Balmoral

Merino Sire Evaluation

Site Report

2022 Drop
Post Weaning and Hogget Assessment

Within-Site Results
April 2024

Conducted by

Balmoral Breeders

Under the auspices of

Australian Merino Sire Evaluation Association
MERINO Superior Sires

With support from

awi
Australian Wool Innovation Limited

Foreword

The Balmoral Sire Evaluation Trials aim to evaluate and promote leading sires suited to fine wool production in Western Victoria.

This goal is achieved by informing participants, their clients and interested woolgrowers about the events surrounding the trials, and through producing and distributing annual reports and periodic newsletters. To further promote the evaluation, displays have been on show at the Australian Sheep & Wool Show now held in Bendigo, Balmoral Show and Hamilton Sheepvention.

In 1998 a small group of stud breeders met to form what is now known as the Balmoral Sire Evaluation Group. The Sire Evaluation Trials commenced in 1998 and as of this year there will be 25 progeny drops: 1998 - 2023. All trials are run for a minimum of 2 years. The site planning and direction is provided by the Balmoral Sire Evaluation Management Committee.

Evaluations have been held on privately owned host properties around the Balmoral district progressing to a new property mostly every two years. Host properties run Merino fine wool ewes with genetics suitable for the district's environment.

- 1998 & 1999 "The Mountain Dam", Balmoral
- 2000 & 2002 "Kerrsville", Balmoral
- 2002 & 2003 "White Oaks", Balmoral
- 2004 & 2005 "Arundale", Balmoral
- 2006 & 2007 "Tuloona", Harrow
- 2008 & 2009 "Mokanger, Cavendish
- 2010 & 2011 "Yiddinga", Edenhope
- 2012 & 2013 "Wando Estate", Casterton
- 2014 "Mepungah", Wannon
- 2015 & 2016 "Tuloona", Harrow
- 2017 & 2018 "Kooringal", Coleraine
- 2019 & 2020 "Jigsaw Farms", Hensley Park
- 2021 "Austral Park", Coleraine
- 2023 "Warooka", Cavendish

Thank you to our hosts, sponsors, committee and participants for enabling this valuable assessment of Merino genetics.

Mark Bunge
Chairman - Balmoral Breeders

Site Committee

Mark Bunge	Ashley Read	Marina VanAken
Anthony Close	Mark Williams	Ian Murray
Michael Craig	Rich Currie	Sean Harvey
Tom Silcock	Jarrod Alcorn	Rosey Leeming
Nick Falkenberg	Michael Close	Russell Macgugan
Hugh Jarvis	Wayne Whale	Scott Davis
Andrew Howells	Colin Frawley	Elise Kealy
David Whyte	Rick Luhrs	Jonno Hicks
Tony Kealy	Peter Fraser	Tom Sweeny
Alistair Leonard	Celia Dymond	Hamish Robertson
Bernie Duggan	Clive Silcock	Kym Lyons
Gary Simpson	John Lyons	

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2022 Drop Post Weaning and Hogget Assessment

The information in this Site Report provides the results of the assessment of the 2022 drop, including the Post Weaning and Hogget assessments of the sire's progeny performance for measured and visually assessed traits.

The Post Weaning midside fleece assessments were completed at 6.5 months of age with 6.5 months of wool growth and shearing was completed at 6.5 months of age with 6.5 months of wool growth.

The Hogget fleece assessments were completed at 18 months of age with 11.5 months of wool growth and shearing was completed at 19 months of age with 12.5 months of wool growth.

Visual Trait Assessment and Site Breeding Objective

Visual trait assessment
Classer's Grade: Sam Thring
Visual Trait Scores: Sam Thring and Site Committee

Site Breeding Objective used to assess the Visual Classer's Grades
The Breeding Objective used by the classer/s when selecting the Classers Tops, Flock and Cull grades is described below. The Breeding Objective for both measured and visually assessed traits was developed by the site committee in consultation with the classer prior to the grading.

The goal is to select sheep that are productive and well grown, with sound conformation and carrying heavy fine wool fleeces of good character, colour and nourishment suitable for the western Victorian environment. Fertility and reproduction are also a focus in selection.

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

Sire Codes and Pedigrees

Sire Code	Breeders flock, Sire number	Sheep Genetics ID	Poll	Sire of Sire
1	Anderson Poll, 200519	609147-2020-200519	PP	Anderson Poll, 180633
2	Austral Park, 180015	509352-2018-180015	HH	Nerstane, 140005
3	Benefield Poll, 200055	609302-2020-200055	PP	Gunallo Poll, 170295
4	Boxleigh Park, 181057	509232-2018-181057	PH	Boxleigh Park, 160843
5	Centre Plus Poll, 707350 (Link Sire)	601250-2017-707350	PP	Centre Plus Poll, 507333
6	Connewarran, 017223	504704-2017-017223	PH	Connewarran, 015183
7	Deep Dene Poll, 180020	600896-2018-180020	PP	Hazeldean, 003542
8	Forest Springs Poll, 200102	601465-2020-200102	PP	Wallaloo Park Poll, 181491
9	Glen Holme, 206139 (Dohne)	510184-2020-206139	PP	Glen Holme, 172565
10	Hannaton Poll, 200155	600804-2020-200155	PP	Wallaloo Park Poll, 172070
11	Hazeldean, 002980	500383-2018-002980	PH	Hazeldean, 003374
12	Karalta Poll, 180953	609117-2018-180953	HH	Unknown
13	Kurra-Wirra, 200572	504173-2020-200572	PH	The Mountain Dam Poll, EJA002
14	Merinotech WA Poll, 177269	609040-2017-177269	PP	Merinotech WA Poll, 144751
15	Miramoona, 140012 (Link Sire)	503471-2014-140012	PH	Anderson Poll, 120096
16	Mooralla Poll, 200087	609298-2020-200087	PP	Anderson Poll, 140474
17	Mumblebone, 200904	500063-2020-200904	PP	Moojepin, 120652
18	Roseville Park Poll, 173116	601288-2017-173116	PH	Charinga,130240
19	Stud Park South, 085227	505051-2018-085227	HH	Stud Park South, 085510
20	Willandra Poll, 180447 (Link Sire)	600610-2018-180447	PP	Wallaloo Park Poll, 150422
21	Wongara Poll, 190017	601529-2019-190017	PH	Brundanella Poll, 140002

Sire and Owner Contact Details

Breeders flock, Sire number Sire ID #	Contact Details
Anderson Poll, 200519 609147-2020-200519	**Lynley Anderson** Brookvale, RMB 512, Kojonup WA 6395 M: 0429 32 8055, E: info@andersonrams.com.au
Austral Park, 180015 509352-2018-180015	**Hamish Roberston** 121 Austral Park Road, Tarrenlea VIC 3315 M: 0408 69 4661, E: hrobertson86@gmail.com
Benefield Poll, 200055 609302-2020-200055	**Brenton Smith** 1491 Ferns Road, Cowell SA 5602 P: (08) 8628 5039, M: 0427 28 5039, E: info@calcookara.com.au
Boxleigh Park, 181057 509232-2018-181057	**Hugh Taylor** Willunga, 775 Twelve Mile Rd, Wellington NSW 2820 P: (02) 6845 3669, M: 0488 44 5495, E: boxleighpark@bigpond.com
Centre Plus Poll, 707350 (Link Sire) 601250-2017-707350	**Robert Mortimer** Devondale, Tullamore NSW 2874 P: (02) 6892 8259, M: 0429 92 8292, E: robert@centreplus.com.au
Connewarran, 017223 504704-2017-017223	**Hamish Weatherly** Connewarran, PO Box 21, Mortlake VIC 3272 M: 0423 07 3328, E: hamishweatherly@hotmail.com
Deep Dene Poll, 180020 600896-2018-180020	**Caitlin Berry** 654 South Coast Rd, MacGillivray SA 5223 M: 0419 17 1020, E: caitlin.berry@live.com.au
Forest Springs Poll, 200102 601465-2020-200102	**Bruce Dean** 96 Frampton Road, Joel Joel VIC 3384 M: 0407 05 4342, E: forestsprings@activ8.net.au
Glen Holme, 206139 (Dohne) 510184-2020-206139	**Allen Kelly** 115 Waterloo Road, Manoora SA 5414 P: (08) 8848 4328, M: 0409 01 8943, E: ajkelly@activ8.net.au
Hannaton Poll, 200155 600804-2020-200155	**Jonno Hicks** Hannaton Partnership, PO Box 22, Kaniva VIC 3419 M: 0428 92 2366, E: office@hannaton.com.au
Hazeldean, 002980 500383-2018-002980	**Jim Litchfield** 1410 Maffra Rd, Cooma NSW 2630 P: (02) 6453 5555, M: 0417 67 6561, E: admin@hazeldean.com.au
Karalta Poll, 180953 609117-2018-180953	**Tom Spielvogel** 225 Dolly's Creek Road, Morrisons VIC 3334 P: (03) 5341 5551, M: 0408 86 1451, E: tommy_8@bigpond.com
Kurra-Wirra, 200572 504173-2020-200572	**Anthony Close** Kurra Wirra , 770 Moree-Culla Rd, Culla VIC 3315 M: 0437 08 5217, E: anthony@kurrawirra.com.au
Merinotech WA Poll, 177269 609040-2017-177269	**Ian Robertson** Merinotech (WA) Ltd, RMB 311, Kojonup WA 6395 P: (08) 9833 6251, M: 0483 83 1436, E: yarrakfarm311@gmail.com
Miramoona, 140012 (Link Sire) 503471-2014-140012	**Kim Barnet** Miramoona, Walcha NSW 2354 P: (02) 6777 2885, M: 0429 77 2885, E: barnet@miramoona.com
Mooralla Poll, 200087 609298-2020-200087	**Ricky Luhrs** 440 Luhrs Rd, Mooralla VIC 3314 M: 0428 24 5746, E: info@moorallamerino.au
Mumblebone, 200904 500063-2020-200904	**Adam Kelly** 1179 Brookhampton Rd, Brookhampton WA 6239 M: 0408 23 1082, E: adamkelly1980@gmail.com
Roseville Park Poll, 173116 601288-2017-173116	**Matthew and Cherie Coddington** Glenwood, 39R Dilladerry Rd MS3, Dubbo NSW 2830 P: (02) 6887 7286, M: 0428 63 5386, E: rpmerinos@bigpond.com
Stud Park South, 085227 505051-2018-085227	**Pat Millear** 6001 Mortlake Ararat Road, Willaura VIC 3379 M: 0428 54 1462, E: millearaps@bigpond.com
Willandra Poll, 180447 (Link Sire) 600610-2018-180447	**Clinton Blight** RMB 722, Narrogin WA 6312 P: (08) 9885 9009, M: 0427 56 6905, E: blight.clinton@gmail.com
Wongara Poll, 190017 601529-2019-190017	**Doug Walker** 2856 Olympic Highway, Old Junee NSW 2652 M: 0458 78 2392, E: doug@fabstock.com.au

(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.*

Link sires are a vital sire evaluation component as they provide the 'genetic link' between sire evaluation sites located across Australia, allowing all sires entered to have their performance reported relative to each other in the annual Merino Superior Sires. An AMSEA link a sire must have at least 25 progeny assessed at their 1st sire evaluation assessment.

The 16 digit Sire ID is a unique number for all sheep.
- 2 for the breed of the flock, e.g.Merino (50), Poll Merino (60), Dohne (51)
- 4 for flock code, AASMB Registered flock code or unregistered code.
- 4 for year of drop & 6 for tag# used in the breeder's records.

Manager's Report

Location
The host property 'Austral Park' is located 25kms north west of Hamilton and receives 600mm of winter dominant rainfall per year. The Property is owned and operated by Hamish and Diana Robertson.

Ewe Base
The Property runs a self-replacing fine wool ewe flock. With the focus on producing productive easy care, good doing ewes that produce white, bright wool. The mature ewe reference weight is 55kgs, producing 5kgs of 18 micron wool.

Joining
Laparoscopic insemination of 1100 ewes was conducted by Genstock on 1 & 2 March 2022 with the ewes being in condition score 3.

Pregnancy and lambing
The ewes were pregnancy scanned on 26 May 2022 by Stock Sense contracting. Ewes were split following preg scanning into singles, twins and triplet bearing ewes. Ewes started lambing down on 31 July over a 5 day period in their pregnancy status mobs.

Lamb marking and mulesing was conducted on 23 August 2022 with TSUs taken, visual assessment, ear tagged and vaccinated. 480 twin lambs at 124% and 323 singles at 87% giving a total of 803 lambs at 106% from scanning.

Weaning to Post weaning
Lambs were weaned on 21 October 2022 when they were drenched, vaccinated and weighed averaging 21.3kgs. They went out onto wet waterlogged pasture for a few months. It was an extremely wet spring with no hot weather and the young stock did not do very well. The pasture dried off in late December and they were given a feed ration of silage, barley and beans. Midside samples were taken on 15 February 2023 and they were shorn on 22 February 2023.

Post weaning to Hogget Assessment
They did well off shears and had good growth up to winter when we started pushing them harder to get WEC up over 300. At this stage they slipped back. Individual WEC were taken on 15 August 2023 and they were drenched. Things were tight and they had to go back to the same paddock where they didn't do much for the next few months until we started getting a bit of warm weather.

Fat and muscle scanning took place on 30 October 2023. Hogget classing and side sampling was completed on 29 January 2024. Shearing and fleece weighing took place on 4 March 2024 after the field day, off shears body scoring on 12 March 2024.

Joining
The ewe proportion have been joined through the month of March to Austral Park rams and will be scanned in May to give a conception report.

Seasonality
The 2023 season has been another roller coaster ride like the rest of Australia. Coleraine has had a very wet start to the year, with the soil profile being fully saturated by early June, and the sheep pugging paddocks. Then it dried out for the rest of the year with little spring growth. Then a wet December 2023 and January 2024 giving us green feed in January, and now a hot dry March.

Hamish Robertson

Assessment and Management Program

Activity	Date/s	Age	Wool
Selection of ewes	Dec 2021		
Allocation of ewes for mating	Feb 2022		
AI program	01/03/2022 and 02/03/2022		
Pregnancy scanning	26/05/2022		
Allocated to lambing paddocks	18/07/2022		
Lambing: start – finish	31/07/2022 – 05/08/2022		
Lambing mobs boxed into a single management group	10/08/2021	2 weeks	
Marking, tagging, pigmentation and breech scoring	10/08/2021	2 weeks	
Weaning	21/10/2021	2.5 months	
Even Up Shearing	-		
Worm egg count (Y)	15/08/2023	12.5 months	
Crutching	16/06/2023 18/12/2023		
Fat and eye muscle scanning (Y)	30/10/2023	15 months	
Mid side fleece sampling (P) **Mid side fleece sampling (H)**	15/02/2023 29/01/2024	6.5 months 18 months	6.5 months 11.5 months
Visual trait scoring (P) **Visual trait scoring (H)**	15/02/2023 29/01/2024	6.5 months 18 months	6.5 months 11.5 months
Shearing (P) **Shearing (H)**	22/02/2023 04/03/2024	6.5 months 19 months	6.5 months 12.5 months
Body weight (W) **Body weight (P)** **Body Weight (Y)** **Body Weight (H)**	21/10/2022 01/03/2023 30/10/2023 29/02/2024	2.5 months 7 months 15 months 19 months	
Vaccination	Marking 5in1 and Gudair Weaning 5in1		
Drench	Weaning and Yearling Triple Combination		
Fly treatment	Marking Breech treatment using Clik		
Field day or public display	10/02/2023 01/03/2024		

Explaining the Different Types of Results Reported

Raw Data » **Adjusted Sire Means** » **Flock Breeding Values**

Merino Sire Evaluation produces a variety of result types which are all connected. The types of data produced include **Raw Data**, **Adjusted Sire Means**, **Flock Breeding Values** and **Indexes**. Initial measurements taken during sire evaluation assessments are used as the first level of results (Raw Data), then adjustments are made to increase the selection accuracy and better enable the comparison of results and sires (Adjusted Sire Means and Flock Breeding Values and Indexes).

Generally, AMSEA publishes **Adjusted Sire Means**, **Flock Breeding Values** and **Indexes** in Site Reports as they offer a higher level of accuracy**.** Visual Traits were historically reported as **Raw Data**, however Adjusted Sire Means are now available for these traits and visual traits will now be presented in this format.

Raw Data

Raw data; unadjusted results as measured in the yard, paddock or wool testing facility.

Adjusted Sire Means

These are raw data results that have been adjusted for the effect of sex, birth type/rear type, age of dam, dam source, age at measurement, the number of progeny a sire has and management group(s).

Flock Breeding Values (FBVs)

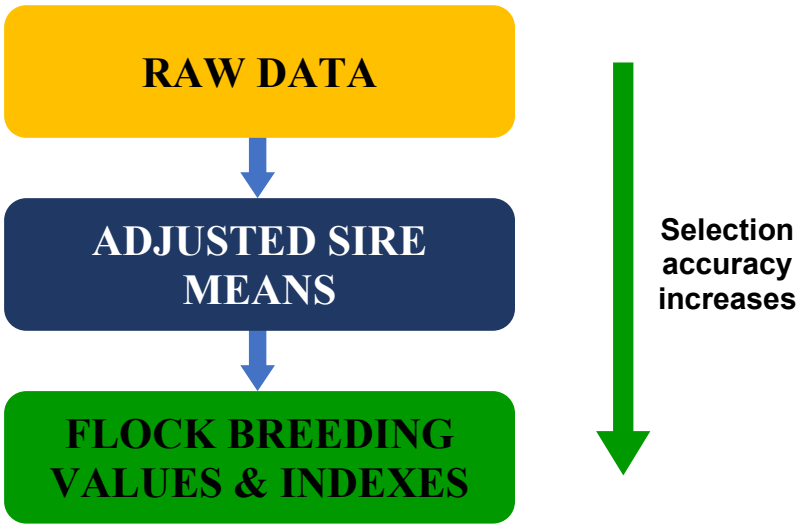
These results have been adjusted in the same way as Adjusted Sire Means, then further calculations have also been made to account for the level of heritability of a trait (some are more heritable than others) and correlations between traits.

FBVs are within site and within drop. As such they do not include data from other sources as is the case with Australian Sheep Breeding Values (ASBVs), which are reported in Merino Superior Sires.

Indexes

A breeding index is the combination of breeding values into a single value that reflects a certain emphasis on those traits.

For more information about each Index see the page in this report titled ‘Index Options’.



Understanding the Results - Classer's Visual Grade & Visual Traits	
Breeders flock, Sire number:	Identity of the breeder's flock and the sire's number or name.
Number of progeny:	The number of progeny a sire had at weaning. Average number of progeny is included.
Trait Leaders:	The highest performing sires for each trait (trait leaders) are highlighted by shading. Curvature is the possible exception when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.
Age at assessment:	M = Marking - 14 to 39 days (2 to 6 weeks) W = Weaning - 40 to 149 days (6 weeks to 5 months) P = Post Weaning - 150 to 299 days (5 to 10 months) Y = Yearling - 300 to 449 days (10 to 15 months) H = Hogget - 450 to 659 days (15 to 22 months) A = Adult - 660 days or older (22 months or 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 also included. Classer's Visual Grade is reported as Adjusted Sire Means; Results which have been adjusted for made for all available information on sex, birth type, rear type, age of dam, age of measurement, the number of progeny a sire has and management group(s), in order to improve the accuracy. No account is made for trait heritability or genetic correlations between traits that can further improve the accuracy. More detail on who completed the Visual Grade Classing/Scoring and the site's Breeding Objective is available earlier in this report.
Visual Traits:	The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in Version 3 (2019) of the Visual Sheep Scores booklet that is available free from AWI or at *www.merinosuperiorsires.com.au*. For the majority of breeding objectives a lower score would be considered favourable and a large difference below the average performance is preferable. *Staple structure, Jaw* and *Face* are the possible exceptions when for many breeders the optimum score is in the middle of the range therefore trait leaders are not highlighted. Visual traits are reported as reported as **Adjusted Sire Means**; Results which have been adjusted for made for all available information on sex, birth type, rear type, age of dam, age of measurement, the number of progeny a sire has and management group(s), in order to improve the accuracy. No account is made for trait heritability or genetic correlations between traits that can further improve the accuracy.
Fleece rot:	FLROT - 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:	COL - Greasy wool colour scored from **1** (whitest) to **5** (yellow).
Wool character:	CHAR - 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:	DUST - Degree of dust penetration from **1** (only tip <6%) to **5** (71 to 100% of staple).
Staple weathering:	WEATH - 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:	SSTRC - The size and diameter of each staple from **1** (<6mm) to **5** (>30 mm).
Fibre pigmentation:	FPIG - 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:	SPIG - 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 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. Only the percentage of progeny for each sire who scored 5 are reported for Recessive black and Random spot.
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.
Jaw:	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).
Feet/Legs:	LEGS - Conformation of feet and legs scored from **1** (very straight) to **5** (very angulated).
Back/Shoulder:	BACK - Conformation of the back and shoulder from **1** (very square) to **5** (very dipped or high).
Face cover:	FACE - Wool cover on the face scored from **1** (open face) to **5** (fully covered face).
Body wrinkle:	BDWR - The degree of body wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
Breech cover:	BCOV - Size of natural bare area around the breech from **1** (large) to **5** (no bare).
Breech wrinkle:	BRWR - Degree of wrinkle at the tail set and hind legs from **1** (nil) to **5** (extensive).
Dag:	DAG - Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
Crutch cover:	CCOV - Size of natural bare area in the pubic and groin from **1** (large) to **5** (no bare).
Dag:	DAG - Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
Urine:	URINE - Degree of urine stained wool in the breech area, including the hind legs from **1** (nil) to **5** (extensive).

Table 1. 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 also included.

Classer's Visual Grade is reported as **Adjusted Sire Means**; Results which have been adjusted for all available information on sex, birth type, rear type, age of dam, age of measurement, the number of progeny a sire has and management group(s), in order to improve the accuracy. No account is made for trait heritability or genetic correlations between traits that can further improve the accuracy.

Sire Code	Breeders flock, Sire number	Number of Progeny*	Classer's Visual Grade *Hogget*	
			TOPS %	CULLS %
1	Anderson Poll, 200519	45	0	-8
2	Austral Park, 180015	37	-2	4
3	Benefield Poll, 200055	36	17	-15
4	Boxleigh Park, 181057	42	16	-15
5	Centre Plus Poll, 707350 (Link Sire)	30	4	-2
6	Connewarran, 017223	26	6	-5
7	Deep Dene Poll, 180020	46	2	-9
8	Forest Springs Poll, 200102	31	19	-15
9	Glen Holme, 206139 (Dohne)	43	-11	14
10	Hannaton Poll, 200155	41	-3	10
11	Hazeldean, 002980	31	-10	20
12	Karalta Poll, 180953	42	-8	-3
13	Kurra-Wirra, 200572	25	-1	-7
14	Merinotech WA Poll, 177269	33	2	-12
15	Miramoona, 140012 (Link Sire)	36	1	-8
16	Mooralla Poll, 200087	46	2	-14
17	Mumblebone, 200904	36	-5	10
18	Roseville Park Poll, 173116	32	-10	16
19	Stud Park South, 085227	25	-13	10
20	Willandra Poll, 180447 (Link Sire)	26	-5	30
21	Wongara Poll, 190017	33	-1	0
	Progeny group average	**35**	**13**	**23**

*Number of progeny is as at the Hogget classing event.

These grades were collected from both the ewe and wether progeny.

Table 2. Visual Traits - Wool Quality and Pigmentation

Visual traits are reported as **Adjusted Sire Means**; Results which have been adjusted for all available information on sex, birth type, rear type, age of dam, age of measurement, the number of progeny a sire has and management group(s), in order to improve the accuracy. No account is made for trait heritability or genetic correlations between traits that can further improve the accuracy.

Sire Code	Breeders flock, Sire number	Number of Progeny	Wool Quality - *Hogget*						Pigmentation - *Marking*			
			FLROT	COL	CHAR	DUST	WEATH	SSTRC	FPIG	SPIG	BLACK % Score 5	SPOT % Score 5
1	Anderson Poll, 200519	44	1.6	2.1	2.7	2.1	1.9	1.7	1.1	2.4	0	0
2	Austral Park, 180015	38	1.3	1.9	2.8	1.9	1.9	1.9	1.1	2.5	0	0
3	Benefield Poll, 200055	37	1.3	2.0	2.2	2.1	2.0	1.9	1.1	2.5	0	0
4	Boxleigh Park, 181057	43	1.2	2.1	2.5	2.1	2.1	2.0	1.0	2.3	0	0
5	Centre Plus Poll, 707350 (Link Sire)	31	1.4	2.2	2.4	2.2	2.1	1.7	1.0	2.8	3	0
6	Connewarran, 017223	27	1.1	1.6	2.9	1.9	1.9	1.7	1.0	2.8	0	0
7	Deep Dene Poll, 180020	49	1.4	2.0	2.4	2.1	2.0	1.9	1.0	2.2	0	0
8	Forest Springs Poll, 200102	31	1.3	1.9	2.1	2.1	1.9	1.8	1.2	2.3	0	0
9	Glen Holme, 206139 (Dohne)	42	1.8	2.4	2.6	2.3	2.2	2.0	1.1	2.4	0	0
10	Hannaton Poll, 200155	46	1.6	2.3	2.6	2.0	2.0	1.7	1.1	2.2	0	0
11	Hazeldean, 002980	33	1.9	2.4	2.6	2.1	2.0	1.7	1.0	2.4	0	0
12	Karalta Poll, 180953	42	1.1	1.7	3.5	1.9	1.9	1.9	1.0	2.6	0	0
13	Kurra-Wirra, 200572	25	1.2	1.8	2.4	2.1	2.0	1.7	1.0	2.1	0	0
14	Merinotech WA Poll, 177269	32	1.4	2.0	2.5	2.1	2.0	1.7	1.1	2.5	0	0
15	Miramoona, 140012 (Link Sire)	35	1.4	2.0	2.8	2.5	2.2	2.1	1.0	2.7	0	0
16	Mooralla Poll, 200087	46	1.3	2.1	2.7	2.2	2.0	2.0	1.0	2.9	0	0
17	Mumblebone, 200904	39	1.7	2.4	2.6	2.2	2.1	2.0	1.0	2.7	0	0
18	Roseville Park Poll, 173116	32	1.6	2.1	2.7	1.9	1.9	1.8	1.1	2.6	0	0
19	Stud Park South, 085227	28	1.3	2.0	2.2	2.0	2.0	2.0	1.0	2.1	0	0
20	Willandra Poll, 180447 (Link Sire)	27	1.8	2.2	2.3	1.9	1.9	1.8	1.0	2.3	0	0
21	Wongara Poll, 190017	33	1.4	2.0	2.6	2.0	1.9	1.7	1.0	2.7	0	0
	Progeny group average	**36**	**1.4**	**2.1**	**2.6**	**2.1**	**2.0**	**1.9**	**1.0**	**2.5**	**-**	**-**

These visual scores were collected from both ewe and wether progeny.

Table 3. Visual Traits - Conformation

Visual traits are reported as **Adjusted Sire Means**; Results which have been adjusted for all available information on sex, birth type, rear type, age of dam, age of measurement, the number of progeny a sire has and management group(s), in order to improve the accuracy. No account is made for trait heritability or genetic correlations between traits that can further improve the accuracy.

Sire Code	Breeders flock, Sire number	Number of Progeny	Conformation - *Hogget*				
			JAW	LEGS	BACK	FACE	BDWR
1	Anderson Poll, 200519	44	1.1	1.6	1.2	2.3	2.2
2	Austral Park, 180015	38	1.0	1.9	1.0	2.4	2.5
3	Benefield Poll, 200055	37	1.0	1.4	1.3	2.5	1.8
4	Boxleigh Park, 181057	43	1.0	1.9	1.2	2.5	1.9
5	Centre Plus Poll, 707350 (Link Sire)	31	1.1	1.8	1.1	2.3	2.2
6	Connewarran, 017223	27	1.0	1.8	1.4	3.0	2.3
7	Deep Dene Poll, 180020	49	1.0	1.8	1.0	2.9	2.1
8	Forest Springs Poll, 200102	31	1.0	1.7	1.1	2.5	2.1
9	Glen Holme, 206139 (Dohne)	42	1.0	1.6	1.3	2.2	1.8
10	Hannaton Poll, 200155	46	1.0	1.8	1.1	2.6	2.0
11	Hazeldean, 002980	33	1.0	1.6	1.3	2.8	2.7
12	Karalta Poll, 180953	42	1.0	2.0	1.2	2.7	2.7
13	Kurra-Wirra, 200572	25	1.0	2.0	1.1	3.0	2.0
14	Merinotech WA Poll, 177269	32	1.1	1.7	1.3	2.0	1.9
15	Miramoona, 140012 (Link Sire)	35	1.0	1.8	1.2	2.7	2.1
16	Mooralla Poll, 200087	46	1.0	1.8	1.3	2.8	2.5
17	Mumblebone, 200904	39	1.0	1.9	1.1	2.4	1.9
18	Roseville Park Poll, 173116	32	1.0	2.2	1.2	2.4	2.3
19	Stud Park South, 085227	28	1.0	1.5	1.5	2.7	2.4
20	Willandra Poll, 180447 (Link Sire)	27	1.0	1.7	1.2	2.8	2.4
21	Wongara Poll, 190017	33	1.0	2.1	1.2	2.8	2.1
	Progeny group average	**36**	**1.0**	**1.8**	**1.2**	**2.6**	**2.2**

These visual scores were collected from both ewe and wether progeny.

Table 4. Visual Traits - Breech

Visual traits are reported as **Adjusted Sire Means**; Results which have been adjusted for all available information on sex, birth type, rear type, age of dam, age of measurement, the number of progeny a sire has and management group(s), in order to improve the accuracy. No account is made for trait heritability or genetic correlations between traits that can further improve the accuracy.

Sire Code	Breeders flock, Sire number	Number of Progeny	Breech Visual Traits				
			BCOV *Marking*	BRWR *Marking*	BCOV *Hogget*	BRWR *Hogget*	DAG *Yearling*
1	Anderson Poll, 200519	44	Breech Cover not recorded at Marking	1.9	3.4	1.8	3.7
2	Austral Park, 180015	38		2.4	3.0	2.1	3.6
3	Benefield Poll, 200055	37		1.4	3.2	1.4	3.2
4	Boxleigh Park, 181057	43		1.4	3.2	1.6	3.4
5	Centre Plus Poll, 707350 (Link Sire)	31		1.9	2.9	1.7	3.1
6	Connewarran, 017223	27		3.0	3.4	2.1	3.2
7	Deep Dene Poll, 180020	49		2.0	3.2	1.7	3.4
8	Forest Springs Poll, 200102	31		1.9	3.4	1.7	3.1
9	Glen Holme, 206139 (Dohne)	42		1.4	3.0	1.5	3.3
10	Hannaton Poll, 200155	46		1.8	3.1	1.7	3.5
11	Hazeldean, 002980	33		2.5	3.5	2.3	3.8
12	Karalta Poll, 180953	42		2.9	3.5	2.3	3.3
13	Kurra-Wirra, 200572	25		2.1	3.4	1.5	2.7
14	Merinotech WA Poll, 177269	32		2.4	3.1	1.6	3.7
15	Miramoona, 140012 (Link Sire)	35		2.1	3.1	1.8	3.7
16	Mooralla Poll, 200087	46		2.3	3.2	2.0	3.4
17	Mumblebone, 200904	39		1.4	3.2	1.6	3.5
18	Roseville Park Poll, 173116	32		2.2	3.4	1.9	3.9
19	Stud Park South, 085227	28		2.5	3.3	2.0	2.7
20	Willandra Poll, 180447 (Link Sire)	27		2.2	3.5	1.9	3.7
21	Wongara Poll, 190017	33		2.4	3.5	1.8	3.2
	Progeny group average	**36**		**2.1**	**3.2**	**1.8**	**3.4**

These visual scores were collected from both ewe and wether progeny.

Understanding the Results - Measured Traits	
Breeders flock, Sire number:	Identity of the breeder's flock and the sire's number or name.
Number of progeny:	The number of progeny a sire had at weaning. Average number of progeny is included.
Trait Leaders:	The highest performing sires for each trait (trait leaders) are highlighted by shading. Curvature is the possible exception when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.
Traits: Abbreviation, trait and the (units reported)	Measured traits are those assessed via a standardised collection and testing process completed by an independent, accredited and recognised service provider. Measured traits include the following: GFW: Greasy fleece weight (percentage) CFW: Clean fleece weight (percentage) FD: Average fibre diameter (micron) FDCV: Fibre diameter coefficient of variation (percentage) SL: Staple length (mm) at the mid-side SS: Staple strength (N/ktex) at the mid-side CURV: Fibre curvature (degrees) WT: Body weight (kilograms) EMD: Eye muscle depth (mm) at the 'C' site FAT: Fat depth (mm) at the 'C' site WEC: Worm egg count (% deviation in worm burden of sire's progeny)
Age at assessment:	M = Marking - 14 to 39 days (2 to 6 weeks) W = Weaning - 40 to 149 days (6 weeks to 5 months) P = Post Weaning - 150 to 299 days (5 to 10 months) Y = Yearling - 300 to 449 days (10 to 15 months) H = Hogget - 450 to 659 days (15 to 22 months) A = Adult - 660 days or older (22 months or older)
Adjusted Sire Means	Sire means are the average performance of all the progeny of a sire adjusted for the progeny's birth type, rear type, age of dam, management group and the number of progeny a sire has in the analysis. Adjustments improve the accuracy of the result and adjustments are based on the actual influence of these factors on the drop. No account is made for trait heritability and genetic correlations between traits. The overall progeny group mean is also reported.
Flock Breeding Values (FBVs)	FBVs are deviations from the average ie. negative values are below average, positives are above. FBVs presented are calculated from data recorded within-site and within-drop and express the expected genetic performance 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 the association between traits, the heritability of the trait, and non-genetic affects such as birth and rear type, sex, and the number of progeny a sire has in the analysis. Adult FBVs are calculated using all measured assessments up to the current stage. As further assessments are completed, breeding values at earlier stages are also subject to change. For more information: www.merinosuperiorsires.com.au/resources.
Indexes	The indexes reported are based on measured traits FBV performance with varying emphasis on fleece weight, fibre diameter, body weight, staple strength and worm egg count. The indexes reported are the DP+; MP+; FP+ and WP+. The first 3 of these indexes are the same as MERINOSELECT indexes of that name but account for the fact that direct reproduction records are not currently collected as part of standard sire evaluation trials. The WP+ index is unique to AMSEA. Further information about Indexes is available later in this report and at www.merinosuperiorsires.com.au/resources.

Table 5. Adjusted Sire Means - Wool

Sire Code	Breeders flock, Sire number	Number of Progeny	Adjusted Sire Means											
			GFW kg		CFW kg		FD µm		FDCV %		SL mm	SS N/ktex	CURV deg/mm	
			P	H	P	H	P	H	P	H	H	H	P	H
1	Anderson Poll, 200519	44	1.5	3.8	1.1	2.8	16.8	16.8	18.6	16.9	93.8	50.0	113.6	97.9
2	Austral Park, 180015	38	1.6	3.8	1.1	2.8	17.6	16.8	18.9	18.0	84.1	43.0	113.8	95.0
3	Benefield Poll, 200055	37	1.7	4.2	1.2	3.1	17.6	17.5	18.6	17.9	99.9	52.1	108.9	85.5
4	Boxleigh Park, 181057	43	1.5	3.8	1.1	2.8	17.5	17.1	18.0	17.3	100.2	39.1	108.8	88.9
5	Centre Plus Poll, 707350 (Link Sire)	31	1.7	4.1	1.2	2.9	17.6	16.8	18.0	16.8	101.5	47.4	110.2	92.0
6	Connewarran, 017223	27	1.6	3.8	1.2	3.0	16.6	16.6	18.4	18.7	84.7	55.8	111.0	98.0
7	Deep Dene Poll, 180020	49	1.7	4.1	1.2	3.1	17.1	17.1	18.1	17.4	94.3	50.0	107.6	90.7
8	Forest Springs Poll, 200102	31	1.4	3.9	1.0	2.9	16.7	16.9	18.1	17.7	98.7	48.5	110.9	92.7
9	Glen Holme, 206139 (Dohne)	42	1.4	3.7	1.0	2.6	17.4	17.1	18.2	17.9	95.0	35.9	108.2	91.5
10	Hannaton Poll, 200155	46	1.5	3.5	1.1	2.5	16.9	16.6	18.3	18.1	89.4	36.8	109.0	94.6
11	Hazeldean, 002980	33	1.8	4.5	1.3	3.2	16.6	16.4	18.5	17.9	90.9	51.4	111.1	94.9
12	Karalta Poll, 180953	42	1.4	3.5	1.0	2.6	16.4	15.7	18.6	16.9	84.9	41.6	112.8	101.9
13	Kurra-Wirra, 200572	25	1.4	3.7	1.0	2.8	16.7	16.5	18.2	18.8	93.6	44.4	111.7	96.5
14	Merinotech WA Poll, 177269	32	1.6	3.9	1.2	2.9	17.4	17.1	17.7	16.3	92.5	53.2	110.8	98.8
15	Miramoona, 140012 (Link Sire)	35	1.6	4.2	1.2	3.2	17.7	17.7	19.2	17.0	100.6	51.0	107.1	86.6
16	Mooralla Poll, 200087	46	1.7	4.2	1.2	3.1	17.8	17.6	19.3	17.6	96.2	52.0	107.4	91.1
17	Mumblebone, 200904	39	1.6	3.9	1.2	2.9	17.9	17.7	19.0	18.7	94.7	43.8	109.2	87.5
18	Roseville Park Poll, 173116	32	1.5	3.8	1.1	2.8	16.5	16.2	18.1	17.6	85.3	43.5	113.3	98.7
19	Stud Park South, 085227	28	1.5	3.6	1.2	2.8	17.3	16.8	17.8	17.5	86.7	46.2	107.7	94.3
20	Willandra Poll, 180447 (Link Sire)	27	1.7	4.1	1.2	3.0	17.3	16.7	19.2	18.9	82.6	41.8	109.7	96.5
21	Wongara Poll, 190017	33	1.6	3.8	1.2	2.9	16.7	16.4	17.7	17.6	89.5	48.7	111.8	98.3
	Progeny group average	**36**	**1.6**	**3.9**	**1.1**	**2.9**	**17.2**	**16.9**	**18.4**	**17.6**	**92.7**	**46.3**	**110.1**	**93.7**
			kg		kg		µm		%		mm	N/ktex	deg/mm	

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

Table 6. Adjusted Sire Means - Weight and Carcase

Sire Code	Breeders flock, Sire name	Number of Progeny	Adjusted Sire Means					
			WT kg				EMD mm	FAT mm
			W	P	Y	H	Y	Y
1	Anderson Poll, 200519	44	21.0	28.7	44.6	52.1	23.1	2.8
2	Austral Park, 180015	38	21.1	26.9	42.2	48.3	22.1	2.5
3	Benefield Poll, 200055	37	23.3	28.6	46.0	52.7	22.9	2.7
4	Boxleigh Park, 181057	43	22.2	29.0	45.0	51.0	23.1	3.0
5	Centre Plus Poll, 707350 (Link Sire)	31	21.2	28.8	44.8	53.2	23.4	2.8
6	Connewarran, 017223	27	20.8	25.6	40.3	46.0	21.3	2.5
7	Deep Dene Poll, 180020	49	20.9	27.5	41.5	47.6	22.4	2.4
8	Forest Springs Poll, 200102	31	20.4	28.2	43.2	49.5	22.8	2.7
9	Glen Holme, 206139 (Dohne)	42	22.9	30.7	44.7	52.1	23.8	2.6
10	Hannaton Poll, 200155	46	21.1	27.8	40.9	48.0	21.1	2.4
11	Hazeldean, 002980	33	21.3	26.8	42.2	48.9	21.1	2.4
12	Karalta Poll, 180953	42	19.0	24.8	40.8	46.5	22.6	2.8
13	Kurra-Wirra, 200572	25	20.9	27.7	44.2	49.6	23.1	2.7
14	Merinotech WA Poll, 177269	32	21.9	28.0	43.0	48.7	23.3	2.8
15	Miramoona, 140012 (Link Sire)	35	20.9	28.2	43.8	50.2	23.2	3.1
16	Mooralla Poll, 200087	46	21.9	27.3	43.1	48.8	23.6	2.9
17	Mumblebone, 200904	39	20.2	26.6	43.4	49.7	23.5	3.1
18	Roseville Park Poll, 173116	32	21.4	27.1	41.6	48.1	21.8	2.5
19	Stud Park South, 085227	28	20.9	25.1	39.8	45.0	21.7	2.5
20	Willandra Poll, 180447 (Link Sire)	27	22.7	26.6	40.5	47.1	20.5	2.2
21	Wongara Poll, 190017	33	21.9	27.7	42.3	48.5	22.1	2.4
	Progeny group average	**36**	**21.3**	**27.6**	**42.9**	**49.3**	**22.6**	**2.7**
				kg			mm	mm

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

Table 7. Flock Breeding Values - Wool

Sire Code	Breeders flock, Sire number	Number of Progeny	Flock Breeding Values											
			GFW %		CFW %		FD µm		FDCV %		SL mm	SS N/ktex	CURV deg/mm	
			P	H	P	H	P	H	P	H	H	H	P	H
1	Anderson Poll, 200519	44	-14	-3	-13	-4	-0.6	-0.2	-0.1	-1.5	3.2	5.2	6.6	7.3
2	Austral Park, 180015	38	-4	-3	-7	-6	0.6	0.0	0.5	0.6	-13.2	-4.9	5.1	2.2
3	Benefield Poll, 200055	37	10	14	12	14	0.7	1.1	0.5	0.2	12.7	8.1	-3.5	-13.8
4	Boxleigh Park, 181057	43	-4	-6	-5	-6	0.7	0.4	-0.8	-0.7	13.6	-10.5	-3.2	-8.1
5	Centre Plus Poll, 707350 (Link Sire)	31	11	7	6	3	0.7	0.0	-0.5	-1.2	14.9	1.9	-0.2	-2.2
6	Connewarran, 017223	27	5	-5	6	1	-0.9	-0.7	0.3	1.3	-13.3	10.5	2.0	6.6
7	Deep Dene Poll, 180020	49	12	10	14	16	0.0	0.3	-0.5	-0.4	3.4	5.0	-4.8	-5.3
8	Forest Springs Poll, 200102	31	-15	0	-11	3	-0.7	0.1	-0.4	-0.3	10.2	2.5	1.4	-1.0
9	Glen Holme, 206139 (Dohne)	42	-21	-11	-22	-16	0.5	0.6	-0.6	0.0	5.6	-16.0	-3.5	-3.8
10	Hannaton Poll, 200155	46	-7	-17	-9	-23	-0.4	-0.4	-0.3	0.6	-5.0	-13.9	-2.3	1.6
11	Hazeldean, 002980	33	24	24	21	19	-1.0	-1.1	0.7	0.6	-3.3	7.7	1.6	1.6
12	Karalta Poll, 180953	42	-14	-15	-17	-16	-1.3	-2.2	0.1	-0.8	-13.0	-7.2	5.6	13.2
13	Kurra-Wirra, 200572	25	-14	-6	-15	-8	-0.6	-0.6	-0.2	1.1	2.0	-4.0	3.0	4.3
14	Merinotech WA Poll, 177269	32	1	0	4	0	0.5	0.4	-1.3	-2.0	0.0	9.5	1.9	7.2
15	Miramoona, 140012 (Link Sire)	35	6	12	8	18	0.9	1.6	1.0	-0.8	14.2	7.4	-5.0	-12.3
16	Mooralla Poll, 200087	46	15	13	14	12	1.1	1.4	1.3	0.1	6.6	9.0	-5.1	-5.9
17	Mumblebone, 200904	39	2	2	5	3	1.3	1.7	1.0	1.4	4.3	-3.4	-2.5	-9.8
18	Roseville Park Poll, 173116	32	-5	-5	-6	-4	-1.1	-1.2	-0.4	0.0	-11.8	-4.0	5.2	7.7
19	Stud Park South, 085227	28	0	-12	6	-7	0.3	-0.2	-0.5	0.1	-11.0	0.8	-4.0	0.4
20	Willandra Poll, 180447 (Link Sire)	27	12	7	10	5	0.2	-0.3	1.2	1.9	-15.3	-6.0	-1.4	2.9
21	Wongara Poll, 190017	33	0	-6	1	-4	-0.8	-0.8	-1.0	-0.3	-4.8	2.2	3.0	7.2

Flock Breeding Values are calculated using all available data from both ewes and wethers.

Table 8. Flock Breeding Values - Weight, Carcase and WEC

Sire Code	Breeders flock, Sire number	Number of Progeny	Flock Breeding Values						
			WT kg				EMD mm	FAT mm	WEC %
			W	P	Y	H	Y	Y	Y
1	Anderson Poll, 200519	44	-0.2	2.5	3.9	5.2	0.3	0.4	-24
2	Austral Park, 180015	38	-0.6	-1.3	-0.8	-1.3	-0.5	-0.7	67
3	Benefield Poll, 200055	37	3.9	2.9	4.7	4.7	-0.7	-0.5	109
4	Boxleigh Park, 181057	43	2.3	3.5	3.5	3.1	0.1	1.2	-22
5	Centre Plus Poll, 707350 (Link Sire)	31	0.5	2.4	3.0	5.5	0.6	0.5	8
6	Connewarran, 017223	27	-1.8	-3.8	-4.3	-4.8	-0.9	-0.2	19
7	Deep Dene Poll, 180020	49	-0.9	-0.6	-2.3	-2.8	0.2	-0.8	-67
8	Forest Springs Poll, 200102	31	-1.0	1.4	1.8	1.4	0.4	0.0	42
9	Glen Holme, 206139 (Dohne)	42	3.6	6.3	3.8	4.6	1.6	-0.2	9
10	Hannaton Poll, 200155	46	-0.2	0.1	-2.9	-2.1	-1.6	-0.9	153
11	Hazeldean, 002980	33	0.0	-1.2	-1.1	-1.0	-2.3	-1.2	38
12	Karalta Poll, 180953	42	-5.5	-6.3	-3.7	-3.8	1.1	1.1	-51
13	Kurra-Wirra, 200572	25	-0.8	0.3	2.4	0.9	0.3	-0.1	-17
14	Merinotech WA Poll, 177269	32	0.7	1.0	0.3	-0.4	1.2	0.4	-62
15	Miramoona, 140012 (Link Sire)	35	-0.2	0.6	1.2	1.4	0.9	1.6	-94
16	Mooralla Poll, 200087	46	1.0	-0.4	0.1	-0.4	1.9	1.1	3
17	Mumblebone, 200904	39	-2.2	-2.4	0.7	0.7	1.6	1.9	-11
18	Roseville Park Poll, 173116	32	0.0	-0.7	-1.4	-1.2	-0.8	-0.5	-73
19	Stud Park South, 085227	28	-0.7	-3.3	-5.2	-5.8	-0.3	-0.5	73
20	Willandra Poll, 180447 (Link Sire)	27	1.6	-1.3	-3.3	-3.0	-2.5	-1.7	73
21	Wongara Poll, 190017	33	0.6	0.3	-0.6	-1.0	-0.7	-1.1	187

Flock Breeding Values are calculated using all available data from both ewes and wethers.

MERINOSELECT Indexes

A guide from Sheep Genetics

Why use a selection index?

Indexes are an important tool to drive genetic improvement in ram breeding programs. Each index combines multiple measured traits, or breeding values, into a single value that reflects a certain production emphasis on these traits. A range of traits are included which are of economic or functional importance. Collectively, these traits make up the "breeding objective" of the index which aims to improve profitability in commercial sheep enterprises.

Indexes are useful because they balance genetic improvement appropriately across a range of traits with the emphasis of each individual trait determined by it's relative importance to a selection approach for a particular style of production system.

> **"** **Appropriately designed indexes are central to the goal of breeding more profitable sheep.**

However, it is recommended that the performance of individual measured and visually assessed traits also be used in conjunction with indexes.

Choosing the right index

This report includes four indexes based on four commercial production systems, these are outlined in the figure below.

The Sheep Genetics website gives further index descriptions and explains that there are 'base' and 'plus' levels for each index with the latter including the breeding values of additional traits. Sires reported within this document have accurate breeding values for these additional traits and so the plus indexes are reported; DP+, MP+, FP+ and WP+.

Dual Purpose (DP+) Income is a balance of wool from breeding ewes and meat production from lambs by Merino and terminal sires.	**Merino Production (MP+)** Income is a balance of wool and surplus Merino sheep sales with balanced improvement of fleece weight and fibre diameter.
Fibre Production (FP+) Income is mainly from the wool clip with a focus on superior wool quality through improving fibre diameter, CV and staple strength.	**Wool Production (WP+)** Income is a balance of wool and surplus Merino sheep sales with greater emphasis on increasing fleece weight.

> **"** **When selecting on these indexes the long-term responses will vary depending on the traits measured, available pedigree, use of genomics, flock structure and selection emphasis on the index.**

The changes in individual traits from using an index depend on the information you record in your flock. If you want to improve, or even just maintain a trait, you must record it to ensure breeding values are sufficiently accurate for the index to do its job.

For detailed explanations and further information on indexes visit:

www.sheepgenetics.org.au

Sheep Genetics have resources available for both ram breeders and ram buyers.

Table 9. AMSEA Indexes

The indexes reported are the DP+; MP+; FP+ and WP+. The first 3 of these indexes are the same as MERINOSELECT indexes of that name but account for the fact that direct reproduction records are not currently collected as part of standard sire evaluation trials. The WP+ index is unique to AMSEA. Further information about Indexes is available earlier in this report and at www.merinosuperiorsires.com.au/resources. The average value for all indexes is 100.

Sire Code	Breeders flock, Sire number	Number of Progeny	AMSEA Index Values			
			Dual Purpose Plus	Merino Production Plus	Wool Production Plus	Fibre Production Plus
1	Anderson Poll, 200519	44	121	111	104	112
2	Austral Park, 180015	38	83	82	86	80
3	Benefield Poll, 200055	37	123	128	128	110
4	Boxleigh Park, 181057	43	90	77	88	74
5	Centre Plus Poll, 707350 (Link Sire)	31	122	119	120	111
6	Connewarran, 017223	27	98	120	108	125
7	Deep Dene Poll, 180020	49	113	120	119	125
8	Forest Springs Poll, 200102	31	118	105	102	105
9	Glen Holme, 206139 (Dohne)	42	89	53	67	51
10	Hannaton Poll, 200155	46	45	57	64	51
11	Hazeldean, 002980	33	110	146	137	143
12	Karalta Poll, 180953	42	89	80	74	96
13	Kurra-Wirra, 200572	25	105	89	88	94
14	Merinotech WA Poll, 177269	32	116	109	103	114
15	Miramoona, 140012 (Link Sire)	35	126	117	121	119
16	Mooralla Poll, 200087	46	126	114	117	107
17	Mumblebone, 200904	39	109	88	100	82
18	Roseville Park Poll, 173116	32	88	96	93	107
19	Stud Park South, 085227	28	74	87	85	87
20	Willandra Poll, 180447 (Link Sire)	27	64	95	100	90
21	Wongara Poll, 190017	33	95	106	99	96

Indexes are calculated using all available data from both ewes and wethers.

Combined Measured Traits and Visual Performance

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

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

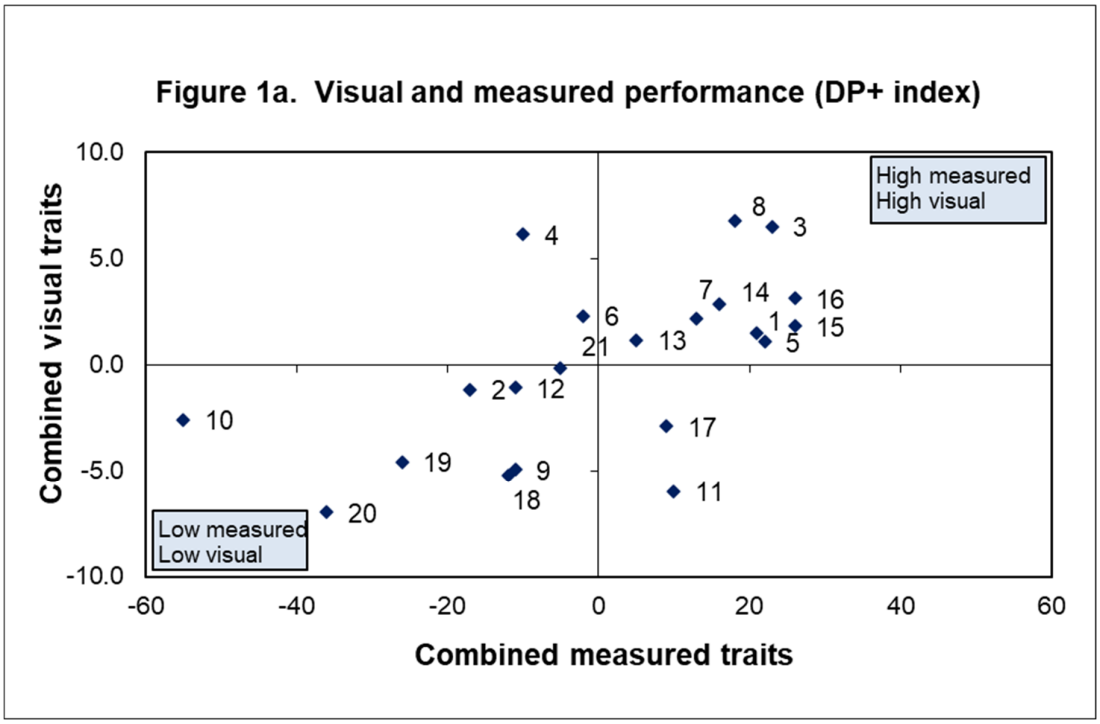


Figure 1b. Combined measured traits (MP+ index) and combined visually assessed traits for the site objective.

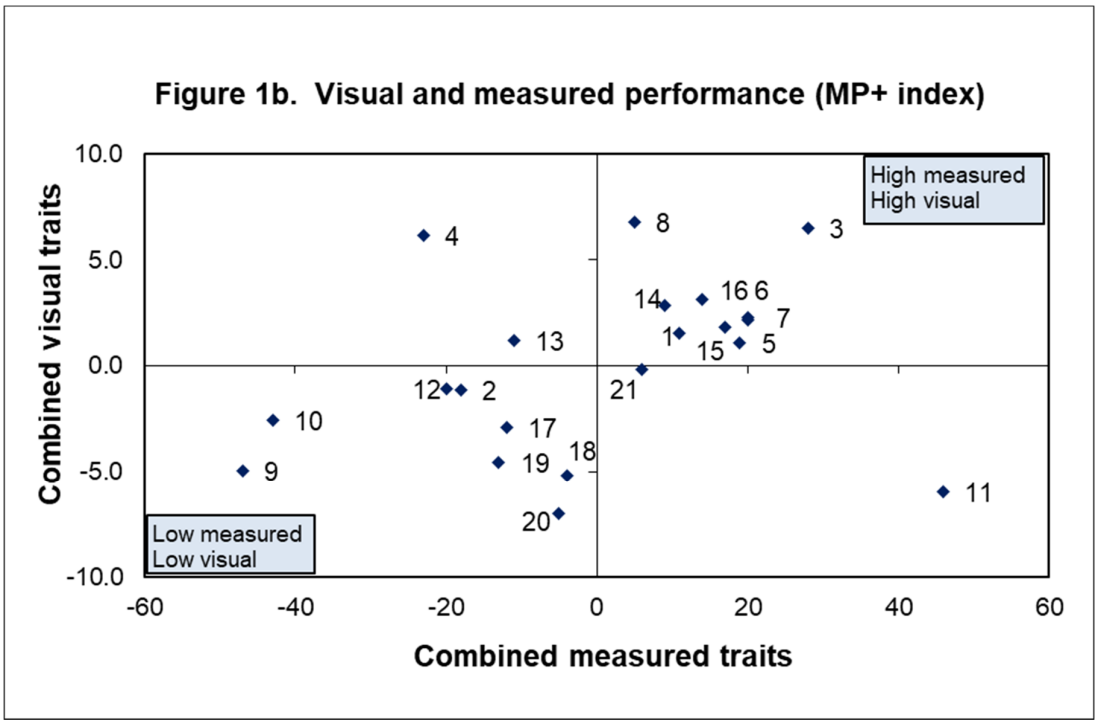


Figure 1c. Combined measured traits (WP+ index) and combined visually assessed traits for the site objective.

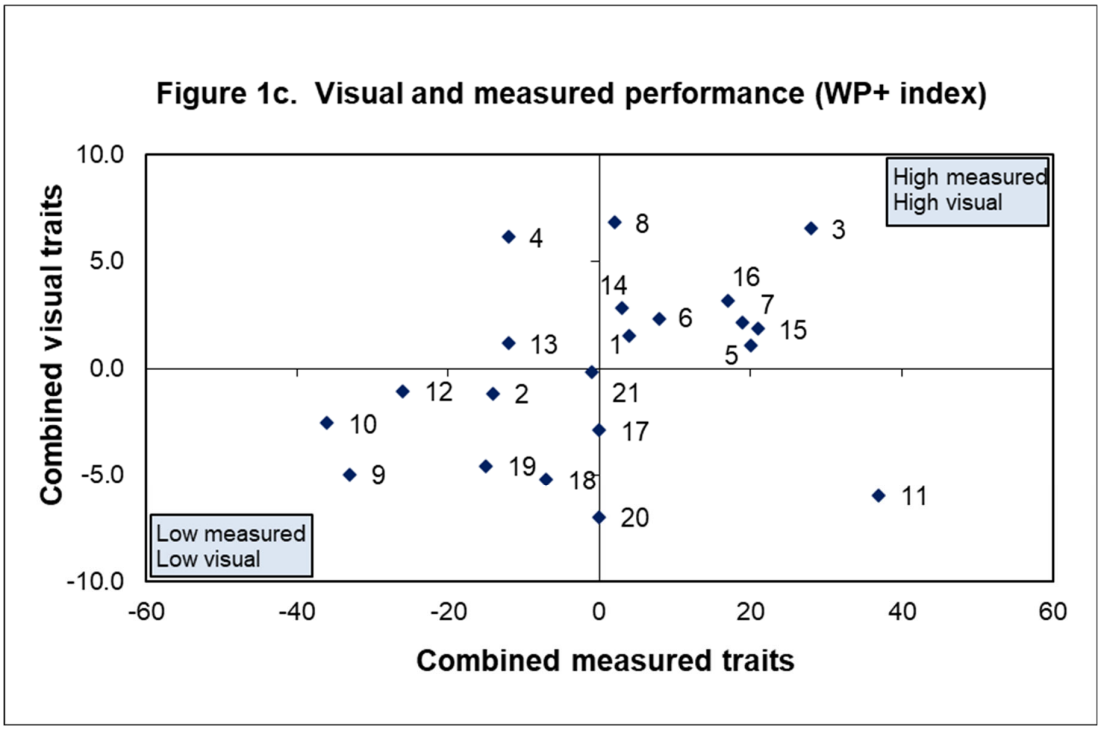
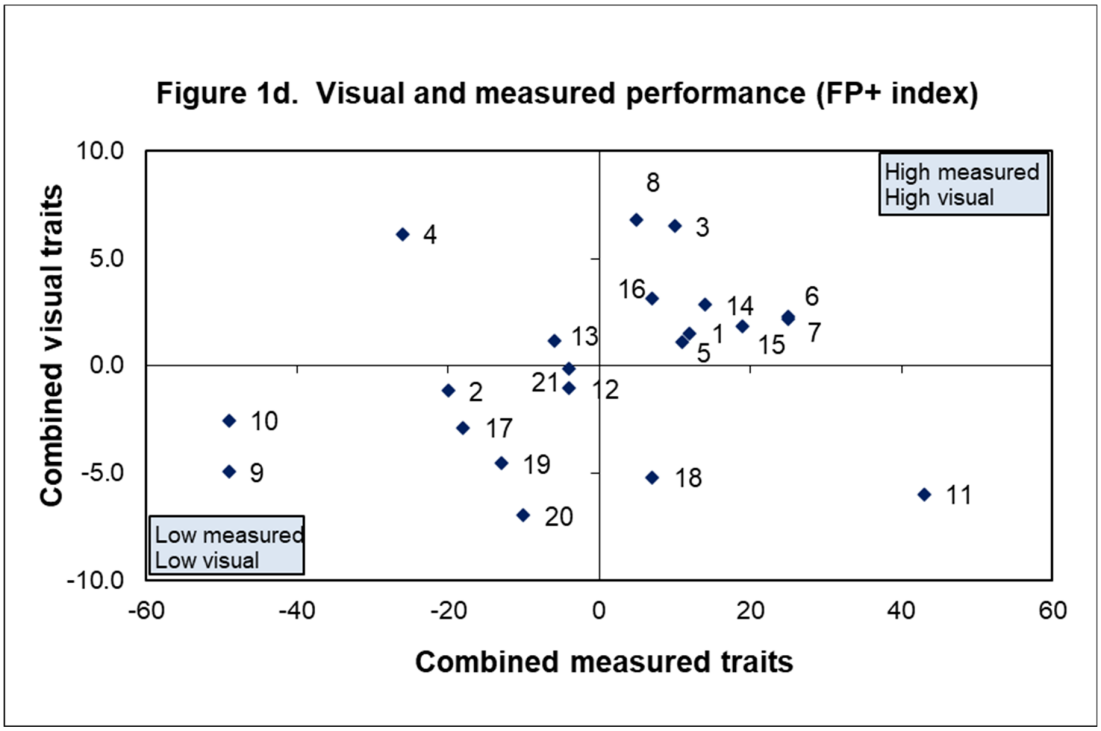


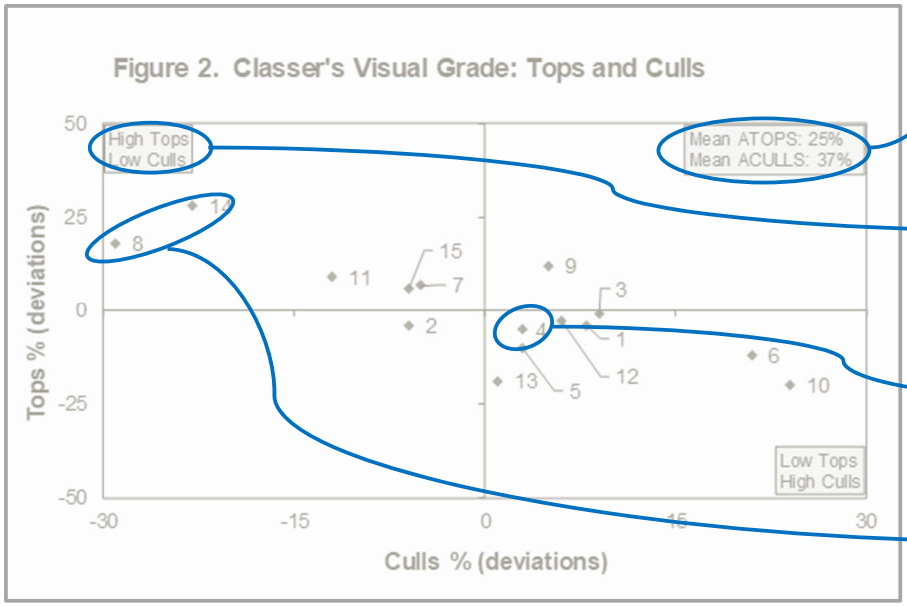
Figure 1d. Combined measured traits (FP+ index) and combined visually assessed traits for the site objective.



Understanding the Results - Summary Graphs

The following quadrant graphs summarise sire results for trait combinations of particular interest to industry. Sire codes are as per Table 2. The blue boxes describe the high and low quadrants of results for the traits, generally placed within the highest performing and the lowest performing quadrants. Progeny group averages are also reported for the graphed traits. Further descriptions are included in the accompanying text.

Explanation of a quadrant graph:



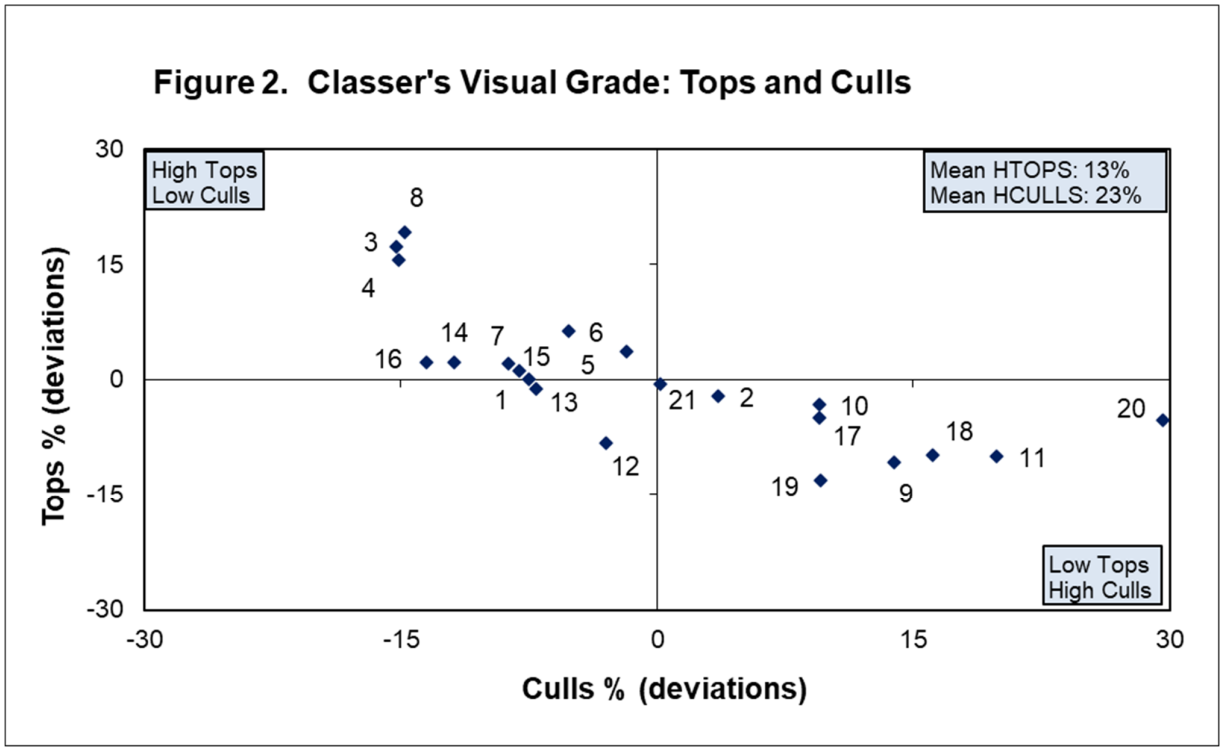
Progeny group averages: in this instance for Tops / Culls.

For this figure, this top left quadrant reports the most favourable performance (High Tops and Low Culls). Different quadrants will be the most / least optimal for different trait combinations.

This sire is performing close to the progeny group average.

These two sires are recorded in the extreme portion of the most optimal quadrant for this set of traits (Top / Culls).

Figure 2. Classer's Visual Grade - Tops and Culls
The graph describes performance for Classer's Visual Tops Grade on the side axis and Culls Grade on the bottom axis. Sires that have above average Tops and below average Culls are in the top left hand quarter.



Summary Graphs

Figure 3. Fleece Weight and Fibre Diameter (FBVs)
The graph describes performance for clean fleece weight (CFW) on the side axis and fibre diameter (FD) on the bottom axis. Sires that are above average for fleece weight and below average fibre diameter are located in the top left hand quarter.

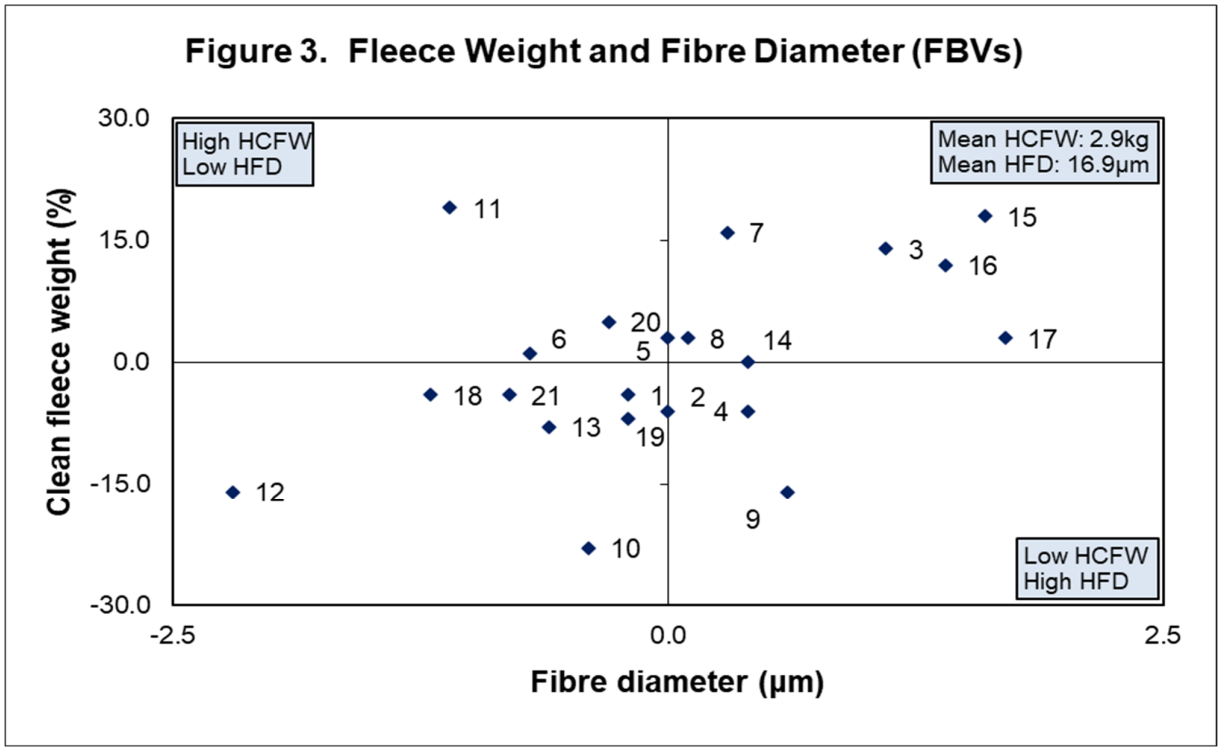


Figure 4. Fleece Weight and Staple Length (FBVs)
The graph describes performance for clean fleece weight (CFW) on the side axis and staple length (SL) on the bottom axis. Sires that are above average for fleece weight and above average for staple length are located in the top right hand quarter.

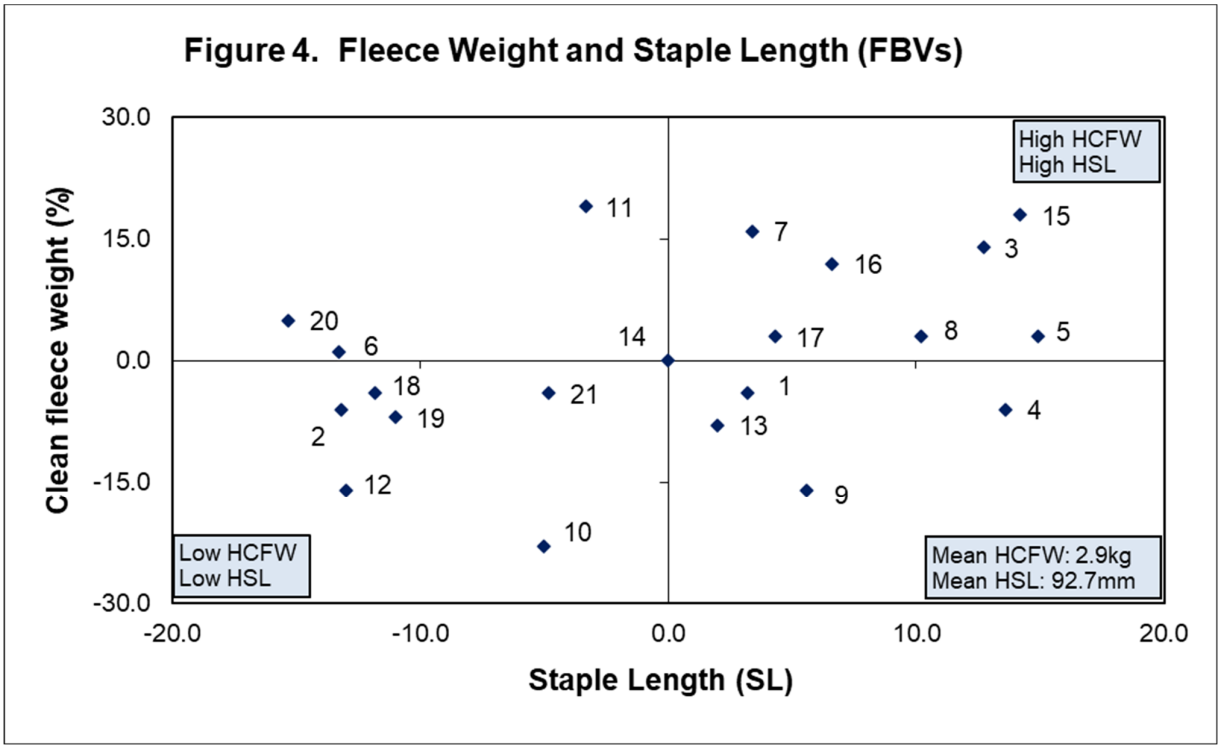


Figure 5. Fleece Weight and Body Weight (FBVs)
The graph describes performance for clean fleece weight (CFW) on the side axis and body weight (WT) on the bottom axis. Sires that are above average for fleece weight and above average for body weight are located in the top right hand quarter.

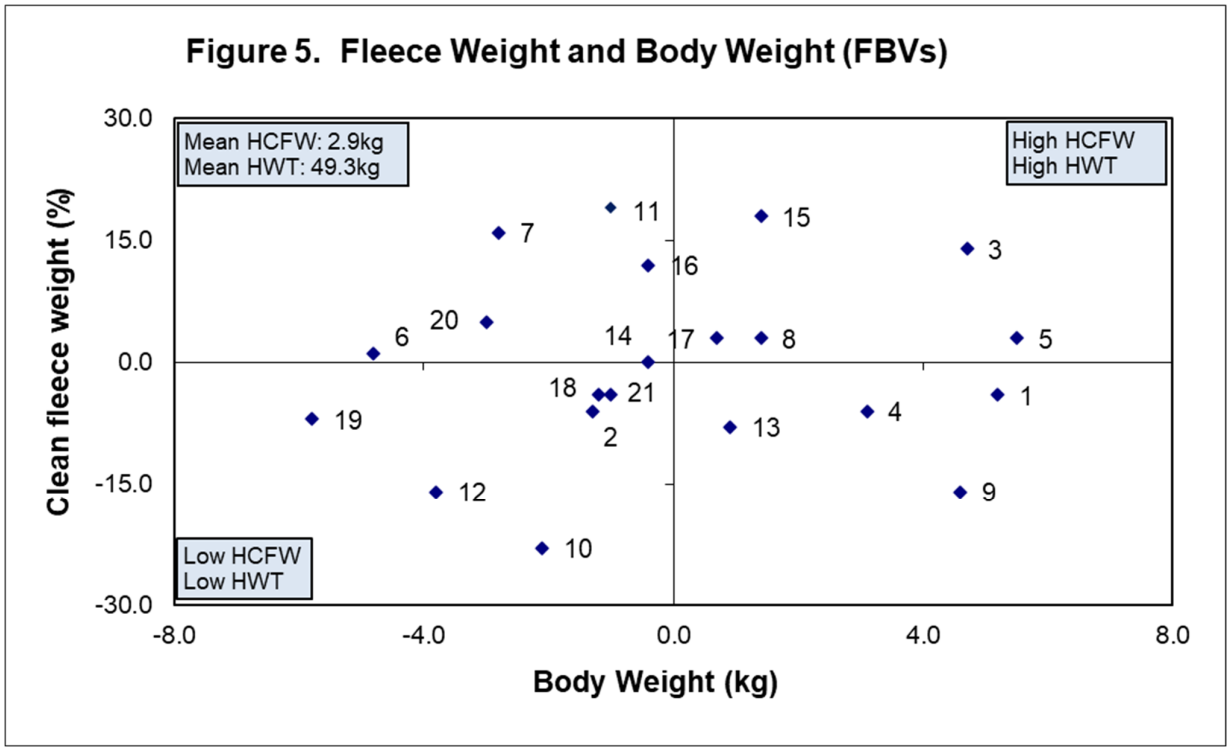


Figure 6. Fleece Weight and Fat (FBVs)
The graph describes performance for clean fleece weight (CFW) on the side axis and fat depth (FAT) on the bottom axis. Sires that are above average for fleece weight and above average for fat are located in the top right hand quarter.

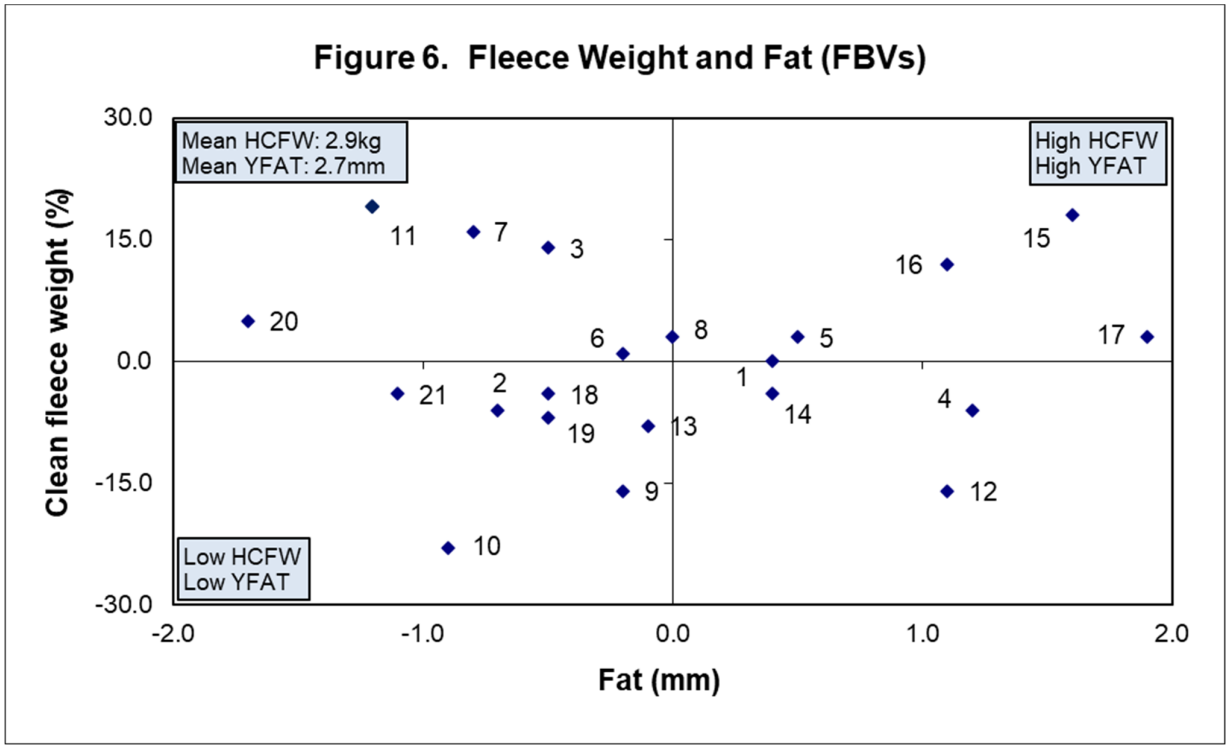


Figure 7. Fleece Weight and Eye Muscle Depth (FBVs)
The graph describes performance for clean fleece weight (CFW) on the side axis and eye muscle depth (EMD) on the bottom axis. Sires that are above average for fleece weight and above average for eye muscle depth are located in the top right hand quarter.

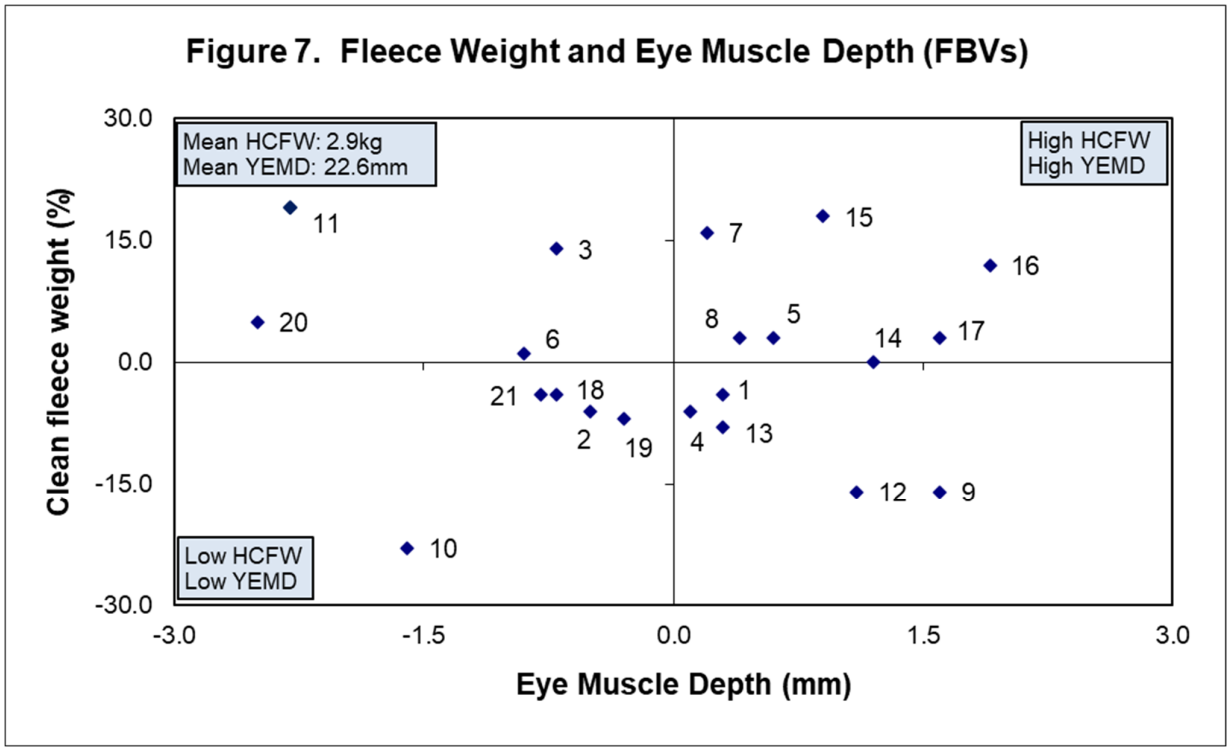


Figure 8. Fleece Weight (FBV) and Breech Wrinkle (Dev)
The graph describes performance for clean fleece weight (CFW) on the side axis and breech wrinkle (BRWR) on the bottom axis. Sires that are above average for fleece weight and below average for breech wrinkle are located in the top left hand quarter.

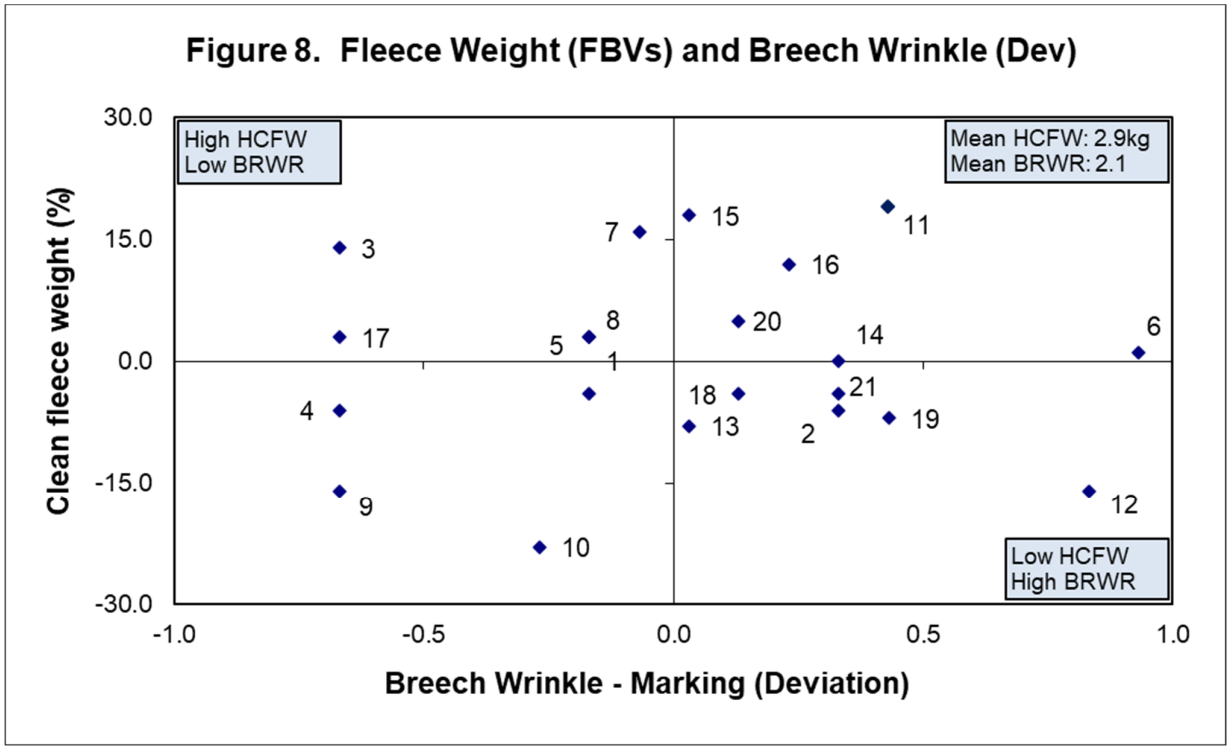


Figure 9. Body Weight and Eye Muscle Depth (FBVs)
The graph describes performance for body weight (WT) on the side axis and eye muscle depth (EMD) on the bottom axis. Sires that are above average for body weight and above average for eye muscle depth are located in the top right hand quarter.

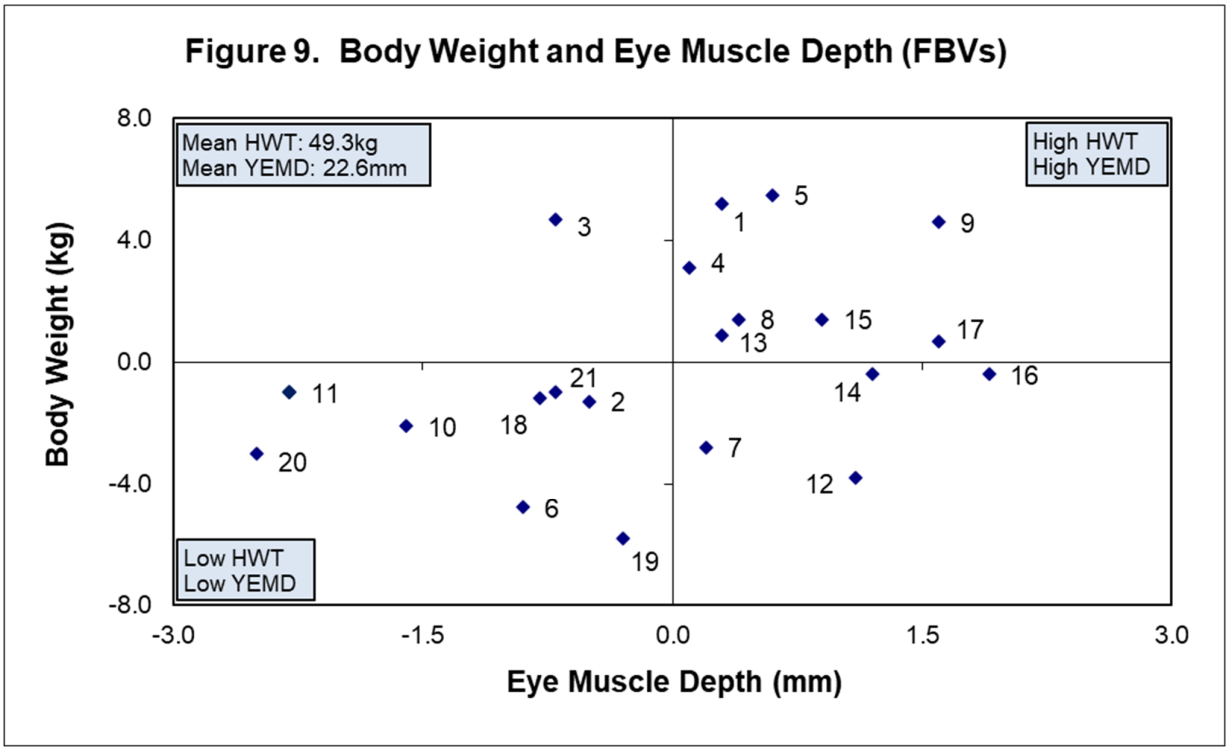
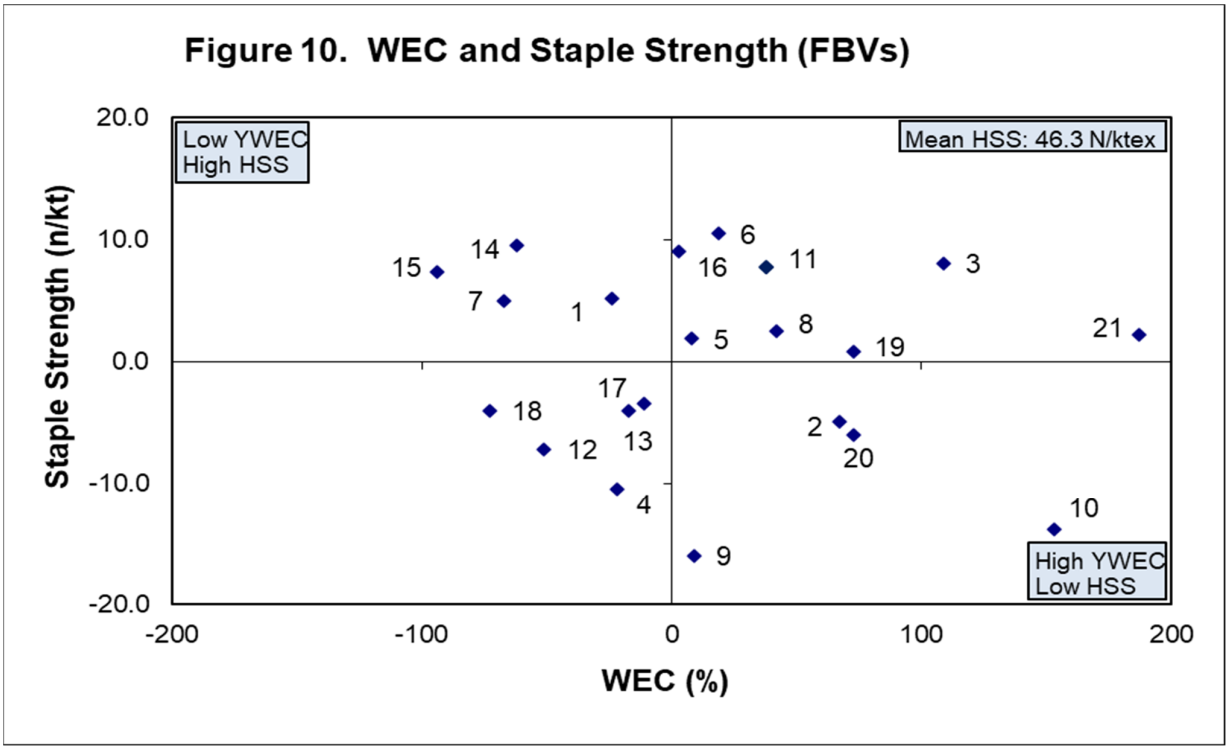


Figure 10. Staple Strength and Worm Egg Count (FBVs)
The graph describes performance for staple strength (SS) on the side axis and worm egg count (WEC) on the bottom axis. Sires that are above average for staple strength and below average for worm egg count are located in the top left hand quarter.



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