MerinoLink Limited Standard Sire Evaluation

Within Flock Analysis
Site Report

2019 Drop
Post Weaning Assessments
Location – Brooklyn, Frogmore

Conducted by

Merino LINK
Engagement - Education
Exploration - Exchange

under the auspices of

The Australian Merino Sire Evaluation Association

AUSTRALIAN MERINO SIRE EVALUATION ASSOCIATION
MERINO
Superior Sires

1st July 2020

MerinoLink Sire Evaluation Sponsors and Supporters – 2019 drop (Boorowa)

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Robert & Bridget Chudleigh, Brooklyn Frogmore
Sally Martin, SMC Pty Ltd, Young
Rachael Gawne, SMC Pty Ltd, Young
Sam Moorfield, SMC Pty Ltd, Young

Disclaimer

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

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2019 Drop – Post Weaning Assessment
MerinoLink Limited Boorowa Sire Evaluation

The information in this site evaluation report provides a comprehensive assessment of the 2019 drop at the Post Weaning Assessment of the sire's progeny performance, both measured and visually assessed traits. **The information reported is based on a within flock analysis of the sire progeny being evaluated.**

The Post Weaning Assessment was carried out at 8.5 months of age with 8.5 months of wool growth.

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Foreword

MerinoLink Limited – Merino Sire Evaluation (MSE) Site

Following the success of the South West Slopes Merino Breeders (2003, 2005 and 2008) and Bluechip Livestock (2011 x 2 and 2012) sire evaluations and young sire programs, sire evaluations on the South West Slopes have been run under MerinoLink Limited since 2014.

The MerinoLink Sire Evaluation site at Brooklyn, Frogmore is an accredited Merino Sire Evaluation (MSE) site. It conforms to the requirement of the Australian Merino Sire Evaluation Association (AMSEA).

The 2019 drop is the first joining at Brooklyn and complements the Yass Sire Evaluation site (2017 & 2019) and previous sire evaluations in 2014, 2015 and 2016 run at Jugiong.

We would like to thank and acknowledge the dedication of Robert and Bridget Chudleigh for hosting the 2019 sire evaluations. Your commitment to Merino breeding is greatly appreciated.

The classing for the first visual assessments of the 2019 drop was conducted by Michael Elmes. We would like to fully acknowledge the professional contribution to the visual assessment by Michael. All classing is done randomly and without any knowledge of the progeny's sire.

There are 14 Merino sires being evaluated, funded by the entrants and 3 link sires funded by Australian Wool Innovation. We trust that everyone has and will achieve something out of this program, and we look forward to providing leading genetic evaluation tools into the future.

Sally Martin**, Site Manager**

Site Committee Contacts

Name	Phone	Role
Sally Martin	0400 782 477	Site Manager; Data Management; Reporting
Alan McGufficke	0429 448 078	Committee member
Bea Litchfield	0427 933 103	Committee member
Craig Wilson	0428 250 982	Committee member
Greg Sheather	0448 103 884	Committee member
Joe Walden	0427 016 427	Peter Westblade Scholarship (2018); Host Property (Yass)
Mal Peake	0408 426 103	Host Property (Yass)
Matt Crozier	0427 486 805	Host Property (Yass)
Michael Field	0427 286 951	Committee member
Richard Keniry	0427 878 541	MerinoLink Chair and AMSEA Representative
Rick Baldwin	0429 833 837	Committee member
Rob Chudleigh	0429 856 259	Host Property (Boorowa)
Sam Moorfield	0448 336 437	Data collection; Sally Martin Consulting Pty Ltd
Will Wragge	0428 396 698	Host Property (Yass)

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Date of publication: 1st July 2020

Sire and Owner Details

Sire code	Breeders flock, Sire number Sire ID #, Breed †	Contact name, address Phone, Fax, Email
1	**Anderson Poll, 160729** 609147-2016-160729, Poll Merino	Lynley Anderson Brookvale, RMB 512, Kojonup WA 6395 M: 0429 32 8055, E: info@andersonrams.com.au
2	**Bogo, 170018 (Link)** 504792-2017-170018, Merino	Malcolm Peake Ravenswood, Boambolo Road, Yass NSW 2582 P: (02) 6227 1223, M: 0408 42 6103, E: info@bogomerinos.com.au
3	**Brooklyn, 170112 (Unreg)** 609318-2017-170112, Poll Merino	Robert Chudleigh 'Brooklyn', 2115 Frogmore Rd, Boorowa NSW 2586 P: (02) 6385 6259, M: 0429 85 6259, E: chudsr@bigpond.com
4	**Bundilla Poll, 150009** 601435-2015-150009, Poll Merino	Ross, Rick & Jill Baldwin Bundilla, 706 Tubbul Road, Young NSW 2594 P: (02) 6383 3802, M: 0429 83 3837, E: bundillamerinos@bigpond.com
5	**Curlew, 170116** 509207-2017-170116, Merino	AC, AM, BA & E Kealy 1583 Patyah Road, Edenhope VIC 3318 M: 0448 60 0525, E: elisekealy@gmail.com
6	**DT Kenilworth, H17314** 504044-2017-H17314, Merino	David Taylor Kenilworth, 830 Valleyfield Rd, Campbell Town TAS 7210 P: (03) 6391 5734, M: 0407 51 7252, E: david@dtkenilworth.com.au
7	**GRASS, 161406** 503884-2016-161406, Merino	Graham Peart GRASS Merinos Pty Ltd, PO Box 216, Nambucca Heads NSW 2448 P: 0428 825 721, E: g.peart@icloud.com
8	**Grassy Creek Poll, 160253** 505030-2016-160253, Merino	Michael Corkhill Dryburgh, Reids Flat NSW 2586 P: (02) 6345 2201, M: 0428 27 2889, E: grassycreek@bigpond.com
9	**Greendale, 170002** 505069-2017-170002, Merino	Alan McGufficke Willarney, 850 Maffra Road, Cooma NSW 2630 P: (02) 6452 3605, M: 0429 44 8078, E: milliefarming@activ8.net.au
10	**Grogansworth, 170402** 504038-2017-170402, Merino	George Henderson 'Grogansworth', 888 Lachlan Valley Way, Bowning NSW 2582 P: (02) 6227 6085, M: 0427 43 4343, E: george@grogansworth.com.au
11	**Kambah Poll, 626033** 609021-2016-626033, Poll Merino	Glen Oxford 'Kambah', 373 Milvale Road, Young NSW 2594 P: (02) 6382 2618, M: 0429 82 2669, E: kambahpoll@gmail.com
12	**Langdene, 140700 (Link)** 503863-2014-140700, Merino	Garry Cox Langdene, 1127 Dubbo Road, Dunedoo NSW 2844 P: (02) 6375 1972, M: 0427 45 6125, E: garry@langdene.com.au

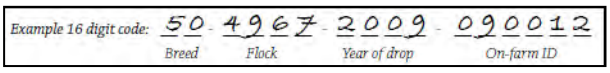
Sire code	Breeders flock, Sire number Sire ID #, Breed †	Contact name, address Phone, Fax, Email
13	**One Oak Poll, R15050** 600408-2017-R15050, Poll Merino	Alistair and Natasha Wells One Oak Poll, Liddle Lane, Jerilderie NSW 2716 P: (03) 5886 7117, M: 0427 86 7117
14	**Petali Poll, 150697 (Link)** 601279-2015-150697, Poll Merino	Martin and Cheryl Oppenheimer Petali, Walcha NSW 2354 M: 0413 58 0040, E: petali@northnet.com.au
15	**Pooginook Poll, 161153 (Link)** 601442-2016-161153, Poll Merino	John Sutherland Pooginook , Jerilderie NSW 2716 P: (02) 6954 6145, M: 0428 95 3017, E: pooginook@parawaypastoral.com
16	**Wattle Dale, 170632** 503358-2017-170632, Merino	Dave Vandenberghe PO Box 11, Scaddan WA 6447 P: (08) 9078 6049, M: 0427 78 6049, E: wattledale@vandenberghepartners.com.au
17	**Yarrawonga, 170193 (Link)** 503534-2017-170193, Merino	Ken Wolf Hollow Mount Merino Stud, Hollow Mount, Bigga NSW 2583 M: 0418 67 5611, E: ken.w@kwre.com.au

Graph and Table Key

* Link sire: Sire evaluated to provide links between years and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

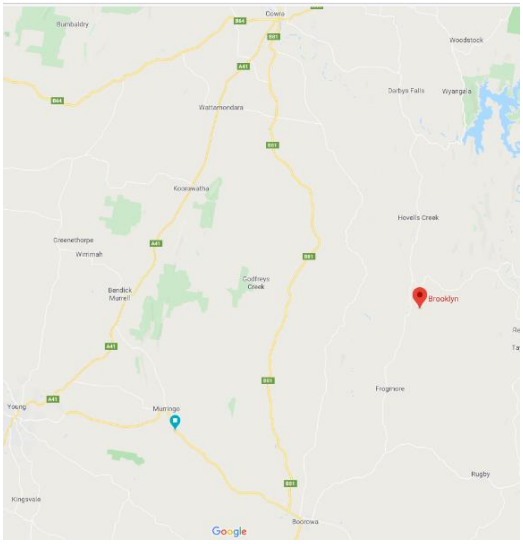
** Common sires (in addition to Link Sires) between this MSE site and other sites.

\# Sire ID provides a unique number for all sheep. A sire ID has 16 digits.
- 2 for the breed of the flock, e.g., Merino (50), Poll Merino (60), Dohne (51), SAMM (48), Afrino (AF)
- 4 for flock code, AASMB Registered flock code or unregistered code.
- 4 for year of drop.
- 6 for tag number used in the breeder's records.



† Breed of flock in which the sire was born.

Management Report



1. Location

- Brooklyn is located 40 km North East of Boorowa
- Owned and managed by Robert and Bridgit Chudleigh.

2. Selection and mating

- 1000 Roseville Park blood medium framed ewes with free growing soft handling wools were selected and classed to be free from visual and conformation faults.
- The ewes were mated by Artificial Insemination to the 17 sires.
- The ewes were randomly allocated across age groups to each sire.
- The insemination program was conducted on 27th and 28th March 2019.
- The insemination program was conducted by Michelle Humphries and John Hall, Livestock Breeding Services.
- 60 ewes were allocated to each sire entered.

3. Pregnancy and lambing

- Pregnancy scanning took place on 20th June 2019.
- Ewes were managed as one contemporary group from AI until 10 days before lambing when the ewes were divided into 6 mobs (singles and twins) to maximise lamb survival and lambed down.
- Adequate pasture and a supplementary feeding program ensured that nutritional requirements were met during all stages of pregnancy.
- Lambs were tagged (visual and electronic) within three and a half weeks of lambing and all mobs were brought together and boxed into one contemporary group of ewes and lambs.
- Lambs were DNA sampled at weaning.

4. Weaning and seasonal conditions

- The lambs were marked on 3rd October 2019 and weaned on 29th November 2019.
- Overall, the seasonal conditions have been very poor over the duration of the sire evaluation, a tough year to start a trial. Late winter and early Spring were a disaster rainfall wise.
- The lambs responded well to the mid-February to early March rainfall after being let out from confinement feeding.

5. Visual Assessments

- The 1st stage visual assessment was carried out by Michael Elmes and Sally Martin.

6. Rainfall – Brooklyn Rainfall

	2019	**2020**
Jan	108.5	27
Feb	35.5	61.5
Mar	70.5	73
Apr	0	149
May	23	32
Jun	51	
Jul	14	
Aug	23	
Sep	26.5	
Oct	6	
Nov	20	
Dec	4	
Totals	**382**	**~342.5**

Foundation Ewes – Early February 2019 – Initial Inspection

Foundation Ewes – Mid March 2019 – Prior to the AI Program

Assessment and Management Program

Activity	Date/s	Age (months)	Wool (months)
Allocation to sire	13.03.2019		
Artificial Insemination	27.03.2019 28.03.2019		
Pregnancy scanning	20.06.2019		
Split ewes into lambing groups – put in lambing paddocks	14.08.2019		
Lambing: start – finish	24.08.2019 30.08.2019		
Lambing mobs boxed to one management group	24.09.2019		
Lamb marking; tagging; pigment scores; breech trait scores	24.09.2019	1	
Weaning; DNA sampling	29.11.2019	3.2	
Crutching • Post Weaning (PW)	20.02.2020	6.0	6.0
Fleece sampling assessment • Post Weaning (PW)	23.04.2020	8.1	8.1
Staple length assessment • Post Weaning (PW)	23.04.2020	8.1	8.1
Classer's Grade assessment • Post Weaning (PW)	23.04.2020	8.1	8.1
Pre shearing scoring assessment • Post Weaning (PW)	23.04.2020	8.1	8.1
Assessment shearing • Post Weaning (PW)	07.05.2020	8.6	8.6
Post shearing scoring assessment • Post Weaning (PW)	18.05.2020	8.9	0.4
Body weigh assessment • Weaning (W) • Post Weaning (PW)	29.11.2019 26.03.2020	3.2 7.1	
Worm egg count assessment • Post Weaning (PW)	18.06.2020	10	
Vaccination	Marking, weaning, post shearing		
Drench	As required based on worm egg counts (29/11/2019; 18/6/2020)		
External parasites	No treatment has been required		
Sire's Progeny Group Evenness assessment	Has not been carried out at time of publication.		
Field Day or public display	Due to COVID-19 no field day or open day will be planned until March 2021 ***(save the date 17th and 18th March 2020)***		

Visual Trait Assessment and Site Breeding Objective

Visual trait assessment

1st Stage Assessment (Post Weaning)

Assessment	1st Stage Assessment
Breech Scores:	Sally Martin
Classer's Grade:	Michael Elmes
Pre-Shearing Trait Scores:	Michael Elmes & Sally Martin
Post Shearing Trait Scores:	Sally Martin & Sam Moorfield

Site Breeding Objective used to assess the Classer's Grades – 1st Stage Assessment

The Breeding Objective used to select the Classer's Tops (16%), Flock (57%) and Cull (27%) was based on a visual assessment where the animal performed well for growth (meet minimum body weight suitable for joining), were structurally sound with good wool quality traits including long soft handling wool and fleece weight. *(No reference was made to measured performance at the time of classing and was based on the visual presentation of all traits).*

Within Site Analysis

This report provides information within site on the performance of the progeny of the sires being evaluated. The ASBVs have not been taken into consideration in the within site analysis, however, will be used in the across site (MSS) analysis. The information presented is a reflection of one sires performance, not the bloodline.

Publication of results in both Merino Superior Sires (MSS) and MERINOSELECT will be presented as across flock Australian Sheep Breeding Values (ASBV's) and will included additional data collected on farm, at other sire evaluation sites and the Information Nucleus Flock sites (Resource Flock).

Sire Codes and Pedigrees

Sire code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Anderson Poll, 160729	609147-2016-160729, Poll Merino	609147-2014-140178
2	Bogo, 170018 (Link)	504792-2017-170018, Merino	601489-2013-135034
3	Brooklyn, 170112 (Unreg)	609318-2017-170112, Poll Merino	601250-2014-407185
4	Bundilla Poll, 150009	601435-2015-150009, Poll Merino	600571-2012-121391
5	Curlew, 170116	509207-2017-170116, Merino	509207-2015-150119
6	DT Kenilworth, H17314	504044-2017-H17314, Merino	504044-2012-B12221
7	GRASS, 161406	503884-2016-161406, Merino	609040-2012-122295
8	Grassy Creek Poll, 160253	505030-2016-160253, Merino	601250-2012-207058
9	Greendale, 170002	505069-2017-170002, Merino	500383-2011-003542
10	Grogansworth, 170402	504038-2017-170402, Merino	600610-2012-120026
11	Kambah Poll, 626033	609021-2016-626033, Poll Merino	601250-2009-907538
12*	Langdene, 140700 (Link)	503863-2014-140700, Merino	503863-2008-086138
13	One Oak Poll, R15050	600408-2017-R15050, Poll Merino	601332-2015-150422
14*	Petali Poll, 150697 (Link)	601279-2015-150697, Poll Merino	609147-2012-120079
15	Pooginook Poll, 161153 (Link)	601442-2016-161153, Poll Merino	601442-2014-140603
16	Wattle Dale, 170632	503358-2017-170632, Merino	500383-2011-003542
17*	Yarrawonga, 170193 (Link)	503534-2017-170193, Merino	504166-2011-110011

2019 Drop - Weaning – 29th November 2019

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, management group and the number of progeny per sire.

Flock Breeding Values (FBVs)

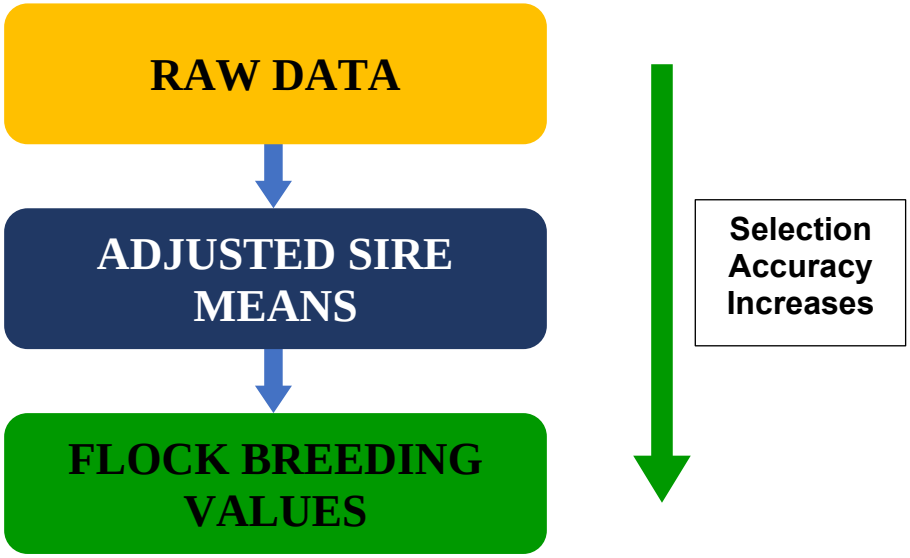
These results have been adjusted in the same way as Adjusted Sire Means, then further calculations have also been made to account for the level of heritability of a trait (some are more heritable than others), correlations between traits and the number of progeny a sire has.

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’.



Understanding the Results – Measured Traits and 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 and 2.					
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 number of progeny per sire, 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:	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. 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.					
Traits: Abbreviation, trait and the (units reported)	GFW:	Greasy fleece weight (percentage)		SL:	Staple length (mm) at the mid-side	
	CFW:	Clean fleece weight (percentage)		SS:	Staple strength (N/ktex) at the mid-side	
	FD:	Average fibre diameter (micron)		EMD:	Eye muscle depth (mm) at the 'C' site	
	WT:	Body weight (kilograms).		FAT:	Fat depth (mm) at the 'C' site	
	FDCV:	Fibre diameter coefficient of variation (percentage)		WEC:	Worm egg count (% deviation in worm burden of sire's progeny)	
	CURV:	Fibre curvature (degrees)				
Age at assessment:	M = Marking	14 to 42 days (2 - 7 weeks)		Y = Yearling	300 to 400 days (10 to 13 months)	
	W = Weaning	42 to 120 days (6 weeks to 4 months)		H = Hogget	400 to 540 days (13 to 18 months)	
	E = Early Post Weaning	20 to 210 days (4 to 7 months)		A = Adult	540 days or older (18 months and older)	
	P = Post Weaning	210 to 300 days (7 to 10 months)				
Classer's Visual Grade:	A classer grades all progeny as either Tops, Flocks or Culls based on their visual assessment of all traits relative to the site's Breeding Objective. The percentage deviation from the average of Tops and Culls is presented in this report. Average percentage of Tops and Culls for the entire drop is included in Table 1 and 2. Page 8 provides more detail on Classer's Visual Grade and the site's Breeding Objective.					

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, management group and number of progeny per sire, in order to improve the accuracy. No account is made for trait heritability and genetic correlations between traits that can improve the flock 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.

Ram Code	Breeders flock, Ram number	No. of Progeny	Ram progeny averages for measured traits										
			GFW kg	CFW kg	FD um	FDCV %	Curv deg/mm	SL mm	SS N/ktex	WT kg		Fat mm	EMD mm
			P^	P	P	P	P	P	P	W	P	Y	Y
1	Anderson Poll, 160729	30	2.5	1.6	16.4	17.2	84.1	69.9	42.5	24.9	35.8	Fat depth had not been measured at the time of writing this report	Eye muscle depth had not been measured at the time of writing this report.
2	Bogo, 170018	36	2.2	1.4	15.6	18.5	92.3	60.7	31.5	24.2	32.2		
3	Brooklyn, 170112	35	2.4	1.5	15.2	18.8	93.5	57.4	33.2	25.1	33.2		
4	Bundilla Poll, 150009	44	2.4	1.5	15.1	19.8	92.5	60.9	28.1	24.6	33.5		
5	Curlew, 170116	37	2.5	1.6	16.1	18.4	92.1	66.7	34.2	24.1	34.8		
6	DT Kenilworth, H17314	41	2.4	1.6	14.9	19.3	85.2	63.4	31.9	23.6	31.3		
7	GRASS, 161406	48	2.4	1.5	15.5	18.5	92.0	57.7	34.9	24.2	33.5		
8	Grassy Creek Poll, 160253	40	2.4	1.4	14.3	19.4	94.9	58.7	21.4	23.3	31.5		
9	Greendale, 170002	50	2.5	1.5	14.6	19.9	92.4	59.0	27.7	22.8	30.8		
10	Grogansworth, 170402	41	2.3	1.5	15.4	19.4	87.5	57.0	32.8	24.5	32.1		
11	Kambah Poll, 626033	41	2.3	1.4	14.8	19.0	94.0	60.4	24.1	23.5	33.2		
12*	Langdene, 140700	33	2.4	1.4	15.0	19.9	96.2	58.9	25.5	23.5	32.1		
13	One Oak Poll, R15050	49	2.3	1.4	15.2	19.5	85.7	60.8	27.5	23.2	32.6		
14*	Petali Poll, 150697	49	2.4	1.6	15.5	18.0	88.0	63.7	38.6	24.0	33.6		
15	Pooginook Poll, 161153	39	2.6	1.6	15.0	18.2	87.8	63.5	25.3	24.2	33.4		
16	Wattle Dale, 170632	36	2.4	1.5	14.7	18.8	91.5	59.3	24.8	23.9	34.1		
17*	Yarrawonga, 170193	37	2.3	1.4	15.1	18.8	87.1	58.9	36.3	22.7	31.6		
Average performance		**40**	**2.4 kg**	**1.5 kg**	**15.2 um**	**18.9 %**	**90.4 deg/mm**	**61.0 mm**	**30.6 N/ktex**	**23.9 kg**	**32.9 kg**	**mm**	**mm**

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

^ W = Weaning (42 to 120 days); P = Post Weaning (120 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, including both ewes and wethers.

These Adjusted Sire Means were calculated using available data from both the ewe and wether progeny only of the sires.

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 it's 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 Grade

The index values reported are based on measured traits Flock Breeding Value (FBV) performance with varying emphasis on fleece weight, fibre diameter, body weight, staple strength and worm egg count. See 'Index Options' (page 14) 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.

Ram code	Breeders flock, Ram number	Sire DNA Horn/ Poll	No of Progeny	AMSEA Indexes values				Classer's Grade	
				Dual Purpose Plus	Merino Production Plus	Fibre Production Plus	Wool Production Plus	Tops % (dev)	Culls % (dev)
								P^	P
1	Anderson Poll, 160729	PH	30	n/a	125	115	123	29	-15
2	Bogo, 170018	PP	36	n/a	78	83	78	-5	4
3	Brooklyn, 170112	PH	35	n/a	103	103	99	-5	22
4	Bundilla Poll, 150009	PP	44	n/a	100	101	103	-6	5
5	Curlew, 170116	PH	37	n/a	109	94	113	8	-19
6	DT Kenilworth, H17314	PH	41	n/a	103	107	101	7	-14
7	GRASS, 161406	PH	48	n/a	107	108	104	-4	-5
8	Grassy Creek Poll, 160253	PP	40	n/a	87	94	89	-5	17
9	Greendale, 170002	PH	50	n/a	101	103	100	-3	9
10	Grogansworth, 170402	PH	41	n/a	96	94	96	-2	-2
11	Kambah Poll, 626033	PP	41	n/a	89	87	92	-11	-3
12*	Langdene, 140700	HH	33	n/a	85	86	88	-2	4
13	One Oak Poll, R15050	PH	49	n/a	86	90	90	-8	5
14*	Petali Poll, 150697	PP	49	n/a	119	119	112	-3	-14
15	Pooginook Poll, 161153	PH	39	n/a	108	105	112	12	-2
16	Wattle Dale, 170632	PH	36	n/a	103	100	104	5	1
17*	Yarrawonga, 170193	HH	37	n/a	102	108	95	-7	7
Average performance			**40**	**100**	**100**	**100**	**100**	**16**	**27**

* Link Sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

[1] Classer's Grade is expressed as the percentage deviation of average Tops% and Culls%, these grades are from both the ewe and wether progeny.

^ 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, including both ewes and wethers.

[2] Indexes are calculated using all the available data collected on both the ewe and wether progeny of the sires.

n/a If a trait or index has not met AMSEA accuracy threshold it is not reported.

Table 3. Major Measured Traits and Classer's Grades

Ram Code	Breeders flock, Ram number	No. of Progeny	Flock Breeding Values (deviations)					Classer's Grade[1]	
			GFW %	CFW %	FD um	WT *kg*		Tops % (dev)	Culls % (dev)
			P^	P	P	W	P	P	P
1	Anderson Poll, 160729	30	7	9	2.3	2.2	4.9	29	-15
2	Bogo, 170018	36	-14	-12	0.8	0.3	-0.8	-5	4
3	Brooklyn, 170112	35	0	-4	0.0	1.6	0.6	-5	22
4	Bundilla Poll, 150009	44	3	2	-0.1	1.1	1.2	-6	5
5	Curlew, 170116	37	8	6	1.8	1.0	3.3	8	-19
6	DT Kenilworth, H17314	41	-1	7	-0.6	-0.8	-2.7	7	-14
7	GRASS, 161406	48	-3	1	0.6	0.5	1.1	-4	-5
8	Grassy Creek Poll, 160253	40	1	-6	-1.7	-1.3	-2.4	-5	17
9	Greendale, 170002	50	8	3	-1.3	-2.2	-3.9	-3	9
10	Grogansworth, 170402	41	-7	3	0.4	0.6	-1.1	-2	-2
11	Kambah Poll, 626033	41	-5	-5	-0.7	-0.5	0.5	-11	-3
12*	Langdene, 140700	33	-2	-7	-0.5	-0.7	-1.2	-2	4
13	One Oak Poll, R15050	49	-6	-4	0.1	-1.1	-0.9	-8	5
14*	Petali Poll, 150697	49	2	5	0.5	0.3	1.2	-3	-14
15	Pooginook Poll, 161153	39	10	10	-0.5	0.5	0.8	12	-2
16	Wattle Dale, 170632	36	2	-1	-0.9	0.4	1.8	5	1
17*	Yarrawonga, 170193	37	-3	-6	-0.1	-2.0	-2.6	-7	7

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

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

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

Flock breeding values are calculated using all the available data on both the ewe and wether progeny of the sires.

Table 4. Other Measured Traits

Ram code	Breeders flock, Ram number	No. of prog.	Flock Breeding Values (deviations)						
			FDCV %	SL mm	SS *N/ktex*	Curv deg/mm	Fat mm	EMD mm	WEC%
			P^	P^	P^	P^	Y	Y	P
1	Anderson Poll, 160729	30	-2.7	13.2	17.3	-9.7	Fat depth had not been collected at the time of the report publication	Eye Muscle depth had not been collected at the time of the report publication	-2
2	Bogo, 170018	36	-0.7	-0.8	1.7	3.1			-13
3	Brooklyn, 170112	35	-0.3	-5.4	4.1	4.9			4
4	Bundilla Poll, 150009	44	1.3	-0.1	-4.1	3.4			-44
5	Curlew, 170116	37	-0.8	8.7	5.7	2.6			52
6	DT Kenilworth, H17314	41	0.6	3.8	1.7	-8.8			-4
7	GRASS, 161406	48	-0.7	-5.3	7.0	2.9			-18
8	Grassy Creek Poll, 160253	40	0.9	-3.7	-14.1	7.2			-22
9	Greendale, 170002	50	1.7	-3.2	-4.9	3.1			21
10	Grogansworth, 170402	41	0.7	-6.0	3.4	-4.8			40
11	Kambah Poll, 626033	41	0.2	-1.1	-10.0	6.1			32
12*	Langdene, 140700	33	1.4	-3.3	-7.4	9.0			4
13	One Oak Poll, R15050	49	1.0	0.0	-5.0	-7.8			-9
14*	Petali Poll, 150697	49	-1.5	4.3	12.8	-3.9			-17
15	Pooginook Poll, 161153	39	-0.8	4.2	-8.1	-4.4			-13
16	Wattle Dale, 170632	36	0.0	-2.3	-8.6	2.0			11
17*	Yarrawonga, 170193	37	-0.2	-2.9	8.5	-5.1			6

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

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

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

Flock breeding values are calculated using all the available data on both the ewe and wether progeny of the sires.

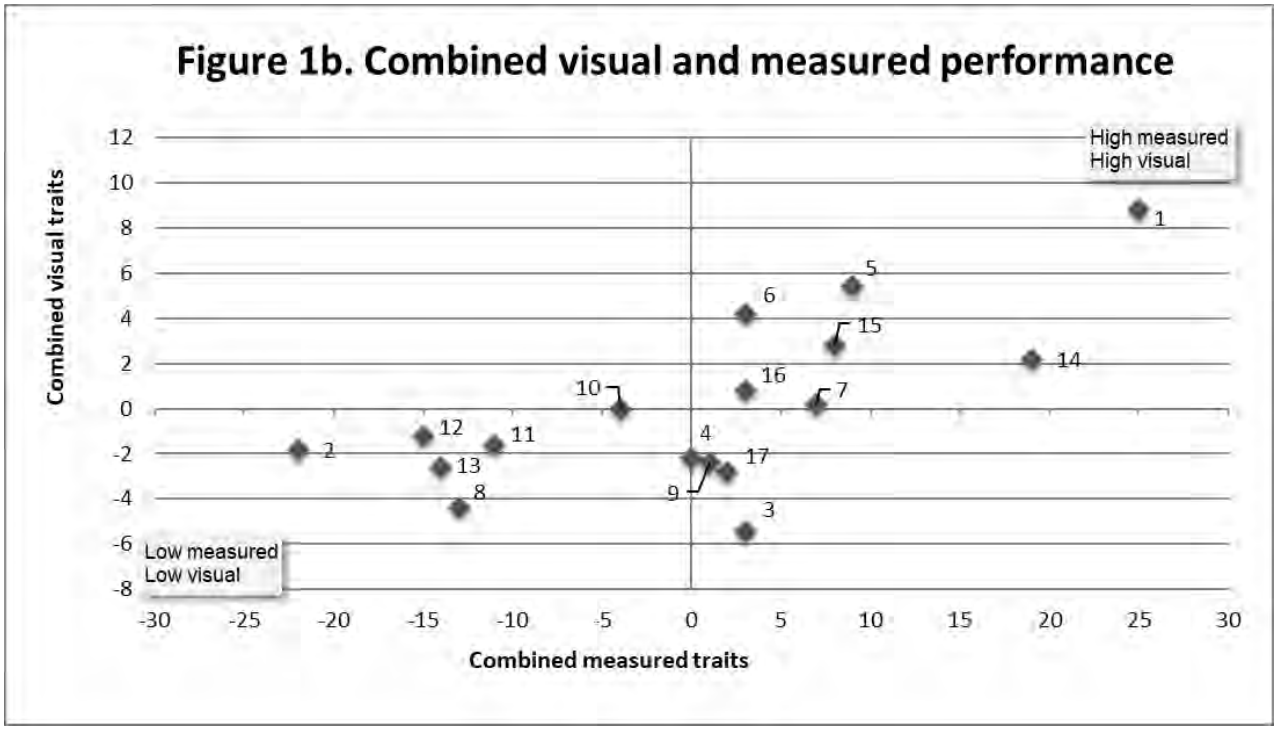
Figure 1a, 1b, 1c and 1d. Combined measured traits and visual trait performance

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

Figure 1a Combine measured traits AMSEA Dual Purpose Plus (DP+) index and combined visually assessed traits for the site objective.

Figure 1a was unable to be generated due to the DP+ index for all sire's did not meeting the accuracy threshold to be published.

Figure 1b Combine measured traits AMSEA Merino Production Plus (MP+) index and combined visually assessed traits for the site objective.



2019 Drop – post weaning classing – 23rd April 2020

Figure 1c Combine measured traits AMSEA Fibre Production Plus (FP+) index and combined visually assessed traits for the site objective.

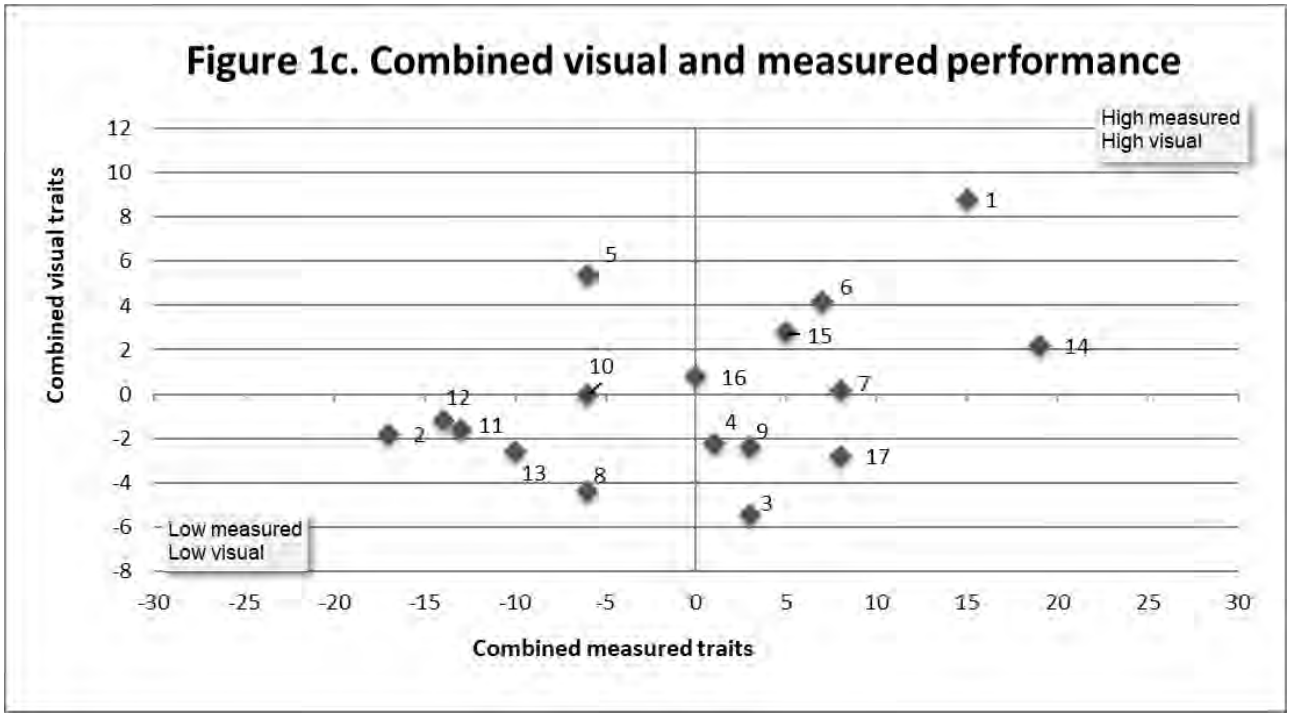
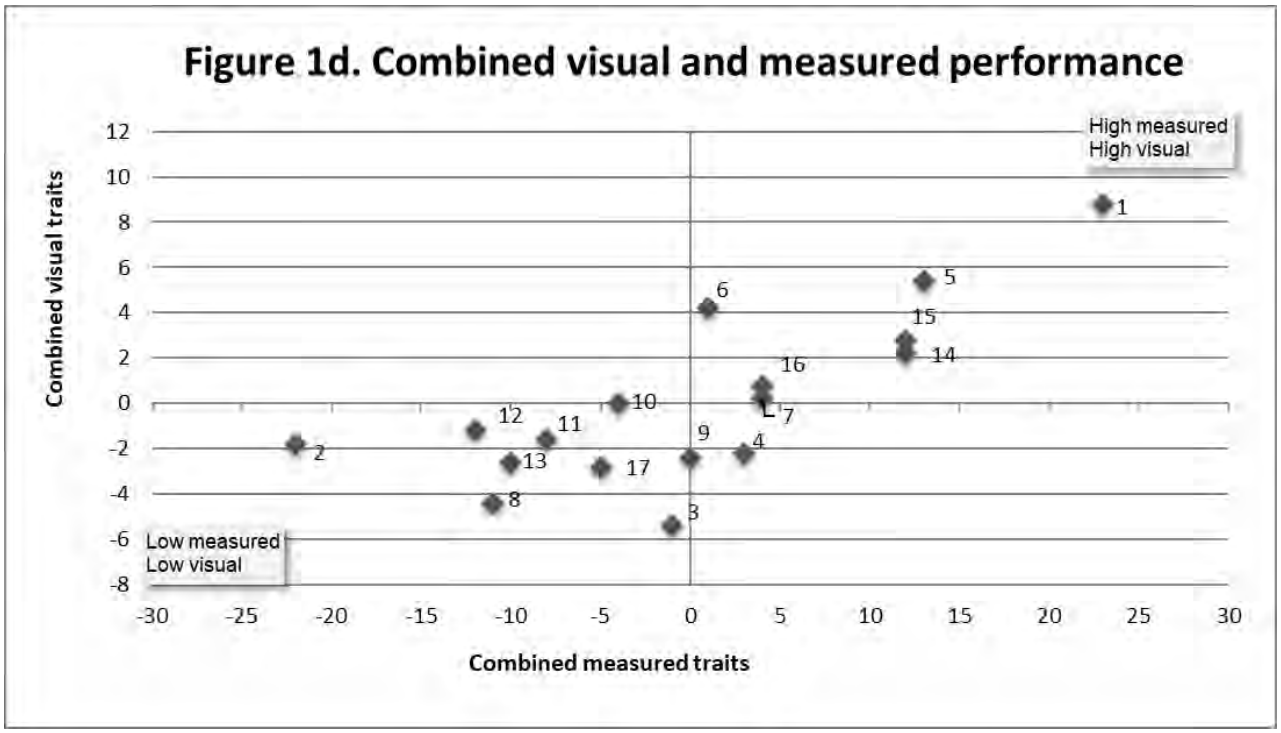


Figure 1d Combine measured traits AMSEA Wool Production Plus (WP+) index and combined visually assessed traits for the site objective.



Summary Graphs

Figure 2. Classer's Tops and Cull Grade – describes performance for Classer's Tops Grade on the side axis and Culls Grade on the bottom axis. Sires that have above average Tops and below average Culls are in the top left-hand quadrant. Classer's Tops (16%), Flock (57%) and Cull (27%) is based a visual assessment where the progeny performed well for growth, structurally sound with good wool quality traits including long soft handling wool and fleece weight.

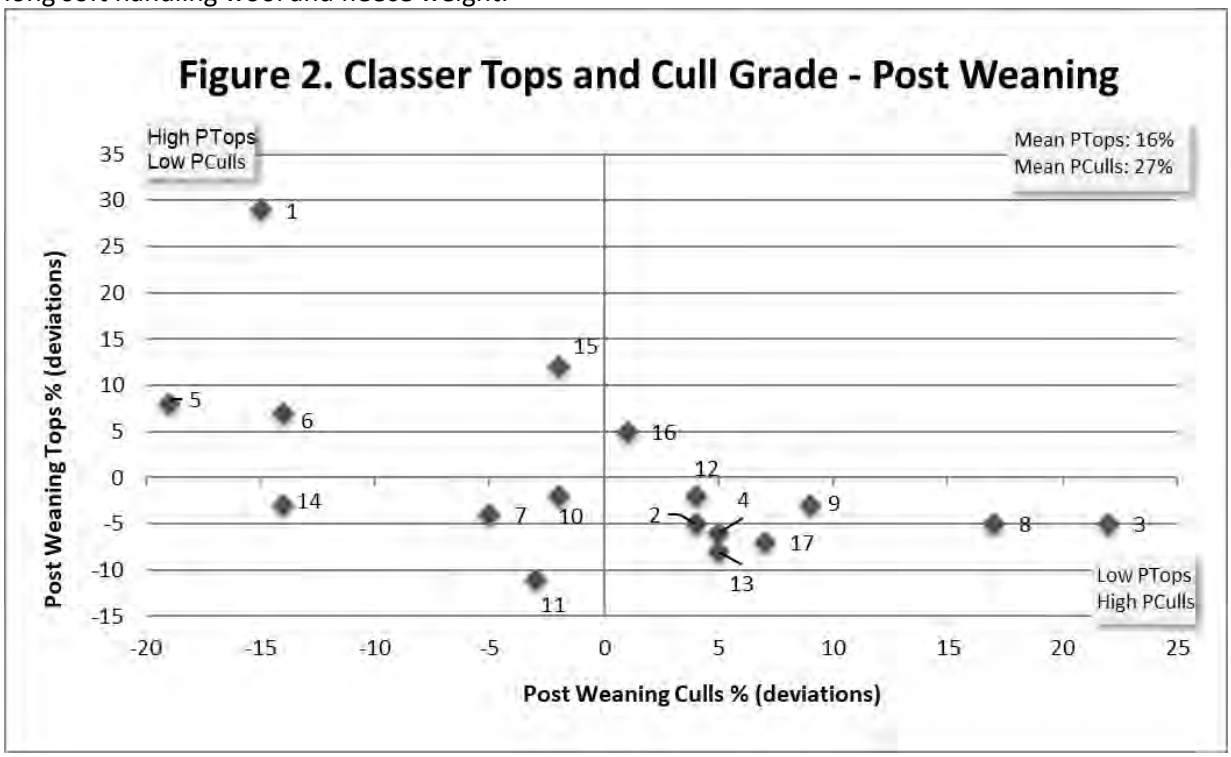


Figure 3. Fleece Weight and Fibre Diameter (FBV's) – describes performance for clean fleece weight on the side axis and fibre diameter on the bottom axis. Sires that are above average for post weaning clean fleece weight and below average post weaning fibre diameter are located in the top left-hand quadrant.

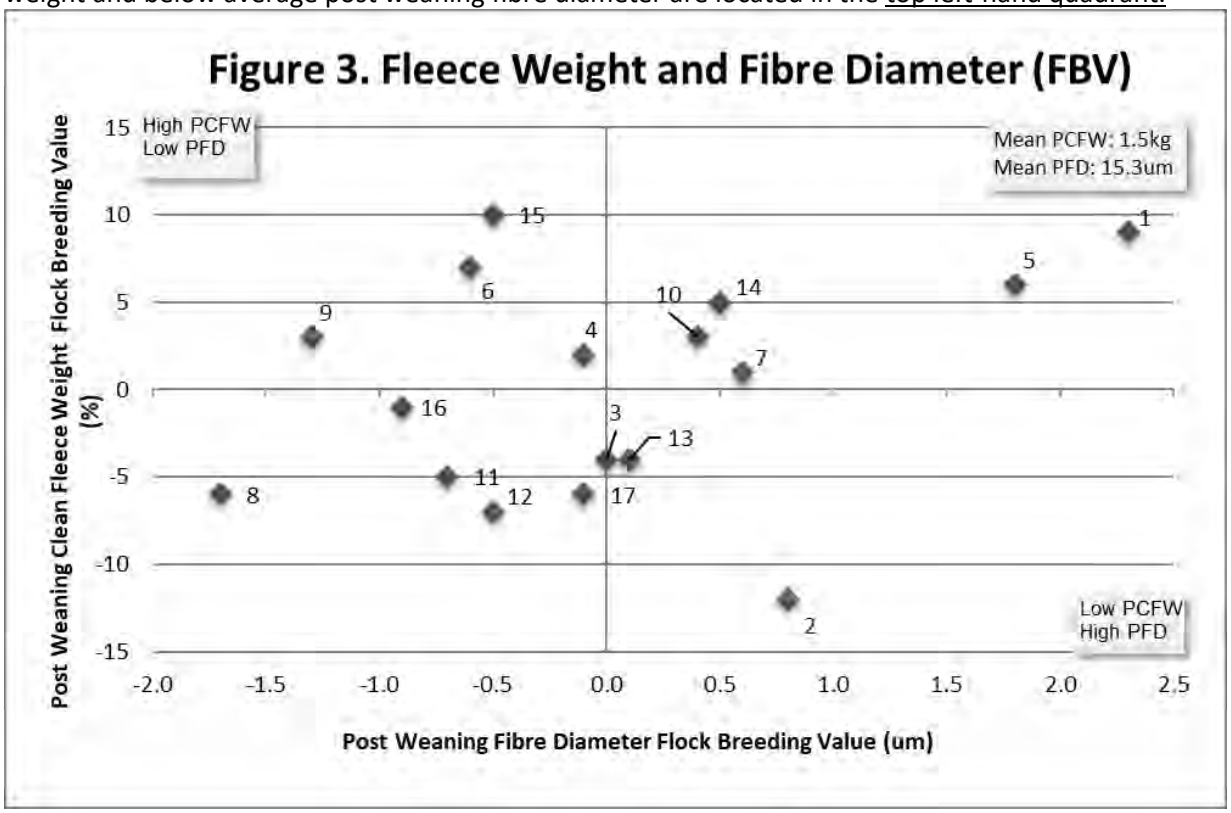


Figure 4. Fleece Weight and Body Weight (FBV's) – describes performance for clean fleece weight on the side axis and body weight on the bottom axis. Sires that are above average for post weaning clean fleece weight and above average for post weaning body weight are located in the top right-hand quadrant.

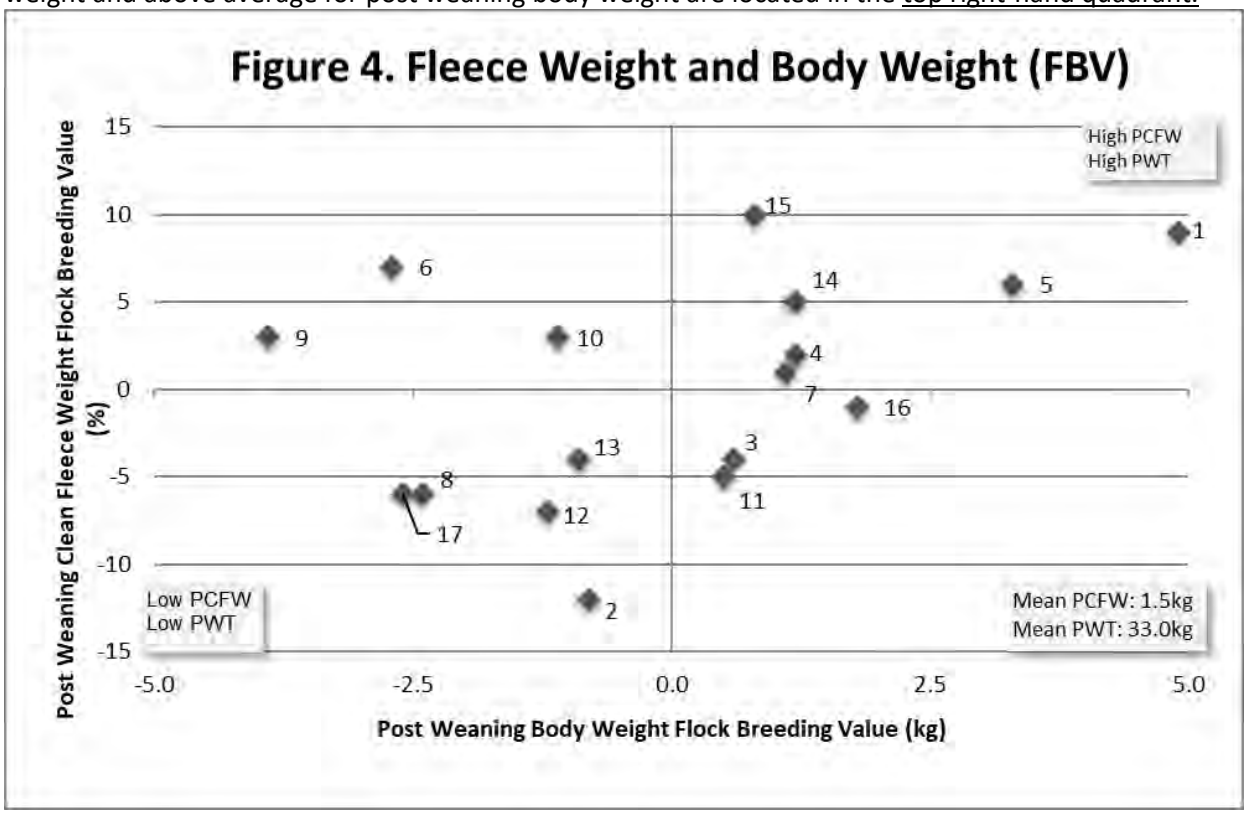


Figure 5. Fleece weight and Staple Length (FBV's) – describes performance for clean fleece weight on the side axis and body weight on the bottom axis. Sires that are above average for adult clean fleece weight and above average for adult body weight are located in the top right-hand quadrant.

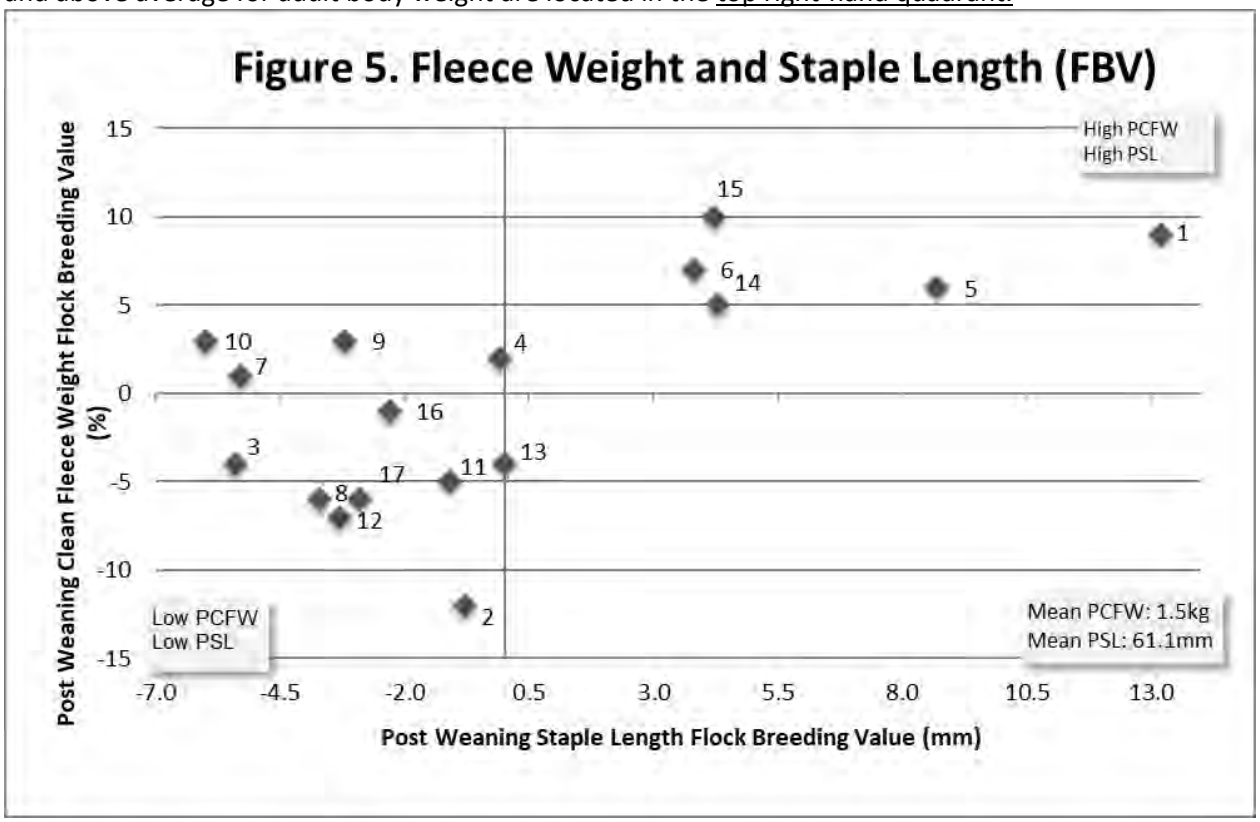


Figure 6. Fleece Weight and Fat Depth (FBVs) – describes the performance for clean fleece weight on the side axis and fat depth on the bottom axis. Sires that are above average for clean fleece weight and above average for fat depth are located in the top right-hand quadrant. *Fat depth had not been collected at the time of publication.*

Figure 7. Fleece weight and Eye Muscle Depth (FBVs) – describes performance for clean fleece weight on the side axis and eye muscle depth 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 quadrant. *Eye muscle depth had not been collected at the time of publication.*

Figure 8. Clean Fleece weight (FBV) and Marking Breech Wrinkle Score (deviation) – describes performance for clean fleece weight on the side axis and marking breech wrinkle score on the bottom axis. Sire that are above average for clean fleece weight and below average for marking breech wrinkle score are located in the top left-hand quadrant.

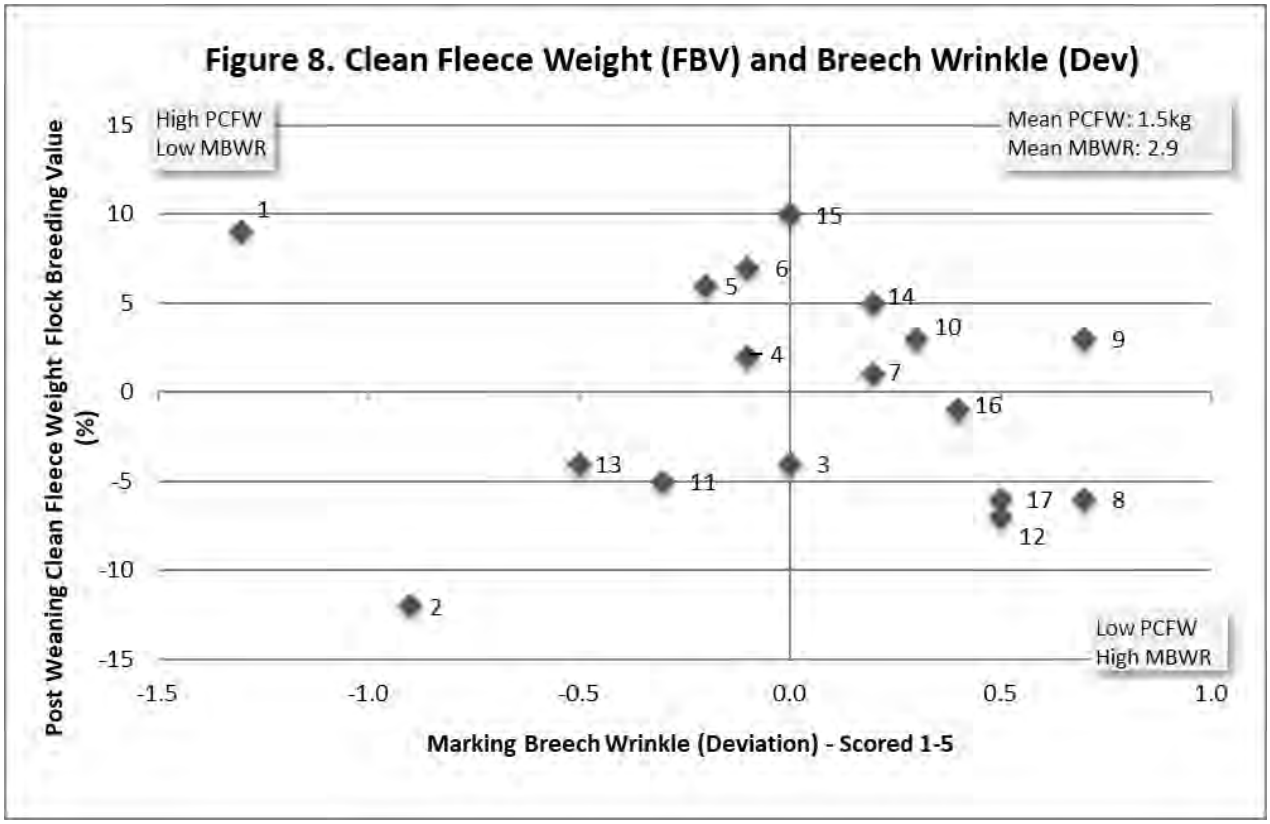


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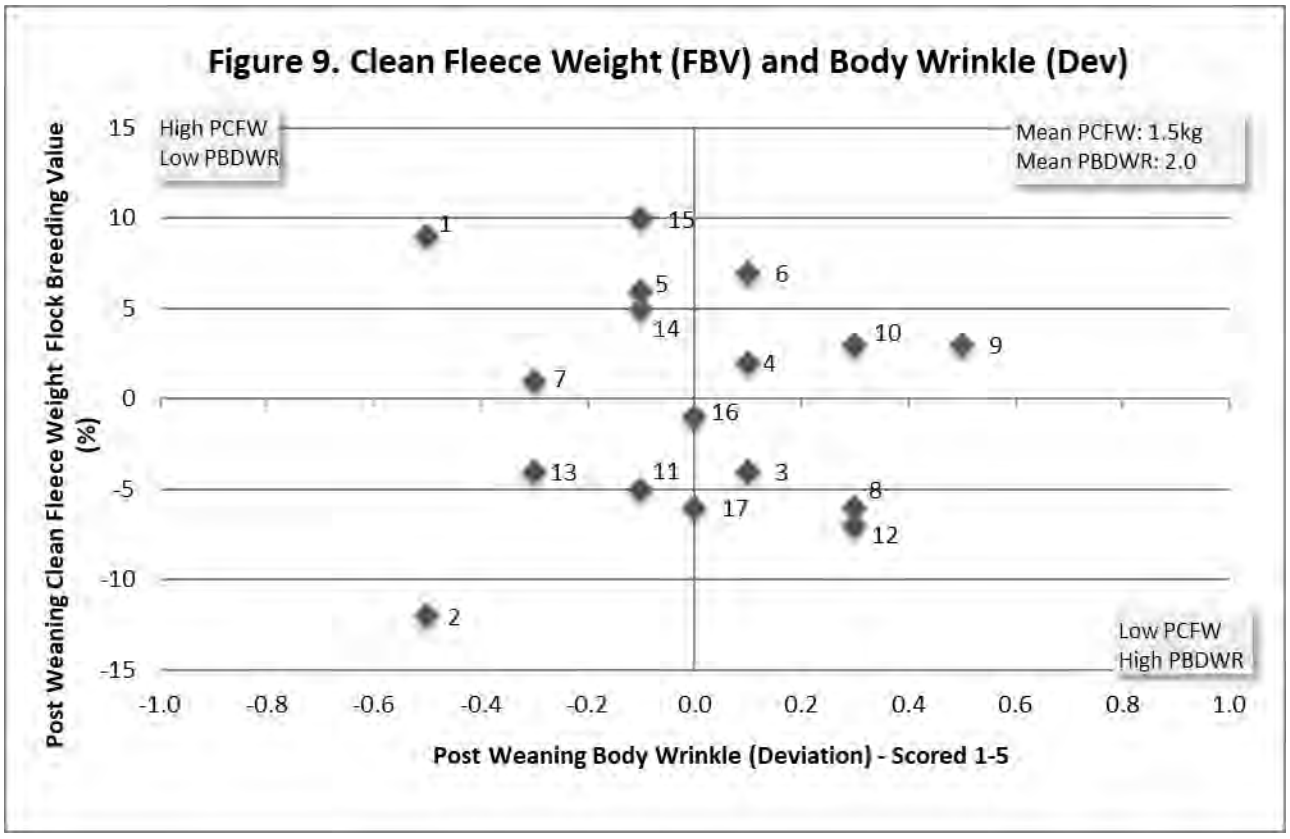
Figure 9. Clean Fleece weight (FBV) and Body Wrinkle Score (deviation) – describes performance for clean fleece weight on the side axis and body wrinkle score on the bottom axis. Sire that are above average for clean fleece weight and below average for body wrinkle score are located in the top left-hand quadrant.



Understanding the Results – Visual Performance Traits

The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in Version 3 (2019) of the Visual Sheep Scores booklet that is available free from AWI or downloadable 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** (bright white wool) to **5** (very intense yellow).
■ Wool character:	Definition and variation of crimp between and along the staple scored from **1** (very even & deep crimp) to **5** (no crimp evenness or depth, looks flat).
■ 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, very fine bundles) to **5** (>30 mm, 'blocky' extremely large bundles).
■ Face cover:	Wool cover on the face scored from **1** (open face, no wool in front of ears) to **5** (heavy wool cover over the entire face).
■ Feet/Legs:	Conformation of feet and legs scored **1** (straight legs); 3 (significant hock angulation, slight in or outward leg/feet); **5** (Extreme hock angulation, legs/feet).
■ Body wrinkle:	The degree of body wrinkle from **1** (plain body, no wrinkle) to **5** (very heavy wrinkling and heavy skin folds).
■ Jaw:	Under- or over-shot lower jaw (and teeth) relative to the top jaw. Five scores: 1 (Heavily undershot jaw); 2 (marginally under shot); 3 (very well aligned); **4** (marginally overshot jaw), **5** (heavily over shot jaw).
■ Back/Shoulder:	Conformation of the back and shoulder 1 (shoulder blades sit squarely); 3 (shoulders position creates a ridge or trough, back dipped or arched); 5 (extreme high ridge or trough and back dip or arched).
■ Fibre pigmentation:	The percentage of dark fibres on any part of the sheep from **1** (No pigmented fibres at any site, 0%) 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** (No pigmentation at any site, 0%) 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.
■ Breech cover	Size of natural bare area around the breech from **1** (natural large bare area) to **5** (no bare area, complete wool cover).
■ Crutch cover	Size of natural bare area in the pubic and groin region from **1** (natural large bare area) to **5** (almost complete wool cover, no natural bare areas).
■ Breech wrinkle	Degree of wrinkle at the tail set and hind legs from **1** (no wrinkle) to **5** (extensive wrinkle).
■ Dag	Degree of dag adhering to the breech and legs from **1** (no dag) to **5** (extensive dag in breech and hind legs area).
■ Urine (ewes)	Degree of urine stained wool in the breech area, including the hind legs from **1** (no urine stain) to **5** (extensive urine stain in breech and hind leg area).

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

Ram code	Wool Quality																							
	Fleece Rot						Wool Colour						Wool Character						Dust Penetration					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	-0.2	97	0	0	3	0	-0.1	17	67	6	10	0	-0.1	3	70	27	0	0	-0.1	0	3	90	7	0
2	-0.3	97	0	3	0	0	0.0	11	61	22	6	0	0.1	5	50	39	6	0	0.0	0	3	75	22	0
3	0.7	73	0	0	12	15	0.7	6	30	30	30	4	0.2	13	36	39	12	0	-0.1	0	0	91	9	0
4	-0.2	95	0	3	2	0	0.1	14	49	30	7	0	0.1	3	53	42	2	0	0.1	0	2	70	28	0
5	-0.2	97	0	0	0	3	-0.1	14	62	19	5	0	-0.2	13	57	30	0	0	-0.1	0	8	76	16	0
6	-0.3	98	2	0	0	0	-0.4	20	72	8	0	0	-0.2	10	72	15	3	0	0.0	0	10	68	22	0
7	0.0	92	0	0	6	2	0.1	14	47	27	12	0	0.2	2	47	47	4	0	0.0	0	2	80	18	0
8	0.1	90	0	0	2	8	0.2	3	56	38	3	0	0.1	13	36	41	10	0	0.1	0	3	69	28	0
9	-0.1	92	0	0	8	0	-0.3	24	63	10	3	0	-0.2	24	43	29	4	0	0.1	0	2	67	31	0
10	-0.1	95	0	0	3	2	-0.1	12	68	12	8	0	-0.1	5	65	30	0	0	-0.1	0	4	88	8	0
11	0.4	78	3	0	7	12	0.1	5	61	32	2	0	0.1	0	59	34	7	0	0.1	0	3	73	24	0
12*	-0.2	94	0	3	3	0	0.0	3	73	21	3	0	0.1	3	55	36	6	0	-0.1	0	6	79	15	0
13	0.3	81	3	0	12	4	0.2	15	42	33	10	0	0.3	5	35	48	12	0	0.2	0	2	58	40	0
14*	0.0	88	2	2	4	4	0.0	9	67	16	8	0	0.1	4	57	33	6	0	-0.2	0	12	78	10	0
15	0.1	85	3	2	2	8	-0.1	12	68	12	8	0	-0.1	8	62	30	0	0	0.1	0	0	70	30	0
16	0.1	89	0	0	2	9	-0.2	17	69	11	3	0	-0.2	14	63	20	3	0	0.1	0	0	71	29	0
17*	-0.1	94	0	0	6	0	-0.1	17	57	20	6	0	-0.1	9	60	29	2	0	-0.1	0	9	80	11	0
Avg.	**1.3**	**90**	**1**	**1**	**4**	**4**	**2.2**	**13**	**60**	**21**	**6**	**0**	**2.3**	**8**	**54**	**33**	**5**	**0**	**3.2**	**0**	**4**	**75**	**21**	**0**

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

Wool quality scores were collected on both the ewe and wether progeny.

Table 5b. Visual trait assessment – 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.

Ram code	Wool Quality												Pigmentation													
	Staple Weathering						Staple Structure						Fibre pigmentation						Non-fibre pigmentation						Black	Spot
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	5	5
1	Staple Weathering was not scored at Post Weaning Stage; refer to Dust Penetration Score						-0.2	4	93	3	0	0	0.0	100	0	0	0	0	-0.5	93	7	0	0	0	0	3
2							-0.1	6	81	11	2	0	0.0	100	0	0	0	0	-0.3	81	17	2	0	0	0	0
3							0.2	0	73	12	15	0	0.2	91	0	3	3	3	0.8	14	46	31	9	0	0	0
4							0.1	2	65	28	5	0	0.2	91	0	2	7	0	1.1	16	27	39	14	4	0	0
5							-0.1	6	78	16	0	0	0.0	100	0	0	0	0	0.3	38	46	14	2	0	0	0
6							-0.1	2	90	8	0	0	0.0	100	0	0	0	0	0.1	52	32	12	4	0	0	0
7							0.1	3	71	22	4	0	0.0	100	0	0	0	0	-0.2	71	24	5	0	0	0	0
8							0.3	5	56	28	8	3	0.0	98	0	2	0	0	-0.1	62	35	0	3	0	0	0
9							0.1	7	65	20	8	0	0.0	100	0	0	0	0	-0.5	94	6	0	0	0	0	0
10							0.0	0	82	12	6	0	0.0	100	0	0	0	0	-0.2	68	29	3	0	0	0	0
11							0.1	0	78	15	7	0	0.0	100	0	0	0	0	0.2	46	34	17	0	3	0	0
12*							0.0	6	73	18	3	0	0.0	100	0	0	0	0	0.0	52	45	3	0	0	0	0
13							0.0	5	79	12	4	0	0.0	100	0	0	0	0	-0.4	86	14	0	0	0	0	0
14*							-0.1	2	86	12	0	0	0.1	94	4	0	2	0	0.5	35	37	18	10	0	0	2
15							-0.1	5	85	10	0	0	0.0	100	0	0	0	0	-0.4	88	10	0	2	0	0	0
16							-0.1	6	77	17	0	0	0.0	100	0	0	0	0	-0.4	84	16	0	0	0	0	0
17*							0.0	9	69	20	2	0	0.0	100	0	0	0	0	-0.2	68	29	0	3	0	0	0
Avg.							**2.2**	**3**	**77**	**16**	**4**	**0**	**1.0**	**98**	**0**	**0**	**2**	**0**	**1.5**	**62**	**27**	**8**	**3**	**0**		

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

Wool quality scores were collected on both the ewe and wether progeny.

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 is the exception where Score 3 is ideal (well aligned) and a negative deviation demonstrates undershot jaws and a positive deviation, overshot jaws. Face cover is a possible exception when for many breeders the optimum score is in the middle of the range, therefore trait leaders have not been highlighted.

Ram code	Conformation																											
	Jaw						Legs and Feet						Shoulder and Back						Face Cover						Body Wrinkle					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	0.0	0	0	100	0	0	0.0	97	0	3	0	0	-0.1	100	0	0	0	0	-0.1	0	17	83	0	0	-0.5	53	43	4	0	0
2	0.0	0	0	100	0	0	-0.1	97	0	3	0	0	-0.1	100	0	0	0	0	0.0	0	8	89	3	0	-0.5	61	31	8	0	0
3	0.0	0	0	100	0	0	0.3	82	0	15	0	3	0.1	94	0	6	0	0	0.0	0	9	88	3	0	0.1	24	41	35	0	0
4	0.0	0	0	100	0	0	0.0	95	0	5	0	0	-0.1	100	0	0	0	0	0.0	0	7	88	5	0	0.1	26	37	37	0	0
5	0.0	0	0	100	0	0	0.0	95	0	5	0	0	-0.1	100	0	0	0	0	-0.1	0	8	92	0	0	-0.1	32	49	16	3	0
6	0.0	0	0	100	0	0	0.0	92	0	8	0	0	0.0	98	0	2	0	0	-0.1	0	15	85	0	0	0.1	15	57	28	0	0
7	0.0	0	0	100	0	0	-0.1	98	0	2	0	0	0.0	98	0	2	0	0	-0.1	0	16	82	2	0	-0.3	39	53	8	0	0
8	0.0	0	0	100	0	0	0.0	95	0	5	0	0	0.2	87	0	13	0	0	0.2	0	0	90	5	5	0.3	15	36	49	0	0
9	0.0	0	0	100	0	0	0.1	90	0	8	0	2	0.0	96	0	4	0	0	0.3	0	2	78	14	6	0.5	6	45	45	4	0
10	0.0	0	0	100	0	0	-0.1	100	0	0	0	0	0.0	95	0	5	0	0	-0.2	0	25	75	0	0	0.3	12	45	40	3	0
11	0.0	0	0	100	0	0	0.0	95	0	5	0	0	0.0	98	0	2	0	0	0.0	0	5	95	0	0	-0.1	37	37	24	2	0
12*	0.0	0	0	100	0	0	0.0	94	0	6	0	0	0.0	97	0	3	0	0	0.1	0	0	91	9	0	0.3	18	33	45	4	0
13	0.0	0	0	100	0	0	0.0	96	0	4	0	0	0.0	98	0	2	0	0	0.0	0	6	88	6	0	-0.3	40	48	12	0	0
14*	0.0	0	0	100	0	0	0.0	96	0	4	0	0	-0.1	100	0	0	0	0	-0.1	0	14	84	2	0	-0.1	35	45	18	2	0
15	0.0	0	0	100	0	0	-0.1	98	0	2	0	0	-0.1	100	0	0	0	0	0.0	0	5	95	0	0	-0.1	28	52	20	0	0
16	0.0	0	0	100	0	0	-0.1	97	0	3	0	0	0.1	91	0	9	0	0	0.0	0	3	94	3	0	0.0	28	43	29	0	0
17*	0.0	0	0	100	0	0	0.0	94	0	6	0	0	0.1	94	0	6	0	0	0.2	0	6	77	14	3	0.0	25	46	29	0	0
Avg.	**0.0**	**0.0**	**0.0**	**100**	**0.0**	**0.0**	**1.1**	**95**	**0**	**5**	**0**	**0**	**1.1**	**97**	**0**	**3**	**0**	**0**	**3.0**	**0**	**9**	**87**	**4**	**0**	**2.0**	**29**	**44**	**26**	**1**	**0**

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

Wool quality scores were collected on both the ewe and wether progeny.

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. Breech scores were recorded at lamb marking.

Ram Code	Breech																							
	Marking Breech Cover						Marking Breech Wrinkle						Post Weaning Crutch Cover						Post Weaning Dag					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	-0.1	3	10	20	37	30	-1.3	53	30	17	0	0	Crutch cover was not assessed at post weaning stage assessment.						-0.1	97	0	0	3	0
2	0.0	0	8	14	50	28	-0.9	47	17	25	11	0							-0.1	94	3	0	3	0
3	0.3	0	5	9	43	43	0.0	23	20	9	34	14							0.1	88	3	6	3	0
4	-0.1	0	5	36	34	25	-0.1	20	14	27	34	5							0.2	81	5	7	5	2
5	-0.1	3	5	24	41	27	-0.2	19	38	11	16	16							0.1	86	4	5	5	0
6	-0.1	0	2	27	51	20	-0.1	17	29	24	13	17							-0.1	95	3	2	0	0
7	0.0	0	8	16	47	29	0.2	10	27	18	29	16							0.1	90	2	2	6	0
8	0.0	0	0	28	50	22	0.7	2	15	28	25	30							-0.2	100	0	0	0	0
9	0.3	0	2	22	28	48	0.7	8	12	20	30	30							0.0	90	2	6	0	2
10	-0.5	4	15	29	37	15	0.3	7	17	32	37	7							0.0	95	0	3	0	2
11	0.2	0	0	34	22	44	-0.3	24	22	29	17	8							0.2	85	0	5	7	3
12*	0.1	0	4	21	48	27	0.5	7	15	30	30	18							-0.1	97	0	3	0	0
13	-0.3	2	12	27	41	18	-0.5	31	24	20	16	9							0.0	92	2	2	2	2
14*	0.0	0	3	16	65	16	0.2	15	14	29	24	18							-0.1	98	0	0	2	0
15	0.1	0	5	22	35	38	0.0	20	22	18	28	12							0.0	92	0	3	5	0
16	-0.3	0	8	35	43	14	0.4	10	22	11	35	22							0.0	91	3	3	3	0
17*	0.5	0	0	3	50	47	0.5	11	18	24	13	34							0.1	91	0	0	9	0
Avg.	**3.9**	**1**	**5**	**23**	**42**	**29**	**2.9**	**19**	**21**	**22**	**23**	**15**							**1.2**	**92**	**1**	**3**	**3**	**1**

* Link sire: Sire evaluated to provide links between site evaluations and sites so that all site results can be combined into a single report, e.g., *Merino Superior Sires.*

Wool quality scores were collected on both the ewe and wether progeny.

Understanding the Results – information to assist the use of the results

Accuracy of Flock Breeding Values

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

True Breeding Values would be achieved if the number of progeny evaluated for each sire were infinite. Because the number of progeny in the evaluation is not infinite, performance shown in this report is described as *Flock* Breeding Values.

Without progeny test information the correlation between the *Flock* and *True* Breeding Value of sires from different sources would be zero (0.0%). The correlation between *Flock* and *True* Breeding Value improves rapidly from 0.0% with no progeny to 77% with 10 progeny. The rate of improvement in correlation slows from 86% with 20 progeny, to 90% with 30 progeny and 92% with 40 progeny. With an infinite population the correlation is 100%. Note that the correlation used in the above example is for a trait such as fibre diameter with a high heritability (0.5).

A heritability of 0.5 indicates that half or 50% of the measured performance is passed onto offspring. A heritability of 0.35 indicates 35% is passed on. The FBVs that are shown in this report have already accounted for heritability and therefore describe the performance that can be expected from a sire's progeny.

Link sires

Link sires provide the 'genetic link' between Merino Sire Evaluation (MSE) 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 MSE sites and across all evaluations at these sites. Link sires are therefore a vital component of the MSE.

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 and New Zealand.

Calculation – combined measured traits and combined visual trait performance

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

Combined visual trait performance is calculated as:
(Classer's Visual Grade Tops% - Culls%)/5, expressed as a deviation from the (average Tops% - average Culls%)/5

Example

Sires 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

This sire evaluation site is run

under the auspices of the

Australian Merino Sire Evaluation Association