Longreach (QLD)

Central Test Sire Evaluation

2008 drop, 1st Assessment

The Australian Merino Sire Evaluation Association

with support from

Queensland Primary Industries and Fisheries, Longreach

Australian Agricultural College Longreach

January 2010

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Foreword

Longreach Central Test Sire Evaluation

The Longreach drop 1st Assessment 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 of Merino breeders, Merino breeding service providers, the Rosebank Research Station (QPIF) and Australian Agricultural College run and help run the Longreach Sire Evaluation.

Longreach has the following background.

- This is the first sire evaluation to be undertaken in Central West Queensland and the first in any pastoral zone within Australia
- The evaluation was run at the Rosebank Research Station (QPIF) at Longreach in Central Western Queensland
- The ewes used for the Sire Evaluation were those that were already available at Rosebank which had been sourced from Lansdowne, Tambo and Barcaldine Downs, Barcaldine. There were no maiden ewes in the trial; the ewes used were either on their 2nd, 3rd or 4th joining. The sire groups were randomly selected. The average micron of the ewes was 21.
- Each sires progeny (both ewes and wethers) were measured and visually assessed at the age of 17 months, in 12 months wool. The mid side samples were processed by Australian Fibre Testing.

Rick Keogh, Chair of the Site Committee
Date 02/02/2010

Current members of the Site Committee

Name	Phone	Position on committee
Rick Keogh	07 4657 5987	Chairperson
Mike Rival	07 4671 2203	Site Committee Treasurer
Bill Willis	07 4625 9158	
Oliver Wythes	02 6344 2969	
John Sutherland	02 6895 3017	
Allan Casey	02 6391 3812	
Phil Toland	03 5798 1605	
Errol Brumpton	07 4623 1170	
Peter Campbell	07 4626 5454	
Doug Allpass	07 4658 2792	Research Station Supervisor, Longreach
Andrea Hewitt	07 4650 1225	Industry Development Officer (Sheep & Wool)
Duncan Ferguson		Classer

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Date of publication: January 2010

2009 1st Assessment

The information in this site evaluation report provides a comprehensive assessment of the 2008 1st Assessment of the sire's progeny performance, both measured and visually assessed traits. The 1st Assessment was made at 12 months of age with 12 months of wool growth.

Three graphs and a table provide a summary of the results. Eight tables provide the detailed performance information.

Contents

Sire and owner details

Longreach 2008 drop 1st Assessment, 18 months of age with 12 months wool growth.

Sire and owner details

Ram code	Breeders flock, Ram number Ram ID #, Breed †	Contact name, address Phone, fax, email
1*	Bullamon Plains, 184 5009642002000184, Merino	Bill Willis 'Bullamon Plains' Thallon QLD 4497 P 07 4625 9158 F 07 4625 9236 E bullamonplains@bigpond.com
2	Egelabra, HEK 1-36 5000322001010036, Merino	Oliver Wythes 'Rockdale" Canowindra NSW 2804 P 02 6344 2969 F 02 6344 1989 E rockwythes@bigpond.com
3	Pooginook, Diamond 5007882003030582, Merino	John Sutherland, Paraway Pastoral Company East Borambil, Condobolin NSW 2877 P 02 6895 3017 F 02 6344 1989 E j.sutherland@parawaypastoral.com.au
4	QPLU$, 047352 5047482004147352, Merino	Dr Sue Mortimer Research Scientist, Animal Genetics Research | Primary Industries Industry & Investment NSW | Trangie Agricultural Research Centre | PMB 19 | Trangie | NSW 2823 T: 02 6880 8008 | F: 02 6888 7201 | M: 0408 201 447 | E: sue.mortimer@industry.nsw.gov.au
5	QPLU$, 047367 5047482004247367, Merino	Dr Sue Mortimer Research Scientist, Animal Genetics Research | Primary Industries Industry & Investment NSW | Trangie Agricultural Research Centre | PMB 19 | Trangie | NSW 2823 T: 02 6880 8008 | F: 02 6888 7201 | M: 0408 201 447 | E: sue.mortimer@industry.nsw.gov.au
6	Terrick, 939 5004402001000939, Merino	Rick Keogh, Amaroo Blackall QLD 4472 P 07 4657 5987 F 07 4657 5987 E amaroo6@bigpond.com
7*	Toland, W611 5044852001010611, Merino	Phil Toland, RMB 2005, 1888 Feltrim Road, Violet Town VIC 3669 P 03 5798 1605 F 03 5798 1404 E tolandmerino@bigpond.com
8	Well Gully Poll, MT005 60110620044MT005, Poll Merino	Errol Brumpton, Brumpton Quality Wool Australia, Well Gully Mitchell QLD 4465 P 07 4623 1170 F 07 4623 6670 E wellgullymerinos@bigpond.com
9	Wyambeh Poll, 060183 6013432006060183, Poll Merino	Peter Campbell, Wyambeh MS1111 Roma QLD 4455 P 07 4626 5454 F 07 4626 5454 E peter.campbell53@bigpond.com

***** 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

- Rosebank Research Station is located 8km south of Longreach on the Jundah Road, and is a 6907ha property.
- Rosebank consists of mainly undulating open Mitchell grass plains on cracking clay soils with scattered or isolated trees. Minor areas of sparse forbland on scalds. Generally drain into open alluvia and adjoin gidyea woodlands, jump ups or soft mulga sand ridges.
- Soils are deep grey, brown and red, strongly cracking clays with self-mulching surfaces derived from freshwater sandstone sediment.
- The average yearly rainfall for Rosebank is 450mm
- Carry capacity is estimated to be 3800 DSE.

2. Selection and mating

- Number of Ewes selected: 900
- The ewes were those normally joined at Rosebank Research Station and only ewes that had major faults were taken out of the evaluation. There were no maiden ewes in the trial, the ewes used were either on their 2nd, 3rd or 4th joining.
- The ewes used in the trial were from Lansdowne at Tambo, and Barcaldine Downs, Barcaldine. The average fibre diameter for the flock is 21.
- Date ewes were inseminated: 21-24.11.2007
- Nine sires were participating in the evaluation.
- All semen was of industry acceptable standard, this was borne out in pregnancy rate achieved, all ewes were of satisfactory breeding potential; this is borne out in pregnancy rate achieved (overall 66% pregnancy)
- The insemination was undertaken by: Mike Rival BVSc
- 100 ewe candidates were sponged, randomly split up by auto-draft prior to AI. Between 75 and 80 ewes were inseminated to each ram.

3. Pregnancy and lambing

- The pregnancy scanning took place on the 28 Jan 2008; all the ewes were scanned – with a conception rate of 65%. The twinning rate from the scanning was very low, although scanning results was not accurate and lambs were born out of those scanned as 'empties'.
- Ewes were crutched and put in best paddock on Rosebank, feed very good quality after 225mm in Nov/Dec and small follow up falls at the beginning of the year. Ewes drafted into sire groups and put into lambing paddocks 27 March 08.
- The lambs were tagged on the 30 April 2008 and the ewes and lambs were run together in one paddock and managed as a normal mob. There are four watering points in the paddock and they are regularly cleaned and built up for the lambs. There was plenty of shade a good bulk feed. Predator control was also in place in the paddock.

- Ewes were divided up into their sire groups for 21 days during lambing to ensure mothering up was accurate. The first pigment assessment was also completed at this time.

4. Weaning and seasonal conditions

- Weaning date: 03 July 2008
- E-Tags applied: 30 April 2008
- Marking: 11 June 2008
- There was still plenty of dry feed available, there was no supplementation required. All stock during this time were in excellent condition.

5. Assessments

- Pigment recording completed: 11 June 2008
- Adult visual scoring date: 13 October 2009 completed by Duncan Ferguson
- No adult visual sire group assessment was completed.
- Adult wool sampling date: 13 October 2009
- Body weighing completed with visual assessments Breech Cover, Breech Wrinkle and Body Wrinkle on 22 October 2009 by Andrea Hewitt and Alex Stirton, Agri-Science Queensland
- Eye Muscle Diameter Scanning completed by Kate Gill Advanced Livestock Services, NSW on 23 October 2009

6. General

- Even up shearing date: 5 November 2008
- Adult Shearing Date: 15 October 2009
- Crutching prior to shearing date: 18 August 2009

7. Rainfall

	"Longreach Aero" Rainfall (mm per month) *						
Month	2004	2005	2006	2007	2008	2009	Average
January	205	65	15	186	56	134	77.7
February	85	41	97	32	19	130	78.8
March	1	0	60	39	1	39	55.2
April	27	0	91	0	0	31	39.1
May	1	48	11	0	3	1	27
June	0	97	15	61	31	7	16.4
July	0	16	23	0	32	0	18.8
August	7	13	8	19	0	0	11.4
September	3	30	1	12	70	14	10.1
October	0	28	2	5	23	17	23.8
November	65	7	4	38	42	7	27.9
December	62	6	54	169	23	104	56.3
Total	456	351	381	561	300	484	441.2

* Source: Australian Bureau of Meteorology website

	Rosebank Research Station (mm per month) *					
January	161	67	27.5	136	26	175
February	64	33	63	0	0	96
March	0	0	70.5	28	9	0
April	0	0	99	0	0	37
May	26	46	20	0	0	0
June	0	86	19	60	12	0
July	0	12	27	0	14	0
August	3	14	0	0	0	0
September	13	15	0	0	65	0
October	0	11	0	0	22	0
November	77	0	0	55	39	0
December	76	0	87	169	0	214
Total	420	284	413	448	187	522
Month	2004	2005	2006	2007	2008	2009

* Source: Doug Allpass, Research Station Supervisor at Rosebank.

Reported by: Andrea Hewitt, Industry Development Officer (Sheep & Wool)
Queensland Primary Industries & Fisheries, DEEDI, Longreach

Assessment and management program

Activity		Date/s	Age (months)	Wool (months)
Selection of ewes		Not Applicable		
Allocation of ewes for mating and mating		Not Applicable		
Pregnancy scanning		Not Applicable		
Separated into sire lambing groups		Not Applicable		
Lambing: start – finish		April 14 - 28		
Lambing mobs boxed to 1 sex management group		Not Applicable	Age days	
Tagging/pigment scores (age in days)		11 June 2008	90 days	
Marked and scored for breech traits		11 June 2008	90 days	
Mulesing		Not applicable		
Weaning (age in days)		03 Jul 2008	120 days	
Pre assessment (even-up) shearing		05 Nov 2008	7	7
Crutching	• 1st:	18 Aug 2009	16	9
Fat and eye muscle scanning and body weight		22 Oct 2009	18	
Fleece sampling	• 1st Assessment:	13 Oct 2009	11	11
Staple length assessment	• 1st Assessment:	13 Oct 2009	18	11
Classer's Grade	• 1st Assessment:	13 Oct 2009	18	11
Pre shearing scoring	• 1st Assessment:	13 Oct 2009	18	11
Assessment shearing	• 1st Assessment:	15 Oct 2009	18	11
Post shearing scoring	• 1st Assessment:	22 Oct 2009	18	11
Body weigh	• weaning • 1st Assessment:	03 July 2008 22 Oct 2009	3 18	
Worm egg count sampling	• 1st Assessment:	Not applicable		
Sire's Progeny Group Evenness assessment		Not applicable		
Vaccination	At marking on the 11 June 2008 a 6 in 1 was administered			
Drench	Not required.			
Supplementary feeding: start - finish	No supplementary feeding undertaken			
Field day or public display of sheep	■ 10th July 2008 ■ 25th Feb 2010 "Improving your flock genetics"			

Visual tait assessment and site Breeding Objective

Visual tait assessment

1st Assessment
Classer's Grade: Duncan Ferguson
Trait Scores: Duncan Ferguson (all other traits), Andrea Hewitt (body wrinkle), Alex Stirton (breech wrinkle, breech cover and crutch cover).

Site Breeding Objective used to assess the Classer's Grades

The Breeding Objective used by the classer when selecting the Classers Tops, Flock and Cull Grades is described below. The Breeding Objectives for both measured and visual assessed traits that is described below were developed by the site committee in consultation with the classer.

1st Assessment
Classing selections were based on a Merino 7% index and sheep had performed well for growth, were structurally sound and good wool quality traits.


Classer Duncan Ferguson with Rick Keogh and Doug Allpass


College Shearer at even up shearing


Students from the Australian Agricultural College, Longreach

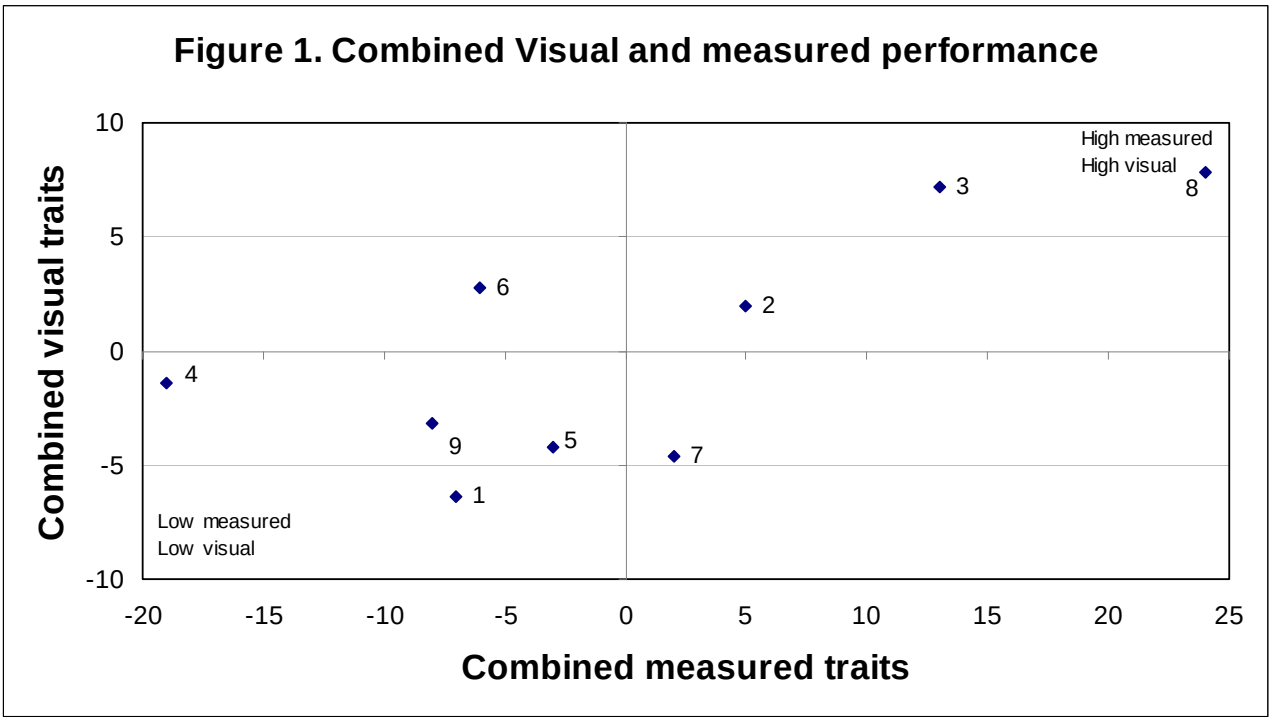
Figure 1. **Combined measured traits and visual trait performance**

Summary graph: visual and measured performance

Each sire that had 20 or more progeny assessed at 1st Assessment 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 reported in Figure 1 above	
Ram code	Breeders flock, Ram number
1*	Bullamon Plains, 184
2	Egelabra, HEK 1-36
3	Pooginook, Diamond
4	QPLU$, 047352
5	QPLU$, 047367
6	Terrick, 939
7*	Toland, W611
8	Well Gully Poll, MT005
9	Wyambeh Poll, 060183

Table A. **AMSEA Index values and Classer's Grade**

The highest performing 3 sires for each trait (i.e., trait leaders) are highlight by shading, e.g., in the table below see Sire 8 for Classers Grade – Tops%.

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) being given a zero FBV value in AMSEA calculations.

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

Ram code	Breeders flock, Ram number	No of Progeny	AMSEA Indexes values				Classer's Grade	
			Merino 14% SS	Fine 10% SS	Dual Purpose 7%	Merino 7%	Tops % (dev) A^	Culls % (dev) A
1*	Bullamon Plains, 184	46	87	88	89	93	-17	15
2	Egelabra, HEK 1-36	34	109	109	100	105	11	1
3	Pooginook, Diamond	34	113	115	105	113	23	-13
4	QPLU$, 047352	54	83	82	83	81	-1	6
5	QPLU$, 047367	38	93	96	97	97	-14	7
6	Terrick, 939	44	95	91	101	94	-1	-15
7*	Toland, W611	48	106	104	100	102	-16	7
8	Well Gully Poll, MT005	47	123	128	116	124	26	-13
9	Wyambeh Poll, 060183	42	91	87	108	92	-11	5
Average performance		43	100	100	100	100	30	32

* 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.

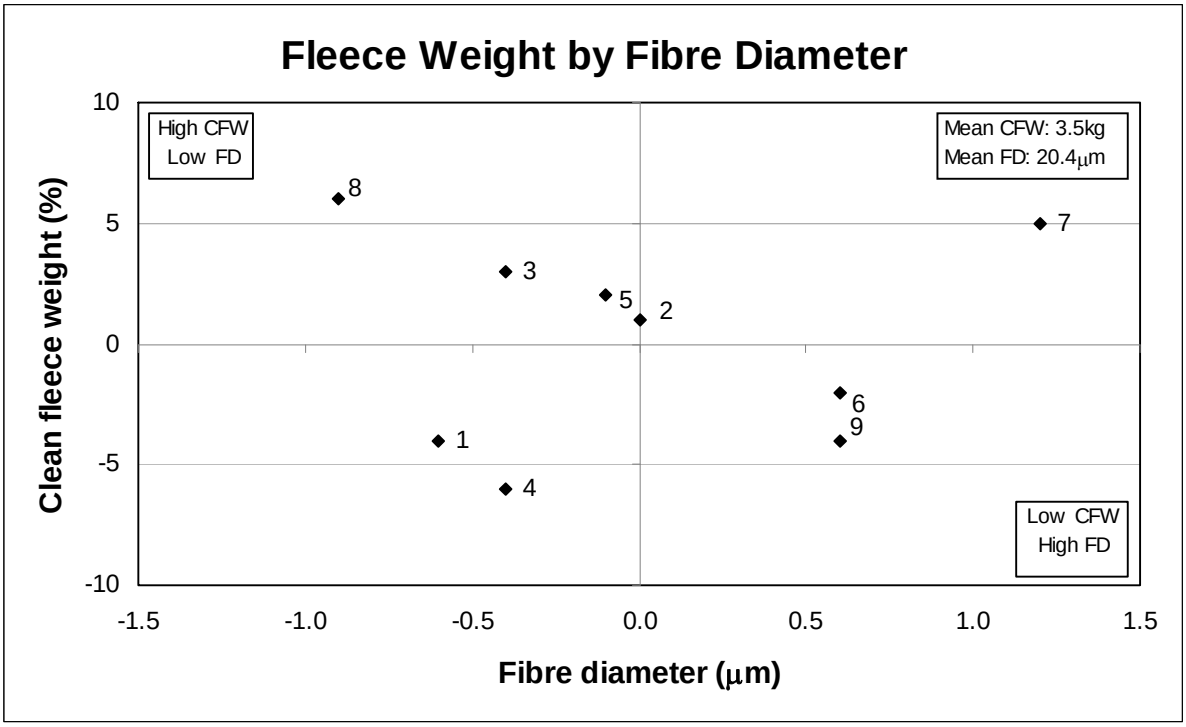
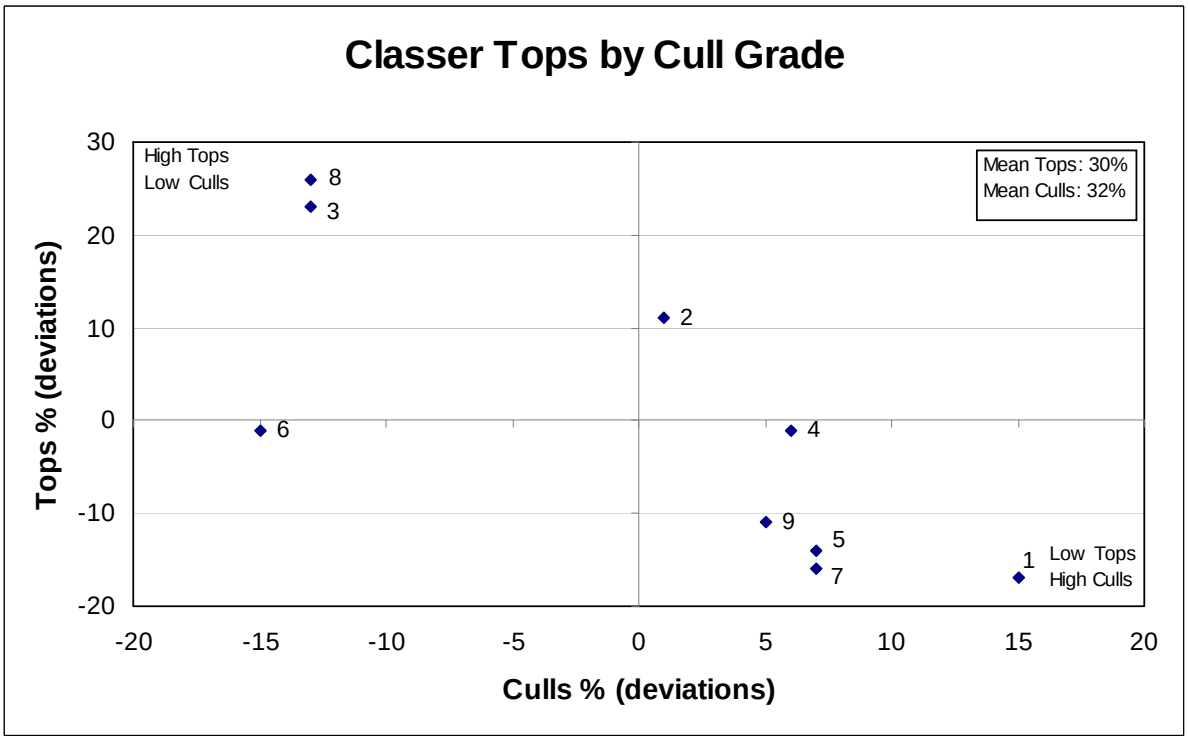


Figure 3. Classers Tops by Cull Grade
The graph describes performance for Classer's Tops Grade on the side axis and Cull Grade on the bottom axis. Rams that have above average Tops and below average Culls are in the top left hand quarter.



Understanding the results

Measured trait performance and Classer's Grade – Tables 1 and 2 – pages 13 and 14

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	Breeders flock, Ram number	No. of prog.	Flock Breeding Values (deviations)								Classer's Grade [1]			
			GFW%		CFW%		FD µm		WT kg		Tops % (dev)		Culls % (dev)	
			Y^	A	Y	A	Y	A	Y	A	Y	A	Y	A
1*	Bullamon Plains, 184	46		-3		-4		-0.6		3		-17		15
2	Egelabra, HEK 1-36	34		1		1		0		-1.1		11		1
3	Pooginook, Diamond	34		1		3		-0.4				23		-13
4	QPLU$, 047352	54		-4		-6		-0.4		-3.6		-1		6
5	QPLU$, 047367	38		2		2		-0.1		-1.9		-14		7
6	Terrick, 939	44		-2		-2		0.6		2.3		-1		-15
7*	Toland, W611	48		5		5		1.2		-2.5		-16		7
8	Well Gully Poll, MT005	47		4		6		-0.9		0.8		26		-13
9	Wyambeh Poll, 060183	42		-3		-4		0.6		3.2		-11		5
Average performance			kg	4.9 kg	kg	3.5 kg	µm	20.4 µm	kg	40.3 kg	%	30 %	%	32 %

* 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 12.

Table 2. **Other measured traits**

Ram code	Breeders flock, Ram number	No. of prog.	Flock Breeding Values (deviations) FDCV % A^	SL mm A	SS *N/ktex* A	Curv deg/mm A	Fat mm H	EMD mm H	WEC% Y
1*	Bullamon Plains, 184	46	2	-8.2	-8.3	5.9	-1.6	-1.7	
2	Egelabra, HEK 1-36	34	-0.9	-1.2	4.2	6.3	-0.8	-0.6	
3	Pooginook, Diamond	34	-1	-0.8	0.3	0.3	-1.1	-1	
4	QPLU$, 047352	54	1.8	-2.2	-4.1	0.3	2.7	1.5	
5	QPLU$, 047367	38	1.6	-3.8	-2.5	-1.2	-0.2	0.2	
6	Terrick, 939	44	-0.7	-1.2	0.9	2.5	0.8	0.6	
7*	Toland, W611	48	-1.1	4.6	9.6	-1.7	0.5	0.4	
8	Well Gully Poll, MT005	47	-0.5	1.7	2.0	-6.1	-1.7	-1.1	
9	Wyambeh Poll, 060183	42	-1.1	11.4	-2.2	-6.5	1.3	1.6	
	Average performance	43	19.3	84.6	46.8	76.4	2.5	23.0	

* 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 12.

Understanding the results

Scored trait performance – Tables 3a to 3e – pages 16 to 18

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**

Visually assessed traits reported in Tables 3a, b, c and d were scored at their 2nd Assessment apart from pigmentation that was scored at tagging and breech traits scored for 1st Assessment.

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.

	Wool Quality																						
Ram	Fleece Rot						Wool Colour						Wool Character						Dust Penetration					
code	**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	100	0	0	0	0	0.3	8	66	24	2	0	0.5	0	11	55	32	2	0.0	0	34	63	3	0
2	0.0	100	0	0	0	0	-0.2	37	56	7	0	0	-0.1	0	44	48	4	4	-0.3	4	59	37	0	0
3	0.0	100	0	0	0	0	0.1	20	63	10	7	0	-0.1	0	43	43	14	0	-0.1	0	40	60	0	0
4	0.0	100	0	0	0	0	0.2	18	53	29	0	0	0.1	0	27	60	13	0	0.0	0	42	49	9	0
5	0.0	100	0	0	0	0	0.2	13	55	32	0	0	0.0	4	16	77	3	0	0.0	0	39	61	0	0
6	0.0	100	0	0	0	0	0.0	12	85	3	0	0	0.0	3	29	56	12	0	-0.2	0	53	44	3	0
7*	0.0	100	0	0	0	0	0.0	21	65	12	2	0	0.3	0	28	42	26	4	0.4	0	16	63	21	0
8	0.0	100	0	0	0	0	-0.3	42	56	2	0	0	-0.4	0	65	35	0	0	-0.2	0	56	42	0	2
9	0.0	100	0	0	0	0	-0.1	22	73	5	0	0	-0.1	0	43	46	11	0	0.3	0	21	57	22	0
Avg.	1.0	100	0	0	0	0	2.0	21	64	14	1	0	2.8	1	34	51	13	1	2.7	0	40	53	7	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 15.

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.

Ram code	Wool quality																							
	Staple Weathering						Staple Structure																	
	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	0	61	37	2	0	0.4	0	8	74	18	0												
2	-0.3	4	81	15	0	0	0.1	4	33	37	26	0												
3	-0.1	0	70	30	0	0	-0.1	0	43	53	4	0												
4	0.0	2	56	40	2	0	-0.1	9	29	49	13	0												
5	0.0	0	58	42	0	0	0.1	3	19	68	10	0												
6	-0.1	0	76	18	6	0	0.1	0	29	59	12	0												
7*	0.5	0	28	56	16	0	0.1	2	28	56	14	0												
8	-0.2	3	79	16	2	0	-0.3	4	49	47	0	0												
9	0.3	0	30	65	5	0	-0.2	8	30	57	5	0												
Av	2.4	1	60	35	4	0	2.7	4	30	55	11	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 15.

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 15. 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*	0.3	77	11	9	3	0	0.2	77	16	5	0	2	0	2
2	-0.1	97	3	0	0	0	0	85	15	0	0	0	0	0
3	-0.1	97	3	0	0	0	-0.1	97	0	3	0	0	0	0
4	0	94	4	0	2	0	0	92	4	4	0	0	0	0
5	-0.1	97	3	0	0	0	-0.1	97	3	0	0	0	0	0
6	0	90	10	0	0	0	0	88	8	4	0	0	0	0
7*	0	94	4	2	0	0	0	85	12	3	0	0	0	4
8	-0.1	98	2	0	0	0	0	91	7	2	0	0	0	0
9	0	90	10	0	0	0	-0.1	93	7	0	0	0	0	0
Av	1.1	93	6	1	0	0	1.1	90.0	8.0	2.0	0.0	0.0	0	0

Conformation						
Jaw						
Dev	**1**	**2**	**3**	**4**	**5**
0	100	0	0	0	0
0	100	0	0	0	0
0	97	3	0	0	0
0	100	0	0	0	0
0	100	0	0	0	0
0	100	0	0	0	0
0	100	0	0	0	0
0.1	95	0	3	0	2
0	97	0	3	0	0
1.0	99	0	1	0	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 15.

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						Body wrinkle					
	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	92	0	8	0	0	0.1	84	5	11	0	0	0	0	87	13	0	0	0.4	0	32	55	11	2
2	-0.1	100	0	0	0	0	-0.1	100	0	0	0	0	0.3	0	67	22	11	0	0.4	4	21	54	21	0
3	-0.1	100	0	0	0	0	-0.1	97	3	0	0	0	0	0	87	10	3	0	-0.1	4	58	32	6	0
4	0	96	2	2	0	0	-0.1	98	0	2	0	0	-0.1	3	89	4	4	0	0	5	44	47	4	0
5	0.1	97	0	0	0	3	0	94	0	6	0	0	0.2	0	74	13	13	0	0	3	53	38	6	0
6	-0.1	100	0	0	0	0	0	91	0	9	0	0	-0.1	0	91	9	0	0	-0.2	17	39	42	2	0
7*	0	98	0	0	0	2	0.1	91	0	9	0	0	0.1	0	77	23	0	0	-0.1	9	48	41	2	0
8	0	98	0	2	0	0	0	95	0	5	0	0	-0.1	2	86	12	0	0	0	5	51	35	9	0
9	-0.1	100	0	0	0	0	0.1	89	0	11	0	0	-0.3	19	78	0	3	0	-0.4	22	54	22	2	0
Av	1.1	98	0	1	0	1	1.1	93	1	6	0	0	2.2	2	82	12	4	0	2.5	9	44	40	7	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 15.

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																							
	Breech cover						Crutch cover						Breech wrinkle						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	6	21	39	34	0	8	29	50	13	0	0.3	13	55	29	3	0	0.0	100	0	0	0	0
2	0.4	4	0	7	39	50	-1	18	41	41	0	0	0.6	11	36	50	3	0	0.0	100	0	0	0	0
3	-0.1	0	4	35	32	29	0.1	10	20	47	23	0	0.0	29	55	16	0	0	0.0	100	0	0	0	0
4	0.1	0	2	22	40	36	0	20	22	31	24	3	0.1	22	60	16	2	0	0.0	100	0	0	0	0
5	-0.3	0	15	22	41	22	-0	3	39	55	3	0	-0.1	34	50	12	4	0	0.0	100	0	0	0	0
6	-0.2	0	5	25	56	14	-0	6	35	47	12	0	0.0	28	53	17	2	0	0.0	100	0	0	0	0
7*	0.2	0	6	14	39	41	0.3	3	19	53	23	2	-0.2	36	55	9	0	0	0.0	100	0	0	0	0
8	0.0	0	4	28	40	28	-0	17	26	38	19	0	-0.1	30	58	9	3	0	0.0	100	0	0	0	0
9	-0.2	0	8	38	24	30	0.4	3	14	58	25	0	-0.6	70	24	6	0	0	0.0	100	0	0	0	0
Av	4.0	0	6	24	39	31	2.7	10	27	47	16	0	1.9	30	50	18	2	0	1.0	100	0	0	0	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 15.

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.

Ram code	Breeders flock, Ram number	No. of prog.	Ram averages for measured traits (deviations)							
			GFW % A^	CFW % A	FD mm A	WT kg H	FDCV % A	Curv deg/mm A	SL mm A	SS N/ktex A
1*	Bullamon Plains, 184	46	-0.1	-0.1	-0.3	2.6	1.5	4	-5.8	-6.8
2	Egelabra, HEK 1-36	34	0.1	0.1	0	-1.3	-0.7	5.7	-0.2	3.5
3	Pooginook, Diamond	34	0	0.1	-0.3	0.1	-1	0.1	-0.9	-0.9
4	QPLU$, 047352	54	-0.1	-0.2	-0.2	-1.6	1.4	-0.2	-1.2	-1.9
5	QPLU$, 047367	38	0.1	0.1	0	-1.2	1.2	-0.8	-3	-1.4
6	Terrick, 939	44	0	-0.1	0.5	1.1	-0.5	1.6	-1.2	-0.1
7*	Toland, W611	48	0.1	0.2	0.8	-2.5	-0.7	-0.3	3.3	8.5
8	Well Gully Poll, MT005	47	0.1	0.2	-0.8	1.2	-0.4	-5	1	2.3
9	Wyambeh Poll, 060183	42	-0.1	-0.2	0.4	1.7	-0.9	-4.9	8	-3.2
	Average performance	43	4.9	3.5	20.4	40.3	19.3	76.4	84.6	46.8

* 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).

Index Options – indexes reported on 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.

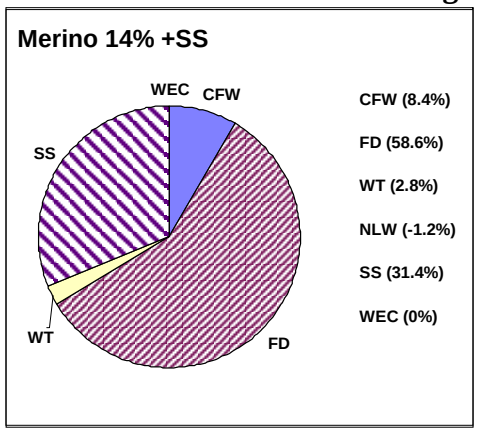
If a breeder is considering using a ram in this report it is critical to consider the performance of the breeder's flock relative to the performance standard in this report. The relative performance must be considered to establish the result that can be expected when a ram is used in a breeder's flock.

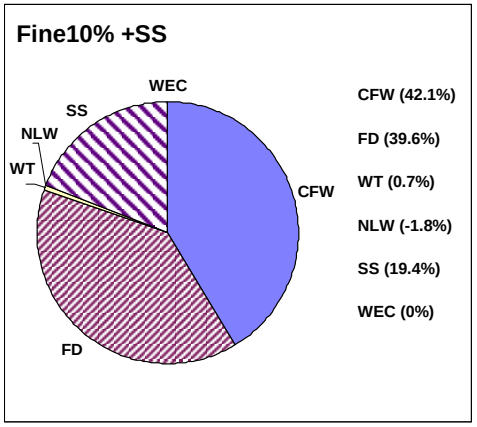
All AMSEA site evaluation reports present 3 standard indexes to provide combined **measured** trait performance These 3 AMSEA indexes are Fine 10% +SS; Merino 14% +SS; and Dual Purpose 7%. These indexes are the same as MERINOSELECT indexes of that name however as there is no direct reproduction records 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.

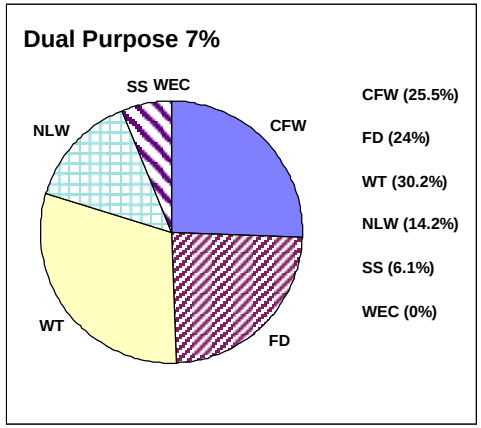
Index *production system* and breeding objectives

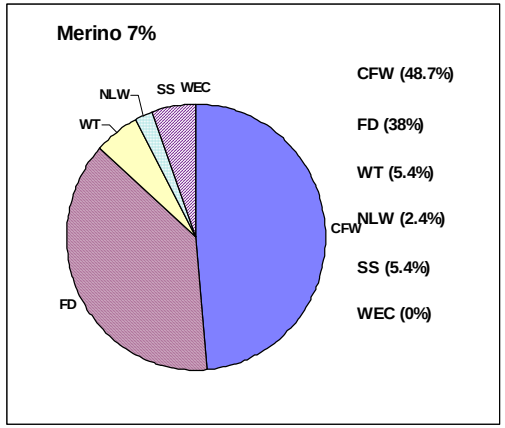
AMSEA **Fine 10% +SS** (F10% +SS)	*Fine wool Merino self-replacing production system* with High emphasis on fleece weight and fibre diameter (10% Micron Premium) plus moderate emphasis on staple strength. Maintain performance on other traits.
AMSEA **Merino 14% +SS** (M14% +SS)	*Medium wool Merino self-replacing production system* with high emphasis on fibre diameter and staple strength and low emphasis on fleece weight (14% Micron Premium) plus small emphasis on live weight. 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 moderate emphasis on live weight. Maintain performance on other traits.
AMSEA **Merino 7%** (M7%)	*Medium wool Merino self-replacing production system* with moderate emphasis on fleece weight and fibre diameter (7% Micron Premium) plus small emphasis on live weight. 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 (AMSEA Merino 7% index – 100). The AMSEA Merino 7% index places equal and high emphasis on both fleece weight and fibre diameter, moderate emphasis on body weight and adequate emphasis on other measured traits to allow them to be maintained. Due to the general nature of this index it is useful to be used to report the graphical summary of all traits. Breeders with significantly different objectives should take this into account when considering this graphical summary.

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

Longreach
Central Test Sire Evaluation