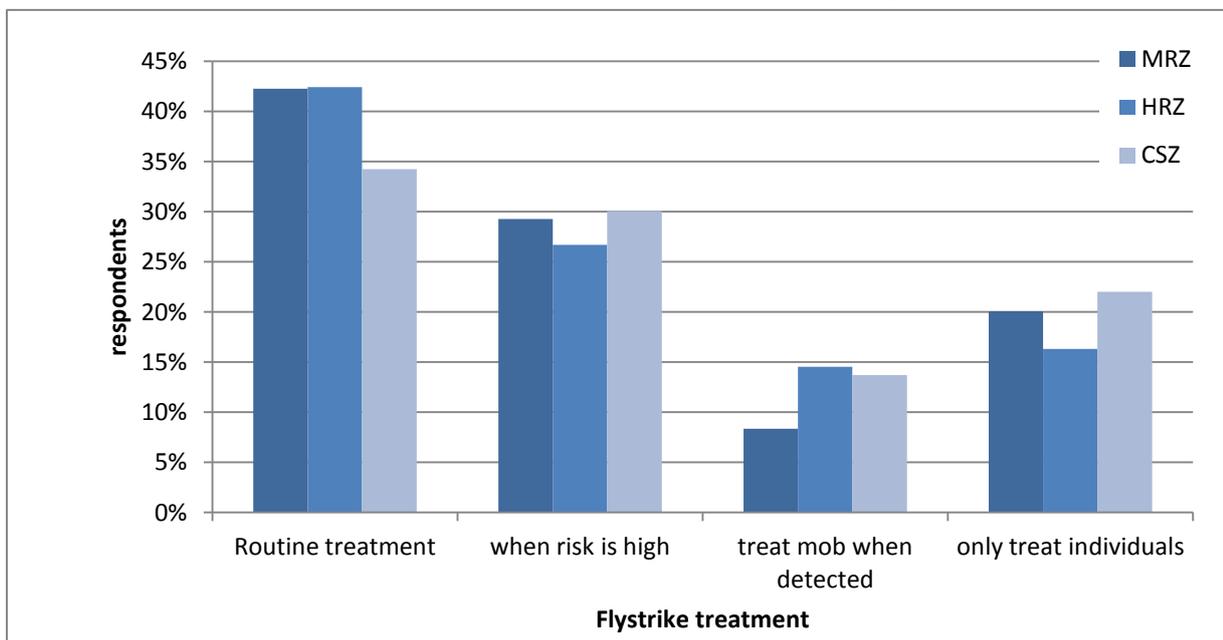


Figure 6.3.1 Flystrike treatment approach by key production zones (n=1000)

Dual sheep enterprises (30%) are more likely than wool enterprises (23%) to treat the mob when the risk of flystrike is high and are less likely to treat only individuals that get struck (17% compared to 24%).

Flystrike treatment	Total %	Enterprise		
		Wool %	Prime lamb %	Dual %
Routine treatment	4	41	39	41
when risk is high	28	23 ^b	28 ^{ab}	30 ^a
treat mob when detected	13	12	14	13
only treat individuals	19	24 ^d	19 ^{de}	17 ^e
Total #		n=270	n=229	n=501

Table 6.3.1 Flystrike treatment approach by enterprise type (the superscript denotes significant differences within each activity)

There is no difference in treatment for flystrike whether the flock is not mulesed or have a lower ranking of labour per DSE, however, it is more likely that the mob will be treated routinely if the producer has an auto jetting race.

Flystrike treatment	total		non mulesed	auto jetting race	low labour rank
	#	%	%	%	%
Routine treatment	404	40	39	47	39
when risk is high	276	28	24	28	27
treat mob when detected	129	13	16	11	14
only treat individuals	191	19	21	14	21
Total #	1000		214	136	671

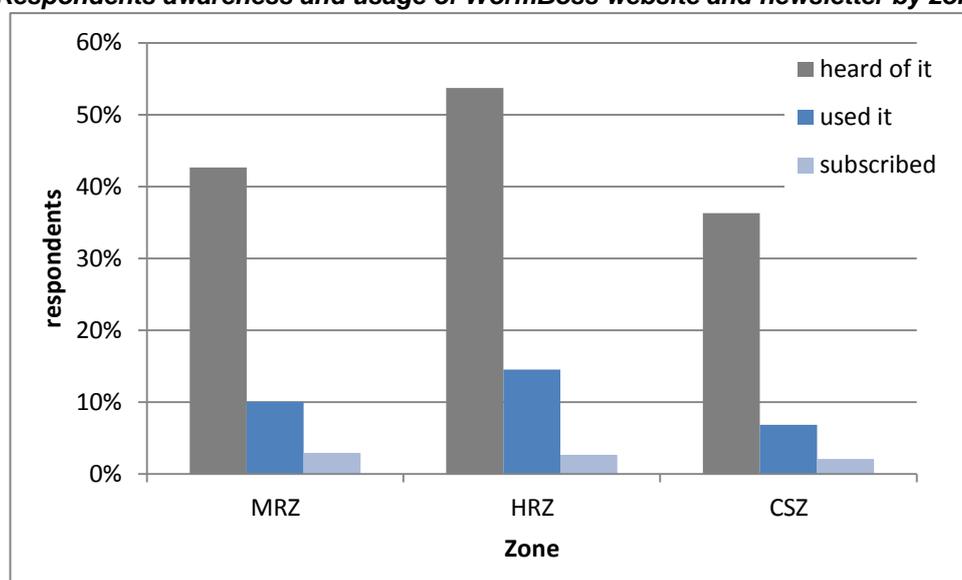
Table 6.3.2 Flystrike treatment approach by producers who don't mules, own an automatic jetting race or have a low labour rank ie. a high sheep number per employee ratio

6.4 The “Boss” web sites

Have you heard of the WormBoss website?
Did you use the WormBoss website in 2010?
Have you subscribed to the WormBoss monthly email newsletter?

The WormBoss website and newsletter service was established in 2005 and is regularly used to direct producers to the latest sheep worm control information. It is now hosted by the sheep CRC. Forty four per cent of producers are aware of the site but only 10% of producers said that they had used it in 2010 and only 2% had subscribed to the newsletter service.

Figure 6.4.1 Respondents awareness and usage of WormBoss website and newsletter by zone



Of those producers who had heard of the site SA and WA respondents had used it less than NSW and Vic respondents.

	total		state			
	#	%	NSW	Vic	SA	WA
heard of it	436	44	49	44	46	39
used it	100	10	13	11	8	7
subscribed	23	2	4	0	2	2
			n= 330	278	175	177

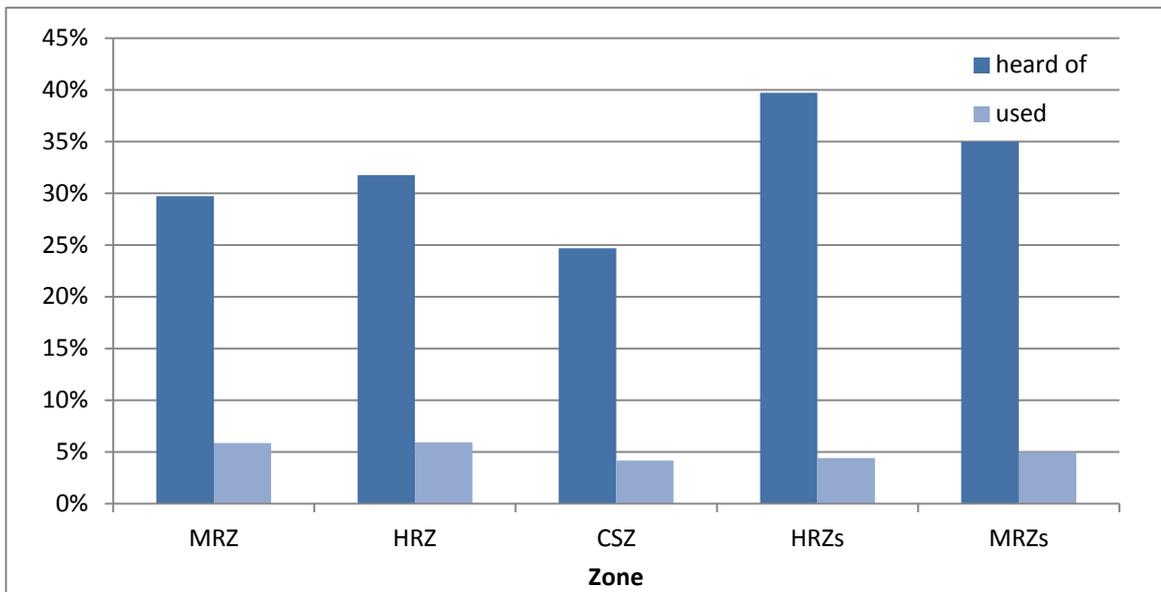
Table 6.4.1 Respondents awareness and usage of WormBoss website and newsletter by state

Have you heard of the LiceBoss website?

Did you use the LiceBoss website in 2010?

The LiceBoss website is a new service that was established in 2010. Already awareness levels are above 25% with approximately 5% having used the site in 2010.

Figure 6.4.2 Awareness of and use of the LiceBoss website in 2010 by key production zone

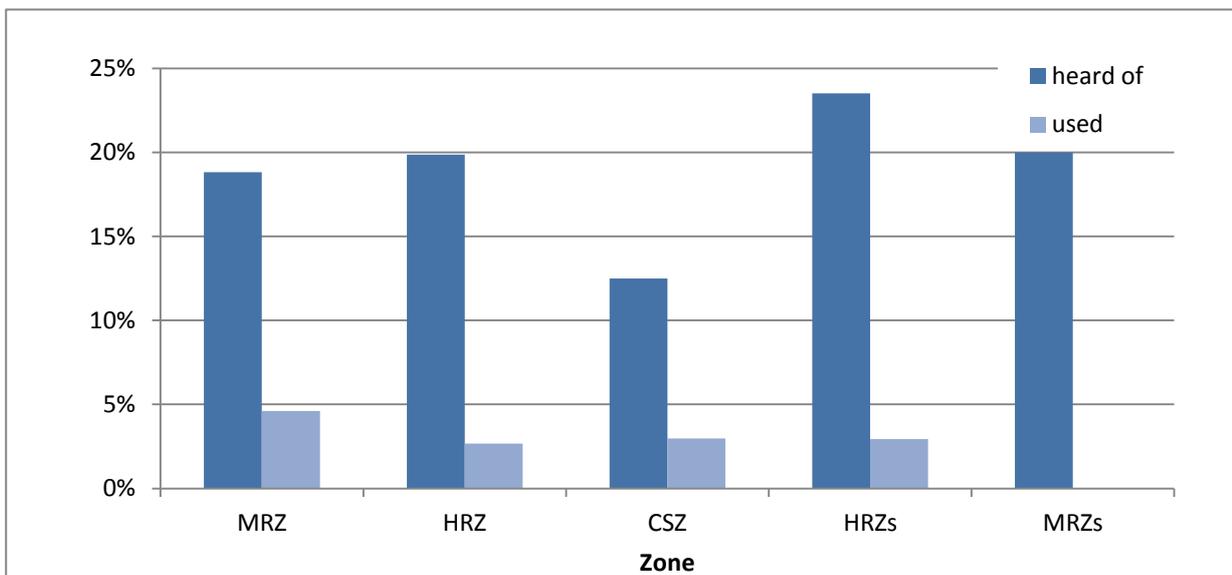


Have you heard of the FlyBoss website?

Did you use the FlyBoss website in 2010?

The FlyBoss website is a new service that was established in 2010. Already awareness levels are 17% nationally with approximately 3% having used the site in 2010.

Figure 6.4.3 Awareness of and use of the FlyBoss website in 2010 by key production zone



7 Awareness of Sheep CRC and attendance at CRC events

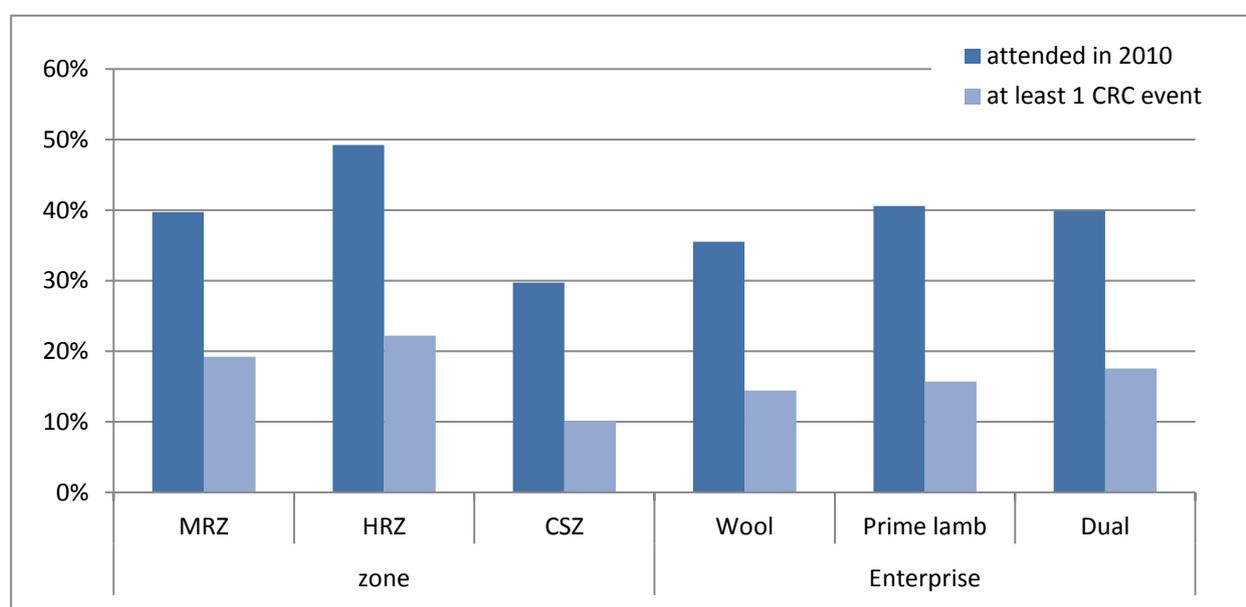
Did you attend any sheep industry event in 2010?

Have you attended any of these Sheep CRC events?

- CRC Conference or Regional CRC Updates
- Lifetime Ewe Management course
- High Performance Weaner course
- Managing Flystrike workshop
- Precision Sheep Management workshop such as Selection Assist, Wether Calculator, Pedigree Matchmaker and Walk Over Weighing
- Managing Pregnant Ewes (also called Pregnancy Scanning) workshop
- Bred well, fed well workshop

Thirty nine per cent of respondents indicated that they had attended a sheep event in 2010 and 16% indicated that they had attended at least one of the nominated Sheep CRC events in 2010 or just over 40% of those who attended any event. This indicates that the Sheep CRC are a significant provider of sheep events across Australia, however, the values appear to be much higher than the attendance compared to the known sheep producer population.

Figure 7.1.1 Attendance of a sheep event and the attendance of at least one Sheep CRC event in 2010 by zone and enterprise



The attendance of specific sheep CRC events by respondents was less than 10% for any particular event with Lifetime Ewe Management (LTEM) having the highest attendance by respondents. This course has been running since 2008 and has quite a high profile in the media and at seminars and conferences. Approximately 500 producers had completed or started in a LTEM course at the time of the survey.

	total %	% from zone			% from enterprise type		
		MRZ	HRZ	CSZ	Wool	Prime lamb	Dual
Conference/Updates	6	6	8	4	4	7	6
Lifetime Ewe Management	6.5	6	11	4	4	7	7
High Performance Weaners	1	2	4	1	0	1	2
Flystrike Management	4	5	3	3	4	2	4
Precision Sheep Management Wksp	3	4	9	2	1	4	2
Managing Pregnant Ewes Wksp	6	8	0	3	6	6	6
Bred Well, Fed Well Wksp	2	4	0	1	1	1	2
	n=	239	337	336	270	229	501

Table 7.1.1 The attendance at Sheep CRC events in 2010 by zone and enterprise type

Appendix 1 Conduct of the Telephone Survey

Kaliber Research Group conducted the field work for this survey. The survey was conducted via telephone. Based on the questionnaire provided, the interview took 15 or 20 minutes.

Producers who were surveyed as part of this project will be resurveyed in 2014 to determine what changes in practice they have initiated in the meantime. Participants will be selected randomly from the list of (sheep) producers owned by Kaliber.

Sheep producers were classified based on their sheep income as either Sheep Specialists, Beef / Sheep or Grain / Livestock.

The number of responses was 1,200 producers. Furthermore, 1,000 of these respondents were representative of the national population and a further 200 respondents be collected solely from Western Australia (making the total collected from Western Australia higher than if national proportional sampling was used to select all 1,200 respondents).

Each number was called up to 5 times at different times of the day, focusing initially on calling them at lunch time and after 5pm. For telephone surveys, Kaliber staggers the extraction and uploading of database lists and conduct multiple call backs to maximise response rates and minimise non response bias. Where the selected producer does not participate in the survey the reason for non-participation was recorded (eg could not be contacted).

A pilot survey was conducted with 30 participants prior to going out to the full list. The results of this test resulted in modifications to the questionnaire.

Appendix 2 Accessibility of producers

Table 2.1.1 below and diagram 2 show how many producers were approached to achieve the 1,088 respondents. The response rate is 18% completed).

Status	Count	Proportion
Completed	1,088	18%
Refused	1,384	23%
<500 sheep ¹	393	7%
Not farming	287	5%
No answer	2609	44%
Other	158	3%
Total Numbers Drawn	5,919	100%

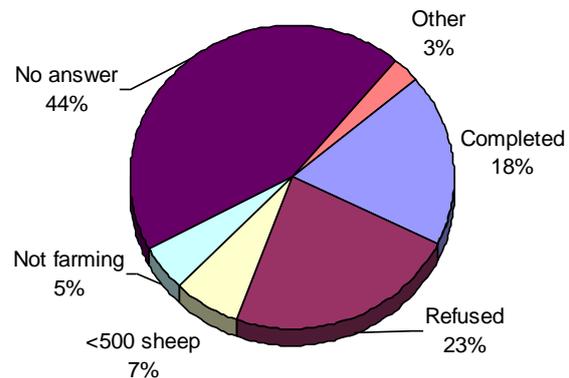


Table 2.1.1 Status of contact with producers at the end of data collection

¹ Includes 56 respondents who screened out for having less than 500 sheep. Balance did not have sheep

Diagram 2 Chart showing proportional status of each phone number selected for participation in survey

	HRZ	HRZs	MRZ	MRZs	CSZ	Total
# sheep	19,877,327	3,716,613	17,886,463	1,974,450	14,487,307	57,942,159
# businesses	8,374	1,574	8,209	871	5,689	24,718
Sheep/business	2374	2361	2179	2266	2546	
% sheep by region	34%	6%	33%	4%	23%	100%
# respondents per region	339	64	332	35	230	1,000

Table 2.2.2 Breakdown of expected spread of respondents based on the number of producers with the production zones of interest in each production zone

Kaliber were engaged to continue to conduct a further 200 interviews of Western Australian producers so that a further analysis could be conducted for specific DAFWA project purposes. The raw data provided to the CRC contained 1088 respondents, as this further surveying of WA producers had already begun. To balance the WA responses with the other states to provide a national perspective, 88 (or one in 3) WA respondents were removed from the sample.

Appendix 3 2011 survey questionnaire

KR049 Sheep CRC National Benchmarking Study

Qincome. So that we can be sure we are interviewing a cross section of rural producers, in the last financial year, roughly what percentage of your gross property income, that is, only income from your property, came from the following activities? *Used to determine Qftype*

Beef Cattle	1	Qincome_1
Sheep including Wool & Prime Lambs	2	Qincome_2
Dairy	3	Qincome_3
Winter Cereal Grain crops (eg. Wheat, Barley, Oats, Triticale)	4	Qincome_4
Winter Legume Crops (eg Lupins, Chickpeas, Lentils, Beans, Peas etc)	5	Qincome_5
Winter Oilseeds (eg Canola, Mustard etc)	6	Qincome_6
Summer Cereals (eg Sorghum, Maize and Corn etc)	7	Qincome_7
Summer Legumes (eg Soybeans, mungbeans)	8	Qincome_8
Summer Oilseeds (eg Sunflowers)	9	Qincome_9
Sugar Cane	10	Qincome_10
Cotton	11	Qincome_11
Rice	12	Qincome_12
Horticultural / Vegetable Crops	13	Qincome_13
Other Crops	14	Qincome_14
Other Livestock	15	Qincome_15

Qstate. State

NSW	2
VIC	3
QLD	4
SA	5
WA	6
TAS	7
NT	8

Qftype. Farm Type

Grains	1
Grain/Livestock	2
Beef and Sheep	4
Beef	5
Sheep	6
Dairy	7
Sugar Cane	8
Cotton	50
Horticulture	70
QNA	99

Qpzone. Production Zone

Medium Winter Rain	1
High Winter Rain	2
Cereal-Sheep	3
High Summer Rain	4
Medium Summer Rain	5

Q1. Do you currently have 500 or more sheep on your property?

Yes	1	
No	2	Q1

Q8a. What was the total number of sheep on the property at 30th June 2010, including lambs?

Qfsize. What is the total area of your farmed and grazed land, including all leased land?

Hectares	1	
Acres	2	Qfsize_1

Q7a. What area, in hectares, of your property was grazed as Pasture?

RECORD IN HECTARES WHERE POSSIBLE

Hectares	1	
Acres	2	Q7a_1
Don't know	3	

Q7b. What area, in hectares, of your property was grazed as Dry stubble?

Hectares	1	
Acres	2	Q7b_1
Don't know	3	

Q7c. What area, in hectares, of your property was grazed as Green crop?

Hectares	1	
Acres	2	Q7c_1
Don't know	3	

Q2. What is the primary purpose of your sheep enterprise?

Wool production	1	
Prime lamb production	2	Q2
Wool production and prime lamb production	3	

Q3. Do you...

Run a commercial flock and buy rams	1	Q3_1
Breed rams for your own commercial flock	2	Q3_2
Breed rams for sale	3	Q3_3
Do not breed/purchase rams or semen (DO NOT READ OUT)	4	Q3_4

Q4a. How many ewes were mated to Merino rams, including Dohnes (*pronounced "Doe Knees"*) and SAMM's (*South African Meat Merino*) to lamb in 2010?

Q5a. What was the month joining commenced for Merino rams, including Dohnes and SAMM's?

Do not show if [Q4a] = 0

January	1
February	2
March	3
April	4
May	5

June	6
July	7
August	8
September	9
October	10
November	11
December	12

Q5a

Q4b. How many ewes were mated to Meat and maternal rams to lamb in 2010?

Q5b. What was the month joining commenced for Meat and Maternal rams?

Do not show if [Q4b] = 0

January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

Q5b

Q6. How many Merino lambs were *marked* in 2010? That is lambs from ewes joined to Merino rams.

Q6a. And of those Merino lambs, what percentage were...

Do not show if [Q6] = 0

mulesed with pain relief	1	Q6a_1
mulesed without pain relief	2	Q6a_2
breach clipped	3	Q6a_3
not mulesed	4	Q6a_4

Q6b. How many Meat and maternal lambs were *marked* in 2010? That is lambs from ewes joined to meat or maternal rams.

*Let [Answer1] = [Q4a] * 2*

*Let [Answer2] = [Q6] * 2*

*Let [Answer3] = [Q4b] * 2*

*Let [Answer4] = [Q6b] * 2*

Q6c. And of those Meat and maternal lambs what percentage were...

Do not show if [Q6b] = 0

mulesed with pain relief	1	Q6c_1
mulesed without pain relief	2	Q6c_2
breach clipped	3	Q6c_3
not mulesed	4	Q6c_4

Q6e. How many ewes have you joined or intend to join to lamb in 2011 to...

Merino rams, including Dohnes and SAMM's	1	Q6e_1_1
Meat and maternal rams	2	Q6e_1_2

Q8b. Did you sell any sheep direct to eastern state buyers in 2010?

Show If Attribute "WA" from Qstate is SELECTED

Yes	1
No	2

Q8b

Q8c. And how many of these sheep were...

Show If Attribute "Yes" from Q8b is SELECTED

Merino ewe lambs, 2010 born	1	Q8c_1_1
Merino ewes, born 2009 or earlier	2	Q8c_1_2
Meat and maternal ewe lambs, 2010 born	3	Q8c_1_3
Meat and maternal ewes, born 2009 or earlier	4	Q8c_1_4
Wether lambs, 2010 born	5	Q8c_1_5
Older wethers, born 2009 or earlier	6	Q8c_1_6

Q10. Which ONE of the following statements best describes how you usually select your stud or ram source for your primary sheep enterprise?

Show If Attribute "Run a commercial flock and buy rams" from Q3 is SELECTED

I have never considered going to anyone other than my regular stud breeder	1	
I choose a stud breeder based on advice from my classer, agent or consultant	2	
I usually go to the ram sales or shows and select a stud that suits my needs	3	Q10
I review wether trial data, sire evaluation data, sale reports etc and select a stud breeder that is performing well	4	
I access genetic information from sources such as Sheep Genetics or Australian Merino Sire Evaluation Association and select a breeder based on their match to my breeding objective	5	

Q11. Which ONE of the following statements best describes how you select rams to buy?

Show If Attribute "Run a commercial flock and buy rams" from Q3 is SELECTED

My classer or agent chooses the rams	1	
I choose the rams based on how they look	2	
I choose rams mainly on how they look but use some performance data such as micron, CV or body weight	3	Q11
I choose rams with a balance of visual appeal, performance data (micron, CV etc) and some genetic information such as ASBVs or breeding values	4	
I choose rams based on genetic information such as ASBVs, breeding values or selection indexes	5	

Q12a. How many rams did you sell in 2010?

Show If Attribute "Breed rams for sale" from Q3 is SELECTED

Q12b. How many doses of semen did you sell in 2010?

Show If Attribute "Breed rams for sale" from Q3 is SELECTED

Q12c. What proportion of the rams that you sold (or sold semen from) in 2010 had Australian Sheep Breeding Values (ASBVs) ?

Show If Attribute "Breed rams for sale" from Q3 is SELECTED

Qdum1. Smile and Click Next...

Show If Attribute "Breed rams for sale" from Q3 is SELECTED

[Q12c] = 100 Goto Qdum2

[Q12c] <> 100 Goto Q12d

Q12d. What are the reasons for not providing ASBVs for all of your rams?

Show If Attribute "Breed rams for sale" from Q3 is SELECTED

	Yes	No
--	-----	----

Too time consuming	1	2	Q12d_1
Too costly	1	2	Q12d_2
Too confusing or complex to get ASBVs	1	2	Q12d_3
The traits that are important to the sale of my rams are not covered by ASBVs	1	2	Q12d_4
ASBVs are not an accurate indication of the quality of my rams	1	2	Q12d_5
I am not convinced that ASBVs are a useful marketing tool	1	2	Q12d_6
My customers do not use ASBVs to select their rams anyway	1	2	Q12d_7

***Q12d1. Other reasons (please describe)**

Show If Attribute "Breed rams for sale" from Q3 is SELECTED

Q13. On a scale from 1 to 5, please indicate the importance you place on each of these traits when choosing MEAT ram replacements with 1 meaning not at all important and 5 meaning very important

Show If Attribute "Prime lamb production" from Q2 is SELECTED OR

Show If Attribute "Wool production and prime lamb production" from Q2 is SELECTED

	1. Not at all important	2. Not important	3. Can't say	4. Important	5. Very important	
Growth rate	1	2	3	4	5	Q13_1
Muscling	1	2	3	4	5	Q13_2
Weaning weight	1	2	3	4	5	Q13_3
Lamb weaning per cent	1	2	3	4	5	Q13_4
Lean meat yield	1	2	3	4	5	Q13_5
Ewe weight/frame size	1	2	3	4	5	Q13_6
Constitution or doing ability	1	2	3	4	5	Q13_7

Q14a. In addition to yourself, how many of the following people work on your property?

Family members	1	Q14a_1_1
Full time employees	2	Q14a_1_2
Part time employees	3	Q14a_1_3

Q14b. How much of their total time is spent working in the sheep enterprise of the farm business?

Yourself (ie respondent/interviewee)	1	Q14b_1_1
<i>Show If [Q14a_1_1] = 1 AND [Q14a_2_1] >= 1</i>		
Family members (collectively/overall)	2	Q14b_1_2
<i>Show If [Q14a_1_2] = 2 AND [Q14a_2_2] >= 1</i>		
Full time employees (collectively/overall)	3	Q14b_1_3
<i>Show If [Q14a_1_3] = 3 AND [Q14a_2_3] >= 1</i>		
Part time employees (collectively/overall)	4	Q14b_1_4

Q15. Do you use a contractor for...

	Yes	No	
Shearing (full contract)	1	2	Q15_1
Crutching	1	2	Q15_2
Marking	1	2	Q15_3
Treating sheep for lice	1	2	Q15_4

Q16. When working with sheep, do you currently use any of the following devices?

	Yes	No	
Automatic drafting equipment	1	2	Q16_1
Automatic jetting race	1	2	Q16_2
Sheep handling machine	1	2	Q16_3

Electronic weigh crate	1	2	Q16_4
Crutching cradle	1	2	Q16_5
Lick feeders	1	2	Q16_6
Electronic ear tags	1	2	Q16_7

Q16a. Are you considering using any of these devices...

	Considering	Not considering	
<i>Show If Attribute "Automatic drafting equipment" from Q16 is No</i>			
Automatic drafting equipment	1	2	Q16a_1
<i>Show If Attribute "Automatic jetting race" from Q16 is No</i>			
Automatic jetting race	1	2	Q16a_2
<i>Show If Attribute "Sheep handling machine" from Q16 is No</i>			
Sheep handling machine	1	2	Q16a_3
<i>Show If Attribute "Electronic weigh crate" from Q16 is No</i>			
Electronic weigh crate	1	2	Q16a_4
<i>Show If Attribute "Crutching cradle" from Q16 is No</i>			
Crutching cradle	1	2	Q16a_5
<i>Show If Attribute "Lick feeders" from Q16 is No</i>			
Lick feeders	1	2	Q16a_6
<i>Show If Attribute "Electronic ear tags" from Q16 is No</i>			
Electronic ear tags	1	2	Q16a_7

Q18. Under each of the following categories, please choose the practice that most closely reflects what you usually do on your property.

Q18a. a) Regarding Pregnancy scanning to manage the nutrition of ewe flocks, do you...

Choose not to use ultrasound scanning	1	
Only scan in bad years on some sheep	2	
Scan ewes only for pregnancy status (pregnant or not)	3	Q18a
Scan ewes to detect pregnancy and litter size	4	

Q18a2. Please select the response that best describes what you do with the pregnancy scanning information.

Show If Attribute "Scan ewes only for pregnancy status (pregnant or not)" from Q18a is SELECTED OR

Show If Attribute "Scan ewes to detect pregnancy and litter size" from Q18a is SELECTED

I don't change my nutritional management	1	
I manage ewes according to their energy requirements as a single group	2	Q18a2
I manage dry, single and twin bearing ewes separately and according to their different energy requirements	3	

Q18b. b) Regarding Methods of monitoring ewe condition including condition scoring, fat scoring or weighing, do you usually...

Make regular visual assessments in the paddock	1	
Visually estimate in the paddock and occasionally fat score, condition score or weigh a sample of the ewes when they are in the yards	2	
Normally condition score, fat score or weigh a sample of each ewe mob and manage to average mob targets for joining/lambing/weaning	3	Q18b
Condition score, fat score or weigh and draft all ewes, manage mobs according to condition to meet set targets for joining/lambing/weaning	4	

Q19a. Did you scan any ewes that lambbed in 2010?

Yes	1
-----	---

No 2 Go to Q21 Q19a

***Q19. Of the ewes that lambed in 2010, what was the percentage of...**

Show If Attribute "Only scan in bad years on some sheep" from Q18a is SELECTED OR

Show If Attribute "Scan ewes only for pregnancy status (pregnant or not)" from Q18a is SELECTED OR

Show If Attribute "Scan ewes to detect pregnancy and litter size" from Q18a is SELECTED

Show If [Q6] <> 0 OR [Q6b] >=1

maiden Merino ewes scanned that were dry (not pregnant) 1 Q19_1_1

Show If [Q6] <> 0 OR [Q6b] >=1

adult Merino ewes scanned that were dry (not pregnant) 2 Q19_1_2

Show If [Q6b] >=1

maiden meat & maternal ewes scanned that were dry (not pregnant) 3 Q19_1_3

Show If [Q6b] >=1

adult meat & maternal ewes scanned that were dry (not pregnant) 4 Q19_1_4

Q20a. What was the scanning percent (number of lambs scanned per 100 ewes joined) for adult Merino ewes that lambed in 2010?

Show If [Q19_1_2] = 2 AND [Q19_2_2] >= 1

Q20b. What was the scanning percent (number of lambs scanned per 100 ewes joined) for adult Meat and maternal ewes that lambed in 2010?

Show If [Q19_1_4] = 4 AND [Q19_2_4] >= 1

Q21. Within the 2010 lamb drop, what was the mortality rate of your weaners between the age of weaning and 6 months of age?

Q22. And in general, what would be the average weaner mortality rate between the age of weaning and 6 months of age for your property?

Q26. Did you do any faecal worm egg counts on any of your sheep in 2010?

Yes 1
No 2 Q26

Q26a1. In what month or months in 2010 did you test weaners (2010-drop sheep)?

Show If Attribute "Yes" from Q26 is SELECTED

January 1 Q26a1_1
February 2 Q26a1_2
March 3 Q26a1_3
April 4 Q26a1_4
May 5 Q26a1_5
June 6 Q26a1_6
July 7 Q26a1_7
August 8 Q26a1_8
September 9 Q26a1_9
October 10 Q26a1_10
November 11 Q26a1_11
December 12 Q26a1_12
Didn't test 13 Q26a1_13

Q26a2. In what month or months in 2010 did you test hoggets (2009-drop sheep)?

Show If Attribute "Yes" from Q26 is SELECTED

January	1	Q26a2_1
February	2	Q26a2_2
March	3	Q26a2_3
April	4	Q26a2_4
May	5	Q26a2_5
June	6	Q26a2_6
July	7	Q26a2_7
August	8	Q26a2_8
September	9	Q26a2_9
October	10	Q26a2_10
November	11	Q26a2_11
December	12	Q26a2_12
Didn't test	13	Q26a2_13

Q26a3. If you have wethers, in what month or months in 2010 did you test wethers?

Show If Attribute "Yes" from Q26 is SELECTED

January	1	Q26a3_1
February	2	Q26a3_2
March	3	Q26a3_3
April	4	Q26a3_4
May	5	Q26a3_5
June	6	Q26a3_6
July	7	Q26a3_7
August	8	Q26a3_8
September	9	Q26a3_9
October	10	Q26a3_10
November	11	Q26a3_11
December	12	Q26a3_12
Didn't test	13	Q26a3_13
DO NOT HAVE WETHERS	14	Q26a3_14

Q26a4. In what month or months in 2010 did you test mature ewes?

Show If Attribute "Yes" from Q26 is SELECTED

January	1	Q26a4_1
February	2	Q26a4_2
March	3	Q26a4_3
April	4	Q26a4_4
May	5	Q26a4_5
June	6	Q26a4_6
July	7	Q26a4_7
August	8	Q26a4_8
September	9	Q26a4_9
October	10	Q26a4_10
November	11	Q26a4_11
December	12	Q26a4_12
Didn't test	13	Q26a4_13

Q26b. Why not? Is it because...

Show If Attribute "No" from Q26 is SELECTED

	Yes	No	
no local service provider	1	2	Q26b_1
too expensive	1	2	Q26b_2

takes too long to collect the samples	1	2	Q26b_3
takes too long to get a result back	1	2	Q26b_4
don't believe results are useful	1	2	Q26b_5
worms aren't a problem in our environment	1	2	Q26b_6

***Q26b1. Other reasons (please describe)**

Show If Attribute "No" from Q26 is SELECTED

Q27. Do you treat your sheep for lice...

routinely every year?	1	
only when lice are seen?	2	Q27
Not at all	3	

Q28. In which years of the last 5 years have you treated your sheep flock for lice?

Show If Attribute "only when lice are seen?" from Q27 is SELECTED

2006	1	Q28_1
2007	2	Q28_2
2008	3	Q28_3
2009	4	Q28_4
2010	5	Q28_5

Q29a. For the latest treatment, did you use...

Show If Attribute "routinely every year?" from Q27 is SELECTED OR

Show If Attribute "only when lice are seen?" from Q27 is SELECTED

long wool treatment	1	
off shears backline	2	
off shears shower dip	3	Q29a
off shears plunge dip	4	

Q29b. What product/s did you use?

Show If Attribute "routinely every year?" from Q27 is SELECTED OR

Show If Attribute "only when lice are seen?" from Q27 is SELECTED

Clout	1	Q29b_1
Di-Jet	2	Q29b_2
Clout 'S'	3	Q29b_3
Topclip Blue	4	Q29b_4
Topclip Purple	5	Q29b_5
Cyperderm	6	Q29b_6
Spurt	7	Q29b_7
Flockmaster	8	Q29b_8
Cypercare	9	Q29b_9
Vanquish	10	Q29b_10
Jet Dip 4-in-1	11	Q29b_11
Fleececare	12	Q29b_12
Zapp	13	Q29b_13
Eureka Gold	14	Q29b_14
Diazinon	15	Q29b_15
Assassin	16	Q29b_16
Magnum Pour-On	17	Q29b_17
IGR Pour-On	18	Q29b_18
Extinosad	19	Q29b_19

Exit Pour-On	20	Q29b_20
WSD Command Pour-On	21	Q29b_21
Triffick	22	Q29b_22
Exilice	23	Q29b_23
Coopers Blowfly and Lice	24	Q29b_24
Cannon Pour-On	25	Q29b_25
Extinosad Pour-On	26	Q29b_26
Clik Plus Spray-On Blowfly+Lice	27	Q29b_27
Avenge Pour-On	28	Q29b_28
Wham	29	Q29b_29
Jetamec	30	Q29b_30
Zinjet	31	Q29b_31
Strike	32	Q29b_32
Other (specify)		Q29b_O

Q30. With regards to flystrike, do you...

treat your sheep routinely with preventive chemicals for flystrike every year	1	
treat your sheep with preventive chemicals only when the risk of flystrike is high	2	
treat the whole mob of sheep once flystrike is detected	3	Q30
only treat individually struck sheep	4	

Q9a. Did you attend any sheep industry event in 2010?

Yes	1	
No	2	Q9a

Q9b. Have you attended any of these Sheep CRC events.

Show If Attribute "Yes" from Q9a is SELECTED

	Yes	No	
CRC Conference or Regional CRC Updates	1	2	Q9b_1
Lifetime Ewe Management course	1	2	Q9b_2
High Performance Weaner course	1	2	Q9b_3
Managing Flystrike workshop	1	2	Q9b_4
Precision Sheep Management workshop such as Selection Assist, Wether Calculator, Pedigree Matchmaker and Walk Over Weighing	1	2	Q9b_5
Managing Pregnant Ewes (also called Pregnancy Scanning) workshop	1	2	Q9b_6
Bred well, fed well workshop	1	2	Q9b_7

Q17a. The National Wool Declaration is a document that accompanies wool to be sold with the wool specification documents and informs the buyers of Dark and Medullated Fibres, Chemical usage, mulesing status and pain relief at marking.

Have you heard of the National Wool Declaration?

Yes	1	
No	2	Q17a

Q17b. Have you filled in a declaration in the last 2 years?

Show If Attribute "Yes" from Q17a is SELECTED

Yes	1	
No	2	Q17b

Q17c. Have you filled in the mulesing status on the document?

Show If Attribute "Yes" from Q17b is SELECTED

Yes	1	
No	2	Q17c

Q23. Have you heard of the WormBoss website?

Yes	1	
No	2	Q23

Q23a. Did you use the WormBoss website in 2010?

Show If Attribute "Yes" from Q23 is SELECTED

Yes	1	
No	2	Q23a

Q23b. Have you subscribed to the WormBoss monthly email newsletter?

Show If Attribute "Yes" from Q23 is SELECTED

Yes	1	
No	2	Q23b

Q24. Have you heard of the LiceBoss website?

Yes	1	
No	2	Q24

Q24a. Did you use the LiceBoss website in 2010?

Show If Attribute "Yes" from Q24 is SELECTED

Yes	1	
No	2	Q24a

Q25. Have you heard of the FlyBoss website?

Yes	1	
No	2	Q25

Q25a. Did you use the FlyBoss website in 2010?

Show If Attribute "Yes" from Q25 is SELECTED

Yes	1	
No	2	Q25a

Q33. And finally, in regards to your skills and knowledge as a prime lamb producer, which of the following topics would you be interested in attending training for?

Show If [Qstate] = 6 AND ([Q2] = 2 OR [Q2] = 3)

	Yes	No	
Increasing marking percentage	1	2	Q33_1
Increasing turnoff and meeting market specifications	1	2	Q33_2
Increasing integration with cropping systems	1	2	Q33_3
Improving parasite control	1	2	Q33_4

Q32a. Thank you for your time in completing this survey. The information you have provided will be very helpful in shaping how the Sheep CRC delivers value to sheep producers in the future. Would you be interested in receiving information about particular work the Sheep CRC is doing?

Yes	1	
No	2	Q32a

Q32b. Which of the following topics would you like to receive information about?

Show If Attribute "Yes" from Q32a is SELECTED

	Yes	No	
Genetics	1	2	Q32b_1
Easy care sheep	1	2	Q32b_2
Reproduction	1	2	Q32b_3
Weaners	1	2	Q32b_4
Worms	1	2	Q32b_5
Flies	1	2	Q32b_6
Lice	1	2	Q32b_7