Badgingarra

Central Test Sire Evaluation

2008 Drop

Conducted by

Badgingarra Central Sire Test Group

under the auspices of

The Australian Merino Sire Evaluation Association

with support from

Stud Merino Breeders of W.A

April 2010

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (April 2010). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with an appropriate adviser.

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Foreword

Badgingarra Central Test Sire Evaluation

The Badgingarra CTSE is an accredited Central Test Sire Evaluation (CTSE) site evaluation. It conforms to the requirements of the Australian Merino Sire Evaluation Association (AMSEA).

A committee with the support of the SMBA of WA run the Badgingarra site. They are listed in the table below.

- This is the sixth evaluation carried out by the group
- Evaluations are held at the Dept of Ag WA Badgingarra research station
- Ewes were originally based on Dept of Ag stock. Ewes now include some of the progeny of previous evaluations. Ewes are randomly allocated to sires according to age and pedigree.
- Each sire is allocated 60 ewes.
- Landmark provide support with subjective appraisal thanks to Preston Clarke and Nathan King
- The Stud Merino Breeders Association (SMBA) of WA provide secretarial support
- Rob Shepherd has supplied technical support with electronic data collection and drafting

Site Committee

Name	Phone	Position on committee
Brett Jones	0896323012	Chairperson
Tony Gray.....	0899568552	Technical Coordinator/Manager
Tamara Hooper.....	0893846466	Secretary/Treasurer

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Badgingarra 2008 Drop

The information in this site evaluation report provides a comprehensive assessment of the Badgingarra 2008 drop sire's progeny performance, both measured and visually assessed. Three graphs and a table provide a summary of the results and nine tables provide the detailed performance information for the standard sire evaluation analysis. Additional measurements have been taken to give an average production value.

This report provides the results from the 2008 drop evaluation. Progeny were 12 months of age with 9 months of wool growth.

Contents

Badgingarra 2008 Drop Evaluation: Age - 11 months, Wool growth - 9 months

Sire and owner details

Ram code	Breeders flock, Ram number Ram ID #, Breed †	Contact name Address Phone Fax
1 * UR	Ag WA Baseflock, 20002058 50-9012-2000-002058, Merino	Dr Johan Greeff Agriculture WA GSARI, 10 Dore St, Katanning WA 6317 Phone 08 9821 3215 Fax 08 9821 3334
2	Cranmore Park, 4.4 50-0153-2004-000771, Merino	Bruce Lefroy Cranmore Park RSM 427, Moora WA 6510 Phone 08 9654 9066 Fax 08 9654 9067
3	Eastville Park Poll, 032314 60-1272-2003-032314, Poll Merino	Rob and Grantly Mullan PO Box 101, Wickepin WA 6370 Phone 08 9888 6061 Fax 08 9888 6065
4	Edale, 06Z627R 50-2756-2006-6Z627R, Merino	Philip Gardiner Edale, Moora WA 6510 Phone 08 9651 1700 Fax 08 9651 1766
5	Ejanding, 060003 50-0642-2006-060003, Merino	Brett Jones RMB 2000 Dowerin 6461 WA Phone 08 9632 3012 Fax 08 9632 3008
6	Manunda Poll, 061454 60-0455-2006-061454, Poll Merino	Rob and Grantly Mullan PO Box 101, Wickepin WA 6370 Phone 08 9888 6061 Fax 08 9888 6065
7	Roseville Park, 5.1864 50-4166-2005-051864, Merino	Matthew and Cherie Coddington Glenwood, 39R Dilladerry Rd MS3, Dubbo NSW 2830 Phone 02 6887 7286 Fax 02 6887 7103
8	Shahs Poll, Y1372 60-0554-2005-Y01372, Poll Merino	Peter Ralston Shahs PO Box 38, Tammin WA 6409 Phone 08 9637 1026 Fax 08 9637 1119
9 *	Toland, W611 50-4485-2001-010611, Merino	Phil Toland RMB 2005, 1888 Feltrim Road, Violet Town VIC 3669 Phone 03 5798 1605 Fax 03 5798 1404
10	Woolkabin Poll, Wrangler 60-0478-2005-055889, Poll Merino	Chris Patterson PO Box 217, Katanning WA 6317 Phone 08 9822 8050 Fax 08 9822 8053

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

UR Unregistered Flock. Sires bred in an unregistered flock are identified in the table by a UR following the sire's code

\# Sire ID provides a unique number for all sheep. A sire ID has 16 digits.
- 2 for the breed of the flock, e.g., Merino (50), Poll Merino (60), Dohne (51), SAMM (48), Afrino (AF)
- 4 for flock code, AASMB Registered flock code or unregistered code.
- 4 for year of drop.
- 6 for tag number used in the breeder's records.

† Breed of flock in which the sire was born

Managers Report

1. Location

- Badgingarra Research Station is situated in the Dandaragan Shire, Western Australia, latitude 30 degrees South, Longitude 115 degrees 31 minutes East. This is 60 kms from the west coast.
- Soils are variable and range from gravel ridges to deep white (infertile) sands.
- Pastures vary according to soil type with sub clovers and cape weed being the main pasture species on gravel soils. Silver grass, spear grass and erodium are well adapted on the deeper sands. A pasture improvement program on the property is establishing subtropical perennial pastures and Serradella legumes on deeper sands.

2. Selection and mating

- Ewes were prepared for insemination in January by introducing the ewes to lupin stubble and giving ewes access to lupin grain.
- 630 ewes were prepared for AI (60 ewes per sire)
- Ewes were from 2 sources. 300 ewes were bred on Badgingarra Research using rams from the GSARI flock and the balance of the ewes were purchased from Cranmore Park. The age of all ewes varied from 3 to 6 years old.
- The ewes were separated into their genetic and age groups and allocated randomly to each sire so each sire had equal numbers of ewes according to genetic group and age. Average body weight of the ewes at mating was 60 kg
- AI was performed Allstock

3. Pregnancy and lambing

Sire	Dry	Multiple	Single
Ag WA Baseflock, 20002058	23	14	23
Cranmore Park, 4.4	31	11	18
Eastville Park Poll, 032314	17	13	30
Edale, 06Z627R	37	9	14
Ejanding, 060003	25	17	18
Manunda Poll, 061454	23	9	28
Roseville Park, 5.1864	30	8	22
Shahs Poll, Y1372	22	15	23
Toland, W611	24	16	20
Woolkabin Poll, Wrangler	25	13	22

- Ewes were scanned for pregnancy status on 13 May 2008 and results are shown in the table above.
- Ewes scanned as dry were drafted off from wet ewes at this time.
- All pregnant ewes were run as one mob until they entered the lambing pens.
- Ewes were put into lambing paddocks on 2 July 2008 and remained in these pens until the lambs were tagged on 1 Aug 2008.
- Ewes were fed hay ad lib while in the lambing pens as well as a 50/50 lupin wheat grain supplement of 500 gms/hd/day.

4. Weaning and seasonal conditions

- Lambs were marked and tagged 31 July 2008
- Weaned on 10 October 2008.
- Lambs were weaned onto a pasture paddock
- Lambs moved onto oaten fodder crop December 2008
- Lambs moved onto cereal stubble in January 2009
- Drenched with December 2008

5. Visual trait assessments

- Visual assessments were carried out by Nathan King from Landmark.

6. Rainfall

	2003	2004	2005	2006	2007	2008	2009	Average*
JAN	0	24	0	47	8.7	0	0	10
FEB	0	0	0	22	0	36.6	3	16
MAR	56	0	13	0	0	13.8	0	17
APR	17	0	17	7	24	30.6	2.8	28
MAY	92	72	116	18	16	19.0	42.2	74
JUN	110	95	144	25	37.8	68.6	91.2	114
JUL	72	50	16	54	83.8	172.8	118.2	106
AUG	107	79	80	60	71.2	17.8	102.8	84
SEP	67	39	61	62	44.4	66.4	59.8	51
OCT	0	12	15	22	14	37.2		30
NOV	15	21	0	19	0	15.8		18
DEC	0	9	0	9	35.4	10.6		9
TOTAL	536	400	461	345	335.3	489.2		555
MAY-OCT	448	347	432	241	267.2	414.2		457

* Badgingarra Research Station Records from 1962

7. General

In 2007 a decision was made by the Department of Agriculture and Food to discontinue mulesing on sheep run on properties they managed. This meant that the lambs born in 2008 as part of this trial would not be mulesed.

This decision coupled with good rains in September and October required some changes to the management of the progeny from the previous years. The spring rainfall resulted in a severe blowfly wave which commenced 6 – 8 weeks post marking. To effectively manage the fly wave experienced on Badgingarra Research Station in 2008 the shearing of the lambs was brought forward 3 weeks earlier than previous years and the lambs were weaned 2 weeks earlier.

At the time of weaning, the worm burden of the lambs was measured by randomly collecting 10 fecal samples from the lambs to measure the worm eggs. The results (see below) showed the levels of worm egg were adequate for generating suitable data for genetic selection from the progeny and therefore fecal samples were collected prior to a summer drench. In previous years these samples have been collected at the hogget stage due to the low worm egg counts at weaning.

Worm Egg Counts of random collection of 10 faecal samples

Date	Strongyle (egg/gm)	Nematodirus (egg/gm)	Haemonchus	Range
11 Nov 2008	225	210	0	50 - 450

Assessment and management program

Activity	Date/s	Age (months)	Wool (months)
Selection of ewes	January 2008		7
Allocation of ewes for mating and mating	February 2008		8
Pregnancy scanning	13 May 2008		11
Separated into sire lambing groups	1 July 2008		
Lambing: start – finish	16-23 July 2008		
Lambing mobs boxed to 1 group	1 August 2008	11 days	
Tagging/pigment scores (age in days)	1 August 2008	11 days	
Marked and scored for breech traits			
• Marking (Breech W, Breech Cover)	31 July 2008	2 weeks	
• Post Shearing (Breech W, Body W)	9 Oct b2008	10 weeks	
• Pre crutching (Breech Cover, Crutch Cover, Dag)	1 April 2009	35 weeks	
Weaning	10 October 2008	3	
Pre assessment (even-up) shearing	7 October 2008	3	3
Fleece sampling	24 June 2009	11	9
Staple length assessment	24 June 2009	11	9
Classer's Grade	24 June 2009	11	9
Pre shearing scoring	24 June 2009	11	9
Assessment shearing	6 July 2009	12	9
Fat & eye muscle scan & body weight • weaning	10 October 2008	3	
• 1st assessment:	30 Dec 2008	6	
• 2nd assessment:	18 August 2009	13	
Worm egg count sampling	28 November 2008	4	
Sire's Progeny Group Evenness assessment	24 June 2009	11	9
Vaccination	3 in 1 plus SE and B12 at marking and weaning Jet (Extinosad) 7 Nov 2008		
Drench	(Q Drench) 2 Dec 2008		
Supplementary feeding: start :			
30 Jan 2008 - 27 March 2009	Lupins @ 200 gm/hd/day		
27 March - 15 June 2009	Lupins 200 gm /hd/day plus100 gm/hd/day cereal (wheat 50% oat 50%)		
Field day or public display of sheep	24 June 2009		

Visual tait assessment and site Breeding Objective

Visual tait assessment

1st Evaluation
Classer's Grade: Nathan King
Trait Scores: Nathan King

Site Breeding Objective used to assess the Classer's Grades

The Breeding Objective used by the classer/s when selecting the Classers Tops, Flock and Cull grades is equivalent to a MERINO 7% Index. This involves moderate reduction in fibre diameter with a small increase in fleece weight and body weight. The visual assessment was in line with the MERINO 7% Index. This Breeding Objective was developed by the site committee.

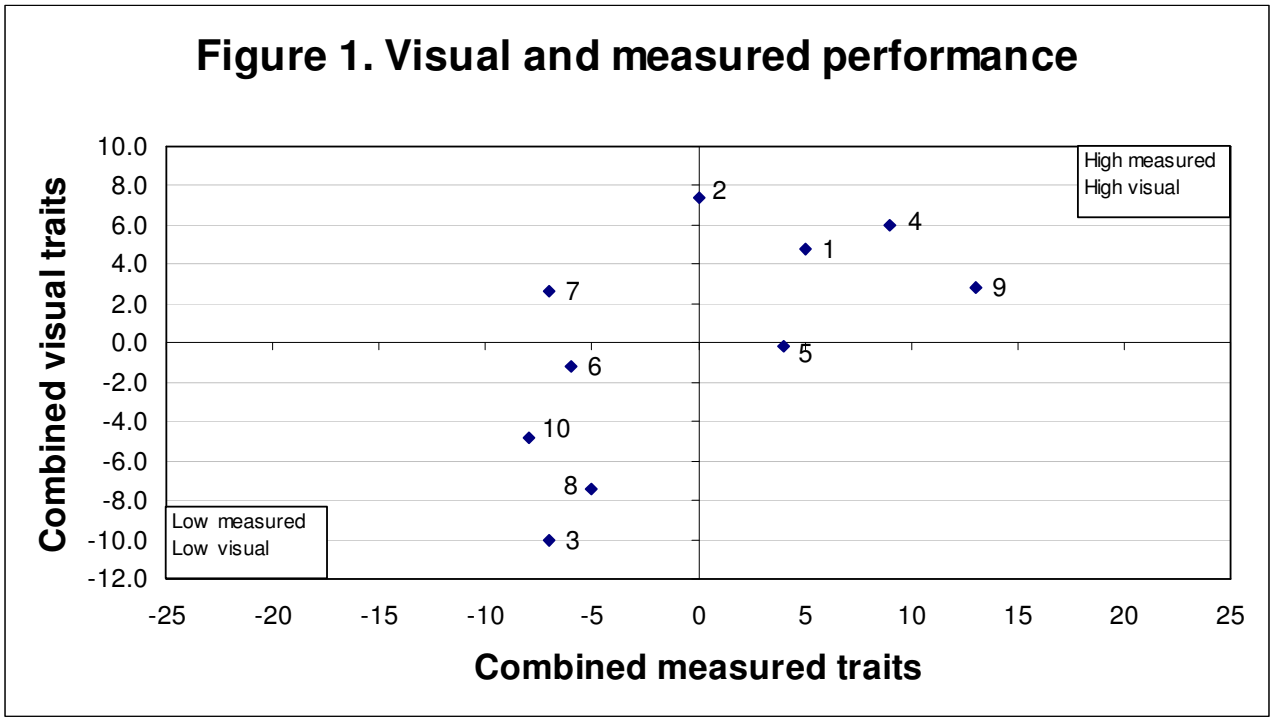
Figure 1. Combined measured traits and visual trait performance

Summary graph: visual and measured performance

Each sire that had 20 or more progeny is located on the graph. The graph describes performance for combined measured traits and combined visual assessment.

Figure 1 is combined measured traits based on an AMSEA Merino 7% index (that is equal emphasis on fleece weight and fibre diameter with enough emphasis on body weight to provide a moderate increase in this trait). Visual trait performance is a combination of Classer's Grade performance (Tops and Culls). More information is found in "Calculation of combined performance" (page 23).

Sires that are above average performers for combined measured traits and Classer's Grade are located in the top right hand quarter.



Ram code	Breeders flock, Ram number

1*	Ag WA Baseflock, 20002058
2	Cranmore Park, 4.4
3	Eastville Park Poll, 032314
4	Edale, 06Z627R
5	Ejanding, 060003
6	Manunda Poll, 061454
7	Roseville Park, 5.1864
8	Shahs Poll, Y1372
9*	Toland, W611
10	Woolkabin Poll, Wrangler

Table A. AMSEA Index values and Classer's Grade

The highest performing 3 sires for each trait (i.e., trait leaders) are highlighted by shading.
Each sire is listed for Classer's Grade and the same three indexes at all site evaluations. The index values reported are based on measured traits FBV performance with varying the emphasis on fleece weight, fibre diameter, body weight, staple strength and worm egg count. See 'Index Options' on page 22 for more information on the indexes presented in the table below.

AMSEA Indexes are the same as MERINOSELECT Indexes apart from NLW (Number of Lambs Weaned) is given a zero FBV value in AMSEA calculations.

- **Merino 14% +SS** High emphasis on fibre diameter and low emphasis on fleece weight plus moderate emphasis on live weight and staple strength.
- **Fine 10% +SS** Moderate emphasis on fleece weight and fibre diameter plus moderate emphasis on staple strength.
- **Dual Purpose 7%** Moderate emphasis on fleece weight and fibre diameter plus high emphasis on live weight.

Ram code	Breeders flock, Ram number	No. of progeny	AMSEA Index values			Classer's Grade	
			Merino 14% +SS	Fine 10% +SS	Dual Purpose 7%	Tops % (dev) Y^	Culls % (dev) Y
1*	Ag WA Baseflock, 20002058	40	109	107	103	8	-16
2	Cranmore Park, 4.4	38	94	92	116	21	-16
3	Eastville Park Poll, 032314	40	101	99	85	-26	24
4	Edale, 06Z627R	27	103	106	131	19	-11
5	Ejanding, 060003	45	104	103	101	-3	-2
6	Manunda Poll, 061454	41	94	94	89	3	9
7	Roseville Park, 5.1864	33	100	96	103	6	-7
8	Shahs Poll, Y1372	34	91	94	72	-19	18
9*	Toland, W611	51	108	113	118	7	-7
10	Woolkabin Poll, Wrangler	36	92	91	85	-15	9
	Average performance	39				28	27

* Link ram: Ram evaluated to provide links between site evaluations and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

^ Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

Figures 2 and 3 – Summary Graphs – FW and FD, Tops and Culls

Figure 2. Fleece weight by fibre diameter
The graph describes performance for fleece weight on the side axis and fibre diameter on the bottom axis. Rams that are above average for fleece weight and below average fibre diameter are located in the top left hand quarter

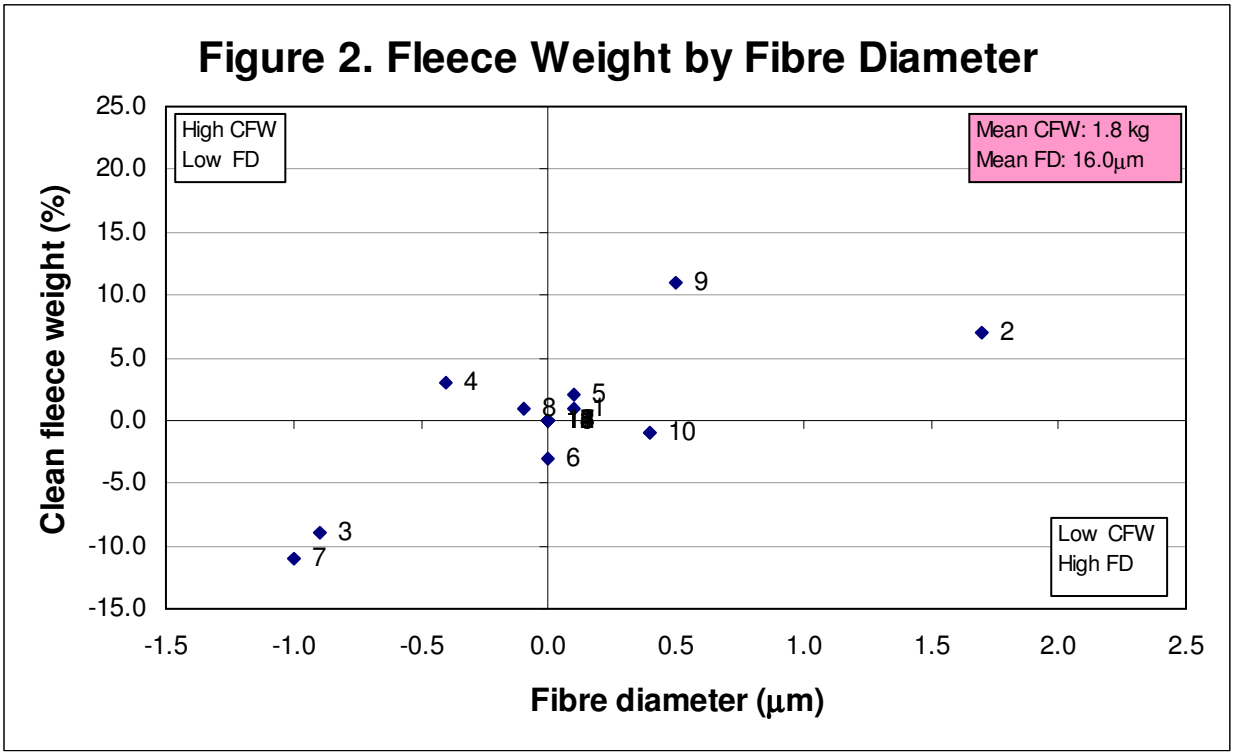
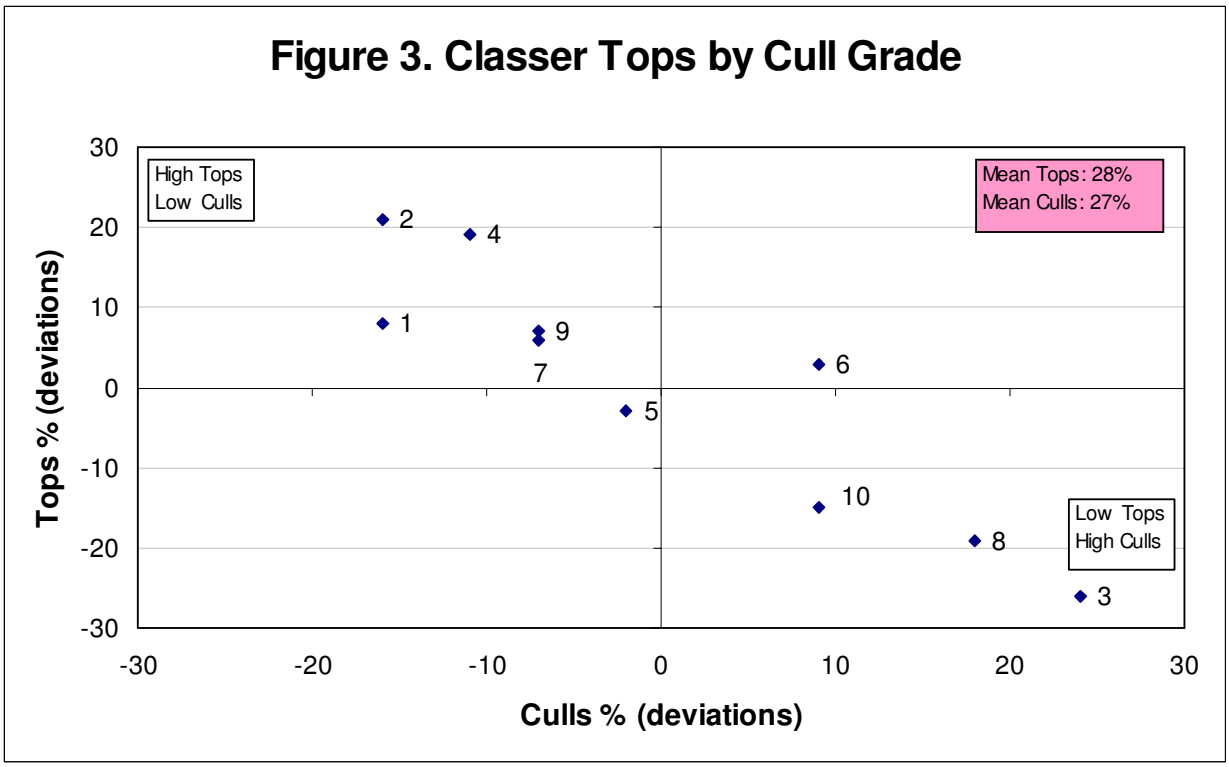


Figure 3. Classers Tops by Cull Grade
The graph describes performance for Classer's Tops Grade on the side axis and Cull Grade on the bottom axis. Rams that have above average Tops and below average Culls are in the top left hand quarter.



Understanding the results

Measured trait performance and Classer's Grade – Tables 1 and 2 – pages 12 and 13

Ram code:	Allows a ram to be located on the summary graphs and some tables.
Ram name:	Identity of the breeder's flock and the ram's number or name.
No. of progeny:	The number of progeny a ram had at the most recent measured analysis.
Flock Breeding Values:	Flock Breeding Values (FBVs) are Estimated Breeding Values (EBVs) calculated by Sheep Genetics for the ram's evaluated in this report. Only data from this site evaluation is used in the calculation of these FBVs. FBVs describe the relative breeding value (genetic performance) of the rams (in this case based on the performance of their progeny). A ram's progeny will express half of their ram's FBV. FBVs do not necessarily reflect the rams observed performance, which is a combination of both genetic and environmental influences. FBVs are an estimate of the genetic component of the sheep's performance.
Traits: Abbreviation, trait and the (units reported)	GFW: Greasy fleece weight (percentage). CFW: Clean fleece weight (percentage). FD: Average fibre diameter (micron). WT: Body weight (kilograms). FDCV: Fibre diameter coefficient of variation (percentage). SL: Staple length (mm) at the mid-side. SS: Staple strength (N/ktex) at the mid-side. EMD: Eye muscle depth (mm) at the 'C' site. FAT: Fat depth (mm) at the 'C' site. CURV: Fibre curvature (degrees) WEC: Worm egg count (% deviation in worm burden of ram's progeny)
Age at assessment:	Y = Yearling - 300 to 400 days (10 to 13 months of age). H = Hogget - 400 to 540 days (13 to 18 months of age). A = Adult - 540 days or older (18 months and older).
Classer's Grade:	A classer grades all progeny as either Tops, Flocks or Culls based on their visual assessment of all traits relative to the site's Breeding Objective (page 7). The percentage deviation from the average of Tops and Culls is presented in this report.

Table 1 – Major measured traits and Classer's Grades

Ram Code	Ram name	Number of progeny	Flock Breeding Values (deviations)				Classer's Grade [1]	
			Y^GFW %	YCFW %	YFD µm	YWT kg	Tops % (dev) Y^	Culls % (dev) Y
1*	Ag WA Baseflock, 20002058	40	0	1	0.1	1.2	8	-16
2	Cranmore Park, 4.4	38	7	7	1.7	4.9	21	-16
3	Eastville Park Poll, 032314	40	-8	-9	-0.9	-3.5	-26	24
4	Edale, 06Z627R	27	3	3	-0.4	4.1	19	-11
5	Ejanding, 060003	45	2	2	0.1	1.2	-3	-2
6	Manunda Poll, 061454	41	-3	-3	0	-0.5	3	9
7	Roseville Park, 5.1864	33	-8	-11	-1	0.4	6	-7
8	Shahs Poll, Y1372	34	1	1	-0.1	-2.8	-19	18
9*	Toland, W611	51	7	11	0.5	-2.7	7	-7
10	Woolkabin Poll, Wrangler	36	-2	-1	0.4	-1.3	-15	9
	Average performance		2.7 kg	1.8 kg	16.0 µm	39.1 kg	28 %	27 %

* Link ram: Ram evaluated to provide links between site evaluations and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

^ Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

UR Unregistered Flock. Rams bred in an unregistered flock are identified in the table by a UR following the ram's code.

[1] Classer's Grade is expressed as the percentage deviation of average Tops% and Culls%

■ Information on how to use the results in the table above can be found on page 11.

Tables 2 – Other measured traits

Ram Code	Ram name	Number of progeny	Flock Breeding Values (deviations)						
			Y^FDCV %	YSL mm	YSS N/ktex	YCURV Deg/mm	YFAT mm	YEMD mm	PWWEC %
1 *	Ag WA Baseflock, 20002058	40	-1.5	2.3	2.7	-0.6	0.2	-0.2	-11
2	Cranmore Park, 4.4	38	-1.1	7.2	2.9	-4.8	0.5	1.1	45
3	Eastville Park Poll, 032314	40	0.3	-9.1	-0.5	4.6	0.1	-0.4	40
4	Edale, 06Z627R	27	0.6	5.9	-3.1	3.4	2.3	2.6	4
5	Ejanding, 060003	45	-0.1	2.4	1.3	1.2	-0.5	-0.6	-21
6	Manunda Poll, 061454	41	0.2	-5.4	-0.9	0.1	-0.9	-0.9	-19
7	Roseville Park, 5.1864	33	0.1	-7.5	-1.6	12.4	0.2	0.8	-37
8	Shahs Poll, Y1372	34	1.2	-2.2	-3.2	-2.8	-2.2	-2.8	-10
9 *	Toland, W611	51	-1	14.1	2.2	-11.8	0.9	1.5	34
10	Woolkabin Poll, Wrangler	36	0.9	-5.2	0.8	-1.3	-0.5	-0.8	-8
	Average Performance		20.2 %	69.3 mm	31.7 N/ktex	85.1 Deg/mm	2 mm	22 mm	241 egg/gm

* Link ram: Ram evaluated to provide links between site evaluations and sites so that the all evaluations can be combined into one report, e.g., *Merino Superior Sires.*

^ Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older)

■ Information on how to use the results in the table above can be found on page 11.

Understanding the results

Scored trait performance – Tables 3a to 3e – pages 15 to 19

The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in the Visual Sheep Scores booklet (free on application to AWI 02 92995155).

A deviation from the average trait score for all progeny is reported as well as the percentage of the ram's progeny recorded for each trait.

■ Fleece rot:	The severity of fleece rot from **1** (no fleece rot), **2 and 3** (bands of bacterial staining but no crusting), and **4 and 5** (bands of crusty fleece rot).
■ Wool colour:	Greasy wool colour scored from **1** (whitest) to **5** (yellow).
■ Wool character:	Definition and variation of crimp between and along the staple scored from **1** (well defined and regular) to **5** (undefined and large variation).
■ Dust penetration:	Degree of dust penetration from **1** (only tip <5%) to **5** (80 to 100% of staple).
■ Staple weathering:	The deterioration due to light and water from **1** (least, <5% of staple) to **5** (most, 30 to 50%) reflect the depth and degree of deterioration.
■ Staple structure:	The size and diameter of each staple from **1** (<5mm) to **5** (30 to 50 mm)
■ Face cover:	Wool cover on the face scored from **1** (open face) to **5** (fully covered face).
■ Feet/Legs:	Conformation of feet and legs scored from **1** (very good) to **5** (very poor).
■ Body wrinkle:	The degree of body wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
■ Jaw:	Under- or over-shot lower jaw (and teeth) relative to the top jaw. Three scores **1** (very well aligned), **3** (marginally under or over) and **5** (heavily under or over).
■ Back/Shoulder:	Conformation of the back and shoulder from **1** (very good) to **5** (very poor).
■ Fibre pigmentation:	The percentage of dark fibres on any part of the sheep from **1** (0 pigmented fibres at any site) to **5** (76 to 100% pigmented fibres at one or more sites). This trait does not include random spot or recessive black.
■ Non-fibre pigmentation:	The percentage of pigmentation on the areas not shorn from **1** (0 pigmentation at any site) to **5** (76 to 100% pigmented area on one or more bare skin sites, **and/or** 76 to 100% of the total hoof area).
■ Recessive black: (black)	Recessive black (black) is identified by relatively symmetrical markings on both sides of the face. There are two scores **1** (no recessive markings) and **5** (recessive markings). This trait does not include random spot or fibre pigmentation.
■ Random spot: (spot)	Random spot (spot) is identified by rounded wool or hair spot/s, not symmetrical. There are two scores **1** (no spot/s) and **5** (spot/s). If both sides of the face or body are spotted the sheep should be scored as a recessive black.
■ Breech cover	Size of natural bare area around the breech from **1** (large) to **5** (no bare).
■ Crutch cover	Size of natural bare area in the pubic and groin from **1** (large) to **5** (no bare).
■ Breech wrinkle	Degree of wrinkle at the tail set and kind legs from **1** (nil) to **5** (extensive).
■ Dag	Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
■ Injury/Disease:	Non-genetic effects due to injury, misadventure or infection – Yes or No.

Table 3a – Visual trait assessments – Wool quality

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported.
For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better.

Ram code	Wool quality																							
	Fleece rot						Wool colour						Wool character						Dust penetration					
	Dev	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**
1*	0.0	94	6	0	0	0	0.1	42	50	2	6	0	-0.2	25	53	22	0	0	-0.1	17	78	5	0	0
2	0.0	100	0	0	0	0	-0.2	49	51	0	0	0	0.1	22	46	27	0	5	0.0	19	65	16	0	0
3	0.0	95	5	0	0	0	0.0	44	44	10	2	0	-0.2	28	49	21	2	0	0.0	20	59	21	0	0
4	0.0	100	0	0	0	0	-0.2	56	44	0	0	0	0.0	22	44	26	8	0	0.1	19	56	22	3	0
5	0.0	97	3	0	0	0	0.0	39	55	6	0	0	0.2	3	63	26	8	0	0.0	18	66	16	0	0
6	0.0	92	8	0	0	0	0.2	36	49	10	5	0	0.3	18	33	31	18	0	0.0	21	64	15	0	0
7	0.0	100	0	0	0	0	-0.1	52	45	0	0	3	-0.1	38	31	24	4	3	-0.2	38	55	4	0	3
8	0.0	94	6	0	0	0	0.4	21	58	18	0	3	-0.4	48	33	12	4	3	0.0	15	79	3	0	3
9*	0.0	100	0	0	0	0	-0.4	73	24	3	0	0	-0.2	33	43	20	4	0	0.0	20	65	15	0	0
10	0.1	91	9	0	0	0	0.2	29	57	11	3	0	0.4	12	37	40	11	0	0.2	11	63	26	0	0
Av	1.0	96	4	0	0	0	1.7	44	48	6	2	0	2.2	25	43	25	6	1	2.0	20	65	14	0	1

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

■ Information on how to use the results in the table above can be found on page 14.

Table 3b – Visual trait assessments – Wool quality

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported. For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better.

Sire Code	Wool Quality											
	Staple Weathering						Staple Structure					
	Dev	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**
1*	-0.1	11	67	22	0	0	0.0	27	42	31	0	0
2	0.0	6	70	24	0	0	0.3	14	38	46	2	0
3	0.0	2	77	18	3	0	-0.1	33	44	18	5	0
4	-0.1	4	89	7	0	0	0.0	26	48	22	4	0
5	0.0	3	76	21	0	0	0.1	10	61	29	0	0
6	0.0	3	79	18	0	0	0.3	18	38	36	8	0
7	-0.1	10	83	4	0	3	-0.6	57	36	7	0	0
8	0.1	0	79	15	3	3	-0.4	42	52	6	0	0
9*	0.0	0	84	14	2	0	0.2	20	41	37	2	0
10	0.1	0	74	26	0	0	0.2	26	29	37	8	0
Av	2.2	4	78	17	0	1	2.1	27	43	27	3	0

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

■ Information on how to use the results in the table above can be found on page 14.

Table 3c – Visual trait assessments – Pigmentation and Conformation

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported. For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better.

Four pigmentation traits are reported as described on page 14. These are Fibre pigmentation, Non-fibre pigmentation, Recessive "black" and Random "spot". Fibre pigmentation and Non-fibre pigmentation are scored **1** to **5** however Recessive black and Random spot are scored **1** (no pigmentation of this type) or **5** (when the trait is expressed). Only the percentage scored 5 are reported for Recessive black and Random spot.

Ram code	Pigmentation													
	Fibre pigmentation						Non-fibre pigmentation						Black	Spot
	Dev	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**	**5**	**5**
1*	0	92	8	0	0	0	0	18	72	10	0	0		0
2	-0.1	100	0	0	0	0	0	8	84	8	0	0		0
3	0	90	8	2	0	0	0	21	64	10	5	0		2
4	0.2	85	4	11	0	0	0.4	7	59	26	4	4		0
5	0	96	2	2	0	0	0.1	13	69	18	0	0		0
6	-0.1	100	0	0	0	0	-0.4	50	48	2	0	0		0
7	0	91	9	0	0	0	0	25	59	9	7	0		0
8	0.2	82	6	9	0	3	0.2	24	53	15	2	6		0
9*	0	90	10	0	0	0	0.1	12	77	6	5	0		0
10	-0.1	100	0	0	0	0	-0.4	42	58	0	0	0		0
Av	1.1	93	5	2	0	0	2	22	64	10	2	2		0

Conformation						
Jaw						
Dev	**1**	**2**	**3**	**4**	**5**
0	97	3	0	0	0
-0.1	100	0	0	0	0
0.1	95	2	0	0	3
-0.1	100	0	0	0	0
0	97	3	0	0	0
-0.1	100	0	0	0	0
0.1	97	0	0	0	3
0.3	91	0	0	0	9
-0.1	100	0	0	0	0
0	97	3	0	0	0
1.1	97	1	0	0	2

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

■ Information on how to use the results in the table above can be found on page 14.

Table 3d – Visual trait assessments – Conformation

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported.
For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better. Face cover and body wrinkle are possible exceptions when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.

Ram code	Conformation																	
	Legs/Feet						Shoulder/Back						Face cover					
	Dev	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**
1*	0	5	81	14	0	0	0	28	64	8	0	0	-0.2	17	83	0	0	0
2	0.1	11	70	14	5	0	-0.3	49	49	2	0	0	-0.3	22	78	0	0	0
3	0	18	64	18	0	0	0.2	18	56	26	0	0	0.2	3	74	18	5	0
4	0	19	70	7	0	4	-0.3	48	52	0	0	0	-0.2	15	81	4	0	0
5	-0.1	42	29	26	3	0	-0.1	37	53	10	0	0	0.2	0	79	16	5	0
6	0	23	51	21	5	0	-0.2	51	31	15	3	0	0	10	82	2	3	3
7	-0.1	24	66	4	3	3	0.1	31	55	10	0	4	0	10	79	5	3	3
8	0.3	9	61	18	9	3	0.5	6	61	24	6	3	0.1	3	85	6	3	3
9*	0	29	47	16	8	0	0	27	63	10	0	0	0	4	86	6	4	0
10	-0.2	29	60	11	0	0	0.1	17	71	12	0	0	0.1	0	83	14	3	0
Av	2.0	21	60	15	3	1	1.8	31	55	12	1	1	2.1	8	81	7	3	1

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

■ Information on how to use the results in the table above can be found on page 14.

Table 3e – Visual trait assessments – Breech

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported. For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better.

Ram code	Breech																							
	Post Weaning Breech cover						Post Weaning Crutch cover						Marking Breech wrinkle						Post Weaning Dag					
	Dev	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**	**Dev**	**1**	**2**	**3**	**4**	**5**
1*	-0.1	0	0	11	31	58	-0.3	0	22	64	6	8	-0.4	0	15	50	30	5	-0.1	61	39	0	0	0
2	-0.4	0	5	8	57	30	-0.6	3	46	35	16	0	-0.4	0	6	71	18	5	-0.1	65	30	5	0	0
3	0.1	0	0	3	32	65	0.7	0	0	20	60	20	0.5	0	3	18	38	41	0	62	28	8	2	0
4	0.2	0	0	0	31	69	0	0	8	54	38	0	-0.3	3	22	30	26	19	0.1	50	42	8	0	0
5	0.2	0	0	0	22	78	0.6	0	0	25	57	18	0	0	0	49	38	13	0	60	32	5	0	3
6	0.1	0	0	3	35	62	-0.3	0	22	57	15	6	0.6	0	3	12	35	50	0.2	48	40	12	0	0
7	-0.1	0	0	3	50	47	-0.5	0	27	67	6	0	0.4	0	3	16	47	34	0.2	50	37	10	3	0
8	-0.1	0	0	6	44	50	0.1	0	12	50	28	10	-0.2	0	12	38	35	15	0	66	28	3	0	3
9*	0.2	0	0	6	16	78	0.4	0	4	33	53	10	-0.4	0	26	32	28	14	0	61	31	6	0	2
10	0	0	0	0	50	50	-0.2	0	14	61	25	0	0.2	0	3	33	36	28	-0.2	75	19	6	0	0
Av	4.5	0	0	4	37	59	3.3	0	16	47	31	6	3.7	0	10	35	33	22	1.5	60	33	6	0	1

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

■ Information on how to use the results in the table above can be found on page 14.

Table 4 – **Ram averages for measured traits**

Ram averages are the average performance of all the progeny of a ram. No account is made for factors that can improve the breeding value accuracy.

Sire code	Sire name	Number of progeny	Sire averages for measured traits (deviations)									
			Y^GFW	YCFW	YFD	YWT	YFDCV	SL	YSS	YCURV	YFAT	YEMD
			%	%	µm	kg	%	mm	N/ktex	deg	mm	mm
1	Ag WA Baseflock, 20002058	40	0	0	0	0.8	-1.1	1.7	1.6	-0.8	0	-0.2
2	Cranmore Park, 4.4	38	0.2	0.1	1.1	2.3	-0.8	4.8	1.3	-3.1	0.1	0.6
3	Eastville Park Poll, 032314	40	-0.2	-0.1	-0.6	-2.4	0.2	-7	-0.2	2.5	0	-0.2
4	Edale, 06Z627R	27	0.1	0.1	-0.4	3	0.7	6.5	-2.2	3.3	0.4	1.5
5	Ejanding, 060003	45	0	0	0	0.2	0	2	1.5	1.3	-0.1	-0.4
6	Manunda Poll, 061454	41	-0.1	-0.1	0	0.2	0.1	-5.4	-1	-1	-0.2	-0.5
7	Roseville Park, 5.1864	33	-0.1	-0.1	-0.7	0.2	0.1	-5.3	-1.2	9.4	0	0.5
8	Shahs Poll, Y1372	34	0	0	0	-1.7	0.8	-2.6	-2.5	-2.3	-0.3	-1.6
9	Toland, W611	51	0.1	0.2	0.2	-1.5	-0.8	10.3	1.3	-7.6	0.1	1
10	Woolkabin Poll, Wrangler	36	-0.1	0	0.3	-1.1	0.8	-5	1.4	-1.7	-0.1	-0.5
	Average Performance	39	2.7	1.8	16.0	39.1	20.2	69.3	31.7	85.1	2.0	21.5

* Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*

^ Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

Table 5 – **Ram's Progeny Group Evenness**

Ram Progeny Group Evenness

The assessment of evenness of ram progeny groups was carried out at 11 months of age with 9 months wool growth.
Classers assess the progeny for evenness to type based on visually assessed traits as described on page 14.
Evenness scores in the table below range from 1 (very even) and 5 (very uneven).
Evenness does not imply a "high standard" of performance as the progeny could be even but of a poor performance. Performance is reported in tables 1, 2 and 3.
Generally the comments report the traits that are uneven and the progeny in the group can be considered even for traits not described in the comments.

Ram code	Breeders flock, Ram number	Evenness score	Evenness comments	
1*	Ag WA Baseflock, 20002058	1	• Medium to large frame with odd smaller type. • Clean open types tending to some barer points.	• Good even group.
2	Cranmore Park, 4.4	1	• Very even group. • Medium to large frame. • Only about 2 smaller framed sheep.	• Plainer open face type sheep. • Barer points.
3	Eastville Park Poll, 032314	2	• Good medium frames with odd large but a few extra smaller ones.	• Clean but well covered heads and points. • Plain enough.
4	Edale, 06Z627R	2	• Even but medium frame tending to a couple of smaller frames.	• Open heads but plain enough.
5	Ejanding, 060003	1	• Very even. • Large to Medium frame. • 3-4 plain types with open but well covered heads.	• Little more coverage on the points. • Odd bit of cover on the muzzle.
6	Manunda Poll, 061454	1	• Large medium frame. • Even with just the odd lighter sheep (4-5) but a bigger group.	• Good heads; open and clean. • Some of the bigger sheep of all the groups.
7	Roseville Park, 5.1864	1	• Very even but mostly medium frames; odd lighter one. • Plain enough.	• Open to slight coverage on the heads. • Tending to a little bit barer on the points.
8	Shahs Poll, Y1372	2	• Some of the biggest but a few smaller and lighter ones as well. • Clean open heads.	• Well covered on points. • Plain enough.
9*	Toland, W611	1	• Large to Medium frames and even throughout. • Just odd smaller frame sheep.	• Plain bodies with mostly open clean heads. • Some coverage on the points.
10	Woolkabin Poll, Wrangler	2	• Medium frame but fairly even. • Tending to some smaller types. • Maybe a little bit thicker but not enough to be concerned.	• Open covered heads. • Coverage on points.
	Average performance	1.4		

* Link ram: Ram evaluated by the site to provide links between years and sites so that the all site results can be combined into a single report – *Merino Superior Sires*.

Index Options – page 9

Breeding Objective index options provide the relative value of rams based on a combination of the measured traits' genetic performance. The indexes used in this report are only some of the many indexes that can be used to describe an individual breeder's objective for measured traits.

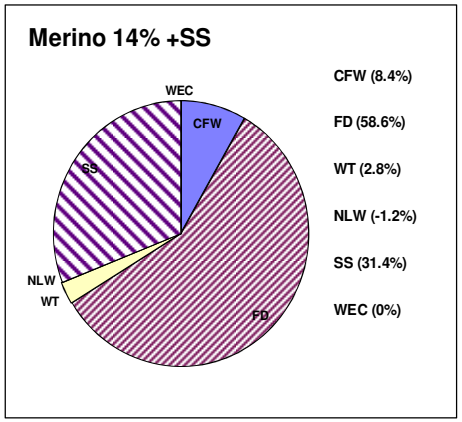
If a breeder is considering using a ram in this report it is critical to consider the performance of the breeder's flock relative to the performance standard in this report. The relative performance must be considered to establish the result that can be expected when a ram is used in a breeder's flock.

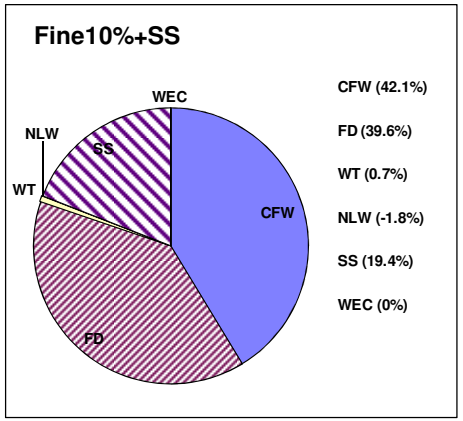
All AMSEA site evaluation reports present 3 standard indexes to provide combined **measured** trait performance These 3 AMSEA indexes are Fine 10% +SS; Merino 14% +SS; and Dual Purpose 7%. These indexes are the same as MERINOSELECT indexes of that name however as there is no direct reproduction records captured by sire evaluation AMSEA do not include a Reproduction (NLW) FBV in their index calculations. As a result the 14% contribution by NLW in the Dual Purpose 7% index is not effectively applied by the index calculation.

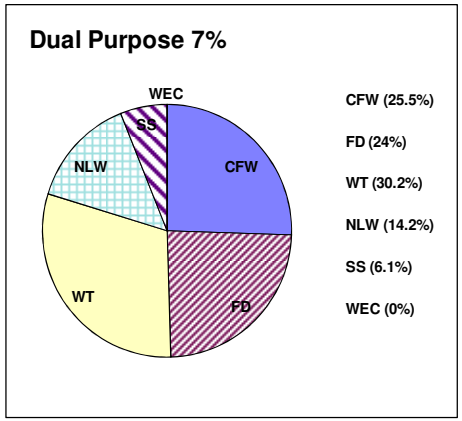
Index *production system* and breeding objectives

AMSEA **Fine 10% +SS** (F10% +SS)	*Fine wool Merino self-replacing production system* with moderate emphasis on fleece weight and fibre diameter (10% Micron Premium) plus moderate emphasis on staple strength and maintain performance on other traits.
AMSEA **Merino 14% +SS** (M14% +SS)	*Medium wool Merino self-replacing production system* with high emphasis on fibre diameter and low emphasis on fleece weight (14% Micron Premium) plus moderate emphasis on live weight and staple strength with maintain performance on other traits.
AMSEA **Dual Purpose 7%** (DP7%)	*Medium wool Merino self-replacing production system (in conjunction with 25% of ewes in terminal lamb production)* with moderate emphasis on fleece weight and fibre diameter (7% Micron Premium) plus high emphasis on live weight and maintain performance on other traits.

Traits contribution to economic gain: The percentage contribution of the traits listed to economic gain in a commercial flock that selects rams using the index.







Accuracy of Flock Breeding Values

Flock Breeding Values (FBVs) are reported by Sheep Genetics Australia (SGA). FBVs express the expected performance of progeny of a ram relative to another ram in the evaluation when mated to the same standard of ewes. FBVs improve the accuracy of ram results because they account for the association between traits, adjustment for birth effects and the number of progeny a ram has in the analysis.

True Breeding Values would be achieved if the number of progeny evaluated for each ram were infinite. Because the number of progeny in the evaluation is not infinite, performance shown in this report is described as *Flock* Breeding Values.

Without progeny test information the correlation between the *Flock* and *True* Breeding Value of rams from different sources would be zero (0.0%). The correlation between *Flock* and *True* Breeding Value improves rapidly from 0.0% with no progeny to 77% with 10 progeny. The rate of improvement in correlation slows from 86% with 20 progeny, to 90% with 30 progeny and 92% with 40 progeny. With an infinite population the correlation is 100%. Note that the correlation used in the above example is for a trait such as fibre diameter with a high heritability (0.5).

A heritability of 0.5 indicates that half or 50% of the measured performance is passed onto offspring. A heritability of 0.35 indicates 35% is passed on. The FBVs that are shown in this report have already accounted for heritability and therefore describe the performance that can be expected from a ram's progeny.

Link rams

Link rams provide the 'genetic link' between CTSE sites located across Australia to allow all rams entered in these site evaluations to have their performance reported relative to each other in *Merino Superior Sires*. *Merino Superior Sires* reports rams from across all effectively linked CTSE sites and across all evaluations at these sites. Link rams are therefore a vital component of the Central Test Sire Evaluation.

To be used as a link a ram must have at least 25 progeny assessed at 1st Assessment at one accredited site. Site reports provide valuable information not reported in *Merino Superior Sires* however *Merino Superior Sires* reports the performance of a large number of rams which can provide a wider perspective of the elite rams available across many flocks in Australia and New Zealand.

Combined measured trait and combined visual trait performance

Combined measured trait performance is calculated as (7% MP Index - 100). Combined visual trait performance is calculated as (Classer's Grade Tops% - Culls%) /5, expressed as a deviation from (average Tops% - average Culls%) /5.

Example

Ram's performance:
- AMSEA 7% MP Index value = 119.7
- Tops% = 25.5 (average Tops% = 25.1)
- Culls% = 17.6 (average Culls% = 16.4)

- Combined Measured = 119.7.0 - 100 = 19.7
- Combined Visual = ((25.5 – 17.6)/5) – ((25.1 – 16.4)/5) = 7.9/5 – 8.7/5 = 1.58 – 1.74 = -0.16

Badgingarra 2008 Drop