

South Australia Merino Sire Evaluation Site Report

Within-Site Results
April 2020

2019 Drop
Yearling Assessment

Conducted by
South Australian Merino Sire Evaluation Trial Committee

Under the auspices of



With support from



South Australia Merino Sire Evaluation

The South Australian Merino Sire Evaluation Trial (SAMSET) was established in 2017 at Keyneton Station, in the eastern Mount Lofty Ranges, South Australia (SA). Keyneton Station importantly offered to be the host site for the first Merino Sire Evaluation Trial in SA, to be run on a commercial property, and continued to host the 2018 Drop progeny for the SA site.

The McMahon family at McPiggery, Lameroo, generously took on the role as site host for the SAMSET 2019 and 2020 Drop progeny. There was significant interest in the site from both SA and interstate ram breeders, with the quality of rams entered in to the 2019 Drop of very high calibre. This will make an important contribution to genetic improvement for the South Australian merino industry.

Supported by Merino SA, the trial is an accredited sire evaluation site run under the rigorous design, recording and data evaluation protocols of the Australian Merino Sire Evaluation Association (AMSEA). AMSEA trials provide the opportunity for objective comparisons to be made between rams from different studs by evaluating their progeny for sheep type, structure, wool production and carcass traits. The progeny are all run together in the same environmental conditions that typify SA Merino production, with all male progeny marked.

As a non-profit site, our sponsors provide a very important contribution and we would like to acknowledge their generous support of the SA Merino Sire Evaluation Site. We would also like to thank those individuals and/or businesses, including Merino SA and many industry service providers, whom have volunteered their time, service and/or product in helping the site run as smoothly as possible throughout the year.

Roger Fiebig Chairman
South Australia Site Committee

Disclaimer

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

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2019 Drop Yearling Assessment

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

The Yearling wool and visual assessments were made at 11 months of age with 11 months of wool growth.

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2019 Drop Owner and Contact Details

Breeders flock, Sire name Sire ID #, Breed †	Contact Details
Anderson Poll, 160390 609147-2016-160390, Poll Merino	Lynley Anderson Brookvale, RMB 512, Kojonup WA 6395 M: 0429 32 8055, E: info@andersonrams.com.au
Calcookara Poll, 170400 601336-2017-170400, Poll Merino	Brenton Smith 1491 Ferns Road, Cowell SA 5602 P: (08) 8628 5039, M: 0427 28 5039, E: info@calcookara.com.au
Challara Poll, 150245 (Link) 601285-2015-150245, Poll Merino	Ron & Peter Wilkinson 821 Koonah Rd, Dangaragan WA 6507 P: (08) 9652 9340, M: 0427 42 7691, E: challara2000@outlook.com
Flairdale Poll, 170070 600015-2017-170070, Poll Merino	Stephen Caswell 733 Cressy Road, Longford SA 7301 M: 0436 19 0864, E: stephen.caswell@elders.com
Greenfields Poll, 160079 600240-2016-160079, Poll Merino	Jayden Harris 310 Harris Road, Mitchell SA 5632 M: 0459 10 1834, E: brimanna@yahoo.com
Gunallo Poll, 170295 (Link) 600880-2017-170295, Poll Merino	Chad Burbidge Murray Bridge SA 5253 M: 0428 55 4003, E: cburbidge80@gmail.com
Hilton Heath Poll, 150817 (Link) 600781-2015-150817, Poll Merino	Roger Fiebig PO Box 277, Mt Pleasant SA 5235 P: (08) 8569 3031, M: 0407 56 8786, E: fiebighh@activ8.net.au
Kelvale Poll, 170004 600416-2017-170004, Poll Merino	Stephen Kellock PO Box 304, Keith SA 5267 P: (08) 8755 1761, M: 0427 43 8138, E: admin@kelvalepollmerinos.com.au
Leahcim Poll, 173114 600815-2017-173114, Poll Merino	Andrew and Rosemary Michael PO Box 31, Snowtown SA 5520 P: (08) 8865 2085, M: 0418 82 8431, E: leahcimgenetics@bigpond.com
Malleetech Poll, 177141 609533-2017-177141, Poll Merino	David Smith 976 Geranium South Road, Geranium SA 5301 P: (08) 8577 2216, M: 0427 58 7722, E: david@malleetech.com
Moorundie Poll, NE73 (Link) 601502-2015-150073, Poll Merino	Peter Wallis PO Box 32, Pinnaroo SA 5304 P: (08) 8576 6141, M: 0428 76 6126, E: peter@glenleaparkmerinos.com.au
Pepper Well Poll, 177031 601351-2017-177031, Poll Merino	Hansi Graetz PO Box 3, Keyneton SA 5353 P: (08) 8564 8337, M: 0427 79 0676, E: pepperwell1@gmail.com
Pimbena Poll, 170509 601048-2017-170509, Poll Merino	Leslie & John Hamence C/- PO, Wirrulla SA 5661 P: (08) 8626 8002, E: pimbena@bigpond.com
Ridgway Poll, 170005 601116-2017-170005, Poll Merino	Ric and Gail Ridgway Box 153, Lameroo SA 5302 P: (08) 8578 8039, M: 0459 43 2679, E: merinos@ridgwaymerinos.com.au
Roemahkita Poll, 160018 601127-2016-160018, Poll Merino	Don Baillie PO Box, Tumby Bay SA 5606 M: 0428 30 5940
Wallaloo Park Poll, 172070 601332-2017-172070, Poll Merino	Trent Carter 80 Bolangum Inn Road, Marnoo VIC 3387 P: (03) 5359 2290, M: 0427 77 6114, E: trent_carter@hotmail.com

(Link) Sire evaluated to provide links between years and sites so that the all site results can be combined into a single report, eg, *Merino Superior Sires*.

† Breed of flock in which the sire was born

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.

Host Property and Ewe Base

In their first year as host of the SA Merino Sire Evaluation Trial, the McMahon family at McPiggery, Lameroo are generously hosting the 2019 Drop, after Keyneton Station hosted the 2017 and 2018 Drops. McPiggery receives an average of 325mm rainfall in a Winter dominant pattern, although Lameroo (Austin Plains) only received 208.4mm in 2018 and 227mm in 2019. The McPiggery ewe mature weight is 70-75kg, and they produce approximately 20 micron wool. The ewes mated for the 2019 Drop trial were sourced primarily from a rising 3-4 year old age group and were classed prior to joining to ensure an even line.

2019 Drop Summary

The site evaluated 16 entered rams including 3 link sires in 2019. A fourth link was created when an entry was subsequently used at another site after the SA joining. 60 ewes were joined to each sire via AI in mid-late November 2018 over two days. At day 50, the ewes were scanned as pregnant with a resulting conception rate of 69.6% from the AI program. At this time, the ewes were separated into scanning groups – the twins separated into three mobs, and the singles into two mobs. These mobs were placed on native grass pastures. Conditions continued to be dry at Lameroo, with ewes being supplementary fed barley via trail feeding up until lambing in mid-April. Just prior to lambing, the ewes were fed vetch hay to minimize disturbance. The break to the season occurred in early June.

The first cohort of lambs born from the 16 rams occurred in April 2019. Lamb marking took place on the 16th & 17th May 2019 with visual traits fibre pigmentation, non-fibre pigmentation, recessive black, random spot, breech cover and breech wrinkle recorded. Sire pedigree was established by DNA testing. There were 666 progeny generated across the 16 rams. The average marking breech cover was visually assessed as 1.8 (from a range of 1-5, as per the Visual Sheep Scores publication), and the average marking breech wrinkle was visually assessed as 1.7 (from a range of 1-5, as per the Visual Sheep Scores publication). This indicates the lambs were reasonably plain. Following lamb marking, lambing mobs were boxed up again from which time they continued to be trail fed barley. The ewes were maintained in condition score 3.

At 14 weeks of age in late July, the lambs were weaned. At this time, weaning weights were assessed, with single lambs weighing an average of 32.4kg and twin lambs an average of 28.2kg, giving a total average weaning weight of 30.1kg live weight. Lambs ran together in one mob, and were placed on sown barley pasture, remaining on this feed until the end of the year. Lambs were crutched and jetted in September 2019. McPiggery had a good Winter with average rainfall, however it was a frosty season which limited feed production. Rainfall during Spring 2019 leading into Summer 2020 was below average, with lambs having access to self-feeders of oats during the Summer months.

On January 8, 2020 carcase scanning traits Eye Muscle Depth and Fat were obtained. The remaining major phenotyping was recorded on March 10, 2020 for the 2019 Drop progeny including:

- Mid-side fleece sampling: yield, fibre diameter, fibre diameter coefficient of variation, fibre diameter standard deviation, curvature, comfort, staple strength and staple length.
- Visual classing: fleece rot, wool colour, wool character, dust penetration, staple structure, face cover, jaw, legs/feet, dag, and Classer's Visual Grade.

Shearing was undertaken on March 12 and 13, 2020 with greasy fleece weight being collected, and post shearing visual traits shoulder/back and body wrinkle were assessed on April 1, 2020. Shortly after, the wether component of the 2019 drop was sold. The ewes are being kept through to an adult assessment in October, where further wool traits (full classing and shearing, plus mid-side sampling, excepting staple length/strength as already collected) and post shearing visual classing assessments will be conducted at 18 months of age.

Worm Egg Count has not been collected on the 2019 Drop progeny as the average worm egg count has not risen above the AMSEA testing threshold of 300 eggs per gram.

Duane Simon
McPiggery,
Lameroo, South Australia

Assessment and Management Program

Activity	Date/s	Age	Wool
Selection of ewes	August 15, 2018		
Allocation of ewes for mating	November 21-22, 2018		
Pregnancy scanning	January 11, 2019		
Allocated to lambing paddocks	January 11, 2019		
Lambing: start – finish	April 13-23, 2019		
Lambing mobs boxed to one management group	May 16-17, 2019		
Tagging, pigmentation and breech scoring	May 16, 2019	< 4 weeks	
Marking	May 16-17, 2019	< 4 weeks	
Weaning	July 25, 2019	3 months	
Fat and eye muscle scanning (P)	January 8, 2020	9 months	
Mid side fleece sampling (Y)	March 10, 2020	11 months	11 months
Visual trait scoring (Y)	March 10, 2020	11 months	11 months
Shearing (Y)	March 12-13, 2020	11 months	11 months
Worm egg count	Not collected; minimum measurement threshold not reached.		
Body Weight (W)	July 25, 2019	3 months	
Body Weight (P)	January 8, 2020	9 months	
Body Weight (Y)	April 1, 2020	12 months	
Drench	None given.		
Fly treatment	September 20, 2019		
Supplementary Feeding	Trail fed barley up until lambing, and then fed vetch hay during the time ewes were separated into scanning groups of twins/singles and through the lambing period. Lambs had access to self-feeders of oats during the Summer months of 2019/2020.		
Field day or public display	To be advised pending COVID-19 status.		

Visual Trait Assessment and Site Breeding Objective

Visual trait assessment

Classer's Grade: Bill Walker

Trait Scores: Bill Walker

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.

Breeding Objective

Rams will be capable of producing progeny with 18-21 micron fleece at 12 months with at least 4kg of wool from 8 months growth from an easy-care plain bodied sheep. In addition, progeny should be capable of achieving 22-25kg carcass weight at 10-12 months of age. Ewe progeny will be fertile and capable of high natural conception rates when first mated at 18 months.

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 Codes and Pedigrees

Sire Code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Anderson Poll, 160390	609147-2016-160390, Poll Merino	Anderson Poll, 140474
2	Calcookara Poll, 170400	601336-2017-170400, Poll Merino	Leahcim Poll, 143202
3	Challara Poll, 150245 (Link)	601285-2015-150245, Poll Merino	Karbullah, 120165
4	Flairdale Poll, 170070	600015-2017-170070, Poll Merino	Poll Boonoke, 150026
5	Greenfields Poll, 160079	600240-2016-160079, Poll Merino	Mianelup, 130P55
6	Gunallo Poll, 170295 (Link)	600880-2017-170295, Poll Merino	Gunallo Poll, 150460
7	Hilton Heath Poll, 150817 (Link)	600781-2015-150817, Poll Merino	Nyowee Poll, 00L715
8	Kelvale Poll, 170004	600416-2017-170004, Poll Merino	Baderloo Poll, 150171
9	Leahcim Poll, 173114	600815-2017-173114, Poll Merino	Leahcim Poll, 152775
10	Malleetech Poll, 177141	609533-2017-177141, Poll Merino	Turretfield DP, 111135
11	Moorundie Poll, NE73 (Link)	601502-2015-150073, Poll Merino	Moorundie Poll, 110020
12	Pepper Well Poll, 177031	601351-2017-177031, Poll Merino	Pepper Well Poll, 143220
13	Pimbena Poll, 170509	601048-2017-170509, Poll Merino	Ramsgate, 130390
14	Ridgway Poll, 170005	601116-2017-170005, Poll Merino	Ridgway Poll, 150451
15	Roemahkita Poll, 160018	601127-2016-160018, Poll Merino	Kamora Park Poll, 140333
16	Wallaloo Park Poll, 172070	601332-2017-172070, Poll Merino	Moojepin, 120652

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 is 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 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), correlations between traits and the number of progeny a sire has.

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'.

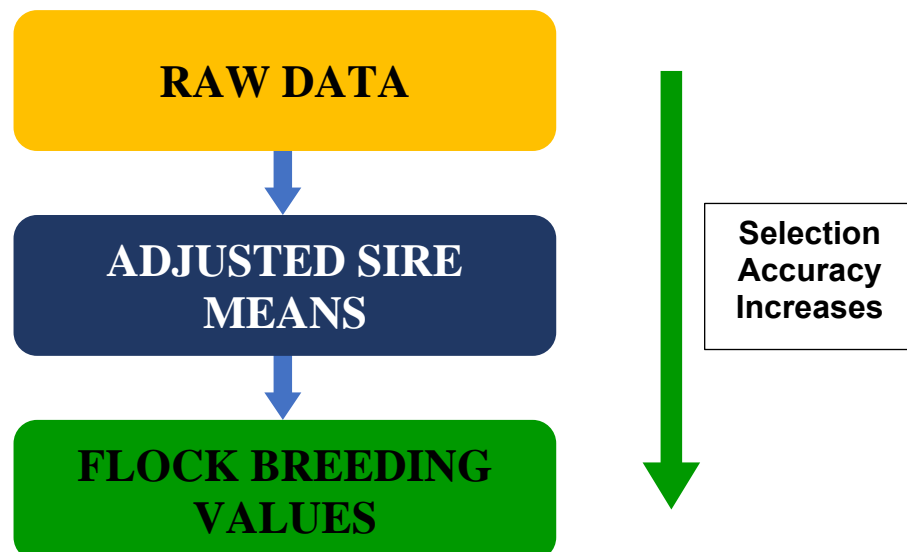


Table 1. Adjusted Sire Means for Measured Traits

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 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	Breeders flock, Sire name	Number of Progeny*	Adjusted Sire Means										
			GFW	CFW	FD	FDCV	SL	SS	WT			FAT	EMD
			kg Y^	kg Y	µm Y	% Y	mm Y	N/ktex Y	W	P	Y	mm P	mm P
1	Anderson Poll, 160390	42	5.5	3.7	18.3	16.1	115.2	25.9	30.8	50.5	54.1	3.3	30.9
2	Calcookara Poll, 170400	35	5.8	3.6	16.8	18.4	98.1	22.0	29.8	49.6	54.5	3.0	29.1
3	Challara Poll, 150245	48	5.2	3.2	17.3	17.7	113.8	25.6	29.9	47.4	51.3	3.3	30.5
4	Flairdale Poll, 170070	39	5.4	3.3	16.6	20.1	98.4	22.3	29.3	46.6	51.0	2.9	28.0
5	Greenfields Poll, 160079	46	5.3	3.3	17.0	17.7	93.6	26.7	30.2	46.5	49.3	2.9	28.4
6	Gunallo Poll, 170295	26	6.1	3.7	17.8	17.8	106.9	26.2	30.2	50.4	52.4	3.1	29.0
7	Hilton Heath Poll, 150817	51	5.8	3.8	18.1	18.7	103.3	28.8	29.7	47.4	51.8	3.1	28.9
8	Kelvale Poll, 170004	55	5.2	3.3	18.0	16.4	124.0	26.8	29.0	47.5	52.0	3.1	31.0
9	Leahcim Poll, 173114	39	5.6	3.6	17.8	16.2	112.9	28.1	31.5	50.2	54.0	3.2	30.6
10	Malleetech Poll, 177141	45	5.5	3.5	18.5	17.9	102.1	32.8	28.7	45.4	50.3	3.1	30.0
11	Moorundie Poll, NE73	29	5.8	3.7	17.1	20.0	99.8	23.6	31.0	48.4	49.9	3.0	28.2
12	Pepper Well Poll, 177031	42	5.8	3.4	17.9	17.2	109.6	29.1	29.5	48.4	50.6	3.2	29.4
13	Pimbena Poll, 170509	40	5.7	3.5	17.4	16.7	113.3	29.2	31.6	53.7	58.2	3.1	28.5
14	Ridgway Poll, 170005	50	5.7	3.5	17.6	17.1	100.9	27.6	30.4	50.5	55.9	3.2	30.1
15	Roemahkita Poll, 160018	37	5.7	3.3	17.1	17.1	97.6	25.5	30.5	48.7	53.6	3.0	29.5
16	Wallaloo Park Poll, 172070	42	5.7	3.6	18.0	17.9	106.6	27.0	29.7	49.6	54.4	3.2	29.7
	Progeny group average	42	5.6	3.5	17.6	17.7	106.0	26.7	30.1	48.8	52.7	3.1	29.5
			kg	kg	µm	%	mm	N/ktex		kg		mm	mm

*Number of progeny is at weaning.

^ 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).

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 the MERINOSELECT Indexes page 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 % Y [^]	Culls % Y
1	Anderson Poll, 160390	42	113	92	89	99	7	-19
2	Calcookara Poll, 170400	35	105	115	110	115	8	-4
3	Challara Poll, 150245	48	99	79	90	77	2	-3
4	Flairdale Poll, 170070	39	75	90	94	88	-15	10
5	Greenfields Poll, 160079	46	70	90	100	83	-23	17
6	Gunallo Poll, 170295	26	96	110	104	114	14	-1
7	Hilton Heath Poll, 150817	51	90	105	99	110	-18	11
8	Kelvale Poll, 170004	55	106	76	83	79	4	-10
9	Leahcim Poll, 173114	39	116	103	103	102	4	-12
10	Malleetech Poll, 177141	45	94	89	92	89	-6	8
11	Moorundie Poll, NE73	29	79	106	102	108	-23	27
12	Pepper Well Poll, 177031	42	86	93	97	92	7	-20
13	Pimbena Poll, 170509	40	124	126	119	120	30	-20
14	Ridgway Poll, 170005	50	129	117	111	115	12	-10
15	Roemahkita Poll, 160018	37	108	104	105	99	-8	29
16	Wallaloo Park Poll, 172070	42	111	106	100	110	5	-1
	Average performance	42	100	100	100	100	27	22

*Number of progeny is at weaning.

[^] 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%.

Sire codes listed in the Tables are used to locate sire performance in the following figures.

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

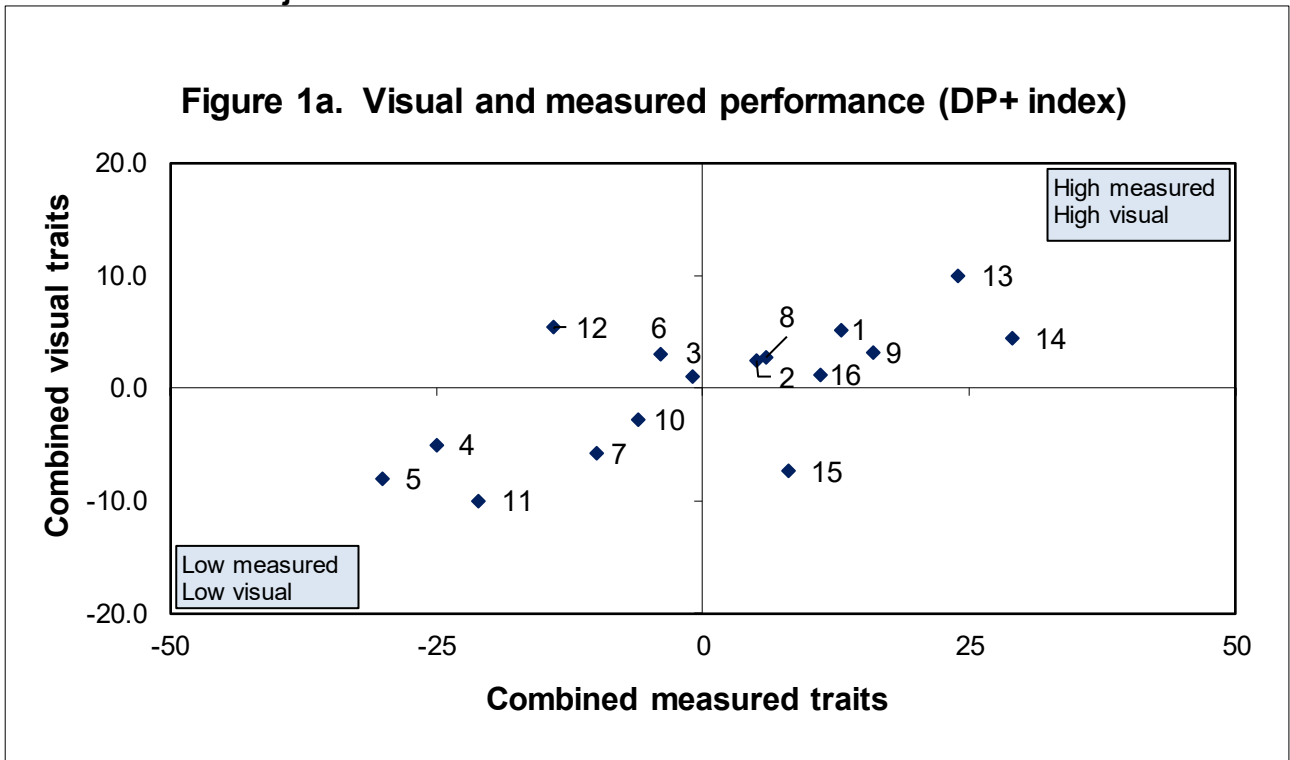
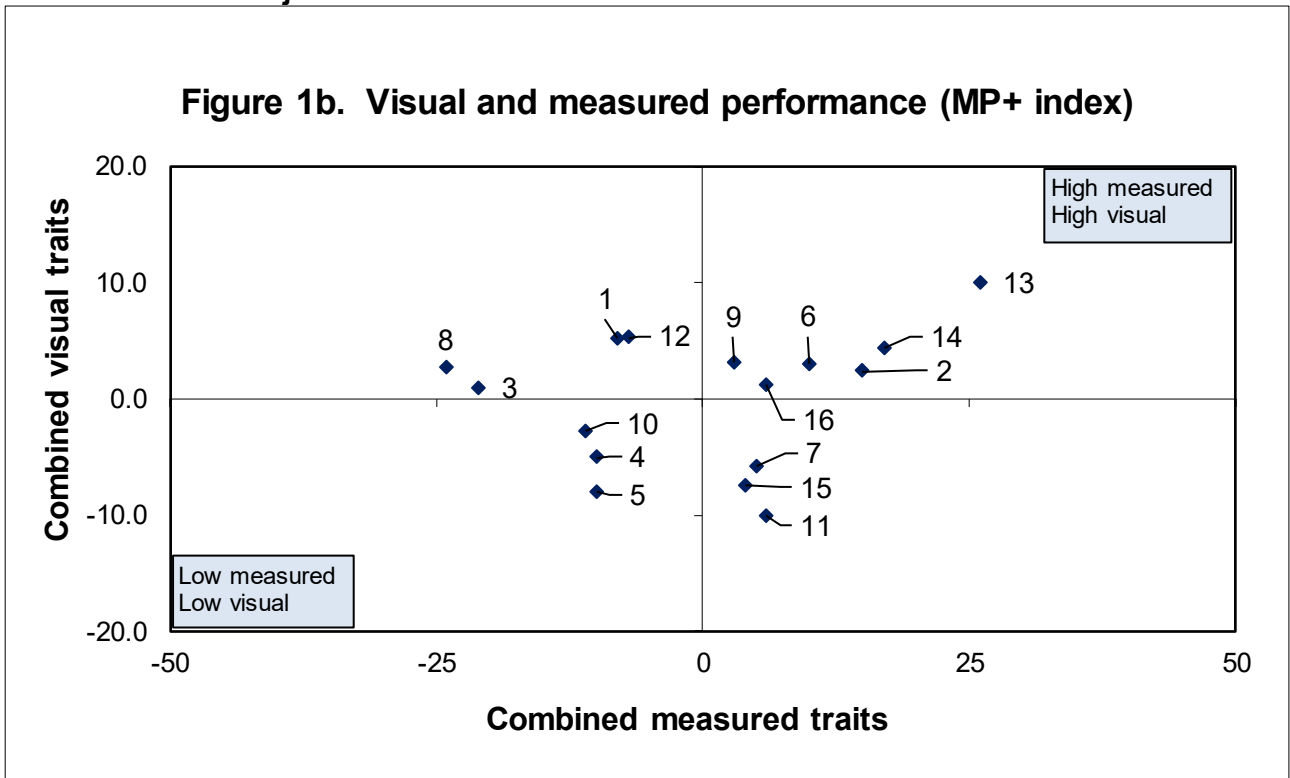


Figure 1b. Combined measured traits (MP+ index) and combined visually assessed traits for the site objective.



Combined Measured Traits and Visual Performance

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

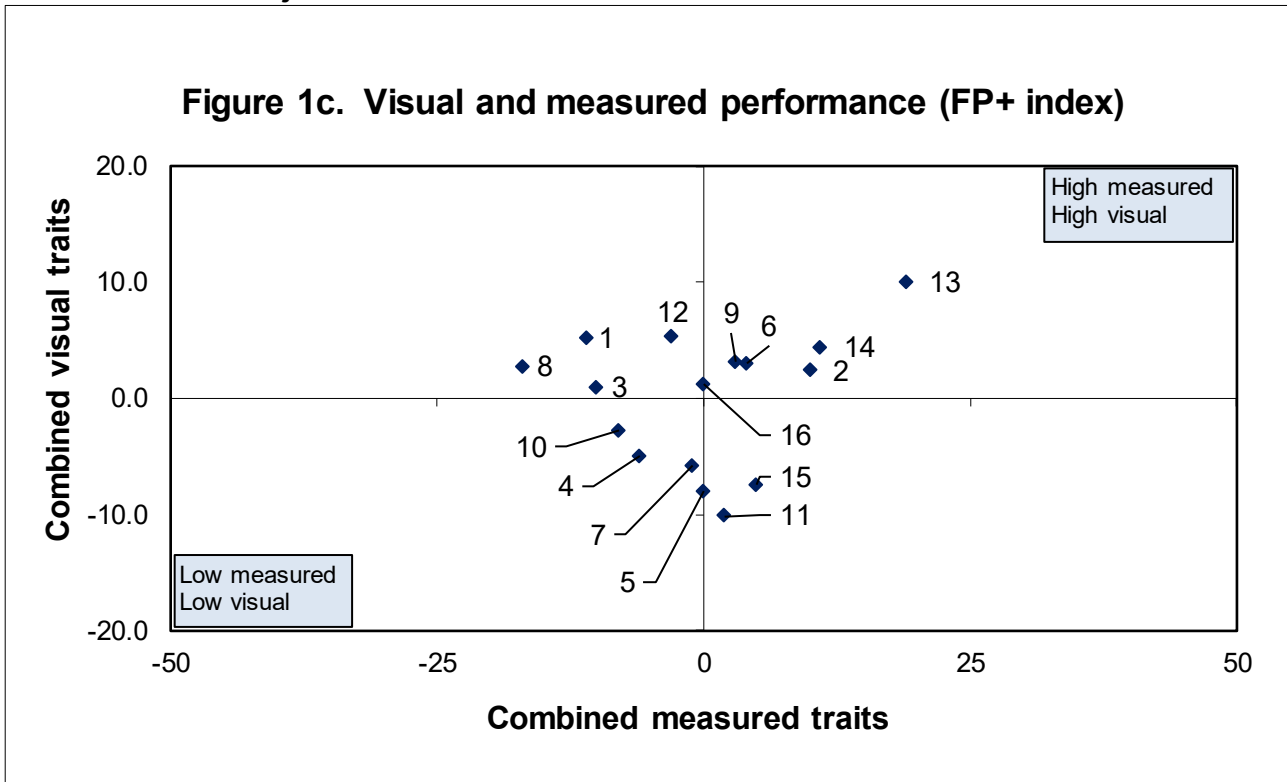
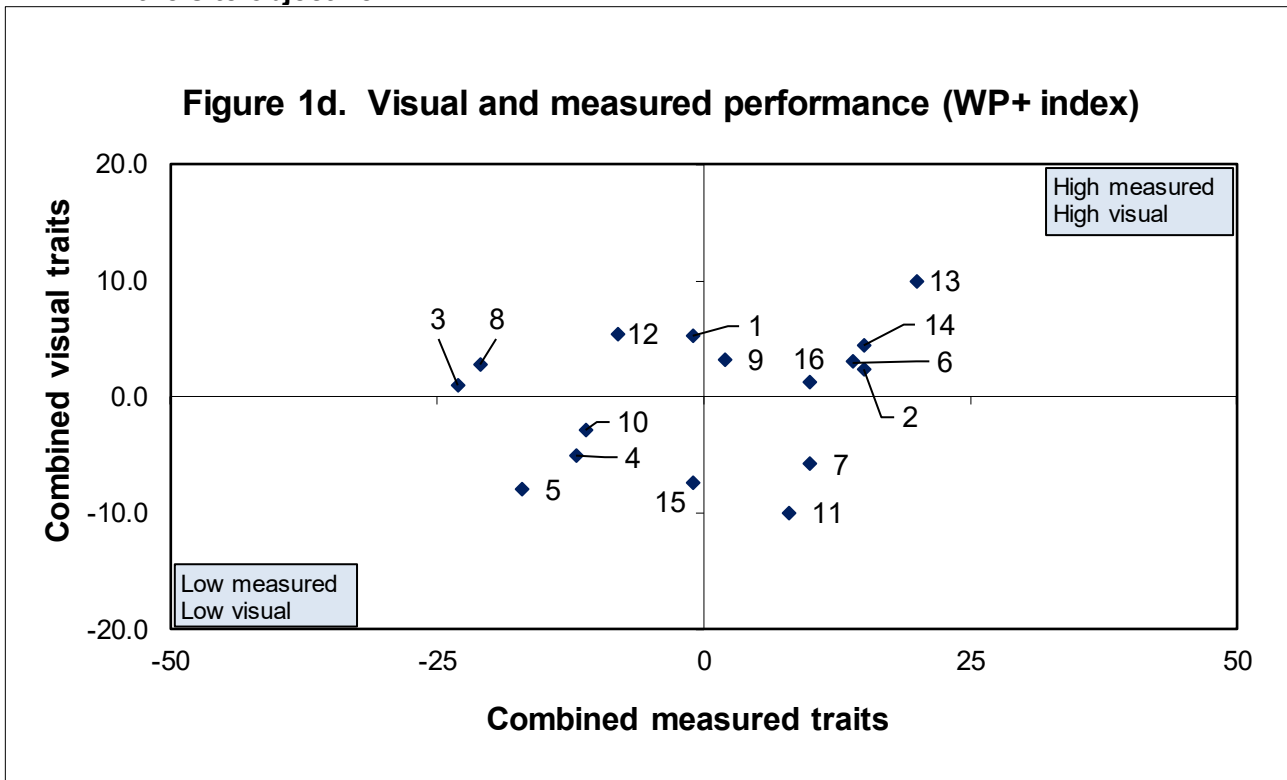


Figure 1d. Combined measured traits (WP+ index) and combined visually assessed traits for the site objective.



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.

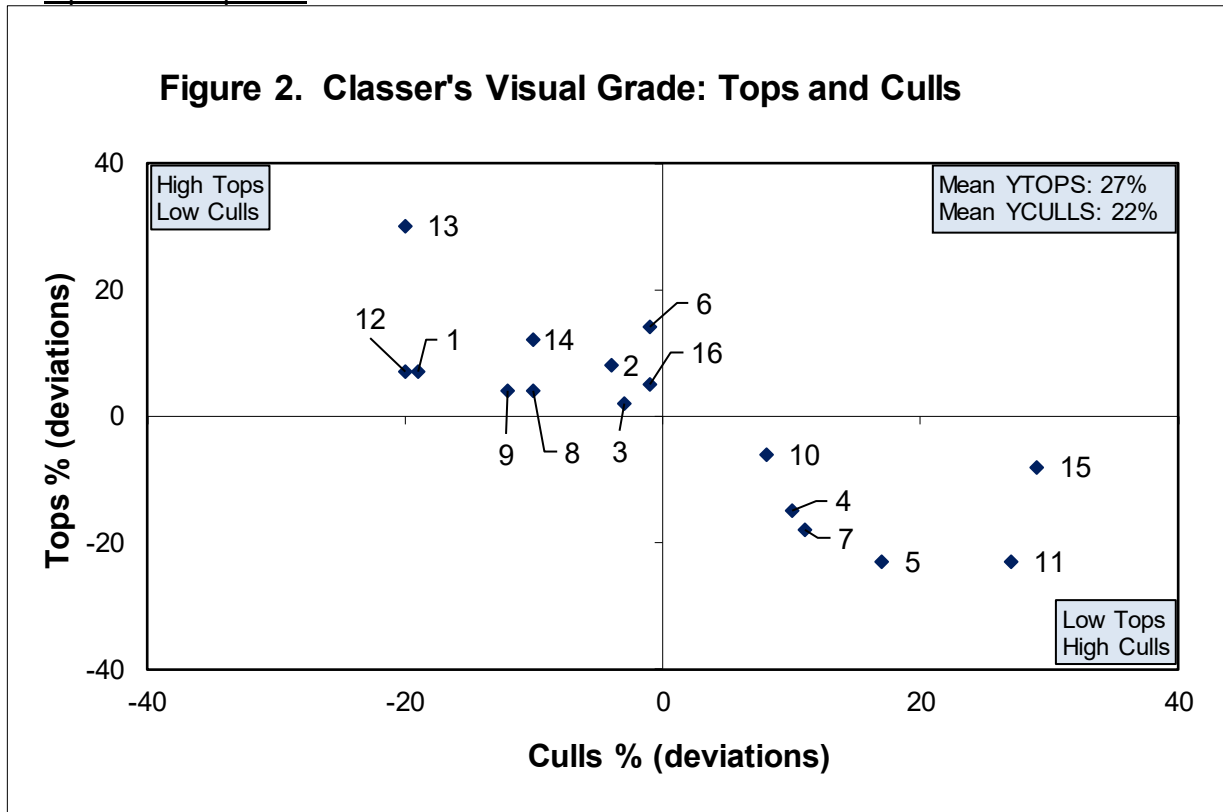
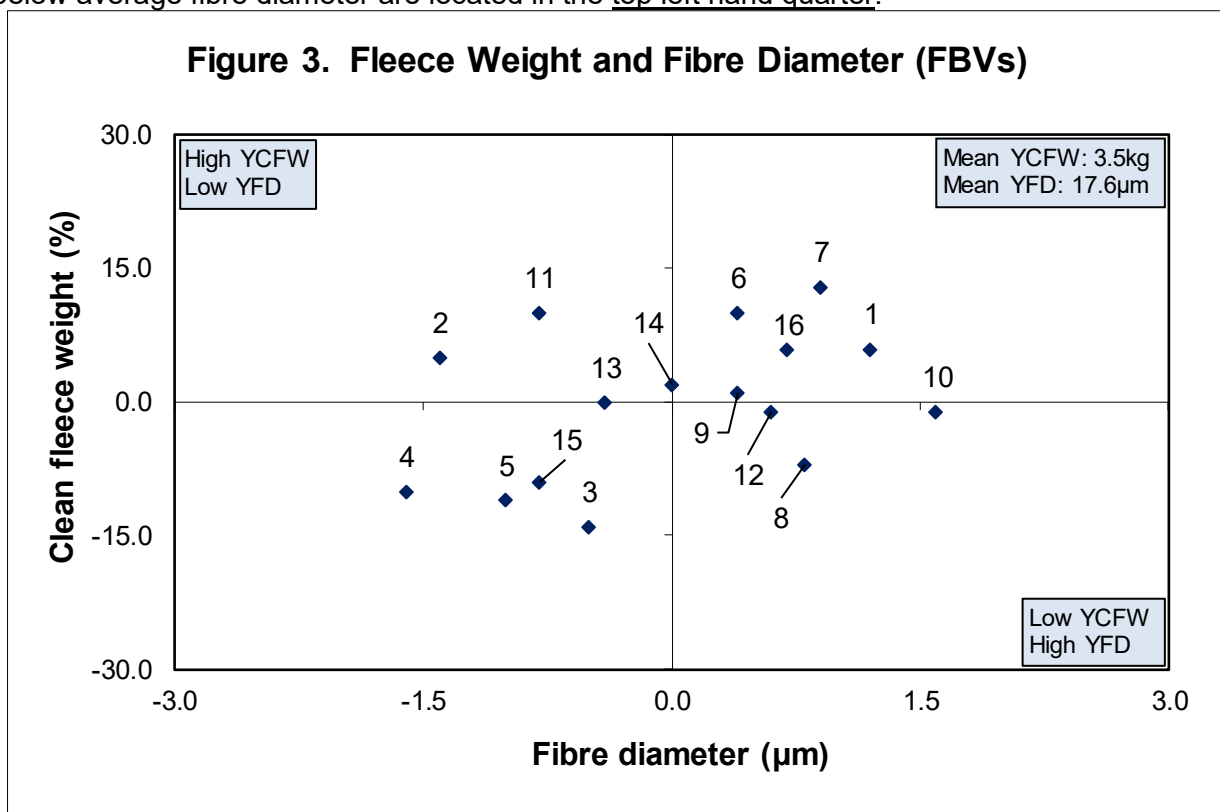


Figure 3. Fleece Weight and Fibre Diameter (FBVs)

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 clean 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 clean fleece weight and above average for staple length are located in the top right hand quarter.

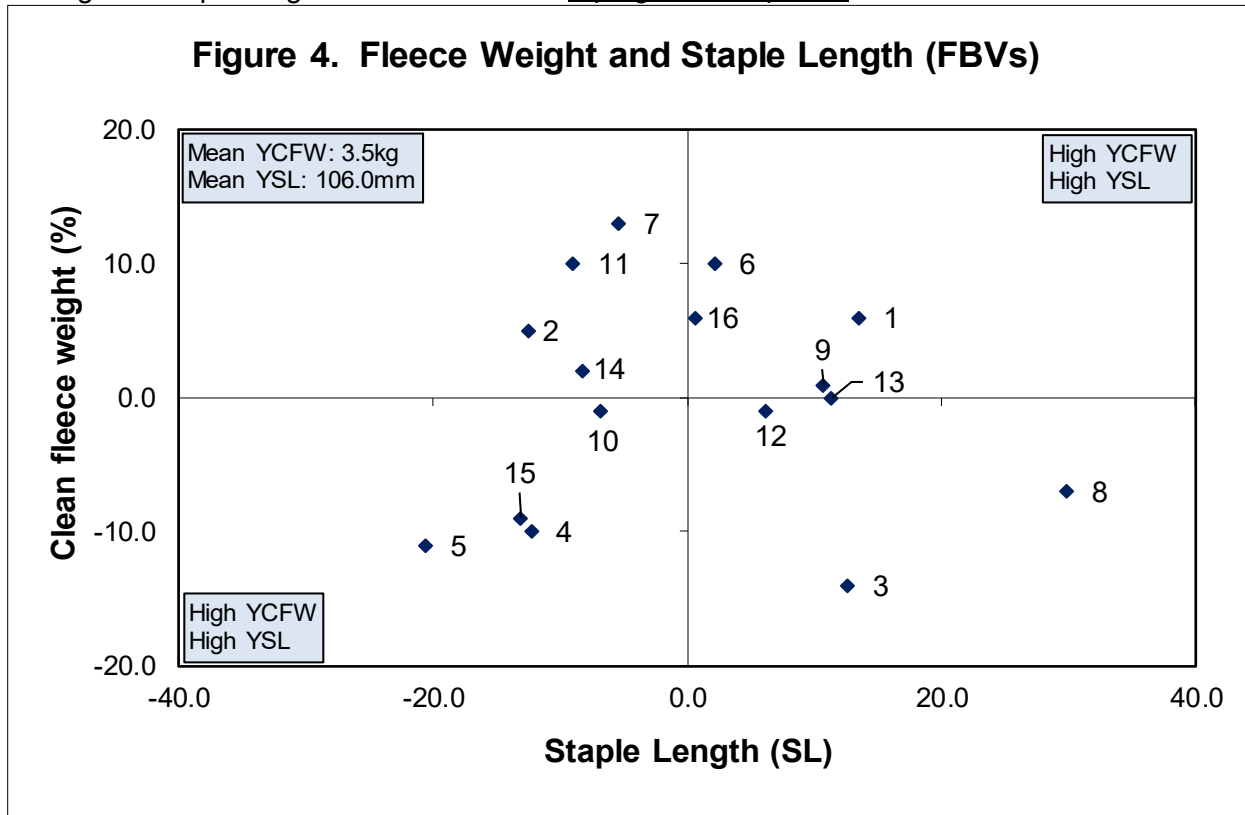
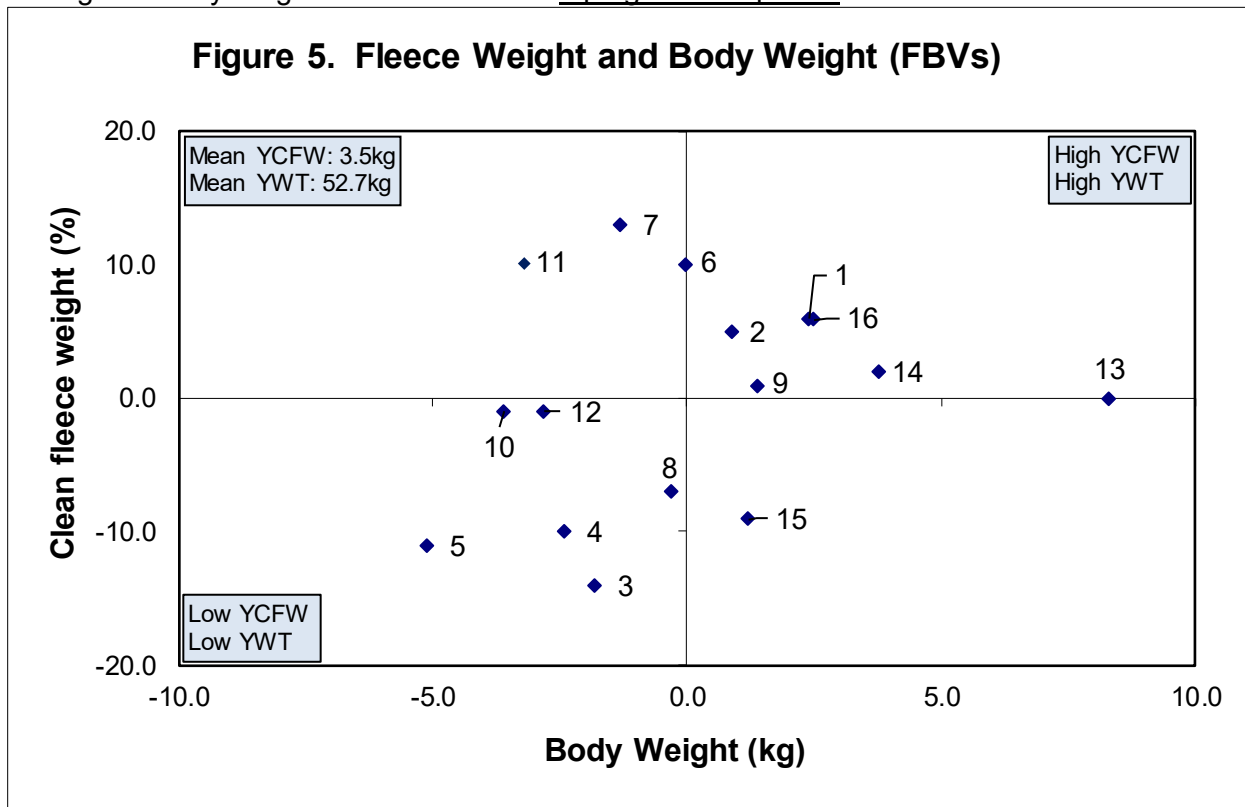


Figure 5. Fleece Weight and Body Weight (FBVs)

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 clean 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 clean fleece weight and above average for fat are located in the top right hand quarter.

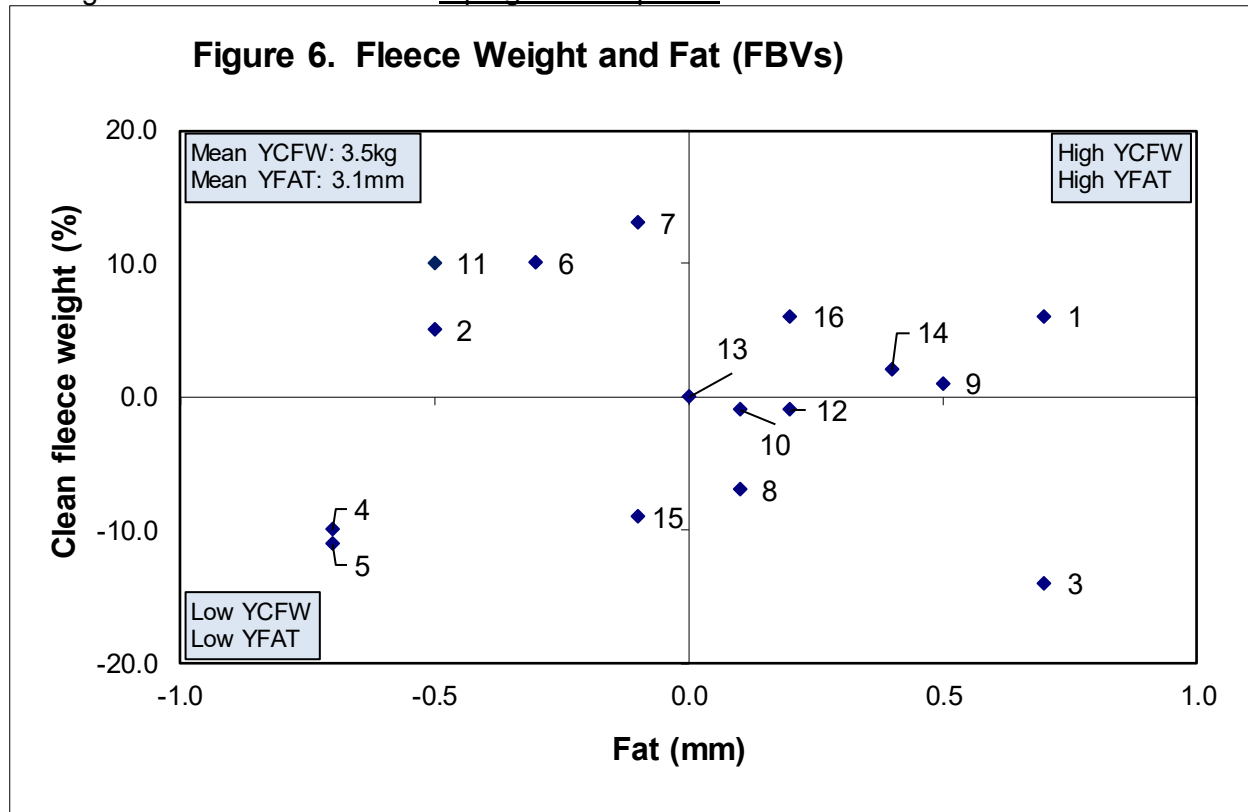
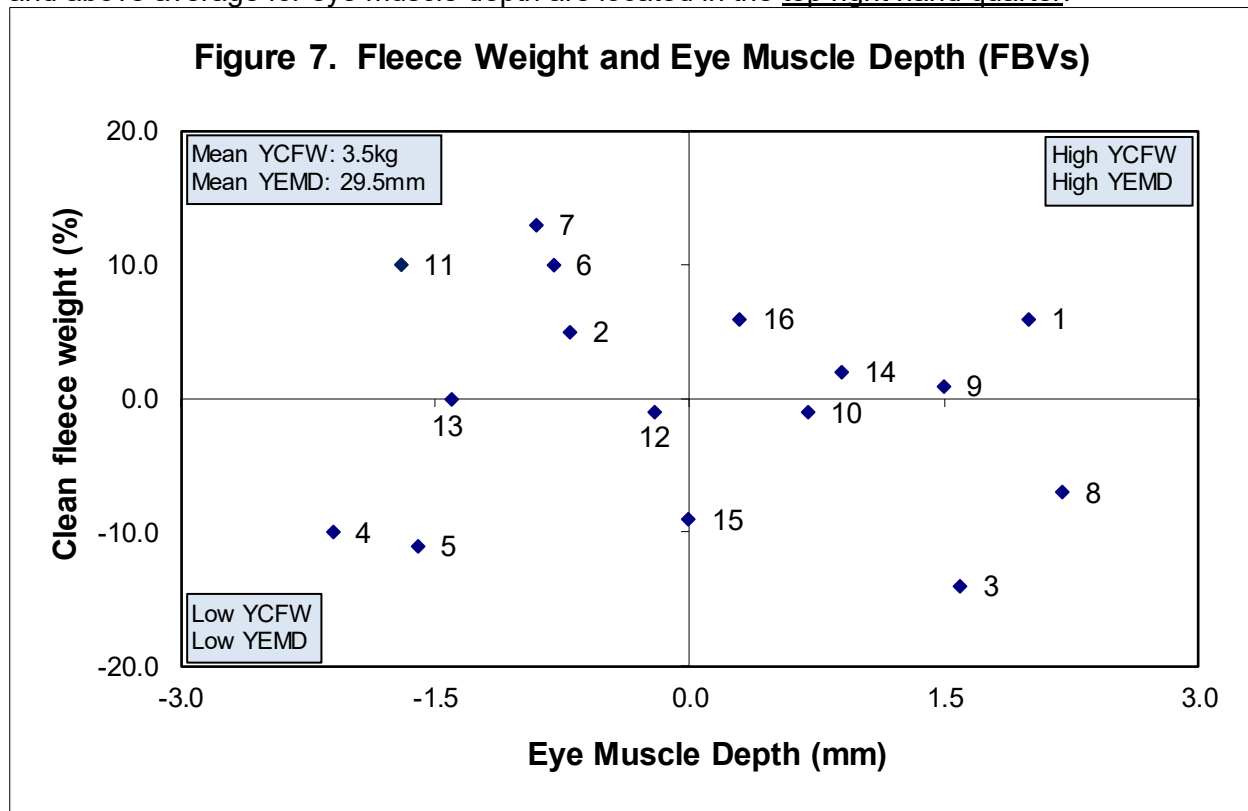


Figure 7. Fleece Weight and Eye Muscle Depth (FBVs)

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 clean 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 Breach Wrinkle (Dev)

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

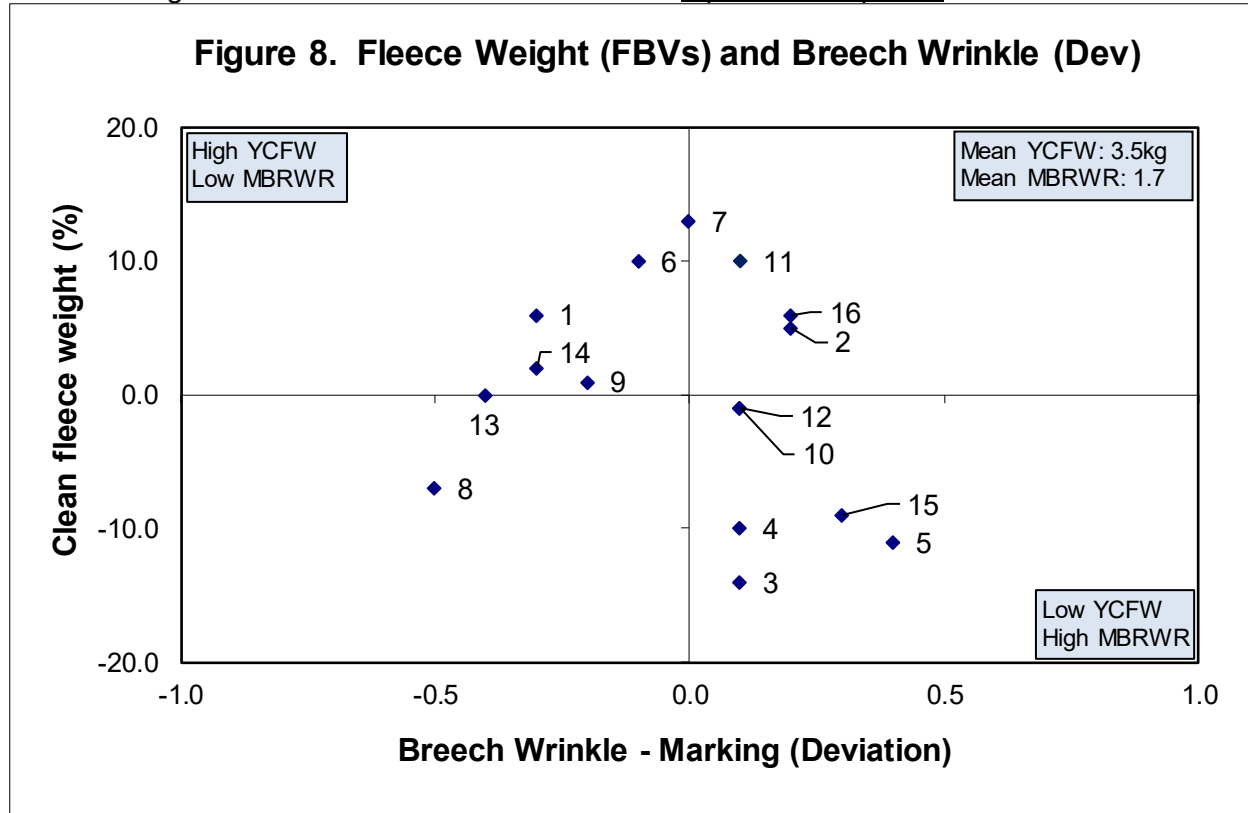
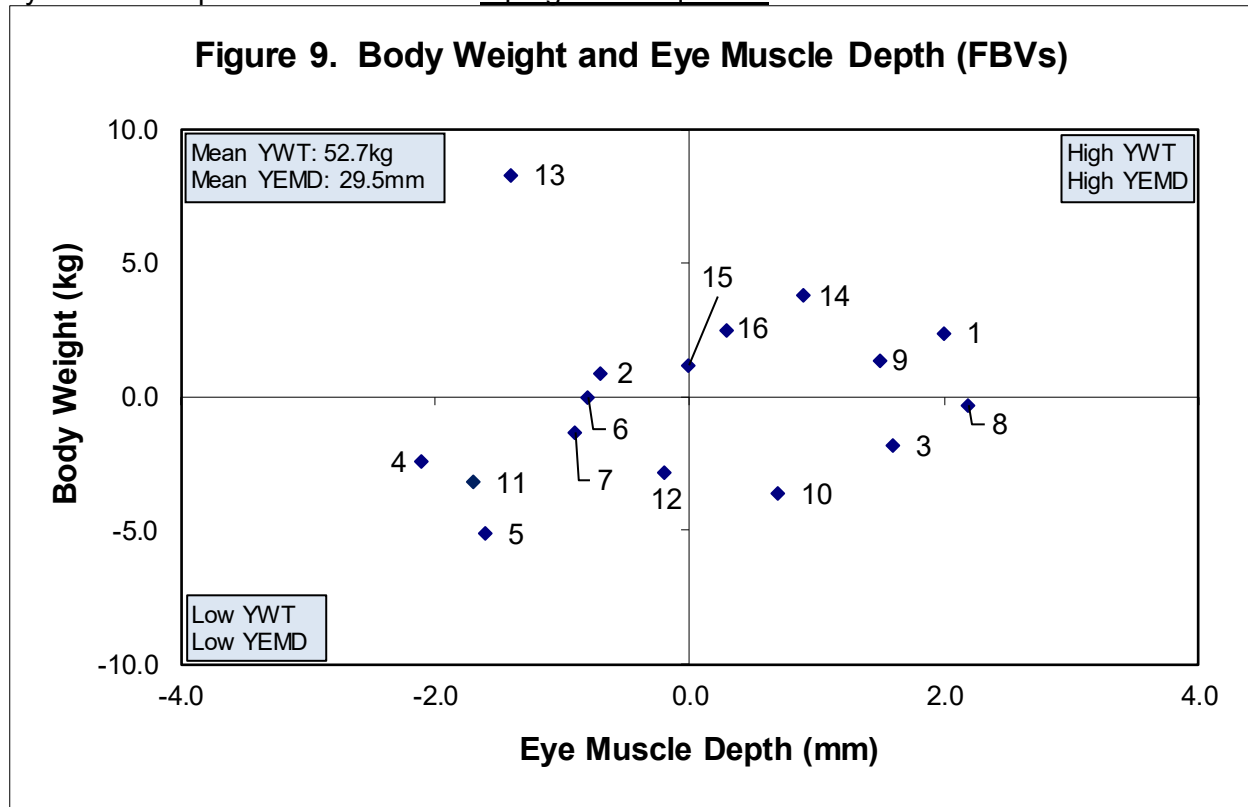


Figure 9. Body Weight and Eye Muscle Depth (FBVs)

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.

Worm Egg Count (WEC) not collected as minimum measurement threshold not reached.

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 weaning. 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 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 – 6 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 8 provides more detail on Classer’s Visual Grade and the site’s Breeding Objective.</p>

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

Sire Code	Breeder's flock, Sire name	Number of Progeny*	Flock Breeding Values (deviations)							Classer's Visual Grade ¹	
			GFW % Y ^A	CFW % Y	FD μm Y	FDCV % Y	SL mm Y	SS N/ktex Y	CURV deg/mm Y	Tops % Y	Culls % Y
1	Anderson Poll, 160390	42	-3	6	1.2	-2.5	13.5	-0.8	2.8	7	-19
2	Calcookara Poll, 170400	35	3	5	-1.4	1.4	-12.4	-7.3	-1.0	8	-4
3	Challara Poll, 150245	48	-12	-14	-0.5	0.0	12.7	-2.0	-5.4	2	-3
4	Flairdale Poll, 170070	39	-5	-10	-1.6	3.6	-12.2	-7.1	6.1	-15	10
5	Greenfields Poll, 160079	46	-10	-11	-1.0	0.1	-20.5	0.2	5.3	-23	17
6	Gunallo Poll, 170295	26	15	10	0.4	0.4	2.2	-0.5	-6.9	14	-1
7	Hilton Heath Poll, 150817	51	6	13	0.9	1.7	-5.3	2.8	6.2	-18	11
8	Kelvale Poll, 170004	55	-11	-7	0.8	-2.3	29.9	0.1	-6.6	4	-10
9	Leahcim Poll, 173114	39	1	1	0.4	-2.3	10.7	2.4	-5.9	4	-12
10	Malleetech Poll, 177141	45	-4	-1	1.6	0.3	-6.8	9.4	4.6	-6	8
11	Moorundie Poll, NE73	29	6	10	-0.8	3.4	-8.9	-4.9	-4.6	-23	27
12	Pepper Well Poll, 177031	42	6	-1	0.6	-0.8	6.2	4.2	-0.3	7	-20
13	Pimbena Poll, 170509	40	2	0	-0.4	-1.8	11.4	3.5	4.0	30	-20
14	Ridgway Poll, 170005	50	2	2	0.0	-0.9	-8.2	1.4	-3.8	12	-10
15	Roemahkita Poll, 160018	37	0	-9	-0.8	-0.7	-13.1	-1.3	6.3	-8	29
16	Wallaloo Park Poll, 172070	42	4	6	0.7	0.4	0.7	0.0	-0.9	5	-1

*Number of progeny is at weaning.

^A 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%.

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

Sire Code	Breeder's flock, Sire name	Number of Progeny*	Flock Breeding Values (deviations)					Classer's Visual Grade ¹		
			W [^]	WT kg P	Y	FAT mm P	EMD mm P	WEC %	Tops % Y	Culls % Y
1	Anderson Poll, 160390	42	1.0	2.1	2.4	0.7	2.0	WEC not measured as minimum measurement threshold not reached.	7	-19
2	Calcookara Poll, 170400	35	-0.3	0.9	0.9	-0.5	-0.7		8	-4
3	Challara Poll, 150245	48	-0.5	-1.5	-1.8	0.7	1.6		2	-3
4	Flairdale Poll, 170070	39	-1.2	-2.6	-2.4	-0.7	-2.1		-15	10
5	Greenfields Poll, 160079	46	-0.2	-2.4	-5.1	-0.7	-1.6		-23	17
6	Gunallo Poll, 170295	26	0.4	1.5	0.0	-0.3	-0.8		14	-1
7	Hilton Heath Poll, 150817	51	-0.7	-1.5	-1.3	-0.1	-0.9		-18	11
8	Kelvale Poll, 170004	55	-1.5	-1.2	-0.3	0.1	2.2		4	-10
9	Leahcim Poll, 173114	39	1.7	1.7	1.4	0.5	1.5		4	-12
10	Malleetech Poll, 177141	45	-2.0	-4.1	-3.6	0.1	0.7		-6	8
11	Moorundie Poll, NE73	29	0.7	-1.2	-3.2	-0.5	-1.7		-23	27
12	Pepper Well Poll, 177031	42	-0.6	-1.0	-2.8	0.2	-0.2		7	-20
13	Pimbena Poll, 170509	40	2.5	5.9	8.3	0.0	-1.4		30	-20
14	Ridgway Poll, 170005	50	0.4	1.6	3.8	0.4	0.9		12	-10
15	Roemahkita Poll, 160018	37	0.3	0.3	1.2	-0.1	0.0		-8	29
16	Wallaloo Park Poll, 172070	42	-0.1	1.6	2.5	0.2	0.3		5	-1

*Number of progeny is at weaning.

[^] 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%.

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 - Yearling																							
		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, 160390	0.0	92	8	0	0	0	0.0	17	69	14	0	0	0.2	17	28	42	13	0	-0.1	0	11	78	11	0
2	Calcookara Poll, 170400	0.0	91	9	0	0	0	-0.3	41	59	0	0	0	-0.5	34	50	12	4	0	-0.2	0	22	62	16	0
3	Challara Poll, 150245	0.0	91	9	0	0	0	-0.2	29	64	7	0	0	0.2	18	38	24	16	4	0.1	0	5	73	22	0
4	Flairdale Poll, 170070	0.2	74	26	0	0	0	0.1	14	63	23	0	0	0.4	0	43	43	14	0	-0.2	0	17	71	12	0
5	Greenfields Poll, 160079	0.1	80	20	0	0	0	0.3	10	59	29	2	0	0.0	10	54	32	4	0	-0.2	0	29	54	15	2
6	Gunallo Poll, 170295	0.0	92	8	0	0	0	0.0	21	67	12	0	0	-0.5	50	21	25	0	4	0.3	0	12	42	42	4
7	Hilton Heath Poll, 150817	0.0	94	6	0	0	0	0.1	15	67	17	1	0	0.8	0	23	48	23	6	0.1	0	8	67	25	0
8	Kelvale Poll, 170004	0.0	92	8	0	0	0	0.1	12	72	16	0	0	0.2	12	34	42	10	2	0.5	0	2	44	48	6
9	Leahcim Poll, 173114	-0.1	97	3	0	0	0	0.1	17	63	17	3	0	-0.2	17	57	20	6	0	0.2	0	6	60	34	0
10	Malleetech Poll, 177141	0.0	91	9	0	0	0	0.0	18	70	12	0	0	0.2	11	36	39	11	3	-0.2	0	18	73	9	0
11	Moorundie Poll, NE73	-0.1	96	4	0	0	0	0.2	20	52	24	4	0	0.5	8	28	40	16	8	0.3	0	4	60	28	8
12	Pepper Well Poll, 177031	0.0	92	8	0	0	0	0.0	20	70	10	0	0	-0.3	16	62	22	0	0	0.0	0	13	65	22	0
13	Pimbena Poll, 170509	-0.1	100	0	0	0	0	-0.4	46	51	3	0	0	-0.3	31	41	23	5	0	-0.1	0	13	72	13	2
14	Ridgway Poll, 170005	0.0	93	7	0	0	0	-0.3	36	59	5	0	0	-0.8	45	52	0	3	0	-0.3	0	32	61	5	2
15	Roemahkita Poll, 160018	0.1	84	16	0	0	0	0.2	16	57	27	0	0	0.1	5	57	32	3	3	-0.1	0	21	57	22	0
16	Wallaloo Park Poll, 172070	0.1	80	20	0	0	0	0.1	10	78	12	0	0	0.0	17	39	34	7	3	0.1	0	8	68	24	0
	Average performance	1.1	90	10	0	0	0	1.9	21	64	14	1	0	2.3	18	41	30	8	3	3.1	0	14	63	22	1

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 a score 5 is recorded, are reported for Recessive black and Random spot.

Sire Code	Breeder's flock, Sire name	Wool Quality - Yearling										
		Staple Weathering					Staple Structure					
		Dev	1	2	3	4	5	Dev	1	2	3	4
1	Anderson Poll, 160390						0.1	0	5	78	17	0
2	Calcookara Poll, 170400						0.2	4	6	56	34	0
3	Challara Poll, 150245						-0.4	9	22	64	5	0
4	Flairdale Poll, 170070						-0.1	9	26	34	26	5
5	Greenfields Poll, 160079						-0.1	10	29	22	37	2
6	Gunallo Poll, 170295						0.2	5	8	54	33	0
7	Hilton Heath Poll, 150817						0.1	4	12	52	29	3
8	Kelvale Poll, 170004	Staple Weathering not scored					-0.2	4	14	82	0	0
9	Leahcim Poll, 173114		-0.2	0	23	74	3	0				
10	Malleetech Poll, 177141		0.0	2	25	48	23	2				
11	Moorundie Poll, NE73		0.1	8	20	40	20	12				
12	Pepper Well Poll, 177031		0.0	0	12	70	18	0				
13	Pimbena Poll, 170509		0.0	0	11	74	15	0				
14	Ridgway Poll, 170005		0.2	3	14	45	36	2				
15	Roemahkita Poll, 160018		0.1	6	24	30	35	5				
16	Wallaloo Park Poll, 172070		-0.1	9	10	59	22	0				
	Average performance						3.0	4	16	55	22	3

Pigmentation - Marking													
Fibre pigmentation					Non-fibre pigmentation					Black	Spot		
Dev	1	2	3	4	5	Dev	1	2	3	4	5	5	5
0.0	100	0	0	0	0	0.2	60	28	12	0	0	0	0
0.0	100	0	0	0	0	0.0	77	13	10	0	0	0	0
0.1	96	0	4	0	0	0.0	81	6	13	0	0	0	0
0.0	100	0	0	0	0	0.0	76	17	7	0	0	0	0
0.0	100	0	0	0	0	0.0	83	10	7	0	0	0	2
0.0	100	0	0	0	0	-0.2	93	3	4	0	0	0	0
0.0	98	2	0	0	0	-0.1	85	13	2	0	0	0	2
0.0	100	0	0	0	0	-0.1	91	4	5	0	0	0	0
0.0	100	0	0	0	0	0.1	78	10	12	0	0	0	0
0.0	100	0	0	0	0	0.1	76	6	18	0	0	0	0
0.0	100	0	0	0	0	0.3	59	28	13	0	0	0	0
0.0	100	0	0	0	0	-0.1	91	0	9	0	0	0	0
0.0	100	0	0	0	0	0.1	74	14	12	0	0	0	0
0.0	100	0	0	0	0	-0.2	91	7	2	0	0	0	0
0.0	100	0	0	0	0	-0.1	90	5	5	0	0	0	0
0.1	98	0	0	0	2	0.1	77	12	11	0	0	0	2
1.0	100	0	0	0	0	1.3	80	11	9	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. Jaw and Face cover are 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 - Yearling																													
		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, 160390	0.0	100	0	0	0	0	-0.2	100	0	0	0	0	-0.1	100	0	0	0	0	-0.5	33	42	25	0	0	0.0	88	9	3	0	0
2	Calcookara Poll, 170400	0.0	100	0	0	0	0	-0.1	97	0	3	0	0	0.0	93	7	0	0	0	0.2	9	31	47	9	4	0.0	83	13	4	0	0
3	Challara Poll, 150245	0.0	96	4	0	0	0	0.1	87	0	11	0	2	-0.1	98	2	0	0	0	-0.7	47	33	20	0	0	-0.2	100	0	0	0	0
4	Flairdale Poll, 170070	0.0	100	0	0	0	0	0.2	80	0	20	0	0	0.1	89	9	2	0	0	0.2	8	29	49	14	0	0.0	83	11	6	0	0
5	Greenfields Poll, 160079	0.0	100	0	0	0	0	-0.1	93	0	7	0	0	0.1	85	15	0	0	0	-0.2	27	39	22	10	2	0.3	63	29	5	3	0
6	Gunallo Poll, 170295	0.0	100	0	0	0	0	0.0	96	0	0	0	4	0.0	92	8	0	0	0	0.2	12	29	42	17	0	-0.1	88	12	0	0	0
7	Hilton Heath Poll, 150817	0.1	94	4	0	0	2	0.1	90	0	6	0	4	0.0	98	0	2	0	0	0.7	7	10	50	33	0	0.3	58	31	11	0	0
8	Kelvale Poll, 170004	0.0	98	0	2	0	0	0.0	92	0	6	0	2	0.1	84	16	0	0	0	0.0	18	34	38	10	0	-0.2	98	2	0	0	0
9	Leahcim Poll, 173114	0.0	100	0	0	0	0	-0.2	100	0	0	0	0	0.0	97	3	0	0	0	0.6	6	17	43	34	0	-0.2	97	3	0	0	0
10	Malleetech Poll, 177141	0.0	100	0	0	0	0	0.1	89	0	7	0	4	0.0	91	9	0	0	0	-0.3	18	50	27	5	0	0.0	77	23	0	0	0
11	Moorundie Poll, NE73	0.0	100	0	0	0	0	0.1	92	0	0	0	8	0.0	88	12	0	0	0	0.5	4	28	36	32	0	0.2	64	36	0	0	0
12	Pepper Well Poll, 177031	0.0	100	0	0	0	0	-0.1	92	0	8	0	0	0.0	95	5	0	0	0	-0.4	35	32	30	3	0	0.1	80	18	0	2	0
13	Pimbena Poll, 170509	0.0	100	0	0	0	0	-0.1	95	0	5	0	0	0.1	85	15	0	0	0	-0.2	18	44	36	2	0	-0.2	97	3	0	0	0
14	Ridgway Poll, 170005	0.0	98	0	2	0	0	0.1	91	0	4	0	5	0.0	95	5	0	0	0	-0.3	27	34	39	0	0	0.0	84	14	2	0	0
15	Roemahkita Poll, 160018	0.0	100	0	0	0	0	0.2	86	0	8	0	6	-0.1	100	0	0	0	0	0.4	11	16	54	19	0	0.0	84	16	0	0	0
16	Wallaloo Park Poll, 172070	0.0	100	0	0	0	0	-0.1	98	0	0	0	2	-0.1	100	0	0	0	0	0.0	17	34	39	10	0	0.0	85	15	0	0	0
	Average performance	1.0	99	1	0	0	0	1.2	92	0	5	0	3	1.1	93	7	0	0	0	2.4	19	31	37	13	0	1.2	83	15	2	0	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	Breeder's flock, Sire name	Breech Visual Traits																	
		Breech Cover Marking					Breech Wrinkle Marking					Dag Yearling							
		Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	Anderson Poll, 160390	-0.4	67	21	12	0	0	-0.3	63	35	2	0	0	-0.1	92	6	2	0	0
2	Calcookara Poll, 170400	0.2	26	46	23	5	0	0.2	31	56	10	3	0	-0.1	94	3	3	0	0
3	Challara Poll, 150245	0.0	31	56	13	0	0	0.1	35	56	9	0	0	0.0	82	13	5	0	0
4	Flairdale Poll, 170070	0.0	40	38	19	3	0	0.1	43	36	21	0	0	0.3	63	23	14	0	0
5	Greenfields Poll, 160079	0.3	25	44	19	12	0	0.4	25	46	23	4	2	0.0	85	12	3	0	0
6	Gunallo Poll, 170295	0.0	37	41	22	0	0	-0.1	48	52	0	0	0	0.0	88	8	4	0	0
7	Hilton Heath Poll, 150817	0.3	25	46	23	6	0	0.0	42	48	8	0	2	-0.1	92	6	2	0	0
8	Kelvale Poll, 170004	-0.3	62	27	6	5	0	-0.5	80	20	0	0	0	0.0	86	6	8	0	0
9	Leahcim Poll, 173114	0.0	40	38	22	0	0	-0.2	62	28	10	0	0	-0.1	94	3	3	0	0
10	Malleetech Poll, 177141	0.2	29	47	18	6	0	0.1	37	47	14	2	0	0.0	84	14	2	0	0
11	Moorundie Poll, NE73	0.0	41	38	21	0	0	0.1	45	38	14	3	0	-0.1	92	4	4	0	0
12	Pepper Well Poll, 177031	0.1	30	44	23	3	0	0.1	37	49	9	5	0	-0.1	98	0	0	2	0
13	Pimbena Poll, 170509	-0.2	60	21	19	0	0	-0.4	69	31	0	0	0	0.0	85	13	2	0	0
14	Ridgway Poll, 170005	-0.2	52	37	9	2	0	-0.3	67	31	2	0	0	0.1	80	16	4	0	0
15	Roemahkita Poll, 160018	0.1	38	38	19	5	0	0.3	31	43	24	2	0	0.1	76	16	8	0	0
16	Wallaloo Park Poll, 172070	0.0	36	41	20	3	0	0.2	34	48	16	2	0	-0.1	93	5	2	0	0
	Average performance	1.8	40	39	18	3	0	1.7	47	41	10	2	0	1.2	86	9	5	0	0

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:
(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 = 119.7.0 – 100 = 19.7
Combined Visual = ((25.5 – 17.6)/5) – ((25.1 – 16.4)/5)
= 7.9/5 – 8.7/5
= 1.58 – 1.74 = -0.1