Macquarie (Trangie)

2015 Drop Yearling Assessment

Within-Site Results

under the auspices of

The Australian Merino Sire Evaluation Association

with support from

NSW Department of Primary Industries

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Disclaimer

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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.

Foreword

Macquarie (Trangie) Central Test Sire Evaluation

The Macquarie Sire Evaluation 2015 drop sire evaluation site is an accredited Central Test Sire Evaluation (CTSE) site. It conforms to the requirements of the Australian Merino Sire Evaluation Association (AMSEA).

A committee of Merino breeders who have entered sires and Trangie Agricultural Research Centre (TARC) staff run the Trangie evaluation site. The site committee members are listed on page 2.

Background

- The 2015 drop is the 9th sire evaluation conducted in the Macquarie Valley of NSW.
- 672 ewes were used to conduct the evaluation, selected from the NSW DPI commercial flock. The majority of the ewes were from the TARC commercial Centre Plus Merinos bloodline flock classed in ewes. The balance of ewes were from the TARC commercial Roseville Park Merinos bloodline flock classed in ewes. Ewes from these two sources were equally allocated to each sire.
- An average of 38 evaluation progeny per sire group were weaned following the AI joining.
- The 2015 drop was joined in January 2015 and has been evaluated as yearlings (10 months old – 10 Months wool) and will be assessed again as adults (20 months old – 10 Months wool).

A special thanks must go to staff of Trangie Agricultural Research Centre for all their assistance to conduct the evaluation, much of which was done at no cost to the site and outside their normal work hours. In particular, Sue Mortimer for the running the evaluation and Tom Patterson who manages the sheep.

Brett Wilson
Macquarie CTSE

2015 Drop Yearling Assessment

The information in this site evaluation report provides a comprehensive assessment of the 2015 drop, including the Yearling assessments of the sire's progeny performance, in measured and visually assessed traits.

The Yearling fleece and visual assessments were carried out at 10 months of age with 10 months of wool growth.

Management Committee

Matthew Coddington (Chair)	matthew@rosevilleparkmerinos.com.au	02 6887 7286
Don Hamblin (Deputy Chair)	donald.hamblin@bigpond.com	02 6833 4428
Rick Baldwin	bundillamerinos@bigpond.com	02 6383 3802
Bruce Barnes-Webb	brucebarneswebb@gmail.com	0417 381 039
Mark Kerin	gullen@bordernet.com.au	02 6846 4252
Nigel Kerin	kerinag@bigpond.com	02 6846 4070
Tom Kirk	bundemar11@bigpond.com	02 6895 2562
Jim Litchfield	litchfield@hazeldean.com.au	0417 676 561
Stuart McBurnie	weealla4@bigpond.com	02 6888 1101
Greg McCann	gmccann@hwy.com.au	02 6882 9249
Jock McLaren	jock@nerstane.com.au	0429 775 891
Callum Moody	callum.moody@uqconnect.edu.au	02 6848 5996
Robert Mortimer	robert@centreplus.com.au	02 6892 8259
Mark Mortimer	mark@centreplus.com.au	02 6892 8222
Robert Mudford	robertandmeg@bigpond.com	0428 876 282
Ian Robertson	yarrak311@optusnet.com.au	08 9833 6251
Bill Sandilands	csandilands@bordernet.com.au	08 9851 4030
Norm Smith	norm@glenwoodmerinos.com.au	02 6845 3665
Chad Taylor	chad@mumblebone.com.au	02 6845 3620
Graham Wells	oneoakpl@bigpond.com	0428 442 930
Allan Casey	caseyk@ix.net.au	0408 279 719
David Trengove	david.trengove@lls.nsw.gov.au	0419 985 878
Brett Wilson	brett.wilson@dpi.nsw.gov.au	02 6391 3896

For further information on this report please contact

Brett Wilson (NSW DPI)	brett.wilson@dpi.nsw.gov.au	02 6391 3896
Ben Swain (AMSEA)	ben_swain@bigpond.com	02 6743 2306

Visual trait assessment
Classer's Visual Grade (previously known as "Classer's Grade"): Tom Kirk
Trait Scores: Allan Casey (wool traits, fleece rot, and feet) and NSW DPI staff (other scores).

Contents

Sire and Owner Details

Breeders flock, Sire name Sire ID #, Breed †	Owner Details
Bundilla Poll, 130032 601435-2013-130032, Poll Merino	**Ross, Rick & Jill Baldwin** Bundilla, Tubbul Road, Young NSW 2594 P: (02) 6383 3802, F: (02) 6383 3805, E: bundillamerinos@bigpond.com
Glen Holme, 130779 (Dohne) 510184-2013-130779, Dohne	**Allen Kelly** PO Box 69, Manoora SA 5414 P: (08) 8848 4328, F: (08) 8848 4328, E: glenholm1@activ8.net.au
Glenwood, 110043 501156-2011-110043, Merino	**Norm Smith** Glenwood, 2220 Twelve Mile Rd, Wellington NSW 2820 P: (02) 6845 3665, E: norm@glenwoodmerinos.com.au
GRASS, 1.1 (Historical) 503884-1991-000001, Merino	**Graham Peart** GRASS Merinos Pty Ltd, PO Box 216, Nambucca Heads NSW 2448 P: 0428 825 721, E: g.peart@icloud.com
GRASS, P47 503884-2012-122190, Merino	**Graham Peart** GRASS Merinos Pty Ltd, PO Box 216, Nambucca Heads NSW 2448 P: 0428 825 721, E: g.peart@icloud.com
GullenGamble Poll, 110428 601414-2011-110428, Poll Merino	**Mark Kerin** GullenGamble, Yeoval NSW 2868 P: (02) 6846 4252, F: (02) 6846 4252, E: gullen@bordernet.com.au
GullenGamble, 110461 (Link) 504865-2011-110461, Merino	**Mark Kerin** GullenGamble, Yeoval NSW 2868 P: (02) 6846 4252, F: (02) 6846 4252, E: gullen@bordernet.com.au
Kerin Poll, 130980 (Link) 601413-2013-130980, Poll Merino	**Nigel Kerin** Karuga Park, 1142 Bournewood Rd, Yeoval NSW 2868 P: (02) 6846 4070, E: kerinag@bigpond.com
Langdene, 130615 503863-2013-130615, Merino	**Garry Cox** Langdene, 1127 Dubbo Road, Dunedoo NSW 2844 P: (02) 6375 1972, E: garry@langdene.com.au
Macquarie Dohne Stud, 137021 510004-2013-137021, Dohne	**Greg McCann** PO Box 1036, Albury NSW 2640 P: (02) 6026 2393, F: (02) 6026 2110, E: macquariedohnes@bigpond.com
Merinotech WA Poll, 2295 (Unreg) 609040-2012-122295, Poll Merino	**Ian Robertson** Merinotech (WA) Ltd, RMB 311, Kojonup WA 6395 P: (08) 9833 6251, F: (08) 9833 6255, E: yarrak311@optusnet.com.au
Mumblebone, 130389 (Link) 500063-2013-130389, Merino	**Chad Taylor** Marapana, 456 Wuuluman Road, Wellington NSW 2820 P: (02) 6845 3620, F: (02) 6845 3608, E: chad@mumblebone.com.au
Nerstane, 100919 (Link) 503298-2010-100919, Merino	**John, Hamish and Jock McLaren** Nerstane, Woolbrook NSW 2354 P: (02) 6777 5881, F: (02) 6777 5922, E: jock@nerstane.com.au
Roseville Park, 130920 504166-2013-130920, Merino	**Matthew and Cherie Coddington** Glenwood, 39R Dilladerry Rd MS3, Dubbo NSW 2830 P: (02) 6887 7286, E: rpmerinos@bigpond.com
Weealla Poll, 120190 600438-2012-120190, Poll Merino	**Stuart McBurnie** Wealla, Millpulling Rd, Balladoran NSW 2831 P: (02) 6887 9266, E: weealla4@bigpond.com

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

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

(Unreg) Sire bred in an unregistered flock.

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.

Manager's Report

Host Property for 2015 Drop Progeny

Trangie Agricultural Research Centre (TARC) is 7 kilometres North West of Trangie in Central NSW. Pasture type is dominated by native perennial grasses and herbage with annual introduced species. The main soil types are red brown earths and grey cracking clays. Long term average annual rainfall is approximately 497mm.

■ Selection and mating

- 672 ewes equally mated to all sires based on bloodline and age.
- The ewes that sires were mated to were from NSW DPI commercial Centre Plus Merino and Roseville Park bloodlines.
- AI was carried out on 21st and 22nd January 2015.
- 15 sires are participating in the site evaluation.
- Semen quality was tested for each sire. The ewes were in condition score 3 at insemination. Allstock Australia conducted the insemination.
- 50 ewes were prepared for AI by each sire with some spares.

■ Pregnancy and lambing

- Pregnancy scanning was carried out on 31 March 2015.
- 672 ewes were scanned with 13% being dry, 25% to backup and 62% in lamb to AI sires.
- The potential lambing rate in the AI ewes was 653 foetuses (97% of total ewes AI) which included multiple births.
- The ewes were managed on a rising plain of nutrition until lambing.
- The lambs were tagged when removed from sire group lambing paddocks on 7 July 2015.
- Lambing occurred in sire lambing paddocks. Shortly after lambing concluded, lambs were boxed into one management group with their mothers.

■ Weaning and seasonal conditions

- The lambs were marked on 18 August 2015 and weaned on 20 October 2015.
- Lambing and weaning took place on adequate pasture quality and quantity.

■ Assessments

- Body weights have been taken on 3 occasions, weaning, post weaning and yearling by TARC staff.
- Yearling assessment at 10 months old with 10 months wool.

■ Rainfall

The following rainfall records are from Australian Bureau of Meteorology Trangie station.

	Trangie Agricultural Research Station Rainfall (mm per month)					
Month	**2012**	**2013**	**2014**	**2015**	**2016**	**Average**
January	81.4	9.6	29.4	59.2	86.0	53.7
February	63.0	22.4	58.4	0.8	2.6	51.0
March	119.4	57.4	80.0	11.2	7.0	46.9
April	3.2	0.0	34.0	114.4	39.0	40.0
May	35.6	17.0	11.8	48.0		36.9
June	25.4	107.4	57.4	44.2		36.3
July	31.2	25.4	34.0	44.0		34.4
August	0.4	6.0	26.8	32.8		31.7
September	23.4	55.0	9.8	3.0		31.2
October	8.0	3.2	2.6	27.8		44.6
November	25.0	2.0	6.2	98.8		45.2
December	5.2	31.6	79.6	56.0		41.6
Total	**421.2**	**337.0**	**430.0**	**540.2**	**134.6**	**496.9**

Assessment and Management Program

Activity		Date/s	Age	Wool
Selection of ewes		December 2014		
Allocation of ewes for mating		January 2015		
AI carried out		21st & 22nd January 2015		
Pregnancy scanning		31 March 2015		
Separated into sire lambing groups		5 June 2015		
Lambing: start – finish		10th – 23rd June 2015		
Sire lambing groups Tagging and boxed		7 July 2015	22 days	
Pigmentation and breech scoring		18 August 2015	63 days	
Marking and mulesing		19 August 2015	64 days	
Weaning		20 October 2015	127 days	
Pre assessment (even-up) shearing		Nil		
Crutching		26 October 2015		
Mid side fleece sampling	Yearling:	5 April 2016	9.6 months	9.6 months
	Adult:	Approx. February 2017		
Visual trait scoring	Yearling:	5 April 2016	9.6 months	9.6 months
	Adult:	Approx. February 2017		
Classer's Visual Grade	Yearling:	5 April 2016	9.6 months	9.6 months
	Adult:	Approx. February 2017		
Assessment shearing	Yearling:	20 April 2016	10.1 months	10.1 months
	Adult:	Approx. February 2017		
Fat & eye muscle scanning	Yearling:	Approx. June 2016		
Body weighing	Weaning:	20 October 2015	4.0 months	4.0 months
	Post weaning:	2 February 2016	7.6 months	7.6 months
	Yearling:	27 April 2016	10.4 months	0.3 months
	Adult:	Approx. February 2017		
Worm egg count sampling	Nil – Will continue to monitor for suitable worm burdens for evaluation.			
Vaccination	6:1 at marking 19 August 2015			
Drench	Nil			
Supplementary feeding	Begin 26 April 2016 – Finish (ongoing at time of report)			
Field day or public display	Planning a Field day and progeny display – 2nd Week November 2016			

Site Breeding Objective and Classer's Visual Grade

The Macquarie CTSE Site Breeding Objective used to assess the Classer's Visual Grade
The Breeding Objective that is described below is used in two ways in this report. Firstly by the classer when evaluating each sheep's Classer's Visual Grade (Tops, Flock or Cull). Secondly, the Breeding Objective is used to establish an index that is used to describe the performance of sires for the relevant measured traits. The Breeding Objective was developed by the site committee.

While the Breeding Objective includes traits that are measured, only the visual evaluation of these traits is allowed to be used by the classer when establishing a sheep's Classer's Visual Grade. It is also recommended to consider a sire's progeny's performance for relevant individually scored traits.

Macquarie Site Breeding Objective in summary:

The Breeding Objective is to breed a highly commercially viable flock of sheep suitable for the climatic and pastoral conditions of the Central West of NSW. Sheep should not require high management inputs but be highly productive (fleece weight) relative to a fine/medium wool type (18 to 20 micron adult fibre diameter) and have good carcase characteristics that made them suitable as 1st cross or prime lamb dams.

In addition to soundness (described in detail below) **the production emphasis is equally on increasing fleece weight and increasing early growth while maintaining fibre diameter.**
It is considered the sheep at TARC are in general a fibre diameter that matched the objective. The index that describes this production emphasis is "Dual Purpose Plus" (for more detail see page 22).

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

Trangie Site Breeding Objective in detail:
The scores described below are the industry standards reported in Visual Sheep Scores booklet (2013).

Body structure - primarily the traits "legs/feet" and "shoulder/back" were evaluated. In detail;
Top: good standard (1 to 3 score) for legs/feet and (1 and 2 score) shoulder/back.
Flock: good standard (1 to 3 score) for feet/leg or shoulder/back.
Cull: sheep that are poor or very poor (4/5 score) for feet/leg or shoulder/back.

Body type - carcase characteristics that made them suitable as 1st cross or prime lamb dams (considering age and pastoral conditions), body wrinkle and face cover were evaluated. In detail;
Top: average or better carcase type, up to moderate wrinkle (1 to 3 score), open face (1 to 3 score).
Flock: satisfactory carcase type, up to moderate wrinkle (1 to 3 score), open face (1 to 3 score).
Cull: sheep that are outside the Top/Flock standard, e.g., 4 and 5 score wrinkle and face cover.

Wool type - primarily wool production (fleece weight) relative to a fine/medium wool type (18 to 20 micron adult fibre diameter), wool quality, and fleece rot resistance are being evaluated. In detail;
Top: average or better production (fleece weight), good standard for character (1-3 score), colour (1-2 score), staple structure (1-3 score), good resistance (relative to the group) to dust penetration, and high fleece rot resistance (1-3 score given a high challenge from rain over the wool growing period).
Flock: moderate wool production (fleece weight), good standard for character (1-4 score), colour (1-2 score), staple structure (1-4 score), moderate resistance (relative to the conditions) to dust penetration, weathering and high fleece rot resistance (1-4 score given the high challenge).
Cull: sheep that are outside the Top/Flock standard, e.g., sheep with 5 score for fleece rot were culled.

Other traits: Sheep will be culled if they have poor jaw structure (>3 score), significant fibre and non-fibre pigment (>4 score), any recessive black or random spot pigmentation (>1 score).

On balance: The standard described above for individual traits will in general apply however the balance of performance will also be taken into account. For example, a sheep that was considered to be very high for Fleece Weight may be below average for Body Weight and still be graded a Top and vice versa. Also a sheep that has a Tops standard in general but has a small deviation in required performance for one trait may be graded as a Top. Some traits such as jaw (>1 score), wool pigmentation (>1 score) and body strike (5 score Fleece Rot), face cover (>4 score face cover) are independently culled. This resulted in some exceptionally good sheep for measured trait performance being "culled" on the basis as they are commercially unviable in the high risk (e.g., body strike susceptibility) and low intensity management system of sheep in this pastoral production environment. On a sire level this may be seen where high performing sheep for measured production can in some cases be low performers on Classer's Grade performance.

Note: *Scores described are based on the industry Visual Sheep Scores booklet. www.wool.com/visualscores*

Figure 1. **Combined Measured and Visual Performance**

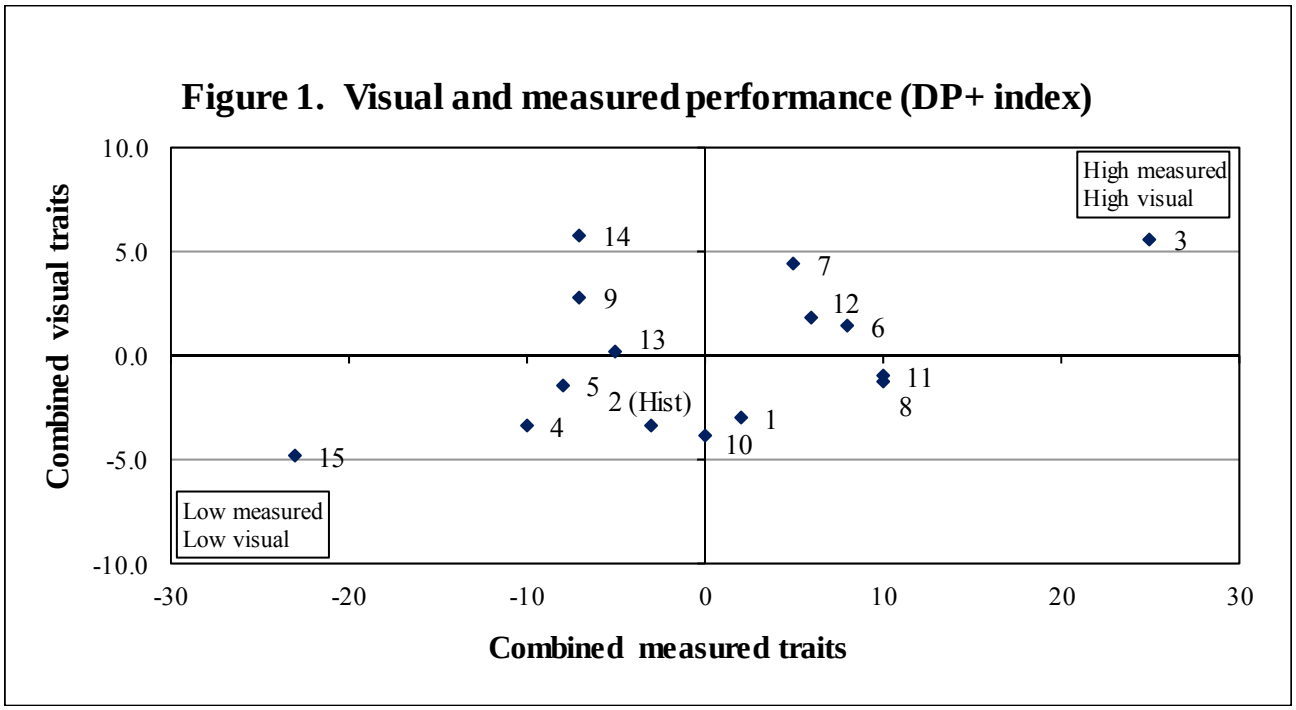
Summary graph: visual and measured performance

Each sire that meets reporting thresholds for index accuracies is located on the graph. The graph describes performance for combined measured traits and combined visual assessment.

Visual trait performance is a combination of Classer's Visual Grade performance (Tops and Culls). More information is found in "Understanding the Results".

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

Figure 1. Combined measured traits (DP+ index) and combined visually assessed traits for the site objective. Combined visually assessed traits including relevant measured traits, e.g., Fleece Weight and Body Weight.



Sire code	Breeders flock, Sire number	Sheep Genetics ID	Sire of Sire
1	Bundilla Poll, 130032	601435-2013-130032	504081-2010-100291
2	GRASS, 1.1 (Historical)	503884-1991-000001	Unknown
3	GRASS, P47	503884-2012-122190	609040-2006-066533 (Merinotech WA Poll, 6533)
4	Glen Holme, 130779 (Dohne)	510184-2013-130779	510115-2011-110286
5	Glenwood, 110043	501156-2011-110043	601106-2004-4MT005 (Well Gully Poll, MT005)
6	GullenGamble Poll, 110428	601414-2011-110428	600815-2008-080445
7	GullenGamble, 110461	504865-2011-110461	600815-2008-080445
8	Kerin Poll, 130980	601413-2013-130980	601244-2007-070304 (Kamora Park, 304)
9	Langdene, 130615	503863-2013-130615	503863-2008-086138
10	Macquarie Dohne Stud, 137021	510004-2013-137021	510004-2011-114838
11	Merinotech WA Poll, 2295	609040-2012-122295	601250-2008-807300 (Centre Plus Poll, 807300)
12	Mumblebone, 130389	500063-2013-130389	601365-2009-090399
13	Nerstane, 100919	503298-2010-100919	503298-2005-054636 (Nerstane, N4636)
14	Roseville Park, 130920	504166-2013-130920	504166-2011-112321
15	Weealla Poll, 120190	600438-2012-120190	Unknown

Table 1. **AMSEA Index Values and Classer's Visual Grade**

The highest performing 2 (or more if equal) sires for each trait (trait leaders) are highlighted by shading. Each sire is listed for Classer's Visual Grade and the same three indexes at all site evaluations.

The index values reported are based on measured traits FBV performance with varying the emphasis on fleece weight, fibre diameter, body weight, staple strength and worm egg count. See 'Index Options' (page 22) 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) being given a zero FBV value in AMSEA calculations.

- **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.
- **Merino Production Plus (MP+):** Based on a balanced wool and meat production system where surplus progeny are sold as hoggets.
- **Fibre Production Plus (FP+):** Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses.

Sire Code	Breeders flock, Sire name	Number of progeny	AMSEA Index Values			Classer's Visual Grade	
			Dual Purpose Plus	Merino Production Plus	Fibre Production Plus	Tops % Y^	Culls % Y^
1	Bundilla Poll, 130032	38	102	92	94	-5	10
2	GRASS, 1.1 (Historical)	38	97	98	97	-7	10
3	GRASS, P47	29	125	128	121	18	-10
4	Glen Holme, 130779 (Dohne)	49	90	80	85	-13	4
5	Glenwood, 110043	40	92	92	90	-2	5
6	GullenGamble Poll, 110428	35	108	117	119	2	-5
7	GullenGamble, 110461	32	105	100	100	10	-12
8	Kerin Poll, 130980	44	110	120	110	-3	3
9	Langdene, 130615	29	93	102	103	10	-4
10	Macquarie Dohne Stud, 137021	31	100	85	85	-4	15
11	Merinotech WA Poll, 2295	38	110	103	102	-7	-2
12	Mumblebone, 130389	38	106	99	102	-3	-12
13	Nerstane, 100919	44	95	104	109	-5	-6
14	Roseville Park, 130920	24	93	95	94	19	-10
15	Weealla Poll, 120190	41	77	82	91	-10	14
Average performance		**37**	**100**	**100**	**100**	**27**	**30**

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

Figures 2 and 3. **Summary Graphs – FW and FD, Tops and Culls**

Figure 2. Fleece weight by fibre diameter (FBVs)
The graph describes performance for fleece weight on the side axis and fibre diameter on the bottom axis. Sires that are above average for fleece weight and below average fibre diameter are located in the top left hand quarter.

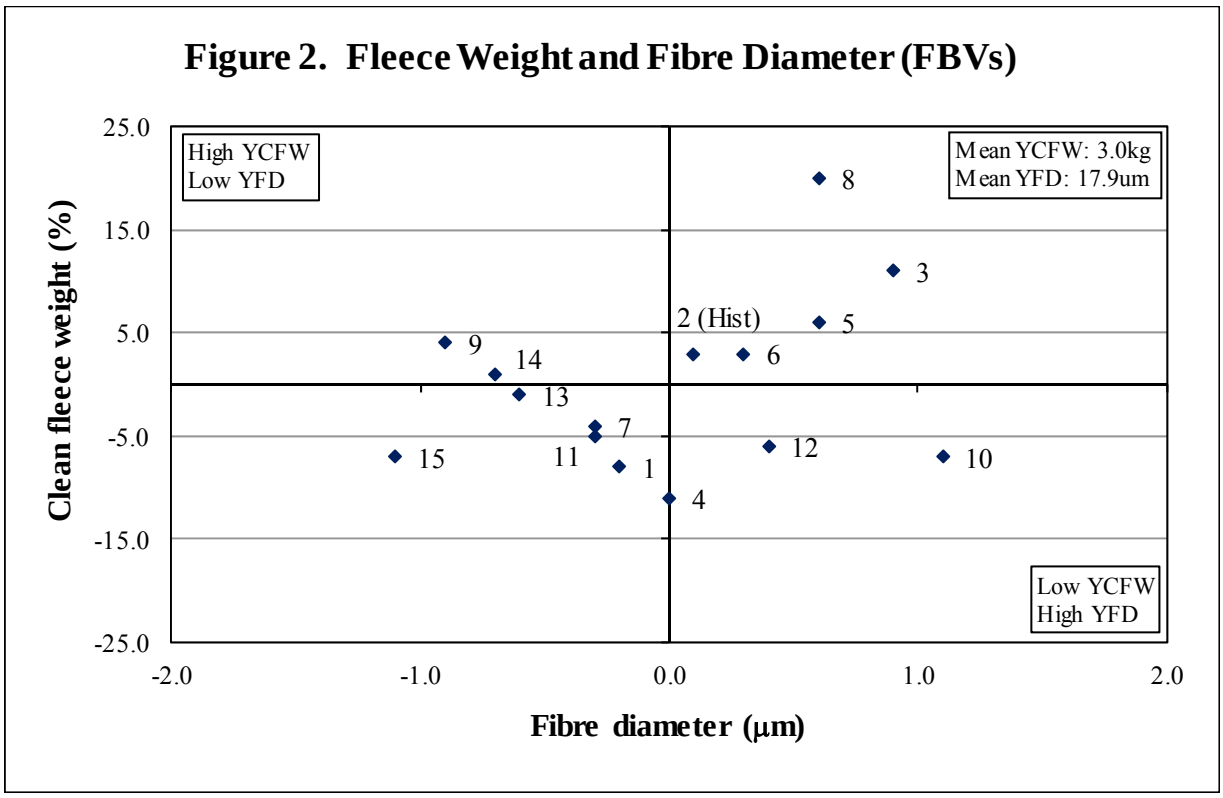


Figure 3. Classer's Visual Grade - Tops by Cull
The graph describes performance for Classer's Visual Tops Grade on the side axis and Culls Grade on the bottom axis. Sires that have above average Tops and below average Culls are in the top left hand quarter.

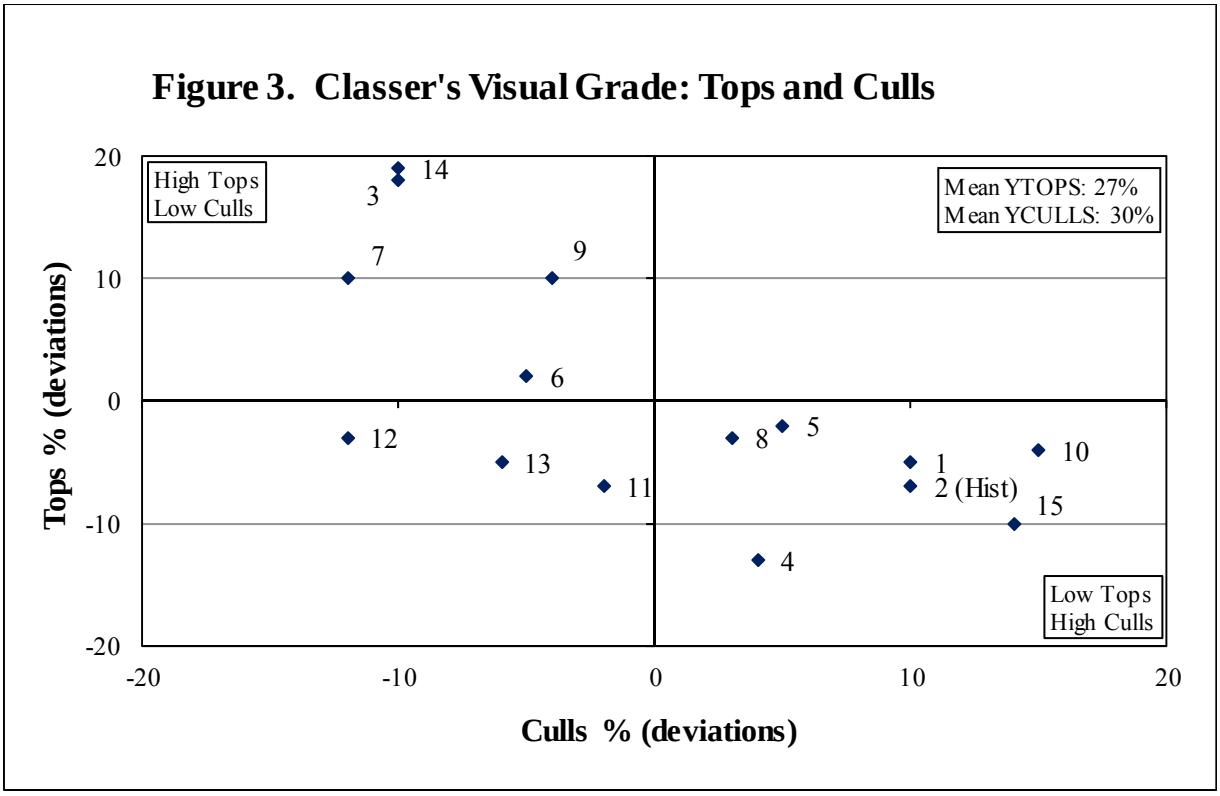
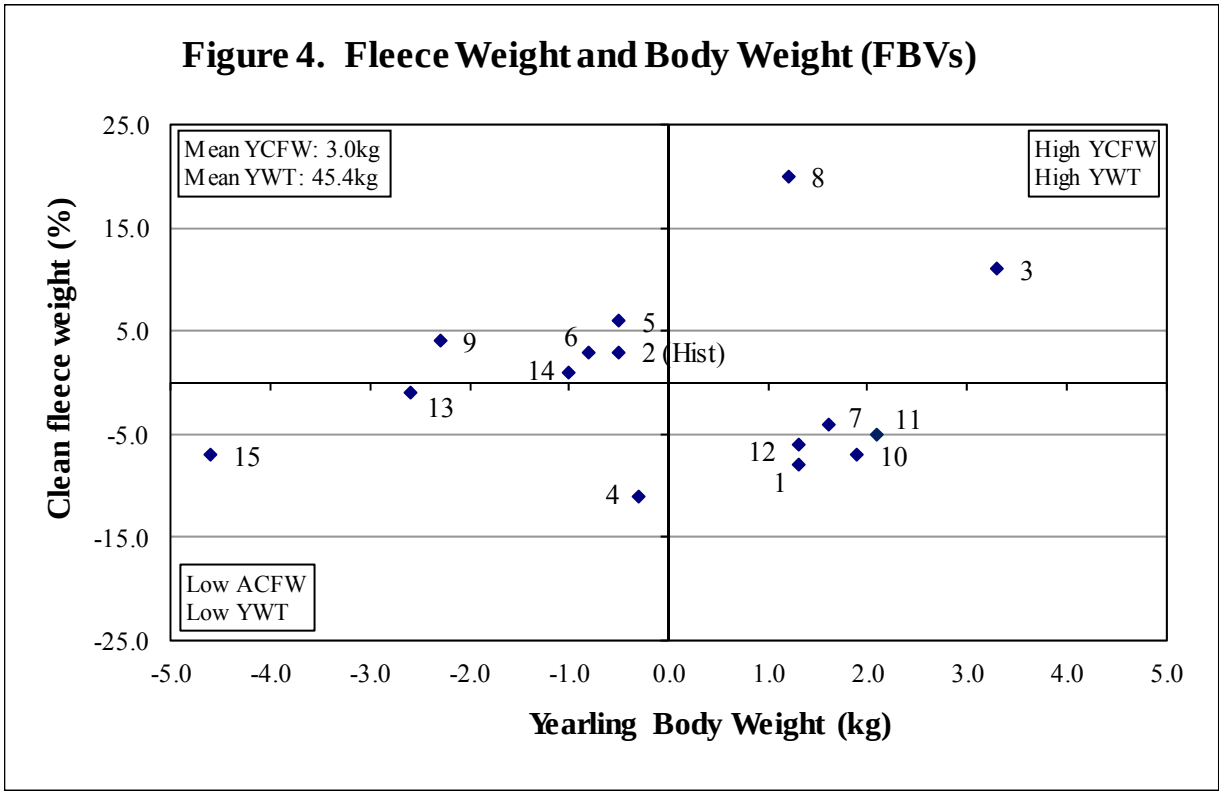


Figure 4. Fleece weight by body weight (FBVs)
The graph describes performance for fleece weight on the side axis and body weight on the bottom axis. Sires that are above average for fleece weight and above average for body weight are located in the top right hand quarter.



Understanding the Results

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

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.
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 2 (or more if equal) sires for each trait (trait leaders) are highlighted by shading. Curvature and Fat are possible exceptions 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). 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 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. Page 8 provides more detail on Classer's Visual Grade and the site's Breeding Objective.

Table 2. **Major Measured Traits and Classer's Visual Grade**

Breeders flock, Sire name	Number of progeny	Flock Breeding Values (deviations)						Classer's Visual Grade[1]	
		GFW	CFW	FD	WT			Tops	Culls
		%	%	µm	kg			%	%
		Y^	Y	Y	W	P	Y	Y	Y
Bundilla Poll, 130032	38	-7	-8	-0.2	-0.1	0.6	1.3	-5	10
GRASS, 1.1 (Historical)	38	1	3	0.1	-0.6	-0.6	-0.5	-7	10
GRASS, P47	29	9	11	0.9	2.0	2.7	3.3	18	-10
Glen Holme, 130779 (Dohne)	49	-10	-11	0.0	0.1	-0.2	-0.3	-13	4
Glenwood, 110043	40	3	6	0.6	-0.3	-0.2	-0.5	-2	5
GullenGamble Poll, 110428	35	2	3	0.3	-0.1	-0.2	-0.8	2	-5
GullenGamble, 110461	32	-3	-4	-0.3	1.3	1.5	1.6	10	-12
Kerin Poll, 130980	44	18	20	0.6	1.1	1.0	1.2	-3	3
Langdene, 130615	29	5	4	-0.9	-1.5	-2.1	-2.3	10	-4
Macquarie Dohne Stud, 137021	31	-6	-7	1.1	0.4	1.3	1.9	-4	15
Merinotech WA Poll, 2295	38	-4	-5	-0.3	0.7	1.5	2.1	-7	-2
Mumblebone, 130389	38	-6	-6	0.4	0.7	0.9	1.3	-3	-12
Nerstane, 100919	44	2	-1	-0.6	-1.2	-2.0	-2.6	-5	-6
Roseville Park, 130920	24	3	1	-0.7	-0.4	-0.8	-1.0	19	-10
Weealla Poll, 120190	41	-7	-7	-1.1	-2.1	-3.3	-4.6	-10	14

^ W = Weaning (42 to 120 days); P = Post Weaning (210 to 300 days); Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older)

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

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

Table 3. **Other Measured Traits**

Breeders flock, Sire name	Number of progeny	Flock Breeding Values (deviations)						
		FDCV % Y^	SL mm Y	SS N/ktex Y	CURV deg/mm Y	FAT mm	EMD mm	WEC %
Bundilla Poll, 130032	38	-0.9	-1.1	-2.4	1.2			
GRASS, 1.1 (Historical)	38	0.7	-1.1	-1.2	1.2			
GRASS, P47	29	-1.3	1.2	11.1	2.3			
Glen Holme, 130779 (Dohne)	49	0.8	-1.2	-3.5	1.6			
Glenwood, 110043	40	0.5	11.0	-3.4	-10.5			
GullenGamble Poll, 110428	35	-2.0	3.2	11.2	-5.4			
GullenGamble, 110461	32	-0.4	5.2	-1.4	-2.8			
Kerin Poll, 130980	44	0.4	6.0	1.1	-5.0	**FAT, EMD and WEC not yet measured**		
Langdene, 130615	29	1.2	-4.7	-4.7	2.9			
Macquarie Dohne Stud, 137021	31	-1.2	2.0	0.7	1.1			
Merinotech WA Poll, 2295	38	0.0	-7.2	-0.7	4.2			
Mumblebone, 130389	38	-1.1	1.6	5.7	2.1			
Nerstane, 100919	44	-0.5	-3.6	2.2	4.7			
Roseville Park, 130920	24	2.3	-4.8	-7.6	0.6			
Weealla Poll, 120190	41	1.3	-6.5	-7.1	2.0			

^ W = Weaning (42 to 120 days); P = Post Weaning (210 to 300 days); Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

Understanding the results

Scored trait performance – Tables 4a, 4b, 4c, 4d

The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in Version 2 (2013) of the Visual Sheep Scores booklet that is available free from AWI or at *www.merinosuperiorsires.com.au*

A deviation from the average trait score for all progeny is reported as well as the percentage of the sire's progeny recorded for each trait.

■ Fleece rot:	The severity of fleece rot from **1** (no fleece rot), **2 and 3** (bands of bacterial staining but no crusting), and **4 and 5** (bands of crusty fleece rot).
■ Wool colour:	Greasy wool colour scored from **1** (whitest) to **5** (yellow).
■ Wool character:	Definition and variation of crimp between and along the staple scored from **1** (well defined and regular) to **5** (undefined and large variation).
■ Dust penetration:	Degree of dust penetration from **1** (only tip <6%) to **5** (71 to 100% of staple).
■ Staple weathering:	The deterioration due to light and water from **1** (least, <6% of staple) to **5** (most, 71 to 100%) reflect the depth and degree of deterioration.
■ Staple structure:	The size and diameter of each staple from **1** (<6mm) to **5** (>30 mm).
■ Fibre pigmentation:	The percentage of dark fibres on any part of the sheep from **1** (0 pigmented fibres at any site) to **5** (71 to 100% pigmented fibres at one or more sites). This trait does not include random spot or recessive black.
■ Non-fibre pigmentation:	The percentage of pigmentation on the areas not shorn from **1** (0 pigmentation at any site) to **5** (71 to 100% pigmented area on one or more bare skin sites, **and/or** 71 to 100% of the total hoof area).
■ Recessive black: (Black)	Recessive black (black) is identified by relatively symmetrical markings on both sides of the face. There are two scores **1** (no recessive markings) and **5** (recessive markings). This trait does not include random spot or fibre pigmentation.
■ Random spot: (Spot)	Random spot (spot) is identified by rounded wool or hair spot/s, not symmetrical. There are two scores **1** (no spot/s) and **5** (spot/s). If both sides of the face or body are spotted the sheep should be scored as a recessive black.
■ Face cover:	Wool cover on the face scored from **1** (open face) to **5** (fully covered face).
■ Feet/Legs:	Conformation of feet and legs scored from **1** (very straight) to **5** (very angulated).
■ Body wrinkle:	The degree of body wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
■ Jaw:	The alignment of the lower jaw and its teeth relative to the top jaw from **1** (very well aligned) to **5** (heavily undershot or overshot).
■ Back/Shoulder:	Conformation of the back and shoulder from **1** (very square) to **5** (very dipped or high).
■ Breech cover	Size of natural bare area around the breech from **1** (large) to **5** (no bare).
■ Crutch cover	Size of natural bare area in the pubic and groin from **1** (large) to **5** (no bare).
■ Breech wrinkle	Degree of wrinkle at the tail set and hind legs from **1** (nil) to **5** (extensive).
■ Dag	Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
■ Urine	Degree of urine stained wool in the breech area, including the hind legs from **1** (nil) to **5** (extensive).

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

Visually assessed traits reported were scored at their latest assessment with the exception of pigmentation which was scored at marking (Spot updated on an ongoing basis) and breech traits recorded at marking time (or later in unmulesed flocks with the exception of Dag and Urine).

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a sire's progeny assessed for each score is also reported. No adjustments are made to the data to improve the accuracy of the results as is the case with sire means or breeding values.

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

Breeders flock, Sire name	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
Bundilla Poll, 130032	0.1	92	0	3	0	5	0.0	0	100	0	0	0	-0.2	13	41	46	0	0	0.2	0	0	7	31	62
GRASS, 1.1 (Historical)	0.0	95	3	0	0	2	0.0	0	98	2	0	0	0.2	3	32	55	10	0	-0.3	0	4	12	62	22
GRASS, P47	0.1	90	7	0	0	3	0.0	0	100	0	0	0	-0.1	0	59	41	0	0	-0.7	0	4	34	55	7
Glen Holme, 130779 (Dohne)	0.0	96	2	0	0	2	0.0	0	96	4	0	0	0.4	3	16	73	8	0	-0.1	0	0	12	45	43
Glenwood, 110043	0.0	95	3	0	0	2	0.0	0	100	0	0	0	0.0	10	32	50	8	0	0.3	0	0	0	30	70
GullenGamble Poll, 110428	-0.1	97	3	0	0	0	0.0	0	100	0	0	0	-0.3	17	43	37	3	0	0.1	0	0	6	40	54
GullenGamble, 110461	-0.1	100	0	0	0	0	0.0	0	100	0	0	0	-0.4	21	41	38	0	0	0.3	0	0	0	31	69
Kerin Poll, 130980	0.1	93	0	0	0	7	0.0	0	98	2	0	0	0.1	7	33	51	9	0	0.2	0	0	7	31	62
Langdene, 130615	0.0	97	0	0	0	3	0.0	0	93	7	0	0	0.0	10	30	60	0	0	-0.2	0	0	17	53	30
Macquarie Dohne Stud, 137021	0.1	90	6	0	0	4	0.0	3	87	10	0	0	0.2	6	16	74	4	0	0.4	0	0	0	23	77
Merinotech WA Poll, 2295	-0.1	95	5	0	0	0	0.0	0	97	3	0	0	0.0	8	38	46	8	0	-0.3	0	0	20	49	31
Mumblebone, 130389	-0.1	95	5	0	0	0	0.0	0	100	0	0	0	-0.5	24	50	26	0	0	-0.1	0	0	16	42	42
Nerstane, 100919	0.0	96	2	0	0	2	0.0	0	98	2	0	0	0.0	16	25	55	4	0	0.3	0	0	6	18	76
Roseville Park, 130920	-0.1	92	8	0	0	0	0.0	4	92	4	0	0	0.4	0	25	62	13	0	-0.2	0	0	29	25	46
Weealla Poll, 120190	0.2	88	0	5	0	7	0.0	0	95	5	0	0	0.2	4	37	44	15	0	0.0	0	0	8	51	41
Average performance	**1.1**	**94**	**3**	**0**	**0**	**3**	**2.0**	**0**	**97**	**3**	**0**	**0**	**2.5**	**9**	**35**	**51**	**5**	**0**	**4.4**	**0**	**0**	**12**	**39**	**49**

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Table 4b. **Visual trait assessments – Wool Quality and Pigmentation**

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 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. 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, Sire name	Wool Quality												Pigmentation - Marking											
	Staple Weathering						Staple Structure						Fibre pigmentation						Non-fibre pigmentation						Black	Spot
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	5	5
Bundilla Poll, 130032							-0.1	41	56	3	0	0	0.0	100	0	0	0	0	-0.7	0	49	41	7	3	0	2
GRASS, 1.1 (Historical)							0.2	15	75	10	0	0	0.0	100	0	0	0	0	-0.3	0	21	48	29	2	0	0
GRASS, P47							0.2	7	93	0	0	0	0.0	100	0	0	0	0	0.0	0	10	48	34	8	0	0
Glen Holme, 130779 (Dohne)							0.1	20	76	4	0	0	0.1	96	2	2	0	0	0.0	0	15	40	36	9	0	0
Glenwood, 110043	**Staple Weathering**						0.3	18	62	20	0	0	0.0	100	0	0	0	0	-0.1	2	24	33	29	12	0	0
GullenGamble Poll, 110428	**was not scored**						-0.1	37	63	0	0	0	0.0	100	0	0	0	0	-0.5	3	33	42	22	0	0	0
GullenGamble, 110461	**as Dust Penetration was**						0.1	28	56	16	0	0	0.0	100	0	0	0	0	-0.1	4	24	30	24	18	0	0
Kerin Poll, 130980							0.0	27	67	6	0	0	0.0	100	0	0	0	0	-0.4	2	30	46	13	9	0	0
Langdene, 130615							-0.3	50	50	0	0	0	0.0	100	0	0	0	0	0.3	0	13	23	48	16	0	0
Macquarie Dohne Stud, 137021							0.2	20	61	19	0	0	0.0	97	3	0	0	0	-0.1	0	26	32	29	13	0	3
Merinotech WA Poll, 2295							-0.1	36	59	5	0	0	0.0	100	0	0	0	0	-0.6	3	33	51	8	5	0	0
Mumblebone, 130389							0.0	37	55	8	0	0	0.0	100	0	0	0	0	0.6	0	5	25	32	38	0	0
Nerstane, 100919							-0.2	42	58	0	0	0	0.0	100	0	0	0	0	0.4	0	10	24	46	20	0	0
Roseville Park, 130920							-0.1	42	50	8	0	0	0.0	100	0	0	0	0	1.0	0	0	20	24	56	0	0
Weealla Poll, 120190							-0.2	41	59	0	0	0	0.0	100	0	0	0	0	0.6	0	4	23	47	26	0	0
Average performance							**1.8**	**31**	**63**	**6**	**0**	**0**	**1.0**	**100**	**0**	**0**	**0**	**0**	**3.4**	**1**	**20**	**35**	**29**	**15**		

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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 favourable 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 therefore trait leaders have not been highlighted.

Breeders flock, Sire name	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
Bundilla Poll, 130032	0.1	88	0	12	0	0	-0.3	68	20	10	2	0	-0.2	100	0	0	0	0	0.0	0	15	85	0	0	0.0	0	48	52	0	0
GRASS, 1.1 (Historical)	-0.1	95	0	5	0	0	0.1	30	57	10	3	0	0.0	92	0	8	0	0	-0.1	0	25	75	0	0	0.2	0	32	65	3	0
GRASS, P47	-0.2	100	0	0	0	0	0.1	34	45	14	7	0	-0.2	100	0	0	0	0	0.0	0	17	83	0	0	0.1	0	41	55	4	0
Glen Holme, 130779 (Dohne)	0.0	90	0	10	0	0	-0.1	41	49	10	0	0	-0.1	98	0	2	0	0	0.0	0	14	86	0	0	0.0	0	49	51	0	0
Glenwood, 110043	0.1	88	0	12	0	0	0.3	20	52	25	0	3	-0.1	95	0	5	0	0	0.1	0	10	90	0	0	-0.3	0	72	28	0	0
GullenGamble Poll, 110428	-0.1	97	0	3	0	0	-0.1	43	49	6	2	0	0.3	77	0	23	0	0	0.1	0	11	89	0	0	-0.1	0	60	40	0	0
GullenGamble, 110461	0.0	94	0	6	0	0	-0.2	44	53	3	0	0	-0.2	100	0	0	0	0	-0.1	0	28	72	0	0	-0.3	0	72	28	0	0
Kerin Poll, 130980	-0.1	96	0	4	0	0	-0.1	49	38	13	0	0	-0.1	96	0	4	0	0	-0.1	0	29	71	0	0	-0.2	0	62	38	0	0
Langdene, 130615	0.4	73	0	27	0	0	0.0	37	57	0	6	0	0.2	80	0	20	0	0	0.1	0	7	93	0	0	0.4	0	17	73	10	0
Macquarie Dohne Stud, 137021	-0.2	100	0	0	0	0	-0.2	58	26	16	0	0	-0.2	100	0	0	0	0	0.0	0	16	84	0	0	-0.3	0	77	23	0	0
Merinotech WA Poll, 2295	-0.1	97	0	3	0	0	0.0	49	36	7	8	0	0.0	92	0	8	0	0	-0.1	0	23	77	0	0	0.1	0	41	54	5	0
Mumblebone, 130389	-0.1	97	0	3	0	0	0.3	34	34	21	11	0	-0.1	95	0	5	0	0	0.0	0	21	79	0	0	-0.3	0	74	26	0	0
Nerstane, 100919	0.2	82	0	18	0	0	0.3	31	44	13	12	0	0.0	91	0	9	0	0	0.0	0	16	82	2	0	0.3	0	27	67	6	0
Roseville Park, 130920	0.0	92	0	8	0	0	-0.1	38	58	0	4	0	0.4	71	0	29	0	0	0.0	0	12	88	0	0	0.3	0	21	71	8	0
Weealla Poll, 120190	0.0	93	0	5	0	2	0.0	44	39	10	7	0	0.0	93	0	7	0	0	0.1	0	7	93	0	0	0.2	0	27	73	0	0
Average performance	**1.2**	**92**	**0**	**8**	**0**	**0**	**1.8**	**41**	**44**	**11**	**4**	**0**	**1.2**	**92**	**0**	**8**	**0**	**0**	**2.8**	**0**	**17**	**83**	**0**	**0**	**2.5**	**0**	**48**	**50**	**2**	**0**

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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 favourable and the larger the deviation the better.

Breeders flock, Sire name	Breech Visual Traits																											
	Breech Cover *Marking*						Crutch Cover						Breech Wrinkle *Marking*						Dag						Urine *Yearling*					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
Bundilla Poll, 130032	0.4	0	7	29	59	5							0.3	0	7	49	41	3							-0.1	94	6	0	0	0
GRASS, 1.1 (Historical)	-0.3	10	33	19	31	7							-0.1	0	19	62	19	0							0.0	83	17	0	0	0
GRASS, P47	0.0	0	14	48	34	4							0.1	0	0	76	24	0							0.2	78	5	11	6	0
Glen Holme, 130779 (Dohne)	-0.1	4	15	47	28	6							0.0	0	13	66	21	0							-0.2	100	0	0	0	0
Glenwood, 110043	0.0	0	26	26	40	8							-0.5	0	38	60	2	0							0.3	63	26	11	0	0
GullenGamble Poll, 110428	0.1	0	14	47	31	8	**Crutch Cover**						-0.1	0	11	72	17	0	**Dag**						0.2	76	18	0	6	0
GullenGamble, 110461	0.3	0	13	33	39	15	**was not scored**						-0.2	0	21	61	18	0	**was not scored**						0.1	82	12	0	6	0
Kerin Poll, 130980	-0.1	0	30	24	41	5							0.1	0	11	61	26	2							0.1	76	20	4	0	0
Langdene, 130615	-0.3	6	26	39	29	0							0.2	0	3	58	39	0							-0.1	92	8	0	0	0
Macquarie Dohne Stud, 137021	-0.1	0	19	53	25	3							-0.3	3	22	59	16	0							-0.2	100	0	0	0	0
Merinotech WA Poll, 2295	-0.3	2	33	36	26	3							0.0	0	5	74	21	0							-0.2	100	0	0	0	0
Mumblebone, 130389	0.0	0	25	38	28	9							-0.1	0	13	75	12	0							0.2	82	6	6	6	0
Nerstane, 100919	-0.1	0	22	37	41	0							0.3	0	2	57	41	0							0.0	90	5	0	5	0
Roseville Park, 130920	0.5	0	8	28	48	16							0.3	0	0	56	44	0							0.0	88	6	6	0	0
Weealla Poll, 120190	0.0	0	26	30	40	4							0.1	0	7	65	28	0							-0.1	89	11	0	0	0
Average performance	**3.2**	**1**	**21**	**36**	**36**	**6**							**3.1**	**0**	**12**	**63**	**25**	**0**							**1.2**	**86**	**9**	**3**	**2**	**0**

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

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 Tables 1, 2 and 3.

The highest performing 2 (or more if equal) sires for each trait (trait leaders) are highlighted by shading. Curvature is the possible exceptions 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.

		Sire means for measured traits (deviations from the site mean)									
Breeders flock, Sire name	**Number of progeny**	**GFW** kg Y^	**CFW** kg Y	**FD** µm Y	**FDCV** % Y	**Curv** deg/mm Y	**SL** mm Y	**SS** N/ktex Y	**WT** kg W	**WT** kg P	**WT** kg Y
Bundilla Poll, 130032	38	-0.2	-0.2	-0.1	-0.7	-0.1	-1.2	-3.6	-1.0	0.4	1.8
GRASS, 1.1 (Historical)	38	0.0	0.1	0.1	0.5	1.2	-0.7	-0.8	-1.0	-0.4	-0.2
GRASS, P47	29	0.3	0.4	0.6	-0.7	2.8	1.3	12.1	2.5	3.2	2.0
Glen Holme, 130779 (Dohne)	49	-0.4	-0.3	0.1	0.7	0.7	-0.3	-2.9	0.4	-0.8	0.1
Glenwood, 110043	40	-0.1	0.1	0.4	0.4	-7.2	8.5	-3.3	-0.5	0.1	-0.6
GullenGamble Poll, 110428	35	0.0	0.1	0.1	-1.3	-4.4	2.2	11.4	0.1	0.1	-0.9
GullenGamble, 110461	32	-0.1	-0.1	-0.3	-0.3	-2.5	4.6	-1.4	2.0	1.2	1.2
Kerin Poll, 130980	44	0.6	0.5	0.3	0.2	-2.2	4.1	1.2	1.7	0.8	0.2
Langdene, 130615	29	0.3	0.1	-0.6	0.6	2.6	-3.9	-4.7	-1.7	-2.1	-1.5
Macquarie Dohne Stud, 137021	31	-0.3	-0.2	0.9	-0.8	0.6	1.4	-1.0	-0.4	1.2	1.3
Merinotech WA Poll, 2295	38	-0.1	-0.1	-0.2	0.0	2.0	-6.0	-0.6	0.1	1.4	2.2
Mumblebone, 130389	38	-0.3	-0.2	0.3	-0.6	1.4	1.8	5.7	0.9	0.5	1.0
Nerstane, 100919	44	0.3	0.0	-0.4	-0.4	3.8	-2.5	1.9	-0.9	-1.6	-2.4
Roseville Park, 130920	24	0.2	-0.1	-0.4	1.7	0.3	-4.4	-7.1	-0.4	-0.8	-0.4
Weealla Poll, 120190	41	-0.2	-0.1	-0.7	0.7	1.0	-4.9	-6.8	-1.8	-3.0	-3.7
Progeny group average	**37**	**4.7** kg	**3.0** kg	**17.9** µm	**18.2** %	**86.7** deg/mm	**83.4** mm	**29.4** N/ktex	**31.2**	**44.9** kg	**45.4**

^ W = Weaning (42 to 120 days); P = Post Weaning (210 to 300 days); Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

(Historical) Historical Sires evaluated under AMSEA's R&D project to validate the system of linkage in MERINOSELECT that has operated over the past 15-20 years. These sires were generally widely used 15-20 years ago and were selected for the R&D program based on their high ASBV accuracies. They demonstrate the progress the industry has made over that period.

Index Options

Breeding Objective index options provide the relative value of sires based on a combination of the measured traits' genetic performance. 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 **measured** trait performance. These 3 AMSEA indexes are DP+; MP+; and FP+. 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.

AMSEA **DP+**

Dual Purpose Plus: 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.

AMSEA **MP+**

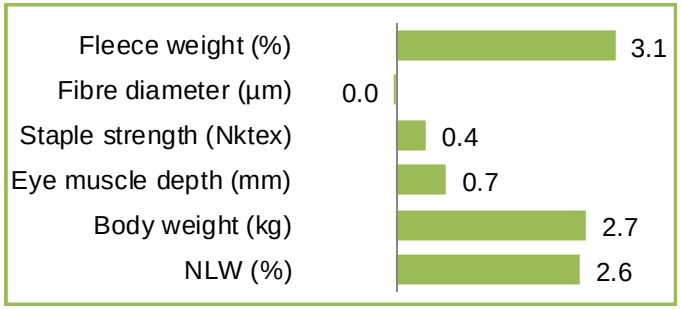
Merino Production Plus: Based on a balanced wool and meat production system where surplus progeny are sold as hoggets. Large increase in fleece weight. Small increase in staple strength, body weight and reproduction. Moderate reduction in fibre diameter.

AMSEA **FP+**

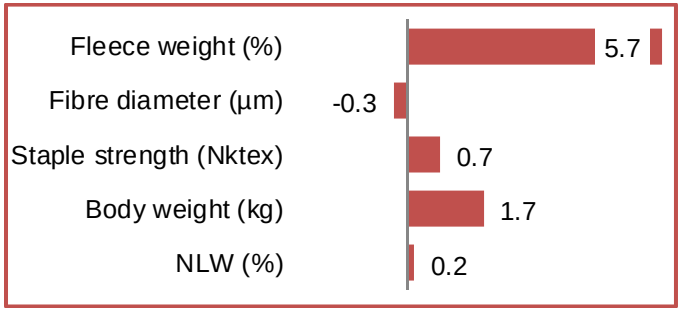
Fibre Production Plus: Based on a wool focussed production system where wethers are retained, operating in an environment where worms cause economic losses. Large reduction in fibre diameter. Moderate increase in staple strength. Small reduction in WEC (if measured in the breeding program). Small increase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

Likely responses from using an index for 10 years: The responses are based on a ram breeding flock with a standard breeding program, with no introduction of outside genetics and uses 35% of the selection emphasis on traits that are not in the index.

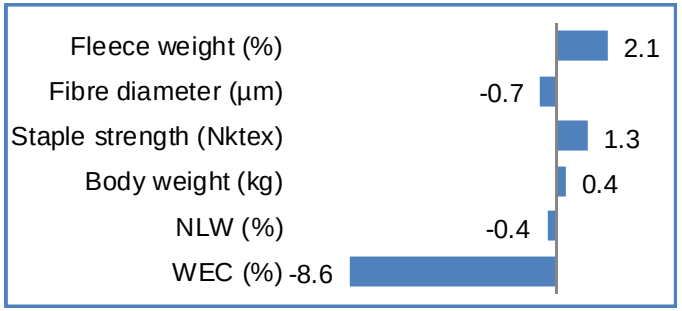
Dual Purpose Plus (DP+)



Merino Production Plus (MP+)



Fibre Production Plus (FP+)



Understanding 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 sire evaluation sites located across Australia to allow all sires entered in these site evaluations to have their performance reported relative to each other in Merino Superior Sires. Merino Superior Sires reports sires from across all effectively linked sire evaluation sites and across all evaluations at these sites. Link sires are therefore a vital component of the sire evaluation.

To be used as a link a sire must have at least 25 progeny assessed at 1st Assessment at one accredited site. Site reports provide valuable information not reported in Merino Superior Sires however Merino Superior Sires reports the performance of a large number of sires which can provide a wider perspective of the elite sires available across many flocks in Australia.

Calculation of Combined Information

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

Combined visual trait performance is calculated as:

(Classer's Visual Grade Tops% – Culls%)/5, expressed as a deviation from (average Tops% – average Culls%)/5.

Example
Sire's performance: AMSEA DP+ Index value = 119.7
  Tops% = 25.5 (average Tops% = 25.1)
  Culls% = 17.6 (average Culls% = 16.4)

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

Macquarie
(Trangie)

2015 Drop
Yearling Assessment