

Balmoral

Merino Sire Evaluation

Site Report

Within-Site Results
July 2021

2019 Drop
Post Weaning and Adult Assessments

Conducted by



Under the auspices of



With support from



Foreword

The 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 about the events surrounding the trials, and through producing and distributing 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, Balmoral Show and Hamilton Sheepvention.

Since 1999 successful annual open days have been held at “The Mountain Dam”, “Kerrsville”, “White Oaks”, “Arundale”, “Tuloona”, “Mokanger”, “Yiddinga”, “Wando Estate”, “Mepungah”, “Tuloona”, “Koorngal” and “Jigsaw Farms” to allow progeny inspections 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 Balmoral Sire Evaluation Group. The Sire Evaluation Trials commenced in 1998 and as of this year there will be 21 progeny drops: 1998 - 2019. All trials are run for a minimum of 2 years. The site planning and direction is provided by the Balmoral Sire Evaluation Management Committee.

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 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
- 2017 & 2018 “Koorngal”, Coleraine
- 2019 & 2020 “Jigsaw Farms”, Hensley Park
- 2021 “Austral Park”, Coleraine

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

Mark Bunge
Chairman - Balmoral Breeders

Site Committee

Mark Bunge	Ashley Read	Marina VanAken
Anthony Close	Mark Williams	Ian Murray
Michael Craig	Rich Currie	Sean Harvey
Tom Silcock	Simon Close	Rosey Leeming
Nick Falkenberg	Michael Close	Russell Macgugan
Hugh Jarvis	Mark Wootton	Scott Davis
Andrew Howells	Lachie McRae	Tom Roughead
David Whyte	Wayne Whale	Elise Kealy
Jim Farran	Colin Frawley	Jonno Hicks
Tony Kealy	Rick Luhrs	Tom Sweeny
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Disclaimer

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2019 Drop Adult Assessment

The information in this Site Report provides an update of the assessment of the 2019 drop, including the Post Weaning and Adult assessments of the sire's progeny performance for measured and visually assessed traits.

The Post Weaning fleece assessments were completed at 6 months with 6 months of wool growth and the Post Weaning shearing was then carried out at 9 months of age with 9 months of wool growth, this unusual slight delay between midsides and shearing was the result of the COVID restrictions in place.

Adult fleece and visual assessments were made at 17.5 months of age with 11.5 months of wool growth. Adult shearing was then carried out at 19 months of age, with 10 months of wool growth.

The Post Weaning and Adult assessments included both the ewe and wether progeny.

Visual Trait Assessment and Site Breeding Objective

Visual trait assessment

Classer's Grade: Russell Macgugan

Trait Scores: Russell Macgugan

Site Breeding Objective used to assess the Visual 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 was developed by the site committee in consultation with the classer prior to the grading.

The goal is to select sheep that are productive and well grown, with sound conformation and carrying heavy fine wool fleeces of good character, colour and nourishment suitable for the western Victorian environment. Fertility and reproduction are also a focus in selection.

In regard to Classer's Visual Grades the expectation is at the start of grading that there will be a ratio of 25% Top, 50% Flock and 25% Cull. However, the sheep performance relative to the above breeding objective determines the final proportion allocated to each grade.

Sire and Owner Contact Details

Breeder's flock, Sire name Sire ID #	Contact Details
Anderson Poll, 170660 (Link) 609147-2017-170660	Lynley Anderson Brookvale, RMB 512, Kojonup WA 6395 M: 0429 32 8055, E: info@andersonrams.com.au
Baderloo Poll, 150171 601270-2015-150171	Chad Taylor Marapana, 456 Wuuluman Road, Wellington NSW 2820 P: (02) 6845 3620, M: 0458 45 3608, E: chad@mumblebone.com.au
Conrayn, MVB123 (Link) 504560-2013-MVB123	Peter Lette Foxglen, 650 Rockwell Rd, Berridale NSW 2628 P: (02) 6456 3034, M: 0409 91 6117, E: conrayn@skymesh.com.au
Curlew, 170111 509207-2017-170111	AC, AM, BA & E Kealy 1583 Patyah Road, Edenhope VIC 3318 M: 0448 60 0525, E: elisekealy@gmail.com
Glen Holme, 162503 (Dohne) 510184-2016-162503	Allen Kelly PO Box 69, Manoora SA 5414 P: (08) 8848 4328, M: 0409 01 8943, E: ajkelly@activ8.net.au
Gunallo Poll, 170295 (Link) 600880-2017-170295	Chad Burbidge Murray Bridge SA 5253 M: 0428 55 4003, E: cburbidge80@gmail.com
Jigsaw Farms, 160270 509263-2016-160270	Mark Wootton 1874 Hensley Park Road, Hensley Park VIC 3315 P: (03) 5574 8246, M: 0427 74 8252, E: office@jigsawfarms.com.au
Kerin Poll, 160137 (Link) 601413-2016-160137	Nigel Kerin Karuga Park, 1142 Bournewood Rd, Yeoval NSW 2868 M: 0427 46 4070, E: kerinag@bigpond.com
Kerin Poll, 171646 601413-2017-171646	Nigel Kerin Karuga Park, 1142 Bournewood Rd, Yeoval NSW 2868 M: 0427 46 4070, E: kerinag@bigpond.com
Kerrsville, 166010 503509-2016-166010	Robert Plush 1885 Coleraine Edenhope Road, Coleraine VIC 3315 P: (03) 5575 0208, M: 0428 75 0208, E: rj.plush@bigpond.com
Kia Ora, 150608 (Rex) 509221-2015-150608	Brendan & Susan Finnigan PMB 1780, Warrnambool VIC 3280 P: (03) 5569 2079, M: 0408 59 7678, E: kiaoramerino@gmail.com
Kiandra Poll, 160793 601138-2016-160793	Ryan Kluska 4611 Emu Flat Road, Bordertown SA 5268 P: (08) 8754 2030, M: 0428 86 2040, E: kluska@activ8.net.au
Kurra-Wirra, 170039 504173-2017-170039	Anthony Close Kurra Wirra, 770 Moree-Culla Rd, Culla VIC 3315 P: (03) 5570 4238, M: 0437 08 5217, E: anthony@kurrawirra.com.au
Miramoonna, 140012 (Link) 503471-2014-140012	Kim Barnet Miramoonna, Walcha NSW 2354 P: (02) 6777 2885, M: 0429 77 2885, E: barnet@miramoonna.com
Moorundie Poll, NE73 (Link) 601502-2015-150073	Peter Wallis PO Box 32, Pinnaroo SA 5304 P: (08) 8576 6141, M: 0428 76 6126, E: peter@glenleaparkmerinos.com.au
Mumblebone, 170709 500063-2017-170709	Chad Taylor Marapana, 456 Wuuluman Road, Wellington NSW 2820 P: (02) 6845 3620, M: 0458 45 3608, E: chad@mumblebone.com.au
Pendarra Poll, 160028 601533-2016-160028	Kelvin Pendergast 152 Sloane Pendergast Rd, Benambra VIC 3900 P: (03) 5159 9245, M: 0428 59 9245, E: pendarra1@bigpond.com
Trigger Vale Poll, 170929 609251-2017-170929	Andrew and Mandi Bouffler Valera, Lockhart NSW 2656 P: (02) 6920 7656, M: 0427 20 7656, E: info@triggervalesheepstuds.com.au
Turkey Lane, 170060 509069-2017-170060	John Symons PO Box 49, Parndana SA 5220 P: (08) 8559 2234, M: 0428 59 2234, E: jsymons@bigpond.com
Willera Poll, 175584 601380-2017-175584	Simon Coutts 1072 Old Boort Road, Serpentine VIC 3517 M: 0498 72 4850, E: simoncoutts@live.com.au
Yiddinga, 170576 509242-2017-170576	Jim Farran 220 Edenhope-Penola Road, Edenhope VIC 3318 P: (03) 5585 1888, M: 0408 31 0107, E: j.farran@bigpond.com

(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*.

* The 16 digit Sire ID is a unique number for all sheep.
 - 2 for the breed of the flock, e.g. Merino (50), Poll Merino (60), Dohne (51)
 - 4 for flock code, AASMB Registered flock code or unregistered code.
 - 4 for year of drop & 6 for tag# used in the breeder's records.

Sire Codes and Pedigrees

Sire Code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Anderson Poll, 170660 (Link)	609147-2017-170660	Anderson Poll, 150200
2	Baderloo Poll, 150171	601270-2015-150171	Baderloo Poll, 120414
3	Conrayn, MVB123 (Link)	504560-2013-MVB123	Unknown
4	Curlew, 170111	509207-2017-170111	Curlew, 150119
5	Glen Holme, 162503 (Dohne)	510184-2016-162503	Pinedale, 100358 (Dohne)
6	Gunallo Poll, 170295 (Link)	600880-2017-170295	Gunallo Poll, 150460
7	Jigsaw Farms, 160270	509263-2016-160270	Moojepin, 100248
8	Kerin Poll, 160137 (Link)	601413-2016-160137	Moorundie Park Poll, 130306
9	Kerin Poll, 171646	601413-2017-171646	Kerin Poll, 151911
10	Kerrsville, 166010	503509-2016-166010	Unknown
11	Kia Ora, 150608 (Rex)	509221-2015-150608	Kia Ora, 130195
12	Kiandra Poll, 160793	601138-2016-160793	Kiandra Poll, 130644
13	Kurra-Wirra, 170039	504173-2017-170039	Anderson Poll, 120096
14	Miramoonna, 140012 (Link)	503471-2014-140012	Anderson Poll, 120096
15	Moorundie Poll, NE73 (Link)	601502-2015-150073	Moorundie Poll, 110020
16	Mumblebone, 170709	500063-2017-170709	Moojepin, 120652
17	Pendarra Poll, 160028	601533-2016-160028	Willandra Poll, 120026
18	Trigger Vale Poll, 170929	609251-2017-170929	Trigger Vale Poll, 150758
19	Turkey Lane, 170060	509069-2017-170060	Centre Plus Poll, 407445
20	Willera Poll, 175584	601380-2017-175584	Willera Poll, 150306
21	Yiddinga, 170576	509242-2017-170576	Unknown

Host property and location

Jigsaw farms' Hensley Park property is located 20km north of Hamilton and receives 685mm of winter dominated rainfall per year. The property is run as a high input and high output operation, that became carbon neutral in 2011. It is owned by Mark Wootton and Eve Kantor and managed by Tom Sweeney.

Ewe Base

The ewe base is a modern superfine wool flock that has focused on maintaining fibre diameter and increasing fleece weight with an additional selection focus on increasing muscle and fat. Basically a 'Dual Production' index. The mature flock averages 18.2µm and cuts 5.2kg head / 70% yield) and weighing 55kg body weight.

Joining

Laparoscopic insemination of 1180 ewes was conducted by Genstock Jerilderie on March 27 and 28, 2019 with ewes being in condition score 3.0 or above.

Pregnancy and lambing

The ewes were pregnancy scanned on May 10, 2019. Ewes were split following pregnancy scanning into single, twin and triplet bearing ewes. Ewes completed lambing at Jigsaw in mid-September 2019 in their pregnancy status mob.

The lambs were tagged, marked, scored for breech traits and a DNA sample was taken on September 19, 2019. All lambs were freeze branded on October 22.

Weaning to Post Weaning Assessment

Lambs tracked well for growth rate and body weight gain from weaning in November 2019.

The lambs were run on short quality pasture until January 2020 and then supplemented with a mixed grain ration (70% Barley and 30% Lupins at a rate of 1.2 kg per week plus 2 kg of Silage).

Midside samples were taken on February 19. After COVID restrictions were lessened, shearing was completed in May 2020 with greasy fleece weight (GFW) taken at shearing.

Post Weaning to Adult Assessment

The progeny were individually WEC tested on August 30, 2020, and then drenched and put into a fresh paddock where they had excellent weight gain for the remainder of the season. Fat and muscle scanning was completed on September 1, 2019.

The adult classing was completed on February 4, 2021 with shearing following on March 19, 2021.

Seasonal conditions

An average timed Autumn break in 2019 resulted in prolonged feeding into late May of that season. A better than average winter and spring finish in 2019 averaged out the year in respect to grass production.

Tom Sweeney
Site Manager - Jigsaw Farms
Balmoral Breeders

Assessment and Management Program

Activity	Date/s	Age	Wool
Selection of ewes	December 18, 2018		
Allocation of ewes for mating	March 27-28, 2019		
Pregnancy scanning	May 10, 2019		
Allocated to lambing paddocks	August 2019		
Lambing: start – finish	August 20 - 30, 2019		
Lambing mobs boxed into singles and twins management groups	Ewes were split into singles/twins at preg scanning and remained so for duration of lambing.		
Marking, tagging, pigmentation and breech scoring	September 19, 2019	<20 days	
Weaning	November 28, 2019	3 months	
Mid side fleece sampling (P)	February 19, 2020	6 months	6 months
Mid side fleece sampling (A)	February 4, 2021	17.5 months	11.5 months
Visual trait scoring (A)	February 4, 2021	17.5 months	11.5 months
Shearing (P)	May 19, 2020	9 months	9 months
Shearing (A)	March 19, 2021	19 months	10 months
Fat and eye muscle scanning (Y)	September 1, 2020	12.5 months	
Worm egg count (Y)	August 30, 2020	12 months	
Body weight (W)	November 28, 2019	3 months	
Body weight (P)	February 19, 2020	6 months	
Body weight (Y)	September 1, 2020	12.5 months	
Body weight (A)	March 26, 2021	19 months	
Drench	At weaning, then in March 2020 and again in August 2020. Plus a summer drench in December 2020.		
Fly treatment	Application of Click (as preventative) at lamb marking and at weaning in November 2020.		
Field day or public display	March 13, 2020. March 5, 2021 - Site entrants and committee inspection day*. *The ewe portion has been retained for public display at the next Balmoral Breeders field day planned for Autumn 2022, COVID permitting.		

Explaining the Different Types of Results Reported

Raw Data » **Adjusted Sire Means** » **Flock Breeding Values.**

Merino Sire Evaluation produces a variety of result types which are all connected. The types of data produced include **Raw Data**, **Adjusted Sire Means**, **Flock Breeding Values** and **Indexes**. Initial measurements taken during sire evaluation assessments are used as the first level of results (Raw Data), then adjustments are made to increase the selection accuracy and better enable the comparison of results and sires (Adjusted Sire Means and Flock Breeding Values and Indexes).

Where possible, AMSEA publishes **Adjusted Sire Means**, **Flock Breeding Values** and **Indexes** in Site Reports as they offer a higher level of accuracy. Visual Traits are reported as **Raw Data**; this is because Adjusted Sire Means and Flock Breeding Values are not currently available for those traits.

Raw Data

Raw data; unadjusted results as measured in the yard, paddock or wool testing facility.

Adjusted Sire Means

These are raw data results that have been adjusted for the effect of sex, birth type/rear type, age of dam, dam source, age at measurement, the number of progeny a sire has and management group.

Flock Breeding Values (FBVs)

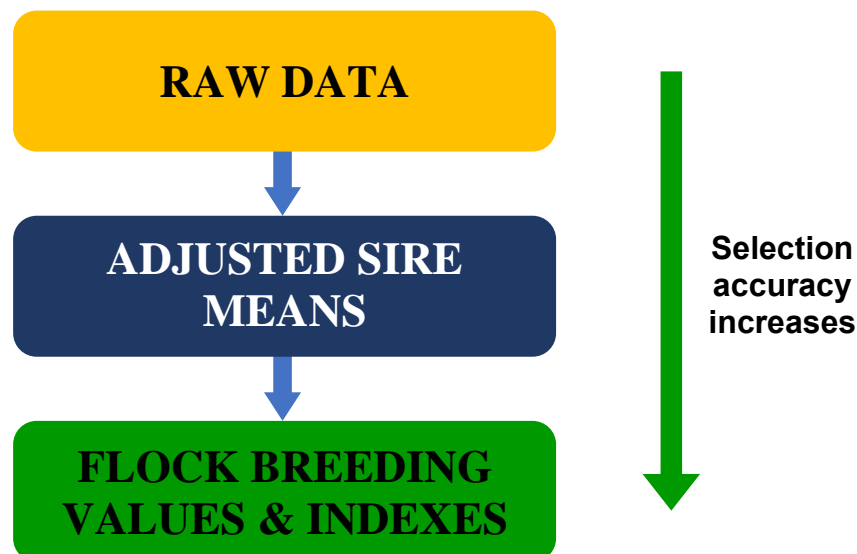
These results have been adjusted in the same way as Adjusted Sire Means, then further calculations have also been made to account for the level of heritability of a trait (some are more heritable than others) and correlations between traits.

FBVs are within site and within drop. As such they do not include data from other sources as is the case with Australian Sheep Breeding Values (ASBVs), which are reported in Merino Superior Sires.

Indexes

A breeding index is the combination of breeding values into a single value that reflects a certain emphasis on those traits.

For more information about each Index see the page in this report titled 'Index Options'.



Understanding the Results – Measured Traits & Classer’s Visual Grade

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.
Adjusted Sire Means:	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, management group and the number of progeny a sire has, 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 2, 3 and 4.
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 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.</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>M = Marking - 14 to 42 days (2 – 7 weeks of age) 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> <p>Page 3 provides more detail on Classer’s Visual Grade and the site’s Breeding Objective.</p>

Table 1. Adjusted Sire Means for Measured Traits

Adjusted 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, the number of progeny a sire has 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 2, 3 and 4.

The highest performing sires for each trait (trait leaders) are highlighted by shading. The **Progeny group average** listed at the bottom of the table is the actual mean of the progeny group which includes both ewes and wethers.

Sire Code	Breeder's flock, Sire name	Number of Progeny*	Adjusted Sire Means																	
			GFW kg		CFW kg		FD µm		FDCV %		SL mm	SS N/ktex	CURV deg/mm		WT kg				EMD mm	FAT mm
			P [^]	A	P	A	P	A	P	A	A	A	P	A	W	P	Y	A	Y	Y
1	Anderson Poll, 170660	52	2.6	5.2	1.8	3.7	16.8	20.0	17.6	16.5	88.3	57.0	85.3	80.9	24.7	26.2	40.4	47.8	22.3	2.9
2	Baderloo Poll, 150171	58	2.2	4.4	1.6	3.2	15.8	18.7	17.1	16.0	93.0	58.5	82.3	79.7	22.9	24.8	38.9	46.7	22.6	3.2
3	Conrayn, MVB123	56	2.3	4.8	1.6	3.5	16.0	18.6	18.4	16.6	81.2	58.3	94.0	92.8	23.8	24.7	39.5	45.5	22.1	2.9
4	Curlew, 170111	53	2.1	4.3	1.5	3.2	16.0	18.3	17.5	16.3	83.5	59.0	92.5	92.3	22.5	23.8	38.4	46.6	22.6	3.2
5	Glen Holme, 162503 (Dohne)	56	2.3	4.9	1.6	3.5	16.1	18.9	17.4	15.8	83.8	59.4	88.3	84.5	26.7	29.3	43.9	50.9	22.9	3.0
6	Gunallo Poll, 170295	53	2.4	5.2	1.7	3.7	16.0	18.5	18.0	17.0	87.6	56.2	82.4	78.2	25.9	26.1	42.3	48.5	21.8	2.8
7	Jigsaw Farms, 160270	54	2.3	4.8	1.6	3.5	17.0	19.7	18.8	16.6	88.8	58.6	85.4	83.5	23.3	24.8	38.9	44.9	23.8	3.2
8	Kerin Poll, 160137	41	2.6	5.3	1.8	3.8	16.4	19.0	17.9	16.8	94.2	57.4	81.7	77.8	24.9	26.3	42.1	48.6	21.4	2.7
9	Kerin Poll, 171646	26	2.3	5.0	1.6	3.6	16.2	18.5	18.2	17.1	86.9	57.5	87.1	84.2	24.4	25.8	40.1	47.0	22.0	2.9
10	Kerrsville, 166010	56	2.4	5.3	1.7	3.9	16.1	18.6	18.6	17.0	86.1	57.1	85.2	82.1	23.9	25.1	39.7	46.1	21.5	2.7
11	Kia Ora, 150608 (Rex)	58	2.3	4.9	1.6	3.6	16.0	17.9	18.0	16.7	83.3	56.7	88.6	85.7	24.0	24.7	38.6	44.6	22.6	3.1
12	Kiandra Poll, 160793	65	2.2	4.8	1.5	3.5	15.9	19.2	18.2	16.6	93.0	58.6	84.9	79.8	22.7	24.0	39.7	47.2	22.3	2.9
13	Kurra-Wirra, 170039	45	2.4	4.8	1.7	3.5	15.9	18.3	16.7	15.8	89.0	59.2	84.4	84.6	24.8	25.8	39.9	47.4	22.0	2.9
14	Miramona, 140012	58	2.3	4.8	1.6	3.6	16.3	19.1	17.5	16.0	94.1	59.2	82.9	77.6	24.4	26.4	40.1	47.4	22.7	3.2
15	Moorundie Poll, NE73	56	2.3	5.0	1.6	3.7	16.0	19.0	19.3	17.6	87.8	56.1	83.6	79.7	23.9	24.9	40.7	46.3	22.4	3.0
16	Mumblebone, 170709	64	2.0	4.2	1.4	3.1	16.7	19.4	18.0	16.0	94.9	59.0	79.6	79.3	24.0	25.1	40.9	47.7	24.2	3.4
17	Pendarra Poll, 160028	41	2.4	5.1	1.7	3.8	15.8	18.7	18.0	16.9	86.5	56.0	85.4	78.9	24.8	25.7	40.2	46.6	22.4	2.8
18	Trigger Vale Poll, 170929	48	2.1	4.3	1.5	3.2	17.1	19.8	18.3	17.0	84.9	55.2	82.0	77.7	24.6	25.7	39.3	45.5	22.8	3.1
19	Turkey Lane, 170060	44	2.4	4.8	1.6	3.4	15.7	17.8	17.3	15.9	93.3	59.1	87.5	83.5	22.8	23.9	36.2	42.8	22.5	3.1
20	Willera Poll, 175584	55	2.1	4.6	1.5	3.3	16.5	19.1	17.8	17.1	93.6	57.5	83.1	80.3	23.1	24.7	38.0	45.0	22.6	2.9
21	Yiddinga, 170576	44	2.1	4.2	1.5	3.1	15.8	17.9	17.1	15.2	84.7	60.3	91.1	91.3	22.0	23.4	35.7	43.2	23.1	3.1
	Progeny group average	52	2.3	4.8	1.6	3.5	16.2	18.8	17.9	16.5	88.5	57.9	85.6	82.6	24.0	25.3	39.7	46.5	22.5	3.0

[^] 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).

* Progeny No is the total progeny number for each sire at weaning.

MERINOSELECT Indexes

A guide from Sheep Genetics

Why use a selection index?

Indexes are an important tool to drive genetic improvement in ram breeding programs. Each index combines multiple measured traits, or breeding values, into a single value that reflects a certain production emphasis on these traits. A range of traits are included which are of economic or functional importance. Collectively, these traits make up the “breeding objective” of the index which aims to improve profitability in commercial sheep enterprises.

Indexes are useful because they balance genetic improvement appropriately across a range of traits with the emphasis of each individual trait determined by its relative importance to a selection approach for a particular style of production system.

“ Appropriately designed indexes are central to the goal of breeding more profitable sheep.

However, it is recommended that the performance of individual measured and visually assessed traits also be used in conjunction with indexes.

Choosing the right index

This report includes four indexes based on four commercial production systems, these are outlined in the figure below.

The Sheep Genetics website gives further index descriptions and explains that there are ‘base’ and ‘plus’ levels for each index with the latter including the breeding values of additional traits. Sires reported within this document have accurate breeding values for these additional traits and so the plus indexes are reported; DP+, MP+, FP+ and WP+.

Dual Purpose (DP+) Income is a balance of wool from breeding ewes and meat production from lambs by Merino and terminal sires.	Merino Production (MP+) Income is a balance of wool and surplus Merino sheep sales with balanced improvement of fleece weight and fibre diameter.
Fibre Production (FP+) Income is mainly from the wool clip with a focus on superior wool quality through improving fibre diameter, CV and staple strength.	Wool Production (WP+) Income is a balance of wool and surplus Merino sheep sales with greater emphasis on increasing fleece weight.

“ When selecting on these indexes the long-term responses will vary depending on the traits measured, available pedigree, use of genomics, flock structure and selection emphasis on the index.

The changes in individual traits from using an index depend on the information you record in your flock. If you want to improve, or even just maintain a trait, you must record it to ensure breeding values are sufficiently accurate for the index to do its job.

For detailed explanations and further information on indexes visit:

www.sheepgenetics.org.au

Sheep Genetics have resources available for both ram breeders and ram buyers.

Table 2. AMSEA Index Values and Classer's Visual Grade

The index values reported are based on measured traits FBV performance with varying emphasis on fleece weight, fibre diameter, body weight, staple strength and worm egg count. See 'Index Options' (page 11) for more information on the indexes presented in the table below.

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 four indexes are reported at all site evaluations.

Sire Code	Breeder's flock, Sire name	Number of Progeny*	AMSEA Index Values				Classer's Visual Grade ¹	
			Dual Purpose Plus	Merino Production Plus	Fibre Production Plus	Wool Production Plus	Tops % A [^]	Culls % A
1	Anderson Poll, 170660	52	98	102	93	114	28	-10
2	Baderloo Poll, 150171	58	83	81	87	79	-4	10
3	Conrayn, MVB123	56	90	101	101	97	2	-8
4	Curlew, 170111	53	84	80	94	72	0	-12
5	Glen Holme, 162503 (Dohne)	56	138	125	115	121	-4	-10
6	Gunallo Poll, 170295	53	115	127	118	127	-7	-2
7	Jigsaw Farms, 160270	54	107	82	76	90	0	-6
8	Kerin Poll, 160137	41	111	130	118	134	-6	17
9	Kerin Poll, 171646	26	104	111	110	110	-7	14
10	Kerrsville, 166010	56	103	127	127	128	-5	0
11	Kia Ora, 150608 (Rex)	58	108	114	120	109	4	-8
12	Kiandra Poll, 160793	65	100	98	93	99	5	3
13	Kurra-Wirra, 170039	45	102	117	119	111	-9	2
14	Miramoonna, 140012	58	115	109	110	110	10	-10
15	Moorundie Poll, NE73	56	113	113	104	118	-1	13
16	Mumblebone, 170709	64	103	63	62	66	-6	-1
17	Pendarra Poll, 160028	41	118	119	113	121	15	1
18	Trigger Vale Poll, 170929	48	68	56	52	68	-12	25
19	Turkey Lane, 170060	44	87	98	113	88	0	-9
20	Willera Poll, 175584	55	75	71	74	74	-2	-2
21	Yiddinga, 170576	44	78	76	95	63	2	-4
Average performance		52	100	100	100	100	14	14

[^] 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).

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

* Progeny No is the total progeny number for each sire at weaning.

Combined Measured Traits and Visual Performance

The following figures use the same sire codes as Table 2 to locate sire performance for a variety of trait combinations. The blue boxes describe the high and low quadrants of results for the traits, as does any text accompanying the figure.

Figure 1a. Combined measured traits (DP+ index) and combined visually assessed traits for the site objective.

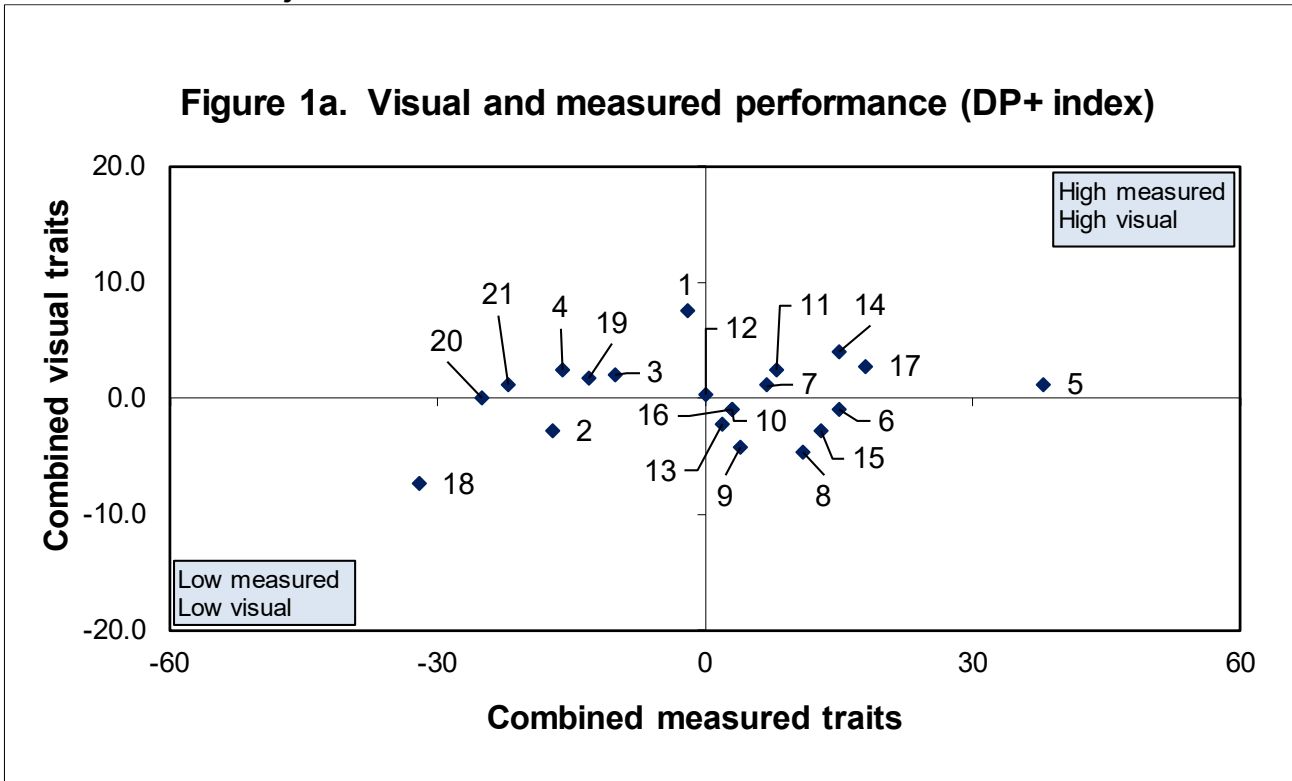


Figure 1b. Combined measured traits (MP+ index) and combined visually assessed traits for the site objective.

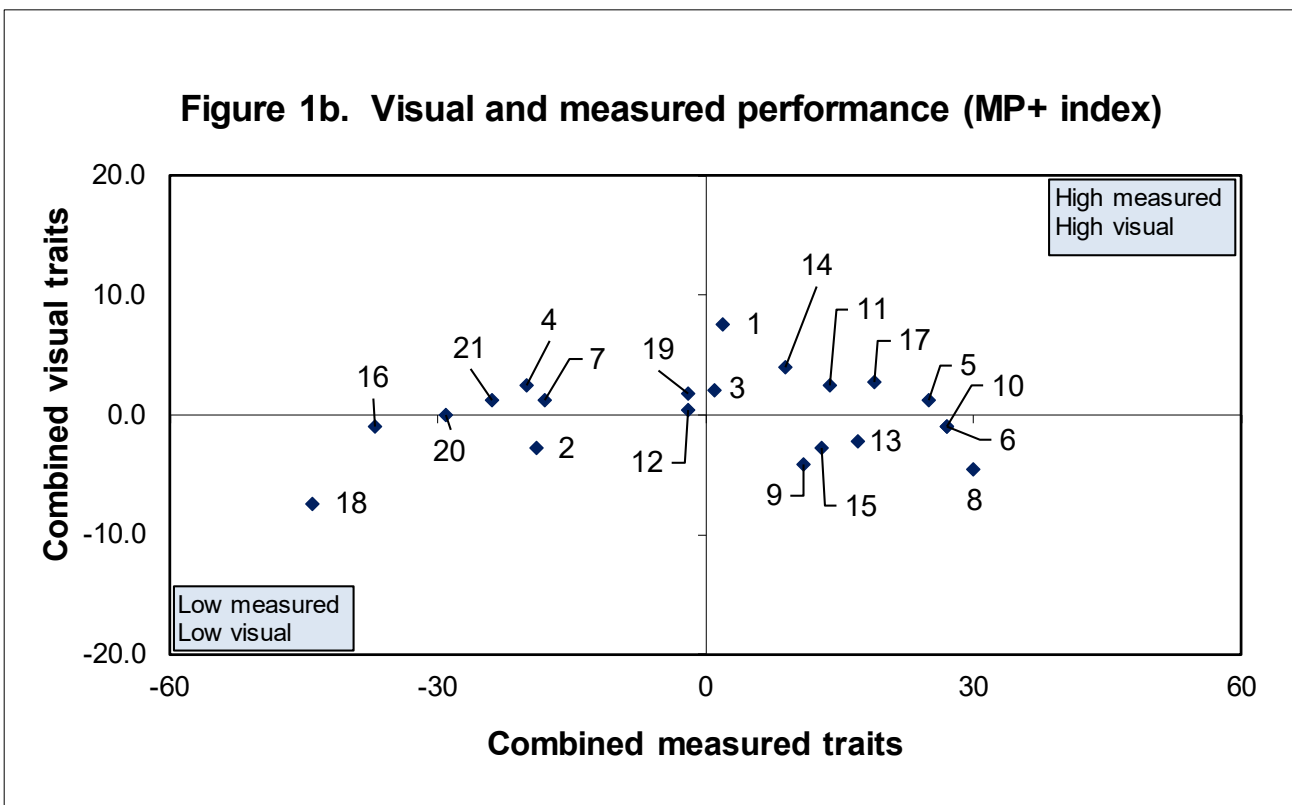


Figure 1c. Combined measured traits (FP+ index) and combined visually assessed traits for the site objective.

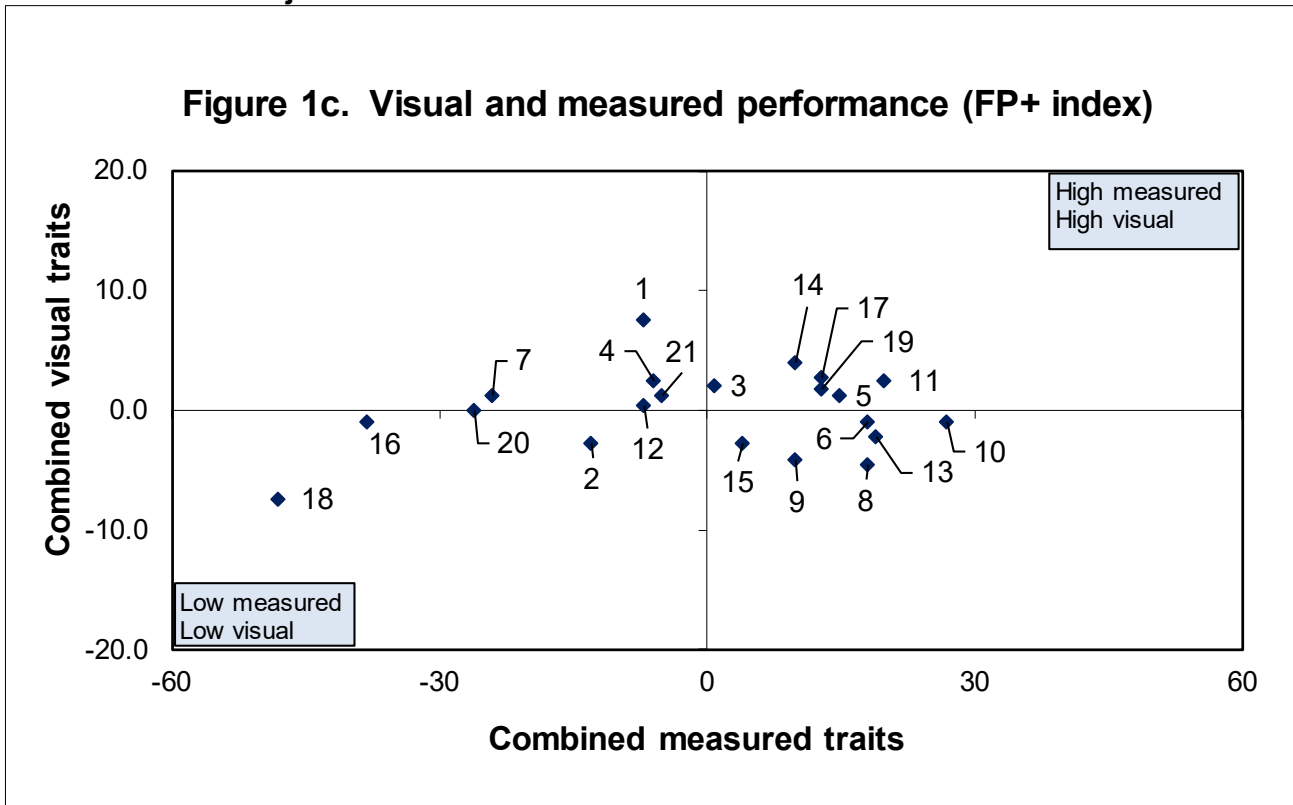


Figure 1d. Combined measured traits (WP+ index) and combined visually assessed traits for the site objective.

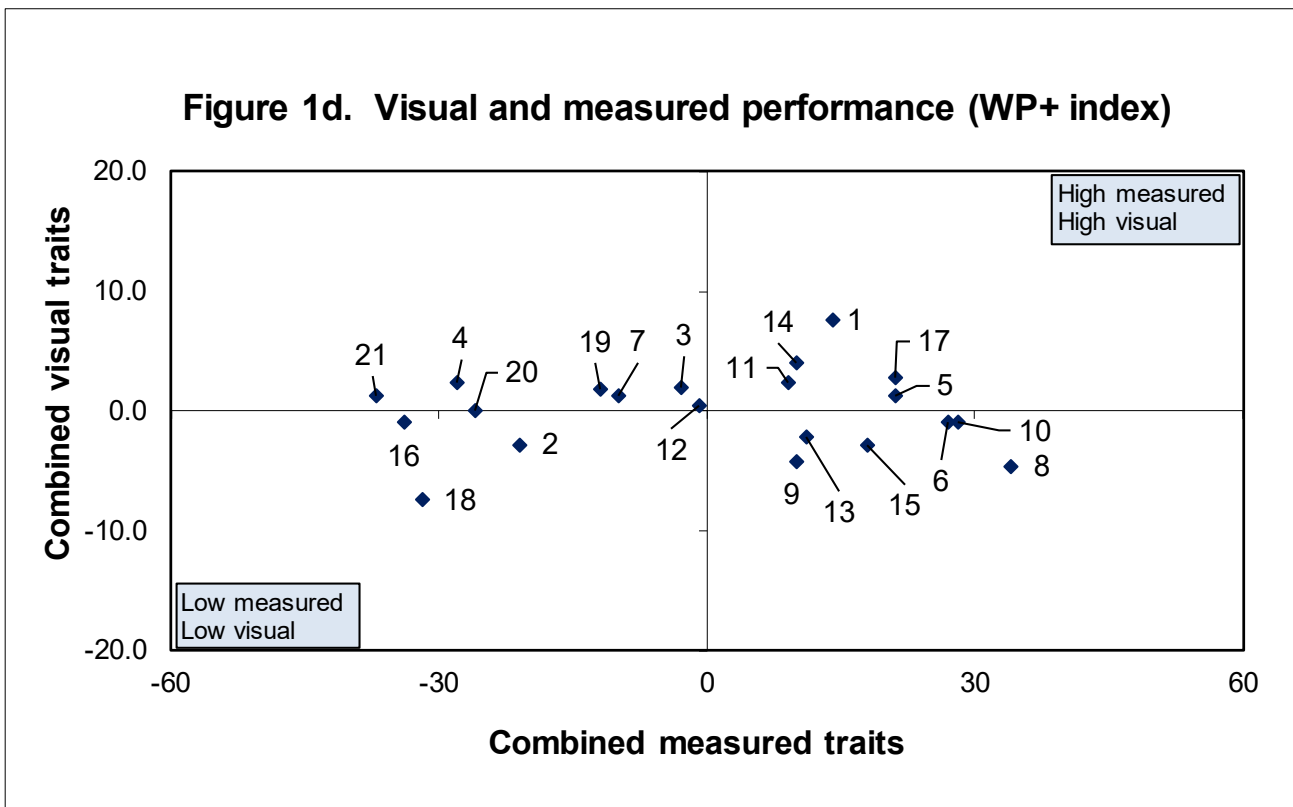


Table 3. Wool Measured Traits plus Classer's Visual Grade

Sire Code	Breeders flock, Sire name	Number of Progeny*	Flock Breeding Values (deviations)												Classer's Visual Grade ¹	
			GFW %		CFW %		FD µm		FDCV %		SL mm	SS N/ktex	CURV deg/mm		Tops %	Culls %
			P [^]	A	P	A	P	A	P	A	A	A	P	A	A	A
1	Anderson Poll, 170660	52	19	15	18	13	1.2	2.1	-0.4	0.0	0.2	-1.0	-0.9	-3.2	28	-10
2	Baderloo Poll, 150171	58	-5	-17	-2	-18	-0.7	-0.3	-1.3	-1.0	8.1	0.2	-5.7	-5.2	-4	10
3	Conrayn, MVB123	56	0	-1	-3	-4	-0.3	-0.4	0.8	0.2	-13.1	0.9	15.1	18.1	2	-8
4	Curlew, 170111	53	-15	-19	-16	-21	-0.4	-0.8	-0.6	-0.6	-8.8	1.9	12.7	17.0	0	-12
5	Glen Holme, 162503 (Dohne)	56	3	2	0	0	-0.1	0.1	-1.0	-1.0	-7.2	3.0	5.2	3.8	-4	-10
6	Gunallo Poll, 170295	53	8	16	7	13	-0.3	-0.6	0.3	1.0	-1.7	-3.3	-5.7	-7.6	-7	-2
7	Jigsaw Farms, 160270	54	-1	1	-1	1	1.5	1.6	1.3	0.5	1.1	1.6	-0.2	1.6	0	-6
8	Kerin Poll, 160137	41	16	19	15	20	0.3	0.3	0.2	0.5	9.0	-0.6	-6.7	-8.6	-6	17
9	Kerin Poll, 171646	26	0	7	1	8	0.0	-0.4	0.5	0.7	-3.0	-0.3	2.5	2.4	-7	14
10	Kerrsville, 166010	56	11	22	10	23	-0.2	-0.4	1.2	1.0	-4.1	-1.0	-0.7	-0.9	-5	0
11	Kia Ora, 150608 (Rex)	58	2	6	3	7	-0.4	-1.6	0.2	0.5	-9.5	-2.2	5.3	5.9	4	-8
12	Kiandra Poll, 160793	65	-4	1	-5	3	-0.5	0.6	0.7	0.1	7.5	0.7	-1.3	-4.7	5	3
13	Kurra-Wirra, 170039	45	5	0	8	1	-0.5	-0.9	-1.8	-1.3	0.5	2.0	-1.5	2.7	-9	2
14	Miramoonna, 140012	58	3	0	5	6	0.1	0.6	-0.7	-0.8	10.0	1.7	-4.8	-8.3	10	-10
15	Moorundie Poll, NE73	56	4	11	6	15	-0.4	0.2	2.4	2.0	-0.6	-2.9	-3.6	-5.3	-1	13
16	Mumblebone, 170709	64	-18	-25	-17	-26	1.0	1.1	0.0	-0.9	11.4	1.5	-10.2	-6.3	-6	-1
17	Pendarra Poll, 160028	41	4	12	6	17	-0.8	-0.2	0.3	0.7	-3.3	-3.1	-1.0	-5.8	15	1
18	Trigger Vale Poll, 170929	48	-10	-18	-7	-16	1.8	1.8	0.4	0.8	-5.9	-4.0	-6.8	-8.2	-12	25
19	Turkey Lane, 170060	44	1	1	-6	-4	-1.0	-1.8	-0.8	-0.9	7.7	2.0	3.0	1.7	0	-9
20	Willera Poll, 175584	55	-10	-6	-7	-11	0.6	0.5	-0.1	0.8	8.7	-1.3	-4.6	-4.4	-2	-2
21	Yiddinga, 170576	44	-15	-25	-14	-25	-0.8	-1.5	-1.4	-2.3	-6.9	4.1	9.9	15.3	2	-4

[^] 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).

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

* Progeny No is the total progeny number for each sire at weaning.

Table 4. Carcase and WEC Measured Traits plus Classer's Visual Grade

Sire Code	Breeders flock, Sire name	Number of Progeny*	Flock Breeding Values (deviations)							Classer's Visual Grade ¹	
			WT kg				EMD mm	FAT mm	WEC %	Tops %	Culls %
			W	P	Y	A	Y	Y	Y	A	A
1	Anderson Poll, 170660	52	1.5	2.3	1.5	2.0	-0.3	-0.3	-35	28	-10
2	Baderloo Poll, 150171	58	-1.8	-1.3	-1.3	-0.1	0.3	0.9	-23	-4	10
3	Conrayn, MVB123	56	-0.5	-1.5	-0.4	-1.3	-0.9	-0.4	18	2	-8
4	Curlew, 170111	53	-2.6	-3.5	-1.9	0.4	0.3	0.9	-45	0	-12
5	Glen Holme, 162503 (Dohne)	56	5.6	10.3	8.6	7.5	0.7	0.0	-17	-4	-10
6	Gunallo Poll, 170295	53	3.0	2.5	4.3	3.2	-1.5	-1.1	22	-7	-2
7	Jigsaw Farms, 160270	54	-1.2	-1.5	-1.7	-2.2	2.7	1.0	49	0	-6
8	Kerin Poll, 160137	41	1.4	2.1	3.6	2.8	-2.1	-1.3	35	-6	17
9	Kerin Poll, 171646	26	0.6	0.7	0.2	0.7	-0.9	-0.4	32	-7	14
10	Kerrsville, 166010	56	-0.4	-0.9	-0.7	-1.2	-2.2	-1.5	-17	-5	0
11	Kia Ora, 150608 (Rex)	58	-0.2	-1.3	-2.1	-2.9	0.0	0.1	-14	4	-8
12	Kiandra Poll, 160793	65	-2.6	-3.2	-0.2	0.8	-0.4	-0.4	63	5	3
13	Kurra-Wirra, 170039	45	1.4	1.6	0.7	1.0	-0.9	-0.6	-8	-9	2
14	Miramoonna, 140012	58	1.0	2.9	1.9	2.1	0.4	0.8	-59	10	-10
15	Moorundie Poll, NE73	56	-0.5	-1.1	1.5	-0.2	-0.3	-0.2	40	-1	13
16	Mumblebone, 170709	64	0.1	0.1	2.2	2.2	3.4	2.0	-19	-6	-1
17	Pendarra Poll, 160028	41	1.1	1.2	0.7	0.0	-0.3	-0.7	47	15	1
18	Trigger Vale Poll, 170929	48	1.2	1.1	-0.1	-1.3	0.6	0.4	-12	-12	25
19	Turkey Lane, 170060	44	-2.2	-4.0	-6.8	-6.1	-0.1	0.4	16	0	-9
20	Willera Poll, 175584	55	-1.5	-1.7	-3.1	-2.5	0.3	-0.3	24	-2	-2
21	Yiddinga, 170576	44	-3.3	-4.8	-7.0	-5.0	1.2	0.6	-18	2	-4

[^] 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).

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

* Progeny No is the total progeny number for each sire at weaning.

Summary Graphs

Figure 2. Classer's Visual Grade - Tops and Culls

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.

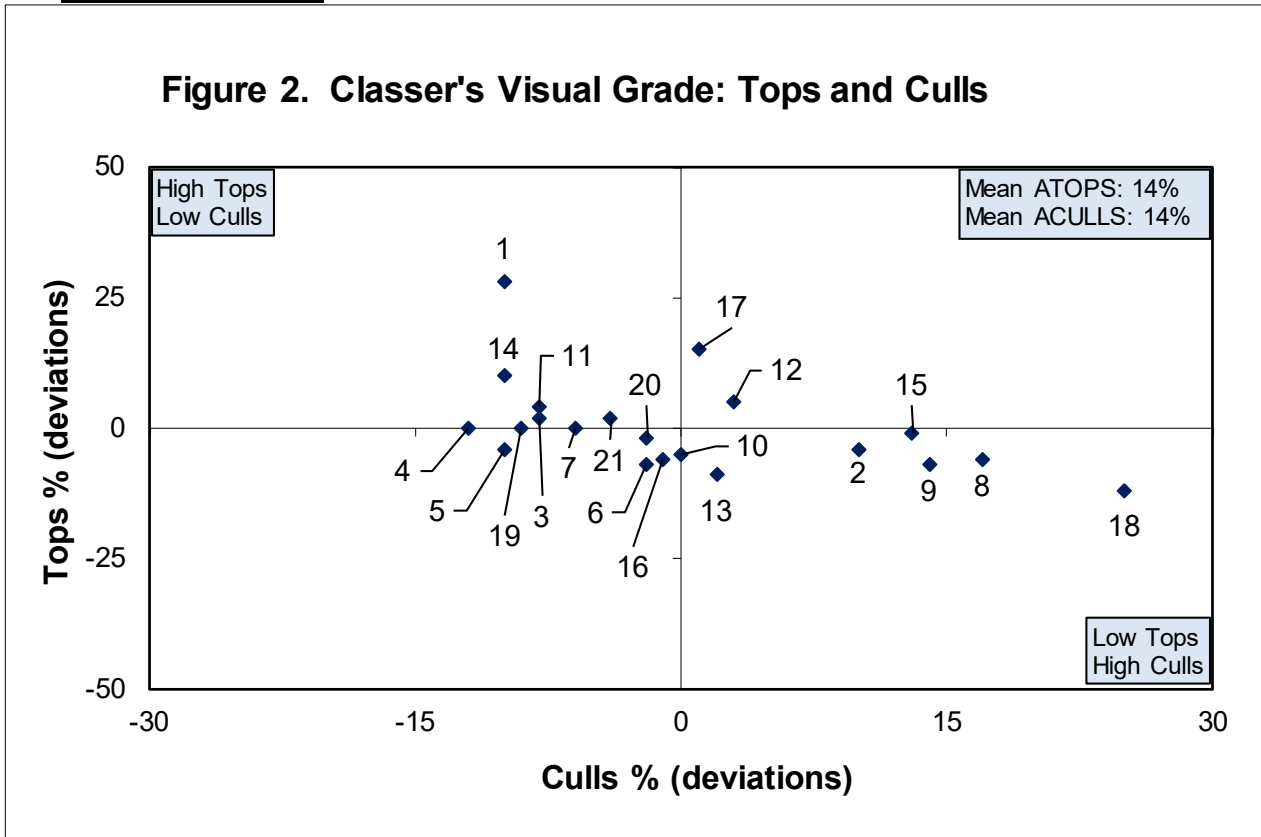
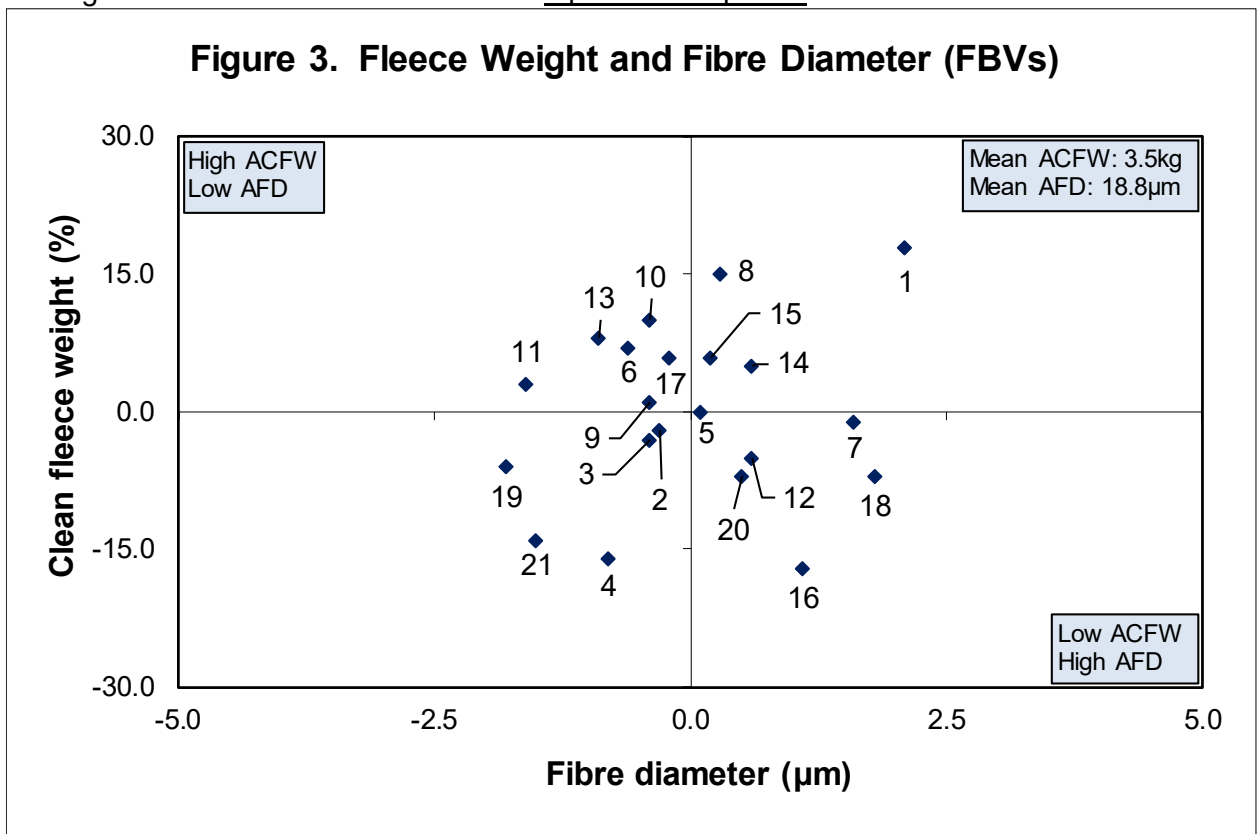


Figure 3. Fleece Weight and Fibre Diameter (FBVs)

The graph describes performance for clean fleece weight (CFW) on the side axis and fibre diameter (FD) 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.



Summary Graphs

Figure 4. Fleece Weight and Staple Length (FBVs)

The graph describes performance for clean fleece weight (CFW) on the side axis and staple length (SL) on the bottom axis. Sires that are above average for fleece weight and above average for staple length are located in the top right hand quarter.

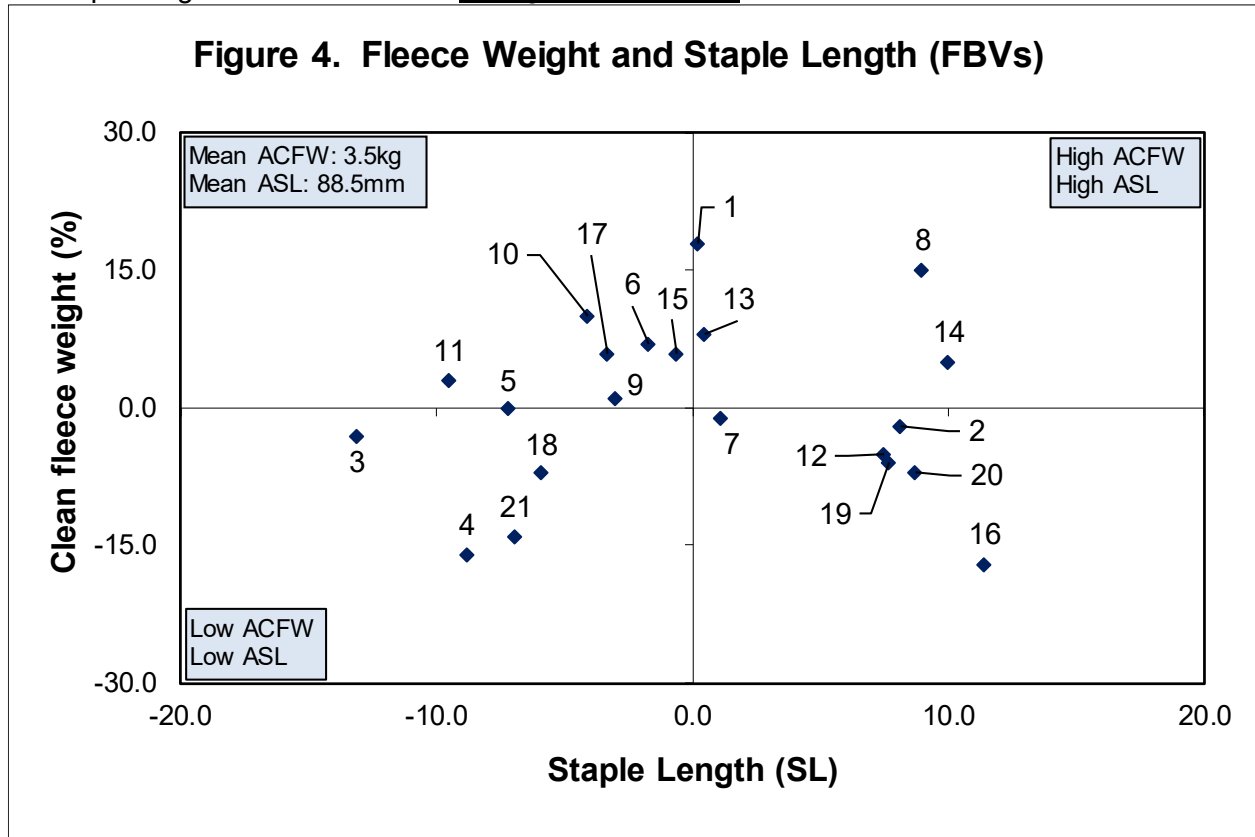
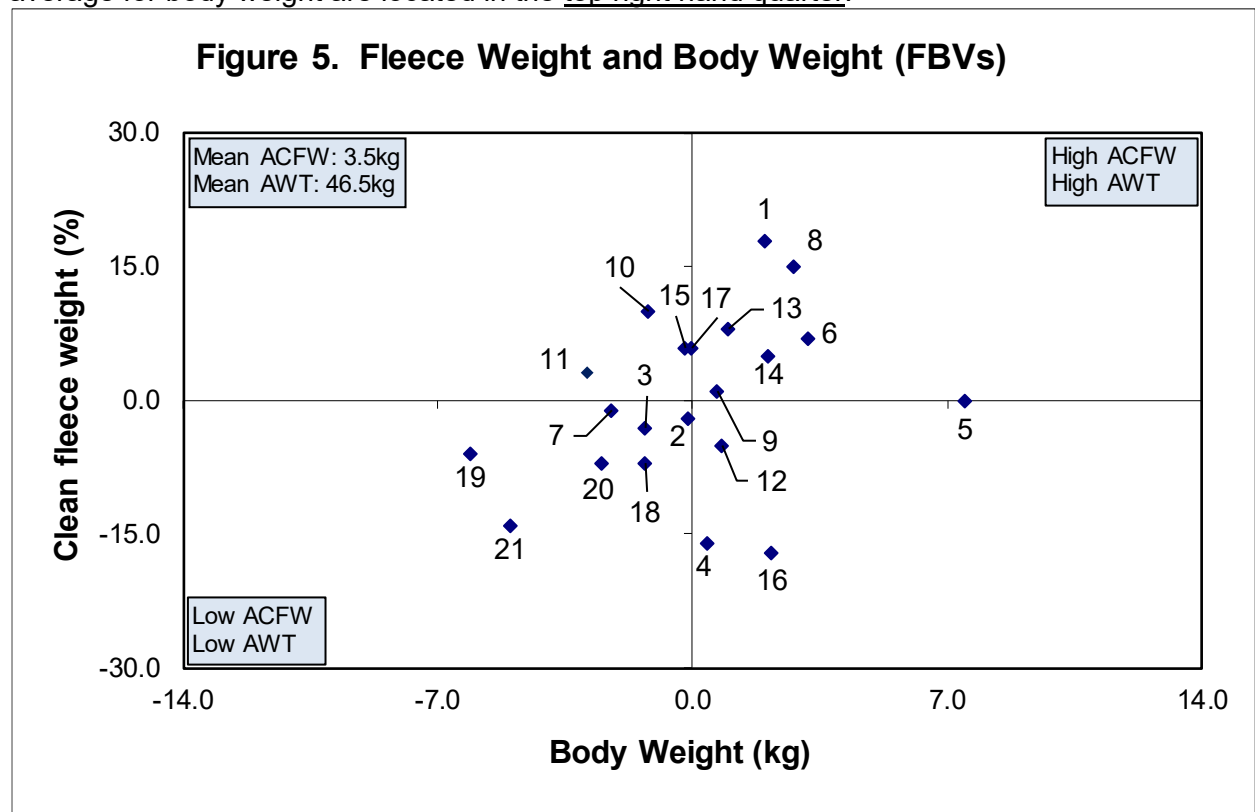


Figure 5. Fleece Weight and Body Weight (FBVs)

The graph describes performance for clean fleece weight (CFW) on the side axis and body weight (WT) 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.



Summary Graphs

Figure 6. Fleece Weight and Fat (FBVs)

The graph describes performance for clean fleece weight (CFW) on the side axis and fat depth (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.

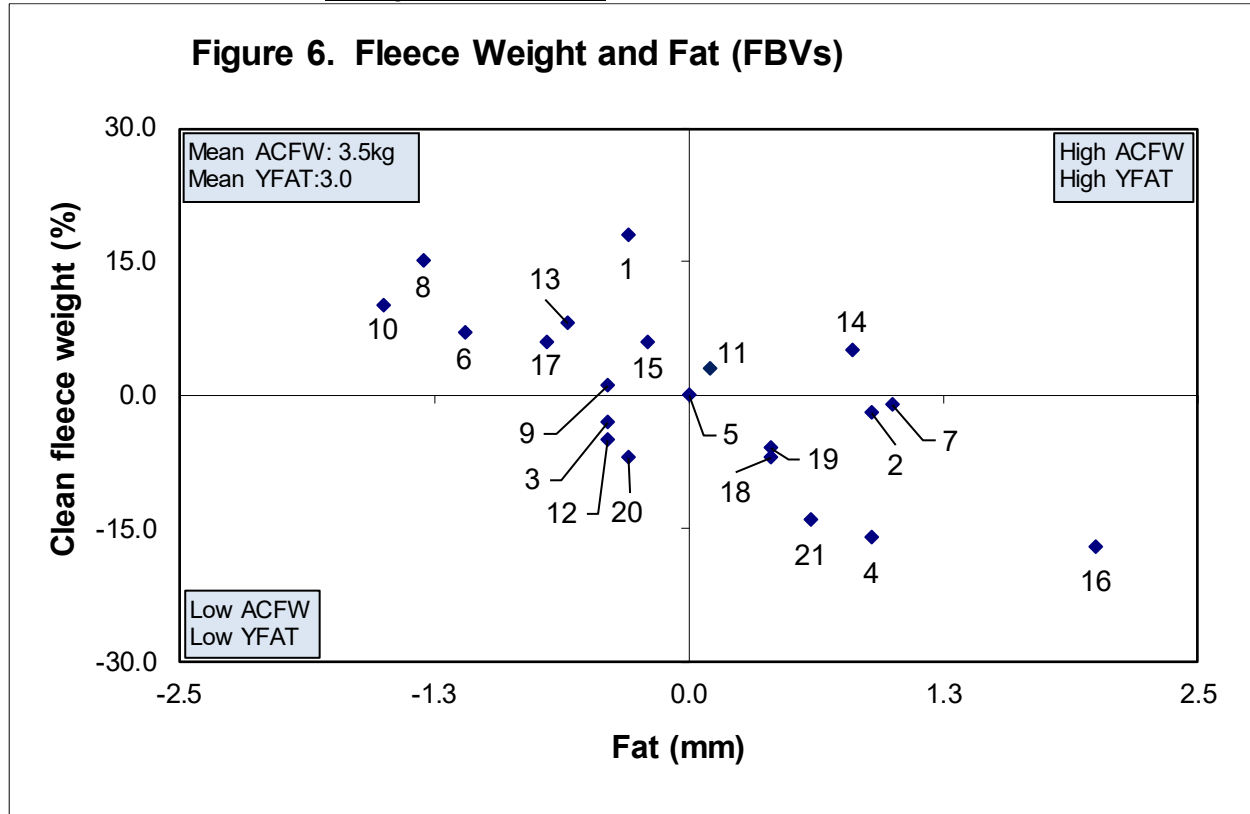
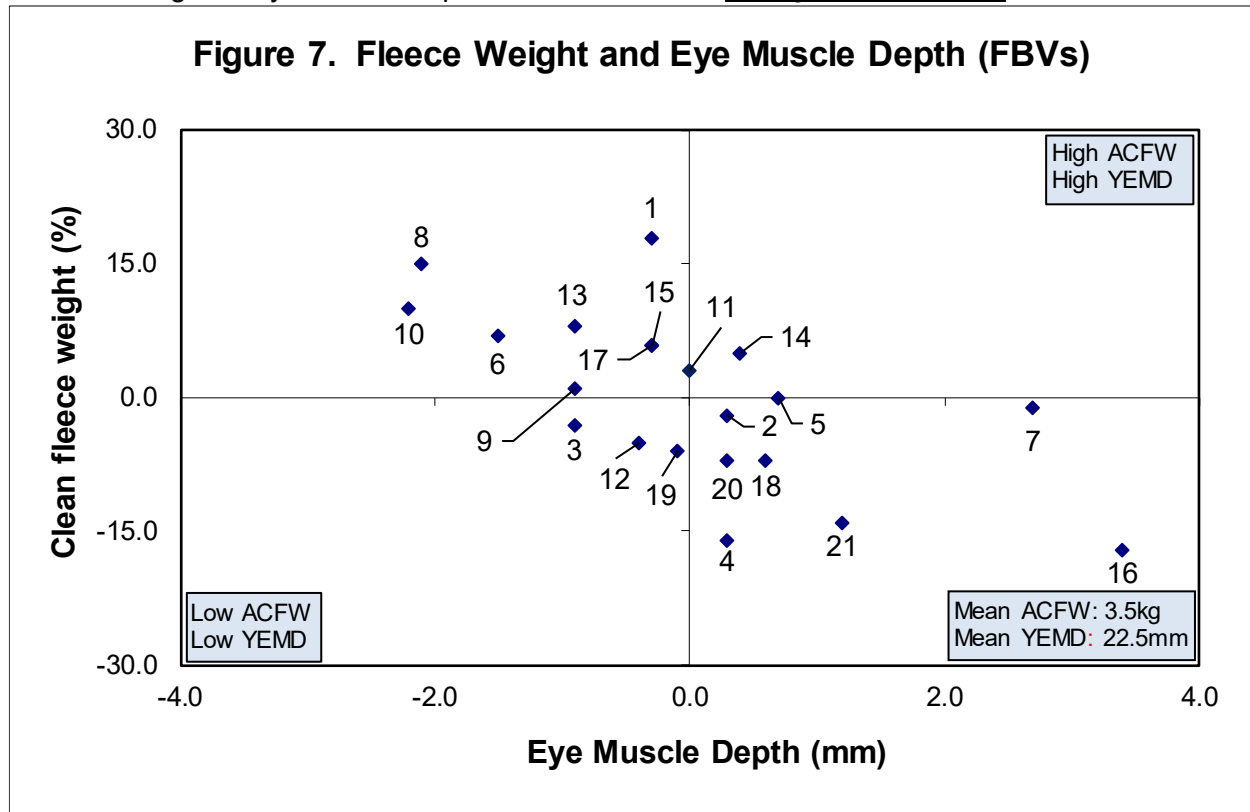


Figure 7. Fleece Weight and Eye Muscle Depth (FBVs)

The graph describes performance for clean fleece weight (CFW) on the side axis and eye muscle depth (EMD) 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.



Summary Graphs

Figure 8. Fleece Weight (FBV) and Breech Wrinkle (Dev)

The graph describes performance for clean fleece weight (CFW) on the side axis and breech wrinkle (BRWR) on the bottom axis. Sires that are above average for fleece weight and below average for breech wrinkle are located in the top left hand quarter.

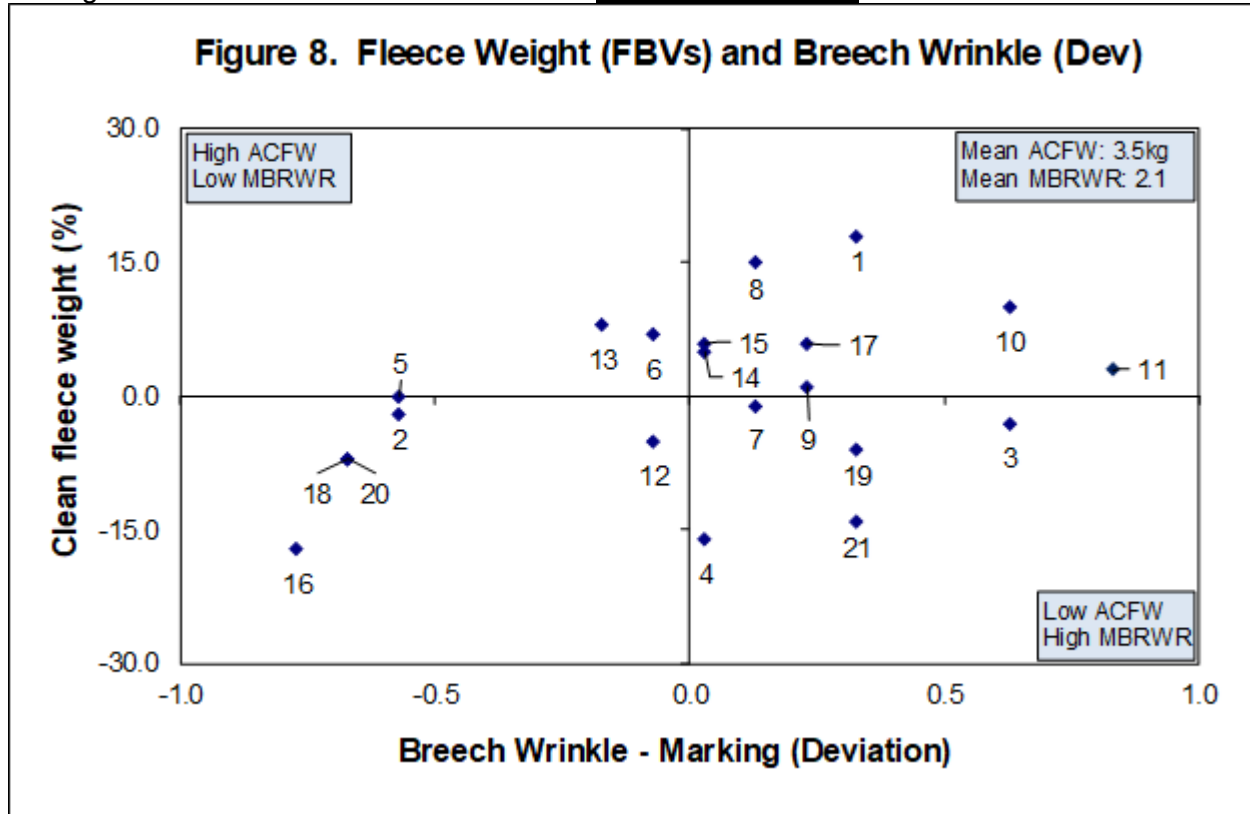
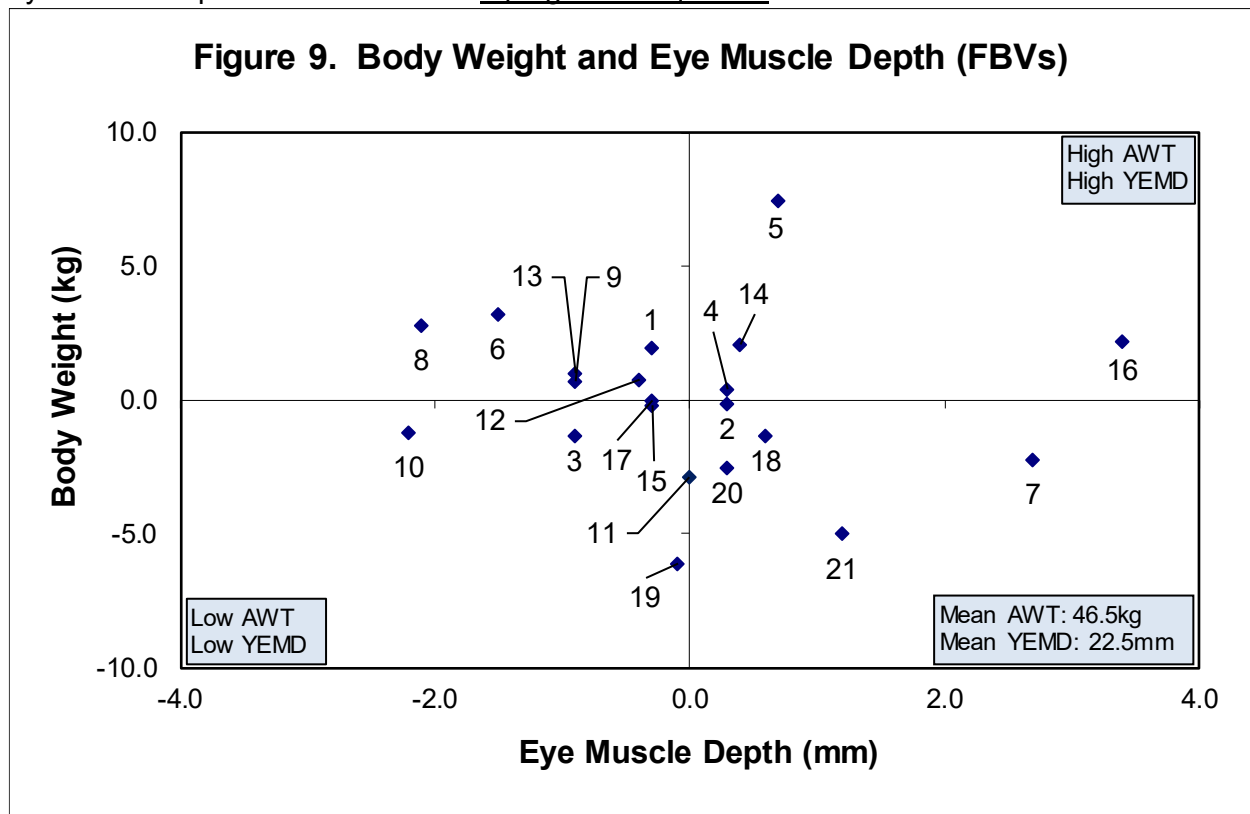


Figure 9. Body Weight and Eye Muscle Depth (FBVs)

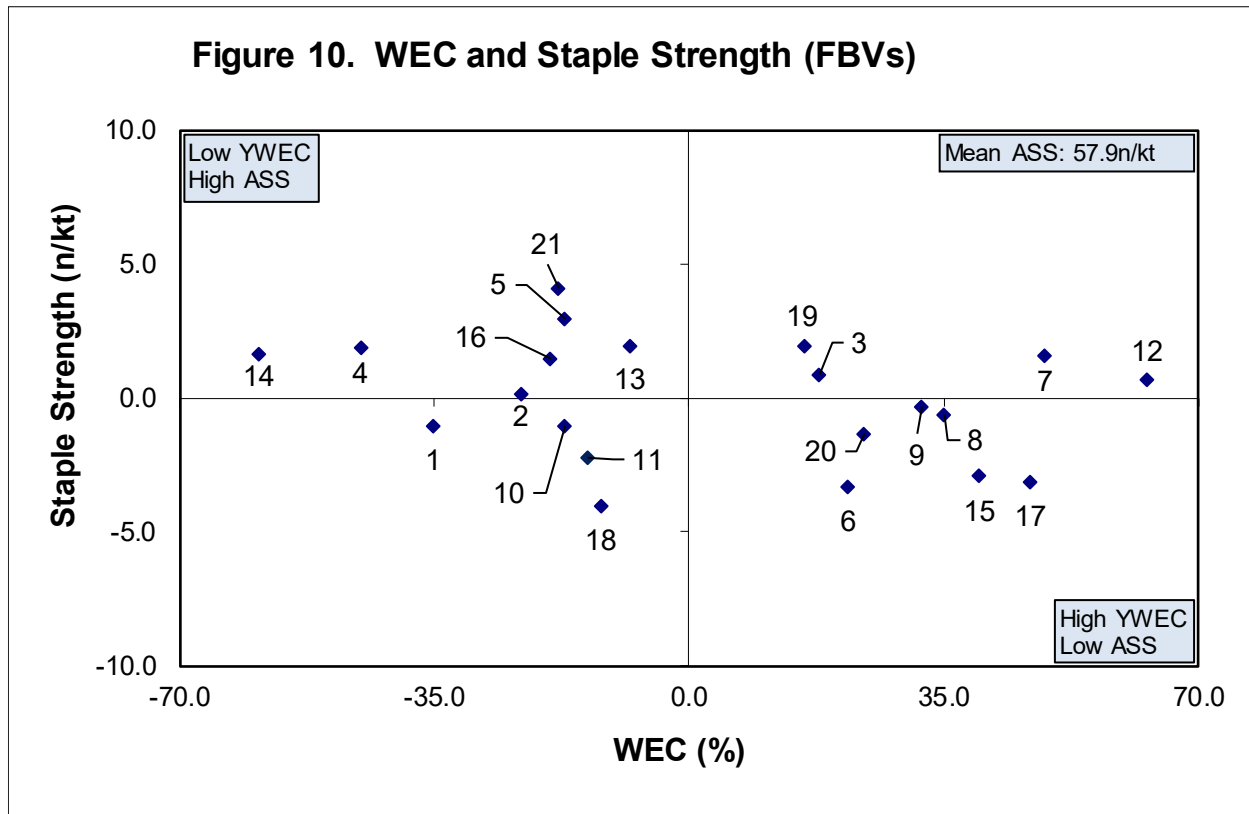
The graph describes performance for body weight (WT) on the side axis and eye muscle depth (EMD) on the bottom axis. Sires that are above average for body weight and above average for eye muscle depth are located in the top right hand quarter.



Summary Graphs

Figure 10. Staple Strength and Worm Egg Count (FBVs)

The graph describes performance for staple strength (SS) on the side axis and worm egg count (WEC) on the bottom axis. Sires that are above average for staple strength and below average for worm egg count are located in the top left hand quarter.



Understanding the Results – Visual Trait Performance Results

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 5a. 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.

Sire Code	Breeders flock, Sire name	Wool Quality - Adult																							
		Fleece Rot					Wool Colour					Wool Character					Dust Penetration								
		Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	Anderson Poll, 170660	-0.5	74	24	2	0	0	-0.2	34	64	2	0	0	-0.3	28	40	32	0	0	-0.1	4	96	0	0	0
2	Baderloo Poll, 150171	0.3	27	43	24	6	0	0.3	0	75	24	1	0	0.0	10	45	41	4	0	0.1	4	80	16	0	0
3	Conrayn, MVB123	-0.4	63	33	4	0	0	-0.4	49	49	2	0	0	0.2	4	41	53	2	0	-0.1	4	96	0	0	0
4	Curlew, 170111	-0.6	81	17	2	0	0	-0.4	48	52	0	0	0	-0.1	10	58	29	3	0	-0.1	8	92	0	0	0
5	Glen Holme, 162503 (Dohne)	0.0	43	34	23	0	0	0.1	13	72	15	0	0	0.2	3	40	57	0	0	0.0	2	96	2	0	0
6	Gunallo Poll, 170295	0.0	44	34	16	6	0	0.2	14	59	27	0	0	-0.3	15	65	20	0	0	0.1	2	88	10	0	0
7	Jigsaw Farms, 160270	-0.2	46	40	14	0	0	0.0	12	88	0	0	0	0.5	0	17	79	4	0	0.0	6	90	4	0	0
8	Kerin Poll, 160137	0.5	14	41	43	2	0	0.3	2	68	30	0	0	0.1	14	30	54	2	0	0.1	0	89	11	0	0
9	Kerin Poll, 171646	0.6	24	36	24	8	8	0.0	20	68	12	0	0	0.1	4	44	52	0	0	0.0	0	96	4	0	0
10	Kerrsville, 166010	-0.2	55	31	8	4	2	0.1	18	69	12	1	0	0.2	6	37	55	2	0	0.0	4	90	6	0	0
11	Kia Ora, 150608 (Rex)	0.0	38	47	15	0	0	-0.2	37	56	7	0	0	0.0	8	46	46	0	0	-0.1	6	93	1	0	0
12	Kiandra Poll, 160793	0.2	33	41	17	9	0	0.1	16	67	17	0	0	-0.3	21	55	22	2	0	0.1	4	84	12	0	0
13	Kurra-Wirra, 170039	0.2	26	48	21	5	0	0.1	10	74	16	0	0	0.2	0	44	56	0	0	0.1	2	84	14	0	0
14	Miramoonna, 140012	-0.2	46	50	2	2	0	-0.2	28	69	3	0	0	0.0	10	44	46	0	0	-0.1	11	87	2	0	0
15	Moorundie Poll, NE73	0.3	33	37	20	10	0	0.1	14	72	14	0	0	0.1	10	34	52	4	0	0.0	2	90	8	0	0
16	Mumblebone, 170709	0.1	35	39	21	5	0	0.2	2	85	13	0	0	0.1	8	42	47	3	0	0.1	2	87	11	0	0
17	Pendarra Poll, 160028	0.0	40	40	18	2	0	-0.1	30	60	10	0	0	-0.5	22	65	13	0	0	0.0	4	88	8	0	0
18	Trigger Vale Poll, 170929	0.7	19	26	36	19	0	0.3	4	70	26	0	0	0.2	2	44	49	5	0	0.0	3	95	2	0	0
19	Turkey Lane, 170060	-0.3	64	24	12	0	0	-0.1	21	71	8	0	0	0.0	9	48	43	0	0	0.0	5	83	12	0	0
20	Willera Poll, 175584	-0.3	63	27	8	2	0	0.1	17	69	12	2	0	-0.1	12	52	35	1	0	0.1	0	88	12	0	0
21	Yiddinga, 170576	0.0	48	31	17	4	0	-0.1	24	74	2	0	0	0.1	10	38	52	0	0	-0.1	10	86	4	0	0
	Average performance	1.8	44	35	16	5	0	1.9	20	68	12	0	0	2.4	10	44	44	2	0	2.0	3	90	7	0	0

Table 5b. Visual trait assessments – Wool Quality and Pigmentation

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 progeny for each sire that are scored as 5 are reported for Recessive black and Random spot.

Sire Code	Breeders flock, Sire name	Wool Quality - Adult										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
1	Anderson Poll, 170660	-0.3	26	74	0	0	0	-0.3	78	22	0	0	0	0.0	98	0	0	2	0	0.2	0	61	33	4	2	0	0
2	Baderloo Poll, 150171	0.1	9	69	22	0	0	0.1	49	45	4	0	2	0.0	96	2	2	0	0	0.1	2	58	38	2	0	0	0
3	Conrayn, MVB123	-0.1	20	71	9	0	0	-0.1	53	47	0	0	0	0.2	90	2	6	0	2	-0.2	24	51	22	3	0	0	2
4	Curlew, 170111	-0.3	31	63	6	0	0	-0.1	56	42	2	0	0	0.0	96	2	2	0	0	-0.1	21	44	29	4	2	0	0
5	Glen Holme, 162503 (Dohne)	-0.1	19	70	11	0	0	0.1	43	53	4	0	0	0.0	100	0	0	0	0	-0.2	17	63	20	0	0	0	0
6	Gunallo Poll, 170295	0.0	10	78	12	0	0	0.0	53	41	6	0	0	0.0	100	0	0	0	0	-0.5	24	75	1	0	0	0	0
7	Jigsaw Farms, 160270	0.0	8	87	5	0	0	0.2	33	62	5	0	0	0.2	88	2	10	0	0	0.4	0	42	52	6	0	0	2
8	Kerin Poll, 160137	0.2	2	68	30	0	0	0.0	51	46	3	0	0	0.0	100	0	0	0	0	0.0	5	62	30	3	0	0	0
9	Kerin Poll, 171646	0.4	8	52	32	8	0	0.3	32	60	4	4	0	0.1	96	0	0	4	0	-0.1	8	68	24	0	0	0	0
10	Kerrsville, 166010	0.0	18	69	12	1	0	0.0	47	49	4	0	0	0.0	96	2	2	0	0	0.3	2	48	42	8	0	0	2
11	Kia Ora, 150608 (Rex)	-0.1	19	74	7	0	0	-0.2	65	33	2	0	0	0.0	100	0	0	0	0	-0.4	33	51	15	0	1	0	0
12	Kiandra Poll, 160793	0.0	15	69	16	0	0	-0.2	76	17	7	0	0	0.0	100	0	0	0	0	-0.3	19	60	21	0	0	0	0
13	Kurra-Wirra, 170039	0.2	0	81	19	0	0	0.2	33	58	9	0	0	0.1	93	3	2	2	0	-0.1	20	45	30	5	0	0	0
14	Miramoonna, 140012	-0.2	20	72	8	0	0	-0.1	54	46	0	0	0	0.0	100	0	0	0	0	0.3	7	41	35	17	0	0	0
15	Moorundie Poll, NE73	0.1	10	66	24	0	0	0.3	28	64	8	0	0	0.0	100	0	0	0	0	-0.2	14	68	14	4	0	0	0
16	Mumblebone, 170709	0.1	3	80	15	2	0	0.1	45	48	7	0	0	0.0	98	0	2	0	0	0.4	0	51	35	13	1	0	0
17	Pendarra Poll, 160028	-0.2	25	65	10	0	0	-0.1	60	32	8	0	0	0.0	100	0	0	0	0	0.2	15	32	48	5	0	0	0
18	Trigger Vale Poll, 170929	0.3	5	58	37	0	0	0.3	30	53	17	0	0	0.0	100	0	0	0	0	-0.2	11	71	18	0	0	2	0
19	Turkey Lane, 170060	-0.1	17	69	14	0	0	-0.1	55	43	2	0	0	0.0	95	5	0	0	0	0.3	2	43	48	7	0	0	0
20	Willera Poll, 175584	0.0	4	88	8	0	0	-0.2	65	31	4	0	0	0.0	100	0	0	0	0	-0.2	12	65	23	0	0	0	2
21	Yiddinga, 170576	0.0	5	83	12	0	0	-0.1	57	43	0	0	0	0.0	98	0	2	0	0	0.2	5	45	45	5	0	0	2
	Average performance	2.0	13	72	15	0	0	1.5	51	45	4	0	0	1.0	97	2	1	0	0	2.3	11	55	30	4	0	0	0

Table 5c. 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.

Sire Code	Breeder's flock, Sire name	Conformation - Adult																													
		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
1	Anderson Poll, 170660	-0.1	100	0	0	0	0	0.1	10	52	32	4	2	-0.2	61	37	2	0	0	-0.2	2	92	6	0	0	0.0	27	35	35	3	0
2	Baderloo Poll, 150171	0.0	98	0	0	0	2	0.0	16	43	39	2	0	-0.2	66	30	4	0	0	-0.2	2	89	9	0	0	-0.4	40	53	6	1	0
3	Conrayn, MVB123	0.0	98	0	2	0	0	0.0	12	59	27	2	0	0.2	39	41	20	0	0	0.5	0	25	75	0	0	0.4	10	41	39	10	0
4	Curlew, 170111	0.1	88	4	8	0	0	0.2	2	50	46	2	0	0.0	51	39	10	0	0	-0.1	4	81	15	0	0	0.0	24	45	25	6	0
5	Glen Holme, 162503 (Dohne)	0.0	94	0	6	0	0	-0.1	16	58	26	0	0	-0.3	72	26	2	0	0	-0.1	2	81	17	0	0	0.0	23	46	31	0	0
6	Gunallo Poll, 170295	0.3	84	0	14	0	2	-0.2	17	61	22	0	0	0.3	39	33	25	3	0	0.0	0	80	20	0	0	-0.2	29	49	20	2	0
7	Jigsaw Farms, 160270	-0.1	100	0	0	0	0	-0.2	19	62	19	0	0	0.1	55	29	14	2	0	0.0	0	73	27	0	0	0.1	16	51	29	4	0
8	Kerin Poll, 160137	-0.1	100	0	0	0	0	0.3	8	41	43	8	0	0.1	44	39	17	0	0	-0.1	0	84	16	0	0	0.2	14	44	42	0	0
9	Kerin Poll, 171646	0.0	92	8	0	0	0	0.3	4	44	48	4	0	0.0	50	38	12	0	0	-0.2	0	92	8	0	0	0.3	12	38	46	4	0
10	Kerrsville, 166010	0.0	94	2	4	0	0	0.0	14	59	24	1	2	0.1	46	38	14	2	0	0.4	0	39	57	4	0	0.3	14	34	48	4	0
11	Kia Ora, 150608 (Rex)	0.0	98	0	2	0	0	-0.2	20	61	17	2	0	0.1	48	41	9	2	0	0.0	3	69	28	0	0	0.3	7	50	37	6	0
12	Kiandra Poll, 160793	-0.1	98	2	0	0	0	0.0	14	47	38	1	0	-0.1	65	23	12	0	0	-0.3	7	90	3	0	0	-0.1	26	44	30	0	0
13	Kurra-Wirra, 170039	0.0	93	2	5	0	0	-0.1	14	58	28	0	0	0.2	40	47	13	0	0	-0.1	0	84	16	0	0	0.0	18	56	26	0	0
14	Miramoonna, 140012	0.0	96	2	2	0	0	-0.2	16	65	19	0	0	0.1	50	37	13	0	0	0.2	0	61	39	0	0	-0.3	38	42	20	0	0
15	Moorundie Poll, NE73	0.2	84	4	12	0	0	-0.2	20	54	24	2	0	0.2	43	41	16	0	0	0.2	0	56	44	0	0	0.1	14	51	35	0	0
16	Mumblebone, 170709	0.0	97	1	2	0	0	0.1	8	55	35	2	0	-0.4	84	13	3	0	0	-0.1	2	84	14	0	0	-0.6	54	38	8	0	0
17	Pendarra Poll, 160028	0.0	98	0	2	0	0	0.1	8	50	40	2	0	0.0	48	42	10	0	0	0.1	0	68	30	2	0	0.1	15	50	35	0	0
18	Trigger Vale Poll, 170929	0.0	98	0	2	0	0	-0.2	14	70	16	0	0	0.0	56	30	12	2	0	-0.1	0	86	14	0	0	-0.2	30	47	23	0	0
19	Turkey Lane, 170060	0.0	95	3	2	0	0	0.4	2	36	52	10	0	-0.1	62	29	9	0	0	0.0	0	81	19	0	0	0.3	7	43	48	2	0
20	Willera Poll, 175584	0.0	98	0	2	0	0	0.1	15	42	38	5	0	0.0	63	22	15	0	0	0.2	0	58	40	2	0	0.1	14	53	33	0	0
21	Yiddinga, 170576	0.0	95	3	2	0	0	-0.1	5	76	17	2	0	-0.2	64	33	3	0	0	-0.1	0	90	10	0	0	-0.3	36	45	19	0	0
	Average performance	1.1	95	2	3	0	0	2.2	12	54	31	3	0	1.6	55	34	11	0	0	2.2	2	74	24	0	0	2.1	22	45	30	3	0

Table 5d. 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.

Sire Code	Breeders flock, Sire name	Breech Visual Traits																									Crutch Cover	Urine					
		Breech Cover										Breech Wrinkle										Dag Yearling											
		Marking					Adult					Marking					Adult					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				
1	Anderson Poll, 170660	-0.1	0	25	60	15	0	0.1	10	45	31	12	2	0.3	11	46	37	6	0	-0.1	22	37	41	0	0	-0.4	37	33	25	6	0	Crutch Cover not scored.	Urine not scored.
2	Baderloo Poll, 150171	0.1	4	15	58	20	3	-0.4	25	55	13	7	0	-0.6	60	33	7	0	0	-0.6	38	49	11	2	0	0.0	30	26	25	13	6		
3	Conrayn, MVB123	0.4	0	10	45	41	4	0.4	2	33	47	18	0	0.6	12	33	35	18	2	0.2	14	29	41	16	0	0.0	24	32	28	10	6		
4	Curlew, 170111	-0.2	11	22	45	22	0	0.2	4	47	33	12	4	0.0	30	35	32	3	0	0.0	14	51	27	6	2	-0.3	28	42	20	10	0		
5	Glen Holme, 162503 (Dohne)	-0.2	7	20	59	14	0	-0.2	15	57	20	8	0	-0.6	57	39	4	0	0	0.0	19	31	44	6	0	0.0	30	28	15	25	2		
6	Gunallo Poll, 170295	-0.1	4	28	47	21	0	0.0	20	31	39	6	4	-0.1	27	45	28	0	0	0.0	24	31	37	8	0	0.1	22	29	27	18	4		
7	Jigsaw Farms, 160270	0.0	7	13	56	22	2	-0.4	16	69	12	3	0	0.1	19	44	35	2	0	0.0	14	43	35	8	0	-0.7	50	35	12	2	2		
8	Kerin Poll, 160137	-0.4	10	34	41	15	0	-0.1	14	44	33	9	0	0.1	23	42	32	3	0	0.3	14	28	39	19	0	0.4	16	24	32	21	8		
9	Kerin Poll, 171646	-0.1	3	26	52	19	0	0.1	13	33	42	12	0	0.2	22	43	22	13	0	0.4	4	29	50	17	0	0.3	20	28	24	20	8		
10	Kerrsville, 166010	0.7	0	2	45	41	12	0.7	2	22	45	25	6	0.6	7	34	43	16	0	0.5	5	20	59	16	0	-0.4	36	38	18	8	0		
11	Kia Ora, 150608 (Rex)	0.2	5	9	53	30	3	0.1	9	38	44	7	2	0.9	4	30	37	22	7	0.4	9	31	42	15	3	0.3	18	25	33	20	4		
12	Kiandra Poll, 160793	0.3	3	15	42	36	4	-0.1	28	25	30	17	0	0.0	31	44	17	6	2	0.2	16	32	40	11	1	0.9	4	25	23	35	14		
13	Kurra-Wirra, 170039	-0.3	10	29	49	12	0	-0.1	19	37	35	9	0	-0.2	28	51	21	0	0	-0.3	28	37	35	0	0	0.6	9	19	37	30	5		
14	Miramoonna, 140012	0.0	1	19	62	16	2	-0.2	8	64	23	5	0	0.1	32	27	37	4	0	-0.5	35	46	17	2	0	0.2	15	37	29	15	4		
15	Moorundie Poll, NE73	-0.1	4	25	58	8	5	0.0	6	51	39	4	0	0.0	29	41	22	8	0	0.1	4	53	35	8	0	-0.1	29	29	27	14	0		
16	Mumblebone, 170709	-0.2	9	21	55	15	0	-0.6	34	44	22	0	0	-0.8	77	19	4	0	0	-0.8	51	39	10	0	0	-0.5	49	24	19	8	0		
17	Pendarra Poll, 160028	0.5	0	10	40	48	2	0.4	10	20	48	20	2	0.2	22	33	37	8	0	0.4	8	35	35	22	0	0.4	15	31	26	18	10		
18	Trigger Vale Poll, 170929	-0.3	11	32	40	15	2	-0.3	27	36	32	5	0	-0.7	68	21	11	0	0	-0.3	32	36	30	2	0	-0.4	38	29	24	9	0		
19	Turkey Lane, 170060	0.0	9	14	43	34	0	0.5	5	26	45	21	3	0.4	12	41	38	9	0	0.4	0	40	40	20	0	0.1	21	33	29	12	5		
20	Willera Poll, 175584	0.0	4	18	59	18	1	-0.2	22	45	27	4	2	-0.7	68	23	9	0	0	-0.1	18	47	31	4	0	-0.3	33	31	31	2	2		
21	Yiddinga, 170576	0.0	0	22	63	15	0	0.0	5	50	38	7	0	0.3	12	42	42	4	0	-0.3	22	52	26	0	0	0.2	26	23	26	16	9		
	Average performance	3.0	5	19	51	23	2	2.4	14	42	33	10	1	2.1	31	37	26	6	0	2.3	18	38	35	9	0	2.4	26	30	25	15	6	-	-

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 (0.6).

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. Four 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
(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 – 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