MerinoLink Limited Sire Evaluation

Within Flock Analysis
Site Report

2016 Drop
Yearling & Hogget Assessments

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

7th October 2017

MerinoLink Sire Evaluation Sponsors and Supporters – 2016 drop

Acknowledgements

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Mandy Bourlet, Wynwood, Jugiong
Adele Offley, Moses & Son, Young
Simon Coddington, Moses & Son, Young
Craig Wilson, Craig Wilson & Associates, Wagga
Mick Corkhill, Grassy Creek Merino Stud, Reids Flat
Ben Patrick, Yarrawonga Merino Stud, Harden
Lexi Cesnik, Sally Martin Consulting, Young
Rachael Gawne, Sally Martin Consulting
Brianna Russell, Sally Martin Consulting

Disclaimer

The Australian Merino Sire Evaluation Association has approved the format used in this report. Australian Flock Breeding Values reported here are based on analysis conducted by Animal Genetic Breeding Unit (AGBU), Armidale.

Foreword

MerinoLink Limited - Central Test Sire Evaluation

MerinoLink Limited run the sire evaluation sites located on the South West Slopes 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.

The MerinoLink Sire Evaluation site at Jugiong is an accredited Central Test Sire Evaluation (CSTE) site. It conforms to the requirement of the Australian merino Sire Evaluation Association (AMSEA).

The 2016 drop is the third (3rd) joining at Jugiong and complements the previous sire evaluations in 2014 and 2015.

We would like to thank and acknowledge the dedication of Dean and Mandy Bourlet for hosting the sire evaluation. Your enthusiasm and commitment to Merino breeding is appreciated and infectious.

The classing for the first visual assessments was conducted by Mr Mick Corkhill, Grassy Creek Merino Stud and Ben Patrick, Yarrawonga Merino Stud. We would like to fully acknowledge both Mick's and Ben's professional contribution to the visual assessments.

The 12 Merino sires being evaluated includes two link sires that are also being assess in the Merino Lifetime Productivity Project funded by Australian Wool Innovation. The linkage will allow a greater pool of data to be collected across sites.

We trust that everyone has achieved something out of this program and we look forward to providing leading genetic evaluation tools into the future.

Sally Martin, MerinoLink CEO

Site Contacts

Name	Phone	Role
Dean Bourlet	0429 866 258	Host Property
Craig Wilson	0428 250 982	MerinoLink Board Director *(Service Provider)*
Sally Martin	0400 782 477	Site Coordinator; Data Management; Reporting; MerinoLink Board Director *(Service Provider)*; MerinoLink CEO
Richard Keniry	0427 878 541	MerinoLink Board Director *(Commercial Breeder)*
Marty Moses	0417 691 308	MerinoLink Board Director *(Service Provider)*
Carol Huggins	0429 934 616	MerinoLink Board Director *(Ram Breeder)*
Steve Jarvis	0427 853 528	MerinoLink Board Director *(Commercial Breeder)*
Robert Mortimer	02-6892 8259	MerinoLink Board Director *(Ram Breeder)*
Mal Peake	0408 426 103	MerinoLink Board Director *(Ram Breeder)*
Rick Baldwin	0429 833 837	MerinoLink Board Director *(Ram Breeder)*
David Davidson	0429 847 345	MerinoLink Board Director *(Commercial Breeder)*

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2016 Drop, Yearling Assessment - MerinoLink Limited Sire Evaluation

The information in this site evaluation report provides a comprehensive assessment of the 2016 drop at the Yearling and Hogget Assessments 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 Yearling Assessment was carried out at 10 months of age with 10 months of wool growth, the Hogget Assessment was carried out at 13.5 months and the Adult Assessment will be carried out at 22 months of age with 12 months' wool growth.

Contents

Sire and owner details

Sire code	Breeders flock, Sire number Sire ID #, Breed †	Contact name, address Phone, Fax, Email
1	Bogo, 400130 504792-2014-400130 Merino	Mal Peake, Bogo, 535 Boambolo Road, Yass NSW 2582 P: 0408 426 103 E: agriman@bigpond.com.au
2	Bundilla, 140055 601435-2014-140055 Poll Merino	Rick Baldwin, Bundilla, 706 Tubbul Road, Young NSW 2594 P: (02) 6383 3802 F: (02) 6383 3837 E: bundillamerinos@bigpond.com
3	Collingwood, 140200 509987-2014-140200 Merino	Charles Knight, Collingwood, PO Box 40, Gunning NSW 2581 P: (02) 4845 1413 E: lornepastoral@bigpond.com
4	Gullen Gamble, 121070 601414-2012-121070 Merino	Mark Kerin, Gullen Gamble, Yeoval NSW 2868 P: (02) 6846 4252 E: gullen@bordernet.com.au
5* (Link)	Leahcim Poll, 090918 600815-2009-090918 Poll Merino	Andrew Michael, Leahcim Poll, PO Box 31, Snowtown SA 5520 P: (08) 8865 2085 E: leahcimgenetics@bigpond.com
6* (Link)	Mumblebone, 130389 500063-2013-130389 Merino	Chad Taylor, Marrapana, 456 Wuuluman Road, Wellington NSW 2820 P: (02) 6845 3620 F: (02) 6845 3608 E: chad@mumblebone.com.au
7	Pastora Poll, 140564 601090-2014-140564 Poll Merino	Tim Westblade, Pastora, Lockhart NSW 2656 M: 0429 205 423 E: trwesty@bigpond.com
8	Pooginook Poll, 140961 601442-2014-140961 Poll Merino	John Sutherland, Paraway Pastoral Company, Jerilderie NSW 2716 P: (02) 6954 6145 F: (02) 6954 6168 E: pooginook@parawaypastoral.com
9	Rocklyn, 140296 501039-2014-140296 Merino	Ralph Diprose, Elon, Cowra Road, Grenfell NSW 2810 P: (02)6343 6331 F: (02) 6343 6331 E: rkdiprose@gmail.com
10	The Yanko, 130003 504694-2013-130003 Merino	Hugh Cameron, The Yanko, Jerilderie, NSW, 2716 P: (02) 6956 1142 E: theyanko@bigpond.com
11	Woodpark Poll, 120342 601151-2012-120342 Poll Merino	Stephen and Carol Huggins, Eurolie, Hay NSW 2711 P: (02) 6993 4616 F: (02) 6993 4122 E: woodparkpoll@bigpond.com
12	Yarrawonga, 140961 503534-2014-140961 Merino	Steve Phillips, Cunningham Plains, Burley Griffin Way, Harden NSW 2587 M: 0428 984 699 E: yarrawongamerino@bigpond.com

Graph and Table Key

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

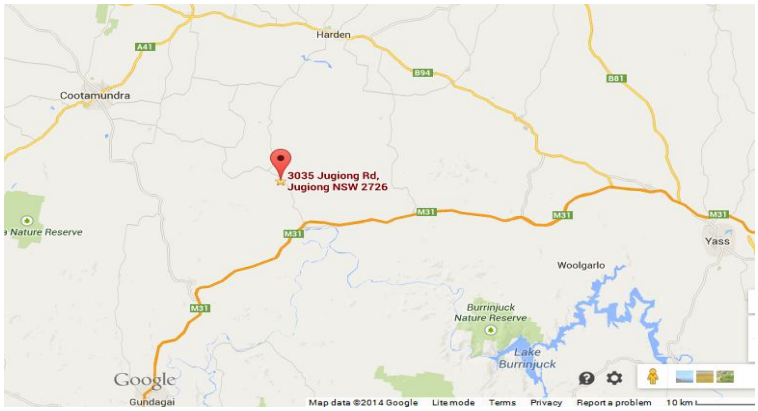
** Common sires (in addition to Link Sires) between this CTSE site and other sites.

\# 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.

Example 16 digit code: 50 - 4967 - 2009 - 090012
Breed Flock Year of drop On-farm ID

† Breed of flock in which the sire was born.

1. Location



"Wynwood", 3035 Jugiong Road, Jugiong is located 30km from Harden on the Jugiong/Harden Road or 6km from Jugiong.

"Wynwood" is a commercial farming operation operated by Dean and Mandy Bourlet.

2. Selection and mating

- 617 medium framed ewes with free growing soft handling wools and low wrinkle score were selected and classed to be free from visual and conformation faults.
- The ewes were mated by Artificial Insemination to 12 sires.
- The ewes were randomly allocated to each sire.
- The insemination program was conducted on 23rd and 24th February 2016.
- The insemination program was conducted by Allstock, Dubbo.
- 50 ewes were allocated to each sire entered.

3. Pregnancy and lambing

- Pregnancy scanning took place on 26th May 2016.
- Ewes were managed as one contemporary group until 10 days before lambing.
- Adequate pasture and a supplementary feeding program ensured that nutritional requirements were met during all stages of pregnancy.
- Sire groups lambed down in separate paddocks.
- Lambs were tagged (visual and electronic) and weighed within two weeks of lambing and groups brought together and boxed into one contemporary group of ewes and lambs.

4. Weaning and seasonal conditions

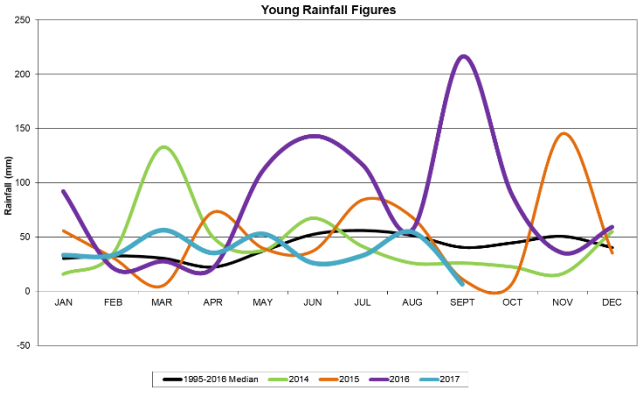
- The lambs were marked and visually scored on 2nd September 2016.
- The lambs were weaned onto grazing crops on 29th October 2016.

5. Visual Assessments

- The 1st stage visual assessment was carried out by Mick Corkhill and Ben Patrick.

6. Rainfall – Young (closest weather station)

	2012	2013	2014	2015	2016	2017	Median
Jan	30.2	7.0	16.0	55.6	92.2	33.2	28.1
Feb	168.6	42.6	35.0	30.6	21.6	33.2	56.6
Mar	162.6	60.6	132.8	5.2	27.8	56.2	56.2
Apr	15.2	12.2	50.0	72.8	21.6	35.2	48.6
May	37.0	28.0	37.6	39.6	111.2	52.8	40.6
Jun	56.6	108.8	67.4	37.0	143.0	2.6	44.6
Jul	62.4	58.2	41.4	84.2	116.6	32.8	52.1
Aug	45.2	36.8	26.0	67.8	57.0	54.2	37.1
Sep	35.8	27.8	26.2	11.0	216.2	6.4	28.1
Oct	14.0	20.0	22.6	7.6	88.4		31.7
Nov	41.6	26.8	16.2	145.2	35.6		27.8
Dec	43.0	16.0	55.0	35.2	59.4		22.1
Totals	712.2	444.8	526.2	526.2	990.6	330.2	614.5



*Source: BOM - Median 1995-2017.

Assessment and management program

Activity	Date/s	Age (months)	Wool (months)
Selection of ewes & allocation of ewes for mating	09.02.2016		
Artificial Insemination	23.02.2016 24.02.2016		
Pregnancy scanning	25.05.2016		
Separated into sire lambing groups	08.07.2016		
Lambing: start – finish	22 to 30.07.2016		
Lambing mobs boxed to 1 management group	12.08.2016	14-21 days	
Tagging/pigment scores (age in days)	12.08.2016	14-21 days	
Marked and scored for breech traits	02.09.2016	42 days	
Weaning (age in days)	29.10.2016	99 days	
Pre-assessment (even-up) shearing	NA		
Crutching • Post Weaning (PW)	17.01.2017	6	6
Fat and eye muscle scanning • Hogget (H)	01.09.2017	13.5	
Fleece sampling assessment • Yearling (Y) • Adult (A)	08.05.2017	10	10
Staple length assessment • Yearling (Y) • Adult (A)	08.05.2017	10	10
Classer's Grade assessment • Yearling (Y) • Adult (A)	05.05.2017	10	10
Pre shearing scoring assessment • Yearling (Y) • Adult (A)	05.05.2017	10	10
Assessment shearing • Yearling (Y) • Adult (A)	08.05.2017	10	10
Post shearing scoring assessment • Yearling (Y) • Adult (A)	08.05.2017	10	0
Body weigh assessment • Weaning (W) • Post Weaning (PW) • Yearling (Y) • Hogget (H) • Adult (A)	07.10.2016 17.02.2017 05.05.2017 01.09.2017	3.5 7 10 13.5	
Worm egg count sampling • Yearling (Y)	Little challenge to date; still to be measured.		
Sire's Progeny Group Evenness assessment			
Vaccination	Marking, weaning, post shearings, annual booster		
Drench	As required based on worm egg counts		
Field day or public display of sheep	05.05.2017 (during 2nd stage assessment)		

Visual Trait Assessment and site Breeding Objective

Visual trait assessment
1st Stage Assessment (Yearling)

Classer's Grade: Mick Corkhill
Pre-Shearing Trait Scores: Mick Corkhill and Ben Patrick
Breech Scores: Sally Martin
Post Shearing Trait Scores: Sally Martin and Adele Offley

Site Breeding Objective used to assess the Classer's Grades – 1st Stage Assessment
The Breeding Objective used to select the Classer's Tops (17%), Flock (57%) and Cull (26%) 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).

Index Options

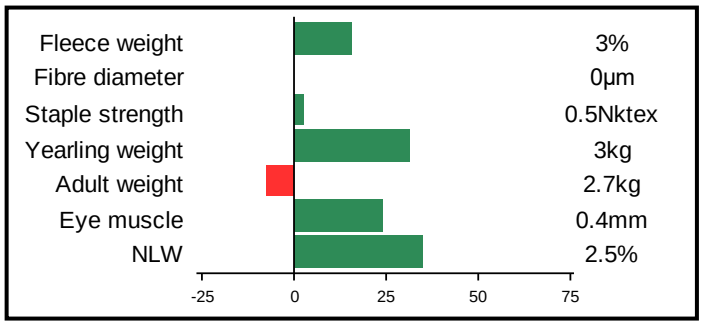
A breeding index combines multiple measured traits into a single value that reflects a certain emphasis on these traits. It is important that you use an index that best matches the breeding objective and production system of the flock you are selecting for. It is recommended that the performance of individual measured and visually assessed traits is used in conjunction with an index as selection indexes assist in making balanced selection decisions.

Site Reports present 4 indexes, DP+; MP+; FP+ and WP+. These indexes are the same as MERINOSELECT indexes of that name but account for the fact that direct reproduction records have not been captured by AMSEA sire evaluation. The WP+ index was established by AMSEA and is now available as custom MERINOSELECT index. Below is the percentage contribution that each trait makes to economic gain in a commercial flock that uses an index for sire selection. Additionally, included for each index are the likely within-flock responses from using an index for 10 years. These responses are based on a ram breeding flock with a standard breeding program, no introduction of outside genetics and uses 35% of their selection emphasis on traits that are not in the index (such as visually assessed performance).

Percentage Contribution to Economic Gain | **Trait Gain**

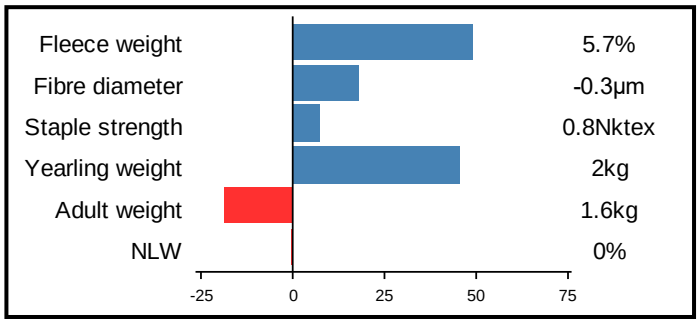
Dual Purpose Plus (DP+)

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



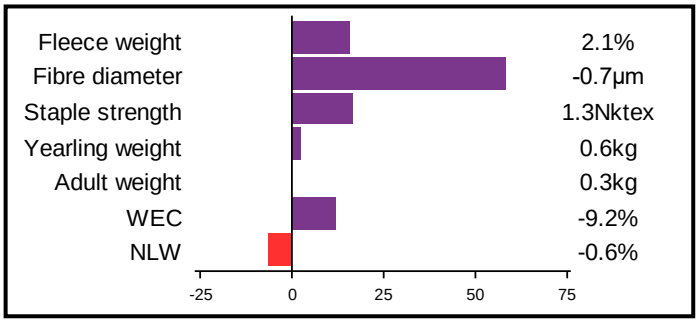
Merino Production Plus (MP+)

Based on a balanced wool and meat production system where surplus progeny are sold as hoggets. Balanced emphasis on increasing fleece weight and reduction in fibre diameter. Moderate increase in body weight, with little change in reproduction.



Fibre Production Plus (FP+)

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



Wool Production Plus (WP+)

Based on the MP+ production system with a greater emphasis on increasing fleece weight, while maintaining fibre diameter and a moderate emphasis on increasing body weight.

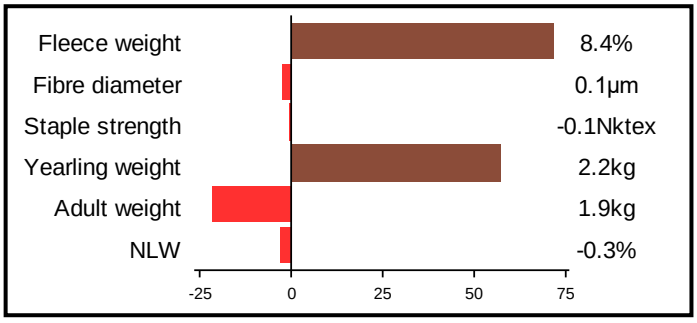


Table 1. **AMSEA Index values and Classer's Grade**

The highest performing 3 sires for each trait (i.e. trait leaders) are highlighted by shading. Each sire is listed for Classer's Grade and the same four indexes at all site evaluations. The index values reported are based on Flock Breeding Values (within flock) measured trait performance with varying emphasis on fleece weight, fibre diameter, body weight, staple strength and worm egg count. See 'Index Options' on page 8 for more information on the indexes presented in the table below.
AMSEA Indexes are the same as MERINOSELECT Indexes apart from NLW (Number of Lambs Weaned) which is given a zero FBV value in AMSEA calculations.

Ram code	Breeders flock, Ram number	No of Progeny	AMSEA Indexes values				Classer's Grade	
			Fibre Production Plus	Merino Production Plus	Dual Purpose Plus	Wool Production Plus	Tops % (dev) Y^	Culls % (dev) Y
1	Bogo, 400130	27	105	106	101	104	-7	-4
2	Bundilla Poll, 140055	41	98	98	110	97	-2	-17
3	Collingwood, 140200	35	102	104	100	105	4	5
4	GullenGamble Poll, 121070	32	113	117	107	115	18	-14
5	Leahcim Poll, 090918	41	106	102	98	95	-4	3
6	Mumblebone, 130389	34	85	82	102	85	-9	7
7	Pastora Poll, 140564	31	100	90	82	84	-10	14
8	Pooginook Poll, 140961	35	102	101	94	102	0	13
9	Rocklyn, 140296	22	96	99	93	105	5	0
10	The Yanko, 130003	30	104	109	99	111	15	-22
11	Woodpark Poll, 120342	37	86	92	110	100	-5	7
12	Yarrawonga, 140961	18	103	101	105	96	-5	7
Average performance		**32**	**100**	**100**	**100**	**100**	**17**	**26**

* Link sire: Sire evaluated to provide links between site evaluations and sites so that the 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] Y = Yearling (300 to 400 days). H = Hogget (400 to 540 days)

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

Summary graph: visual and measured performance

Each sire meeting the AMSEA index accuracy threshold assessed at Yearling Assessment is located on Figure 1a, 1b, 1c and 1d and describes the performance for combined measured traits and combined visual assessment.

A different graph is provided for each of the four production indexes reported. In each graph, the combined measured traits are based on the AMSEA index and the visual trait performance is a combination of Classer's Grade performance (Tops and Culls). More information is found in "Calculation of combined performance" (page 23).

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

Sire code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Bogo, 400130	50-4792-2014-400130	50-4792-2011-110577
2	Bundilla Poll, 140055	60-1435-2014-140055	50-4081-2011-110107
3	Collingwood, 140200	50-9987-2014-140200	60-1250-2011-107255
4	GullenGamble Poll, 121070	60-1414-2012-121070	60-0815-2008-080445
5*	Leahcim Poll, 090918	60-0815-2009-090918	60-0815-2007-070319
6*	Mumblebone, 130389	50-0063-2013-130389	60-1365-2009-090399
7	Pastora Poll, 140564	60-1090-2014-140564	
8	Pooginook Poll, 140961	60-1442-2014-140961	60-1442-2012-120506
9	Rocklyn, 140296	50-1039-2014-140296	60-1053-2009-091026
10	The Yanko, 130003	50-4694-2013-130003	50-4694-2009-090064
11	Woodpark Poll, 120342	60-1151-2012-120342	50-1151-2010-100015
12	Yarrawonga, 140961	50-3534-2014-140961	50-3534-2011-112222

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

Figure 1a is based on an **AMSEA Dual Purpose Plus (DP+) index** – (Based on a meat focused production system where surplus progeny are sold as lambs and a portion of ewes are joined to terminal sires).

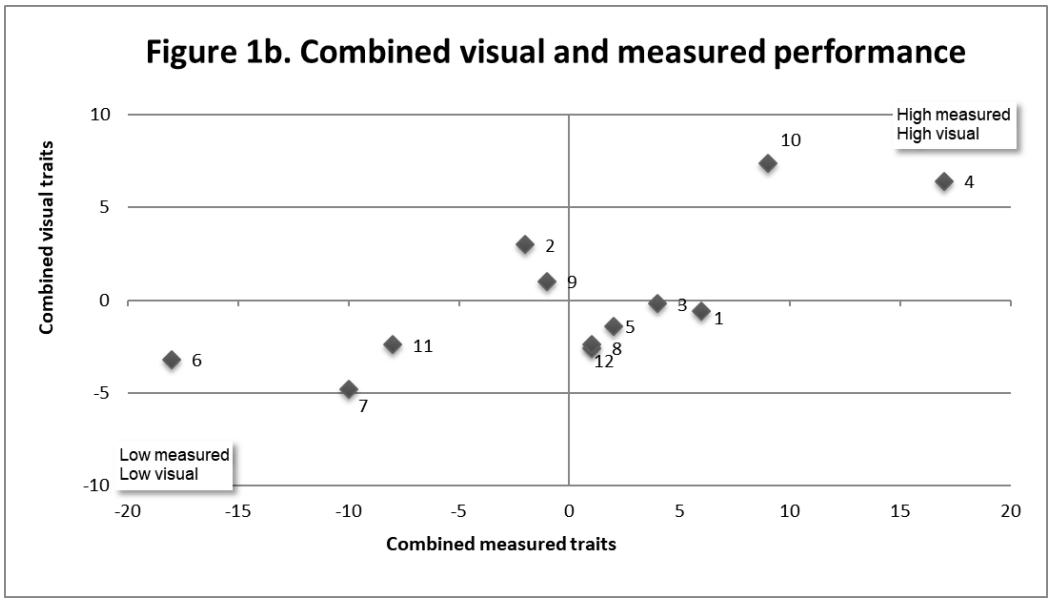


Figure 1b is based on an **AMSEA Merino Production Plus (MP+) index** – (Based on a balanced wool and meat production system where surplus progeny are sold as hoggets).

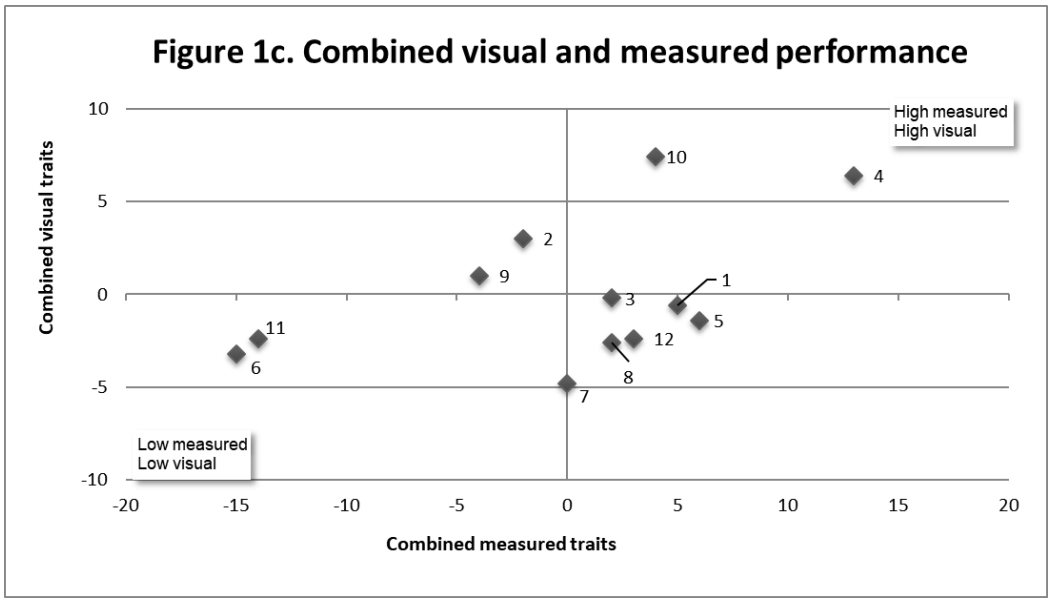
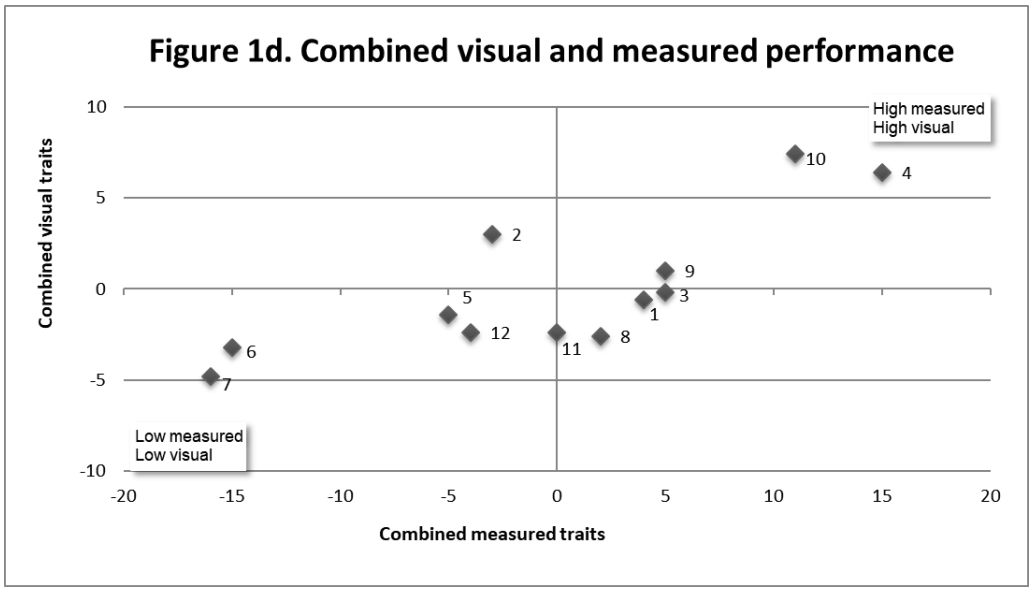


Figure 1c is based on an **AMSEA Fibre Production Plus (FP+) index** (Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses).



Wool Production Plus (WP+) (Based on the MP+ production system with a greater emphasis on increasing fleece weight, while maintaining fibre diameter and a moderate emphasis on increasing body weight).

Figures 2, 3 & 4 Summary Graphs: Fleece Weight by Fibre Diameter & Body Weight, Tops & Culls

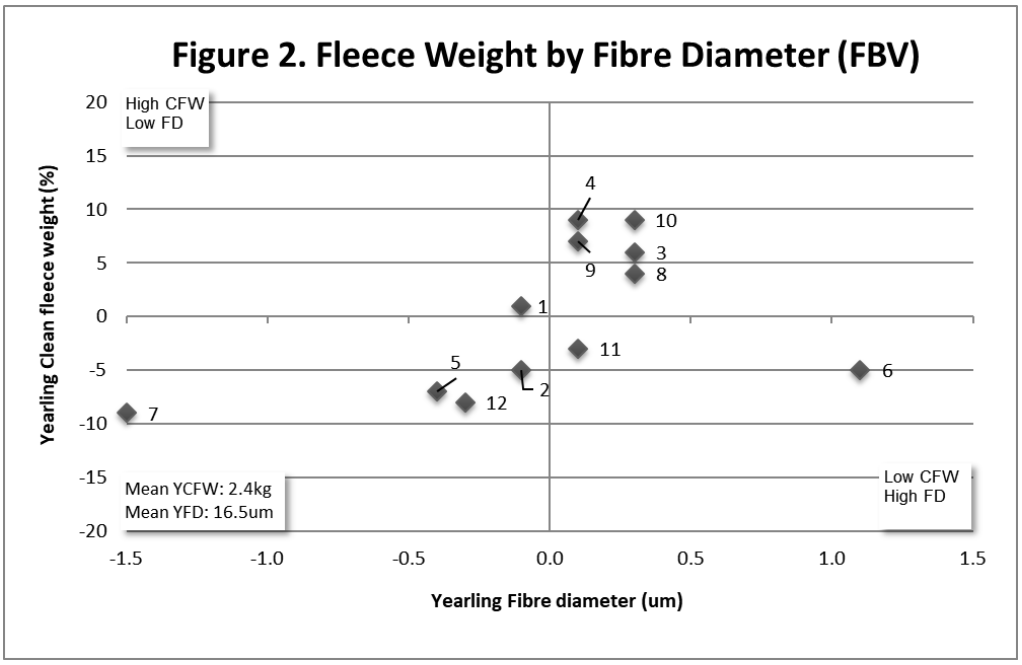


Figure 2 Fleece weight by fibre diameter FBVs (Yearling) – describes performance for clean fleece weight on the side axis and fibre diameter on the bottom axis. Sires that are above average for yearling clean fleece weight and below average yearling fibre diameter are located in the top left-hand quadrant.

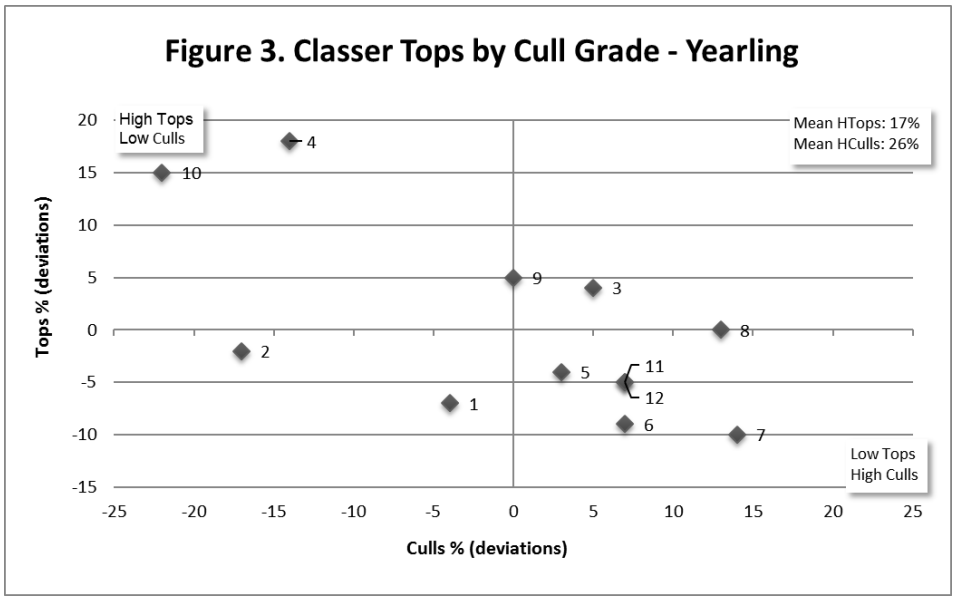


Figure 3 Classer's Tops by Cull Grade (Yearling) – describes performance for Classer's Tops Grade on the side axis and Cull Grade on the bottom axis. Sires that have above average Tops and below average Culls are in the top left-hand quadrant. Classer's Tops (23%), Flock (47%) and Cull (30%) is based 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.

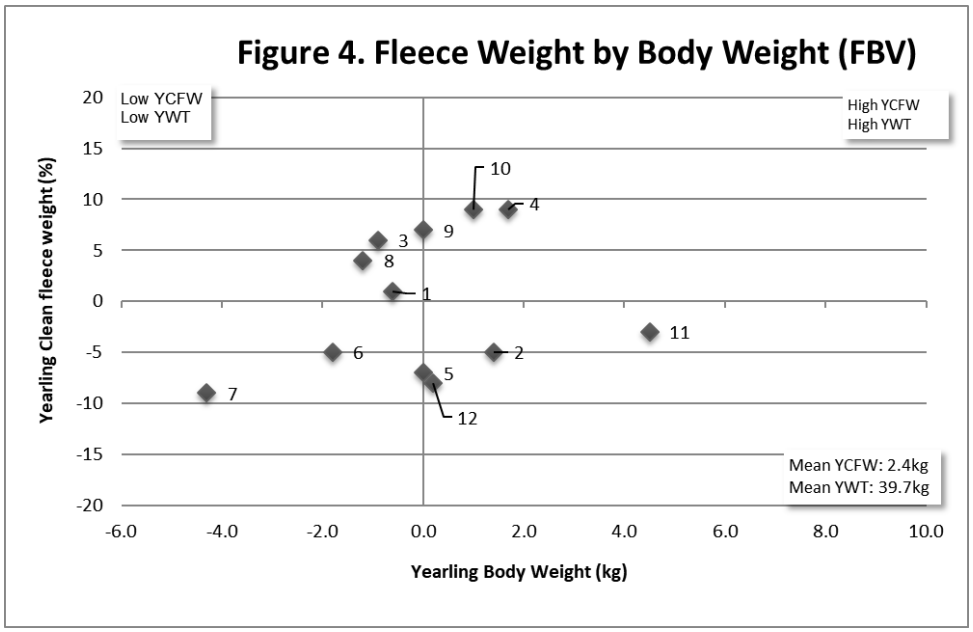


Figure 4. Fleece weight by body weight FBV's (Yearling) – describes performance for clean fleece weight on the side axis and body weight on the bottom axis. Sires that are above average for yearling clean fleece weight and above average for yearling body weight are located in the top right-hand quadrant.

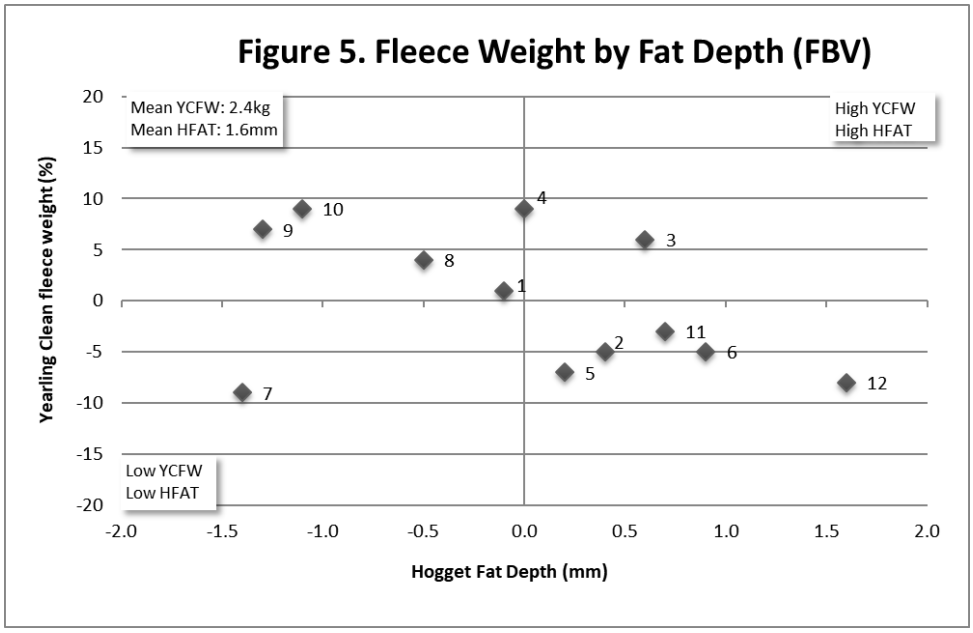


Figure 5. Fleece weight by fat depth (FBV's) - describes the performance for fleece weight on the side axis and fat depth on the bottom axis. Sires that are above average for yearling clean fleece weight and above average for hogget fat depth are located in the top right-hand quadrant.

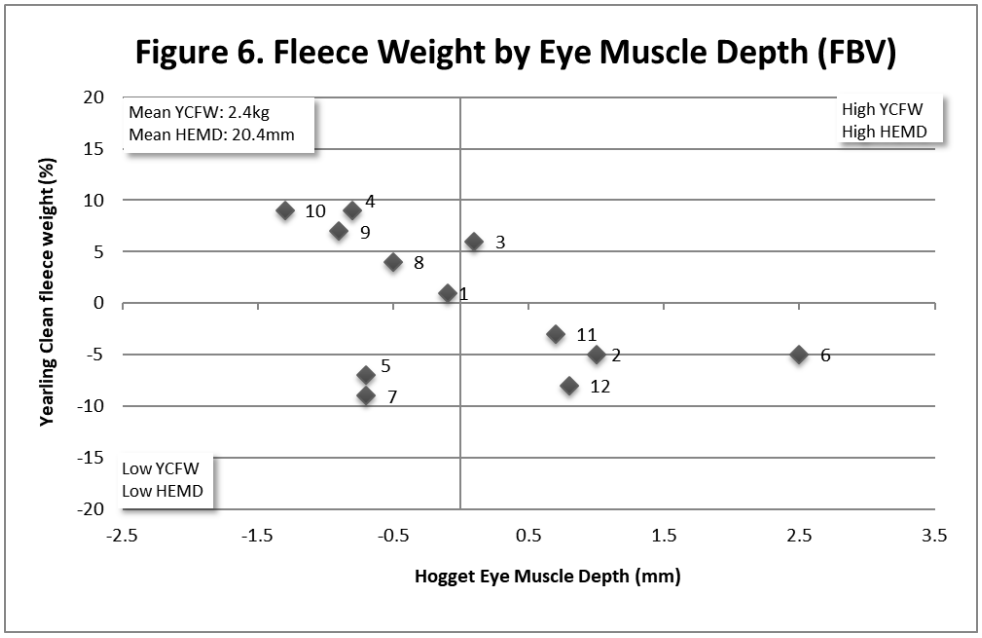


Figure 6. Fleece weight by eye muscle depth (FBV's) - describes the performance for fleece weight on the side axis and eye muscle depth on the bottom axis. Sires that are above average for yearling clean fleece weight and above average for hogget eye muscle depth are located in the top right-hand quadrant.

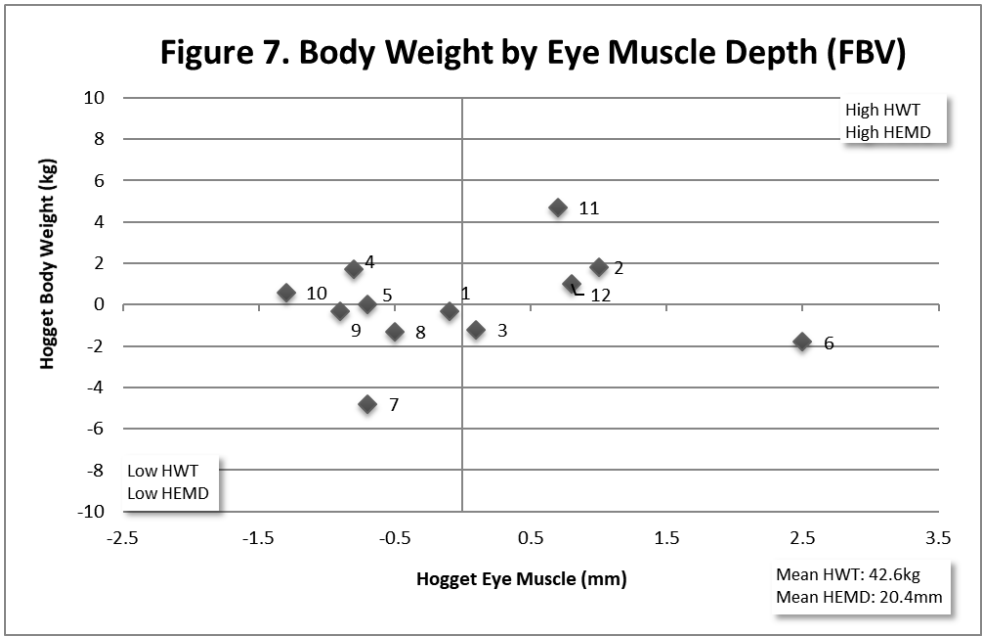


Figure 7. Body weight by eye muscle depth (FBV's) - describes the performance for body weight on the side axis and eye muscle depth on the bottom axis. Sires that are above average for yearling clean fleece weight and above average for hogget fat depth are located in the top right-hand quadrant.

2016 drop – 1st September 2017

Understanding the results – measured trait performance

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

Sire code:	Allows a sire to be located on the summary graphs and some tables.	
Sire name:	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.	
Horn/Poll:	The Poll test has been developed by the Sheep CRC using measurements and DNA tests on animals in the Information Nucleus Flocks. The test is based on two genetic markers that are very close to the Poll gene. PP = Polled; PH = Half Poll; HH = Horned; blank = test failed	
Flock Breeding Values:	Flock Breeding Values (FBVs) are Estimated Breeding Values (EBVs) calculated by Sheep Genetics for the sire's 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 sires observed performance, which is a combination of both genetic and environmental influences. FBVs are an estimate of the genetic component of the sheep's performance.	
Traits: Abbreviation, trait and the (units reported)	GFW: Greasy fleece weight (percentage). CFW: Clean fleece weight (percentage). FD: Average fibre diameter (micron). WT: Body weight (kilograms). FDCV: Fibre diameter coefficient of variation (percentage). SL: Staple length (mm) at the mid-side.	SS: Staple strength (N/ktex) at the mid-side. EMD: Eye muscle depth (mm) at the 'C' site. FAT: Fat depth (mm) at the 'C' site. CURV: Fibre curvature (degrees) WEC: Worm egg count (% deviation in worm burden of sire's progeny)
Age at assessment:	W = Weaning - 42 to 120 days (6 weeks to 4 months of age) E = Early Post Weaning - 120 to 210 days (4 to 7 months of age) P = Post Weaning - 210 to 300 days (7 to 10 months of age) Y = Yearling - 300 to 400 days (10 to 13 months of age) H = Hogget - 400 to 540 days (13 to 18 months of age) A = Adult - 540 days or older (18 months and older)	
Classer's 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.	

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

Ram code	Breeders flock, Ram number	Horn/Poll	No. of prog.	Flock Breeding Values (deviations)							Classer's Grade[1]	
				GFW %	CFW %	FD um	WT *kg*				Tops % (dev)	Culls % (dev)
				Y^	Y	Y	W	P	Y	H	Y	Y
1	Bogo, 400130	HH	27	2.0	1.0	-0.1	0.1	-0.6	-0.6	-0.3	-7	-4
2	Bundilla Poll, 140055	PP	41	-6.0	-5.0	-0.1	0.2	0.8	1.4	1.8	-2	-17
3	Collingwood, 140200		35	7.0	6.0	0.3	-0.4	-0.4	-0.9	-1.2	4	5
4	GullenGamble Poll, 121070	PH	32	7.0	9.0	0.1	0.7	1.2	1.7	1.7	18	-14
5*	Leahcim Poll, 090918	PP	41	-8.0	-7.0	-0.4	0.9	0.7	0.0	0.0	-4	3
6*	Mumblebone, 130389	PH	34	-4.0	-5.0	1.1	-1.1	-1.5	-1.8	-1.8	-9	7
7	Pastora Poll, 140564	PP	31	-8.0	-9.0	-1.5	-1.8	-3.1	-4.3	-4.8	-10	14
8	Pooginook Poll, 140961	PP	35	3.0	4.0	0.3	-0.9	-1.0	-1.2	-1.3	0	13
9	Rocklyn, 140296	PH	22	7.0	7.0	0.1	0.0	0.0	0.0	-0.3	5	0
10	The Yanko, 130003	HH	30	8.0	9.0	0.3	0.0	0.5	1.0	0.6	15	-22
11	Woodpark Poll, 120342	PP	37	-3.0	-3.0	0.1	2.4	3.7	4.5	4.7	-5	7
12	Yarrawonga, 140961	PP	18	-6.0	-8.0	-0.3	0.0	-0.3	0.2	1.0	-5	7

* Link sire: Sire evaluated to provide links between site evaluations and sites so that the 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] Y = Yearling (300 to 400 days). H = Hogget (400 to 540 days)

Information on how to use the results in the table above can be found on page 16.

Trait not measured at time of publication

Table 3. **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%
			Y^	Y^	Y^	Y^	H^	H^	Y^
1	Bogo, 400130	27	0.7	-7.2	2.3	5.0	-0.1	-0.1	Trait not measured at time of publication
2	Bundilla Poll, 140055	41	-0.5	-1.0	-0.4	4.1	0.4	1.0	
3	Collingwood, 140200	35	0.3	-0.8	1.0	-0.5	0.6	0.1	
4	GullenGamble Poll, 121070	32	-1.4	6.6	2.6	-5.0	0.0	-0.8	
5	Leahcim Poll, 090918	41	-0.5	-0.9	3.7	-1.0	0.2	-0.7	
6	Mumblebone, 130389	34	-1.0	8.2	2.2	-5.0	0.9	2.5	
7	Pastora Poll, 140564	31	0.8	-11.3	-3.4	7.2	-1.4	-0.7	
8	Pooginook Poll, 140961	35	-0.5	3.1	1.8	-4.0	-0.5	-0.5	
9	Rocklyn, 140296	22	1.8	6.3	-3.9	-6.1	-1.3	-0.9	
10	The Yanko, 130003	30	0.5	-0.5	0.1	-0.1	-1.1	-1.3	
11	Woodpark Poll, 120342	37	0.9	1.8	-8.1	0.3	0.7	0.7	
12	Yarrawonga, 140961	18	-1.2	-4.4	2.2	5.2	1.6	0.8	

^ 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).

Information on how to use the results in the table above can be found on page 16.

Understanding the results – scored performance traits

Visual trait performance – Tables 4a, 4b, 4c and 4d – pages 19 to 21. The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in the Visual Sheep Scores booklet (free on application to AWI or downloadable at www.merinosuperiorsire.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 <5%) to **5** (80 to 100% of staple).
■ Staple weathering:	The deterioration due to light and water from **1** (least, <5% of staple) to **5** (most, 30 to 50%) reflect the depth and degree of deterioration.
■ Staple structure:	The size and diameter of each staple from **1** (<5mm) to **5** (30 to 50 mm)
■ 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 good) to **5** (very poor).
■ Body wrinkle:	The degree of body wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
■ Jaw:	Under- or over-shot lower jaw (and teeth) relative to the top jaw. Three scores: **1** (very well aligned), **3** (marginally under or over) and **5** (heavily under or over).
■ Back/Shoulder:	Conformation of the back and shoulder from **1** (very good) to **5** (very poor).
■ Fibre pigmentation:	The percentage of dark fibres on any part of the sheep from **1** (0 pigmented fibres at any site) to **5** (76 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** (76 to 100% pigmented area on one or more bare skin sites, **and/or** 76 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** (large) to **5** (no bare).
■ Crutch cover	Size of natural bare area in the pubic and groin region from **1** (large) to **5** (no bare).
■ Breech wrinkle	Degree of wrinkle at the tail set and kind legs from **1** (nil) to **5** (extensive).
■ Dag	Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
■ Urine	Degree of urine stained wool in the breech area, including the hind legs from **1** (nil) to **5** (extensive).

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

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

Breeders flock, Ram number	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
Bogo, 400130	-0.3	78	11	4	7	0	-0.1	4	52	44	0	0	-0.1	0	67	33	0	0	0.0	0	8	85	7	0
Bundilla Poll, 140055	-0.5	83	10	5	0	2	0.0	0	51	49	0	0	0.0	0	61	37	2	0	0.1	0	12	66	22	0
Collingwood, 140200	0.2	46	29	11	9	5	0.1	0	46	51	3	0	0.0	0	60	40	0	0	-0.1	0	11	83	6	0
Gullen Gamble Poll, 121070	0.0	73	4	3	10	10	-0.1	0	67	33	0	0	-0.3	0	87	13	0	0	0.0	0	3	90	7	0
Leahcim Poll, 090918	-0.3	75	12	8	0	5	0.1	0	50	45	5	0	-0.1	0	70	30	0	0	0.1	0	10	68	22	0
Mumblebone, 130389	0.1	65	15	2	6	12	-0.1	0	67	33	0	0	0.2	0	45	48	7	0	0.2	0	6	64	30	0
Pastora Poll, 140564	0.5	47	10	20	17	6	0.0	3	47	47	3	0	0.1	0	50	50	0	0	-0.2	0	17	80	3	0
Pooginook Poll, 140961	-0.1	66	14	14	3	3	0.1	0	46	54	0	0	0.0	2	60	29	9	0	0.1	0	8	69	23	0
Rocklyn, 140296	0.0	67	9	10	14	0	0.1	0	38	62	0	0	0.0	0	62	38	0	0	0.0	0	19	62	19	0
The Yanko, 130003	-0.3	80	0	13	7	0	-0.1	0	60	40	0	0	-0.1	0	67	33	0	0	-0.2	0	27	63	10	0
Woodpark Poll, 120342	0.9	31	20	9	29	11	0.1	0	40	60	0	0	-0.1	0	77	17	6	0	0.1	0	6	77	17	0
Yarrawonga, 140961	-0.3	78	11	0	11	0	-0.1	0	67	28	5	0	0.1	0	50	50	0	0	-0.1	0	11	83	6	0
Avg.	**1.8**	**66**	**12**	**8**	**9**	**5**	**2.5**	**1**	**52**	**46**	**1**	**0**	**2.4**	**0**	**63**	**35**	**2**	**0**	**3.0**	**0**	**12**	**74**	**14**	**0**

Information on how to use the results in the table above can be found on page 19.

Table 4b. 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. Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported. For the majority of breeder's objectives, a negative deviation would be considered favourable and the larger the deviation the better. Four pigmentation traits are reported as described on page 20. These are Fibre pigmentation, Non-fibre pigmentation, Recessive "black" and Random "spot". Fibre pigmentation and Non-fibre pigmentation are scored **1** to **5** however recessive black and random spot are scored **1** (no pigmentation of this type) or **5** (when the trait is expressed). Only the percentage scored 5 are reported for recessive black and random spot.

Breeders flock, Ram number	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
Bogo, 400130	-0.1	0	0	89	11	0	0.1	26	74	0	0	0	0.0	100	0	0	0	0	0.1	28	59	13	0	0	0	0
Bundilla Poll, 140055	-0.1	0	7	76	17	0	-0.1	44	56	0	0	0	0.0	100	0	0	0	0	0.6	14	45	29	10	2	0	0
Collingwood, 140200	0.0	0	0	86	14	0	0.2	11	89	0	0	0	0.0	100	0	0	0	0	0.3	26	50	16	0	8	0	0
Gullen Gamble Poll, 121070	0.0	0	4	80	13	3	-0.1	40	60	0	0	0	0.0	100	0	0	0	0	0.0	34	54	9	3	0	0	0
Leahcim Poll, 090918	0.0	0	2	78	20	0	-0.4	68	32	0	0	0	0.0	100	0	0	0	0	0.0	43	36	17	4	0	0	0
Mumblebone, 130389	0.2	0	3	55	42	0	-0.1	42	58	0	0	0	0.0	100	0	0	0	0	0.1	41	35	19	5	0	0	0
Pastora Poll, 140564	-0.2	0	6	87	7	0	0.2	20	77	3	0	0	0.0	100	0	0	0	0	0.0	39	45	16	0	0	0	0
Pooginook Poll, 140961	0.1	0	6	66	26	2	-0.2	49	51	0	0	0	0.0	100	0	0	0	0	-0.1	38	54	8	0	0	0	0
Rocklyn, 140296	0.1	0	14	48	38	0	0.0	33	62	5	0	0	0.0	100	0	0	0	0	-0.6	83	12	5	0	0	0	0
The Yanko, 130003	-0.3	0	20	77	3	0	0.2	20	77	3	0	0	0.0	100	0	0	0	0	0.1	25	59	12	4	0	0	0
Woodpark Poll, 120342	0.2	0	0	69	29	2	-0.1	46	51	3	0	0	0.0	100	0	0	0	0	-0.3	54	41	5	0	0	0	0
Yarrawonga, 140961	0.1	0	0	78	22	0	0.3	5	89	6	0	0	0.0	100	0	0	0	0	-0.3	55	45	0	0	0	0	0
Avg.	**3.2**	**0**	**5**	**74**	**20**	**1**	**1.7**	**34**	**65**	**1**	**0**	**0**	**1.0**	**100**	**0**	**0**	**0**	**0**	**1.8**	**40**	**45**	**12**	**2**	**1**	**0.0**	**0.0**

Information on how to use the results in the table above can be found on page 19.

Table 4c. Visual trait assessments – Conformation

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values. For the majority of breeder's objectives, a negative deviation would be considered favorable and the larger the deviation the better. Face cover is the possible exceptions when for many breeders the optimum score is in the middle of the range.

Breeders flock, Ram number	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
Bogo, 400130	0.0	100	0	0	0	0	0.0	67	0	33	0	0	-0.1	89	0	11	0	0	0.0	0	0	100	0	0	0.3	8	52	33	7	0
Bundilla Poll, 140055	0.0	100	0	0	0	0	-0.5	93	0	7	0	0	-0.2	95	0	5	0	0	-0.1	5	5	90	0	0	-0.3	20	73	7	0	0
Collingwood, 140200	0.0	100	0	0	0	0	0.2	57	0	43	0	0	0.3	71	0	29	0	0	0.0	0	0	100	0	0	0.5	0	38	59	3	0
Gullen Gamble Poll, 121070	0.0	100	0	0	0	0	-0.2	75	0	25	0	0	-0.2	94	0	6	0	0	0.0	0	0	100	0	0	-0.4	34	62	4	0	0
Leahcim Poll, 090918	0.0	100	0	0	0	0	0.1	62	0	38	0	0	-0.1	90	0	10	0	0	0.0	0	0	100	0	0	-0.7	56	41	3	0	0
Mumblebone, 130389	0.0	100	0	0	0	0	0.0	65	0	35	0	0	0.0	88	0	12	0	0	0.0	0	0	100	0	0	-0.5	50	41	3	6	0
Pastora Poll, 140564	0.0	100	0	0	0	0	0.3	50	0	50	0	0	0.3	73	0	27	0	0	0.0	0	3	97	0	0	0.7	0	32	52	16	0
Pooginook Poll, 140961	0.0	100	0	0	0	0	-0.1	69	0	31	0	0	-0.2	94	0	6	0	0	0.0	0	3	97	0	0	0.0	29	31	40	0	0
Rocklyn, 140296	0.0	100	0	0	0	0	0.3	50	0	50	0	0	0.0	86	0	14	0	0	0.0	0	0	100	0	0	0.0	23	41	36	0	0
The Yanko, 130003	0.0	100	0	0	0	0	-0.3	80	0	20	0	0	-0.3	100	0	0	0	0	0.0	0	3	97	0	0	0.1	10	57	30	3	0
Woodpark Poll, 120342	0.0	100	0	0	0	0	0.5	43	0	54	0	3	0.5	65	0	32	0	3	0.0	0	3	97	0	0	-0.4	30	68	2	0	0
Yarrawonga, 140961	0.0	100	0	0	0	0	-0.3	83	0	17	0	0	-0.1	89	0	11	0	0	0.0	0	0	100	0	0	0.6	0	39	50	11	0
Avg.	**1.0**	**100**	**0**	**0**	**0**	**0**	**1.7**	**66**	**0**	**34**	**0**	**0**	**1.3**	**86**	**0**	**14**	**0**	**0**	**3.0**	**0**	**2**	**98**	**0**	**0**	**2.1**	**22**	**48**	**27**	**3**	**0**

Information on how to use the results in the table above can be found on page 19.

Table 4d. Visual trait assessments – Breech

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values. For the majority of breeder's objectives, a negative deviation would be considered favorable and the larger the deviation the better. Breech scores were recorded at lamb marking.

Breeders flock, Ram number	Breech																							
	Marking Breech Cover						Marking Breech Wrinkle						Marking Crutch Cover						Yearling 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
Bogo, 400130	-0.4	23	33	18	23	3	0.0	10	51	26	13	0	0.3	10	21	17	31	21	Trait not measured at time of publication					
Bundilla Poll, 140055	0.0	11	26	37	17	9	0.1	9	43	43	5	0	-0.5	26	31	14	24	5						
Collingwood, 140200	-0.5	32	26	23	16	3	0.4	0	42	45	10	3	-0.6	29	19	34	18	0						
Gullen Gamble Poll, 121070	-0.3	11	44	24	21	0	0.2	9	35	41	15	0	0.4	12	14	20	31	23						
Leahcim Poll, 090918	-0.2	12	41	19	25	3	0.3	3	38	53	3	3	0.4	8	19	21	38	14						
Mumblebone, 130389	0.0	13	23	35	23	6	0.4	4	42	35	16	3	-0.1	6	32	38	16	8						
Pastora Poll, 140564	0.3	4	22	31	36	7	0.1	13	40	33	11	3	-0.4	30	15	24	27	4						
Pooginook Poll, 140961	0.1	14	17	33	29	7	-0.4	29	50	19	2	0	0.0	10	26	33	21	10						
Rocklyn, 140296	-0.1	18	30	15	32	5	-0.7	40	50	10	0	0	0.2	21	25	4	17	33						
The Yanko, 130003	0.5	3	20	30	35	12	0.0	18	40	32	8	2	-0.1	22	19	25	19	15						
Woodpark Poll, 120342	0.0	25	25	19	6	25	-0.4	38	31	31	0	0	0.2	5	41	8	23	23						
Yarrawonga, 140961	0.2	13	16	32	34	5	-0.4	23	53	24	0	0	0.1	20	15	20	25	20						
Avg.	**3.0**	**16**	**23**	**22**	**24**	**15**	**2.1**	**21**	**48**	**27**	**3**	**1**	**3.0**	**16**	**23**	**22**	**24**	**15**						

Information on how to use the results in the table above can be found on page 19.

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

Sire means are the average performance of all the progeny of a sire adjusted for all available information on sex, birth type, rear type, age of dam, age of measurement and management group, in order to improve the accuracy. No account is made for trait heritability and genetic correlations between traits that can improve the breeding value accuracy, as is the case in Table 1. 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. The **Progeny group average** listed at the bottom of the table is the actual mean of the progeny group.

Breeders flock, Ram number	No. of prog	Ram averages for measured traits (deviations)												
		GFW %	CFW %	FD um	WT kg				Fat mm	EMD mm	FDCV %	Curv deg/mm	SL mm	SS N/ktex
		Y^	Y	Y	W	P	Y	H	H	H	Y	Y	Y	Y
Bogo, 400130	27	0.1	0.0	0.0	0.4	-1.0	-0.6	0.3	0.0	-0.1	0.7	4.0	-5.9	3.3
Bundilla Poll, 140055	41	-0.2	0.0	0.0	-0.2	0.6	0.5	0.9	0.0	0.6	-0.3	2.8	-0.3	-0.6
Collingwood, 140200	35	0.3	0.1	0.2	-0.4	0.4	-0.1	-1.0	0.1	0.0	0.2	-0.2	-1.2	1.1
GullenGamble Poll, 121070	32	0.2	0.2	0.0	0.4	1.0	1.1	1.2	0.0	-0.6	-1.2	-3.6	5.0	1.8
Leahcim Poll, 090918	41	-0.2	-0.1	-0.3	1.1	0.5	0.0	0.7	0.0	-0.5	-0.2	-1.6	-0.4	4.2
Mumblebone, 130389	34	-0.1	-0.1	0.7	-0.8	-1.1	-1.2	-2.1	0.1	1.6	-0.6	-3.8	6.5	1.5
Pastora Poll, 140564	31	-0.1	-0.1	-0.9	-1.1	-2.3	-3.1	-2.3	-0.2	-0.3	0.5	5.3	-8.5	-3.2
Pooginook Poll, 140961	35	0.0	0.1	0.2	-0.9	-0.7	-0.6	-0.7	-0.1	-0.3	-0.4	-2.7	2.2	1.2
Rocklyn, 140296	22	0.2	0.1	0.1	-0.2	-0.2	0.4	0.1	-0.2	-0.5	1.5	-3.8	5.8	-3.0
The Yanko, 130003	30	0.2	0.2	0.3	-0.6	0.5	0.9	0.2	-0.1	-0.8	0.3	0.6	-0.6	0.0
Woodpark Poll, 120342	37	-0.1	-0.1	0.1	1.8	2.8	2.8	1.9	0.1	0.3	0.6	-0.2	1.5	-8.0
Yarrawonga, 140961	18	-0.1	-0.1	-0.2	0.4	-0.6	0.0	0.8	0.3	0.4	-1.1	3.2	-4.1	1.8
Average performance	**32**	**3.5 kg**	**2.4 kg**	**16.5 um**	**28.1 kg**	**36.5 kg**	**39.7 kg**	**42.6 kg**	**1.6 mm**	**20.4 mm**	**19.3 %**	**91.1 deg/mm**	**82.4 mm**	**37.4 N/ktex**

[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).

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 CTSE 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 CTSE sites and across all evaluations at these sites. Link sires are therefore a vital component of the Central Test 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 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