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Report on the National Producers and Service Providers Surveys 2014

For the evaluation of
Sheep CRC Program 1

SHEEP CRC

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June 2014

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Acknowledgements:

Introduction

1 Background to the national producer survey 2014

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 2014 for the purposes of gathering benchmark information on a range of sheep management practices. A full copy of the questions can be found in Appendix 2.

A similar survey was run in 2011 (Sheep CRC National Farmer Survey Results 2011, Jones *et al*) and a comparison of the information collected is used to show how producers have changed their practices during that time.

The information from this report was used to produce the report 'Evaluation of the Sheep CRC Program 1: Transforming sheep and their management, 2014 Jones *et al*.)

1.1 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 occurred. Figure 1.1 shows these zones and outlines the defining characteristics of each zone. This design, numbers of producers in each zone was the same as that used in 2011. 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.

Figure 1. 1 Production zones as defined and used by the Sheep CRC
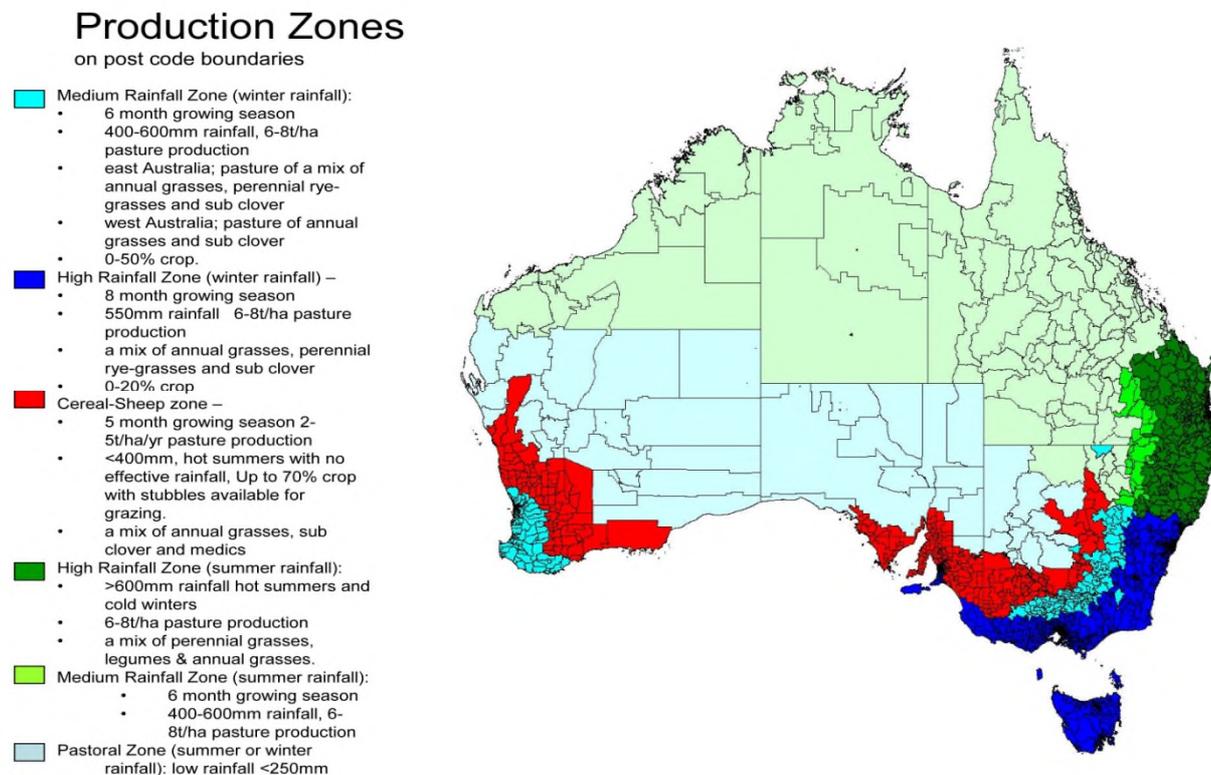
These zones are of the greatest interest given that much of the economic data and related extension material that was released by Program 1 of the Sheep CRC was relevant to the production systems of these zones. In terms of population of producers and sheep, the majority of both can also be found in these zones. For that reason the pastoral zone was excluded in the survey.

1.2 Geographic spread of respondents

There are approximately 35,000 sheep producers in Australia. Most of these are in four key states and three production zones (refer to Figure 1.2).

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, Victoria and WA. The summer High Rainfall Zone (sHRZ) and summer Medium Rainfall Zone (sMRZ) of NSW and Queensland only represents about 9% of the national flock. Respondents in the HRZ had 37% of the total sheep in the survey with 25% in the MRZ and 30% in the CSZ.

Figure 1.2 The proportion of respondents by production zones and by state.

Proportion of respondents by state
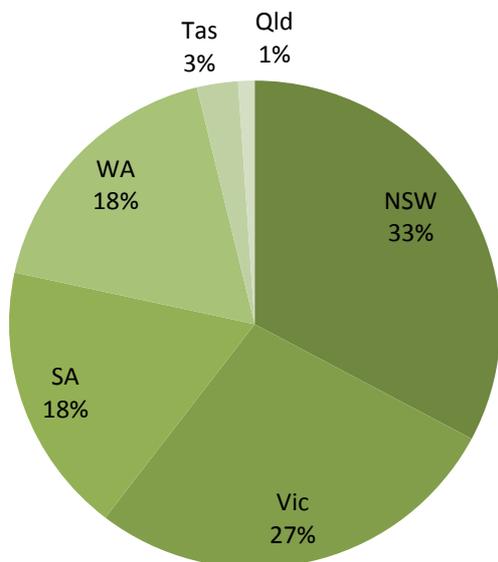
Proportion of respondents by zone
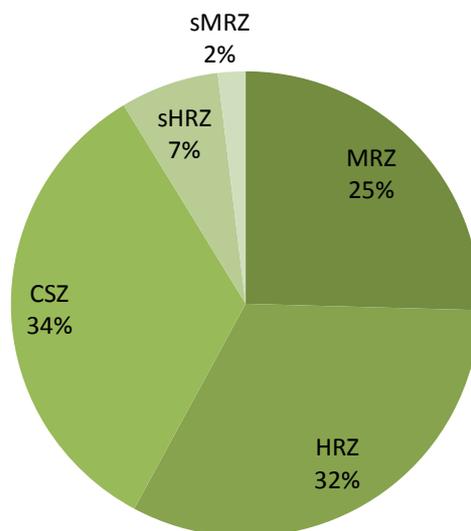
Producer # by zone	*n*
Medium Winter Rain MRZ	254
High Winter Rain HRZ	324
Cereal-Sheep CSZ	335
High Summer Rain sHRZ	68
Medium Summer Rain sMRZ	19
Nation	1000

Table 1 The number of respondents in each production zone.

2 Background to the national service provider survey 2014

An invitation to complete a 10 minute online survey was offered, via email, to service providers and industry people in February 2014. The email list was drawn from the Sheep CRC's contact list where people had nominated that they would like to receive information on the Sheep CRC's activities and that they were either an industry consultant or worked in the processing, advising, banking or teaching sectors.

The questionnaire for this survey was essentially a simpler version of the producer survey. A full copy of the questions can be found in Appendix 3.

Results from this survey have been ingerated with results from the national producer survey in this report to provide a comprehensive analysis of the sheep industry.

2.1 Demographic information on the respondents to the Service Provider survey

75 service providers started this survey with 65 completing the survey. Seven chose not to continue because they did not provide information to the sheep industry. 52 (80%) worked directly with producer groups or on a one-to-one basis.

Figure 2.1a The method of providing sheep information to the sheep industry by respondents to the service providers survey.

Way of providing information to the sheep industry

- mostly to producers
- mostly to industry professionals
- mostly indirectly through papers, articles, websites or newsletters
- not on a professional basis

57.3%
16.0%
14.7%
12.0%

n = 51
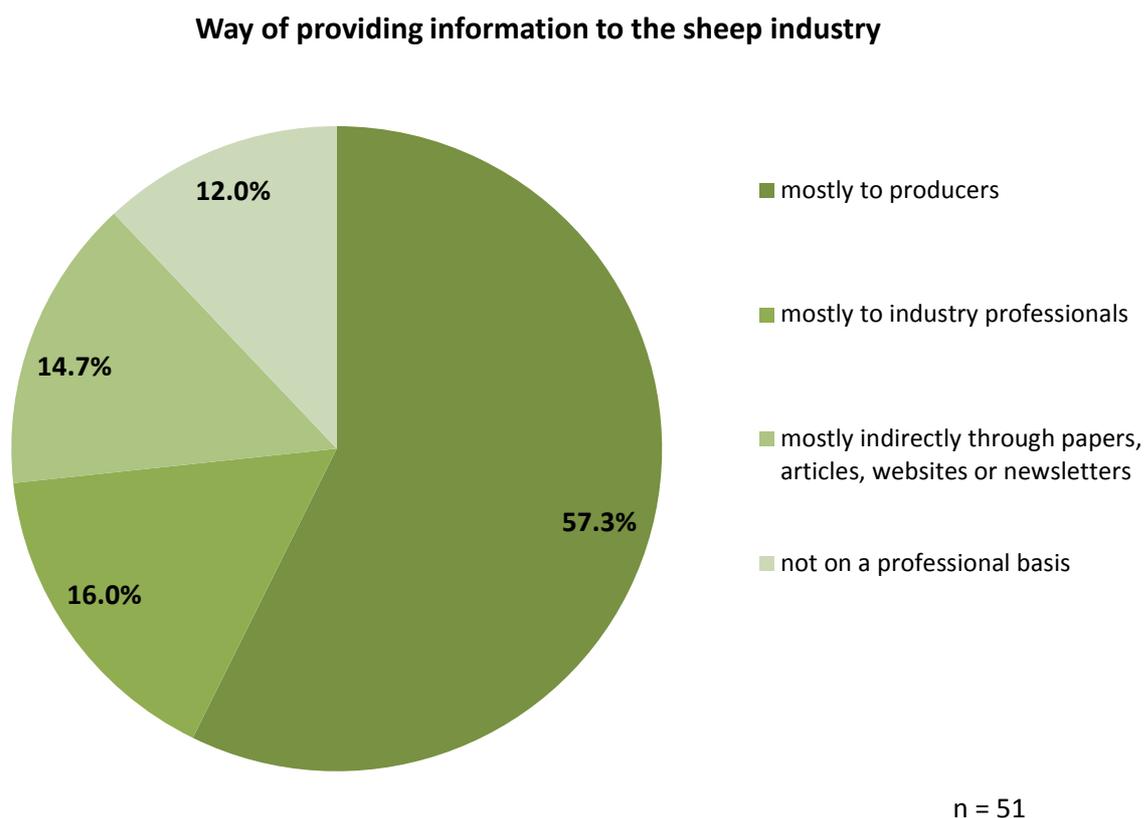
Over 30% of service providers in this survey worked with producers in New South Wales, 20% with producers in Western Australia and 20% in Victoria, 14% in South Australia and less than 5% in Queensland and Tasmania. Nearly 8% worked across all states.

Figure 2.1b The proportion of time of service providers spend advising, working with or presenting information to producers or industry professionals on sheep related issues.

Proportion of service providers time working with producers on sheep related issues
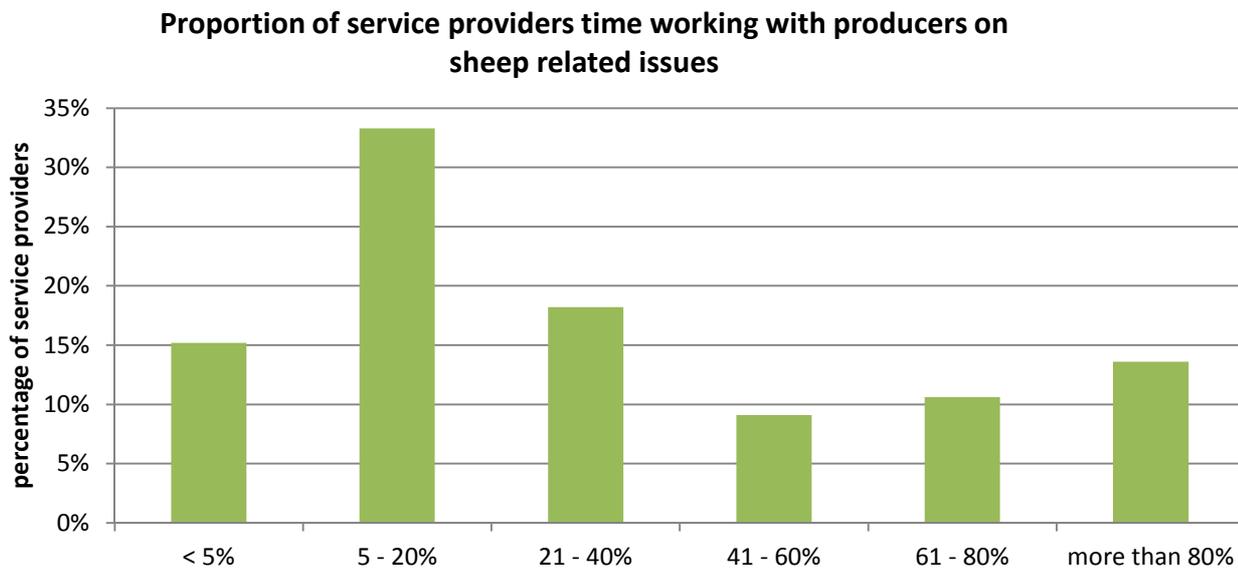
Ninety four per cent of the respondents presented to producers on a one-to-one basis with 53% of respondents stating they did it 'regularly' or 'most of the time'. Twelve per cent presented information to students or others in a teaching environment 'regularly' or 'most of time', with 45% on doing it 'some of the time' or 'occasionally'.

3 General demographics, enterprise and production results

3.1 Enterprise Type

To establish potential points of difference based on production intensity and focus, the respondents to the survey were asked what was the total number of sheep on the property at 30th June 2010, including lambs and what is the primary purpose of the sheep enterprise (wool production, prime lamb production, or wool and prime lamb production; and do they buy rams in for their own flock, breed rams for their own flock or breed rams for sale?

Forty four per cent of respondents identified their main enterprise as being both wool and lamb production, which was significantly lower than in the 2011 survey (50%). The remainder were nearly equal in their distribution between wool focussed enterprises and lamb enterprises (Figure 3.1).

Figure 3.1a Enterprise type across the whole survey population

Proportion of respondents by enterprise
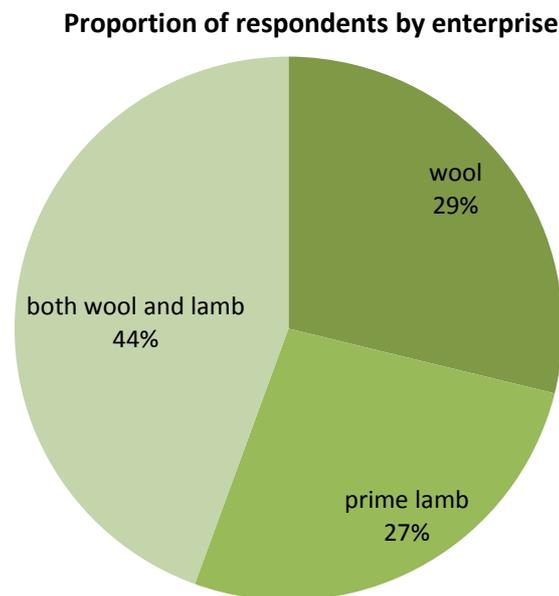
Table 3.1a below shows the breakdown of production types per zone. It shows that, on a nation-wide basis, there are fewer producers that consider themselves to be wool and prime lamb (dual enterprise) producers, with both the number of wool production and prime lamb production producer numbers increasing. Noteworthy changes in enterprise occur in the High Winter Rainfall zone where the proportion of producers with a prime lamb focus jumped significantly from 25% to 39%.

Enterprise by zone: 2014 (2011)	Wool production	Prime lamb production	Wool and prime lamb production
Medium Winter Rain MRZ	28% (22)	29% (28)	43% (50)
High Winter Rain HRZ	27% (31)	39% (25)	35% (44)
Cereal-Sheep CSZ	27% (24)	16% (19)	57% (57)
High Summer Rain sHRZ	47% (43)	15% (12)	38% (46)
Medium Summer Rain sMRZ	42% (30)	21% (25)	37% (45)
Nation	29% (27)	27% (23)	44% (50)

Table 3.1a The proportion of producers by nominated enterprise and production zone (n=1000). The figures in parenthesis are the results from the 2011 survey.

There have been some changes in the makeup of the national producer population and flock over that time, as shown in the table below (figures in parenthesis indicate 2011 survey data for comparison). There has been a decline in the average number and the median number of sheep per farm at a national level. The median has been included with the average because the average is less robust being heavily influenced by the largest producers.

The reduction is particularly noticable in the High Winter Rainfall zone where the flock average has reduced by an estimated 12%. Nationally, the average flock size has reduced by an estimated 8%. There appeared to be no strong evidence to show change in flock size in Medium Rainfall or Cereal Sheep Zone.

Production by zone: 2014 (2011)	n	Average # sheep/farm	Median # sheep/farm
MRZ	254	3566 (3965)	2700 (2500)
HRZ	324	4115 (4698)	2500 (3500)
CSZ	335	3287 (3327)	2100 (2300)
sHRZ	68	3293 (3496)	2000 (2500)
sMRZ	19	3005 (3285)	2700 (2500)
Nation	1000	3622 (3953)	2500 (2800)

Table 3.1b The average and median number of sheep per farm business by production zone (n=1000). The figures in parenthesis are the results from the 2011 survey. Both surveys excluded enterprises with <500 sheep.

Of producers with more than 500 sheep the HRZ had the highest sheep numbers in any of the enterprise types and the CSZ had the smallest flocks.

Tasmania and Queensland have a very small sample size and have been removed from the following tables.

Production by zone: 2014 (2011)	n	Average # sheep/farm	Median # sheep/farm
NSW	328	3336 (3673)	2300 (2500)
VIC	276	3573 (3735)	2450 (2800)
SA	180	3385 (3280)	2000 (2500)
WA	178	4524 (5062)	3000 (4050)
Tas	27	3693 (7118)	1800 (4500)
Qld	11	2505 (2606)	1900 (1200)
Nation	1000	3622 (3953)	2500 (2800)

Table 3.1c The average and median number of sheep per farm business by state (n=1000). The figures in parenthesis are the results from the 2011 survey. Both surveys excluded enterprises with <500 sheep.

The average number of sheep run in wool and dual enterprises is about 4000 per producer while the prime lamb enterprise run an average of about 2500 sheep. South Australian producers have the smallest wool flock size but the largest prime lamb flock size while Western Australia shows the opposite trend.

	Wool			prime lamb			wool and prime lamb		
	producers	av sheep	median #	producers	av sheep	median #	producers	av sheep	Median #
NSW	106	4202	3022	77	2362	1800	145	3206	2200
VIC	75	4621	3000	97	2688	2000	104	3642	2900
SA	38	3386	1750	54	2810	2000	87	3741	2000
WA	62	4723	3200	21	2699	1280	95	4802	3500

Table 3.1d the average number of sheep per farm business by state (n=1000). This survey excludes producers with <500 sheep.

	Proportion with flock type:		
	Merino ewe x Merino rams	Merino ewes x terminal rams	meat & maternal ewes
NSW	64%	53%	54%
Vic	54%	53%	63%
SA	67%	57%	47%
WA	81%	51%	29%

Table 3.1e The proportion of farm business with each flock type by state. Totals do not add up to 100% because many producers have more than one flock type.

	Average number of ewes			% of the ewe flock		
	Merino ewes x Merino rams	Merino ewes x terminal rams	meat & maternal ewes	Merino ewes	Merino ewes x terminal	meat & maternal ewes
NSW	1328	726	868	50%	23%	28%
Vic	1537	634	1140	44%	18%	38%
SA	1207	854	1243	43%	26%	31%
WA	1898	1006	848	67%	22%	11%
Nation	1494	780	933	50%	22%	28%

Table 3.1f The average number of ewes per farm business and the proportion of ewes by type by state. Producers with no ewes in a ewe category have been excluded in the calculation of the average number for that ewe category.

Merinos made up the largest component of the ewe flock in all states (Table 3.1e and Table 2.1f) with about twice as many Merino ewes mated to Merino rams nationally than Merinos mated to terminal rams or meat and maternal ewes. Western Australia had the greatest number of farm businesses with a Merino to Merino mating and the greatest proportion of Merino ewes mated to Merinos. It also had the lowest proportion of farm businesses with meat flocks at 29% and the lowest proportion of meat and maternal ewes than any other state. Victoria had the greatest proportion of meat and maternal ewes in its flock but not the largest flocks of meat and maternal ewes. South Australia had the largest average flock size of meat and maternal ewes.

Producers were asked whether they;
- Run a commercial flock and buy rams;
- Breed rams for own commercial flock;
- Breed rams for sale.

Figure 3.1b The proportion of producers who bought, bred and or sold rams in 2014.
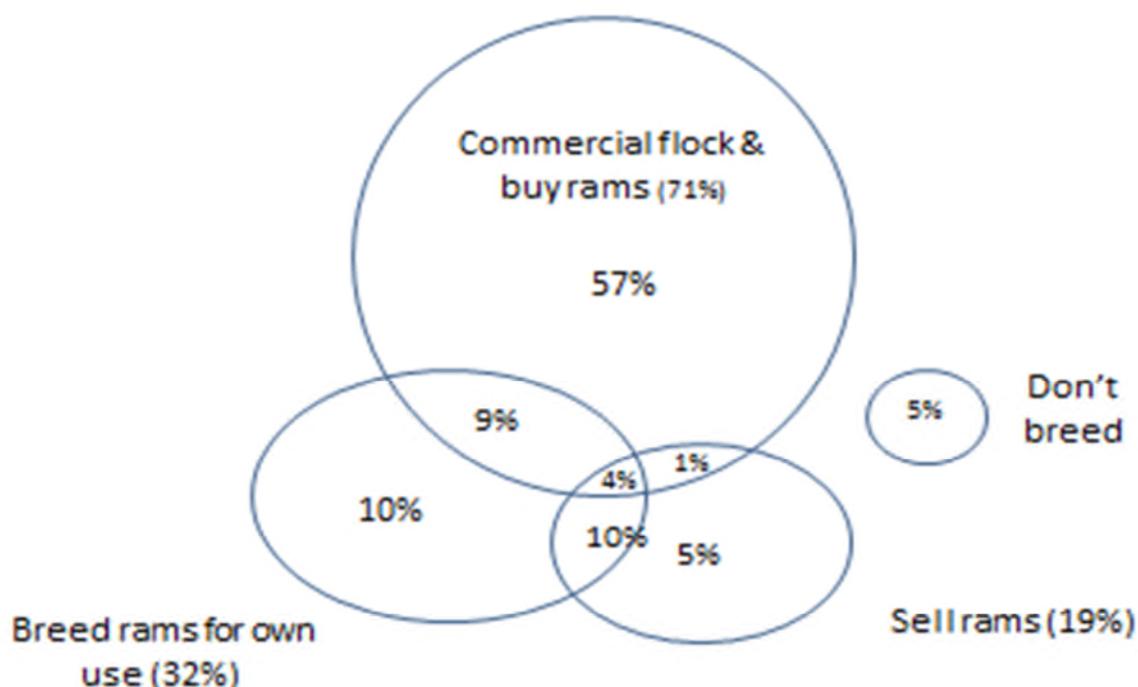
Fifty seven per cent stated that they only buy rams (not breed or sell) in 2014 whereas in 2011 69% of respondents only bought rams. More respondents breed rams for sale and/or for their own use in 2014 than 2011 with 33% breeding rams for their own use and 19% breeding rams for sale.

enterprise	Buy rams	Breed own	Breed for sale
Wool	66%	38%	19%
prime lamb	65%	31%	25%
wool & prime lamb	78%	29%	16%

Table 3.1g The proportion of producers, excluding those that don't breed or buy rams at all, by enterprise.

4 The Sheep CRC's performance

4.1 The reputation and value of the CRC

Producers were asked if they were familiar with the Sheep CRC's work in research and extension of sheep management. 52% of producers said that they were. Those producers were then asked to rate (on a scale of 1 to 5 where 1 is "Very poor" and 5 is "Excellent") how they would rate the Sheep CRCs performance as a source of independent information, credible information; the quality of their research and as a recognised leader of innovation. Service providers were asked the same (with the difference that the questions on credibility and independence were asked as two separate questions).

Producer responses	Producers average score	Service providers average
A source of credible information		4.3
A source of independent information	3.9	4.1
The quality of their research	3.8	4.4
A recognized leader of innovation	3.8	4.1

Table 4.1a A rating of the Sheep CRC's performance and value by producers and service providers.

In all cases the service providers rated the work of the CRC more highly than producers with 80% of service providers ranking the quality of the research as either 4 or 5.

Service providers were also asked to what extent has information from Sheep CRC products and events influenced their recommendations to clients.

Service providers	average
I have changed my recommendations considerably	17.5%
I have modified my recommendations somewhat	56.1%
I have not modified my recommendations, but Sheep CRC information has validated my previously held beliefs	17.5%
I have not modified my recommendations	8.8%

Table 4.1b The extent to which service providers have been influenced by the CRC's recommendations and research.

Service providers were then given the opportunity to comment on why Sheep CRC had or hadn't influenced their recommendations. Some of the comments are below.

- *Ongoing communication from CRC promoting the positive genetic gains that come from using ASBVs in wool flocks and particularly in prime lamb flocks.*
- *Often the sheep CRC has simply provided some robust resources to back up recommendations. In the case of Sheep EID, the development of PSM has certainly changed recommendations, as we physically have something we can recommend that didn't previously exist.*
- *The simple and concise LTEM principals supported by good research has made it easy to adopt.*

60% of service providers indicated that some of their clients had changed practice due to the Sheep CRC information they had provided. Service providers indicated that they had direct contact with around 10,000 producers and 950 agribusinesses (however there may be some overlap with clients).

4.2 The impact of Sheep CRC events

The question was asked of producers: Can you please state whether you have (1) not heard of, (2) heard of but not attended or (3) attended any of these events or training programs? With the follow-up question: Have you changed any of your management practices as a result of attending that event?

Table 4.2 shows the average of responses for each type of event run or initiated by the Sheep CRC. Even though there were between 39% and 70% of producers that had not heard of any particular one of the events listed, only 12% of producers had not heard of any of the Sheep CRC events. 40% of producers had attended at least one CRC event with most attending more than one event. 28% of all producers changed practice as a result of attending a CRC event, with each type of workshop facilitating practice change from at least 51% of participants.

Producer responses to the impact of Sheep CRC initiated events on	Not heard of it	Heard of but not attended	Attended (n)	Changed practice
Sheep CRC Conference or CRC Regional Updates	43%	49%	8% (78)	73%
Managing Flystrike workshop	56%	41%	4% (35)	51%
Managing Pregnant Ewes (or Pregnancy Scanning) workshop	48%	45%	8% (76)	82%
Worm control workshop	39%	49%	12% (119)	66%
Lifetime Ewe Management course	42%	43%	16% (156)	77%
High Performance Weaner course	65%	33%	2% (19)	79%
Precision Sheep Management workshop	70%	27%	2% (24)	71%
RamSelect workshop	45%	43%	12% (117)	53%
Bred Well Fed Well workshop	41%	46%	13% (129)	68%

Table 4.2a The extent to which producers had heard or participated in Sheep CRC events.

Service providers were asked a similar question with an emphasis on whether they felt it valuable enough to attend or recommend to others. The following table shows the results of the question: Have you heard of, attended and/or have you recommended to others, one of these Sheep CRC initiated events?

Figure 4.2a The extent to which service providers had heard or participated in Sheep CRC events.
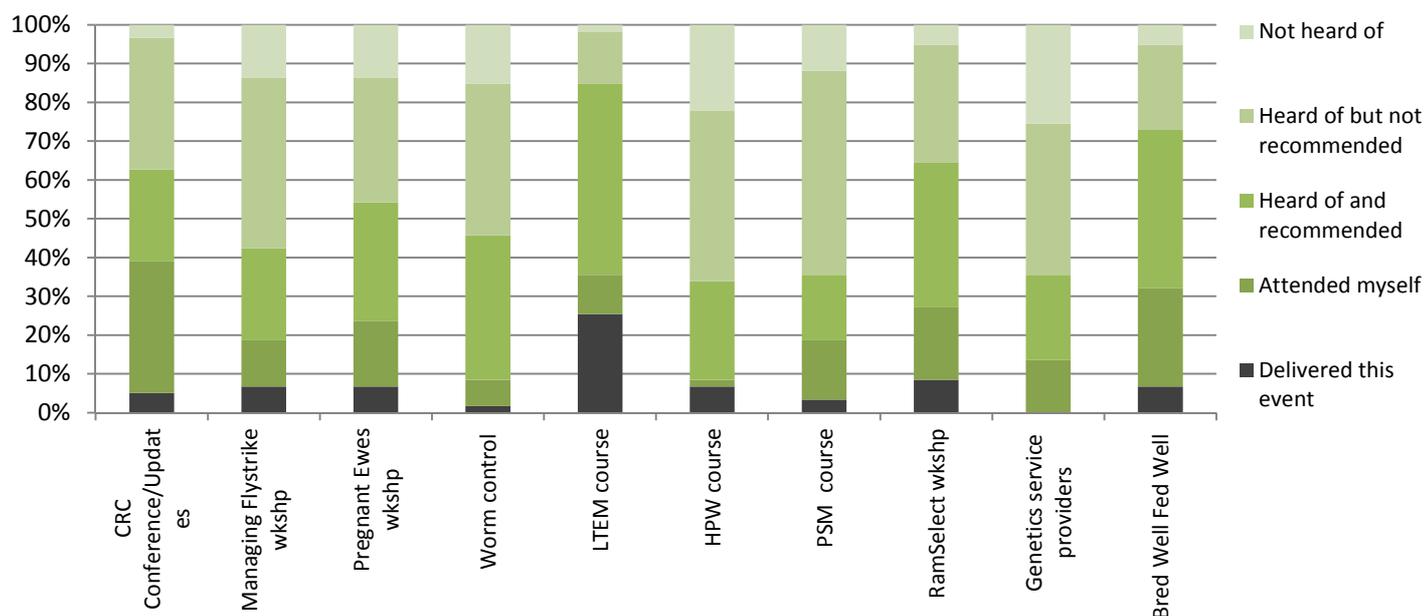
4.3 The impact of Sheep CRC products

Over the seven years of the Sheep CRC a number of websites, products and publications were developed.

Both producers and service providers were asked as to whether they had heard of and used three websites developed for managing parasites in sheep. Three sites are WormBoss, LiceBoss and FlyBoss, and if subsequently their use of each of the websites had influenced their decision making (Table 4.3a and b). Use of the WormBoss is relatively higher than the other two sites, however it has been available for more years than the other sites. More than half of users of the websites have had their decisions influenced by the information they viewed.

Producer's responses (%)	Not heard of	Heard of but not used	Used	Influenced decisions
WormBoss website	45%	44%	11%	51%
LiceBoss website	63%	32%	5%	72%
FlyBoss website	66%	31%	3%	56%

Table 4.3a The extent to which producers had heard of or used the Sheep CRC websites for parasite management.

Service providers were asked, "Which of the following statements best describes your use of the following Sheep CRC products?" with further options for responding based on whether they had recommended the websites.

Service provider's responses (%)	Have not heard of it	Heard of but not looked at	Looked at but not recommended to others	Recommended it to others sometimes	Use to assist producers or recommended it on a regular basis
WormBoss website	2%	12%	20%	29%	37%
FlyBoss website	5%	14%	25%	36%	20%
LiceBoss website	3%	19%	22%	29%	27%

Table 4.3b The extent to which service providers had heard of, used or recommended the Sheep CRC websites for parasite management.

Both producers and service providers were asked as to whether they had heard of and used any of the Sheep CRC's key publications (Table 4.4a and b). If they had used it they were also asked: On a scale of 1 to 5 where 1 is "Not at all useful" and 5 is "Very useful" how would you rate these Sheep CRC products? The results are below.

Producer's responses (%)	Have not heard of it	Heard of but not used	Used	Average of responses on value
'Sheep – the simple guide' book	71%	23%	7%	3.7
Ram buyers guide to ASBVs	57%	30%	13%	3.9

Table 4.3c The extent to which service providers had heard of, used or recommended the Sheep CRC's key publications.

Service providers were asked, "Which of the following statements best describes your use of the following Sheep CRC products?"

Service provider's responses (%)	Have not heard of it	Heard of but not looked at	Looked at but not recommended to others	Recommended it to others sometimes	Use to assist producers or recommended it on a regular basis
'Sheep – the simple guide' book	17%	19%	27%	20%	17%
Ram buyers guide to ASBVs	5%	19%	22%	31%	24%

Table 4.3d The extent to which service providers had heard of, used or recommended the Sheep CRC's key publications.

Both producers and service providers recommended or valued the Ram buyers guide to ASBVs more highly than the 'Sheep- the simple guide', however, service providers were much more likely to have heard of and used or recommended both products than producers. Fifty five per cent of service providers had either recommended it or used it to assist clients.

Unique to service providers was a question on their understanding of and the value of the new Sheep CRC and Sheep Genetics genomic and genetic tools that were developed towards the end of the Sheep CRC. These tools rated highly with service providers with the parentage test having a vale rating of 4.1 out of a possible 5.

Figure 4.3a and b The extent to which service providers had heard of, used or recommended the Sheep CRC's key publications.
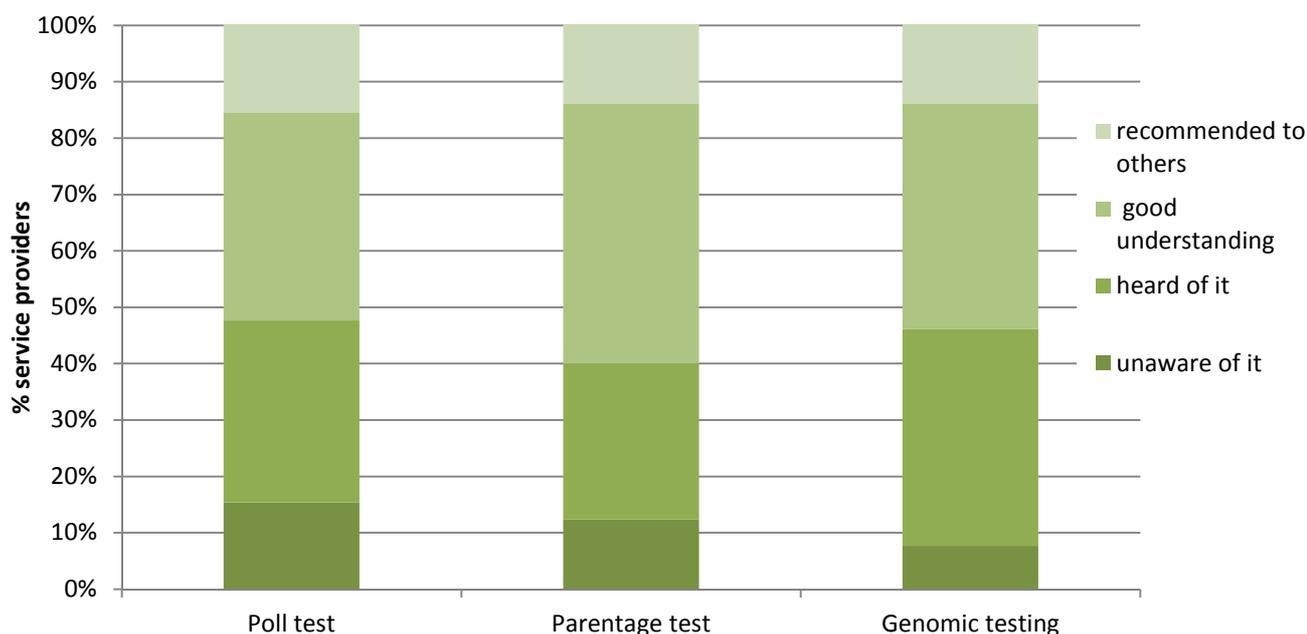
The value of the new genomic and genetic tools to industry
(scale of 1 - poor to 5 - excellent)
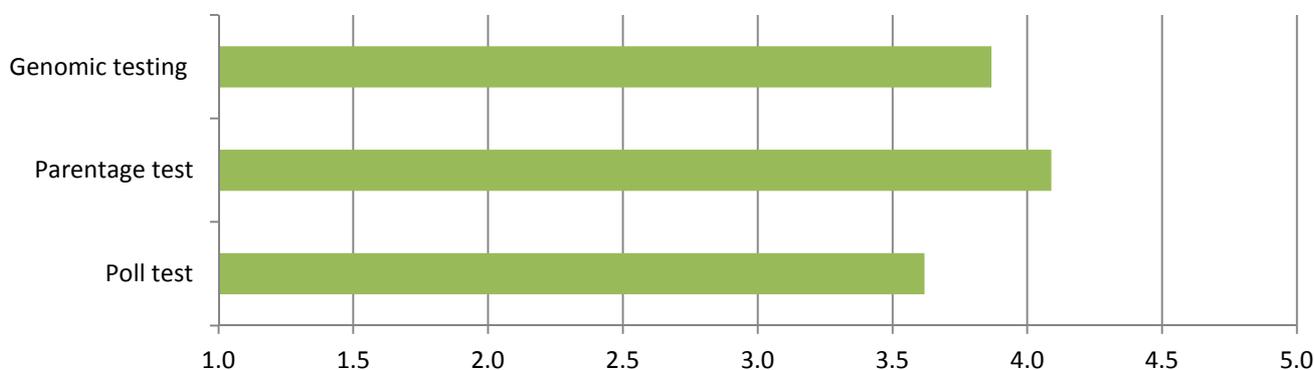
5 Matching genetics and production systems

5.1 Desired practice #1: Use genetic information to select rams to match breeding objective

In the producer surveys of 2011 and 2014, respondents were asked of how they usually selected their stud or ram source and the selection of individual rams from that ram source for the primary sheep enterprise. These questions give an indication of producers' attitude and behaviour toward breeding for a defined objective and the level of decision making on choosing the genetic source for their sheep flock. The assumption is that producers that have a well-defined breeding objective based on measurable improvement are more likely to seek out rams with data that objectively demonstrates its potential impact on the flock.

Figure 5.1a The method used to choose a ram source or stud by producers who purchased rams in 2011 and 2014

Ram buyers choice of stud or ram source in 2011 and 2014
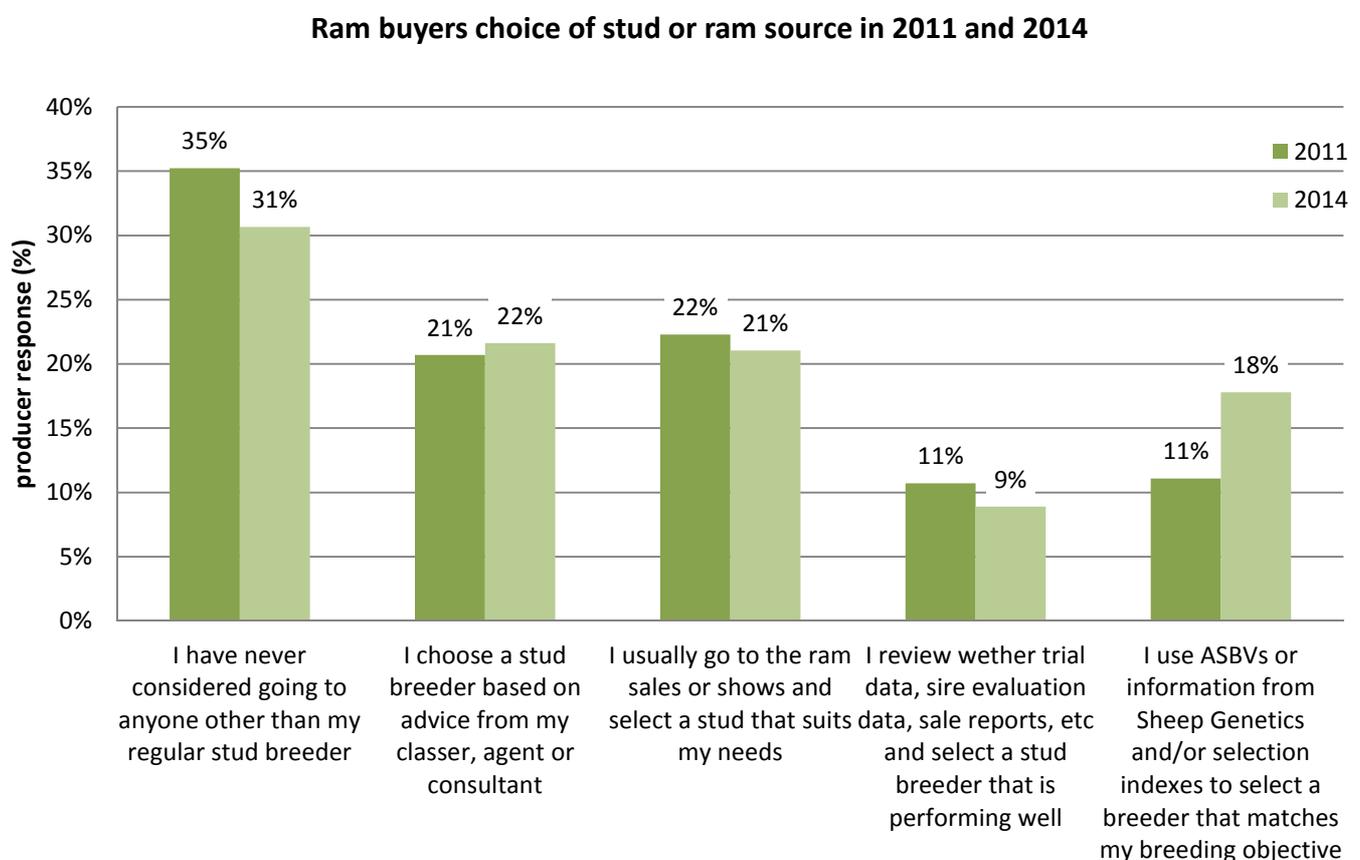
Over 30% of producers still consider only going to their regular stud although this rate had declined significantly by 4% in 2014. In 2011 only 22% selected their ram source or stud on performance, objective or genetic information, whereas in 2014 this had increased to 27%. Seven per cent more producers are using ASBVs to purchase rams than in 2011 (Figure 5.1a).

Although West Australian respondents more likely to use ASBV information from Sheep Genetics or selection indexes that match their breeding objective (22%), they were also were more likely to stay with their regular stud breeder (37%). However, of these, nearly 50% said they stayed with their regular stud breeder due to their performance data. Victorian were more likely to use a classer or agent than other states (28%) (Table 5.1a).

Ram source selection	NSW	Vic	SA	WA	Total
I have never considered going to anyone other than my regular stud breeder.	30%	27%	34%	37%	31%
I choose a stud breeder based on advice from my classer, agent or consultant.	23%	28%	19%	9%	22%
I usually go to the ram sales or shows and select a stud that suits my needs.	22%	20%	22%	22%	21%
I review wether trial data, sire evaluation data, sale reports, etc and select a stud breeder that is performing well.	9%	10%	6%	9%	9%
I use ASBVs or information from Sheep Genetics and/or selection indexes	17%	15%	19%	22%	18%

Table 5.1a The method of choosing a ram source by state (ram buyers only).

Producers that answered "I have never considered going to anyone other than my regular breeder" were asked in 2014 to explain their reasons for this with the follow up question: Which ONE of the following statements describes the main reason for never considering anyone other than your regular stud breeder? With the response options being:

a) My stud breeder is conveniently located to my property
b) I have a good relationship with my stud breeder
c) I am confident that my stud breeder sells rams that perform well
d) I determined years ago to purchase from my regular breeder based on performance data and have never had cause to change this decision

Figure 5.1b The reasons given by producers for not considering any other source but their regular ram breeder for the purchase of rams.

Reasons for ram buyers not considering other ram sources
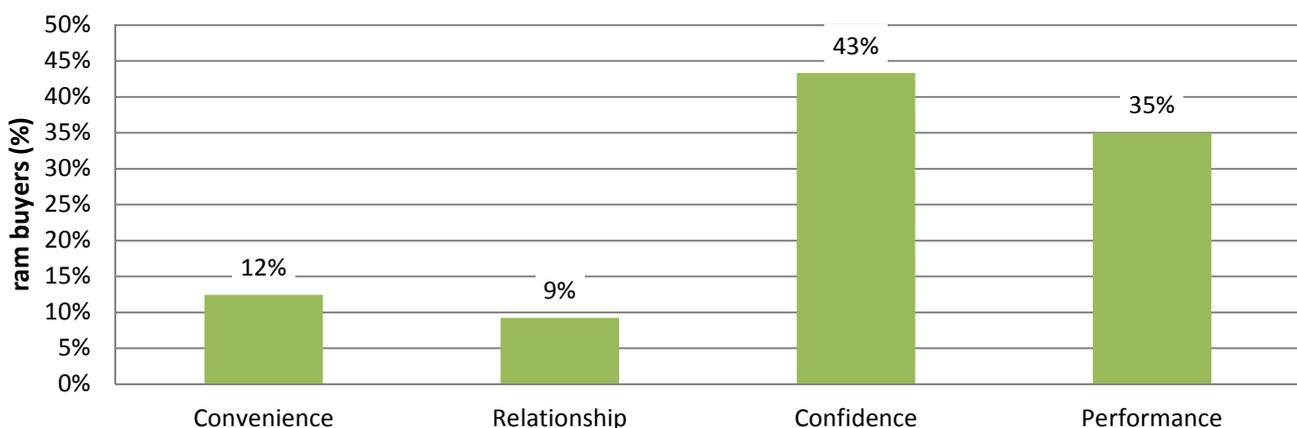
This indicates that the real figure for the proportion of producers using measurement to choose a ram source could be higher than indicated in Figure 5.1a if those respondents who nominated 'performance' and 'confidence' included that the ram source has consistently performed or matched their breeding objective or used genetic data.

The way that producers select rams has changed from 2011 to 2014 with considerably fewer producers allowing others to choose their rams for them or select only on visual appearance. The biggest shift (+10%) is in the number of producers using a combination of visual appeal, performance and ASBVs to select rams (Figure 5.1c).

The relatively low number of producers choosing rams on genetic merit alone (6%) is much lower than the number of producers selecting a stud source on genetic merit (18%), indicating that either there is still a lack of confidence in choosing individuals on ASBVs or that a combination of methods was seen as a more suitable way of selecting sires.

Figure 5.1c The method used to choose an individual ram by producers who purchased rams in 2011 and 2014

Method of ram selection by ram buyers in 2011 and 2014
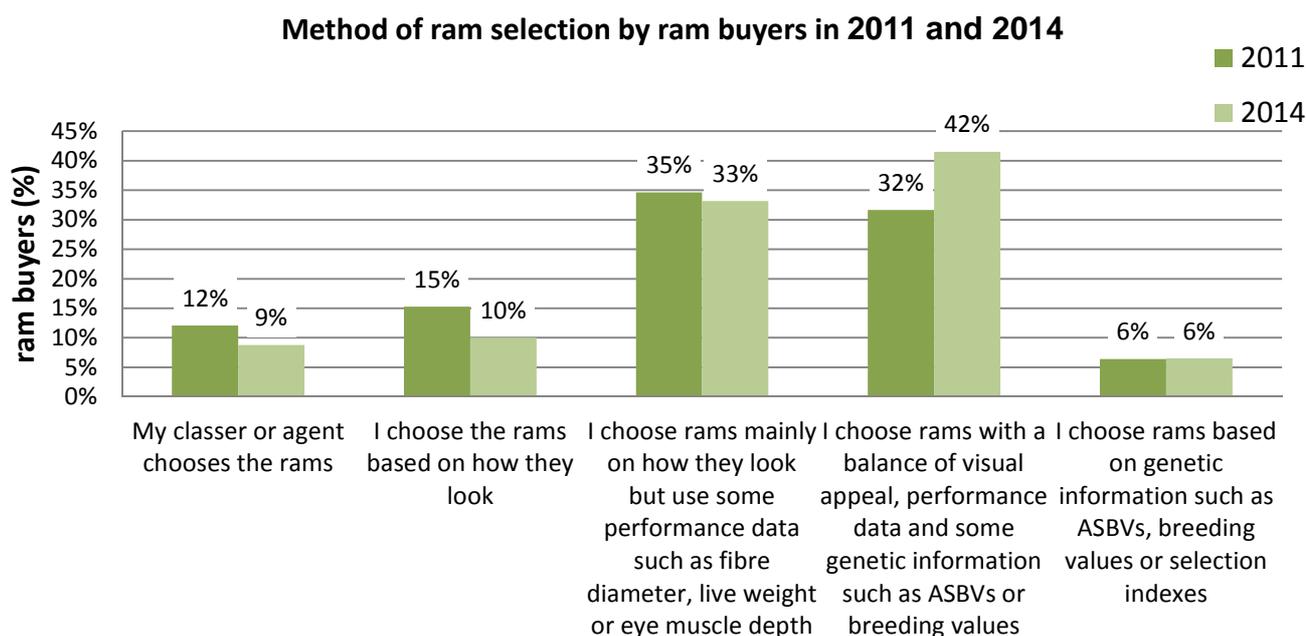
The results by enterprise show a similar trend (Table 5.1b) with the most popular method of choosing rams was using a combination of visual appeal, performance data and genetic merit in all enterprise types. There was a significant difference in the number of prime lamb producers choosing to use 'based on the way they looked' (20%). This difference was also reflected in the 2011 survey with significantly more prime lamb producers choosing to select rams using 'on how they look' (28%) compared to other enterprise types (9% and 12% for 'wool' and 'both wool and prime lamb' respectively).

Individual ram selection	wool	prime lamb	wool & prime lamb
My classer or agent chooses the rams	9%	6%	10%
I choose the rams based on how they look	6%	20%	8%
I choose rams mainly on how they look but use some performance data	35%	27%	35%
I choose rams with a balance of visual appeal, performance data and some genetic information	42%	40%	42%
I choose rams based on genetic information such as ASBVs, breeding values or selection indexes	7%	8%	5%

Table 5.1b The method of selection of individual rams by enterprise type (ram buyers only).

The use of Australian Sheep Breeding Values (ASBVs) indicates the understanding and confidence in genetic selection procedures in the sheep industry. Producers were asked which of the following statements best described their current level of knowledge of Australian Sheep Breeding Values (ASBVs). This was also asked of wool producers in the 2009 MLA survey for Program 1.1 of the Sheep CRC where 30% of Merino producers had a good or detailed knowledge of ASBVs (Figure 5.1d). This has not changed significantly for Merino producers.

Figure 5.1d The knowledge of ASBVs by producers in 2011 and 2014 producer surveys by enterprise type.

Knowledge of ASBVs by producers in 2009 and 2014
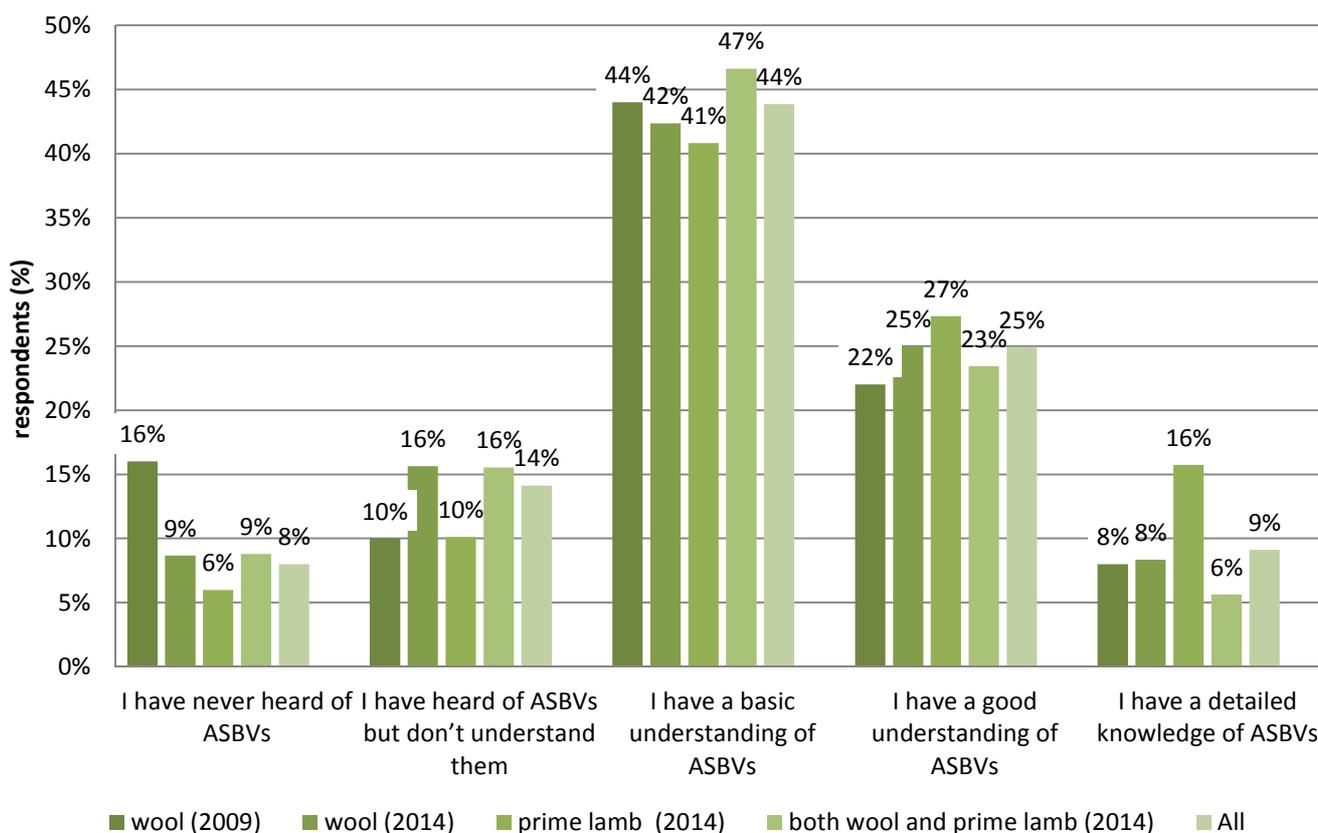
Across all enterprise types 34% of producers claim to have a good or detailed understanding of ASBVs. Over the last five years there appears to be a significant shift in understanding of ASBVs by wool producers. Seven per cent fewer producers say they have never heard of them and 6% more wool producers say they have heard of them but don't understand them. These results indicate that there is a greater awareness of ASBVs in wool producers but that this has not made a significant impact on producers' in understanding of them.

Prime lamb producers indicated that they had a much higher level of understanding of ASBVs with 16% of prime lamb producers saying they had a detailed knowledge of them.

Service providers were also asked as to their knowledge and understanding of ASBVs (Figure 5.1.e) with over 70% of service providers nominating that they had a good or detailed knowledge of ASBVs. A quarter of respondents claimed only a basic understanding of ASBVs, which was nearly half that of the level of understanding quoted by producers.

There has been a considerable increase in the number of producers identifying themselves as ram breeders. As such, the volume of rams being sold has also increased, as has the number of rams being sold with ASBVs. However, the average number of rams being sold per breeder has reduced from 115 to 98 and the proportion of rams sold with ASBVs has also declined from 60% to 54%.

Behaviour (of ram breeders)	2011	2014	Difference
Number of ram breeders	121	193	+59%
# ram breeders that sold rams (previous year)	106	187	
# rams sold (previous year)	12,228	18,409	(+51%)
Average number of rams sold per breeder	115	98	
# of rams sold with ASBVs	7382	9,649	2,500

Table 5.1c Change in ram breeder demographics from 2011 to 2014 (National Producer Surveys)

Although this survey shows a large increase in the number of ram breeders, Sheep Genetics reports that the number of registered ram breeders has only increased by 2.7% from 2012 to 2013. There are currently 808 members in Sheep Genetics (source: Sheep Genetics).

Figure 5.1e The knowledge of ASBVs by service providers in 2014.
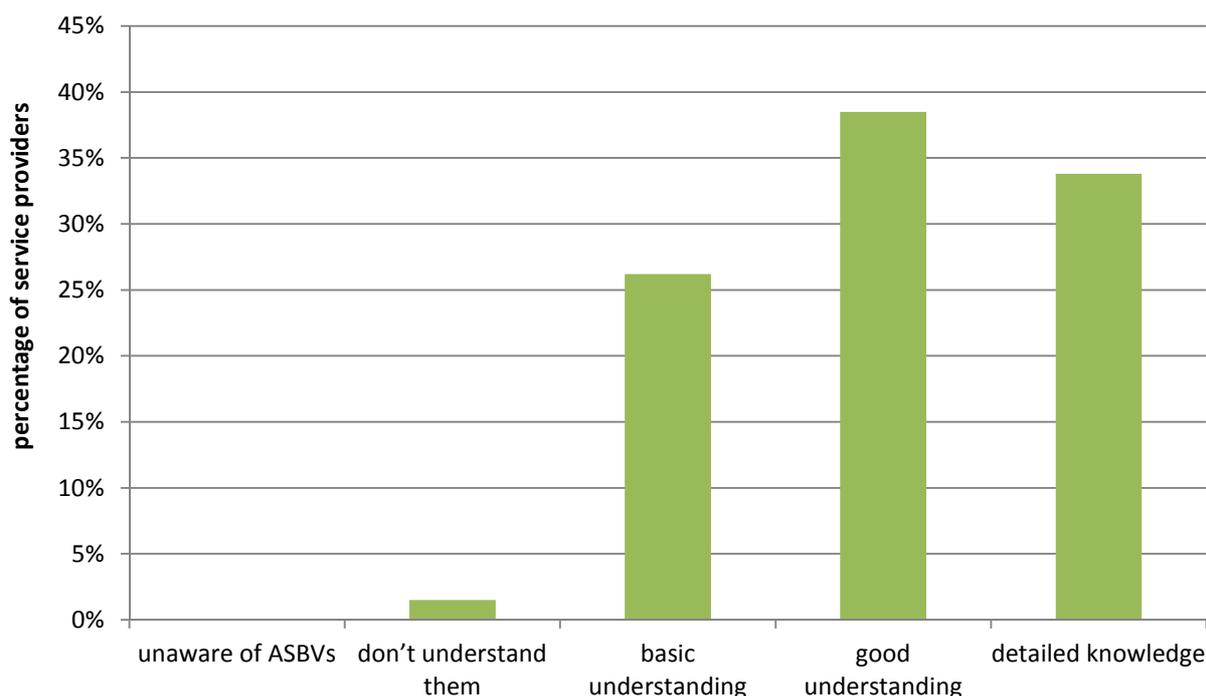
Service providers were asked to rate their willingness to advise producers to a) develop a clearly defined breeding objective; and b) purchase rams with ASBVs that progress their flock toward their breeding objective. 95% were willing or already advising clients compared to 5% only willing with more evidence on both practices.

5.2 Desired practice #2: Use genetic information to select for resistance to flystrike

In managing flystrike and selecting animals for flystrike resistance, the three main indicators are monitoring and managing Worm Egg Counts, selection against dag score and breech wrinkle score.

Producers were asked about the importance they put in their breeding and selection programs on these traits and whether they were more, less, or just as important than five years ago. This question was asked of all producers regardless of main enterprise type (figure 5.2a). Plain bodied animals or plain breeches had become more important over the last five years than selection for dags or worm resistance, although all three traits showed more producers placing a greater importance on these than those placing less importance on the traits.

Figure 5.2a The importance of indicator traits or ASBVs for flystrike resistance by producers.

How the importance of these traits has changed over the last 5 years

■ More ■ Same ■ Less

Trait	More	Same	Less
Dags or ASBV for dag score	26%	57%	17%
Plain body or ASBV for early breach wrinkle score	43%	43%	14%
Parasites resistance or ASBV for Worm Egg Count	37%	53%	10%
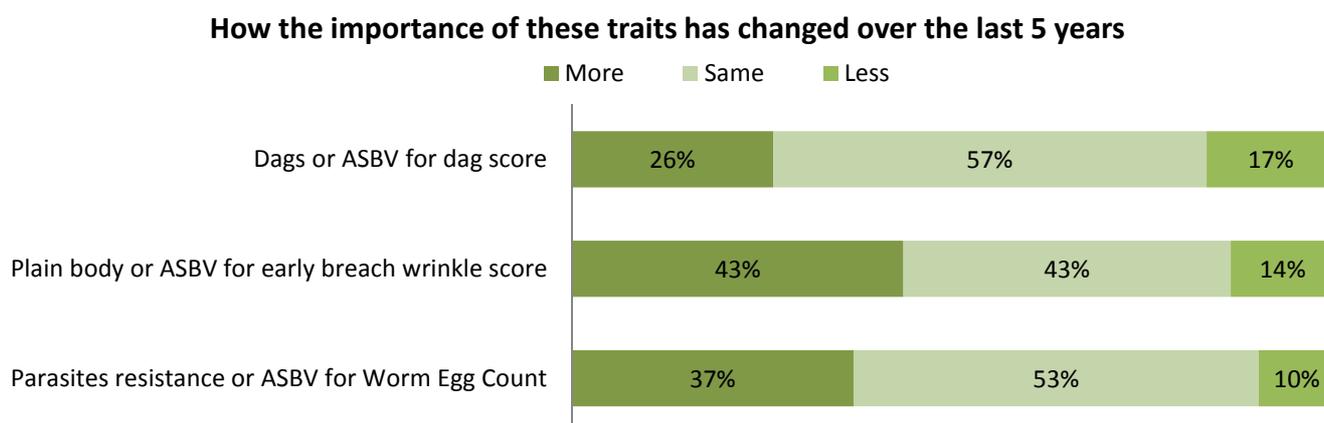
A further question was asked of producers "Do you consider the wrinkle score of merino ram when purchasing or breeding replacement rams?" with a follow up question if they said yes "Have you started [this] over the last 5 years?". 46% (n=464) of the respondents mated Merino ewes to Merino rams in 2013 and buy in rams to do so. Of that population, 80% of them consider wrinkle score when buying rams and 56% of those said they started doing so in the last 5 years.

5.3 Desired practice #3: Improve labour efficiency through management

Adoption of labour saving equipment is considered a useful practice for sheep producers and the promotion of existing equipment as well as the development of equipment and technology by the sheep CRC were important aspects of Program 1.1s outputs.

The use of automatic drafting equipment, electronic ear tags, paddock-based 'walk over weighing' system and Pedigree Matchmaker® were identified as key products with 'Walk over weighing' and 'Pedigree Matchmaker' having been developed by the Sheep CRC. Precision Sheep Management workshops were designed specifically to improve user's knowledge and skills in the technologies.

Table 5.3a shows the proportion of each enterprise type that is either considering or already using each system. This shows a significant increase in the number of producers using automatic drafting equipment. The number of producers considering or using electronic ear tags has not changed significantly. The population of producers who had attended a Precision Sheep Management workshop, however, were much more likely to be considering or using all of the listed labour saving devices.

Producer responses (%)	2011		2014			
	Heard of, considering	Already using	Not heard of	Heard of, not considering	Heard of, considering	Already using
Automatic drafting equipment (PSM participants; *n*=24)	22%	6%	5% (0%)	67% (29%)	19% (38%)	9% (33%)
Electronic ear tags (PSM participants; *n*=24)	22%	7%	3% (8%)	66% (25%)	23% (29%)	8% (38%)
Paddock based 'Walk over weighing' system (PSM participants; *n*=24)	N/A	N/A	38% (21%)	52% (58%)	8% (13%)	2% (8%)
Pedigree Matchmaker (PSM participants; *n*=24)	N/A	N/A	74% (29%)	19% (25%)	6% (17%)	2% (29%)

Table 5.3a The proportion of respondents by enterprise type that is either considering or already using labour saving devices.

This question was also asked of service providers: Please rate your willingness to advise producers to use the following sheep management practices (Figure 5.3a)

Figure 5.3a The proportion of service providers and their willingness to recommend a range of labour saving devices and systems.
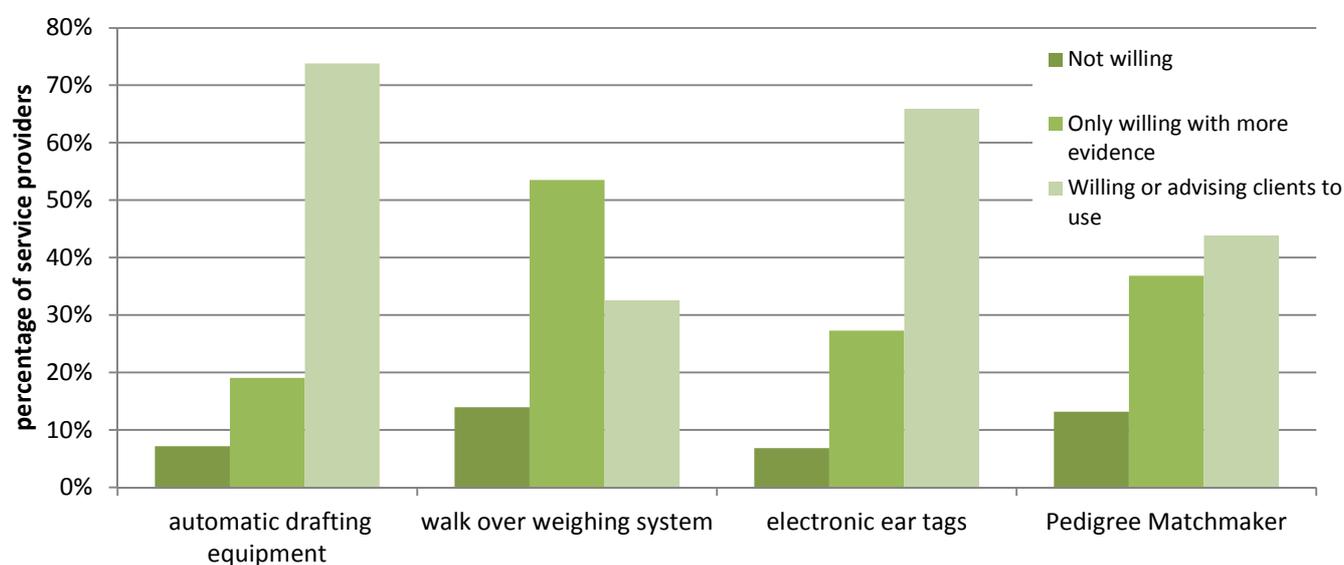
The 'Walk over Weighing' system was the more known of the two Sheep CRC developed systems, however, fifty two per cent of respondents had heard of it but were not considering using the system and service providers were less likely to recommend it without more evidence of its value.

6 Reproduction efficiency

Lamb Marking Rates

The 2011 and 2014 surveys included questions about the number of ewes mated and lambs marked for the categories of merino and meat/maternal for 2010 and 2013 respectively. The 2014 survey expanded the questions by splitting the meat/maternal category into crossbred and pure meat/maternal as well as to ask marking rate directly. A significant increase in marking rate occurred for both Merino and Meat/Crossbred.

For the 2011 survey the marking rate needed to be calculated by dividing the number of lambs by the number of ewes.   Respondents with a percentage outside the range of 50-150% were excluded. For the purposes of estimating change from 2010 to 2013, the marking rate was calculated in the same way for the 2014 survey. There was no significant difference in the amount of change between states, zones or enterprise.

Lamb marking	2010	SE	2013	SE	Change	p-value
Merino	84.5%	0.6%	88.2%	0.7%	3.7%	<0.001
Meat & Crossbred	100%	0.7%	102.3%	0.7%	2.3%	0.024
National	91.8%		95.2%		3.4%	

Table 6a Marking percentage for Merino and Meat and cross bred flocks in the 2011 and 2014 producer surveys.

Table 6b shows estimated 2013 marking rates by enterprise, zone and state. An updated calculation method was used in which the calculated marking rate (lambs/ewes) of a respondent was used when it was less than 15% different to the marking rate response given when asked directly (this occurred in 90% of cases).

	Merino			Crossbred			Meat		
	Average	SE	Sig.[1]	Average	SE	Sig.	Average	SE	Sig.
National	87.4%	0.7%		94.4%	0.8%		109.6%	1.0%	
Main States									
NSW	87%	1%	c	98%	1%	a	111%	2%	a
VIC	81%	1%	d	90%	2%	b	111%	2%	a
SA	94%	1%	a	97%	2%	a	110%	2%	a
WA	90%	1%	b	93%	2%	b	102%	3%	b
Main Zones									
CSZ	94%	1%	a	96%	1%	a	108%	2%	a
HRZ	83%	1%	c	91%	1%	b	110%	1%	a
MRZ	87%	1%	b	96%	2%	a	110%	2%	a
Enterprises									
Wool	83%	1%	b	91%	2%	b	101%	3%	b
Prime	98%	4%	a	101%	3%	a	115%	1%	a
Both	90%	1%	a	94%	1%	b	106%	2%	b

Table 6b Marking percentage for Merino and Meat and cross bred flocks by state, zone and enterprise ([1] States, zones or enterprises that share a common letter are not significantly different).

Although there were significant differences between states and zones for Merinos and crossbred marking, there was no significant difference in marking rates between zones for meat (prime lamb) flocks.

Marking Practices

marking practice	non mulesed	mulesed	mulesed with pain relief	mulesed with no pain relief	Mulesed with pain relief (of those mulesed)
NSW	31%	69%	46%	23%	67%
VIC	9%	91%	65%	26%	71%
SA	7%	93%	44%	49%	48%
WA	12%	88%	51%	37%	58%
total	17%	83%	51%	32%	61%

Table 6c The proportion of Merino lambs marked who were mulesed, mulesed with pain relief or not mulesed by state.

Respondents with Merino lambs were asked about their lamb marking practices including mulesing and the use of a topical pain relief treatment (eg. Trisolfen). New South Wales had significantly higher rates of lambs not being mulesed (31%) and Victoria the lowest rates (9%). Of those mulesed, the proportion of Merino lambs treated with a pain relief at marking was 61% nationally, although these figures were heavily influenced by the number of lambs still being mulesed in Victoria. In 2011 the proportion of lambs mulesed with pain relief (of those mulesed) was 64%.

marking practice	mulesed with pain relief	mulesed without pain relief	not mulesed
Cull based on breech or body wrinkle scores	54%	28%	19%
don't cull on breech or body wrinkle scores	45%	38%	16%

Table 6d The proportion of Merino lambs marked who were mulesed, mulesed with pain relief or not mulesed by whether the producer also culled sheep based on breech or body wrinkle scores.

Producers who undertook selection in their flock on breech or body wrinkle score (an indicator trait for flystrike) were more likely to use pain relief if mulesing. They were slightly more likely to have adopted non-mulesing as well.

6.1 Desired practice #1: Scan ewes for litter size and manage to nutritional requirements

Producers were asked a range of questions on how they manage their pregnant ewes. Pregnancy scanning and managing the ewes of different pregnancy status differentially is an important practice advocated by the Sheep CRC. Producers were asked to choose the statement which best described how they use Pregnancy scanning to manage the nutrition of ewe flocks. In 2011, 44% of respondents scanned on a regular basis (26% for status and 18% for litter size) and a further 9% scanned only in bad years. The 2014 data shows that, while a similar proportion scan for status (25%), there has been a significant increase in the proportion of producers that scan for litter size (25%). The number of people who don't scan for pregnancy has reduced significantly (Table 6.1a).

Producer responses	2011	2014	Change
don't scan for pregnancy	47%	43%	-4%
only scan in bad years	9%	7%	-2%
scan for pregnancy status	26%	25%	-1%
scan for litter size	18%	25%	7%

Table 6.1a The pregnancy scanning practice of respondents in 2011 and 2014.

The results also indicate that producers with larger ewe flocks are being influenced to change their behaviour. This is evidenced by the observation that the proportion of ewes being scanned for status and litter size (28% and 32%) is greater than the proportion of producers scanning for status and litter size (25% and 25%). This is an effect of larger producers scanning more.

*Figure 6.1a The proportion of ewes scanned for pregnancy or litter size.*
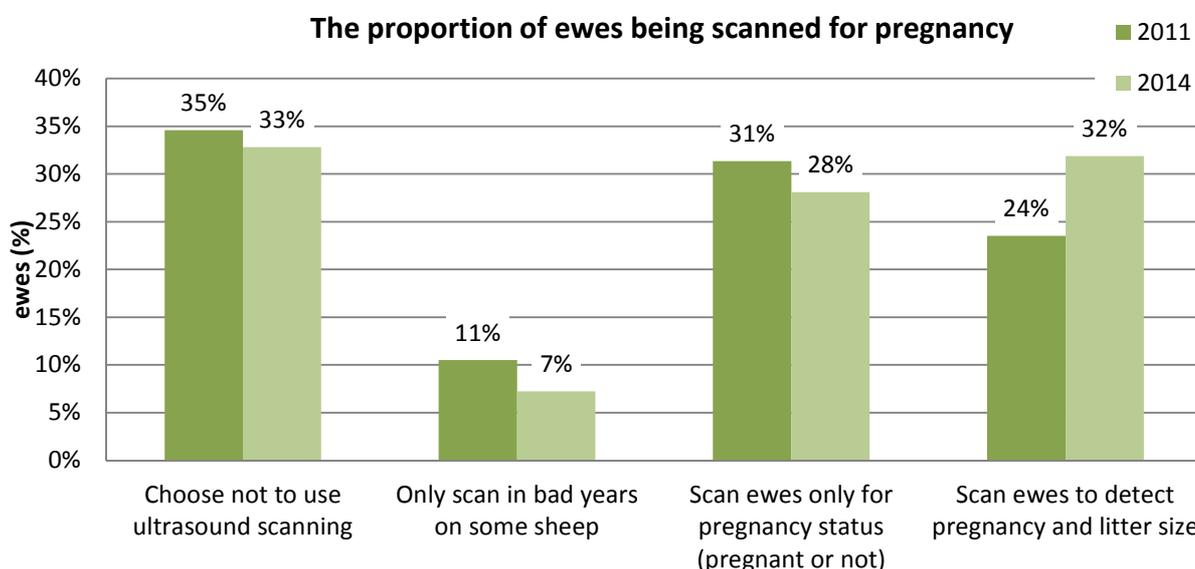
Service providers were asked of their willingness to advise producers to use the following sheep management practices (Table 6.1b). There was an overwhelming response to scanning and separating flocks on their pregnancy status by scanning for litter size showing industry wide acceptance of the practice amongst sheep industry professionals.

Service provider responses	Not at all willing	Only willing with more evidence	Willing or already advising clients to use
determine pregnancy status	6%	0%	94%
determine litter size	4%	4%	91%
Separate & manage dry, single and twin bearing ewes	0%	2%	98%

*Table 6.1b The willingness of service providers to recommend pregnancy scanning practice.*

WA and SA had the lowest participation in scanning for litter size by both the number of producers and the number of ewes represented (Table 6.1c). Victoria had the highest in both producers and ewe numbers, although the number of ewes represented was not significantly different to NSW. There is very little difference in scanning for litter size by enterprise type.

State	producers	ewe flock		Enterprise	producers	ewe flock
NSW	27%	37%		wool	25%	33%
Vic	30%	38%		prime lamb	25%	35%
SA	20%	23%		both wool & prime lamb	24%	30%
WA	18%	24%				

Table 6.1c The proportion of producers who scan for and the proportion of the ewe flock that is scanned for litter size by state and enterprise.

The producers that scanned for pregnancy were asked to choose between statements that best describes what they do with the information (Figure 6.1b). The results show that there has been a significant decrease in the number of producers that don't change their ewe management, with the greatest impact being that significantly more producers split their ewe flock into dry, single and twin bearing ewes.

Figure 6.1b The management of ewes scanned for pregnancy by ewe number.

The management practices of producers in managing ewes scanned for pregnancy
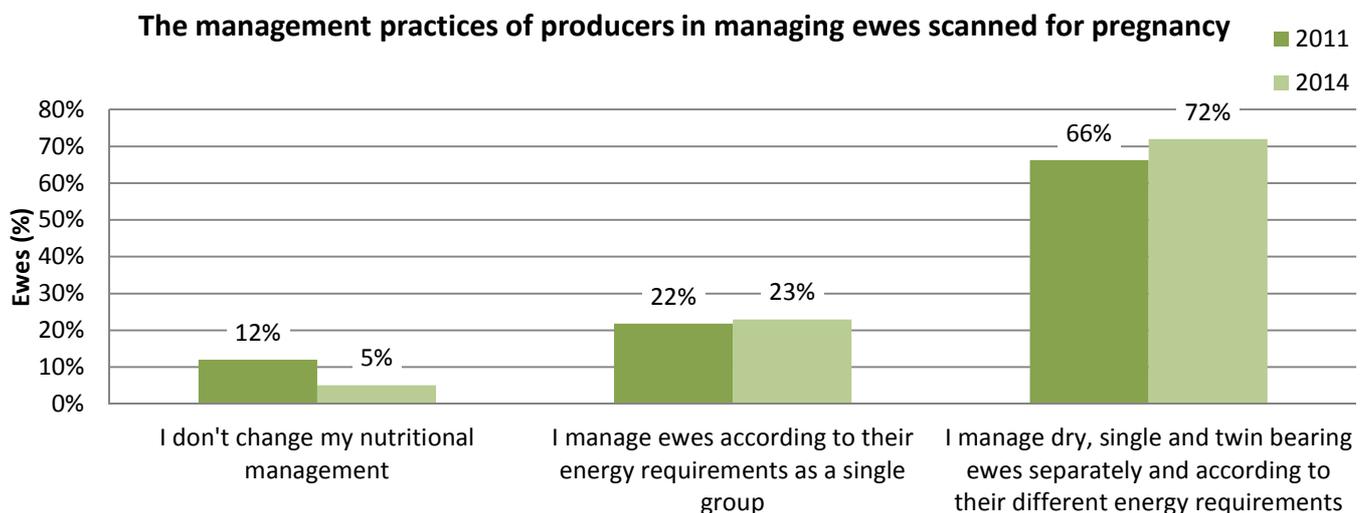
Participants of Bred Well Fed Well (BWFW), Managing Pregnant Ewes workshop and/or Lifetime Ewe Management (LTEM) show a higher level of adoption of this practice. 76% of respondents that had been to either one or both of these courses reported that they had changed their scanning practice. 55% scanned for litter size which is significantly higher than the national average. Only 2% of these participants that scan for pregnancy don't change their nutritional management. 18% of the participants manage the ewe nutritional requirements as a whole flock and 80% of them separate into groups of dry, single and twin bearing ewes.

6.2 Desired practice #2: Improved lamb and weaner survival

Ensuring that pregnant ewes are receiving good nutrition throughout pregnancy is one of the most significant ways to increase lamb survival. Monitoring ewes' condition is the best way to make sure they are receiving the nutrition they need. In the two producer surveys, producers were asked how they monitor ewe condition. In 2011 and 2014 producers were asked to choose the statement that best describes how they monitor ewe condition including condition scoring, fat scoring or weighing.

The change in behaviour over the three years is shown below. The number of producers only doing visual assessment has significantly reduced by 9%, with 7% more producers weighing, condition scoring or fat scoring their sheep occasionally (when in the yards) and a small increase (3%, nearly significant) in those who regularly monitor and manage to targets.

Figure 6.2a The method of monitoring ewe condition by producers in 2011 and 2014

Method of monitoring ewe condition by producers
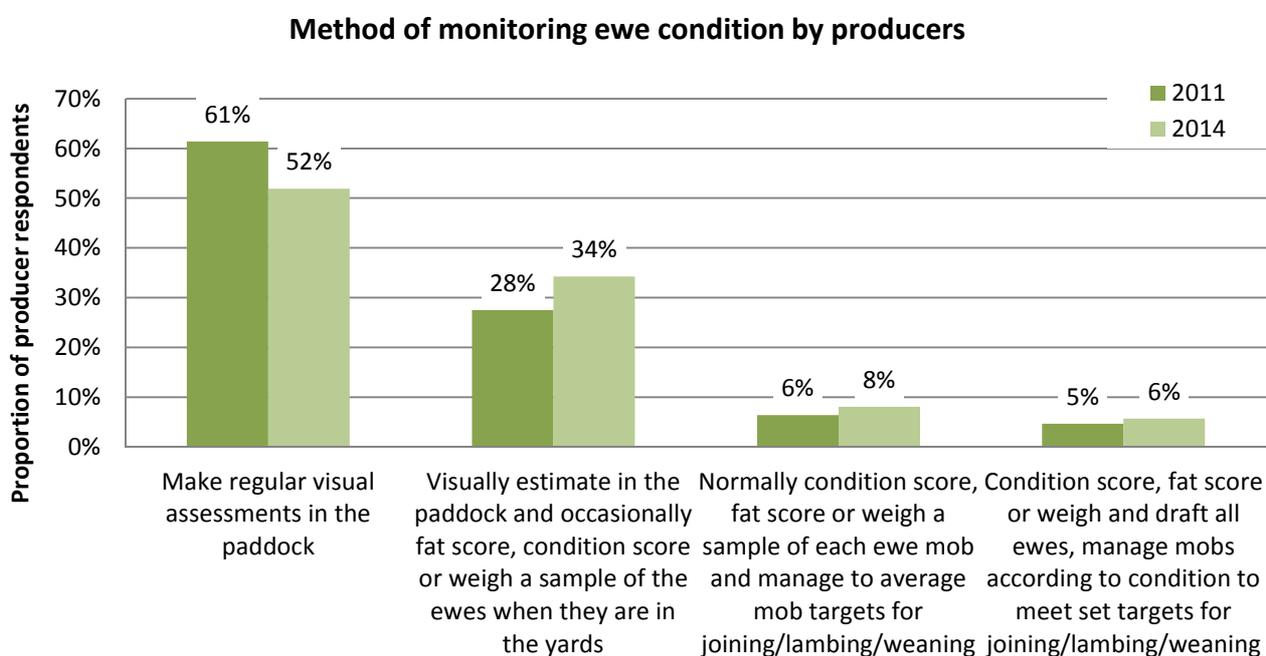
The number of lambs surviving birth is affected by a range of other factors. In 2014 producers were asked if they had undertaken any specific steps to improve lambing percent over the last five years. Seventy six per cent of producers said they had. These producers were asked to select from a range of activities recommended to improve lambing percentage. The proportion of those producers undertaking the 'activities' offered in the question is shown in the following table. 'Ewes energy demands being met' was the most popular approach with 'extra protection from predators' also rating highly.

Activity	% of all producers (n=1000)
Separated single and twin bearing ewes	30%
Provided extra shelter for twin lambing ewes	34%
Protected lambing ewes from predators	67%
Ram selection to improve reproduction	52%
Ensured that the ewes higher energy demands are met before and during lambing	72%
Wet/dry at weaning and cull non performing ewes	54%

Table 6.2a The management interventions undertaken by producers to influence lamb survival.

Production zone	Reported mortality %	
	2010	2013
MRZ	3.7	3.5
HRZ	4.5	3.3
CSZ	3.4	2.8
All zones	4.0	3.3

Table 6.2b The average reported mortality of weaner sheep in two years by production zone.

	Reported mortality %	
Enterprise	2010	2013
Wool	4.9	3.9
Prime lamb	2.9	2.8
Both wool and prime lamb	4.0	3.2
All types	4.0	3.3

Table 6.2c The average reported mortality of weaner sheep in two years by enterprise.

The CSZ had significantly lower mortality in weaner sheep than the MRZ and prime lamb enterprises had significantly lower mortality than the wool enterprises in 2013.

In both the 2011 and the 2014 survey, producers were asked "Within the last lamb drop, what was the mortality percentage of your weaners between the age of weaning and 6 months of age?" A Wool Desk report (K Curtis, DAFWA 2008) prepared for MLA also asked the same question. The results of the three surveys are provided in the following table with the results from Queensland and Tasmania removed due to the small sample size.

% of producers with > 6% mortality	2008	2010	2013
NSW	17%	26%	15%
VIC	19%	26%	14%
SA	10%	18%	9%
WA	28%	6%	13%
National average	19%	20%	13%
n=	1380	912	890

Table 6.2d the proportion of producers with weaner mortality of greater than 6% by state. (Source: 2008 Wool Desk report (K Curtis), 2011 Sheep CRC producer survey, 2014 Sheep CRC producer survey)

Nationally, the data shows a large decrease in flocks with high mortality from 2010 to 2013 but it is expected that the variation between years and states is largely influenced by weather and pasture availability, therefore we are unable to identify how much of an impact the activities of the Sheep CRC had on weaner mortality.

Service providers were asked of their willingness to advise producers to use sheep management practices to improve reproduction (Figure 6.2a), and showed a strong consensus on recommendations from the Sheep CRC.

Figure 6.2a Willingness to advise producers to use the following reproduction management practices
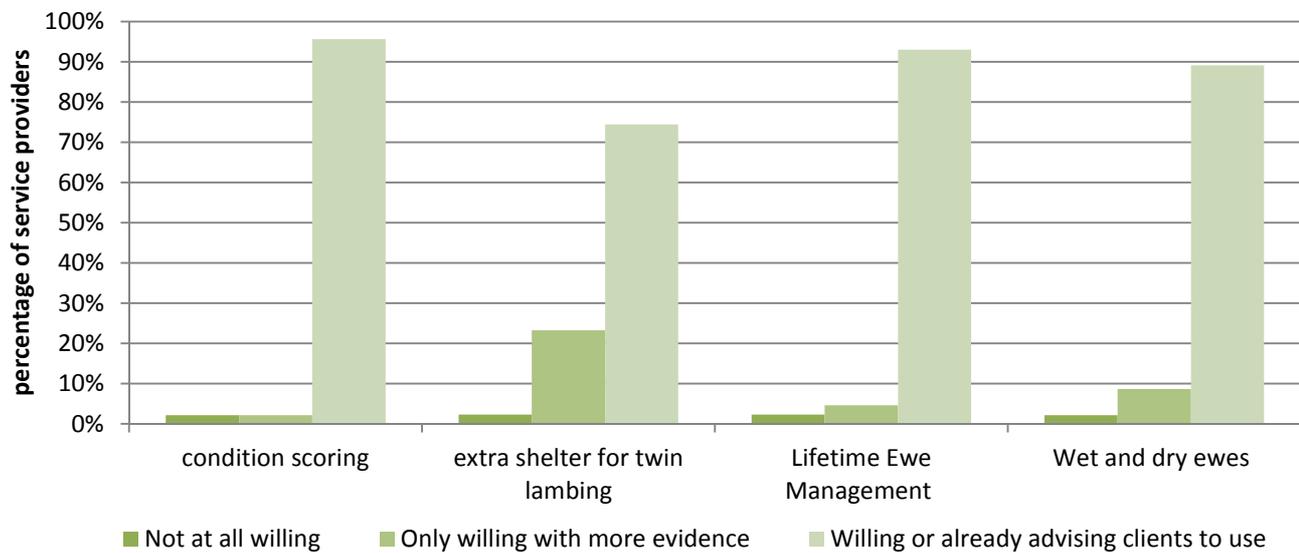
6.3 Desired practice #3: Incorporate improved reproduction traits into ram and ewe selection process

Producers were asked selecting replacement rams, did they consider "Lamb weaning percentage or ASBV for number lambs weaned" trait to be more, less, or just as important than five years ago. The graph below shows the proportion of producers in each enterprise category that believe this trait to be more important.

Figure 6.3a The importance of the lamb weaning trait by enterprise type.

The importance of the lamb weaning trait

Legend: More important, about the same, less important

y-axis: proportion of producers (0% to 60%)
x-axis: Wool producers, Prime lamb producers, Dual enterprise producers
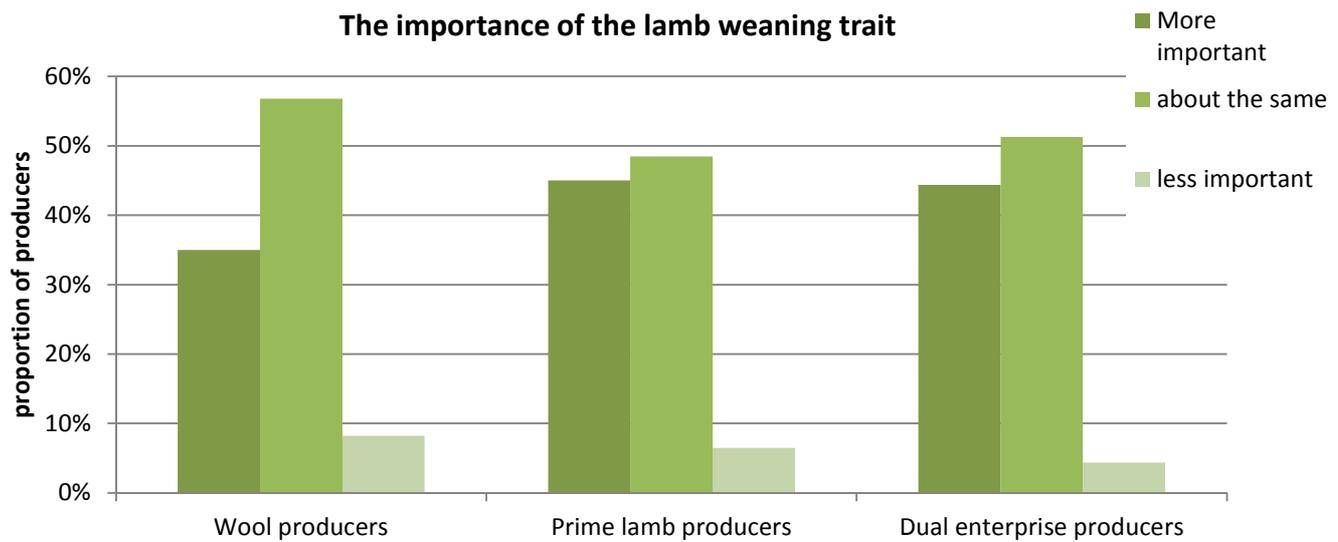
Service providers were also asked to "rate your willingness to advise producers to use the following sheep management practices - focus ram selection on improving reproduction." Seventy seven per cent of service providers are very willing or already advising clients to do this.

7 Improved parasite management

7.1 Desired practice #1: Increase concern for and improve systems to reduce the risk of drench resistance and enhance worm control

There is the potential for producers to make changes to sheep nematode and blowfly control that will result in improved overall productivity of Australian sheep enterprises. Productivity gains can be achieved by reducing sheep losses and/or improving sheep wool and meat production. Targeted activities were;
- avoiding unnecessary treatments (including by utilising WEC monitoring)
- using effective products for necessary treatments
- timing treatments to slow the further development of anthelmintic resistance
- utilising appropriate genetic selection to support worm control
- support of worm control programs by non-chemical control methods.

Conducting faecal worm egg counts (FWEC) is considered industry best practice and an indicator of producers actively monitoring worm burdens. Nationally, the number of producers conducting faecal worm egg counts increased from 39% in 2010 to 42% in 2013 although the change was not statistically significant. Producers with a prime lamb enterprise were least likely to conduct FWECs (also just not significant). There were very large differences between zones as might be expected. More than half of the respondents in the summer rainfall zones and the HRZ undertook FWECs but only a quarter of those in the CSZ carried out FWECs in the last 12 months.

Enterprise type	FWEC in 2013
wool	45%
prime lamb	37%
both wool and prime lamb	42%
national	42%

Production zone	FWEC in 2013
MRZ	40%
HRZ	58%
CSZ	24%
sHRZ	51%
sMRZ	58%

Table 7.1a and 7.1 b The proportion of producers carrying out a faecal worm egg count (FWEC) in the last 12 months by enterprise type and production zone.

Producers were asked what drench products they had purchased in the last year in order to determine the usage of effective drenches. Drenches were rated as either;

1. Fully (100%) effective, no resistance by worms known in Australia;
2. Highly effective (>95%) in all cases, fully effective in great majority;
3. Highly effective on most farms, but resistance to some degree present;
4. Highly effective on many farms, but resistance to some degree present;
5. Highly effective on some farms, but variable and can't predict effectiveness; or
6. Effective on few farms as resistance affects almost all.

For a full description of the drenches listed, their rating for effectiveness and the numbers of producers using each type see Appendix 4.

Six per cent of producers in the winter rainfall zones (where scour worms are the key parasites) purchased at least one drench that was fully effective and 25% bought at least one drench that was in the second highest rating. In the summer rainfall zones where Barbers pole worm is important and the audience had been more heavily targeted with information and recommendations, 13% and 60% respectively chose drenched in the top two categories for effectiveness.

	% producers who purchased a product of drench effectiveness rating:					
Rating:	1	2	3	4	5	6
WINTER						
Did FWEC	11%	37%	33%	30%	31%	9%
Didn't do FWEC	3%	17%	36%	22%	28%	14%
All Winter rainfall	6%	25%	35%	25%	29%	12%
Ratio	3.6	2.2	0.9	1.3	1.1	0.6
SUMMER						
Did FWEC	15%	67%	43%	70%	22%	30%
Didn't do FWEC	10%	51%	51%	54%	22%	27%
All Summer Rainfall	13%	60%	47%	62%	22%	29%
Ratio	1.6	1.3	0.8	1.3	1.0	1.1

Table 7.1c Drench purchases by rainfall zone with a comparison between producers who did or didn't conduct a FWEC.

Although producers in winter rainfall zones who had either attended a worm control workshop or used WormBoss (n=177) were more likely to use the highly effective drenches, they were also still purchasing similar amounts of the least effective drenches on the market. A similar trend was evident in the summer rainfall zone.

	Drench effectiveness rating					
Winter Rainfall producers	1	2	3	4	5	6
All winter rainfall zone producers	6%	25%	35%	25%	29%	12%
Used Wormboss and/or attended Worm Workshop	10%	31%	37%	31%	27%	15%

Table 7.1d The proportion of producers from the winter rainfall zones attending a worm workshop or using WormBoss and who purchased drenches in each of the categories of drench effectiveness.

Producers in the CSZ, where worms are generally less of a problem but also often go un-treated when present, fewer drenches were purchased and few drenches were purchased in the more effective drench categories, particularly classes 1 and 2 (Table 7.1e). Producers in the HRZ purchased more drenches which tended to be in a higher class of drench effectiveness.

Winter Rainfall producers	Drench effectiveness rating					
	1	2	3	4	5	6
MRZ	6%	31%	31%	31%	26%	10%
HRZ	9%	33%	41%	28%	31%	15%
CSZ	4%	13%	31%	18%	29%	11%

Table 7.1e The proportion of producers from the winter rainfall zones who purchased drenches in each of the categories of drench effectiveness.

Producers were asked whether drench resistance was more, less or just as important in their decision making compared to five years ago. 36% of producers said that it is more important while 58% said it was just as important. Producers in the HRZ were significantly more likely to think that it was more important compared to the CSZ.

Figure 7.1a The proportion of producers who have or haven't changed their perception of the importance of drench resistance over the last five years by production zone.

How the importance of drench resistance to producers has changed over 5 years

Zone	Yes - more important than 5 years ago	Just as important	No - less important than 5 years ago
CSZ	30%	61%	9%
HRZ	39%	55%	6%
MRZ	33%	61%	6%

■ Yes - more important than 5 years ago
■ Just as important
■ No - less important than 5 years ago
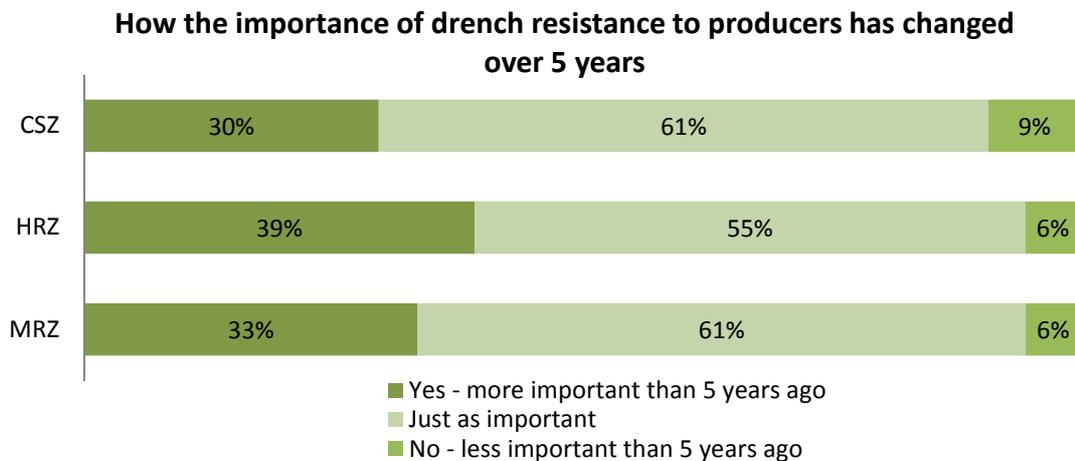
Service providers were asked to rate their willingness to advise clients to use particular sheep management practices. Figure 7.1b is a summary of the responses provided by service providers to a range of practices to manage sheep worms and shows that there is strong consensus amongst service providers on industry best practice.

Willingness to advise your clients to use the following worm management practices

■ Not at all willing
■ willing with more evidence
■ Willing or already advising clients
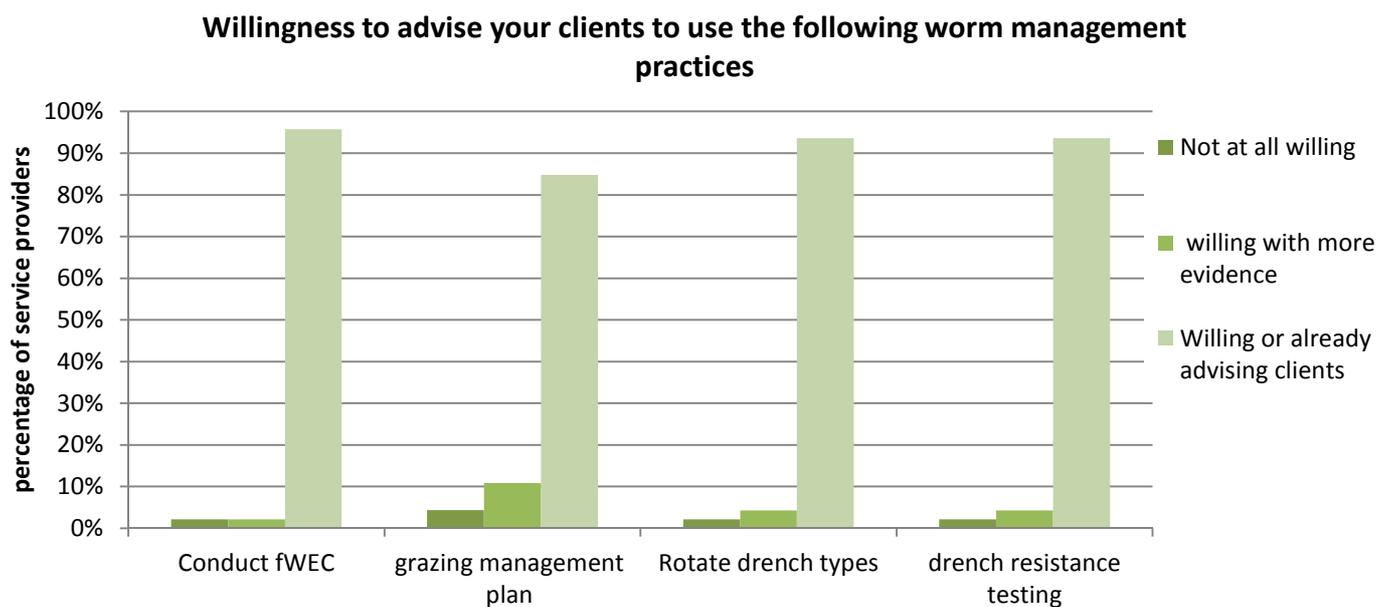
Figure 7.1b the willingness of service providers to recommend management practices to their clients for worm control.

7.2 Desired practice #2: Implement non-chemical practices for management of worms in sheep

Targeted treatment is a new practice developed by the sheep CRC to manage worms where a number of animals are left un-drenched within a mob. Grazing management by spelling and utilising paddocks is another method recommended by the sheep CRC and industry, as is rotating drench types in order to prolong the use of effective drench classes. Producers were asked if they had implemented these practices on their farm. Further, if they do this they were then asked if they had incorporated this strategy into their program in the last five years.

Management practices for worm control	included in program	included in last 5 years*
A grazing management plan for worm control?	59%	58%
Rotating between drench types to reduce the risk of resistance?	91%	41%
Leaving some animals un-drenched within a mob to manage resistance	14%	66%

* this is a percentage of producers that do the practice in question

Table 7.2a The adoption of worm control practices by producers into their program over the last five years.

The survey shows that 14% leave a proportion of their flock un-drenched and that 66% of them started doing this in the last five years. This practice has had only limited exposure to industry and recommendations around it use are still being developed so although 14% appears low adoption as compared to others it has had a rapid uptake with some producers.

7.3 Desired practice #3: Incorporate improved pest resistance traits into ram and ewe selection process

Section 5.2 has previously discussed producers' attitudes towards the importance of genetic traits of resistance to flystrike and worms. The more strongly heritable traits of wrinkle and worm burden (as measured by faecal worm egg counts) are more important to 43% and 37% of producers now, compared to five years ago, while less important to 14% and 10% respectively.

Figure 7.3a The importance of indicator traits or ASBVs for flystrike resistance by producers.

How the importance of these traits has changed over the last 5 years

■ More ■ Same ■ Less

	More	Same	Less
Dags or ASBV for dag score	26%	57%	17%
Plain body or ASBV for early breach wrinkle score	43%	43%	14%
Parasites resistance or ASBV for Worm Egg Count	37%	53%	10%
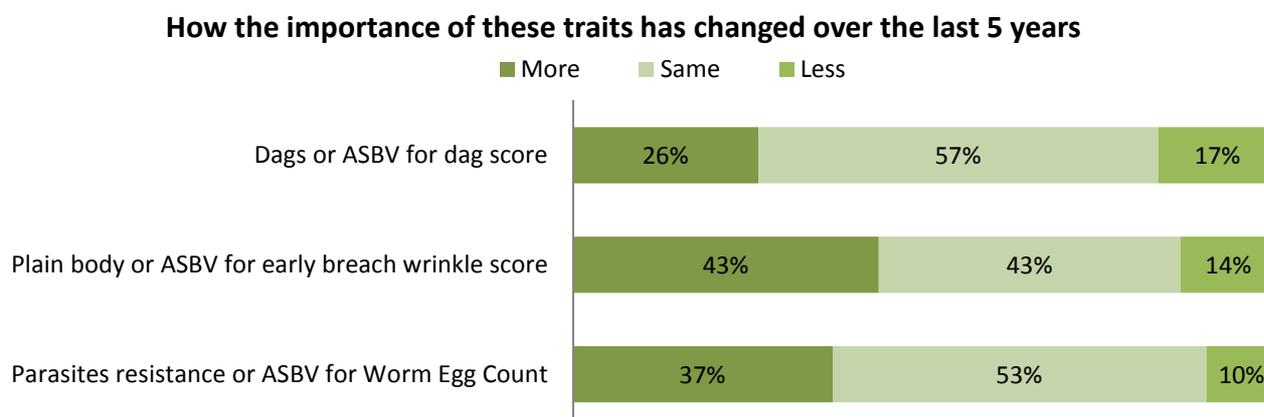
Figure 7.3b The proportion of producers who consider flystrike resistance more important than five years ago by enterprise type.

Producers that consider flystrike resistance related traits to be more important to them than 5 years ago, by enterprise type
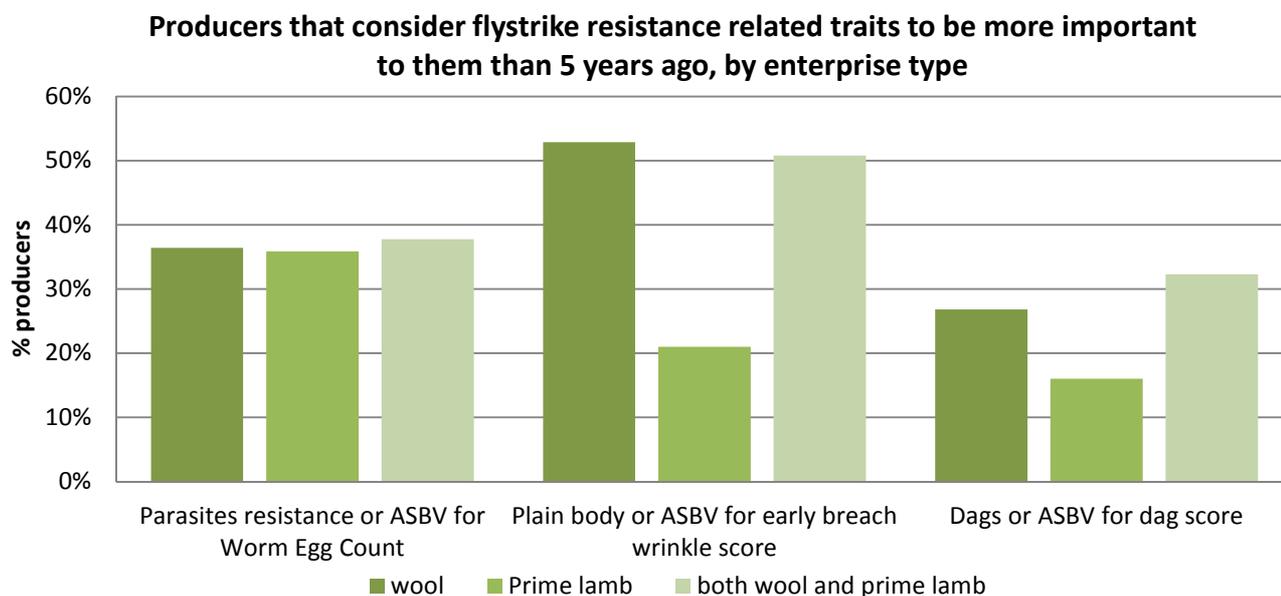
There are some differences in the importance of traits between producers of different zones (Table 7.3a). For example more producers in the CSZ felt that the early breech wrinkle ASBV or selection for wrinkle score had become more important (52%) than producers in the HRZ (32%), whereas more producers in the MRZ thought that parasite resistance had become more important in the last five years (44%) than producers in the CSZ (27%). This is compared to the national average of 37%.

	MRZ			HRZ			CSZ		
	more	same	less	more	same	less	more	same	less
Dags or ASBV for dag score	30%	53%	17%	24%	57%	18%	27%	56%	17%
Plain body or ASBV for early breech wrinkle score	48%	39%	13%	32%	50%	18%	52%	36%	12%
Parasites resistance or ASBV for WEC	44%	47%	9%	38%	53%	9%	27%	60%	12%

Table 7.3a The importance of indicator traits or ASBVs for flystrike resistance by producers by zone

Producers were asked about how they manage the incidence of flystrike and whether they had adopted these practices over the last five years. These management practices also have an influence over the overall capacity of the flock to resist flystrike through selection or resistance. Table 7.3b provides a summary of the responses from producers that selected wool as their primary enterprise (n=288). An analysis of producers that purchased and mated Merino rams in 2013 (n=464) had a similar result.

| Flystrike selection practices	% producers that do	% started in last 5 years*
Do you cull sheep based on breech or body wrinkle scores?	60%	51%
Do you cull individual sheep from your flock if they have been fly struck?	67%	45%
Do you consider the wrinkle score of merino ram when purchasing or breeding replacement rams?	76%	58%

* this is a percentage of producers that do the practice in question

Table 7.3b The proportion of wool producers who undertake selection decisions for flystrike management.

Consultants and service providers were asked as to their attitude to selection for flystrike resistance or worm resistance (Figure 7.3c). More service providers were willing to recommend culling individual sheep on flystrike indicator traits than they were on selection for flystrike resistance.

Figure 7.3c The proportion of service providers willing to make recommendations to clients on breeding and selection decisions for flystrike management.

Willingness to advise your clients to use the following breeding decisions
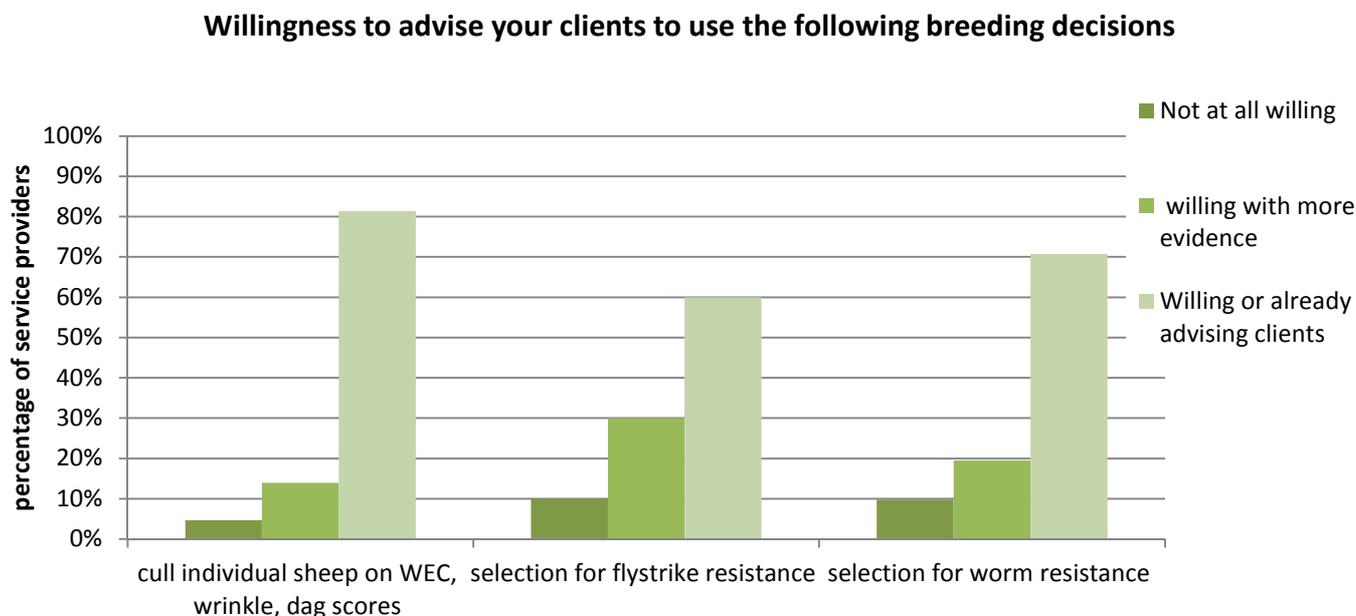
Service providers were asked a further series of questions regarding mulesing and lice treatment. Below is a summary of the responses provided by service providers to a range of practices to manage sheep lice and flystrike (Figure 7.3c).

Figure 7.3c The proportion of service providers willing to make recommendations to clients on mulesing methods and treatment of lice.

Willingness to advise your clients to use the following lice or flystrike management practices

8 Impact of the Wool Program's products

This question was asked of service providers: The Sheep CRC Wool Program has developed instruments to measure the comfort and handle of lightweight wool knitwear. Which of the following statements best describe your understanding of the Wool ComfortMeter and Wool HandleMeter? The (multiple response) options and a summary of the responses are listed in the following table.

	Unaware of it	Heard of it	Have a good understanding of it	Have seen a demonstration of it
Wool ComfortMeter	11%	60%	19%	10%
Wool HandleMeter	14%	59%	17%	10%

Table 8.1 the understanding and awareness of the Wool Comfortmeter and the Wool handlemeter by service providers.

Respondents were also asked what their perception was of and the demand of the Wool ComfortMeter and Wool HandleMeter by industry for 'next to skin' applications. The average of the responses was 3.6 with the options for response out of 5 (from 'not at all' to 'highly likely').

Wool ComfortMeter and Wool HandleMeter - improve the perception of and demand for 'next to skin' applications by consultants?
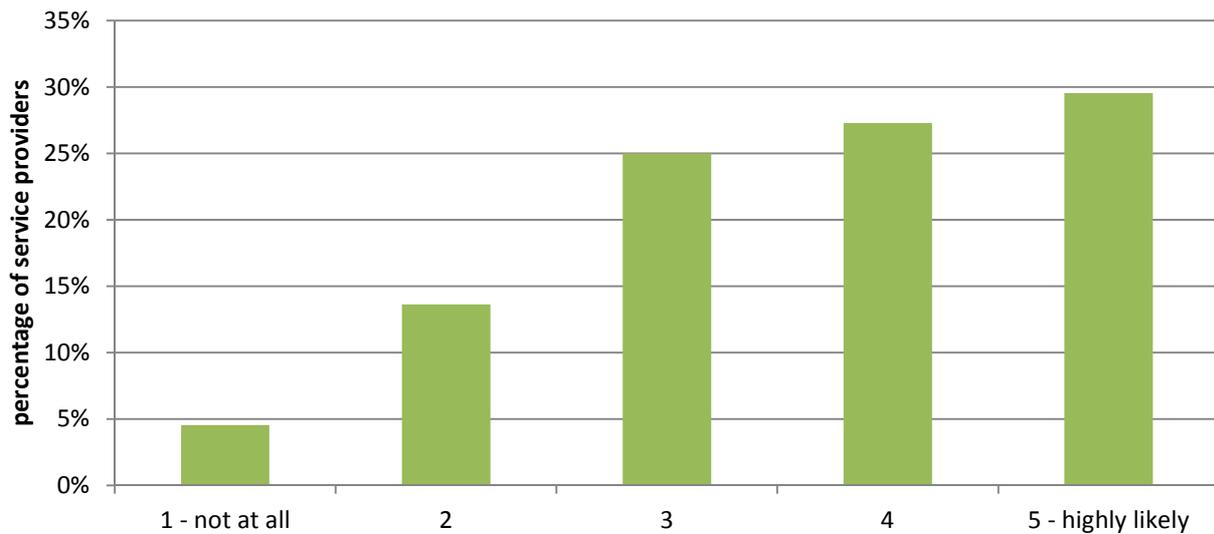
9 Impact of the Meat Program's products

This question was asked of service providers: The Sheep CRC meat program has been developing new 'meat science' traits for prime lambs. Please rate your understanding of meat science traits and the value of the contribution of the CRC to this area (with one being 'not at all' and five being 'excellent'). The aspect of the meat program in question and the subsequent responses are provided in Figure 9.1below.

Figure 9.1 The service providers understanding of and value of 'meat science traits' developed by the Sheep CRC.
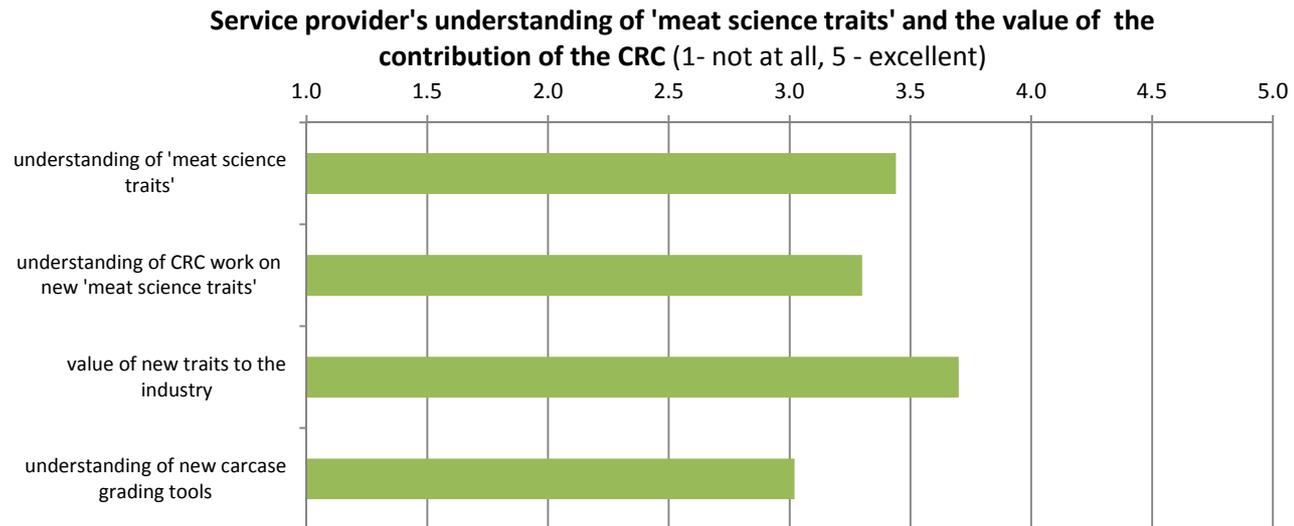
10 Impact of the Information Nucleus Flocks

Service providers were asked whether they had heard of the three genomic tests and how they rated their value for the sheep industry. The parentage test was rated the highest of the tests, with 79% of service providers rating it as highly valuable (4) or excellent (5).

Service providers n= 65	1 - of no value	2	3	4	5 - excellent	Average score
Poll test	4%	18%	16%	33%	29%	3.6
Parentage test	4%	2%	15%	40%	40%	4.1
Genomic testing (50k, 12k SNP chip)	2%	6%	23%	40%	29%	3.9

Table 10.1 The rating of the value of three genomic tests by service providers.

Appendix 1

Conduct of the telephone survey

Ipsos conducted the field work for this survey which was conducted by telephone. Based on the questionnaire provided, the interview took 23-25 minutes. Participants were chosen randomly from an industry list supplied by Ipsos. One month prior to the survey being conducted a letter was sent to all potential participants from the Sheep CRC stating the objective of the questionnaire and encouraging participation. This was done to reduce the effect of 'cold calling' given the falling participation rates generally for telephone surveying.

The number of responses collected was 1,000 producers and were representative of the national population by zone and state.

A pilot survey was conducted with 30 participants prior to going out to the full list. The results of this test resulted in slight modifications to the questionnaire. Where multiple answers or selections from a pre-determined list were required the order of that list was randomised.

Sampling Statistics	
Completed	1200
Refused	1051
<500 sheep	1349
Farm no longer operational	1786
Attempted 5 times	1177
Attempted <5 times	4787
Wrong number and fax and disconnected	724
Respondents not available	261
Language issues	75
Total number used	12410

Table A: Breakdown of phone numbers used

The proportion of producers contacted in each zone and state were reflective of the distribution used in the 2011 survey to ensure comparability.

State	Target	Production Zone	Target
NSW	328	Medium Winter Rain	254
VIC	276	High Winter Rain	324
QLD	11	Cereal-Sheep	335
SA	180	High Summer Rain	68
WA	178	Medium Summer Rain	19
TAS	27		

Table B: Breakdown of respondents by state and by zone.

Appendix 2

Questions for the Sheep CRC National Benchmarking Study 2014

State

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

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

Q2. What was the total number of sheep on the property at 30th June 2013, including lambs?

Q3. What is the total area, in hectares, that is grazed by sheep as pasture, standing green crops and stubbles, including all leased land?

Q4. What is the primary purpose of your sheep enterprise? Is it…

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

Q5a. How many Merino ewes were mated to Merino rams, to lamb in 2013 (including Dohnes and SAMMs)?

Q5c. What was the marking percentage for your Merino lamb drop in 2013?

Q5d. And of those Merino lambs, what percentages were...

mulesed with pain relief	
mulesed without pain relief	
not mulesed	
[DNRO] refused to answer	

Q6a. How many Merino ewes were mated to meat or maternal rams to lamb in 2013?

Q6b. How many cross bred lambs were *marked from these* ewes?

Q6c. What was the marking percentage for your first cross lamb drop in 2013?
[Answer should be in % and range of 0-200%]

Q7a. How many meat or maternal ewes were mated to meat or maternal rams to lamb in 2013?

Q7b. How many lambs were *marked from these* meat or maternal ewes?

Q7c. What was the marking percentage for your meat or maternal lamb drop in 2013?

Q9.

	Not heard of	Heard of but not attended	Attended
Q9a. Sheep CRC Conference or CRC Regional Updates	1	2	3
Q9b. Managing Flystrike workshop	1	2	3
Q10b. Have you changed any of your management practices as a result of attending that event? Yes 1 No 2			
Q9c. Managing Pregnant Ewes (or Pregnancy Scanning) workshop	1	2	3
Q10c. Have you changed any of your management practices as a result of attending that event? Yes 1 No 2			
Q9d. Worm control workshop	1	2	3
Q10d. Have you changed any of your management practices as a result of attending that event? Yes 1 No 2			
Q9e. Lifetime Ewe Management course	1	2	3
Q10e. Have you changed any of your management practices as a result of attending that course? Yes 1 No 2			
Q9f. High Performance Weaner course	1	2	3
Q10f. Have you changed any of your management practices as a result of attending that course? Yes 1 No 2			

Q9g. Precision Sheep Management workshop	1	2	3

Q10g. Have you changed any of your management practices as a result of attending that event?

Yes   1
No   2

Q9h. RamSelect workshop	1	2	3

Q10h. Have you changed any of your management practices as a result of attending that event?

Yes   1
No   2

Q9i. Bred Well Fed Well workshop	1	2	3

Q10i. Have you changed any of your management practices as a result of attending that event?

Yes   1
No   2

Q11.   **Please tell me do you...**

Run a commercial flock and buy rams	1
Breed rams for your own commercial flock	2
Breed rams for sale	3
Do not breed/purchase rams or semen	4

Q12.   **When selecting your replacement rams, do you consider the following traits to be more, less, or just as important than you did five years ago?**

	Yes – more important than 5 years ago	No – less important than 5 years ago	About the same
Lamb weaning percentage or ASBV for number lambs weaned	1	2	3
Parasites resistance or ASBV for Worm Egg Count	1	2	3
Plain body or ASBV for early breech wrinkle score	1	2	3
Dags or ASBV for dag score	1	2	3
Muscling or ASBV for eye muscle depth	1	2	3
Fatness or ASBV for fatness	1	2	3

Q13a.   **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   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
I review wether trial data, sire evaluation data, sale reports etc and select a stud breeder that is performing well	4
I use ASBVs or information from Sheep Genetics and/or selection indexes to select a breeder that matches my breeding objective	5

Q13b. **Which ONE of the following statements describes the main reason for never considering anyone other than your regular stud breeder?**

My stud breeder is conveniently located to my property	1
I have a good relationship with my stud breeder	2
I am confident that my stud breeder sells rams that perform well	3
I determined years ago to purchase from my regular breeder based on performance data and have never had cause to change this decision	4

Q13c. **Which ONE of the following statements best describes how you select rams to buy?**

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 fibre diameter, live weight or eye muscle depth	3
I choose rams with a balance of visual appeal, performance data 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

Q14. **Which ONE of the following statements best describes your current level of knowledge of Australian Sheep Breeding Values (ASBVs)?**

I have never heard of ASBVs	1
I have heard of ASBVs but don't understand them	2
I have a basic understanding of ASBVs	3
I have a good understanding of ASBVs	4
I have a detailed knowledge of ASBVs	5

Q15. **How many rams did you sell in 2013?**

Q16. **What percentage of the rams that you sold (or sold semen from) in 2013 had Australian Sheep Breeding Values (ASBVs)?**

Q17a. **Have you heard of the following electronic systems?**

	Yes	No
Automatic drafting equipment	1	2
Electronic ear tags	1	2
Paddock based 'Walk over weighing' system	1	2
Pedigree Matchmaker	1	2

Q17b. **Are you (1) considering, (2) not considering or (3) already using these systems?**

	Considering	Not considering	Using
Automatic drafting equipment	1	2	3
Electronic ear tags	1	2	3
Paddock based Walk over weighing system	1	2	3
Pedigree matchmaker	1	2	3

Q18a **Which ONE of the following statements best describes how you use Pregnancy scanning to manage the nutrition of ewe flocks, do you...**

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

Q18b. **Which ONE of the following statements best describes what you do with the pregnancy scanning information.**

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

Q18c **Which ONE of the following statements best describes how you monitor 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
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 **Have you undertaken specific steps to improve your lambing percentage over the last five years?**

Yes	1
No	2

Q19b **Which of the following activities have you undertaken to improve lambing percentage?**

	Yes	No
Separated single and twin bearing ewes	1	2
Provided extra shelter for twin lambing ewes	1	2
Protected lambing ewes from predators	1	2
Ram selection to improve reproduction	1	2
Ensured that the ewes higher energy demands are met before and during lambing	1	2

Wet/dry at weaning and cull non performing ewes	1	2

Q20 **Did you pregnancy scan any ewes that lambed in 2013?**

Yes	1
No	2

Q21. **What was the scanning percent (number of fetuses scanned per 100 ewes joined) for adult Merino ewes scanned in 2013?**

Q22. **What was the scanning percent (number of fetuses scanned per 100 ewes joined) for adult Meat or maternal ewes scanned in 2013?**

Q23a. **Within the 2013 lamb drop, what was the mortality percentage of your weaners between the age of weaning and 6 months of age?**

Q23b. **And in general, what would be the average weaner mortality percentage between the age of weaning and 6 months of age for your property?**

Q24. **Did you do any faecal worm egg counts on any of your sheep in 2013?**

Yes	1
No	2

Q25a. **How many times did you conduct faecal worm egg counts on weaners in 2013?**

Q25b. **How many times did you conduct faecal worm egg counts on hoggets in 2013?**

Q26. **The following questions are about how you manage worms in your flock. Do you have a worm control program that includes...**

		Yes	No
Q26a	a grazing management plan for worm control?	1	2
Q27a	**Did you** Implement that grazing management plan sometime within the last 5 years?	1	2
Q26c	Rotating between drench types to reduce the risk of resistance?	1	2
Q27c	**Did you** Start a program of rotating drench types sometime within the last 5 years?	1	2
Q26d	Leaving some animals un-drenched within a mob to manage resistance	1	2
Q27d	**Did you** Start leaving some animals un-drenched within a mob to manage resistance within the last 5 years	1	2

Q27 **Is drench resistance more (1), less (2) or just as important (3) in your decision making compared to 5 years ago?**

Yes - more important than 5 years ago	1
No - less important than 5 years ago	2
Just as important	3

Q28. **What drench products did you buy in the last 12 months?**

Q29a. **Have you heard of the WormBoss website?**

Yes	1
No	2

Q29b. **Did you use the WormBoss website in 2013?**

Yes	1
No	2

Q29c. **Did any information that you obtained from the WormBoss website influence your decision making?**

Yes	1
No	2

Q30. **Do you treat your sheep for lice...**

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

Q31. **Do you treat your sheep every year because...**

	Yes	No
You see lice on your sheep every year	1	2
You see signs of lice (e.g. sheep rubbing) every year	1	2
You do so as a precaution in case there are low levels present	1	2
To cover the chance of contact with untreated sheep (e.g. neighbors or imported sheep)	1	2

Q32. **What lice control products did you use in the last 12 months?**

Q33a. **Have you heard of the LiceBoss website?**

Yes	1
No	2

Q33b. **Did you use the LiceBoss website in 2013?**

Yes	1
No	2

Q33c. **Did any information that you obtained from the LiceBoss website influence your decision making?**

Yes	1
No	2

Q34. **The following questions are about how you manage flies in your flock.**

Q34b	Do you cull sheep based on breech or body wrinkle scores?	1	2
Q35b	Have you started culling based on this factor sometime over the last 5 years?	1	2

Q34c	Do you cull individual sheep from your flock if they have been fly struck?	1	2
Q35c	Have you started culling based on this factor sometime over the last 5 years?	1	2
Q34d	Do you consider the wrinkle score of merino ram when purchasing or breeding replacement rams?	1	2
Q35d	Have you started considering the wrinkle score of merino ram when purchasing or breeding replacement rams over the last 5 years?	1	2

Q35.

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
only treat individually struck sheep	4

Q36a. Have you heard of the FlyBoss website?

Yes	1
No	2

Q36b. Did you use the FlyBoss website in 2013?

Yes	1
No	2

Q36c. Did any information that you obtained from the FlyBoss website influence your decision making?

Yes	1
No	2

Q37a. Are you familiar with the Sheep CRC's work in research and extension of sheep management?

Yes	1
No	2

Q37b. On a scale of 1 to 5 where 1 is "Very poor" and 5 is "Excellent" how would you rate the Sheep CRCs performance in terms of:

	Very poor				Excellent	Don't know
A source of independent information	1	2	3	4	5	9999
The quality of their research	1	2	3	4	5	9999
A recognized leader of innovation	1	2	3	4	5	9999

Q38a.

	Not heard of	Heard of but not used	Used
'Sheep – the simple guide to making more money with less work' book	1	2	3
Ram buyers guide to ASBVs	1	2	3

Q38b. On a scale of 1 to 5 where 1 is "Not at all useful" and 5 is "Very useful" how would you rate these Sheep CRC products?

	Not at all useful	2	3	4	Very useful
'Sheep – the simple guide to making more money with less work' book	1	2	3	4	5
Ram buyers guide to ASBVs	1	2	3	4	5

Appendix 3

Questions for the Sheep Industry Service Provider survey March 2014

1. Do you ...

    1. mostly provide information to producers on a one to one basis or in groups
    2. mostly provide information to industry professionals on a one to one basis or in groups
    3. mostly provide information indirectly through papers, articles, websites or newsletters
    4. not extend or provide sheep information to others on a professional basis?

2. Please provide more information about the scale of your involvement with the sheep industry.

3. What proportion of your time do you advise, work with or present information to producers or industry professionals on sheep related issues?

4. In relation to the time you spend on sheep related issues per year, do you...

provide technical advice to producer groups or networks

- advise producers on a one to one basis
- present information, including research results, to producers
- present information, including research results, to other industry professionals
- present information to students or others in a teaching environment

and is it…

- not at all
- occasionally
- some of the time
- regularly
- most of the time
- N/A

5. Briefly describe the services you provide.

6. In which state do you mostly work?

7. Which ONE of the following statements best describes your current level of knowledge of ASBVs?
    1. I have never heard of ASBVs
    2. I have heard of ASBVs but don't understand them
    3. I have a basic understanding of ASBVs
    4. I have a good understanding of ASBVs
    5. I have a detailed knowledge of ASBVs

8. Which of the following statements best describe your understanding of the new Sheep CRC and Sheep Genetics genomic and genetic tools.

	unaware of it	heard of it	have a good understanding of it	heard of and recommended to others
Poll test				
Parentage test				
Genomic testing (50k, 12k SNP chip)				

9. On a scale of 1 to 5 please rate the value of the new genomic and genetic tools to the industry.

1 - of no value 2 3 4 5 - excellent unable to rate

Poll test

Parentage test

Genomic testing (50k, 12k SNP chip)

10. Are you aware of the Sheep CRC meat program's work in developing new 'meat science traits' for prime lambs such as nutritional values (eg. iron and zinc), intramuscular fat and shear force (tenderness)?

- unaware of it heard of it
- have a good understanding of it
- heard of and recommended to others

11. Please rate your understanding of 'meat science traits' and the value of the contribution of the CRC to this area.

1 - not at all 2 3 4 5 - excellent N/A
- your understanding of 'meat science trait'
- your understanding of the work on new 'meat science traits' by the CRC
- the value of these new traits to the prime lamb industry
- your understanding of the work on new carcase grading tools by the Sheep CRC/MLA/AMPC
- I am not involved in these activities

13. Which rainfall/production zone do you work in most of the time?

- Medium Winter Rainfall zone (400-600mm)
- National
- High Winter Rainfall zone (>600mm)
- Cereal-Sheep zone (<400mm)
- Summer Rainfall zone (>400mm)
- Pastoral
- Other (please specify)

14. In order for us to understand the likely reach of your information or advice, please indicate the number of people in any one year you provide information or advice.

1. Producers you consult to on a one-on-one basis
2. Producers you provide information to on a group or event basis
3. Consultants or agribusiness you provide information to (including research outcomes) on a one to one or event basis
4. Producers or agribusiness professionals that you provide information to through circulars or newsletters

16. Have you facilitated or delivered to (or are you responsible for) any of these groups, networks or events?

1. Lifetime Ewe Management

2. RamSelect workshops

3. Pregnancy scanning workshops

4. Precision Sheep Management (PSM) workshops

5. Bred Well Fed Well workshops

6. Genetics service provider training

7. Flystrike Management Workshop

8. State AWI network

9. Sheep producer group

10. I am not involved with any of these services.

11. Other (please specify)

17. Please rate your willingness to advise producers to use the following sheep management practices (where relevant in their situation).

	Not at all willing	Only willing with more evidence of its value	Willing or already advising clients to use these practices	N/A
Use Pedigree Matchmaker				
Purchase rams with ASBVs that progress their flock toward their breeding objective				
Install automatic drafting equipment				
Use electronic ear tags				
Install a paddock based walk over weighing system				
Develop a clearly defined breeding objective				

15. What proportion of the producers you work with have....

- Wool production as their primary enterprise (%)
- Prime lamb production as their primary enterprise (%)
- Both wool production and prime lamb production enterprises (%)
- Unsure
- N/A

18. Please rate your willingness to advise producers to use the following reproduction management practices (where relevant in their situation).

	Not at all willing	Only willing with more evidence of its value	Willing or already advising clients to use these practices	N/A
Enrol in a Lifetime Ewe Management course				
Conduct pregnancy scanning of ewes to determine litter size				
Provide extra shelter for twin lambing ewes				
Conduct pregnancy scanning of ewes to determine pregnancy status				
Manage dry, single and twin bearing ewes separately and according to their energy requirements				
Monitor and manage the health of ewes through condition scoring				
Wet and dry ewes at weaning to select ewes on reproductive performance				
Focus ram selection on improving reproduction				

19. Please rate your willingness to advise your clients to use the following parasite management practices (where relevant in their situation).

	Not at all willing	Only willing with more evidence of its value	Willing or already advising clients to use these practices	N/A
Use alternative methods to mulesing to control flystrike				
Implement a grazing management plan to reduce worm burdens				
Use worm egg counts or wrinkle, fleece rot or dag scores to cull individual sheep				
Conduct faecal worm egg counts				
Conduct drench resistance testing				
Include selection for flystrike resistance into their breeding program using ASBVs for wrinkle, breech cover or dag score				
Rotate drench types to reduce drench resistance				
Only treat for lice when lice are seen				
Include selection for worm resistance into their breeding program using ASBVs for Worm Egg Counts (WEC)				

20. The Sheep CRC Wool Program has developed instruments to measure the comfort and handle of lightweight wool knitwear. Which of the following statements best describe your understanding of the Wool ComfortMeter and Wool HandleMeter?

1. unaware of it heard of it
2. have a good understanding of it
3. have seen a demonstration of it

21. The Wool ComfortMeter and Wool HandleMeter have been introduced into the wool knitwear supply chain. Do you believe they will improve the perception of and demand for 'next to skin' applications?

1 - not at all
2
3
4
5 - highly likely unable to judge

22. Which of the following statements best describes your use of the following Sheep CRC products?

23. If you answered 'Use to assist or recommended it on a regular basis' for any of these, could you provide an example of how you have used the information or products?

	Have not heard of it	Have not heard of it	Have not heard of it	Have not heard of it	Have not heard of it
FlyBoss website					
LiceBoss website					
WormBoss website					
'Sheep – the simple book					

24. Have you heard of, attended and/or have you recommended to others, one of these Sheep CRC initiated events?

	Not heard of	Not heard of	Not heard of	Not heard of
Precision Sheep Management workshops such as Pedigree Matchmaker or Walk Over Weighing				
RamSelect workshop				
CRC Conference or Regional CRC Updates				
Bred Well Fed Well workshop				
Lifetime Ewe Management course				
High Performance Weaner course				
Managing Pregnant Ewes (or Pregnancy Scanning) workshop				
Genetics service providers course				

25. To what extent has information from Sheep CRC products and events developed over the past seven years influenced your recommendations to clients? Please choose one of the following;

1. I have changed my recommendations or information I give to clients considerably
2. I have modified my recommendations somewhat
3. I have not modified my recommendations, but Sheep CRC information has validated my previously held belief
4. I have not modified my recommendations or information I give to clients

26. Please explain further why the Sheep CRC has/hasn't influenced your recommendations?

27. Have any of your clients changed practice over the last seven years as a result of Sheep CRC information given through your service? If yes, please provide examples.

28. On a scale of 1 to 5 where 1 is "very poor" and 5 is "excellent" how would you rate the Sheep CRC's performance in terms of…

1 very poor 2 3 4 5 excellent N/A

- A source of credible information
- A source of independent information
- The quality of their research
- A recognized leader of innovation

29. What do you consider to be the most important contribution the Sheep CRC has made to the industry and why?

30. Please add any further comments you may have on the Sheep CRC or its products?

Appendix 4

Classification of drench products bought in the last 12 months

Product Name	Winter zone Ranking	Summer zone Ranking	Product Type	No Products purchased	No Producers who purchased this group	% of producers
Zolvix	1	1	AAD	70		
					70	7%
Triguard	2	2	ML + BZ + LV	103		
Q-Drench	2	2	ML + BZ + LV + SAL	66		
Hat-Trick	2	2	ML + BZ + LV	60		
Triton	2	2	ML + BZ + LV	32		
Pyrimide	2	2	ML + BZ + LV	25		
					253	25%
Avomec Duel	na	4	ML + SAL	14		
Closantel	na	5	SAL	11		
Closal	na	5	SAL	8		
Closicare	na	5	SAL	5		
Seponver	na	5	SAL	4		
Closamax	na	5	SAL	2		
Sustain	na	5	SAL	0		
					38	4%
Rametin	5	2	OP	58		
Rametin Combo	4	2	OP + LV + BZ	20		
NapFix	2	2	OP + ML + BZ	7		
Colleague	4	2	OP + BZ	4		
Combat	5	2	OP	3		
					86	9%
Cydectin	3	3	ML	284		
Abamectin	4	4	ML	107		
Ivomec	5	5	ML	76		
Ivermectin	5	5	ML	62		
Genesis	4	4	ML	41		
Weanerguard	3	3	ML	39		
Eweguard	3	3	ML	36		

Product Name	Winter zone Ranking	Summer zone Ranking	Product Type	No Products purchased	No Producers who purchased this group	% of producers
Firstmectin	4	4	ML	16		
Abamax	4	4	ML	14		
Moxidectin	3	3	ML	14		
Paramectin	4	4	ML	13		
VetMec	4	4	ML	11		
Zoomec	4	4	ML	8		
Maverick	4	4	ML	7		
Moxitak	3	3	ML	7		
Sequel	4	4	ML + LV	6		
Absolute	4	4	ML	6		
Moximax	3	3	ML	5		
Sheepguard	3	3	ML	5		
Paramax	5	5	ML	4		
Noromectin	5	5	ML	1		
Rycomectin	4	4	ML	1		
					619	62%
Levamisole	6	4	LV	52		
Valbazen	6	6	BZ	40		
Duocare	5	4	BZ + LV	40		
Nilverm	6	4	LV	38		
Scanda	5	4	BZ + LV	30		
Combination	5	4	BZ + LV	27		
Alben	6	6	BZ	14		
Switch	5	4	BZ + LV	14		
Combimax	5	4	BZ + LV	13		
Combi	5	4	BZ + LV	11		
First Drench	6	4	LV	10		
Albendazole	6	6	BZ	9		
Panacur	6	6	BZ	4		
Nucombo	5	4	BZ + LV	4		
Combo	5	4	BZ + LV	3		
VetMec Dual	5	4	BZ + LV	3		
Fenbendazole	6	6	BZ	1		
Ripercol	6	4	LV	1		
					279	28%

Note: 7% said "None", while 6% could not remember the product