Elders Victoria Sire Evaluation Group

Central Test Sire Evaluation

2009 Drop First & Final Assessment

Balmoral Breeders

Conducted by

Elders Victoria Sire Evaluation Group

under the auspices of

The Australian Merino Sire Evaluation Association

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Superior Sires

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July 2011

Elders Victoria Sire Evaluation Group Central Test Sire Evaluation

The Elders Victoria Sire Evaluation 2009 drop first and final assessment is an accredited Central Test Sire Evaluation (CTSE) site evaluation. It conforms to the requirements of the Australian Merino Sire Evaluation Association (AMSEA).

The Elders Victoria 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 on events surrounding the trials and in addition to this; produce and distribute annual reports and periodic newsletters. To further promote the evaluation, displays of progeny, data and their fleeces have been on show at the Australian Sheep & Wool Show (1998-2010), Balmoral and Horsham Shows and Hamilton Sheepvention. Participating studs have also provided static displays for viewing during field days. Since April 2000 successful annual Open Days have been held at "The Mountain Dam", "Kerrsville", "White Oaks", "Arundale", "Tuloona" ,"Mokanger" and "Yiddinga" to inspect progeny and to discuss the sire evaluation program with interested woolgrowers.

Prior to 1998, there were three previous trials in the Balmoral/Hamilton district, which are recorded in Merino Superior Sires as B95, HT93, HT94. In 1998 a small group of stud breeders met to form what is now known as the Elders Victoria Sire Evaluation Group. The Sire Evaluation Trials commenced in 1998 and there are now 12 progeny drops: 1998 -2009. All trials are run for a minimum of 2 years.

The 1998 drop wethers continued to be assessed for the further 2 years (a total of 4 assessments) outside the Central Test Evaluation program as part of a PIRD (Producer Initiated Research Development) Program which determined that mature age assessments averaged across each sire group provide similar information to the two-year trial data and in particular show clear trends and confidence with the second year assessment information.

At the commencement of the 2008 progeny trial the committee decided as a means of continuing the trials and to lessen the increasing burden that future trials commencing with the 2008 drop would continue as usual over the 2 year period but would have only one major classing and fleece assessment, to be taken at the usual time of the 2nd assessment. The cost and time benefits have been significant whilst still providing all involved with invaluable information on the progeny in the trial. It has, however, highlighted the importance of collecting base data during the trial since the 2009 drop were impacted by deaths from flooding in 2010 prior to full classing and measurement collection.

Planning and direction is developed by the Elders Victoria Sire Evaluation Management Committee.

Host Properties

The 2009 drop evaluation was hosted at "Mokanger", Cavendish. (See page 6 for more detail)

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

- ■ 1998 & 1999 drop – Host property "The Mountain Dam", Balmoral
- ■ 2000 & 2002 drop - Host property "Kerrsville", situated between Balmoral and Coleraine
- ■ 2002 & 2003 drop – Host property "White Oaks", Gringegalgona Merino Stud at Balmoral.
- ■ 2004 & 2005 drop – Host property "Arundale", Balmoral
- ■ 2006 & 2007 drop – Host property "Tuloona", Harrow
- ■ 2008 & 2009 drop – Host property "Mokanger, Cavendish
- ■ 2010 & 2011 drop – Host property "Yiddinga", Edenhope

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

Tom Silcock
Chairman Elders Victoria Sire Evaluation Group
1st July 2011

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Date of publication: July 2011

2009 drop First & Final Assessment

The information in this site evaluation report provides a comprehensive assessment of the 2009 drop, a single and final Assessment of the sire's progeny performance, both measured and visually assessed traits. The fleece assessment was made at 18 months of age with 12 months of wool growth.

Three graphs and a table provide a summary of the results. Eight tables provide the detailed performance information.

Contents

Sire and owner details

Elders Victoria Sire Evaluation 2009 drop First & Final Assessment, 20 months of age, 12 months wool growth.

Sire and owner details

Ram code	Breeders flock, Ram number Ram ID #, Breed †	Contact name, address Phone, fax, email
1	**Connewarran 6042** 50-4704-2006-006042, Merino	**Richard Weatherly**, Connewarran, PO Box 21, Mortlake Vic 3272 Ph:0355 997276 F:0355 997227 E:connewarran@westvic.com.au
2 *	**Cressbrook 03784** 50-2302-2003-003784, Merino	**Lach & Olivia Fulloon**, 437 Enmore Rd, Armidale NSW 2350 Ph:0267 751217 F:0267 751341 E:cressbrk@bigpond.com
3	**Glenlea Park 706** 60-1382-2007-070706, Poll Merino	**Angus McLachlan**, PO Box 20, Mt Pleasant SA 5235 Ph:0885 682002 F:0885 682403 E:amcl@bigpond.net.au
4	**Glenlea Park 716 Olympic** 60-1382-2007-070716, Poll Merino	**Richard Harkness**, PO Box 308, Tintinara SA 5266 Ph:0885 758028 F:0885 758028 E:rdharkness@internode.on.net
5	**Grindon 50118** 50-4455-2005-050118, Merino	**Roland Ritson**, Grindon, RMB 150, Boyup Brook WA 6244 Ph:0897 653053 F:0897 653006 E:grindon@grindon.com.au
6	**Kamora Park 304 (M10050)** 60-1244-2007-070304, Poll Merino	**Colin & Julie Boughen**, Box 165, Karoonda SA 5307 Ph:0885 783456 F:0885 783458 E:candjboughen@activ8.net.au
7	**Kia Ora Big Red 58** 50-9221-2004-040058, Merino	**Brendan & Susan Finnigan**, PMB 1780, Warrnambool VIC 3280 Ph:0355 692079 F:0355 692079 E:kiaora@westvic.com.au
8	**Kurra-Wirra PU 268** 50-4173-2006-060268, Merino	**Robert Close**, 770 Moree Culla Road, Coleraine Vic 3315 Ph:0355 704238 F:0355 704234 E:kurrawirra@aussiebroadband.com
9	**Mokanger Blue 8** 50-4888-2007-000008, Merino	**Mark Rayner**, Mokanger Pastoral Co, Cavendish Vic 3314 (Manager – Shane Arnold) Ph:0355 742367 F:0355 742328 E:mokanger2@bigpond.com
10	**Mokanger Blue 83** 50-4888-2007-000083, Merino	**Mark Rayner**, Mokanger Pastoral Co, Cavendish Vic 3314 (Manager – Shane Arnold) Ph:0355 742367 F:0355 742328 E:mokanger2@bigpond.com
11	**Pendarra Red 274** 50-4868-2006-060274, Merino	**Kelvin & Jackie Pendergast**, Sloane Road, Benambra VIC 3900 Ph:0351 599245 F:0351 599245 E:pendarra1@bigpond.com
12	**The Mountain Dam 06/NBE018** 50-4572-2006-NBE018, Merino	**Tom and Alison Silcock**,The Mountain Dam, 429 Silcocks Road, Telangatuk East Vic 3401 Ph:0353 882238 F:0353 882235 E:themountaindam@bigpond.com
13 *	**Windarra, 040236** 50-4338-2004-040236, Merino	**Beverley Hanson**, 3 Rutland Avenue, Unley Park SA 5061 Ph:0882 712656 F:0882 722145
14	**Windarra 070128** 50-4338-2007-070128, Merino	**Beverley Hanson**, 3 Rutland Avenue, Unley Park SA 5061 Ph:0882 712656 F:0882 722145

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

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

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

† Breed of flock in which the sire was born

Note: The Kamora Park sire has been reported throughout the trial as M10050 – this is his official AASMB shearing tag ID – his home tag ID is Kamora Park 304.

Host Property for 2009 drop progeny and location

- The property of "Mokanger" is owned by Mark and Caroline Rayner and managed by Shane Arnold. Located approximately 10 kilometres east of the Cavendish township on the Wannon River, the soil type is varied ranging from sandy to clay loams. Strong management emphasis is placed on improved pastures for efficient grazing conversion.
- Average annual rainfall is approximately 565mm.

Selection and mating

- The Mokanger ewes selected by the committee formed an even line of mature mixed age commercial 17-18 micron ewes based on Mokanger, Yalgoo and Cressbrook genetics.
- The average adult flock micron at "Mokanger" in 2008 was 17.0 micron.
- Laparoscopic insemination of 840 ewes was conducted by Brecon Breeders on 6th and 7th April 2009 with 56 ewes allocated to each sire.
- 14 sires participated in the site evaluation.
- All ewes were in condition score 2-3 at the time of insemination.

Pregnancy and lambing

- Ultrasound scanning of ewes on 16th June 2009 was carried out by Sam Plush with a total of 812 possible lambs.
- Single and twin bearing ewes were run in two separate mobs and then drafted into 28 sire paddocks on 28th August 2009 ready for lambing.
- A total of 602 lambs were double tagged (RFID tag and a numbered sire tag) on 21st September and recorded for birth type, sex, skin and fibre pigment, black spots, hairy birth coat and entropian. There were 264 single lambs, 334 twin lambs and 4 triplets recorded; 293 females and 309 males. Lambs were then run as one management group for the duration of the trial.
- 582 lambs were scored for breech cover and wrinkle traits at marking time.
- Ewes were run on 2000kg/Ha DM whilst lambs were on ewes in condition score 2.5+.

Weaning and seasonal conditions

- Lambs were marked and mulesed on 6 November 2009
- A total of 567 lambs were weaned on 7 December 2009 with an average weaning weight of 21.5 kgs.
- Lambs were weaned onto lucerne and chicory paddocks with supplementary feeding of lucerne silage during the summer at rates dependent on pasture growth.
- After weaning progeny were shorn for an even up shearing on 24th May 2010.

Assessments

- Yearling body weights were taken by the committee on 6 October 2010 and Adult body weights were taken after shearing on 13 May 2011.
- WECS were collected by the committee on 6 October 2010 and processed by Dr David Rendell.
- Visual classing was undertaken by David Whyte of Elders.
- Fleece midside samples were processed by Paul Cocking of Riverina Wool Testers.
- Fleece weights and wool types were collected at shearing on 18th April 2011.

Rainfall

- The following rainfall records have been kept and maintained by Mokanger.

Month	Mokanger, Cavendish, Victoria Rainfall (mm per month) *
	2005	2006	2007	2008	2009	2010	Average
January	27.5	25.5	87.0	26.5	2.5	8	29.5
February	56.5	30.5	5.5	10.0	0	71.5	29.0
March	10.0	12.5	12.0	21.0	48.5	31	22.5
April	27.5	46.0	51.5	24.0	30.5	38	36.3
May	15.5	50.0	96.0	31.0	54.0	32	46.4
June	60.5	7.5	45.0	24.5	60.0	53.5	41.8
July	22.5	41.0	59.0	81.0	65.5	37	51.0
August	88.5	33.0	35.0	63.0	72.5	113.5	67.6
September	33.5	51.0	57.0	43.5	51.0	51.5	47.9
October	89.5	12.0	19.0	8.0	7.0	69	34.1
November	34.0	14.0	89.0	32.0	46.2	60	45.9
December	41.0	14.5	68.0	95.0	37.4	141	66.2
Total	506.5	337.5	624.5	459.5	475.1	706	518.2

* Source: "Mokanger"

Reported by: Shane Arnold

Assessment and management program

Activity		Date/s	Age (months)	Wool (months)
Selection of ewes		February		
Allocation of ewes for mating		April 2009		
Pregnancy scanning		16 June 2009		
Separated into sire lambing groups		28 August 2009		
Lambing: start – finish		1-7 September 2009		
Lambing mobs boxed to one management group		21 September 2009	21 days	
Tagging/pigment/breech scores		21 September 2009	21 days	
Marked/mulesed		6 November 2009	60 days	
Weaning		7 December 2009	90 days	
Pre assessment (even-up) shearing		24 May 2010	8 months	8 months
Crutching	• 1st:	6 January 2011	16 months	8 months
Fat and eye muscle scanning and body weight		Not applicable		
Fleece sampling including length & strength	• 1st Assessment:	9 March 2011	18 months	10 months
Classer's Grade	• 1st Assessment:	9 March 2011	18 months	10 months
Pre shearing scoring	• 1st Assessment:	Not applicable		
Assessment shearing	• 1st Assessment:	18 April 2011	19 months	11 months
Post shearing scoring	• 1st Assessment:	Not Applicable		
Body weight	• Weaning	7 December 2009	90 days	
	• 1st Assessment:	6 October 2010	13 months	
	• 2nd Assessment:	13 May 2011	20 months	
Worm egg count sampling	• 1st Assessment:	6 October 2010	13 months	
Sire's Progeny Group Evenness assessment		Not applicable		
Vaccination		At Marking 6 November 2009		
Drench		Worm burdens monitored and progeny drenched when egg counts reached >400. (Drenched approx 4 times during trial)		
Jetting		6 November 2009 (Clik on tail area),7 December 2009 (Clik on backs)		
Supplementary feeding		Lucerne/chicory pasture with lucerne silage (see report above)		
Field day or public display of 2009 drop sheep		■ Field Day & Progeny Display at Mokanger – April 2009 ■ Field Day & Progeny Display at Mokanger – April 2010 ■ Field Day & Progeny Display at Mokanger – April 2011 ■ Display at Hamilton Sheepvention – August 2009 & 2010 ■ Progeny Display at Balmoral Show – March 2010 & 2011 ■ Display at Australian Sheep & Wool Show - Bendigo – July 2010 & 2011		

Visual trait assessment

<u>1st and final assessment</u>

Classer's Grade: Mr David Whyte, Elders
Trait Scores: Committee

Site Breeding Objective used to assess the 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 visual assessed traits that is described below was developed by the site committee in consultation with the classer prior to the grading.

Breeding Objective

The goal is to select sheep that are well grown, with sound conformation and carrying heavy fine wool fleeces of good character, colour and nourishment.

Figure 1. **Combined measured traits and visual trait performance**

Summary graph: visual and measured performance

Each sire that had 20 or more progeny assessed is located on the graph. The graph describes performance for combined measured traits and combined visual assessment.

Figure 1 is combined measured traits based on an AMSEA <u>Merino 7% index</u> (that is: equal emphasis on fleece weight and fibre diameter with enough emphasis on body weight to provide a moderate increase in this trait). Visual trait performance is a combination of Classer's Grade performance (Tops and Culls). More information is found in "Understanding the Results" (pages 22-23).

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

Figure 1. Combined Visual and measured performance
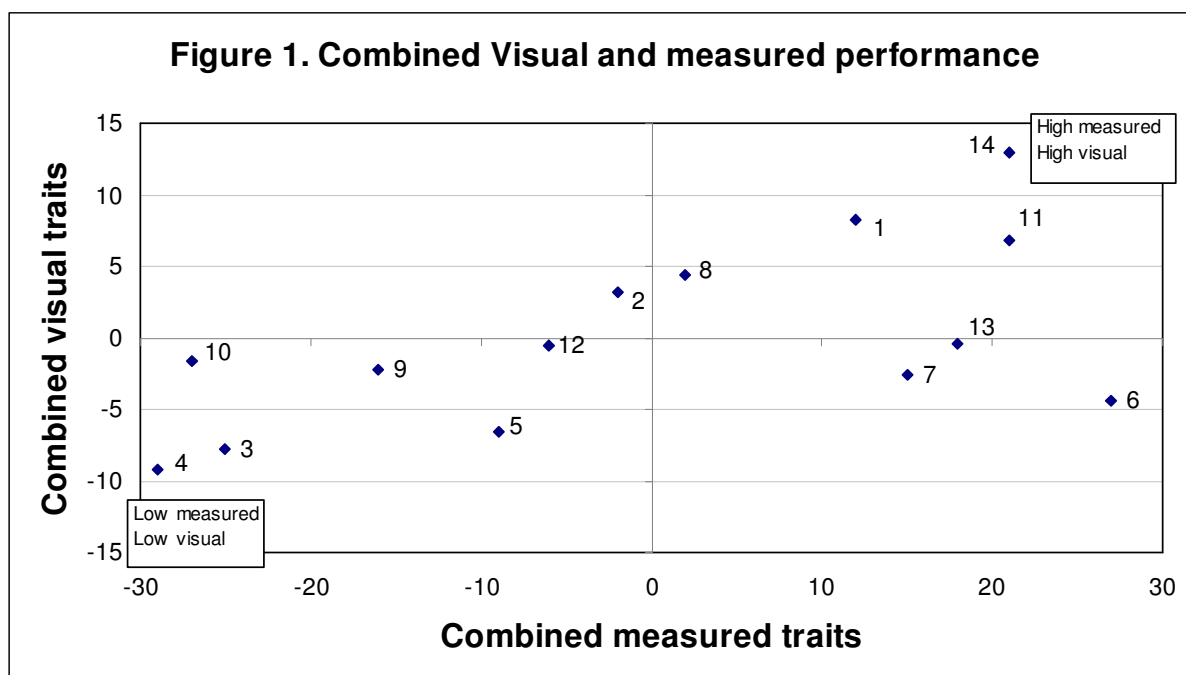
Rams reported in Figure 1 above		
Ram code	Breeders flock, Ram number and Sheep Genetics ID	
1	**Connewarran 6042**	50-4704-2006-006042
2 *	**Cressbrook 03784**	50-2302-2003-003784
3	**Glenlea Park 706**	60-1382-2007-070706
4	**Glenlea Park 716 Olympic**	60-1382-2007-070716
5	**Grindon 50118**	50-4455-2005-050118
6	**Kamora Park 304 (M10050)**	60-1244-2007-070304
7	**Kia Ora Big Red 58**	50-9221-2004-040058
8	**Kurra-Wirra PU 268**	50-4173-2006-060268
9	**Mokanger Blue 8**	50-4888-2007-000008
10	**Mokanger Blue 83**	50-4888-2007-000083
11	**Pendarra Red 274**	50-4868-2006-060274
12	**The Mountain Dam 06/NBE018**	50-4572-2006-NBE018
13 *	**Windarra, 040236**	50-4338-2004-040236
14	**Windarra 070128**	50-4338-2007-070128

The highest performing 3 sires for each trait (i.e., trait leaders) are highlighted by shading, eg. In the table below see Sire 14 has 56% above average for Tops% .

Each sire is listed for Classer's Grade and the same three indexes at all site evaluations. An additional index (Merino 20%+SS) considered relevant to the site evaluation is also reported.

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' on 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) is given a zero FBV value in AMSEA calculations.

- **Merino 14% +SS** — High emphasis on fibre diameter and low emphasis on fleece weight plus moderate emphasis on live weight and staple strength.
- **Fine 10% +SS** — Moderate emphasis on fleece weight and fibre diameter plus moderate emphasis on staple strength.
- **Dual Purpose 7%** — Moderate emphasis on fleece weight and fibre diameter plus high emphasis on live weight.
- **Fine Merino 20% +SS** — High emphasis on fibre diameter and staple strength plus adequate emphasis on other traits to be maintained, except a reduction in NLW.

Ram code	Breeders flock, Ram number	No progeny	Merino 14% +SS	Fine 10% +SS	Dual Purpose 7%	Fine Merino 20% +SS	Tops % (dev) A^	Culls % (dev) A
1	**Connewarran 6042**	59	104	108	116	99	34	-7
2 *	**Cressbrook 03784**	53	97	98	91	97	9	-7
3	**Glenlea Park 706**	38	78	70	85	77	-25	14
4	**Glenlea Park 716 Olympic**	40	74	65	83	73	-28	18
5	**Grindon 50118**	50	105	101	80	114	-19	14
6	**Kamora Park 304 (M10050)**	21	112	122	126	105	-12	10
7	**Kia Ora Big Red 58**	59	101	108	119	95	-17	-4
8	**Kurra-Wirra PU 268**	48	102	102	98	101	13	-9
9	**Mokanger Blue 8**	54	95	88	84	101	-14	-3
10	**Mokanger Blue 83**	40	92	81	73	103	-13	-5
11	**Pendarra Red 274**	45	113	120	120	109	25	-9
12	**The Mountain Dam 06/NBE018**	57	98	95	94	99	-7	-4
13 *	**Windarra, 040236**	32	112	117	116	110	-1	1
14	**Windarra 070128**	6	118	124	116	117	56	-9
	Average performance	43	100	100	100	100	41	9

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

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

^ A = Adult (540 days and older).

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

Fleece Weight by Fibre Diameter
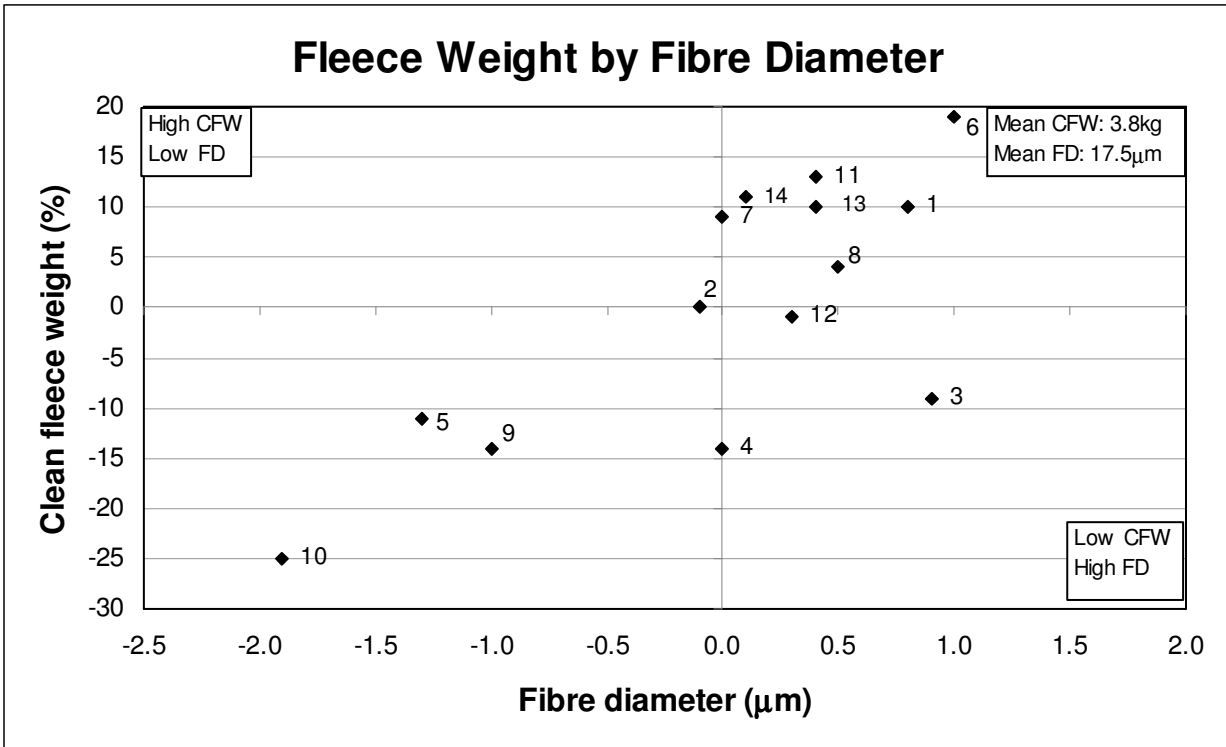
Figure 3. Classers Tops by Cull Grade
The graph describes performance for Classer's Tops Grade on the side axis and Cull Grade on the bottom axis. Rams that have above average Tops and below average Culls are in the <u>top left hand quarter</u>.

Classer Tops by Cull Grade
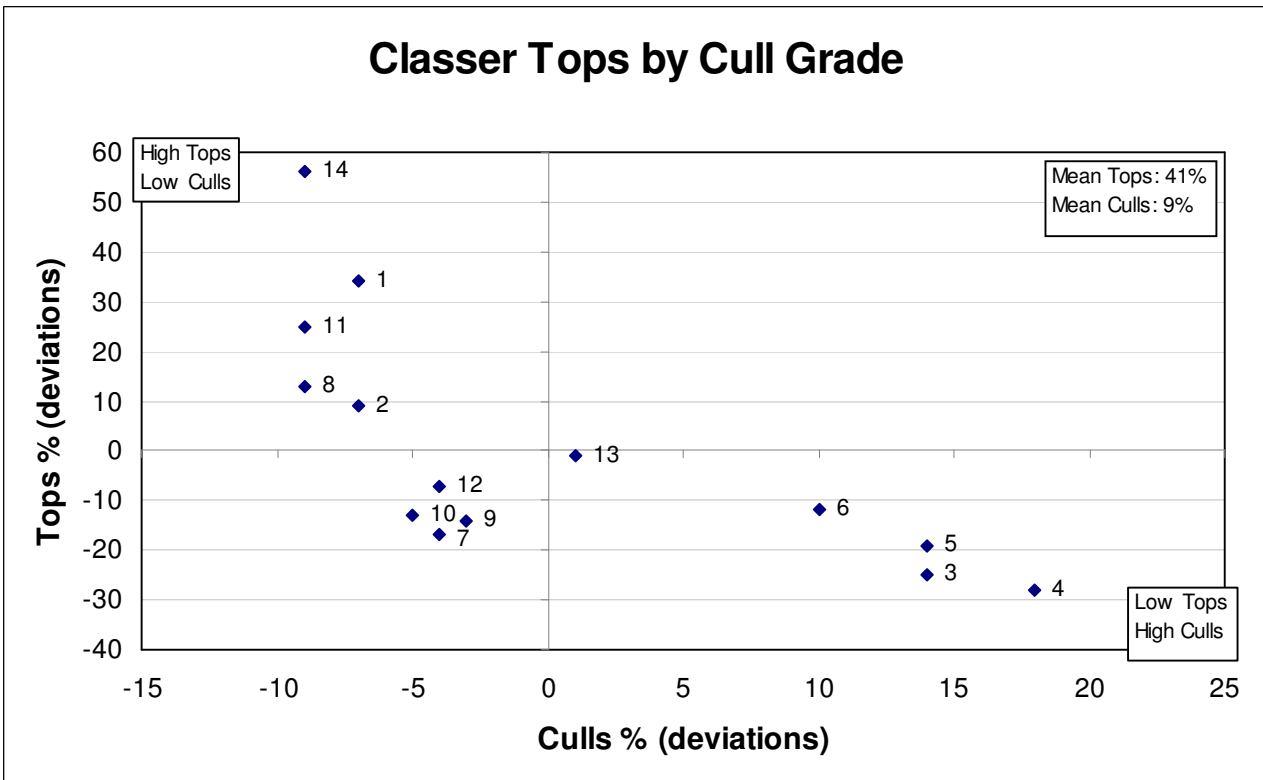
Measured trait performance and Classer's Grade – Tables 1 and 2 – pages 14 and 15

Ram code:	Allows a ram to be located on the summary graphs and some tables.
Ram name:	Identity of the breeder's flock and the ram's number or name.
No. of progeny:	The number of progeny a ram had at the most recent measured analysis.
Flock Breeding Values:	Flock Breeding Values (FBVs) are Estimated Breeding Values (EBVs) calculated by Sheep Genetics for the ram's evaluated in this report. Only data from this site evaluation is used in the calculation of these FBVs. FBVs describe the relative breeding value (genetic performance) of the rams (in this case based on the performance of their progeny). A ram's progeny will express half of their ram's FBV. FBVs do not necessarily reflect the rams observed performance, which is a combination of both genetic and environmental influences. FBVs are an estimate of the genetic component of the sheep's performance.

Traits:	GFW:	Greasy fleece weight (percentage).
	CFW:	Clean fleece weight (percentage).
Abbreviation,	FD:	Average fibre diameter (micron).
trait and the	WT:	Body weight (kilograms).
(units reported)	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 ram's progeny).

Age at assessment:	Y = Yearling	- 300 to 400 days (10 to 13 months of age).
	H = Hogget	- 400 to 540 days (13 to 18 months of age).
	A = Adult	- 540 days or older (18 months and older).
Classer's Grade:	A classer grades all progeny as either Tops, Flocks or Culls based on their visual assessment of all traits relative to the site's Breeding Objective (page 9). The percentage deviation from the average of Tops and Culls is presented in this report.	

Table 1. **Major measured traits and Classer's Grades**

Ram code	Breeders flock, Ram number	No. of prog.	GFW % A^	CFW % A	FD μm A	WT kg W	WT kg Y	WT kg A	Tops % (dev) A	Culls % (dev) A
			Flock Breeding Values (deviations)						Classer's Grade [1]	
1	**Connewarran 6042**	59	8	10	0.8	1.4	2.7	2.7	34	-7
2 *	**Cressbrook 03784**	53	0	0	-0.1	-1.3	-2.4	-2.4	9	-7
3	**Glenlea Park 706**	38	-9	-9	0.9	0.8	0.7	2.6	-25	14
4	**Glenlea Park 716 Olympic**	40	-13	-14	0.0	2.0	2.0	3.2	-28	18
5	**Grindon 50118**	50	-10	-11	-1.3	-2.6	-5.8	-6.7	-19	14
6	**Kamora Park 304 (M10050)**	21	17	19	1.0	0.7	2.4	2.3	-12	10
7	**Kia Ora Big Red 58**	59	10	9	0.0	2.4	4.2	3.6	-17	-4
8	**Kurra-Wirra PU 268**	48	2	4	0.5	-0.6	-0.5	-1.5	13	-9
9	**Mokanger Blue 8**	54	-13	-14	-1.0	-0.7	-1.8	-1.5	-14	-3
10	**Mokanger Blue 83**	40	-24	-25	-1.9	-1.7	-3.1	-3.4	-13	-5
11	**Pendarra Red 274**	45	11	13	0.4	0.5	1.4	1.4	25	-9
12	**The Mountain Dam 06/NBE018**	57	-1	-1	0.3	-1.2	-1.0	-1.0	-7	-4
13 *	**Windarra, 040236**	32	11	10	0.4	0.4	1.3	1.5	-1	1
14	**Windarra 070128**	6	10	11	0.1	-0.2	-0.1	-0.7	56	-9
	Average performance	43	5.1 kg	3.8 kg	17.5 μm	21.5 kg	39.9 kg	47.4 kg	41 %	9 %

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

^   A = Adult (540 days and older)   [Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days)]

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

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

■   Information on how to use the results in the table above can be found on page 13.

Table 2. **Other measured traits**

Ram code	Breeder's flock, Ram number	No. of prog.	Flock Breeding Values (deviations)						
			CV % A^	SL mm A	SS N/ktex A	Curv deg/mm A	Fat mm H	EMD mm H	WEC % Y
1	**Connewarran 6042**	59	0.1	3.6	1.4	-2.8			-10
2 *	**Cressbrook 03784**	53	0.2	4.0	-2.2	-2.3	Not applicable	Not applicable	32
3	**Glenlea Park 706**	38	-0.8	6.4	-1.8	-3.4			-39
4	**Glenlea Park 716 Olympic**	40	0.9	-2.1	-6.8	0.0			-24
5	**Grindon 50118**	50	-0.6	-4.8	1.1	3.2			-26
6	**Kamora Park 304 (M10050)**	21	-0.2	9.2	1.6	-8.6			11
7	**Kia Ora Big Red 58**	59	1.3	1.0	-4.8	-3.6			53
8	**Kurra-Wirra PU 268**	48	0.5	-3.4	5.0	-2.3			137
9	**Mokanger Blue 8**	54	-0.3	-6.7	-2.2	7.1			-18
10	**Mokanger Blue 83**	40	-0.6	-11.3	-4.2	15.8			-17
11	**Pendarra Red 274**	45	-0.1	2.3	1.6	-3.4			-31
12	**The Mountain Dam 06/NBE018**	57	0.0	-2.7	2.8	2.3			0
13 *	**Windarra, 040236**	32	-0.2	1.2	3.7	1.0			-12
14	**Windarra 070128**	6	-0.4	3.7	4.9	-3.4			9
	Average performance	43	15.8	87.2	45.1	99.0	0.0	0.0	

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

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

^ Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

■ Information on how to use the results in the table above can be found on page 13.

Scored trait performance – Tables 3a, 3b, 3c and 3e – pages 16 to 19

The following description of trait scores is a summary of the detailed word and diagrammatical description of these scores in the Visual Sheep Scores booklet (free on application to AWI 02 92995155).

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

■ Fleece rot:	The severity of fleece rot from **1** (no fleece rot), **2 and 3** (bands of bacterial staining but no crusting), and **4 and 5** (bands of crusty fleece rot).
■ Wool colour:	Greasy wool colour scored from **1** (whitest) to **5** (yellow).
■ Wool character:	Definition and variation of crimp between and along the staple scored from **1** (well defined and regular) to **5** (undefined and large variation).
■ Dust penetration:	Degree of dust penetration from **1** (only tip <5%) to **5** (80 to 100% of staple).
■ Staple weathering:	The deterioration due to light and water from **1** (least, <5% of staple) to **5** (most, 30 to 50%) reflect the depth and degree of deterioration.
■ Staple structure:	The size and diameter of each staple from **1** (<5mm) to **5** (30 to 50 mm)
■ Face cover:	Wool cover on the face scored from **1** (open face) to **5** (fully covered face).
■ Feet/Legs:	Conformation of feet and legs scored from **1** (very good) to **5** (very poor).
■ Body wrinkle:	The degree of body wrinkle from **1** (no wrinkle) to **5** (extensive wrinkle).
■ Jaw:	Under- or over-shot lower jaw (and teeth) relative to the top jaw. Three scores **1** (very well aligned), **3** (marginally under or over) and **5** (heavily under or over).
■ Back/Shoulder:	Conformation of the back and shoulder from **1** (very good) to **5** (very poor).
■ Fibre pigmentation:	The percentage of dark fibres on any part of the sheep from **1** (0 pigmented fibres at any site) to **5** (76 to 100% pigmented fibres at one or more sites). This trait does not include random spot or recessive black.
■ Non-fibre pigmentation:	The percentage of pigmentation on the areas not shorn from **1** (0 pigmentation at any site) to **5** (76 to 100% pigmented area on one or more bare skin sites, **and/or** 76 to 100% of the total hoof area).
■ Recessive black: (black)	Recessive black (black) is identified by relatively symmetrical markings on both sides of the face. There are two scores **1** (no recessive markings) and **5** (recessive markings). This trait does not include random spot or fibre pigmentation.
■ Random spot: (spot)	Random spot (spot) is identified by rounded wool or hair spot/s, not symmetrical. There are two scores **1** (no spot/s) and **5** (spot/s). If both sides of the face or body are spotted the sheep should be scored as a recessive black.
■ Breech cover	Size of natural bare area around the breech from **1** (large) to **5** (no bare).
■ Crutch cover	Size of natural bare area in the pubic and groin from **1** (large) to **5** (no bare).
■ Breech wrinkle	Degree of wrinkle at the tail set and kind legs from **1** (nil) to **5** (extensive).
■ Dag	Degree of dag adhering to the breech and legs from **1** (nil) to **5** (extensive).
■ Injury/Disease:	Non-genetic effects due to injury, misadventure or infection – Yes or No.

Table 3a. **Visual trait assessments – Wool quality**

Visually assessed traits reported in Tables 3a, b, c and d were scored at their final Assessment except for pigmentation that was scored at tagging and ongoing and breech traits recorded at marking time.

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported. For the majority of breeder's objectives a negative deviation would be considered favourable and the larger the deviation the better.

Ram code	Breeders flock, Ram number	Wool Quality																												
		Fleece Rot						Wool Colour						Wool Character						Dust Penetration					
		Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	**Connewarran 6042**	0.2	46	13	22	13	6	-0.2	0	50	48	2	0	-0.1	0	54	41	5	0	-0.1	5	67	28	0	0
2 *	**Cressbrook 03784**	-0.6	74	21	0	5	0	-0.3	0	54	43	3	0	0.0	0	49	49	2	0	-0.1	0	83	17	0	0
3	**Glenlea Park 706**	0.2	35	23	35	7	0	0.6	0	4	54	42	0	0.1	0	38	58	4	0	0.4	0	35	65	0	0
4	**Glenlea Park 716 Olympic**	0.4	37	16	26	16	5	0.6	0	5	58	37	0	0.1	0	42	53	5	0	0.1	0	63	37	0	0
5	**Grindon 50118**	0.0	51	15	23	6	5	-0.4	0	64	33	3	0	0.1	0	38	56	6	0	0.0	0	67	33	0	0
6	**Kamora Park 304 (M10050)**	0.7	24	29	24	5	18	0.5	0	6	65	29	0	-0.1	0	53	47	0	0	0.1	0	65	35	0	0
7	**Kia Ora Big Red 58**	-0.1	60	7	26	0	7	0.3	0	19	52	29	0	0.4	0	9	79	12	0	0.0	0	67	33	0	0
8	**Kurra-Wirra PU 268**	0.2	40	27	17	3	13	-0.3	0	60	37	3	0	0.0	0	47	50	3	0	-0.2	4	83	13	0	0
9	**Mokanger Blue 8**	-0.4	62	16	19	3	0	-0.5	0	73	27	0	0	-0.2	0	58	42	0	0	0.1	3	55	42	0	0
10	**Mokanger Blue 83**	-0.2	61	7	25	3	4	-0.2	8	39	46	7	0	-0.1	3	50	43	4	0	0.0	7	57	36	0	0
11	**Pendarra Red 274**	0.2	46	11	29	11	3	-0.1	0	34	62	4	0	0.0	0	41	59	0	0	-0.2	0	86	14	0	0
12	**The Mountain Dam 06/NBE018**	-0.2	50	28	17	2	3	0.0	3	33	50	11	3	0.1	0	42	53	5	0	0.1	0	64	36	0	0
13 *	**Windarra, 040236**	0.3	41	18	27	0	14	0.2	0	23	64	13	0	-0.1	0	55	45	0	0	0.1	0	64	36	0	0
14	**Windarra 070128**	-0.7	75	25	0	0	0	-0.3	0	50	50	0	0	-0.1	0	50	50	0	0	-0.3	0	100	0	0	0
	Average	2.0	50	18	21	5	6	2.8	1	37	49	13	0	2.6	0	45	52	3	0	2.3	1	68	31	0	0

*   Link ram: Ram evaluated to provide links between years and sites so that the all site results can be combined into a single report, e.g., *Merino Superior Sires.*
UR   Unregistered Flock. Rams bred in an unregistered flock are identified in the table by a UR following the ram's code.
■   Information on how to use the results in the table above can be found on page 16.

Table 3b. **Visual trait assessments – Wool quality and Pigment**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported.
For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better.

Four pigmentation traits are reported as described on page 16. These are Fibre pigmentation, Non-fibre pigmentation, Recessive "black" and Random "spot".
Fibre pigmentation and Non-fibre pigmentation are scored **1** to **5** however Recessive black and Random spot are scored **1** (no pigmentation of this type) or **5** (when the trait is expressed). Only the percentage scored 5 are reported for Recessive black and Random spot.

		Wool Quality												Pigmentation													
		Staple Weathering						Staple Structure						Fibre pigmentation						Non-fibre pigmentation						Black	Spot
Ram code	Breeders flock, Ram number	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	5	5
1	**Connewarran 6042**	-0.2	3	54	41	2	0	-0.1	0	63	37	0	0	-0.1	100	0	0	0	0	-0.7	44	47	9	0	0	0	0
2 *	**Cressbrook 03784**	-0.1	0	51	49	0	0	-0.1	0	69	31	0	0	-0.1	100	0	0	0	0	0.1	23	34	26	17	0	0	0
3	**Glenlea Park 706**	0.4	0	11	77	12	0	0.2	0	38	62	0	0	-0.1	100	0	0	0	0	0	11	61	24	1	3	0	0
4	**Glenlea Park 716 Olympic**	0.2	0	26	63	11	0	0.1	0	42	58	0	0	-0.1	100	0	0	0	0	0.1	18	38	35	9	0	0	0
5	**Grindon 50118**	0.0	0	36	62	2	0	0.2	0	41	51	8	0	-0.1	98	0	2	0	0	-0.4	28	52	16	4	0	0	0
6	**Kamora Park 304 (M10050)**	0.2	0	18	82	0	0	0.0	0	59	41	0	0	-0.1	100	0	0	0	0	0	20	45	20	15	0	0	0
7	**Kia Ora Big Red 58**	0.2	0	21	79	0	0	0.1	0	43	57	0	0	0	98	0	0	0	2	0.1	17	36	36	10	1	0	2
8	**Kurra-Wirra PU 268**	0.0	0	37	63	0	0	-0.1	0	60	40	0	0	0.1	96	0	0	0	4	0	21	44	25	8	2	0	2
9	**Mokanger Blue 8**	0.0	0	33	67	0	0	0.1	0	42	58	0	0	0.2	89	1	4	0	6	0.6	6	28	44	15	7	0	4
10	**Mokanger Blue 83**	-0.2	0	57	43	0	0	-0.1	0	61	39	0	0	0	97	0	0	3	0	0.2	5	38	54	3	0	0	0
11	**Pendarra Red 274**	-0.1	0	45	55	0	0	0.0	0	55	45	0	0	-0.1	98	0	2	0	0	-0.2	22	51	24	3	0	0	0
12	**The Mountain Dam 06/NBE018**	0.2	0	25	72	3	0	-0.1	0	61	39	0	0	-0.1	100	0	0	0	0	-0.3	19	63	16	0	2	0	0
13 *	**Windarra, 040236**	0.0	0	41	55	4	0	0.0	0	59	36	5	0	0	97	0	0	3	0	0.4	4	34	50	12	0	0	0
14	**Windarra 070128**	-0.6	0	100	0	0	0	-0.2	0	75	25	0	0	0.6	83	0	0	0	17	0.2	0	67	16	17	0	0	0
	Average	2.6	0	40	58	2	0	2.5	0	55	44	1	0	1.1	97	0	1	0	2	2.3	17	46	28	8	1	0	0

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

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

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

Table 3c. **Visual trait assessments –Conformation**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported.
For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better. Face cover and body wrinkle are possible exceptions when for many breeders the optimum score is in the middle of the range therefore trait leaders have not been highlighted.

Ram code	Conformation																													
	Jaw						Legs and Feet						Shoulder and Back						Face Cover						Body Wrinkle					
	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	0	93	7	0	0	0	-0.2	67	33	0	0	0	-0.2	80	3	17	0	0	0.2	0	26	74	0	0	0	4	70	26	0	0
2 *	0	100	0	0	0	0	-0.1	66	34	0	0	0	-0.2	83	3	14	0	0	-0.3	0	71	29	0	0	-0.1	9	71	20	0	0
3	0	96	4	0	0	0	0.1	58	31	11	0	0	0.1	65	4	31	0	0	-0.2	0	65	35	0	0	-0.6	54	35	11	0	0
4	0	100	0	0	0	0	0	47	53	0	0	0	0.4	53	0	42	5	0	0.1	0	37	63	0	0	-0.3	16	79	5	0	0
5	0	97	3	0	0	0	0.3	31	59	10	0	0	0.1	69	0	31	0	0	0.1	0	31	69	0	0	0.3	0	59	36	5	0
6	0.2	94	0	0	0	6	-0.1	71	24	5	0	0	-0.1	76	0	24	0	0	0	0	47	53	0	0	0.2	12	47	29	12	0
7	0	95	3	2	0	0	0	52	45	3	0	0	0.3	57	5	38	0	0	-0.1	0	52	48	0	0	0.1	5	64	31	0	0
8	0	100	0	0	0	0	0	53	40	7	0	0	-0.2	80	0	20	0	0	0.2	0	27	73	0	0	0	10	57	33	0	0
9	0	94	6	0	0	0	-0.1	67	30	3	0	0	0	70	6	24	0	0	0.3	0	15	82	3	0	0.3	0	48	52	0	0
10	0	100	0	0	0	0	0.2	39	54	7	0	0	-0.2	79	3	18	0	0	0	0	46	54	0	0	0	7	61	32	0	0
11	0	97	3	0	0	0	-0.2	72	28	0	0	0	0.3	59	0	41	0	0	0.2	0	28	72	0	0	0	10	66	21	3	0
12	0	100	0	0	0	0	0.2	39	53	8	0	0	0.3	56	2	42	0	0	0.2	0	25	72	3	0	0	11	61	28	0	0
13 *	0	100	0	0	0	0	0.1	55	32	13	0	0	-0.1	77	0	23	0	0	0.1	0	36	59	5	0	0.2	4	59	32	0	5
14	0	100	0	0	0	0	-0.2	75	25	0	0	0	-0.6	100	0	0	0	0	-0.6	0	100	0	0	0	0	0	75	25	0	0
Avg.	1.0	98	2	0	0	0	1.5	57	39	4	0	0	1.6	72	2	26	0	0	2.6	0	43	56	1	0	2.2	10	61	27	2	0

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

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

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

Table 3e. **Visual trait assessments – Breech**

Traits are reported as a deviation (Dev) from the average trait score for all progeny. The percentage of a ram's progeny assessed for each score is also reported. For the majority of breeder's objectives a negative deviation would be considered favorable and the larger the deviation the better.

Ram code	Breeders flock, Ram number	Breech																							
		Breech Cover						Breech Wrinkle						Crutch Cover						Dag					
		Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5	Dev	1	2	3	4	5
1	**Connewarran 6042**	0.1	0	0	15	58	27	0.2	0	0	78	22	0												
2 *	**Cressbrook 03784**	0.3	0	0	13	45	42	0.1	0	3	89	8	0												
3	**Glenlea Park 706**	-0.1	0	3	21	55	21	-0.1	0	11	87	2	0												
4	**Glenlea Park 716 Olympic**	-0.4	3	2	35	55	5	-0.1	0	22	65	13	0												
5	**Grindon 50118**	0.5	0	0	6	36	58	0	0	8	90	2	0												
6	**Kamora Park 304 (M10050)**	-0.1	0	0	24	62	14	-0.3	0	33	67	0	0												
7	**Kia Ora Big Red 58**	-0.4	0	5	44	34	17	0	0	11	75	14	0												
8	**Kurra-Wirra PU 268**	0.0	0	2	25	44	29	0.1	0	6	79	15	0												
9	**Mokanger Blue 8**	0.2	0	4	11	46	39	0	0	7	87	6	0												
10	**Mokanger Blue 83**	-0.4	0	5	45	38	12	-0.1	0	12	85	3	0												
11	**Pendarra Red 274**	-0.1	0	8	18	47	27	0	0	16	73	11	0												
12	**The Mountain Dam 06/NBE018**	-0.4	0	2	47	35	16	0	0	9	89	2	0												
13 *	**Windarra, 040236**	0.1	0	4	12	50	34	0	0	12	81	7	0												
14	**Windarra 070128**	0.7	0	0	0	33	67	0.2	0	0	83	17	0												
	Average	4.0	0	2	23	46	29	3.0	0	11	81	8	0	0.0	0	0	0	0	0						

Crutch Cover: **Not Applicable**

Dag: Note: The 2009 drop progeny were dag scored – however as the progeny group had been mulesed the data was not accepted for analysis.

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

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

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

Table 4. **Ram averages for measured traits**

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

Ram code	Breeders flock, Ram number	No. of prog.	Ram averages for measured traits (deviations)							
			GFW % A^	CFW % A	FD µm A	WT kg A	CV % A	Curv deg/mm A	SL mm A	SS N/ktex A
1	**Connewarran 6042**	59	0.2	0.2	0.4	1.2	0.2	-1.1	1.9	0.8
2 *	**Cressbrook 03784**	53	-0.1	0.0	-0.1	-2.1	0.1	-1.2	2.7	-2.3
3	**Glenlea Park 706**	38	-0.4	-0.4	0.7	3.0	-0.4	-3.3	4.6	-3.0
4	**Glenlea Park 716 Olympic**	40	-0.6	-0.5	0.1	4.3	1.1	-1.3	-1.8	-7.8
5	**Grindon 50118**	50	-0.4	-0.3	-0.8	-5.4	-0.4	1.8	-3.4	0.8
6	**Kamora Park 304 (M10050)**	21	0.7	0.6	0.6	1.7	-0.3	-5.2	6.7	0.2
7	**Kia Ora Big Red 58**	59	0.4	0.1	0.0	1.8	0.9	-2.1	-0.2	-4.5
8	**Kurra-Wirra PU 268**	48	-0.1	0.1	0.3	-1.0	0.5	-1.6	-3.0	5.4
9	**Mokanger Blue 8**	54	-0.5	-0.3	-0.6	-0.5	-0.1	4.5	-4.5	-2.8
10	**Mokanger Blue 83**	40	-0.9	-0.7	-1.1	-2.8	-0.3	11.1	-7.2	-5.5
11	**Pendarra Red 274**	45	0.4	0.4	0.2	0.4	-0.1	-1.9	0.7	1.2
12	**The Mountain Dam 06/NBE018**	57	-0.1	-0.1	0.2	-0.5	0.1	1.7	-2.2	2.6
13 *	**Windarra, 040236**	32	0.5	0.2	0.1	0.8	-0.1	2.2	0.4	3.1
14	**Windarra 070128**	6	0.8	0.6	0.0	-0.9	-1.1	-3.7	5.2	11.6
	Average performance	43	5.1 kg	3.8 kg	17.5 µm	47.4 kg	15.8 %	99.0 deg/mm	87.2 mm	45.1 N/ktex

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

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

^ Y = Yearling (300 to 400 days); H = Hogget (400 to 540 days); A = Adult (540 days and older).

Index Options – indexes reported on page 11.

Breeding Objective index options provide the relative value of rams 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 ram 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 ram 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 Fine 10% +SS; Merino 14% +SS; and Dual Purpose 7%. These indexes are the same as MERINOSELECT indexes of that name however as there is no direct reproduction records captured by sire evaluation AMSEA do not include a Reproduction (NLW) FBV in their index calculations. As a result the 14% contribution by NLW in the Dual Purpose 7% index is not effectively applied by the index calculation.

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

Index *production system* and breeding objectives

AMSEA
Fine 10% +SS
(F10% +SS)

Fine wool Merino self-replacing production system with moderate emphasis on fleece weight and fibre diameter (10% Micron Premium) plus moderate emphasis on staple strength and maintain performance on other traits.

AMSEA
Merino 14% +SS
(M14% +SS)

Medium wool Merino self-replacing production system with high emphasis on fibre diameter and low emphasis on fleece weight (14% Micron Premium) plus moderate emphasis on live weight and staple strength with maintain performance on other traits.
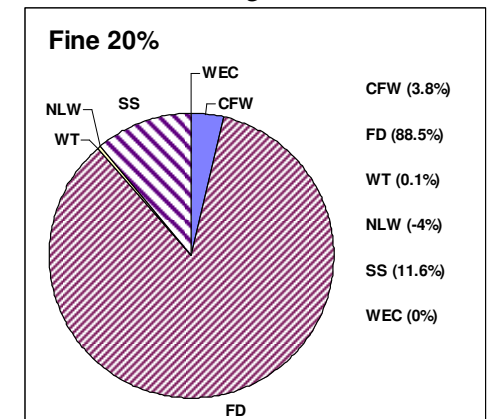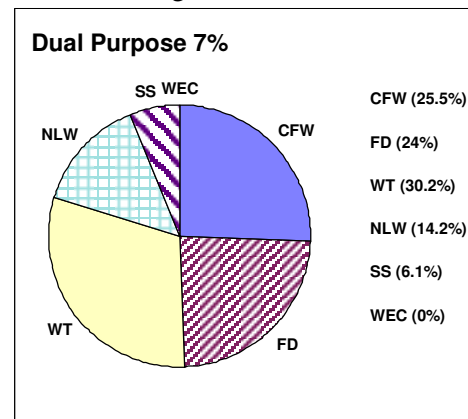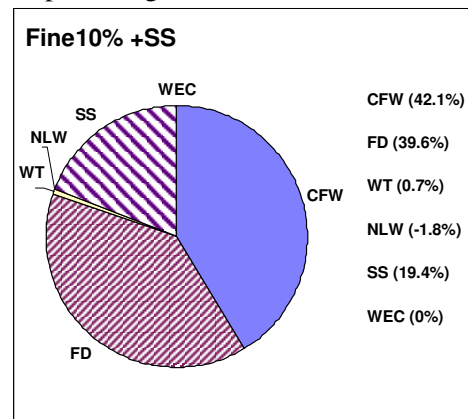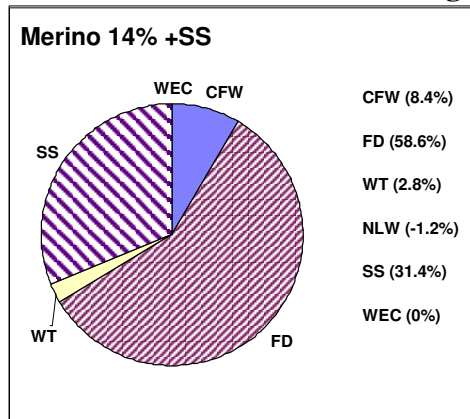
AMSEA
Dual Purpose 7%
(DP7%)

Medium wool Merino self-replacing production system (in conjunction with 25% of ewes in terminal lamb production) with moderate emphasis on fleece weight and fibre diameter (7% Micron Premium) plus high emphasis on live weight and maintain performance on other traits.

AMSEA
Fine Merino 20% +SS
(M20% +SS)

Fine wool Merino self-replacing production system with high emphasis on fibre diameter (20% micron premium) and staple strength. There is adequate emphasis on other traits to maintain performance except a moderate reduction in reproduction (number of lambs weaned – NLW).

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

Merino 14% +SS

CFW (8.4%)
FD (58.6%)
WT (2.8%)
NLW (-1.2%)
SS (31.4%)
WEC (0%)

Fine10% +SS

CFW (42.1%)
FD (39.6%)
WT (0.7%)
NLW (-1.8%)
SS (19.4%)
WEC (0%)

Dual Purpose 7%

CFW (25.5%)
FD (24%)
WT (30.2%)
NLW (14.2%)
SS (6.1%)
WEC (0%)

Fine 20%

CFW (3.8%)
FD (88.5%)
WT (0.1%)
NLW (-4%)
SS (11.6%)
WEC (0%)

Accuracy of Flock Breeding Values

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

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

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

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

Link rams

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

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

Combined measured trait and combined visual trait performance

Combined measured trait performance is calculated as (AMSEA Merino 7% index – 100). The AMSEA Merino 7% index places equal and high emphasis on both fleece weight and fibre diameter, moderate emphasis on body weight and adequate emphasis on other measured traits to allow them to be maintained. Due to the general nature of this index it is useful to be used to report the graphical summary of all traits. Breeders with significantly different objectives should take this into account when considering this graphical summary.

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

Example
Ram's performance:
- AMSEA 7% MP Index value = 119.7
- Tops% = 25.5 (average Tops% = 25.1)
- Culls% = 17.6 (average Culls% = 16.4)

- Combined Measured = 119.7.0 – 100 = 19.7
- Combined Visual = ((25.5 – 17.6)/5) – ((25.1 – 16.4)/5)
  = 7.9/5 – 8.7/5 = 1.58 – 1.74 = -0.16

Balmoral Breeders

Elders Victoria Sire Evaluation Group

2009 Drop