Bluechip Livestock 2012 Young Sire Program

Central Test Sire Evaluation Within Flock Analysis

2012 Drop 1st Assessment

Conducted by



under the auspices of

The Australian Merino Sire Evaluation Association



6 September 2013

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

Australian Sheep Breeding Values reported here are based on analyses conducted by Sheep Genetics.

Bluechip Livestock Young Sire Program - Central Test Sire Evaluation

The Bluechip Livestock Young Sire Program in addition to the AMSEA requirements the site has full pedigree and Australian Sheep Breeding Values on all the progeny. The male progeny were kept entire and we were able to participate in the Sheep CRC Genomic Pilot Project.

Billandri Poll Merino Stud, Western Australia, were used as the ewe base for the YSP. The ewes have Sheep Breeding Values (ASBVs) and have been inspected and classed. Several of these ewes are MERINOSELECT trait leaders. Each sire group was allocated a cross section of ewes based on a DP7% index, averaging 129% at the time of artificial insemination.

As a service to clients and a way of complementing the Peter Westblade Memorial Merino Challenge, Bluechip Livestock co-coordinates the Young Sire Programs at the Temora Agricultural Innovation Centre (TAIC).

Bluechip Livestock is jointly owned by Marty Moses (Moses and Son Woolbroker), Craig Wilson (Craig Wilson & Associates) and Bluechip Livestock aims to provide and market quality livestock with independent information to the wider Australian sheep industry.

Sally Martin has played an integral role in the coordination of the BLYSP. Sally's dedication and attention to detail has made this unique evaluation possible. On behalf of Bluechip Livestock we thank Sally greatly.

The classing for the first assessment was conducted by Mr Jason Southwell and we fully acknowledge his professional contribution to the visual assessments.

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

Craig Wilson and Marty Moses Directors, Bluechip Livestock

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2012 Drop, 1st Assessment, Bluechip Livestock Young Sire Program

The information in this site evaluation report provides a comprehensive assessment of the 2012 drop 1st stage 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 1st Assessment was made at 10 months of age with 10 months of wool growth. The 2nd Assessment will be conducted between 16 and 18 months of age in 6-8 months wool.

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Sire and owner details

Ram code	Breeders flock, Ram number Ram ID [#] , Breed †	Contact name, address Phone, Fax				
1#	Bundilla, 100027 504081-2010-100027	Rick, Jill & Ross Baldwin, Bundilla, Tubbul Rd, Young NSW 2594 P 02 6383 3802 F 02 6383 3805				
	Merino	E <u>bundillamerinos@bigpond.com</u>				
2	Pooginook, 104160 500788-2010-104160 Merino	John Sutherland, Pooginook Stud Manager, Paraway Pastoral Company, Pooginook, Jerilderie NSW 2716 P 02 6954 6145 F 02 6954 6168				
	Wernio	E j.sutherland@parawaypastoral.com				
3#	Pastora Poll, 092152 601090-2009-092152 Poll Merino	Tim Westblade, Pastora, Lockhart NSW 2656 P 02-6920 5122 E trwesty@bigpond.com				
4	Woodpark Poll, 100015 601151-2010-100015 Poll Merino	Stephen and Carol Huggins, Eurolie, HAY NSW 2711 P 02-6993 4616 F 02-6993 4122 E <u>eurolie@bigpond.com</u>				
5	Hazeldean, 10-0413 500383-2010-000413 Merino	Jim Litchfield, Hazeldean Pty Ltd Cooma NSW 2630 P 02 6453 555 F 02 6453 5526 E <u>admin@hazeldean.com.au</u>				
6*	Coromandel Poll, ET2 600553-2007-070002 Poll Merino	Michael Campbell, Coromandel, Gairdner WA 6337 P 08-9836 6044 F 08-9836 3099 E <u>coromandel6@gmail.com</u>				
7	Pastora Poll, 102069 601090-2010-102069 Poll Merino	Tim Westblade, Pastora, Lockhart NSW 2656 P 02-6920 5122 E <u>trwesty@bigpond.com</u>				
8	Grassy Creek, 100181 601366-2010-100181 Poll Merino	Michael Corkhill, Dryburgh, Reids Flat NSW 2586 P 02-6345 2201 F 02-6345 2201 E grassycreek@bigpond.com				
9**	Pooginook, Frazer 500788-2009-090494 Merino	John Sutherland, Pooginook Stud Manager, Paraway Pastoral Company, Pooginook, Jerilderie NSW 2716 P 02 6954 6145 F 02 6954 6168 E j.sutherland@parawaypastoral.com				
10	Mega Merinos Australia, 101797 609260-2010-101797 Poll Merino	James Armstrong, Wirrolga, Cassilis NSW 2329 P 02-6376 1163 F 02-6376 1099 E james@cassilispark.com.au				

* Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites.

Unregistered Flock. Sires bred in an unregistered flock are identified in the table by a UR following the sire's code.

- 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.
- Example 16 digit code: 50 4967 2009 090012Breed Flock Year of drop On-farm ID
- # Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

1. Location

- Temora Agricultural Innovation Center (TAIC) is located 6km north of Temora. The property is approximately 600 hectares and has an average rainfall of 524mm. TAIC is geographically central to the South West Slopes of NSW and is in a typically mixed farming area.
- The topography of TAIC is quite flat with the soil type varying little across the property and can be described as moderately acid clay loam duplex soil.
- TAIC operates as a research facility and as a commercial farming operation.

2. Selection and mating

- 400 Billandri Poll Stud ewes were mated by Artificial Insemination to 10 sires.
- The ewes were evenly allocated to each ram using the 7% Dual Purpose index. This allowed each sire group to have a range of ewes with high and low indexes. The average 7% DP index was 129.
- The insemination program was conducted on 16th and 17th January 2012.
- The insemination program was conducted by Genstock (NSW).
- 40 ewes were allocated to each sire entered.

3. Pregnancy and lambing

- Pregnancy scanning took place on 5th April 2012.
- Ewes were managed as one contemporary group until 5 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 and mothered within one week 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, scored and electronically tagged on 26th July 2012.
- The lambs were weaned onto improved pasture on 10th October 2012.
- Pasture conditions were adequate from birth to their first shearing.

5. Visual Assessments

• 1st stage visual assessments were carried out by Mr Jason Southwell.

6. Rainfall - TAIC

	2011	2012	2013	median
JAN	61.8	62.2	10.4	22.7
FEB	196.2	143.2	39.8	24.5
MAR	71.6	129.6	20	25.7
APR	16.8	5.0	2.0	22.2
MAY	17	15.6		26.8
JUN	18.2	17.6		47.3
JUL	25.4	44.4		48.5
AUG	45.6	38.0		45.1
SEP	30.4	15.4		43.6
ОСТ	47.6	16.8		43.5
NOV	107.8	35.0		43.5
DEC	63.8	29.8		43.8
Totals	702.2	471.0	72.2	533.4



*Source: TAIC records and BOM. Median 1988-2013.



Assessment and management program

Activity	Date/s	Date/s Age (months)	
Selection of ewes & allocation of ewes for mating	g 01.01.2012		
Artificial Insemination	16.01.2012		
	17.01.2012		
Pregnancy scanning	05.04.2012		
Separated into sire lambing groups	08.06.2012		
Lambing: start – finish	13 to 20.06 2012		
Lambing mote boxed to 1 management group	25.06.2012	1/1-21 days	
Tagging (nigmont scores (ago in days)	25.00.2012	14-21 days	
Marked and scored for broach traits	25.00.2012	14-21 udys	
	26.07.2012	45 days	
Weaning (age in days)	10.10.2012	92 days	
Pre assessment (even-up) shearing	NA		
	02 01 2012	7	7
• 1st	03:01:2013	7	/
Fat and eve muscle scanning and body weight	18 03 2013	10	
Fleece sampling assessment	10:00:2010	10	
1st	18.03.2013	10	10
• 2nd			
Staple length assessment			
• 1st	18.03.2013	10	10
• 2nd			
Classer's Grade assessment			
• 1st	18.03.2013	10	10
• 2nd			
Pre shearing scoring assessment	18 03 2013	10	10
 Ist 2nd 	18.05.2015	10	10
Assessment shearing			
• 1st	28.03.2013	10	10
• 2nd			
Post shearing scoring assessment			
• 1st	13.04.2013	10	0
• 2nd			
Body weigh assessment		-	
Weaning	10.10.2012	3	
Early Post Weaning	08 01 2012	7	
Post wearing Varing	18 03 2013	10	
• Adult	10:00:2010	10	
Worm egg count sampling			
• 1st			
• 2nd			
Sire's Progeny Group Evenness assessment			
Vaccination M	larking, weaning, post shearing		
Drench As	s required based on worm egg co	unts	

Supplementary feeding: start – finish

Field day or public display of sheep

(1) 18/03/2013

Visual trait assessment

1 ^{••} Stage Assessment	
Classer's Grade:	Jason Southwell
Trait Scores:	Jason Southwell
Breech Scores:	Sally Martin

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

The Breeding Objective used to select the Classer's Tops (20%), Flock (60%) and Cull (20%) was based a visual assessment where the animal performed well for growth, structurally sound with good wool quality traits including long soft handling wool and fleece weight. (For the first assessment of the 2012 drop no reference was made to measured performance 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. Adjustments have been made for singles and twins. The ASBVs have not been taken into consideration in the within site analysis, however will be used in the across site (MSS) analysis.

All the rams (excluding the link and common sire(s)) were unproven prior to be entered in the Bluechip Livestock Young Sire Program. 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.

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

Summary graph: visual and measured performance

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

A different graph is provided for each of the three 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 21).

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

Rams ı	Rams reported in Figure 1a, 1b and 1c						
Ram code	Breeders flock, Ram number		Breeders flock, Ram number				
1#	Bundilla, 100027 - 504081-2010-100027	6*	Coromandel Poll, ET2 - 600553-2007-070002				
2	Pooginook, 104160 - 500788-2010-104160	7	Pastora Poll, 102069 - 601090-2010-102069				
3#	Pastora Poll, 092152 - 601090-2009-092152	8	Grassy Creek, 100181 - 601366-2010-100181				
4	Woodpark Poll, 100015 - 601151-2010-100015	9**	Pooginook, Frazer - 500788-2009-090494				
5	Hazeldean, 10-0413 - 500383-2010-000413	10	Mega Merinos Australia, 101797 - 609260-2010-101797				

* Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites.

Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.



Figure 1a is based on an AMSEA Fibre **Production Plus (FP+)** index (large reduction in fibre diameter, large increase in staple strength, moderate reduction in WEC (if measured) and small increase in fleece weight).



Figure 1b is based on an AMSEA Merino **Production Plus** (MP+) index

(moderate increase in fleece weight, staple strength and meat traits and a moderate reduction in fibre diameter where surplus progeny are sold as hoggets).



Figure 1c is based on an AMSEA Dual Purpose Plus (DP+) index (meat focused production system where surplus progeny are sold as lambs and a portion of ewes are jointed to terminal sires with a high increase in meat traits, reproduction, moderate increase in staple strength and minimal emphasis on fibre diameter and

Table 1. AMSEA Index values and Classer's Grade

The highest performing 3 rams for each trait (i.e., trait leaders) are highlighted by shading. Each ram is listed for Classer's Grade and the same three indexes at all site evaluations. An additional index (Fine Merino 20% + SS) considered relevant to this site evaluation is also reported. 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 20 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.**

	Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses. Large
Fibre Production Plus	reduction in fibre diameter. Large increase in staple strength. Moderate reduction in WEC (if measured). Small increase in fleece weight. Little
	change in meat traits. (Will rank animals similar to 14%+SS index)
Marine Dreduction Dive	Based on a balanced wool and meat production system where surplus progeny are sold as hoggets. Moderate increase in fleece weight, staple
Werno Production Plus	strength, meat traits and reproduction. Moderate reduction in fibre diameter. (Will rank animals similar to M7 and DP7 Indexes).
	Based on a meat focused production system where surplus progeny are sold as lambs and a portion of ewes are joined to terminal sires. High
Merino Dual Purpose Plus	increase in meat traits, reproduction. Moderate increase in staple strength. Maintain fibre diameter and fleece weight. (Will rank animals similar
	to DP3.5 and DP7 Indexes).
Fine 10% + Staple Strength	Moderate emphasis on fleece weight and fibre diameter plus moderate emphasis on staple strength.

				AMSEA Indexes v		Classer'	s Grade	
Ram	Breeders flock, Ram number	No	Fibre	Merino	Dual	F10% +	Tops % (dev)	Culls % (dev)
code		of Progeny	Production +	Production +	Purpose +	SS	Υ^	Y
1#	Bundilla Poll, 100027	11	95	105	98	105	Insufficient progeny i	o report visual traits
2	Pooginook, 104160	22	102	108	107	108	51	-26
3#	Pastora Poll, 092152	11	n/a	92	88	n/a	Insufficient progeny i	to report visual traits
4	Woodpark Poll, 100015	22	109	108	111	109	-1	-1
5	Hazeldean, 10.413	29	104	106	108	101	-18	-14
6*	Coromandel Poll, ET2	24	100	100	103	99	-8	2
7	Pastora Poll, 102069	27	101	100	93	103	-9	1
8	Grassy Creek Poll, 100181	22	104	89	91	94	-13	21
9**	Pooginook, Frazier	26	97	106	103	104	4	-5
10	Mega Merinos Australia Poll, 101797	29	90	94	105	85	-5	1
	Average performance	22	100	100	100	100	23	29

* Link ram: Ram 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.

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

^ Y = Yearling (300 to 400 days). ¹ Classer's Grade is expressed as the percentage deviation of average Tops% and Culls%

Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Figures 2. and 3. Summary Graphs: Fleece Weight by Fibre Diameter, Tops by Cull Grade

Figure 2 Fleece weight by fibre diameter - describes performance for fleece weight on the side axis and fibre diameter on the bottom axis. Rams that are above average for fleece weight and below average fibre diameter are located in the <u>top left hand quarter</u>.



Figure 3 Classer's Tops by Cull Grade - describes performance for Classer's Tops Grade on the side axis and Cull Grade on the bottom axis. Rams that have above average Tops and below average Culls are in the <u>top left hand quarter</u>. Classer's Tops (20%), Flock (60%) and Cull (20%) 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.



Understanding the results – measured trait performance

Measured trait performance and Classer's Grade – Tables 2 and 3 – pages 12 and 13

Ram code:	Allows a ram to be located on the summary graphs and some tables.								
Ram name:	Identity of the breeder's flock and the ram's number or name.								
Number of progeny:	The number of progeny a ram had at the most recent measured analysis.								
Flock Breeding Values:	Flock Breeding Values (FBVs) are Estimated Breeding Values (EBVs) calculated by Sheep Genetics for the ram'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 rams (in this case based on the performance of their progeny). A ram's progeny will express half of their ram's FBV. FBVs do not necessarily reflect the rams 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:	GFW: Greasy fleece weight (percentage).								
Abbreviation, trait and the (units reported)	 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. FAT: Fat depth (mm) at the 'C' site. CURV: Fibre curvature (degrees) WEC: Worm egg count (% deviation in worm burden of ram's progeny) 								
Age at assessment:	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 Tops, Flocks or Culls based on visual assessment of all traits relative to the site's Breeding Objective (page 6). The percentage deviation from the average of Tops and Culls is presented in this report.								

Table 2. Major measured traits and Classer's Grades

		No.	Flock Breeding Values (deviations)				Classer's Grade ¹	
Ram	Breeders flock, Ram number	of	GFW %	CFW %	FD um	WT kg	Tops % (dev)	Culls % (dev)
code		prog.	γ۸	Y	Y	Y	Y	Y
1#	Bundilla Poll, 100027	11	13.0	12.0	0.5	2.1	Insufficient progeny	to report visual traits
2	Pooginook, 104160	22	8.0	11.0	0.5	2.0	51	-26
3#	Pastora Poll, 092152	11	-8.0	-9.0	-1.1	-1.2	Insufficient progeny	to report visual traits
4	Woodpark Poll, 100015	22	1.0	1.0	-0.3	0.2	-1	-1
5	Hazeldean, 10.413	29	-2.0	-4.0	-0.4	-0.1	-18	-14
6*	Coromandel Poll, ET2	24	-1.0	0.0	0.1	-0.3	-8	2
7	Pastora Poll, 102069	27	-5.0	-5.0	-0.8	-0.5	-9	1
8	Grassy Creek Poll, 100181	22	-9.0	-10.0	-0.3	-3.8	-13	21
9**	Pooginook, Frazier	26	8.0	7.0	0.4	2.3	4	-5
10	Mega Merinos Australia Poll, 101797	29	1.0	5.0	1.8	1.5	-5	1
	Average performance	22	4.6	2.6	16.9	44.8	23	29
			kg	kg	um	kg	%	%

* Link ram: Ram 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*.

- ** Common rams (in addition to Link Rams) between this CTSE site and other sites.
- [^] Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).
- ¹ Classer's Grade is expressed as the percentage deviation of average Tops% and Culls%
- # Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Information on how to use the results in the table above can be found on page 11.



Table 3. Other measured traits

		No.		Flock Breeding Values (deviations)							
Ram	Breeders flock, Ram number	of	FDCV %	SL mm	SS N/ktex	Curv deg/mm	Fat mm	EMD mm	WEC%		
code		prog.	Υ^	Y	Y	Y	Y	Y	Р		
1#	Bundilla Poll, 100027	11	0.6	1.3	-2.4	-2.0	n/a	n/a			
2	Pooginook, 104160	22	-0.3	4.4	0.2	-3.1	0.4	-0.2	-		
3#	Pastora Poll, 092152	11	0.3	-5.3	-4.7	5.6	n/a	n/a	rait		
4	Woodpark Poll, 100015	22	-0.1	2.1	1.4	1.2	0.7	1.0	not As		
5	Hazeldean, 10.413	29	1.0	-2.9	1.0	2.5	-0.7	0.4	me sess		
6*	Coromandel Poll, ET2	24	0.1	-3.4	0.8	0.5	-0.3	0.5	asui		
7	Pastora Poll, 102069	27	-0.1	6.6	-2.1	0.3	-0.9	-0.7	red nt		
8	Grassy Creek Poll, 100181	22	-0.8	-6.9	3.2	5.9	1.3	0.9	at 1		
9**	Pooginook, Frazier	26	-0.4	2.0	-1.5	-5.0	-0.6	-0.7	st		
10	Mega Merinos Australia Poll, 101797	29	-0.1	4.5	3.2	-8.4	1.0	0.6			
	Average performance	22	16.9	76.2	36.0	94.0	1.8	23.2			

* Link ram: Ram evaluated to provide links between site evaluations and sites so that the all evaluations can be combined into one report, e.g., *Merino Superior Sires*.

- ** Common rams (in addition to Link Rams) between this CTSE site and other sites.
- Y = Yearling (300 to 400 days);
- # Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Information on how to use the results in the table above can be found on page 11.



Understanding the results – scored performance traits

Scored trait performance – Tables 4a to 4d – pages 15 to 18. 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 telephone 02 92995155). A deviation from the average trait score for all progeny is reported as well as the percentage of the ram'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 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).
Injury/Disease:	Non-genetic effects due to injury, misadventure or infection – Yes or No.

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 ram'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.

												W	ool Qualit	у										
Ram		Fleece	e Rot					Woo	Colou	r				W	/ool Chai	racter				Dus	st Pene	tration		
code	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#	Insufficie	nt progeny to	o repor	t visuc	l trait:	5	Insufficie	nt progen	ı to repor	t visua	al traits	5	Insu	ıfficient p	progeny to r	eport visual	traits		Insuffi	icient pr	ogeny to	report visi	ual traits	
2	-0.3	100	0	0	0	0	-0.1	95	0	5	0	0	0.0	0	82	18	0	0	-0.2	0	36	55	9	0
3#	Insufficie	nt progeny to	o repor	t visuc	l trait:	5	Insufficie	nt progen	ı to repor	t visua	al traits	5	Insu	ıfficient p	progeny to r	eport visual	traits		Insuffi	icient pr	ogeny to	report visi	ual traits	
4	-0.2	95	5	0	0	0	0.0	86	14	0	0	0	-0.1	0	91	9	0	0	-0.3	0	45	41	14	0
5	-0.3	100	0	0	0	0	-0.1	93	7	0	0	0	0.0	0	86	14	0	0	0.2	0	21	45	34	0
6*	0.0	92	0	0	0	8	0.0	88	8	4	0	0	0.0	0	92	0	8	0	0.1	0	28	40	28	4
7	-0.1	85	8	7	0	0	0.1	81	15	4	0	0	-0.1	0	93	7	0	0	0.0	0	29	41	30	0
8	0.2	82	4	5	0	9	0.0	86	9	5	0	0	-0.1	0	100	0	0	0	-0.3	0	45	41	14	0
9**	0.1	88	0	0	4	8	-0.1	92	8	0	0	0	0.0	3	81	8	8	0	-0.1	0	35	42	23	0
10	-0.2	97	0	0	3	0	0.0	90	7	3	0	0	0.3	0	72	14	14	0	0.3	0	21	34	41	4
Avg.	1.3	90	3	1	1	5	1.2	88	9	3	0	0	2.1	0	89	7	4	0	3.0	0	33	39	25	3

* Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites.
- # Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Information on how to use the results in the table above can be found on page 15.



Table 4b. Visual trait assessment – Wool quality and pigmentation

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram'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 14. 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.

	Wool Quality																	Pigmentation											
Ram		Stap	ole We	eatheri	ing			Stapl	e Struct	ure			Fi	Fibre pigmentation Non-fibre pigmentation											Black	Spot			
code	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#	Insuffi	cient p	rogeny t	o report	visual tra	iits	Insufficie	nt prog	eny to repo	ort visu	ıal tr	aits	Insufficier	nt progeny	to rep	ort vi	sual ti	raits	Insufficie	ent prog	eny to i	eport v	isual tr	aits					
2	-0.2	0	41	41	18	0	0.0	0	100	0	0	0	0.0	100	0	0	0	0	-0.6	59	23	18	0	0	0	0			
3#	Insuffi	cient p	rogeny t	o report	visual tra	iits	Insufficie	nt prog	eny to repo	ort visu	ial tr	aits	Insufficier	nt progeny	to rep	ort vi	sual ti	raits	Insufficie	ent prog	eny to i	eport v	isual tro	aits					
4	-0.3	0	45	45	10	0	0.0	0	100	0	0	0	0.0	100	0	0	0	0	0	17	61	13	9	0	0	4			
5	0.1	0	25	41	34	0	0.0	0	100	0	0	0	0.0	100	0	0	0	0	-0.3	48	31	11	10	0	0	0			
6*	0.0	0	36	40	16	8	0.0	0	100	0	0	0	0.1	96	0	0	0	4	0.1	28	32	24	16	0	0	0			
7	0.1	0	30	37	33	0	0.0	0	100	0	0	0	0.1	96	0	0	0	4	0.3	7	52	33	4	4	0	0			
8	-0.3	0	45	45	10	0	0.0	5	95	0	0	0	0.0	100	0	0	0	0	0	19	45	36	0	0	0	0			
9**	0.0	0	38	31	23	8	0.0	0	100	0	0	0	0.0	100	0	0	0	0	-0.3	31	62	3	4	0	0	0			
10	0.6	0	14	31	45	10	0.0	0	100	0	0	0	0.1	97	0	0	0	3	-0.5	52	28	20	0	0	0	0			
Avg.	3.0	0	35	38	22	5	2.0	2	98	0	0	0	1.0	99	0	0	0	1	2.2	27	41	23	8	1	0	0			

* Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites

Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Information on how to use the results in the table above can be found on page 14.

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 ram's progeny assessed for each score is also reported. For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better. Face cover and body wrinkle are possible exceptions when for many breeders the optimum score is in the middle of the range.

														Confo	rma	tion														
Ram		Jav	N					Legs a	and	Feet			S	houlde	r anc	Bacl	k			Fac	ce Cov	er				Boo	ly Wr	inkle		
code	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#	Insufficien	t progeny t	o repo	rt vis	ual tr	raits	Insufficien	t progen	y to re	eport vi	isual t	raits	Insufficier	nt progeny	to rep	ort vis	ual tro	aits	Insufficie	nt proge	eny to re	port vis	ual tr	aits	Insufficie	nt prog	eny to	report v	risual tr	raits
2	0.0	100	0	0	0	0	0.0	91	0	4	0	5	-0.4	100	0	0	0	0	0.1	0	23	77	0	0	0.1	0	19	67	14	0
3#	Insufficien	t progeny t	o repo	rt vis	ual tr	raits	Insufficien	t progen	y to re	eport vi	isual t	raits	Insufficier	nt progeny	to rep	ort vis	ual tro	aits	Insufficie	nt proge	eny to re	port vis	ual tr	aits	Insufficie	nt prog	eny to	report v	risual tr	raits
4	0.0	100	0	0	0	0	0.5	68	0	23	0	9	-0.1	82	0	18	0	0	0.2	0	14	82	4	0	0.0	0	29	57	14	0
5	0.1	97	0	3	0	0	-0.2	97	0	3	0	0	0.3	69	0	24	0	7	0.1	0	24	76	0	0	0.2	0	14	68	18	0
6*	0.0	100	0	0	0	0	0.1	84	0	12	0	4	0.3	68	0	28	0	4	0.1	4	12	84	0	0	0.0	0	29	54	17	0
7	0.0	100	0	0	0	0	0.1	78	0	22	0	0	0.1	74	0	26	0	0	0.1	0	15	85	0	0	-0.3	4	46	38	12	0
8	0.0	100	0	0	0	0	0.2	86	0	5	0	9	0.4	64	0	32	0	4	0.2	0	14	86	0	0	0.1	0	29	52	19	0
9**	0.0	100	0	0	0	0	-0.1	92	0	4	0	4	-0.1	88	0	8	0	4	-0.2	0	46	54	0	0	0	0	33	50	17	0
10	0.0	100	0	0	0	0	-0.2	93	0	7	0	0	-0.2	86	0	14	0	0	-0.5	21	41	38	0	0	-0.4	11	43	43	3	0
Avg.	1.0	100	0	0	0	0	1.3	88	0	9	0	3	1.4	80	0	17	0	3	2.7	3	25	72	0	0	2.8	2	28	56	14	0

* Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites

Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Information on how to use the results in the table above can be found on page 14.

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 ram's progeny assessed for each score is also reported. 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.

										Br	eech														
Ram		E	Breec	h Cove	r			Bre	ech Wri	nkle			Crutch Cover							Dag					
code	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#	Insu <u>f</u>	ficient p	orogeny	/ to report	visual trait	:s	Insu	ıfficient pro	ogeny to re _l	port visual	traits														
2	-0.2	0	5	23	45	27	0.1	9	18	50	23	0													
3#	Insu <u>f</u>	ficient p	rogeny	ı to report	visual trait	.s	Insu	ufficient pro	ogeny to re _l	port visual	traits														
4	0.0	0	0	17	48	35	-0.1	13	26	48	13	0													
5	0.0	0	0	10	59	31	-0.1	4	41	41	14	0	Crut	ch cov	orno	nt co	orad			Dar	not		rod		
6*	-0.1	0	0	16	60	24	0.0	12	24	52	8	4	Crut			71 30	oreu			Dag	, not	300	leu		
7	-0.1	0	0	26	41	33	-0.6	30	37	26	7	0													
8	0.3	0	0	5	45	50	0.3	5	23	45	18	9													
9**	-0.1	0	0	23	42	35	-0.3	27	31	19	19	4													
10	0.1	0	0	7	55	38	-0.4	28	31	28	10	3													
Avg.	4.2	0	0	15	50	35	2.7	13	28	36	20	3													

- * Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites
- # Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Information on how to use the results in the table above can be found on page 14.



Table 5. Ram averages for measured traits

Ram averages are the average performance of all the progeny of a ram. No account is made for factors that can improve the ram average value accuracy.

		No.	Ram averages for measured traits (deviations)												
Ram	Breeders flock, Ram number	of	GFW %	CFW %	FD um	WT kg	Fat mm	EMD mm	FDCV %	Curv deg/mm	SL mm	SS N/ktex			
code		prog.	Υ^	Y	Y	Y	Y	Y	Y	Y	Y	Y			
1#	Bundilla Poll, 100027	11	0.7	0.2	0.6	2.7	-0.1	-1.8	0.2	-1.4	0.2	-3.4			
2	Pooginook, 104160	22	0.2	0.2	0.3	1.9	0.1	-0.2	-0.3	-2.2	3.8	0.2			
3#	Pastora Poll, 092152	11	-0.4	-0.2	-1.0	-1.6	-0.1	0.0	0.0	5.2	-5.3	-6.3			
4	Woodpark Poll, 100015	22	0.0	0.0	-0.4	-0.6	0.2	0.9	0.1	1.6	2.7	2.5			
5	Hazeldean, 10.413	29	-0.1	-0.1	-0.3	-0.4	-0.2	0.5	1.0	2.1	-2.2	3.1			
6*	Coromandel Poll, ET2	24	-0.1	0.0	0.0	-0.8	-0.1	0.6	-0.1	0.5	-3.7	1.2			
7	Pastora Poll, 102069	27	-0.3	-0.1	-0.6	-0.6	-0.2	-0.4	0.1	1.0	6.7	-1.4			
8	Grassy Creek Poll, 100181	22	-0.3	-0.1	-0.2	-3.2	0.3	0.7	-0.5	4.1	-5.4	3.3			
9**	Pooginook, Frazier	26	0.3	0.1	0.3	1.4	-0.1	-0.4	-0.5	-4.1	0.3	-2.5			
10	Mega Merinos Australia Poll, 101797	29	-0.2	0.0	1.2	1.2	0.2	0.3	0.2	-6.8	2.8	3.2			
	Average performance	22	4.6	2.6	16.9	44.8	1.8	23.2	16.9	94.0	76.2	36.0			
			kg	kg	um	kg	mm	mm	%	deg/mm	mm	N/ktex			

* Link ram: Ram 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 rams (in addition to Link Rams) between this CTSE site and other sites
- [^] Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).
- # Insufficient progeny to meet AMSEA index and EBV accuracy thresholds at first assessment. Where accuracy is not met, n/a is reported. Visual traits are not reported for these sires because of the low progeny numbers.

Understanding the results

Index Options – indexes reported on page 9.

Breeding Objective index options provide the relative value of sires based on a combination of the <u>measured traits' genetic performance</u>. The indexes used in this report are only some of the many indexes that can be used to describe an individual breeder's objective for measured traits.

If a breeder is considering using a sire in this report it is critical to consider the performance of the breeder's flock relative to the performance standard in this report. The relative performance must be considered to establish the result that can be expected when a sire is used in a breeder's flock.

All AMSEA site evaluation reports present 3 standard indexes to provide combined <u>measured</u> trait performance These 3 AMSEA indexes are DP+; MP+; and FP+. These indexes are the same as MERINOSELECT indexes of that name however as there is no direct reproduction records captured by sire evaluation AMSEA <u>do not</u> include a Reproduction (NLW) FBV in their index calculations. As a result the 14% contribution by NLW in the DP+ index is not effectively applied by the index calculation.

This report has added an additional index – the AMSEA Fine 20%+ SS.

Index production system and breeding objectives

AMSEA DP+	Dual Purpose : Based on a meat focused production system where surplus progeny are sold as lambs and a portion of ewes are joined to terminal sires. High increase in carcass traits and fleece weight, moderate increase in reproduction, fibre diameter maintained, maintain or small increase in staple strength.
AMSEA MP+	Merino Production: Based on a balanced wool and meat production system where surplus progeny are sold as hoggets. Moderate increase in fleece weight, staple strength, carcass traits and reproduction, moderate reduction in fibre diameter.
AMSEA FP+	Fibre Production: Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses. Large reduction in fibre diameter, large increase in staple strength, moderate reduction in WEC (if measured in the breeding program), small increase in fleece weight. Little change in carcass traits and reproduction.
AMSEA Fine 10% +SS (F10% +SS)	Fine wool Merino self-replacing production system with moderate emphasis on fleece weight and fibre diameter (10% Micron Premium) plus moderate emphasis on staple strength and maintain performance on other traits.



Traits contribution to economic gain: The percentage contribution of the traits listed to economic gain in a commercial flock that selects rams using the index.

Understanding the results - continued

Accuracy of Flock Breeding Values

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

True Breeding Values would be achieved if the number of progeny evaluated for each ram 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 rams 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 ram's progeny.

Link rams

Link rams provide the 'genetic link' between CTSE sites located across Australia to allow all rams entered in these site evaluations to have their performance reported relative to each other in *Merino Superior Sires*. *Merino Superior Sires* reports rams from across all effectively linked CTSE sites and across all evaluations at these sites. Link rams are therefore a vital component of the Central Test Sire Evaluation.

To be used as a link a ram 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 rams which can provide a wider perspective of the elite rams available across many flocks in Australia and New Zealand.

Combined measured trait and combined visual trait performance

Combined measured trait performance is calculated as (7% MP Index – 100). Combined visual trait performance is calculated as: (Classer's Grade Tops% – Culls%)/5, expressed as a deviation from (average Tops% – average Culls%)/5.

Example

- Ram's performance: AMSEA 7% MP Index value = 119.7
 - Tops% = 25.5 (average Tops% = 25.1)
 - Culls% = 17.6 (average Culls% = 16.4)
- Combined Measured = 119.7.0 100 = 19.7
- Combined Visual
- = ((25.5 17.6)/5) ((25.1 16.4)/5)
- = 7.9/5 8.7/5 = 1.58 1.74
- = -0.16



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