Elders Victoria Sire Evaluation Group

Central Test Sire Evaluation

2013 Drop First & Final Assessment

Conducted by

Elders Victoria Sire Evaluation Group

under the auspices of

The Australian Merino Sire Evaluation Association

June 2015

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The Australian Merino Sire Evaluation Association has approved the format used in this report.

Foreword

Elders Balmoral Victoria Sire Evaluation Group Central Test Sire Evaluation

The Elders Victoria Sire Evaluation Trials aim to evaluate and promote leading sires suited to fine wool production in Western Victoria.

This goal is achieved by informing participants, their clients and interested woolgrowers on events surrounding the trials, and in addition to this; produce and distribute annual reports and periodic newsletters. To further promote the evaluation, displays have been on show at the Australian Sheep & Wool Show now held in Bendigo (1998-2015), Balmoral Show and Hamilton Sheepvention.

Since April 2000 successful annual Open Days have been held at "The Mountain Dam", "Kerrsville", "White Oaks", "Arundale", "Tuloona" ,"Mokanger", "Yiddinga" and "Wando Estate" to inspect progeny and to discuss the sire evaluation program with interested woolgrowers.

In 1998 a small group of stud breeders met to form what is now known as the Elders Balmoral Victoria Sire Evaluation Group. The Sire Evaluation Trials commenced in 1998 and as of this year there will be 18 progeny drops: 1998 -2015. All trials are run for a minimum of 2 years.

At the commencement of the 2008 progeny trial, the committee decided as a means of continuing the trials and to lessen the increasing burden, that future trials would continue as usual over the 2 year period, but would have only one major classing and fleece assessment, to be taken at the usual time of the 2nd assessment. The cost and time benefits have been significant whilst still providing all involved with invaluable information on the progeny in the trial. It has however, highlighted the importance of collecting base data during the trial, since the 2009 drop were impacted by deaths from flooding in 2010 prior to full classing and measurement collection.

We currently take micron and greasy fleece weight at the 1st shearing and the full range of measurements at the 2nd shearing.

Planning and direction is developed by the Elders Victoria Sire Evaluation Management Committee.

Over recent years we are utilizing the base trial to run additional trials in conjunction. An example is fertility analysis of sires, from progeny in the 2010 drop and a pedigree collection comparison in 2012.

Host Properties

The 2012 & 2013 drop evaluation was hosted at "Wando Estate", Casterton. (See page 5 for more detail)

Evaluations have been held on privately owned host properties around the Balmoral district progressing to a new property mostly every two years. Host properties run Australian Merino fine wool ewes with genetics suitable for the district's environment.

- 1998 & 1999 – "The Mountain Dam", Balmoral
- 2000 & 2002 – "Kerrsville", Balmoral
- 2002 & 2003 – "White Oaks", Balmoral.
- 2004 & 2005 – "Arundale", Balmoral
- 2006 & 2007 – "Tuloona", Harrow
- 2008 & 2009 – "Mokanger, Cavendish
- 2010 & 2011 – "Yiddinga", Edenhope
- 2012 & 2013 – "Wando Estate", Casterton
- 2014 – "Mepunga", Wannon
- 2015 – "Tuloona", Harrow

Thank you to our hosts, sponsors, committee and participants for enabling this valuable assessment of Merino genetics.

Tom Silcock
Chairman
Elders Victoria Sire Evaluation Group

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2013 Drop First & Final Assessment

The information in this site evaluation report provides a comprehensive assessment of the 2013 drop, a single and final assessment of the sire's progeny performance, both measured and visually assessed traits. The fleece assessment was made at 18 months of age with 12 months of wool growth.

Sire and Owner Details

Breeders flock, Sire name Sire ID #, Breed †	Owner Details
Bundaleer, BDR021 504403-2011-BDR021, Merino	**Peter and Gavin Lieschke** Pine Ridge, RMB 123, Walla Walla NSW 2659 P: (02) 6029 0142, F: (02) 6029 0188, E: lieschke@skymesh.com.au
Connewarran, 0040 504704-2010-000040, Merino	**Richard Weatherly** Connewarran, PO Box 21, Mortlake VIC 3272 P: (03) 5599 7276, F: (03) 5599 7227, E: connewarran@westvic.com.au
Gringegalgona, 090960 503097-2009-090960, Merino	**Stephen Silcock** 279 Melville Forest - Vasey Rd, Vasey VIC 3407 P: (03) 5574 3202, F: (03) 5574 3239, E: ssilcock8@bigpond.com
Hannaton Poll, 110001 600804-2011-110001, Poll Merino	**Peter Hicks** Hannaton Partnership, PO Box 22, Kaniva VIC 3419 P: (03) 5392 2366, F: (03) 5392 2938, E: peter@hannaton.com.au
Hazeldean, 9.4752 (Link) 500383-2009-004752, Merino	**Jim Litchfield** Hazeldean Pty Ltd, Cooma NSW 2630 P: (02) 6453 5555, F: (02) 6453 5526, E: admin@hazeldean.com.au
Kia Ora, 090130 (Unreg) 509221-2009-090130, Merino	**Brendan & Susan Finnigan** PMB 1780, Warrnambool VIC 3280 P: (03) 5569 2079, F: (03) 5569 2079, E: kiaora@westvic.com.au
Kurra-Wirra, SR296 (Historical) *504173-1999-9SR296, Merino*	***Robert Close*** *Kurra Wirra, 770 Moree-Culla Rd, Coleraine VIC 3315* *P: (03) 5570 4238, F: (03) 5570 4234, E: kurrawirra@skymesh.com.au*
Kurra-Wirra, SV885 (Historical) *504173-1995-5SV885, Merino*	***Robert Close*** *Kurra Wirra, 770 Moree-Culla Rd, Coleraine VIC 3315* *P: (03) 5570 4238, F: (03) 5570 4234, E: kurrawirra@skymesh.com.au*
Leahcim Poll, 090918 (Link) 600815-2009-090918, Poll Merino	**Andrew and Rosemary Michael** PO Box 31, Snowtown SA 5520 P: (08) 8865 2085, F: (08) 8865 2585, E: leahcimgenetics@bigpond.com
Mount Yulong Poll, 110111 600766-2011-060111, Poll Merino	**Daniel Rogers** 2266 Telangatuk East-Rocklands Rd, Telangatuk East VIC 3401 P: (03) 5388 2257, F: (03) 5388 2257, E: yulong@activ8.net.au
Nerstane, 050010 (Link) 503298-2005-050010, Merino	**John, Hamish and Jock McLaren** Nerstane, Woolbrook NSW 2354 P: (02) 6777 5881, F: (02) 6777 5922, E: jock@nerstane.com.au
Nerstane, 100919 (Link) 503298-2010-100919, Merino	**John, Hamish and Jock McLaren** Nerstane, Woolbrook NSW 2354 P: (02) 6777 5881, F: (02) 6777 5922, E: jock@nerstane.com.au
One Oak No. 2, BL11-104 503855-2011-011104, Merino	**Graham Wells** One Oak, PO Box 84, Jerilderie NSW 2716 P: (03) 5886 1269, F: (03) 5886 1792, E: oneoakpl@bigpond.com
Roseville Park, 100038 (Link) 504166-2010-100038, Merino	**Matthew and Cherie Coddington** 39R Dilladerry Rd, Dubbo NSW 2830 P: (02) 6887 7286, F: (02) 6887 7103, E: rpmerinos@bigpond.com
The Mountain Dam, 12/LE018 504572-2012-2LE018, Merino	**Tom and Alison Silcock** 429 Silcocks Road, Telangatuk East VIC 3401 P: (03) 5388 2288, F: (03) 5388 2235, E: themountaindam@bigpond.com
Tuckwood Poll, 101012 601053-2010-101012, Poll Merino	**Geoff Tucker** PMB 21, Millicent SA 5280 P: (08) 8734 2050, F: (08) 8734 2052, E: geomag@activ8.net.au
Yalgoo, 080068 (Link) 501552-2008-080068, Merino	**Jock Nivison** Yalgoo, PO Box 141, Walcha NSW 2354 P: (02) 6777 2088, E: yalgoopartnership@bigpond.com
Yiddinga, 195 (Unreg) 509242-2011-000195, Merino	**James Farran PO Box 222, Edenhope VIC 3318** P: (03) 5585 1888, E: j.farran@bigpond.com

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

(Link) Sire 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.*

(Unreg) Sire bred in an unregistered flock.

\# 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 and 6 for tag number used in the breeder's records.

† Breed of flock in which the sire was born

Manager's Report

Host Property for 2013 drop progeny and location
Wando Estate is located 20km northeast of Casterton and is 3036 hectares in size. Wando is a fine wool plus beef cattle grazing operation. Pasture base is phalaris, ryegrass and sub clover. The terrain is challenging with steep slopes plus undulating country leading to spring fed creeks and table top hill tops.

Stock water is from dams and creeks with the Wando River running through the property. Over the past 5 years we have been working on an extensive sub divisional fencing program. Paddock sizes are mostly 15 to 20 hectares to allow a rotational grazing operation to work effectively and efficiently. Long term average yearly rainfall for the last 37 years is 602mm. See below chart

Ewe Base
The Wando ewes are classed visually first with any physical or structural faults removed from the flock. Then remaining ewes are individually fleece measured at shearing and previously the ewes were indexed using the FP+ index.

Over the last 12 months the Wando flock has gone through a transformation stage with all of the ewes being individually fleece measured in February 2015 and ranked on the Yalgoo 7/15 Index. We have identified our major profit driving traits and have decided to increase genetic progress with the following traits being our focus. These traits in order of importance in the medium term for our flock are: Clean Fleece Weight, Fibre Diameter, Body Weight and Staple Strength.

1,150ewes were selected for the sire evaluation program. The ewes were AI on the 5th and 6th of April 2013. 19 sires were joined to an average of 60 ewes each.

Pregnancy and lambing and weaning
Pregnancy ultrasound scanning of the trial ewes was conducted on the 8th June 2013. Results were 564 single bearing ewes and 232 twin bearing ewes. One sire failed to produce a viable number of foetuses and was removed from the trial. Single and twin bearing ewes were run separately.

In mid-August the AI ewes were drafted into their sire groups and allocated to 36 individual lambing paddocks, with the first lambs being born on the 31st of August and the last on the 9th of September.

After lambing had finished the lambs were tagged and weighed and a visual assessment recorded of skin and fibre pigment and a rating for hairy birth coat. The ewes and lambs were then boxed but still run as two separate management groups of single bearing ewes and twin bearing ewes.

Lambs were marked on 14th October 2013.Prior to marking the lambs were given a score for breech cover and breech wrinkle.

Lambs were weaned on 23rd December 2013 at an average weight of 23.9kg

Seasonal conditions
From December 2014 to March 2015 the main rainfall event was in January which totalled 60mm.This was certainly of some benefit especially for the summer fodder crops. This doubled dry matter production which was of a huge benefit for increased weight gain for our merino weaners. February and March have been very dry with only 15mm in February and 20mm to date in March

Like most of Western Victoria supplementary feeding has dominated our week with a feeding program of seven days a week at present.

Supplementary feeding began in December 2014 and continued through till the end of the trial. At the time of the field day the progeny were being fed a ration of 3.5kg/hd/week plus cereal hay.

Rainfall

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total mm
2005	22.0	41.0	12.5	23.5	10.0	64.5	41.5	81.0	47.0	82.0	28.5	31.5	**485.0**
2006	29.5	51.5	27.5	49.5	37.0	19.0	57.5	36.0	74.0	8.0	14.0	4.5	**408.0**
2007	164.0	0.0	22.5	32.5	109.0	63.5	75.5	57.0	59.5	31.5	116.5	32.5	**764.0**
2008	20.0	7.5	49.5	33.0	40.0	51.5	61.5	83.0	54.5	9.0	30.5	126.0	**566.0**
2009	4.0	1.6	25.5	39.5	51.5	39.5	123.0	102.0	73.5	46.5	42.0	52.5	**601.1**
2010	18.5	26.0	17.0	59.0	50.0	75.0	81.0	91.5	70.0	58.0	60.0	112.0	**718.0**
2011	147.5	40.0	130.0	57.0	56.0	82.0	90.0	95.0	93.0	22.0	46.0	46.0	**904.5**
2012	4.0	4.0	38.5	37.0	44.0	93.5	149.0	116.0	60.0	38.5	39.0	30.0	**653.5**
2013	10.0	20.0	19.0	25.0	53.0	70.0	119.5	149.0	73.5	99.5	32.0	18.5	**689.0**
2014	24.0	22.0	15.0	71.5	68.0	106.5	78.0	43.0	33.0	21.0	23.0	27.0	**532.0**
2015	59.0	15.0	20.5	51.0	83.5								

Assessment and management program

Activity			Date/s	Age	Wool
Selection of ewes			February 2013		
Allocation of ewes for mating			April 2013		
Pregnancy scanning			4 June 2013		
Separated into sire lambing groups			15 August 2013		
Lambing: start – finish			3 – 10 September 2013		
Lambing mobs boxed to one management group			24 September 2013	14 days	
Tagging, pigmentation and breech scoring			24 September 2013	14 days	
Marking and breech scoring			14 October 2013	37 days	
Weaning			24 December 2013	108 days	
Mid side fleece sampling	•	PW	24 April 2014	7.5 months	7.5 months
	•	A	11 March 2015	18 months	10.5 months
Visual trait scoring	•	A	11 March 2015	18 months	10.5 months
Shearing	•	PW	24 April 2014	7.5 months	7.5 months
	•	A	15 April 2015	19 months	11.5 months
Fat and eye muscle scanning	•	H	16 October 2014	13.5 months	6 months
Worm egg count sampling	•	Y	22 August 2014	11.5 months	
Body weighing	•	W	24 December 2013	108 days	
	•	PW	3 April 2014	7 months	
	•	Y	29 August 2014	12 months	
	•	H	14 October 2014	13 months	
			19 December 2014	15 months	
	•	A	10 March 2015	18 months	
			15 April 2015	19 months	
Drench	Worm burdens monitored and progeny drenched when required. Drenched approx 4 times during trial.				
Jetting	Treated with Clik at marking. Vetrazin post crutching.				
Supplementary feeding	Silage and Barley				
Field day or public display of 2013 drop sheep	• Field Day & Progeny Display at Wando– April 2014 • Field Day & Progeny Display at Wando– April 2015 • Display at Hamilton Sheepvention – August 2014 • Progeny Display at Balmoral Show – 2014 & 2015 • Display at Australian Sheep & Wool Show- Bendigo – July 2014				

Visual trait assessment and site Breeding Objective

Visual trait assessment
1st and final assessment
Classer's Grade: Mr Andrew Howells, Elders
Trait Scores: Committee

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 described below. The Breeding Objective for both measured and visual assessed traits that is described below was developed by the site committee in consultation with the classer prior to the grading.

Breeding Objective
The goal is to select sheep that are productive and well grown, with sound confirmation and carrying heavy fine wool fleeces of good character, colour and nourishment suitable for the western Victorian environment.

Combined measured traits and visual trait performance

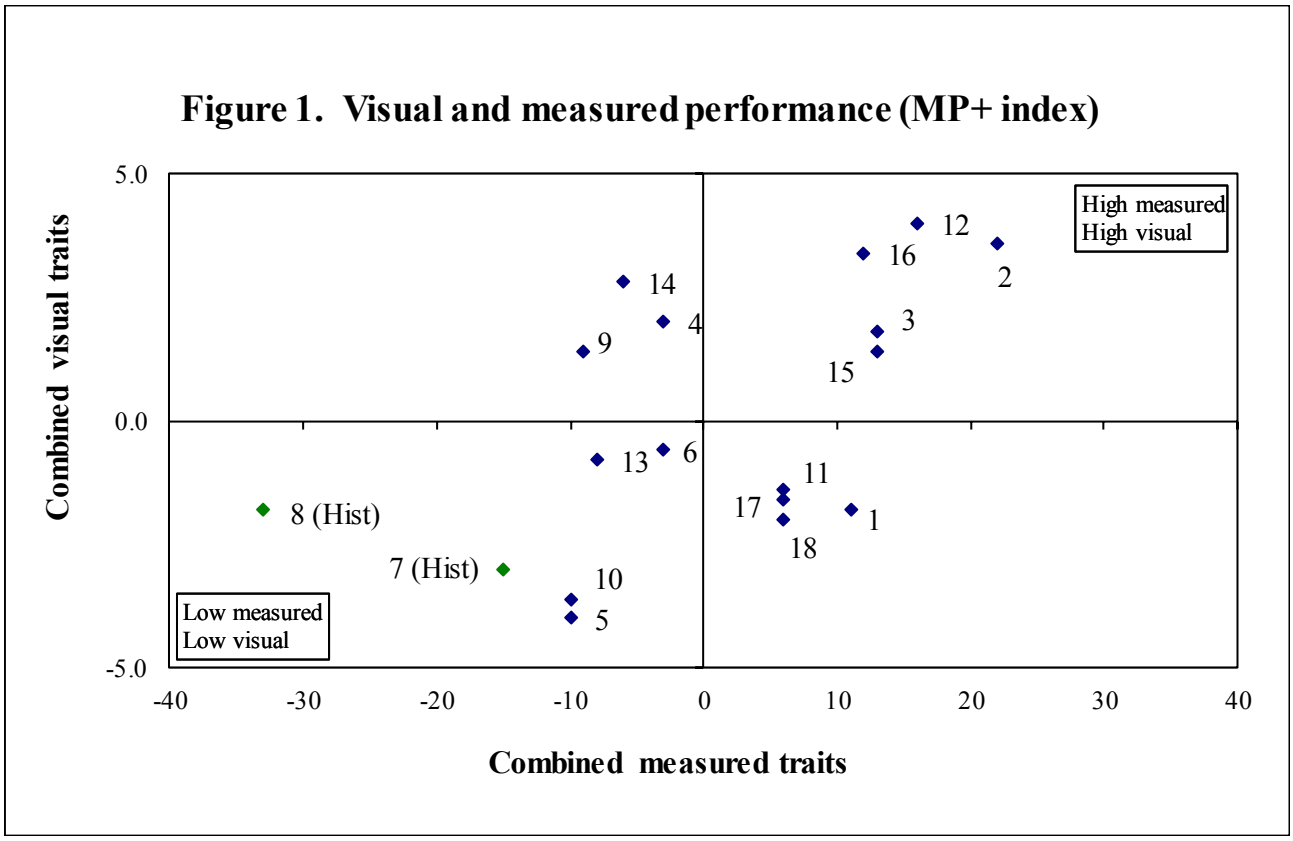
Summary graph: visual and measured performance

Each sire that meets reporting thresholds for index accuracies is located on the graph. The graph describes performance for combined measured traits and combined visual assessment.

A different graph is provided for each of the three indexes reported. In each graph, visual trait performance is a combination of Classer's Grade performance (Tops and Culls). More information is found in "Understanding the Results".

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

Figure 1. Combined measured traits based on an AMSEA Merino Production Plus (MP+) index. Based on a balanced wool and meat production system where surplus progeny are sold as hoggets.



Sire code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Bundaleer, BDR021	504403-2011-BDR021	504403-2009-BDR001
2	Connewarran, 0040	504704-2010-000040	503892-2004-040400 (Bindawarra, 400)
3	Gringegalgona, 090960	503097-2009-090960	503097-2007-071966
4	Hannaton Poll, 110001	600804-2011-110001	601116-2009-091137 (Ridgway Poll, 091137)
5	Hazeldean, 9.4752	500383-2009-004752	500383-2007-006027
6	Kia Ora, 090130	509221-2009-090130	509221-2007-070122
7	*Kurra-Wirra, SR296 (Historical)*	*504173-1999-9SR296*	*504173-1998-8SR232*
8	*Kurra-Wirra, SV885 (Historical)*	*504173-1995-5SV885*	*504173-1990-00SV89*
9	Leahcim Poll, 090918	600815-2009-090918	600815-2007-070319
10	Mount Yulong Poll, 110111	600766-2011-060111	600105-2009-071613
11	Nerstane, 050010	503298-2005-050010	503298-1996-960142 (Nerstane, N960142)
12	Nerstane, 100919	503298-2010-100919	503298-2005-054636 (Nerstane, N4636)
13	One Oak No. 2, BL11-104	503855-2011-011104	504166-2009-090014 (Roseville Park, 090014)
14	Roseville Park, 100038	504166-2010-100038	504166-2008-081017
15	The Mountain Dam, 12/LE018	504572-2012-2LE018	600815-2009-090918 (Leahcim Poll, 090918)
16	Tuckwood Poll, 101012	601053-2010-101012	600815-2005-050154
17	Yalgoo, 080068	501552-2008-080068	501552-2005-050448 (Yalgoo, 448)
18	Yiddinga, 195	509242-2011-000195	509242-2011-000195

Table 1. **AMSEA Index Values and Classer's Grade**

The highest performing 2 (or more if equal) sires for each trait (trait leaders) are highlighted by shading. Each sire is listed for Classer's Visual 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' 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.

- **Dual Purpose Plus (DP+)**: Based on a meat focused production system where surplus progeny are sold as lambs and a portion of ewes are joined to terminal sires.
- **Merino Production Plus (MP+):** Based on a balanced wool and meat production system where surplus progeny are sold as hoggets.
- **Fibre Production Plus (FP+):** Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses.

Breeders flock, Sire name	Number of progeny	AMSEA Index Values			Classer's Grade	
		Dual Purpose Plus	Merino Production Plus	Fibre Production Plus	Tops % (dev)	Culls % (dev)
Bundaleer, BDR021	37	105	111	108	-6	3
Connewarran, 0040	42	125	122	115	10	-8
Gringegalgona, 090960	38	121	113	109	8	-1
Hannaton Poll, 110001	42	104	97	94	5	-5
Hazeldean, 9.4752	30	85	90	98	-11	9
Kia Ora, 090130	40	97	97	96	-4	-1
Leahcim Poll, 090918	40	101	91	87	-1	-8
Mount Yulong Poll, 110111	42	91	90	77	-9	9
Nerstane, 050010	36	93	106	104	-2	5
Nerstane, 100919	47	115	116	103	14	-6
One Oak No. 2, BL11-104	36	91	92	94	-8	-4
Roseville Park, 100038	30	88	94	102	5	-9
The Mountain Dam, 12/LE018	35	114	113	110	9	2
Tuckwood Poll, 101012	39	128	112	105	15	-2
Yalgoo, 080068	44	105	106	116	0	8
Yiddinga, 195	34	99	106	114	-8	2
Kurra-Wirra, SR296 (Historical)	*26*	*84*	*85*	*90*	*-7*	*8*
Kurra-Wirra, SV885 (Historical)	*41*	*65*	*67*	*75*	*-11*	*-2*
Average performance	**38**	**100**	**100**	**100**	**11**	**7**

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

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. Sires that are above average for fleece weight and below average fibre diameter are located in the top left hand quarter.

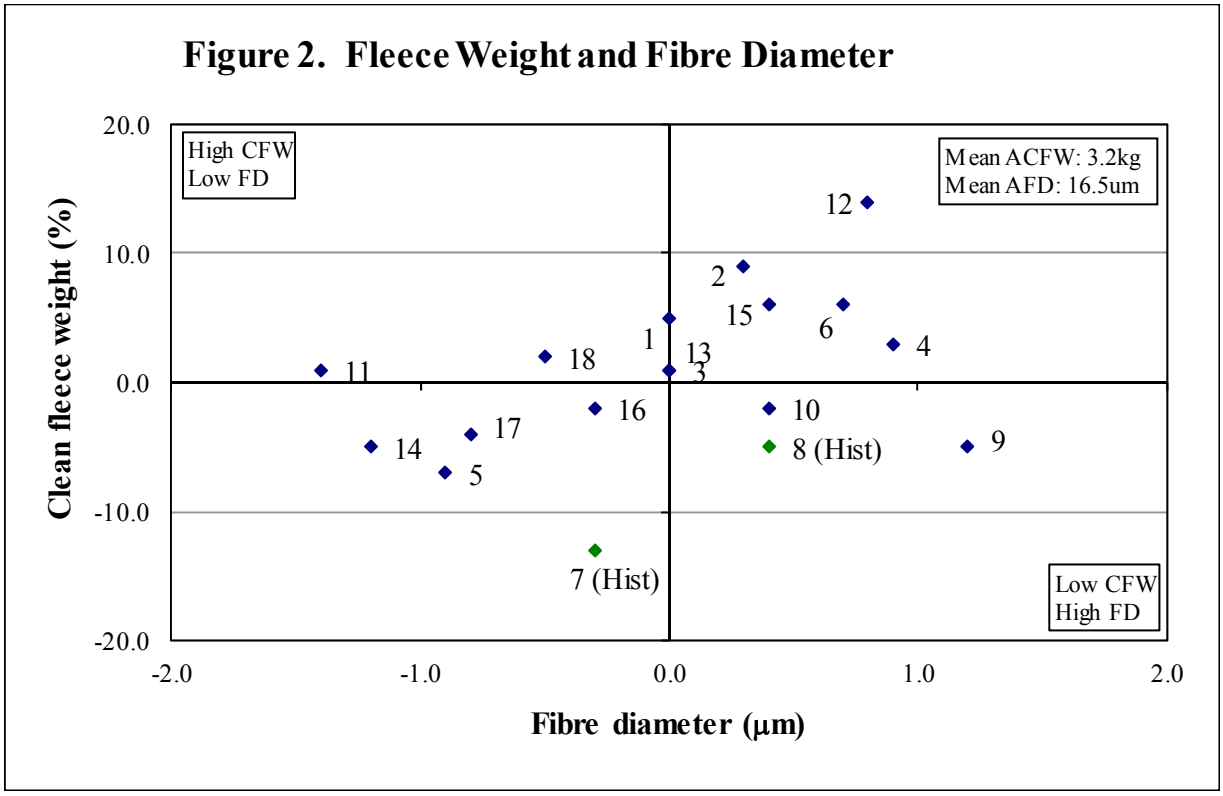
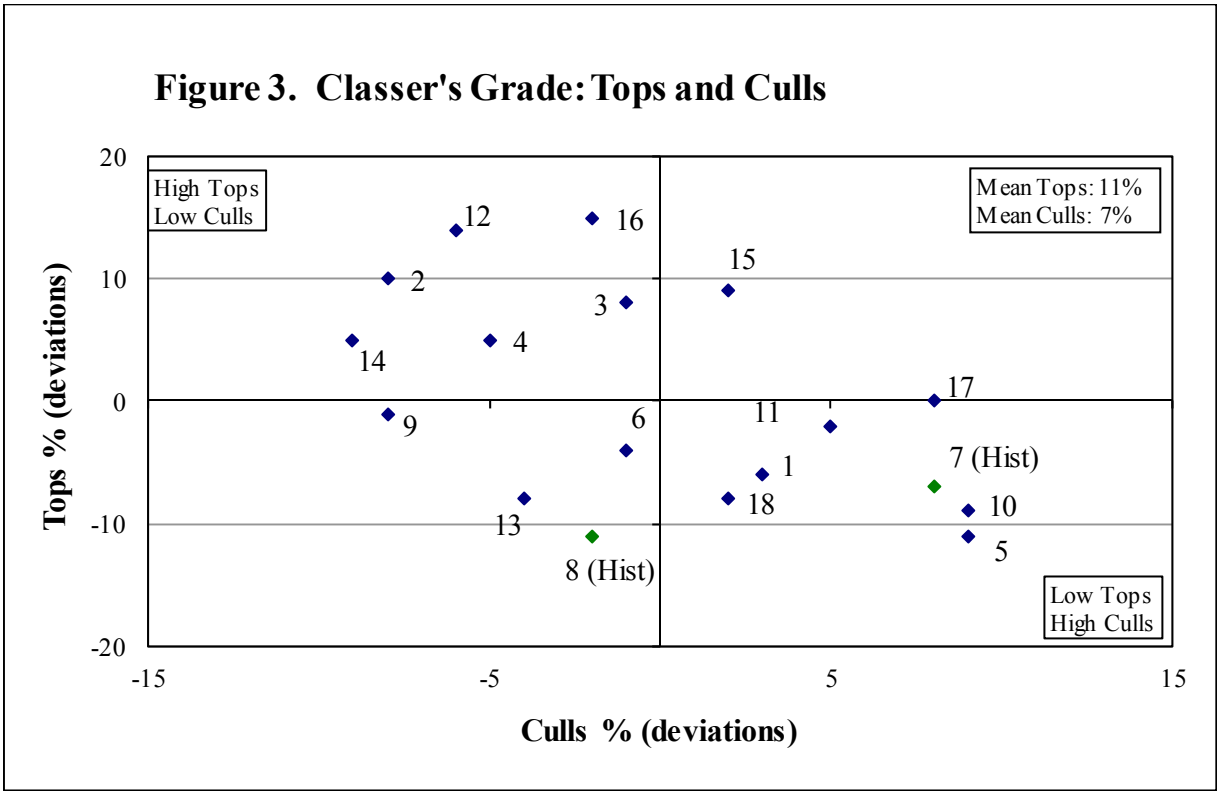


Figure 3. Classers Tops by Cull Grade
The graph describes performance for Classer's Tops Grade on the side axis and Culls Grade on the bottom axis. Sires that have above average Tops and below average Culls are in the top left hand quarter.



Understanding the results

Measured trait performance and Classer's Visual Grade – Tables 2 and 3

Breeders flock, Sire number:	Identity of the breeder's flock and the sire's number or name.
Number of progeny:	The number of progeny a sire had at the most recent measured analysis. Average number of progeny is included in Table 1.
Flock Breeding Values:	Flock Breeding Values (FBVs) are Estimated Breeding Values (EBVs) calculated by Sheep Genetics for the sires 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 sires (in this case based on the performance of their progeny). A sire's progeny will express half of their sire's FBV. FBVs do not necessarily reflect the sire's 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 sire's progeny).
Age at assessment:	W = Weaning - 42 to 120 days (6 weeks to 4 months of age). E = Early Post Weaning - 120 to 210 days (4 to 7 months of age). P = Post Weaning - 210 to 300 days (7 to 10 months of age). 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 Visual 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. The percentage deviation from the average of Tops and Culls is presented in this report. Average percentage of Tops and Culls for the entire drop is included in Table 1. Page 7 provides more detail on Classer's Visual Grade and the site's Breeding Objective.

Table 2. **Major measured traits and Classer's Grades**

Breeders flock, Sire name	Number of progeny	Flock Breeding Values (deviations)						Classer's Grade[1]	
		GFW	CFW	FD	WT			Tops	Culls
		%	%	µm		kg		%	%
		A^	A	A	W	Y	A	A	A
Bundaleer, BDR021	37	4	5	0.0	0.0	0.5	0.6	-6	3
Connewarran, 0040	42	7	9	0.3	1.9	4.8	6.2	10	-8
Gringegalgona, 090960	38	0	1	0.0	2.7	5.0	5.0	8	-1
Hannaton Poll, 110001	42	3	3	0.9	1.2	1.9	2.7	5	-5
Hazeldean, 9.4752	30	-6	-7	-0.9	-2.4	-4.1	-4.4	-11	9
Kia Ora, 090130	40	5	6	0.7	-2.8	-2.8	-3.0	-4	-1
Leahcim Poll, 090918	40	-5	-5	1.2	0.7	2.2	2.9	-1	-8
Mount Yulong Poll, 110111	42	-1	-2	0.4	0.9	0.3	0.6	-9	9
Nerstane, 050010	36	1	1	-1.4	-0.6	-2.3	-3.5	-2	5
Nerstane, 100919	47	14	14	0.8	1.0	2.6	2.8	14	-6
One Oak No. 2, BL11-104	36	2	1	0.0	0.4	-0.9	-1.3	-8	-4
Roseville Park, 100038	30	-5	-5	-1.2	-1.0	-2.0	-1.8	5	-9
The Mountain Dam, 12/LE018	35	5	6	0.4	0.1	1.2	1.7	9	2
Tuckwood Poll, 101012	39	-1	-2	-0.3	4.0	7.5	8.4	15	-2
Yalgoo, 080068	44	-5	-4	-0.8	-0.6	-1.4	-1.6	0	8
Yiddinga, 195	34	2	2	-0.5	-1.1	-2.5	-3.0	-8	2
Kurra-Wirra, SR296 (Historical)	*26*	*-11*	*-13*	*-0.3*	*-1.0*	*-2.7*	*-3.7*	*-7*	*8*
Kurra-Wirra, SV885 (Historical)	*41*	*-4*	*-5*	*0.4*	*-2.2*	*-5.1*	*-6.2*	*-11*	*-2*

^ W = Weaning (42 to 120 days); P = Post Weaning (210 to 300 days); Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

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

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Table 3. **Other measured traits**

Breeders flock, Sire name	Number of progeny	Flock Breeding Values (deviations)						
		FDCV	SL	SS	CURV	FAT	EMD	WEC
		%	mm	N/ktex	deg/mm	mm	mm	%
		A^	A	A	A	H	H	Y
Bundaleer, BDR021	37	-0.5	-2.7	0.7	0.9	-1.3	-1.0	9
Connewarran, 0040	42	-0.9	-0.8	0.3	0.0	-0.2	-0.2	-27
Gringegalgona, 090960	38	0.1	1.0	-0.6	6.0	-0.2	0.4	-43
Hannaton Poll, 110001	42	0.2	-1.1	-1.7	-2.2	-0.4	0.3	-32
Hazeldean, 9.4752	30	0.0	1.6	1.0	-1.8	0.9	0.2	25
Kia Ora, 090130	40	-0.1	1.5	1.1	-3.9	0.1	1.2	36
Leahcim Poll, 090918	40	-0.7	5.6	2.0	-4.0	0.5	0.9	3
Mount Yulong Poll, 110111	42	0.6	2.2	-2.7	-6.6	-0.9	-0.6	152
Nerstane, 050010	36	1.8	-6.8	-0.6	7.2	-0.8	-1.9	121
Nerstane, 100919	47	-0.2	10.4	0.4	-4.0	-0.4	-0.9	54
One Oak No. 2, BL11-104	36	2.3	-7.5	-3.1	-1.7	-0.5	-0.4	-8
Roseville Park, 100038	30	0.4	-1.8	-3.7	2.4	-0.5	-1.1	-19
The Mountain Dam, 12/LE018	35	-1.1	6.1	3.6	-1.1	0.5	0.6	-6
Tuckwood Poll, 101012	39	-0.5	11.0	-3.3	-5.7	0.1	0.9	-34
Yalgoo, 080068	44	-1.2	-0.8	4.1	4.5	1.6	1.1	-56
Yiddinga, 195	34	-1.0	-2.6	3.3	-0.3	0.9	0.2	-33
Kurra-Wirra, SR296 (Historical)	*26*	*-0.8*	*-9.2*	*2.0*	*9.3*	*0.7*	*0.6*	*24*
Kurra-Wirra, SV885 (Historical)	*41*	*2.5*	*-6.9*	*-4.6*	*0.0*	*-0.7*	*-0.6*	*-18*

^ W = Weaning (42 to 120 days); P = Post Weaning (210 to 300 days); Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

Understanding the Results

Scored trait performance – Tables 4a, 4b, 4c, 4d, 4e

The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in Version 2 (2013) of the Visual Sheep Scores booklet that is available free from AWI or at *www.merinosuperiorsires.com.au*

A deviation from the average trait score for all progeny is reported as well as the percentage of the sire'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 <6%) to **5** (71 to 100% of staple).
■ Staple weathering:	The deterioration due to light and water from **1** (least, <6% of staple) to **5** (most, 71 to 100%) reflect the depth and degree of deterioration.
■ Staple structure:	The size and diameter of each staple from **1** (<6mm) to **5** (>30 mm).
■ Fibre pigmentation:	The percentage of dark fibres on any part of the sheep from **1** (0 pigmented fibres at any site) to **5** (71 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** (71 to 100% pigmented area on one or more bare skin sites, **and/or** 71 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.
■ Face cover:	Wool cover on the face scored from **1** (open face) to **5** (fully covered face).
■ Jaw:	The alignment of the lower jaw and its teeth relative to the top jaw from **1** (very well aligned) to **5** (heavily undershot or overshot).
■ Legs/Feet:	Conformation of feet and legs scored from **1** (very straight) to **5** (very angulated).
■ Shoulder:	The soundness of the shoulder blades and their positioning in relation to the neck and spine from **3** (sitting squarely) to **5** (extremely high and wide) or **1** (extremely low and narrow).
■ Back:	The soundness of the back structure from **3** (straight between shoulders and hips) to **5** (extremely arched backline) or **1** (extremely dipped backline).
■ Body wrinkle:	The degree of body wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
■ Neck wrinkle:	The degree of neck and apron wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
■ 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 hind legs from **1** (nil) to **5** (extensive).
■ Dag	Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
■ Urine	Degree of urine stained wool in the breech area, including the hind legs from **1** (nil) to **5** (extensive).

Table 4a. **Visual trait assessments – Wool Quality**

Visually assessed traits reported were scored at their latest assessment with the exception of pigmentation which was scored at marking (Spot updated on an ongoing basis) and breech traits recorded at marking time (or later in unmulesed flocks with the exception of Dag and Urine).

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported.

For the majority of breeder's objectives a negative deviation would be considered favourable and the larger the deviation the better.

Breeders flock, Sire name	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
Bundaleer, BDR021	0.0	0	66	34	0	0	-0.3	0	74	24	2	0	0.0	0	55	39	6	0	-0.2	0	79	18	3	0
Connewarran, 0040	0.0	0	63	37	0	0	0.1	0	37	63	0	0	0.1	0	56	35	9	0	-0.1	0	65	35	0	0
Gringegalgona, 090960	0.2	0	46	49	5	0	0.0	0	54	36	10	0	0.2	2	37	53	8	0	0.2	0	51	41	8	0
Hannaton Poll, 110001	-0.1	0	81	14	5	0	0.1	0	38	60	2	0	0.0	0	49	51	0	0	-0.1	0	65	35	0	0
Hazeldean, 9.4752	0.0	0	70	23	7	0	0.2	0	33	60	7	0	0.0	0	57	40	3	0	0.0	0	60	40	0	0
Kia Ora, 090130	0.1	0	62	28	10	0	0.1	0	32	68	0	0	0.2	0	35	62	3	0	0.2	0	38	62	0	0
Leahcim Poll, 090918	-0.1	0	79	19	2	0	0.0	0	50	48	2	0	-0.2	0	71	27	2	0	0.0	0	60	38	2	0
Mount Yulong Poll, 110111	0.3	0	52	26	22	0	0.3	0	17	76	7	0	0.0	0	57	40	3	0	0.3	0	31	69	0	0
Nerstane, 050010	-0.2	0	81	19	0	0	-0.1	0	56	42	2	0	-0.1	0	58	42	0	0	-0.2	0	75	25	0	0
Nerstane, 100919	-0.2	2	84	12	2	0	-0.1	0	51	49	0	0	-0.1	0	60	40	0	0	-0.2	0	76	24	0	0
One Oak No. 2, BL11-104	-0.1	0	69	31	0	0	0.0	0	47	53	0	0	0.1	0	47	50	3	0	0.1	0	53	47	0	0
Roseville Park, 100038	-0.2	0	87	10	3	0	-0.2	0	65	35	0	0	0.1	0	42	58	0	0	-0.1	0	71	29	0	0
The Mountain Dam, 12/LE018	0.1	0	57	40	0	3	0.2	0	23	74	3	0	0.0	0	57	40	3	0	0.0	0	57	43	0	0
Tuckwood Poll, 101012	0.0	0	67	33	0	0	-0.1	0	51	49	0	0	-0.1	0	69	28	3	0	0.1	0	46	54	0	0
Yalgoo, 080068	0.1	2	61	30	7	0	-0.1	0	53	43	4	0	-0.1	0	67	30	3	0	-0.1	0	66	32	2	0
Yiddinga, 195	0.2	0	54	37	9	0	0.1	0	34	63	3	0	-0.2	0	71	26	3	0	0.0	0	66	31	3	0
Kurra-Wirra, SR296 (Historical)	*-0.1*	*0*	*81*	*15*	*4*	*0*	*-0.2*	*0*	*67*	*33*	*0*	*0*	*0.0*	*0*	*56*	*44*	*0*	*0*	*-0.2*	*0*	*74*	*26*	*0*	*0*
Kurra-Wirra, SV885 (Historical)	*0.0*	*0*	*71*	*27*	*2*	*0*	*0.0*	*0*	*41*	*56*	*3*	*0*	*0.1*	*0*	*49*	*46*	*5*	*0*	*0.2*	*0*	*41*	*59*	*0*	*0*
Average performance	**2.4**	**0**	**68**	**27**	**5**	**0**	**2.6**	**0**	**46**	**52**	**2**	**0**	**2.5**	**0**	**55**	**42**	**3**	**0**	**2.4**	**0**	**60**	**39**	**1**	**0**

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Table 4b. **Visual trait assessments – Wool Quality and Pigmentation**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported.

For the majority of breeder's objectives a negative deviation for wool quality traits would be considered favourable and the larger the deviation the better.

Four pigmentation traits are reported. 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.

Breeders flock, Sire name	Wool Quality												Pigmentation													
	Staple Weathering						Staple Structure						Fibre pigmentation						Non-fibre pigmentation						Black	Spot
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	5	5
Bundaleer, BDR021	-0.1	0	76	24	0	0	0.0	0	78	16	6	0	-0.1	100	0	0	0	0	-0.3	14	50	33	0	3	0	0
Connewarran, 0040	0.1	0	58	40	2	0	0.1	0	65	30	5	0	-0.1	100	0	0	0	0	-0.1	9	48	39	2	2	0	0
Gringegalgona, 090960	0.1	0	55	39	6	0	0.1	0	67	33	0	0	-0.1	100	0	0	0	0	-0.1	7	52	36	3	2	0	0
Hannaton Poll, 110001	0.0	0	65	35	0	0	0.0	0	67	33	0	0	0.3	89	0	0	3	8	0.2	3	24	67	6	0	0	4
Hazeldean, 9.4752	0.0	3	57	40	0	0	0.1	4	63	30	3	0	0.2	91	0	0	2	7	0.4	0	25	60	10	5	0	0
Kia Ora, 090130	0.2	0	43	57	0	0	0.1	0	57	43	0	0	-0.1	98	0	2	0	0	0.4	0	20	66	14	0	0	2
Leahcim Poll, 090918	0.0	0	60	40	0	0	0.1	0	65	35	0	0	-0.1	100	0	0	0	0	-0.3	4	70	24	2	0	0	0
Mount Yulong Poll, 110111	0.1	0	50	50	0	0	0.2	3	51	41	5	0	0.3	90	0	0	0	10	0.9	0	9	55	24	12	0	4
Nerstane, 050010	-0.3	3	86	11	0	0	-0.2	6	83	11	0	0	-0.1	98	2	0	0	0	-0.2	0	77	19	2	2	0	2
Nerstane, 100919	-0.2	0	80	20	0	0	0.0	0	76	24	0	0	0.0	97	0	0	3	0	0.0	4	43	46	7	0	0	3
One Oak No. 2, BL11-104	0.1	0	50	50	0	0	0.1	0	64	33	3	0	-0.1	98	2	0	0	0	0.0	5	38	55	2	0	0	0
Roseville Park, 100038	-0.1	0	71	29	0	0	-0.1	0	77	23	0	0	0.0	98	0	0	0	2	0.5	0	25	50	25	0	0	2
The Mountain Dam, 12/LE018	0.0	0	58	42	0	0	-0.1	0	82	18	0	0	-0.1	100	0	0	0	0	-0.2	9	60	24	4	3	2	0
Tuckwood Poll, 101012	0.1	0	54	46	0	0	0.1	0	62	38	0	0	-0.1	100	0	0	0	0	-0.4	13	55	32	0	0	0	0
Yalgoo, 080068	0.0	0	65	33	2	0	-0.2	6	77	17	0	0	-0.1	100	0	0	0	0	-0.7	29	62	9	0	0	0	2
Yiddinga, 195	0.1	0	60	37	3	0	-0.1	2	74	24	0	0	0.4	85	3	2	0	10	0.4	0	24	59	14	3	0	0
Kurra-Wirra, SR296 (Historical)	*-0.2*	*4*	*74*	*22*	*0*	*0*	*-0.3*	*7*	*89*	*4*	*0*	*0*	*0.0*	*97*	*0*	*0*	*0*	*3*	*-0.1*	*0*	*59*	*34*	*7*	*0*	*0*	*3*
Kurra-Wirra, SV885 (Historical)	*0.1*	*0*	*54*	*46*	*0*	*0*	*0.0*	*0*	*71*	*29*	*0*	*0*	*0.1*	*94*	*0*	*2*	*2*	*2*	*-0.2*	*9*	*51*	*36*	*4*	*0*	*0*	*4*
Average performance	**2.4**	**0**	**62**	**37**	**1**	**0**	**2.3**	**2**	**70**	**27**	**1**	**0**	**1.1**	**96**	**0**	**0**	**2**	**2**	**2.5**	**6**	**44**	**41**	**7**	**2**		

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Table 4c. **Visual trait assessments – Conformation**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported.

For the majority of breeder's objectives a negative deviation would be considered favourable and the larger the deviation the better. Face cover, body and neck 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.

Breeders flock, Sire name	Conformation																	
	Face Cover						Jaw						Legs/Feet					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
Bundaleer, BDR021	0.4	0	16	45	34	5	0.2	87	0	11	0	2	0.0	0	45	53	2	0
Connewarran, 0040	-0.4	0	58	42	0	0	0.0	90	0	10	0	0	-0.2	0	67	30	3	0
Gringegalgona, 090960	0.1	0	26	56	15	3	0.0	92	0	8	0	0	-0.2	0	69	28	3	0
Hannaton Poll, 110001	-0.3	0	51	40	9	0	-0.1	95	0	5	0	0	-0.1	0	56	42	2	0
Hazeldean, 9.4752	-0.2	0	41	52	7	0	0.0	93	0	7	0	0	0.1	0	37	63	0	0
Kia Ora, 090130	0.0	0	30	60	8	2	0.1	88	0	12	0	0	0.0	0	48	52	0	0
Leahcim Poll, 090918	-0.3	0	52	43	5	0	-0.1	95	0	5	0	0	-0.1	0	52	48	0	0
Mount Yulong Poll, 110111	-0.1	0	41	44	12	3	0.0	90	0	10	0	0	0.2	0	31	64	5	0
Nerstane, 050010	0.1	3	19	56	22	0	0.2	83	0	14	3	0	0.1	0	39	56	5	0
Nerstane, 100919	-0.1	0	24	73	3	0	-0.1	98	0	2	0	0	-0.2	0	63	35	2	0
One Oak No. 2, BL11-104	0.5	0	8	56	31	5	-0.1	97	0	3	0	0	0.2	0	33	61	6	0
Roseville Park, 100038	0.0	0	23	71	6	0	0.0	94	0	6	0	0	0.0	0	52	45	3	0
The Mountain Dam, 12/LE018	0.0	0	24	71	5	0	-0.1	97	0	3	0	0	0.1	0	34	63	3	0
Tuckwood Poll, 101012	-0.6	0	74	23	3	0	0.0	92	0	8	0	0	-0.3	0	72	28	0	0
Yalgoo, 080068	0.0	0	26	64	6	4	0.1	89	0	9	2	0	0.0	0	43	57	0	0
Yiddinga, 195	0.4	0	14	54	26	6	-0.1	97	0	3	0	0	0.1	0	40	57	3	0
Kurra-Wirra, SR296 (Historical)	*0.3*	*0*	*23*	*42*	*31*	*4*	*0.0*	*92*	*0*	*8*	*0*	*0*	*0.3*	*0*	*15*	*85*	*0*	*0*
Kurra-Wirra, SV885 (Historical)	*0.3*	*0*	*20*	*41*	*39*	*0*	*0.0*	*95*	*0*	*3*	*2*	*0*	*0.1*	*0*	*41*	*56*	*3*	*0*
Average performance	**2.9**	**0**	**32**	**52**	**15**	**1**	**1.2**	**93**	**0**	**7**	**0**	**0**	**2.6**	**0**	**46**	**51**	**3**	**0**

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

Table 4d. **Visual trait assessments – Conformation**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported.

For the majority of breeder's objectives a negative deviation would be considered favourable and the larger the deviation the better. Face cover, body and neck 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.

For Back and Shoulder, Score 3 would be considered favourable.

Breeders flock, Sire name	Conformation																							
	Back						Shoulder						Body Wrinkle						Neck 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
Bundaleer, BDR021	-0.1	0	18	79	3	0	0.1	0	0	79	21	0	0.4	0	26	63	11	0	0.5	0	16	63	21	0
Connewarran, 0040	0.0	0	14	86	0	0	0.0	0	3	81	16	0	-0.1	9	58	26	7	0	0.1	2	47	42	9	0
Gringegalgona, 090960	-0.1	0	21	76	3	0	-0.1	0	3	89	8	0	-0.3	8	71	21	0	0	-0.3	10	61	29	0	0
Hannaton Poll, 110001	0.1	0	2	98	0	0	-0.1	0	0	93	7	0	-0.1	14	53	21	12	0	-0.2	7	56	30	7	0
Hazeldean, 9.4752	0.0	0	13	87	0	0	0.0	0	4	83	13	0	0.0	4	60	33	3	0	0.1	0	43	50	7	0
Kia Ora, 090130	0.0	0	15	82	3	0	0.0	0	0	90	10	0	0.5	5	32	35	25	3	0.5	0	32	38	28	2
Leahcim Poll, 090918	0.1	0	8	85	7	0	0.0	0	2	86	12	0	-1.0	56	44	0	0	0	-0.9	39	61	0	0	0
Mount Yulong Poll, 110111	0.1	0	7	90	3	0	0.1	0	0	78	22	0	-0.2	10	66	22	2	0	-0.2	3	63	32	2	0
Nerstane, 050010	0.0	0	11	83	6	0	0.0	0	3	80	17	0	0.1	2	49	43	6	0	0.1	3	46	40	11	0
Nerstane, 100919	0.0	0	6	94	0	0	-0.1	0	0	96	4	0	0.3	4	37	43	16	0	0.2	2	41	39	18	0
One Oak No. 2, BL11-104	0.0	0	11	89	0	0	0.0	0	0	86	14	0	0.4	3	31	49	17	0	0.4	0	20	63	17	0
Roseville Park, 100038	0.1	0	4	93	3	0	-0.1	3	0	87	10	0	0.1	0	63	23	14	0	0.2	0	43	43	14	0
The Mountain Dam, 12/LE018	-0.1	0	23	77	0	0	0.1	0	3	74	23	0	-0.3	20	51	23	6	0	-0.4	17	51	29	3	0
Tuckwood Poll, 101012	0.0	0	14	84	2	0	0.1	0	0	79	21	0	-0.7	32	65	0	3	0	-0.5	14	78	5	3	0
Yalgoo, 080068	0.1	0	4	96	0	0	0.0	0	0	89	11	0	0.0	4	57	37	2	0	0.0	2	50	41	7	0
Yiddinga, 195	0.1	0	3	94	3	0	0.1	0	0	76	24	0	0.5	0	27	61	12	0	0.2	0	33	58	9	0
Kurra-Wirra, SR296 (Historical)	*-0.1*	*4*	*15*	*81*	*0*	*0*	*0.1*	*0*	*0*	*74*	*26*	*0*	*-0.1*	*11*	*48*	*41*	*0*	*0*	*-0.2*	*3*	*63*	*30*	*4*	*0*
Kurra-Wirra, SV885 (Historical)	*-0.1*	*0*	*20*	*80*	*0*	*0*	*0.0*	*0*	*0*	*85*	*15*	*0*	*0.4*	*0*	*38*	*45*	*17*	*0*	*0.4*	*0*	*28*	*57*	*15*	*0*
Average performance	**2.9**	**0**	**12**	**86**	**2**	**0**	**3.1**	**0**	**1**	**84**	**15**	**0**	**2.4**	**10**	**49**	**32**	**9**	**0**	**2.5**	**6**	**46**	**38**	**10**	**0**

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Table 4e. **Visual trait assessments – Breech**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported.

For the majority of breeder's objectives a negative deviation would be considered favourable and the larger the deviation the better.

Breeders flock, Sire name	Breech Visual Traits																											
	Breech Cover *Marking*						Crutch Cover						Breech Wrinkle *Marking*						Dag *Hogget - mulesed*						Urine Stain					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
Bundaleer, BDR021	-0.1	0	2	37	39	22							0.7	7	22	39	32	0	0.2	31	25	13	14	17						
Connewarran, 0040	-0.2	0	7	34	41	18							0.1	18	32	48	2	0	0.2	23	28	28	5	16						
Gringegalgona, 090960	0.0	0	4	33	30	33							-0.4	42	35	21	2	0	0.7	12	21	21	33	13						
Hannaton Poll, 110001	-0.1	2	2	31	43	22							0.0	33	20	45	2	0	0.1	23	35	21	12	9						
Hazeldean, 9.4752	0.2	0	0	22	44	34							0.6	8	24	51	17	0	0.1	26	26	29	9	10						
Kia Ora, 090130	-0.2	0	4	41	39	16							0.2	18	30	50	2	0	0.2	28	26	21	12	13						
Leahcim Poll, 090918	-0.5	3	2	54	30	11	**Crutch Cover**						-0.9	70	28	2	0	0	-0.3	35	35	15	12	3	**Urine Stain**					
Mount Yulong Poll, 110111	0.3	0	2	18	33	47	**was not scored**						-0.3	43	27	29	1	0	0.0	34	20	20	18	8	**was not scored**					
Nerstane, 050010	0.3	0	0	27	30	43							0.2	14	39	39	8	0	-0.1	31	31	19	14	5						
Nerstane, 100919	-0.2	0	4	41	32	23							0.0	23	30	45	2	0	0.3	23	23	23	23	8						
One Oak No. 2, BL11-104	0.4	0	0	20	29	51							0.3	17	32	37	14	0	-0.5	41	38	14	5	2						
Roseville Park, 100038	0.1	0	3	22	50	25							0.1	17	35	48	0	0	0.6	13	29	16	26	16						
The Mountain Dam, 12/LE018	-0.2	0	4	33	48	15							-0.2	33	37	28	2	0	-0.7	58	19	17	3	3						
Tuckwood Poll, 101012	-0.2	0	6	36	42	16							-0.9	78	18	4	0	0	0.2	20	30	30	10	10						
Yalgoo, 080068	-0.1	0	2	34	47	17							-0.1	30	32	36	2	0	-0.7	57	26	11	2	4						
Yiddinga, 195	0.4	0	2	11	41	46							0.0	16	43	41	0	0	0.1	28	28	19	17	8						
Kurra-Wirra, SR296 (Historical)	*-0.3*	*0*	*9*	*41*	*25*	*25*							*0.2*	*16*	*41*	*34*	*9*	*0*	*-0.5*	*48*	*26*	*15*	*11*	*0*						
Kurra-Wirra, SV885 (Historical)	*0.4*	*0*	*2*	*16*	*33*	*49*							*0.4*	*18*	*24*	*38*	*20*	*0*	*-0.2*	*44*	*24*	*15*	*7*	*10*						
Average performance	**3.9**	**0**	**3**	**30**	**38**	**29**							**2.2**	**28**	**30**	**35**	**7**	**0**	**2.4**	**32**	**27**	**19**	**13**	**9**						

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Table 5. **Sire means for measured traits**

Sire means are the average performance of all the progeny of a sire. No account is made for factors that can improve the breeding value accuracy.

Breeders flock, Sire name	Number of progeny	Sire means for measured traits (deviations from the site mean)									
		GFW kg A^	CFW kg A	FD µm A	WT kg W	WT kg Y	WT kg A	FDCV % A	Curv deg/mm A	SL mm A	SS N/ktex A
Bundaleer, BDR021	37	0.1	0.2	0.0	0.0	0.4	-0.5	-0.6	0.8	-2.1	-0.4
Connewarran, 0040	42	0.3	0.2	0.1	1.4	2.3	3.3	-0.9	-0.2	-1.2	-0.6
Gringegalgona, 090960	38	-0.1	0.1	0.0	1.6	2.6	1.4	0.2	4.9	1.2	-0.1
Hannaton Poll, 110001	42	0.1	0.0	0.6	0.8	0.6	1.7	0.1	-1.8	-1.4	-2.3
Hazeldean, 9.4752	30	-0.2	-0.2	-0.6	-1.8	-2.2	-1.7	0.0	-1.8	1.7	2.2
Kia Ora, 090130	40	0.1	0.1	0.4	-1.6	-1.2	-1.4	-0.3	-2.4	0.9	0.1
Leahcim Poll, 090918	40	-0.2	-0.1	*0.7*	0.6	1.1	1.9	*-0.4*	-3.5	4.1	1.7
Mount Yulong Poll, 110111	42	-0.1	-0.1	*0.3*	0.4	-0.8	1.1	*0.3*	-5.1	1.4	-2.6
Nerstane, 050010	36	0.0	0.0	-0.8	-0.2	-1.2	-2.4	1.5	6.2	-3.8	1.8
Nerstane, 100919	47	0.4	0.2	0.5	0.0	1.2	0.7	-0.2	-1.1	7.1	-0.1
One Oak No. 2, BL11-104	36	0.0	0.0	0.1	0.3	-0.5	-0.4	1.8	-1.8	-6.2	-1.0
Roseville Park, 100038	30	-0.1	-0.1	-0.7	-0.1	-0.5	-0.8	0.2	1.5	-0.2	-3.1
The Mountain Dam, 12/LE018	35	0.2	0.1	0.2	-0.5	0.5	1.3	-0.8	-0.2	4.5	2.9
Tuckwood Poll, 101012	39	0.0	-0.1	-0.3	2.1	3.4	4.8	-0.3	-4.7	7.9	-2.9
Yalgoo, 080068	44	-0.2	0.0	-0.6	-0.3	-0.7	-1.1	-0.8	3.1	-0.1	3.9
Yiddinga, 195	34	0.2	0.0	-0.3	-0.7	-1.2	-1.8	-0.9	-0.6	-2.5	2.7
Kurra-Wirra, SR296 (Historical)	*26*	*-0.3*	*-0.2*	-0.1	*-0.3*	*-1.4*	*-2.6*	-0.6	*6.6*	*-6.4*	*1.0*
Kurra-Wirra, SV885 (Historical)	*41*	*-0.2*	*-0.1*	0.4	*-1.6*	*-2.5*	*-3.4*	1.8	*0.1*	*-5.0*	*-3.1*
Mean	**38**	**4.4**	**3.2**	**16.5**	**23.9**	**31.7**	**38.6**	**18.8**	**98.7**	**81.4**	**54.5**

^ W = Weaning (42 to 120 days); P = Post Weaning (210 to 300 days); Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

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Index Options

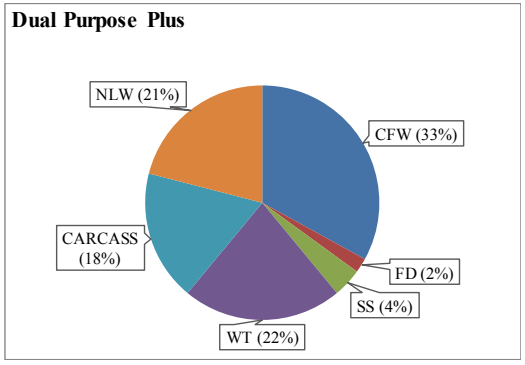
Breeding Objective index options provide the relative value of sires based on a combination of the measured traits' genetic performance. The indexes used in this report are only some of the many indexes that can be used to describe an individual breeder's objective for measured traits.

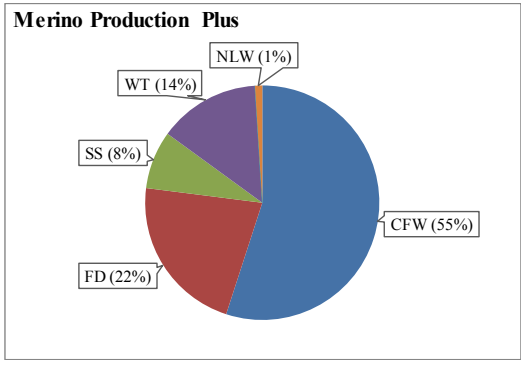
If a breeder is considering using a sire in this report it is critical to consider the performance of the breeder's flock relative to the performance standard in this report. The relative performance must be considered to establish the result that can be expected when a sire is used in a breeder's flock.

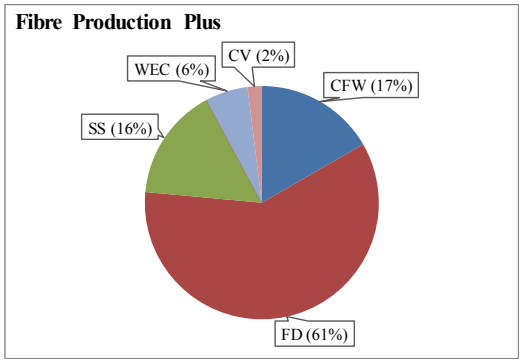
All AMSEA site evaluation reports present 3 standard indexes to provide combined **measured** trait performance These 3 AMSEA indexes are DP+; MP+; and FP+. These indexes are the same as MERINOSELECT indexes of that name however as there is no direct reproduction records captured by sire evaluation AMSEA do not include a Reproduction (NLW) FBV in their index calculations. As a result the 25% contribution by NLW in the DP+ index is not effectively applied by the index calculation.

AMSEA **DP+**	**Dual Purpose:** Based on a meat focused production system where surplus progeny are sold as lambs and a portion of ewes are joined to terminal sires. Equal and high positive emphasis on CFW and meat traits (body weight, EMD). Maintain fibre diameter, staple strength and fat depth.
AMSEA **MP+**	**Merino Production:** Based on a balanced wool and meat production system where surplus progeny are sold as hoggets. Large increase in fleece weight. Moderate increase, staple strength, carcass traits and reproduction. Moderate reduction in fibre diameter.
AMSEA **FP+**	**Fibre Production:** Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses. Large reduction in fibre diameter. Large increase in staple strength. Small reduction in WEC (if measured in the breeding program). Small increase in fleece weight. Little change in carcass traits and reproduction.

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







Understanding the results

Accuracy of Flock Breeding Values

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

True Breeding Values would be achieved if the number of progeny evaluated for each sire 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 sires 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 sire's progeny.

Link sires

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

To be used as a link a sire 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 sires which can provide a wider perspective of the elite sires available across many flocks in Australia.

Combined measured trait and combined visual trait performance

Combined measured trait performance is calculated as Index – 100. Three different index options are provided to cater for breeders' different breeding objectives.

Combined visual trait performance is calculated as:

(Classer's Visual Grade Tops% – Culls%)/5, expressed as a deviation from (average Tops% – average Culls%)/5.

Example
Sire's performance: AMSEA DP+ 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 = -0.1

Elders Balmoral Victoria Sire Evaluation Group

2013 Drop