

Elders Balmoral

2014 Drop
Adult Assessment

Within-Site Results

Conducted by

Elders Balmoral Sire Evaluation Group



under the auspices of

The Australian Merino Sire Evaluation Association



May 2016



Disclaimer

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The Australian Merino Sire Evaluation Association has approved the format used in this report. Australian Sheep Breeding Values reported here are based on analyses conducted by Sheep Genetics.

Elders Balmoral Sire Evaluation Group Central Test Sire Evaluation

The Elders Balmoral 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 (1998-2016), 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”, “Wando Estate”, “Mepungah” and “Tuloona” 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 19 progeny drops: 1998 -2016 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 lessen the increasing burden, future trials would continue as usual over a 2-year period, but would have only one major classing and fleece assessment. This will be taken when the 2nd assessment would have previously occurred. The cost and time benefits have been significant while still providing all involved 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. This is with the exception of 2015 and 2016 drops at Tuloona which have had, and will have, annual analysis done as part of the Merino Ewe Lifetime Productivity Trial analysis.

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

Over recent years we are utilising the base trial to run additional trials in conjunction. An example is fertility analysis of sires, from progeny in the 2010 drop, a pedigree collection comparison in 2012 and now MLP trials in 2015 and 2016.

Host Properties

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 – “Mepungah”, Wannon
- 2015 & 2016 “Tuloona”, Harrow

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

Tom Silcock
Chairman
Elders Balmoral Sire Evaluation Group

2014 Drop Adult Assessment

The information in this site evaluation report provides a comprehensive assessment of the 2014 drop, including the Adult assessment of the sire's progeny performance, in measured and visually assessed traits.

The Adult fleece and visual assessments were made at 18 months of age with 10.5 months of wool growth. Adult shearing was conducted at 19 months of age with 11.5 months of wool growth.

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Sire and Owner Details

Breeder's flock, Sire name Sire ID #, Breed †	Owner Details
Anderson, 120103 (Unreg) 609147-2012-120103, Poll Merino	Lynley Anderson Brookvale, RMB 512, Kojonup WA 6395 P: (08) 9832 8055, F: (08) 9832 8055, E: lynleya@westnet.com.au
Centre Plus Poll, 807300 601250-2008-807300, Poll Merino	Robert Mortimer Devondale, Tullamore NSW 2874 P: (02) 6892 8259, F: (02) 6892 8292, E: robert@centreplus.com.au
Connewarran, 062097 (Link) 504704-2006-062097, Merino	Hamish Weatherly Connewarran, PO Box 21, Mortlake VIC 3272 P: (03) 5599 7276, E: hamishweatherly@hotmail.com
Donley Park, 090044 504643-2009-090044, Merino	Don McFarlane Private Bag, Branxholme VIC 3302 P: (03) 5578 8251, F: (03) 5578 8251
Edale, 08E239 502756-2008-08E239, Merino	Philip Gardiner 555 Cattady Road, Moora WA 6510 P: (08) 9651 1700, F: (08) 9651 1766, E: edale@wn.com.au
Karowara Plains Poll, 110024 601338-2011-110024, Poll Merino	Ken and Kim Noakes Hempstead, Bedgerebong NSW 2871 P: (02) 6857 1137, F: (02) 6857 1030, E: kknoakes@bigpond.com
Kurra-Wirra, 110784 504173-2011-110784, 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
Merinotech WA Poll, 100115 (Unreg) 609040-2010-100115, Poll Merino	Ian Robertson Merinotech (WA) Ltd, RMB 311, Kojonup WA 6395 P: (08) 9833 6251, F: (08) 9833 6255, E: yarrak311@optusnet.com.au
Mokanger, 120092 (Link) 504888-2012-120092, Merino	Richard McShane Mokanger Past Co, 711 Mokanger Road, Cavendish VIC 3314 P: (03) 5574 2367, F: (03) 5574 2328, E: mokanger2@bigpond.com
Mumblebone, 120431 500063-2012-120431, Merino	Chad Taylor Marapana, 456 Wuuluman Road, Wellington NSW 2820 P: (02) 6845 3620, F: (02) 6845 3608, E: chad@mumblebone.com.au
Nareeb Nareeb Poll, 120910 600705-2012-120910, Poll Merino	Richard Beggs 4395 Hamilton Chatsworth Rd, Nareeb VIC 3293 P: (03) 5577 8222, F: (03) 5577 8362, E: office@nareebnareeb.com.au
Nerstane, 100958 (Link) 503298-2010-100958, Merino	John, Hamish and Jock McLaren Nerstane, Woolbrook NSW 2354 P: (02) 6777 5881, F: (02) 6777 5922, E: jock@nerstane.com.au
Nerstane, 697 (Historical) 503298-1986-860697, Merino	John, Hamish and Jock McLaren Nerstane, Woolbrook NSW 2354 P: (02) 6777 5881, F: (02) 6777 5922, E: jock@nerstane.com.au
Pooginook, 112469 500788-2011-112469, Merino	John Sutherland Pooginook , Jerilderie NSW 2716 P: (02) 6954 6145, F: (02) 6954 6168, E: pooginook@parawaypastoral.com

Sire and Owner Details

Breeder's flock, Sire name Sire ID #, Breed †	Owner Details
Pooginook, Jewel (Historical) 500788-1999-990883, Merino	John Sutherland Pooginook, Jerilderie NSW 2716 P: (02) 6954 6145, F: (02) 6954 6168, E: pooginook@parawaypastoral.com
The Mountain Dam, 11/RE017 504572-2011-1RE017, Merino	Tom and Alison Silcock The Mountain Dam, 429 Silcocks Road, Telangatuk East VIC 3401 P: (03) 5388 2288, F: (03) 5388 2235, E: tom@themountaindam.com.au
Tuckwood Poll, 131023 601053-2013-131023, Poll Merino	Geoff Tucker PMB 21, Millicent SA 5280 P: (08) 8734 2050, F: (08) 8734 2052, E: geomag@activ8.net.au
Wanganella, 100019 500083-2010-100019, Merino	Justin Campbell FS Falkiner & Sons Pty Ltd, Boonoke, Deniliquin NSW 2710 P: (03) 5884 6604, F: (03) 5884 6701, E: jcampbell@fsfalkiner.com.au
Winyar, 110710 (Link) 503627-2011-110710, Merino	Allan Dawson Winyar, Belubula Way, Canowindra NSW 2804 P: (02) 6344 1653, F: (02) 6344 1653, E: winyar@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.
 - 6 for tag number used in the breeder's records.

† Breed of flock in which the sire was born

Host Property for 2014 drop progeny and location

Mepungah is located 20km west of Hamilton in the locality of Wannon, running a self-replacing fine wool Merino flock.

The breeding production base has been focussed on a high return per hectare. A focus is made on the ewes 'doing ability' for the geographical location of the property.

Mepungah has an average rainfall of 625mm.

Ewe Base

The Mepungah flock averages 18 micron. The property runs 9000 ewes and annually shears 28,500 sheep.

The flock was based on Roseville Park sires (1989-2000), Merryville-blood sires (Toolang, Grangeburn and The Grange) from 2000 to 2006, and from 2007 onwards, Gingealgonia sires. Only low micron, high fleece index rams are chosen.

The Mepungah ewes are selected for being structurally sound, large bodied sheep, that produce long stapled, bright freely growing wool, but with bulk, on plain bodies.

A mob of 1209, 2.5-year-old ewes were selected for the sire evaluation program. The ewes were AI'd on April 7 and 8, 2014. A total of 20 sires were joined to an average of 60 ewes each, with each of the ewes having a condition score of 2.3 at joining.

Pregnancy and lambing and weaning

The ewes were scanned in lamb at 80% on the June 6 and 16.5% of the total joined were scanned as carrying twins.

Ewes carrying singles and twins were separated, both mobs were put on pastures that were 1200kg/dm/ha. The ewes carrying twins were only stocked at 8.4dse/ha.

After lambing had finished the lambs were tagged, weighed and a visual assessment recorded of skin along with fibre pigment as well as a rating for hairy birth coat.

The trial ewes lambed down between September 3 and 10 in perfect weather conditions. The twins lambed down on to quality clover pastures with 1400kg/dm/ha and the singles on to pastures with 1250kg/dm/ha. Ewes at the time of lambing had a body condition score of 3.0.

768 lambs were marked from 751 ewes scanned in lamb with 298 of the lambs marked being twins. Lambs were weighed and tagged September 23 and marked on October 14.

The Pedigree Match Maker (PMM) system was used to identify the parentage of the progeny of the lambs born. Panel readers were originally setup in gateways and on major sheep tracks for the ewes and lambs to pass through to be recorded. This proved to be quite successful with the smaller mob of twins, but poor data was recorded for the singles.

As the season turned it was decided to relocate the panel readers to the entry of fenced off water points and immediately high reads of matching data were recorded. In the end, of the 739 lambs weaned, 121 or 16% of them were unable to have their parentage accurately identified. These lambs were then DNA tested in December to establish parentage.

A total of 739 lambs were weaned and weighed on December 3 with an average weight of 22kg. All the lambs were very healthy looking and were weaned onto a clover based pasture of around 2500kg/DM/ha.

Unfortunately, due to the season cutting out early, there was not a lot of green content in the pasture. The lambs were imprint fed prior to weaning and were started on a feed ration of 1.0kg/week of barley before it was raised to 1.5kg/week.

In early June 2015 we monitored WEC on the weaners every 10-14 days waiting to get counts higher than 200 EPG before conducting the worm tests on each lamb in the trial. The counts remained low for several weeks following the Autumn break, then skyrocketed to 300+. At the time the sheep suffered as a result of this, losing up to 0.5 of a condition score, before recovering. The worm resistance testing was conducted on June 22 and 695 samples were “extracted” from the lambs.

Thanks to a dry winter, the trial lambs were being fed around 1000kg/DM/ha in June/July 2015

In mid-September 2015 the sheep were scanned for fat cover and muscle depth, and weighed. Average fat cover at this time was 2.6mm which suggested that the sheep were in good condition, however the average body weight was 34kg which left us with a target of 11kg of bodyweight gain to achieve before joining in mid-March.

With the changes required for the site to be part of hosting an Merino Lifetime Productivity trial, and the extended time frames involved with the national trial, Mepungah declined to host the trial for the second year.

Seasonal conditions

Weather in 2014 was typical of Western District winter conditions at the trial site; miserably wet, cold and windy followed by a long, dry summer without much rain to tide over the pastures.

Those wintry conditions ceased on Mepungah in mid-August, but the property then only received one rainfall event over 10mm from that time on, until early December.

The spring was basically a succession of weekly rainfall events of between 1 to 5 mm. Fortunately, the average daily temperatures remained reasonably low and a total spring failure was averted.

An on time autumn break in 2015 was very welcome at Mepungah with rains arriving in the last week of April before a winter which was very cold, and generally kinder to livestock, but not wet.

After a reasonably wet May, the rainfall slowed down with only a couple of significant rainfall events in June.

Livestock came into spring 2015 in good condition and there was good pasture growth in the early part of the Spring.

The dry winter meant little runoff for water catchments and all Western Victorian farmers had their fingers and toes crossed wishing for at least an average spring.

This did not happen, and once again the property received little rain since September. Mepungah measured only 4mm for October which, on average, is a 60mm month. A neighbour did not measure any rain for 50 days which included all of October.

Assessment and Management Program

Activity	Date/s	Age	Wool
Selection of ewes	February 2014		
Allocation of ewes for mating	April 2014		
Pregnancy scanning	6 June 2014		
Allocated to lambing paddocks	15 August 2014		
Lambing: start – finish	3 – 10 September 2014		
Lambing mobs boxed to one management group	23 September 2014	17 days	
Tagging, pigmentation and breech scoring	23 September 2014	17 days	
Marking	14 October 2014	38 days	
Weaning	3 December 2014	88 days	
Mid side fleece sampling	<ul style="list-style-type: none"> • PW 21 April 2015 7.5 months 7.5 months • A 11 March 2016 18 months 10.5 months 		
Visual trait scoring	<ul style="list-style-type: none"> • A 11 March 2015 18 months 10.5 months 		
Shearing	<ul style="list-style-type: none"> • PW 21 April 2015 7.5 months 7.5 months • A 14 April 2016 19 months 11.5 months 		
Fat and eye muscle scanning	<ul style="list-style-type: none"> • H 22 September 2015 12.5 months 5 months 		
Worm egg count sampling	<ul style="list-style-type: none"> • Y 22 June 2014 9.5 months 		
Body weighing	<ul style="list-style-type: none"> • W 3 December 2014 88 days • PW 30 March 2015 7 months • Y 22 September 2015 13 months • A 14 April 2016 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 2014 drop sheep	<ul style="list-style-type: none"> • Field Day & Progeny Display – April 2015 • Field Day & Progeny Display– April 2016 • Display at Hamilton Sheepvention – August 2015 • Display at Balmoral Show – 2015 & 2016 • Display at Australian Sheep & Wool Show- Bendigo – July 2015 		

Visual trait assessment and site Breeding Objective

Visual trait assessment

1st and final assessment

Classer's Grade: Mr Rolly Coutts, 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

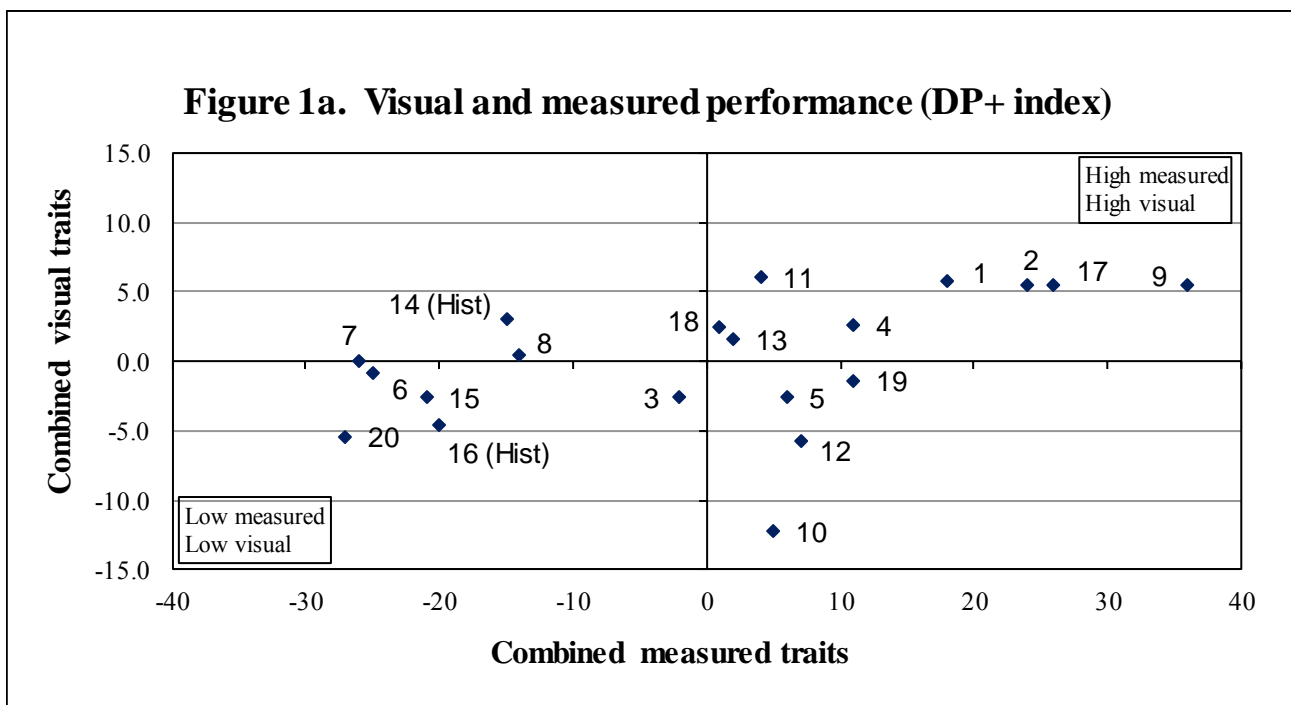
Summary graph: visual and measured performance

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.

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.

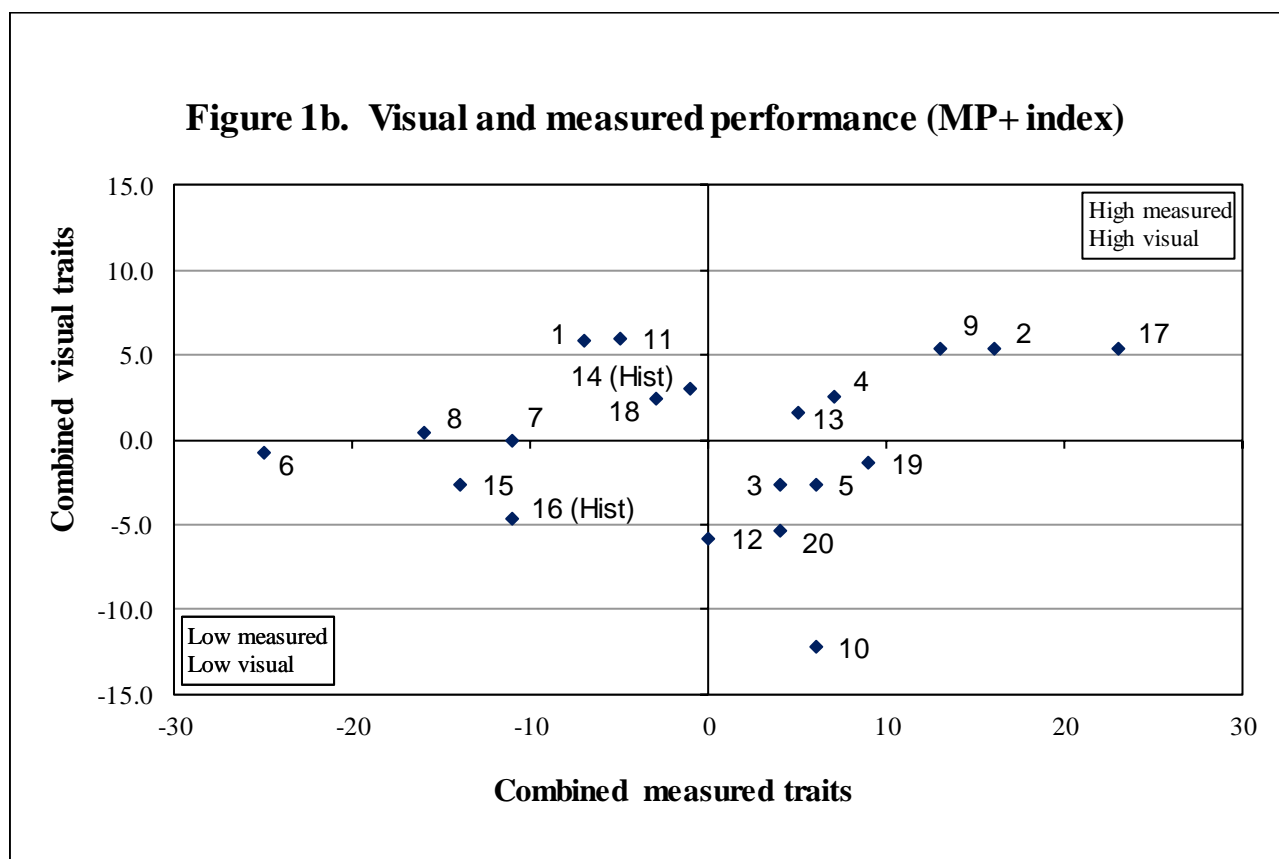
Figure 1a. Combined measured traits (DP+ index) and combined visually assessed traits for the site objective. Combined visually assessed traits including relevant measured traits, e.g., Fleece Weight and Body Weight.



(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.

Figure 1. Combined Measured and Visual Performance

Figure 1b. Combined measured traits (MP+ index) and combined visually assessed traits for the site objective.
 Combined visually assessed traits including relevant measured traits, e.g., Fleece Weight and Body Weight.



Sire code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Anderson, 120103	609147-2012-120103	609147-2010-100502
2	Centre Plus Poll, 807300	601250-2008-807300	601250-2006-607065 (Centre Plus Poll, 607065)
3	Connewarran, 062097	504704-2006-062097	504470-2004-040119
4	Donley Park, 090044	504643-2009-090044	504868-1999-990058
5	Edale, 08E239	502756-2008-08E239	601250-2001-107351 (Centre Plus Poll, 107351)
6	Karowara Plains Poll, 110024	601338-2011-110024	601338-2007-000144
7	Kurra-Wirra, 110784	504173-2011-110784	Unknown
8	Leahcim Poll, 090918	600815-2009-090918	600815-2007-070319
9	Merinotech WA Poll, 100115	609040-2010-100115	609040-2008-088578
10	Mokanger, 120092	504888-2012-120092	504888-2009-000004
11	Mumblebone, 120431	500063-2012-120431	600815-2008-080445
12	Nareeb Nareeb Poll, 120910	600705-2012-120910	600705-2012-120918
13	Nerstane, 100958	503298-2010-100958	503298-2008-080121 (Nerstane, 080121)
14	Nerstane, 697 (Historical)	503298-1986-860697	Unknown
15	Pooginook, 112469	500788-2011-112469	500788-2008-082349
16	Pooginook, Jewel (Historical)	500788-1999-990883	500788-1997-970744 (Pooginook, Perkins)
17	The Mountain Dam, 11/RE017	504572-2011-1RE017	601116-2009-091137 (Ridgway Poll, 091137)
18	Tuckwood Poll, 131023	601053-2013-131023	600792-2009-090576 (Mernowie Poll, 090576)
19	Wanganella, 100019	500083-2010-100019	504470-2006-060013
20	Winyar, 110710	503627-2011-110710	504166-2009-090014 (Roseville Park, 090014)

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

The highest performing 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' (page 25) 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.

Sire Code	Breeders flock, Sire name	Number of progeny	AMSEA Index Values			Classer's Visual Grade	
			Dual Purpose Plus	Merino Production Plus	Fibre Production Plus	Tops % Y^	Culls % Y^
1	Anderson, 120103	39	118	93	87	13	-16
2	Centre Plus Poll, 807300	42	124	116	107	11	-16
3	Connewarran, 062097	33	98	104	109	-5	8
4	Donley Park, 090044	24	111	107	100	2	-11
5	Edale, 08E239	47	106	106	109	-2	11
6	Karowara Plains Poll, 110024	39	75	75	81	-2	2
7	Kurra-Wirra, 110784	27	74	89	97	-2	-2
8	Leahcim Poll, 090918	32	86	84	82	1	-1
9	Merinotech WA Poll, 100115	38	136	113	109	11	-16
10	Mokanger, 120092	23	105	106	110	-23	38
11	Mumblebone, 120431	41	104	95	95	16	-14
12	Nareeb Nareeb Poll, 120910	20	107	100	95	-18	11
13	Nerstane, 100958	34	102	105	105	-2	-10
14	Nerstane, 697 (Historical)	32	85	99	101	2	-13
15	Pooginook, 112469	32	79	86	84	-13	0
16	Pooginook, Jewel (Historical)	29	80	89	88	1	24
17	The Mountain Dam, 11/RE017	32	126	123	111	11	-16
18	Tuckwood Poll, 131023	31	101	97	93	3	-9
19	Wanganella, 100019	38	111	109	105	-2	5
20	Winyar, 110710	29	73	104	105	-3	24
Average performance		33	100	100	100	23	19

Figure 2. Fleece weight by fibre diameter (FBVs)

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.

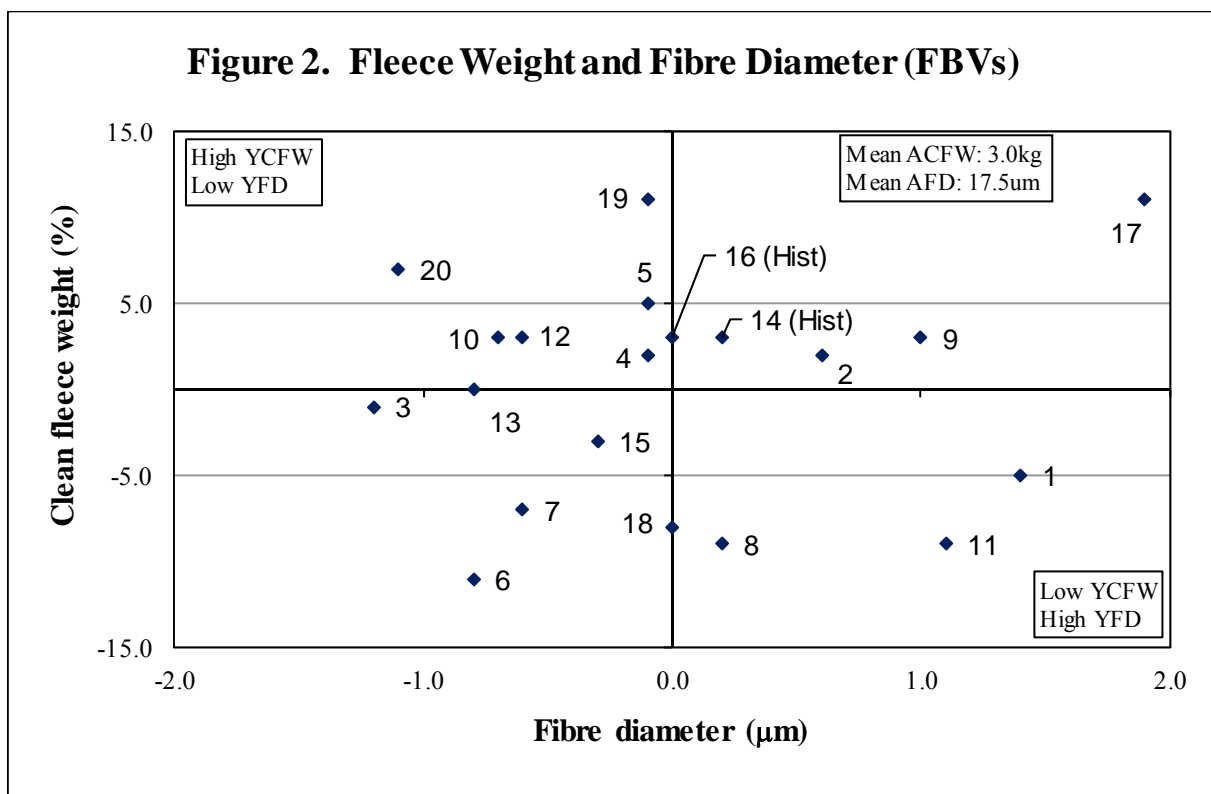


Figure 3. Classer's Visual Grade - Tops by Cull

The graph describes performance for Classer's Visual 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.

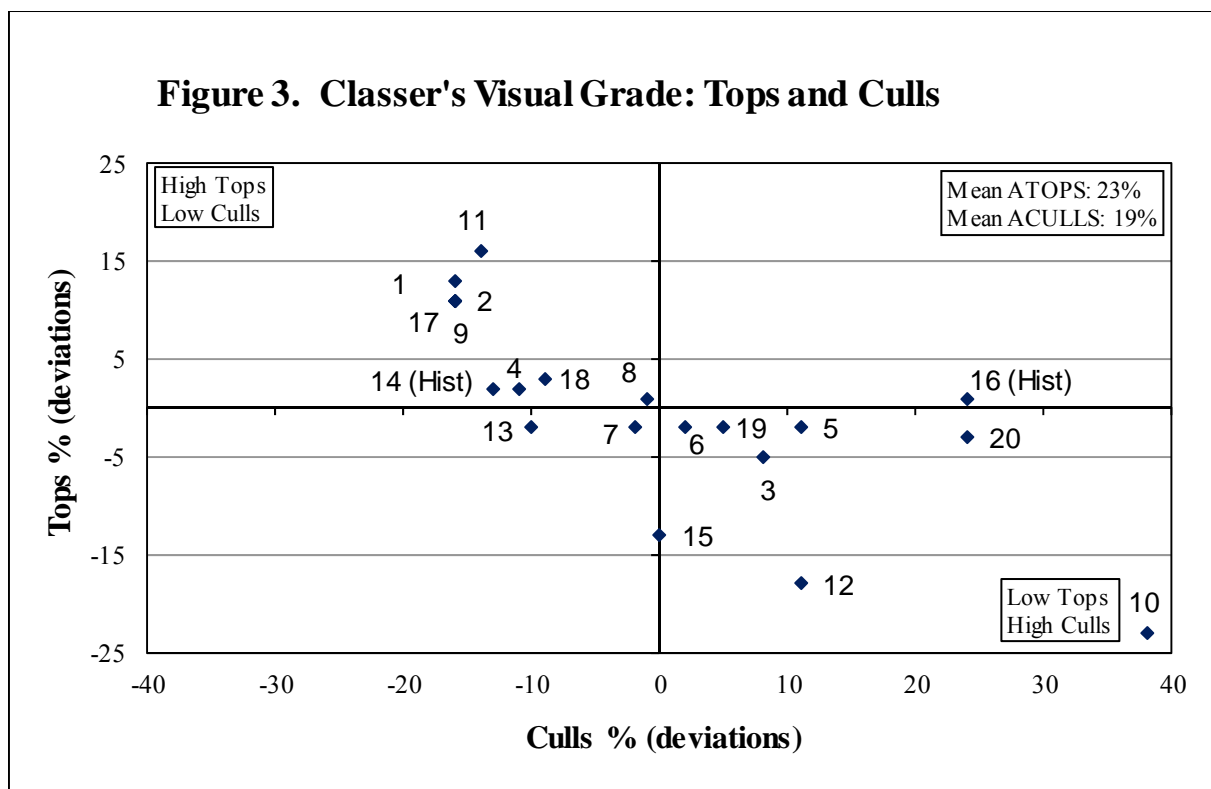


Figure 4. Fleece weight by body weight (FBVs)

The graph describes performance for fleece weight on the side axis and body weight on the bottom axis. Sires that are above average for fleece weight and above average for body weight are located in the top right hand quarter.

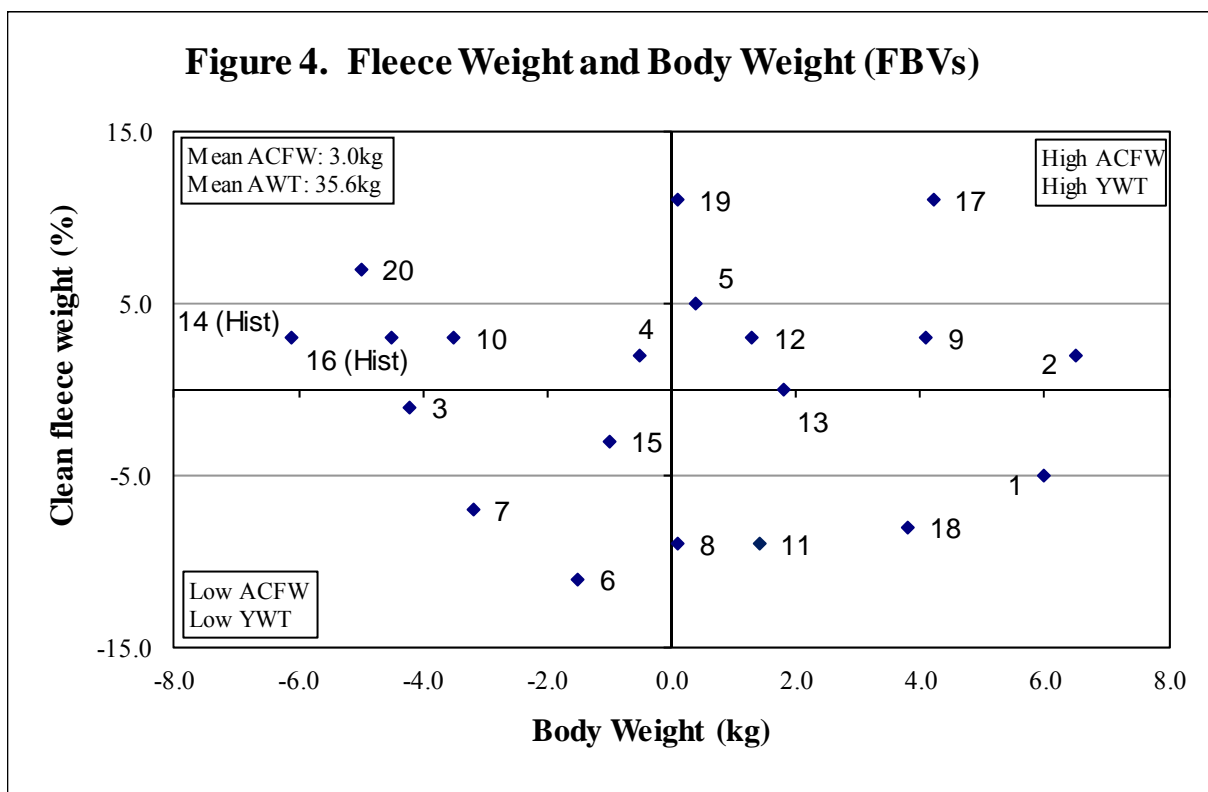


Figure 5. Fleece weight by fat (FBVs)

The graph describes performance for fleece weight on the side axis and fat on the bottom axis. Sires that are above average for fleece weight and above average for fat are located in the top right hand quarter.

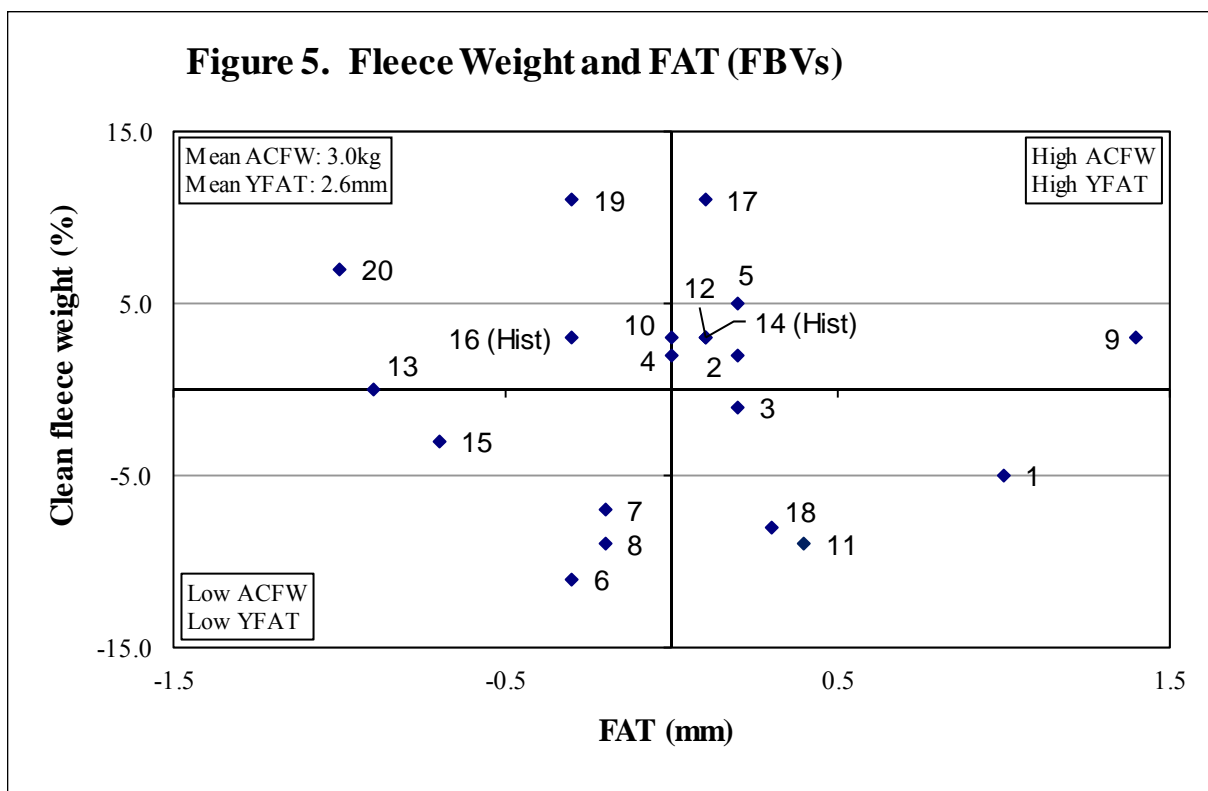


Figure 6. Fleece weight by eye muscle depth (FBVs)

The graph describes performance for fleece weight on the side axis and eye muscle depth on the bottom axis. Sires that are above average for fleece weight and above average for eye muscle depth are located in the top right hand quarter.

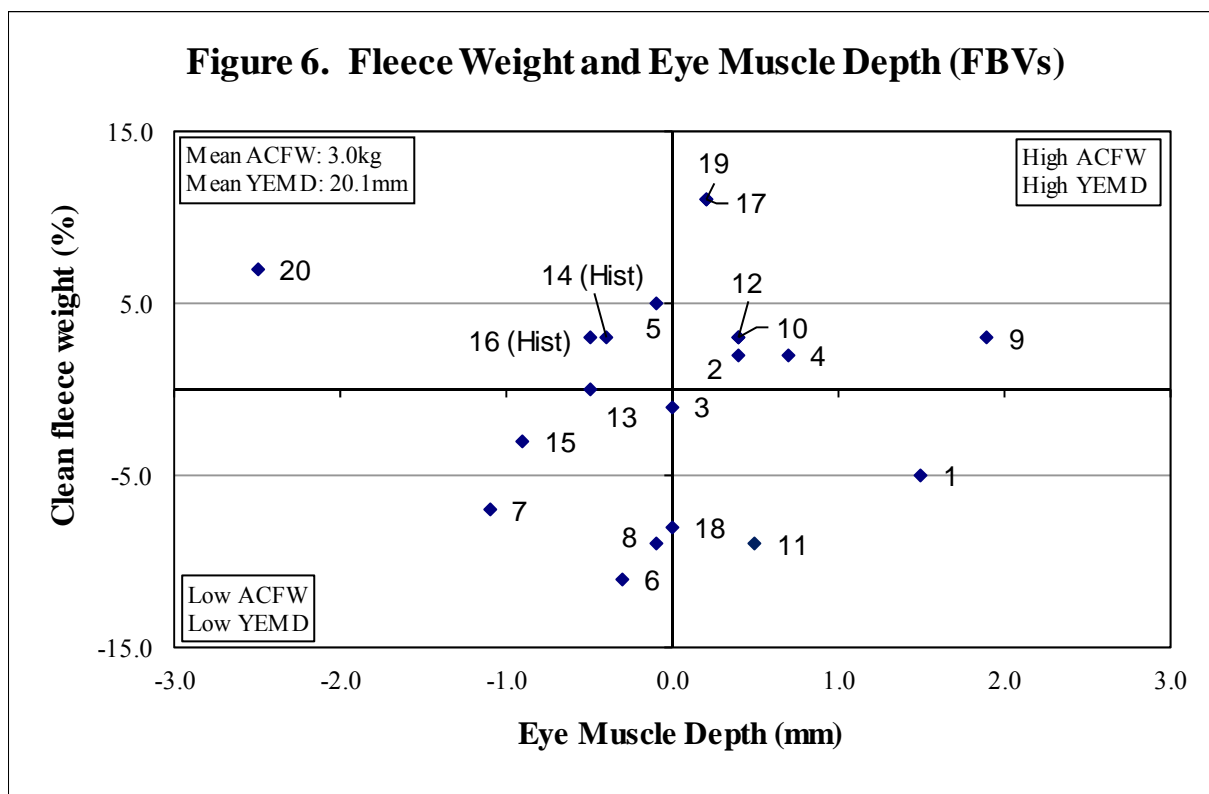


Figure 7. Body weight by eye muscle depth (FBVs)

The graph describes performance for body weight on the side axis and eye muscle depth on the bottom axis. Sires that are above average for body weight and above average for eye muscle depth are located in the top right hand quarter.

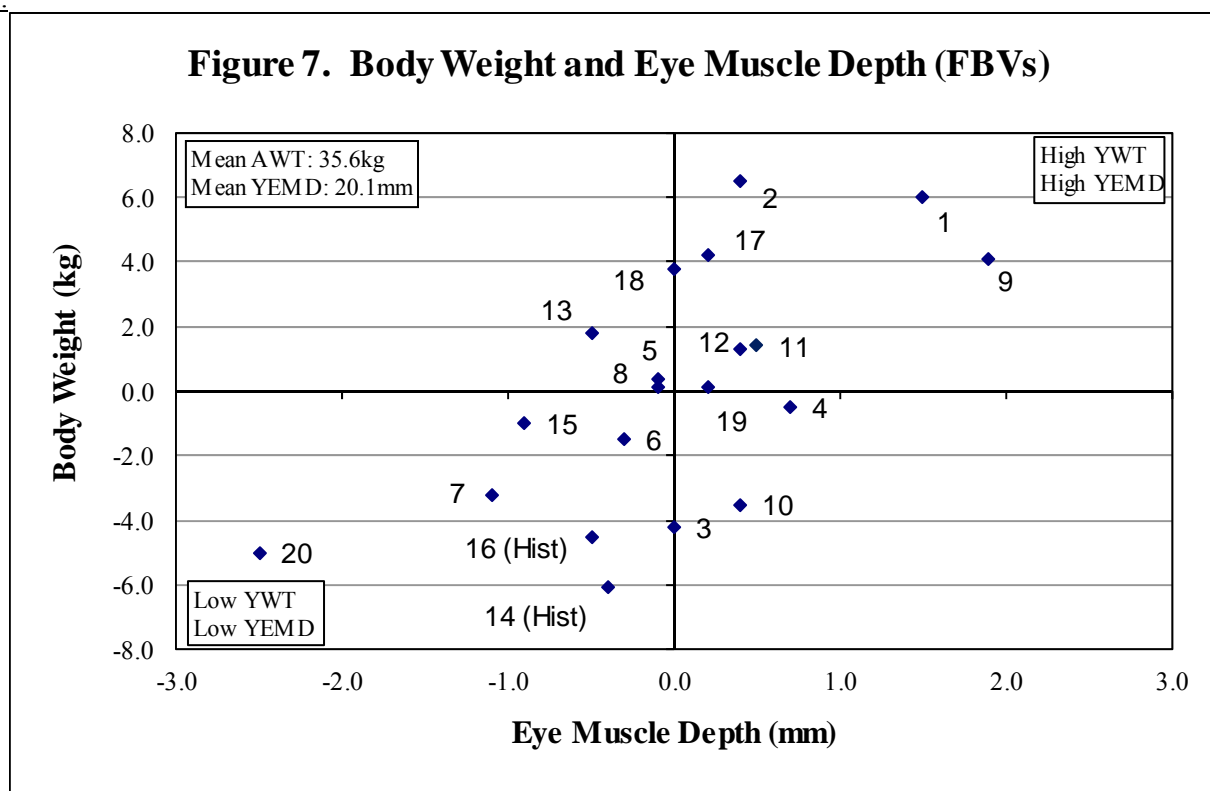
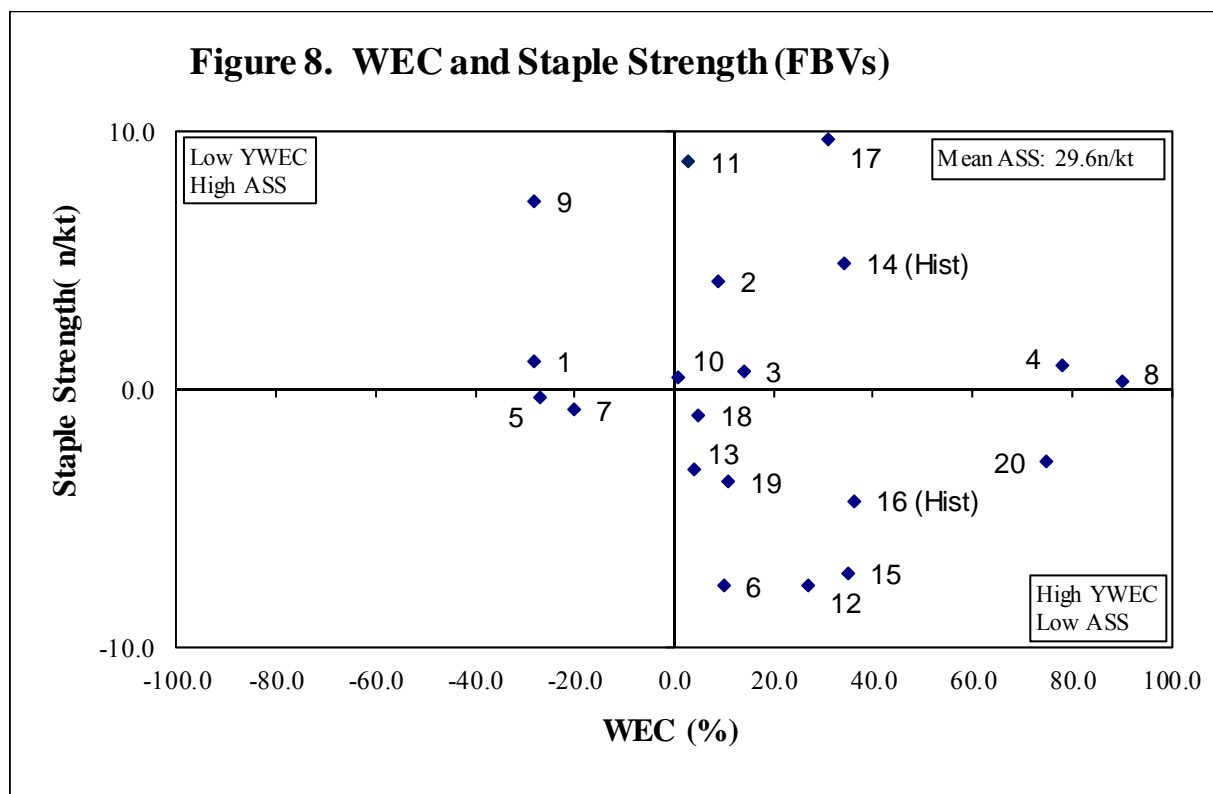


Figure 8. Summary Graphs – SS and WEC

Figure 8. Staple strength by worm egg count (FBVs)

The graph describes performance for staple strength on the side axis and worm egg count on the bottom axis. Sires that are above average for staple strength and above average for worm egg count are located 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:	<p>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.</p> <p>The highest performing sires for each trait (trait leaders) are highlighted by shading. Curvature and Fat are possible exceptions when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.</p>
Traits: Abbreviation, trait and the (units reported)	<p>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).</p>
Age at assessment:	<p>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).</p>
Classer's Visual Grade:	<p>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.</p>

Page 9 provides more detail on Classer's Visual Grade and the site's Breeding Objective.

Table 2. Major Measured Traits and Classer's Visual Grade

Breeder's flock, Sire name	Number of progeny	Flock Breeding Values (deviations)									Classer's Visual Grade ¹	
		GFW %		CFW %	FD μ m		WT kg				Tops %	Culls %
		P [^]	A	A	P	A	W	P	Y	A	A	A
Anderson, 120103	39	-3	-5	-5	1.2	1.4	1.8	4.0	5.4	6.0	13	-16
Centre Plus Poll, 807300	42	6	2	2	0.6	0.6	2.2	3.8	5.3	6.5	11	-16
Connewarran, 062097	33	1	-3	-1	-0.8	-1.2	-1.2	-2.0	-2.7	-4.2	-5	8
Donley Park, 090044	24	3	0	2	0.0	-0.1	0.3	0.1	0.3	-0.5	2	-11
Edale, 08E239	47	0	4	5	-0.1	-0.1	-1.6	-0.6	0.2	0.4	-2	11
Karowara Plains Poll, 110024	39	-13	-9	-11	-0.6	-0.8	-1.4	-2.0	-2.7	-1.5	-2	2
Kurra-Wirra, 110784	27	-4	-6	-7	-0.4	-0.6	-1.2	-2.5	-3.5	-3.2	-2	-2
Leahcim Poll, 090918	32	-11	-7	-9	-0.3	0.2	-0.7	-1.5	-1.5	0.1	1	-1
Merinotech WA Poll, 100115	38	0	-1	3	0.8	1.0	1.0	2.8	4.4	4.1	11	-16
Mokanger, 120092	23	-2	1	3	-0.3	-0.7	-1.2	-1.9	-2.0	-3.5	-23	38
Mumblebone, 120431	41	-9	-9	-9	0.8	1.1	0.9	1.8	1.7	1.4	16	-14
Nareeb Nareeb Poll, 120910	20	3	3	3	-0.5	-0.6	1.0	1.1	1.4	1.3	-18	11
Nerstane, 100958	34	0	2	0	-0.8	-0.8	0.5	0.5	0.5	1.8	-2	-10
Nerstane, 697 (Historical)	32	5	3	3	0.3	0.2	-1.8	-3.1	-4.9	-6.1	2	-13
Pooginook, 112469	32	-1	-1	-3	-0.3	-0.3	-0.1	-0.5	-1.3	-1.0	-13	0
Pooginook, Jewel (Historical)	29	4	3	3	0.2	0.0	-0.8	-2.4	-3.4	-4.5	1	24
The Mountain Dam, 11/RE017	32	12	12	11	1.3	1.9	1.6	2.9	4.2	4.2	11	-16
Tuckwood Poll, 131023	31	2	-6	-8	0.1	0.0	2.4	3.4	2.8	3.8	3	-9
Wanganella, 100019	38	7	9	11	-0.3	-0.1	-0.1	-0.2	0.2	0.1	-2	5
Winyar, 110710	29	3	8	7	-0.8	-1.1	-1.7	-3.5	-4.1	-5.0	-3	24

[^] 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 Visual Grade is expressed as the percentage deviation of average Tops% and Culls%.

(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 3. Other Measured Traits

Breeders flock, Sire name	Number of progeny	Flock Breeding Values (deviations)						
		FDCV	SL	SS	CURV	FAT	EMD	WEC
		% A [^]	mm A	N/ktex A	deg/mm A	mm Y	mm Y	% Y
Anderson, 120103	39	-0.7	2.8	1.1	2.5	1.0	1.5	-28
Centre Plus Poll, 807300	42	-0.6	6.7	4.2	-0.8	0.2	0.4	9
Connewarran, 062097	33	0.2	-3.0	0.7	-1.6	0.2	0.0	14
Donley Park, 090044	24	-0.4	-0.4	0.9	-1.7	0.0	0.7	78
Edale, 08E239	47	-0.7	-3.4	-0.3	1.9	0.2	-0.1	-27
Karowara Plains Poll, 110024	39	0.3	-4.2	-7.6	5.2	-0.3	-0.3	10
Kurra-Wirra, 110784	27	-0.3	-6.1	-0.8	6.3	-0.2	-1.1	-20
Leahcim Poll, 090918	32	-0.2	2.1	0.3	-0.9	-0.2	-0.1	90
Merinotech WA Poll, 100115	38	-0.5	2.2	7.3	1.1	1.4	1.9	-28
Mokanger, 120092	23	0.6	-10.0	0.5	6.3	0.0	0.4	1
Mumblebone, 120431	41	-2.1	8.9	8.8	-6.6	0.4	0.5	3
Nareeb Nareeb Poll, 120910	20	1.2	-2.9	-7.6	3.1	0.1	0.4	27
Nerstane, 100958	34	0.2	0.9	-3.1	3.1	-0.9	-0.5	4
Nerstane, 697 (Historical)	32	-0.4	4.2	4.9	1.4	0.1	-0.4	34
Pooginook, 112469	32	1.2	-1.8	-7.1	-0.7	-0.7	-0.9	35
Pooginook, Jewel (Historical)	29	2.0	-6.7	-4.3	-4.6	-0.3	-0.5	36
The Mountain Dam, 11/RE017	32	-1.4	7.3	9.7	-1.3	0.1	0.2	31
Tuckwood Poll, 131023	31	-1.6	10.8	-1.0	-6.9	0.3	0.0	5
Wanganella, 100019	38	1.3	0.3	-3.6	-5.4	-0.3	0.2	11

[^] 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

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).
■ Feet/Legs:	Conformation of feet and legs scored from 1 (very straight) to 5 (very angulated).
■ Body wrinkle:	The degree of body wrinkle from 1 (no wrinkle) to 5 (extensive wrinkle).
■ 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).
■ Back/Shoulder:	Conformation of the back and shoulder from 1 (very square) to 5 (very dipped or high).
■ 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. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values.

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	
Anderson, 120103	-0.4	56	21	18	5	0	0.1	15	64	15	6	0	0.1	0	62	21	17	0	0.0	0	11	79	10	0	
Centre Plus Poll, 807300	-0.4	67	12	12	7	2	0.2	7	67	21	5	0	0.2	10	33	33	24	0	0.0	0	9	79	12	0	
Connewarran, 062097	0.0	48	15	24	9	4	-0.4	48	42	10	0	0	-0.4	24	42	30	4	0	-0.2	0	24	76	0	0	
Donley Park, 090044	0.1	42	25	12	17	4	-0.1	21	71	4	4	0	-0.2	8	50	42	0	0	-0.2	0	25	75	0	0	
Edale, 08E239	-0.1	60	6	19	4	11	0.1	15	62	15	8	0	-0.2	13	55	21	11	0	-0.1	0	19	70	11	0	
Karowara Plains Poll, 110024	0.0	49	18	18	5	10	-0.1	36	41	21	2	0	0.3	5	26	54	13	2	0.0	0	15	72	13	0	
Kurra-Wirra, 110784	-0.2	52	17	24	4	3	-0.1	34	41	25	0	0	-0.4	24	45	28	3	0	-0.2	0	21	76	3	0	
Leahcim Poll, 090918	-0.1	48	21	21	6	4	0.1	15	58	27	0	0	-0.2	21	48	18	9	4	0.1	0	6	76	18	0	
Merinotech WA Poll, 100115	-0.5	68	16	13	0	3	-0.5	53	39	8	0	0	0.4	5	45	18	24	8	-0.1	0	21	68	11	0	
Mokanger, 120092	1.3	17	5	35	13	30	0.1	35	35	22	4	4	0.6	0	26	39	30	5	-0.2	0	30	61	9	0	
Mumblebone, 120431	-0.3	66	7	20	2	5	-0.3	32	59	9	0	0	0.0	24	24	32	17	3	0.2	0	10	61	29	0	
Nareeb Nareeb Poll, 120910	0.7	30	15	25	10	20	0.7	10	30	40	20	0	0.5	5	30	40	15	10	0.1	0	5	80	15	0	
Nerstane, 100958	0.1	41	24	15	15	5	-0.1	29	53	12	6	0	0.1	18	24	47	9	2	0.3	0	6	62	32	0	
Nerstane, 697 (Historical)	-0.3	69	7	9	9	6	-0.3	50	34	9	7	0	0.2	7	44	34	9	6	0.0	0	10	81	9	0	
Pooginook, 112469	0.1	41	25	16	9	9	0.3	9	56	28	4	3	0.2	5	38	41	16	0	0.0	0	12	81	7	0	
Pooginook, Jewel (Historical)	0.5	37	10	30	3	20	0.3	17	43	27	13	0	-0.3	23	43	23	11	0	-0.1	0	23	67	7	3	
The Mountain Dam, 11/RE017	-0.5	58	30	9	0	3	-0.1	36	39	21	4	0	0.1	13	36	30	21	0	0.0	0	12	73	15	0	
Tuckwood Poll, 131023	-0.4	68	6	23	0	3	0.0	13	68	19	0	0	-0.4	29	42	19	10	0	0.3	0	3	68	29	0	
Wanganella, 100019	0.1	42	21	21	5	11	0.1	18	53	26	3	0	-0.2	26	34	24	13	3	0.1	0	8	76	16	0	
Winyar, 110710	0.3	47	10	17	13	13	0.1	27	40	23	10	0	-0.5	27	43	30	0	0	-0.1	0	17	73	10	0	
Average performance	2.1	50	16	19	7	8	2.0	26	50	19	5	0	2.5	14	40	31	13	2	3.0	0	14	73	13	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 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. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values.

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. Staple Structure is the possible exception when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.

Four pigmentation traits are reported. 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 - Marking													
	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
Anderson, 120103	0.1	0	21	74	5	0	0.1	5	41	54	0	0	0.2	88	3	5	2	2	0.7	5	35	28	22	10	0	0
Centre Plus Poll, 807300	0.0	0	19	81	0	0	0.1	10	38	52	0	0	-0.1	100	0	0	0	0	-0.1	11	58	27	4	0	0	0
Connewarran, 062097	-0.2	0	36	64	0	0	-0.5	30	52	18	0	0	-0.1	97	3	0	0	0	0.3	8	35	51	0	6	0	0
Donley Park, 090044	0.0	0	21	79	0	0	-0.1	12	46	42	0	0	-0.1	100	0	0	0	0	0.0	4	60	32	4	0	0	0
Edale, 08E239	0.1	0	17	81	0	2	0.0	13	45	38	4	0	-0.1	96	4	0	0	0	0.1	10	48	35	7	0	0	0
Karowara Plains Poll, 110024	0.0	2	21	74	3	0	0.0	5	51	44	0	0	-0.1	98	2	0	0	0	-0.6	32	61	7	0	0	0	0
Kurra-Wirra, 110784	-0.2	0	45	55	0	0	-0.3	10	69	21	0	0	0.0	94	3	3	0	0	-0.3	22	53	25	0	0	0	0
Leahcim Poll, 090918	0.2	0	12	82	6	0	-0.1	15	42	39	4	0	-0.1	95	5	0	0	0	-0.3	24	54	19	3	0	0	0
Merinotech WA Poll, 100115	-0.1	3	29	68	0	0	0.1	8	39	50	3	0	-0.1	100	0	0	0	0	-0.2	15	60	25	0	0	0	0
Mokanger, 120092	0.0	0	26	74	0	0	0.2	5	43	43	9	0	0.6	67	15	4	7	7	0.4	11	41	26	7	15	0	4
Mumblebone, 120431	0.1	0	12	85	3	0	0.1	7	41	49	3	0	-0.1	98	0	2	0	0	-0.3	23	51	26	0	0	0	0
Nareeb Nareeb Poll, 120910	0.1	0	15	85	0	0	0.1	15	20	65	0	0	-0.1	100	0	0	0	0	-0.3	23	50	27	0	0	0	0
Nerstane, 100958	0.1	0	18	79	3	0	-0.1	12	47	41	0	0	0.0	89	8	3	0	0	0.0	5	53	42	0	0	0	0
Nerstane, 697 (Historical)	-0.1	3	22	75	0	0	-0.2	10	62	28	0	0	0.0	86	8	6	0	0	0.4	6	43	35	11	5	0	3
Pooginook, 112469	0.0	0	25	75	0	0	0.1	6	44	50	0	0	0.2	85	8	1	3	3	0.0	10	49	38	3	0	0	0
Pooginook, Jewel (Historical)	-0.1	0	30	70	0	0	0.2	10	30	53	7	0	0.0	92	6	0	0	2	-0.2	17	56	25	2	0	0	0
The Mountain Dam, 11/RE017	0.1	0	15	85	0	0	0.2	12	30	52	6	0	0.1	81	17	2	0	0	0.2	2	42	53	3	0	0	0
Tuckwood Poll, 131023	0.2	0	13	77	10	0	-0.5	32	45	23	0	0	-0.1	94	6	0	0	0	-0.8	50	47	3	0	0	0	0
Wanganella, 100019	-0.1	0	29	68	3	0	0.2	11	26	55	8	0	0.0	92	5	0	3	0	0.2	8	38	46	8	0	0	0
Winyar, 110710	0.0	0	27	67	6	0	0.1	7	43	47	3	0	0.2	85	3	7	5	0	0.6	0	29	54	12	5	0	2
Average performance	2.8	0	23	75	2	0	2.4	12	43	43	2	0	1.1	92	5	2	0	1	2.3	14	48	31	4	3		

(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 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. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values.

For the majority of breeder’s objectives a negative deviation would be considered favourable and the larger the deviation the better. Face cover is the possible exception 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																													
	Jaw					Legs and Feet					Shoulder and 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	Dev	1	2	3	4	5
Anderson, 120103	0.0	100	0	0	0	0	-0.2	85	0	15	0	0	-0.3	87	13	0	0	0	-0.1	0	18	77	5	0	-0.3	29	68	3	0	0
Centre Plus Poll, 807300	0.0	100	0	0	0	0	0.3	60	0	40	0	0	-0.1	71	24	5	0	0	-0.2	0	24	76	0	0	-0.2	24	62	14	0	0
Connewarran, 062097	0.1	91	0	9	0	0	0.2	64	0	36	0	0	0.3	36	52	12	0	0	0.2	0	9	73	18	0	0.1	18	52	24	6	0
Donley Park, 090044	0.0	100	0	0	0	0	0.2	67	0	33	0	0	0.0	58	33	9	0	0	-0.2	0	29	71	0	0	0.0	12	71	17	0	0
Edale, 08E239	0.0	100	0	0	0	0	-0.1	81	0	19	0	0	0.0	57	38	5	0	0	0.0	0	21	64	15	0	-0.2	26	64	9	1	0
Karowara Plains Poll, 110024	0.0	100	0	0	0	0	-0.1	79	0	21	0	0	-0.1	62	36	2	0	0	0.0	0	21	69	10	0	0.1	18	50	26	6	0
Kurra-Wirra, 110784	0.1	97	0	0	0	3	0.5	52	0	48	0	0	0.0	62	31	7	0	0	-0.1	0	24	66	10	0	0.0	17	54	29	0	0
Leahcim Poll, 090918	0.0	100	0	0	0	0	0.3	64	0	33	0	3	-0.1	76	18	3	3	0	0.0	0	15	82	3	0	-0.4	38	59	3	0	0
Merinotech WA Poll, 100115	0.0	100	0	0	0	0	-0.2	84	0	16	0	0	-0.3	82	16	2	0	0	-0.1	0	21	76	3	0	-0.2	18	74	8	0	0
Mokanger, 120092	0.0	100	0	0	0	0	-0.1	78	0	22	0	0	0.3	43	39	18	0	0	0.0	0	22	70	4	4	0.6	5	39	43	13	0
Mumblebone, 120431	0.0	100	0	0	0	0	-0.3	88	0	12	0	0	-0.1	76	15	9	0	0	-0.3	0	34	66	0	0	-0.4	39	59	2	0	0
Nareeb Nareeb Poll, 120910	0.0	100	0	0	0	0	-0.2	85	0	15	0	0	-0.1	65	35	0	0	0	0.0	0	20	70	10	0	0.2	10	60	25	5	0
Nerstane, 100958	0.0	100	0	0	0	0	-0.3	88	0	12	0	0	0.3	32	62	6	0	0	0.0	0	9	85	6	0	-0.1	12	81	7	0	0
Nerstane, 697 (Historical)	0.0	100	0	0	0	0	-0.3	88	0	12	0	0	-0.3	88	12	0	0	0	0.1	0	3	94	3	0	0.6	3	42	45	10	0
Pooginook, 112469	0.2	94	0	0	0	6	0.1	69	0	31	0	0	0.0	59	34	4	3	0	0.2	0	4	84	9	3	-0.2	23	65	12	0	0
Pooginook, Jewel (Historical)	0.0	100	0	0	0	0	0.0	73	0	27	0	0	0.1	50	43	4	3	0	0.3	0	0	73	27	0	0.3	10	47	37	6	0
The Mountain Dam, 11/RE017	0.0	100	0	0	0	0	-0.2	85	0	15	0	0	0.1	52	36	12	0	0	-0.3	0	36	64	0	0	0.0	19	53	28	0	0
Tuckwood Poll, 131023	0.0	100	0	0	0	0	-0.2	84	0	16	0	0	-0.1	68	23	9	0	0	-0.1	0	13	87	0	0	-0.6	57	43	0	0	0
Wanganella, 100019	0.0	97	0	3	0	0	0.1	68	0	32	0	0	0.2	50	32	18	0	0	0.1	0	11	76	13	0	0.4	0	62	32	6	0
Winyar, 110710	0.0	97	0	3	0	0	0.4	57	0	40	0	3	0.3	40	47	10	3	0	0.4	0	7	57	33	3	0.2	10	57	27	6	0
Average performance	1.0	99	0	1	0	0	1.5	75	0	25	0	0	1.5	61	32	7	0	0	2.9	0	17	74	9	0	2.1	19	58	20	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 – 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. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values.

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

Breeder's flock, Sire name	Breech Visual Traits																													
	Breech Cover					Crutch Cover					Breech Wrinkle					Urine					Dag									
	Marking										Marking					Marking					Yearling									
	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
Anderson, 120103	-0.6	20	22	25	28	5							-0.7	45	42	10	0	3	0.0	79	5	0	11	5	-0.6	37	42	13	8	0
Centre Plus Poll, 807300	-0.8	13	38	38	7	4							-0.4	24	53	20	3	0	0.0	81	3	0	12	4	0.1	11	36	34	16	3
Connewarran, 062097	0.3	0	14	24	43	19							0.4	8	38	27	16	11	0.1	77	7	0	8	8	0.3	9	24	47	18	2
Donley Park, 090044	0.1	0	16	32	48	4							0.2	8	40	36	12	4	-0.2	81	12	0	7	0	0.0	13	35	39	13	0
Edale, 08E239	0.2	0	14	46	15	25							0.0	15	35	42	8	0	0.5	53	19	7	12	9	-0.2	19	40	28	11	2
Karowara Plains Poll, 110024	0.3	0	7	45	25	23							0.0	16	41	30	11	2	0.1	74	5	5	16	0	-0.3	20	39	37	4	0
Kurra-Wirra, 110784	0.0	0	16	53	19	12							0.3	7	31	50	6	6	-0.2	92	0	0	0	8	-0.2	17	47	23	13	0
Leahcim Poll, 090918	0.0	3	22	35	24	16							-0.8	49	43	8	0	0	-0.2	80	10	5	5	0	-0.3	21	42	30	7	0
Merinotech WA Poll, 100115	-0.2	6	20	42	20	12							0.0	12	42	35	6	5	-0.4	85	15	0	0	0	-0.5	34	29	32	5	0
Mokanger, 120092	0.1	0	15	44	22	19							0.2	14	30	37	19	0	0.0	82	0	9	0	9	0.5	8	16	44	24	8
Mumblebone, 120431	-0.3	5	23	40	30	2							-0.4	44	21	28	5	2	-0.1	75	15	5	5	0	0.0	12	34	39	12	3
Nareeb Nareeb Poll, 120910	-0.6	9	41	27	9	14							-0.1	23	32	36	9	0	-0.2	71	21	8	0	0	-0.6	30	45	20	5	0
Nerstane, 100958	-0.5	3	33	47	11	6							-0.2	25	42	28	0	5	0.0	61	28	11	0	0	0.0	20	26	31	20	3
Nerstane, 697 (Historical)	0.0	3	22	35	24	16							0.1	17	32	35	16	0	0.3	61	17	11	0	11	0.3	19	23	29	16	13
Pooginook, 112469	0.3	0	13	33	33	21							0.6	5	31	36	13	15	-0.2	80	10	5	5	0	0.5	2	24	41	30	3
Pooginook, Jewel (Historical)	0.3	0	11	39	25	25							0.9	2	6	53	31	8	0.2	71	5	6	12	6	0.3	13	19	42	16	10
The Mountain Dam, 11/RE017	0.1	6	19	25	31	19							-0.7	47	36	11	6	0	-0.5	100	0	0	0	0	-0.3	24	35	32	9	0
Tuckwood Poll, 131023	0.2	0	20	33	22	25							-0.6	56	25	6	2	11	-0.2	81	10	4	0	5	-0.3	24	32	44	0	0
Wanganella, 100019	0.5	0	3	38	28	31							0.5	10	23	36	23	8	0.9	39	22	11	11	17	0.4	0	38	38	14	10
Average performance	3.3	3	19	37	24	17							2.4	21	33	30	10	6	1.5	74	11	5	5	5	2.6	17	32	34	14	3

(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 5. Sire Means for Measured Traits

Sire means are the average performance of all the progeny of a sire adjusted for all available information on sex, birth type, rear type, age of dam, age of measurement and management group, in order to improve the accuracy.

No account is made for trait heritability and genetic correlations between traits that can improve the breeding value accuracy, as is the case in Tables 1, 2 and 3.

The highest performing sires for each trait (trait leaders) are highlighted by shading. Curvature is the possible exceptions when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.

The **Progeny group average** listed at the bottom of the table is the actual mean of the progeny group.

Breeders flock, Sire name	Number of progeny	Sire means for measured traits (deviations from the site mean)														
		GFW		CFW	FD		FDCV	Curv	SL	SS	WT				FAT	EMD
		kg	kg	kg	µm	µm	%	deg/mm	mm	N/ktex	kg				mm	mm
	P [^]	A	A	P	A	A	A	A	A	A	W	P	Y	A	Y	Y
Anderson, 120103	39	0.0	-0.2	-0.2	0.7	0.9	-0.1	2.0	1.9	0.1	0.4	2.8	2.4	3.4	0.2	0.7
Centre Plus Poll, 807300	42	0.1	0.1	0.0	0.4	0.2	-0.3	0.2	4.9	5.0	0.9	1.7	3.1	3.5	0.0	0.2
Connewarran, 062097	33	0.0	-0.2	0.0	-0.6	-0.8	0.0	-2.3	-2.3	2.0	-0.6	-1.3	-1.8	-2.7	0.1	0.0
Donley Park, 090044	24	0.1	0.0	0.1	0.1	-0.2	-0.5	-0.9	-0.6	0.7	0.4	0.0	0.7	-0.8	0.0	0.5
Edale, 08E239	47	0.0	0.3	0.1	0.1	-0.1	-0.7	1.0	-3.5	-2.1	-1.5	0.2	0.4	0.5	0.0	-0.1
Karowara Plains Poll, 110024	39	-0.1	-0.3	-0.2	-0.3	-0.4	0.2	3.4	-2.6	-9.1	-0.6	-0.8	-1.5	0.0	-0.1	-0.2
Kurra-Wirra, 110784	27	-0.1	-0.2	-0.1	-0.3	-0.2	-0.2	5.0	-3.1	-1.4	-0.8	-1.7	-1.7	-1.4	0.0	-0.7
Leahcim Poll, 090918	32	-0.1	-0.2	-0.2	-0.2	0.4	-0.2	-1.1	1.4	1.0	0.1	-1.0	-0.4	1.1	-0.1	-0.1
Merinotech WA Poll, 100115	38	0.0	-0.1	0.1	0.4	0.6	0.0	1.3	1.8	9.1	0.0	1.8	2.4	2.6	0.3	1.0
Mokanger, 120092	23	-0.1	0.1	0.2	-0.2	-0.5	0.6	6.0	-7.0	1.5	-0.6	-1.3	-1.4	-2.8	0.0	0.4
Mumblebone, 120431	41	-0.1	-0.4	-0.2	0.5	0.7	-1.1	-6.1	6.4	9.3	0.4	1.2	0.9	0.7	0.0	0.2
Nareeb Nareeb Poll, 120910	20	0.0	0.3	0.0	-0.4	-0.3	0.4	1.7	-2.0	-9.0	0.5	0.4	1.1	0.3	0.1	0.4
Nerstane, 100958	34	0.0	0.1	0.0	-0.5	-0.5	0.0	1.7	1.0	-3.4	0.4	0.0	-0.1	1.1	-0.2	-0.2
Nerstane, 697 (Historical)	32	0.1	0.2	0.1	0.4	-0.1	-0.5	1.4	3.4	4.7	-0.6	-1.0	-3.1	-4.2	0.0	-0.2
Pooginook, 112469	32	0.0	-0.1	-0.1	-0.2	-0.1	0.7	-1.0	-1.3	-7.8	0.0	0.0	-1.1	-0.1	-0.2	-0.5
Pooginook, Jewel (Historical)	29	0.0	0.1	0.0	0.1	-0.1	1.3	-4.1	-5.6	-3.7	-0.4	-2.0	-1.9	-2.6	0.0	-0.2
The Mountain Dam, 11/RE017	32	0.2	0.4	0.2	0.8	1.1	-0.5	0.2	5.3	10.0	0.8	1.7	1.9	1.7	0.0	0.1
Tuckwood Poll, 131023	31	0.1	-0.2	-0.2	0.0	0.0	-1.2	-4.9	8.3	-1.9	1.5	2.1	0.7	2.2	0.1	-0.1
Wanganella, 100019	38	0.0	0.3	0.3	-0.2	-0.1	0.7	-4.0	-0.7	-3.1	0.1	-0.4	0.6	0.1	-0.1	0.2
Winyar, 110710	29	0.0	0.2	0.2	-0.5	-0.6	1.4	0.3	-5.7	-2.0	-0.4	-2.3	-1.3	-2.5	-0.1	-1.5
Progeny group average	29	1.7	4.4	3.0	15.7	17.5	18.3	88.7	89.0	29.6	22.0	25.6	34.1	35.6	2.6	20.1
		kg		kg	µm		%	deg/mm	mm	N/ktex	kg				mm	mm

Understanding the Results

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 but account for the fact that direct reproduction records have not been captured by AMSEA sire evaluation.

AMSEA
DP+

Dual Purpose Plus: Based on a meat focused production system where surplus progeny are sold as lambs and a portion of ewes are joined to terminal sires. Large increase in body weight and carcass traits. Moderate increase in fleece weight. Maintain fibre diameter and staple strength. Moderate increase in reproduction.

AMSEA
MP+

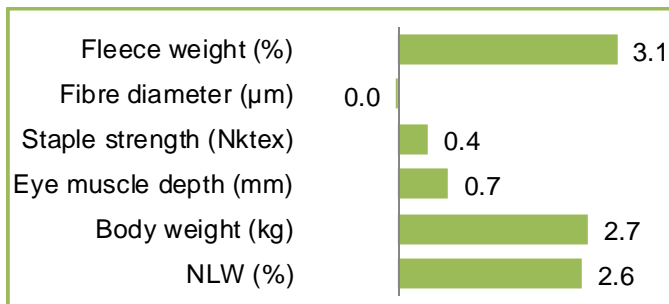
Merino Production Plus: Based on a balanced wool and meat production system where surplus progeny are sold as hoggets. Large increase in fleece weight. Small increase in staple strength, body weight and reproduction. Moderate reduction in fibre diameter.

AMSEA
FP+

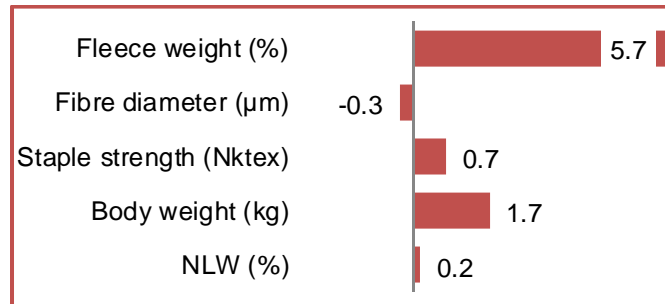
Fibre Production Plus: Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses. Large reduction in fibre diameter. Moderate increase in staple strength. Small reduction in WEC (if measured in the breeding program). Small increase in fleece weight. Little change in body weight and reproduction.

Likely responses from using an index for 10 years: The responses are based on a ram breeding flock with a standard breeding program, with no introduction of outside genetics and uses 35% of the selection emphasis on traits that are not in the index.

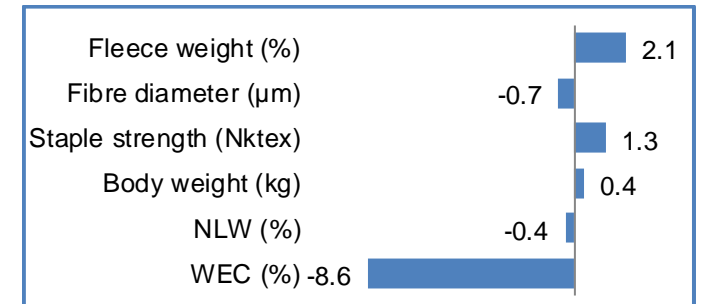
Dual Purpose Plus (DP+)



Merino Production Plus (MP+)



Fibre Production Plus (FP+)



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.

Calculation of Combined Information

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:

$(\text{Classer's Visual Grade Tops\%} - \text{Culls\%})/5$, expressed as a deviation from $(\text{average Tops\%} - \text{average Culls\%})/5$.

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 = 119.70 – 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

2014 Drop
Adult Assessment

