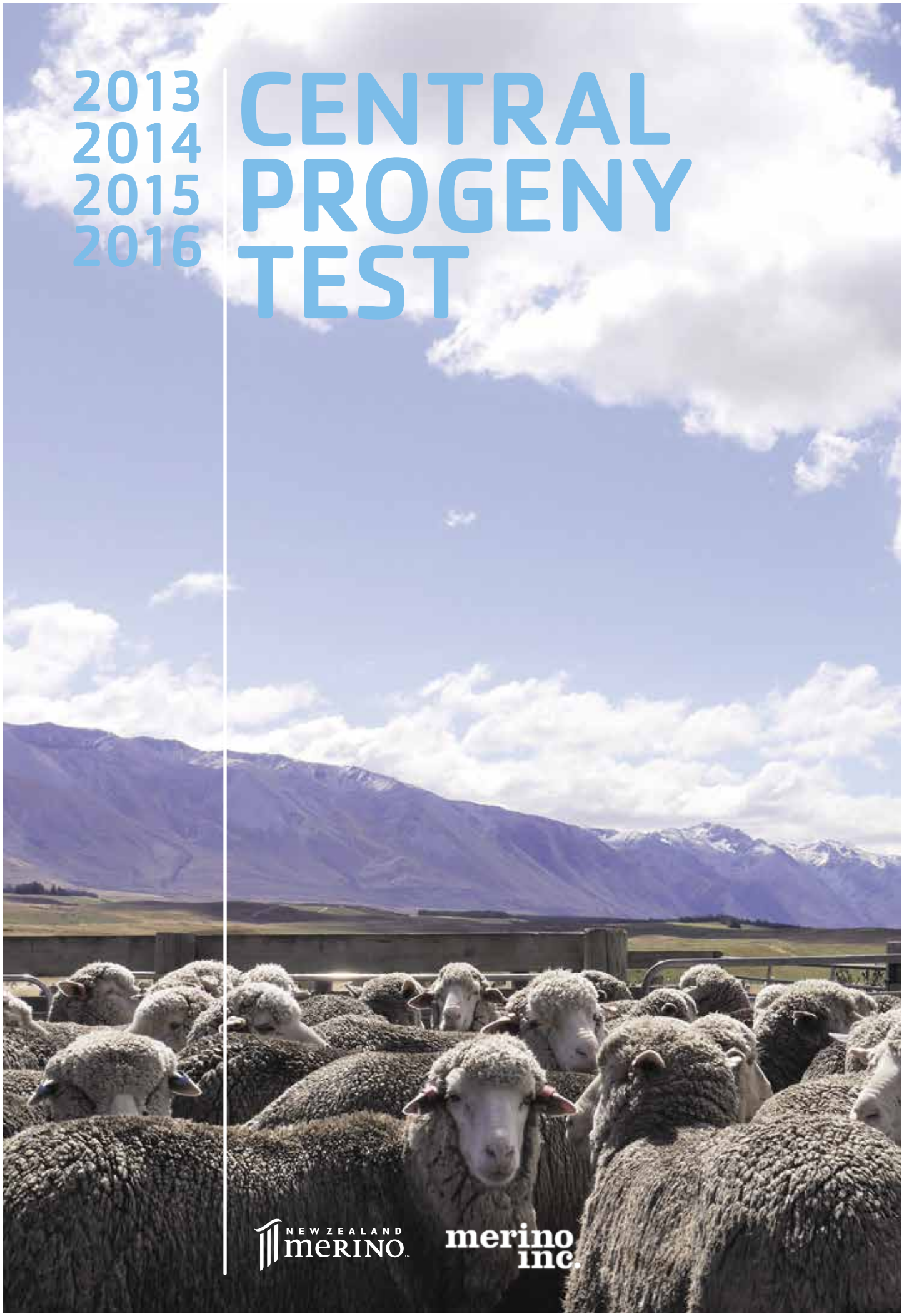
2013
2014
2015
2016

CENTRAL PROGENY TEST



NEW ZEALAND MERINO™

merino inc.

INTRODUCTION TO THE CENTRAL PROGENY TEST

WHAT IS THE CENTRAL PROGENY TEST?

The fine-wool central progeny test (CPT), managed by The New Zealand Merino Company, is an industry-wide platform to benchmark fine-wool sheep genetics in New Zealand.

Each year, since 2013, a new group of fine-wool sires from both New Zealand and Australia (to provide essential linkage to the large-scale sire evaluations undertaken across the Tasman) have been mated across a group of fine-wool ewes. The performance of each sire's progeny group is assessed in a common environment for each trait. The data for each animal is added to the MERINOSELECT database (managed by Sheep Genetics in Australia) and EBVs are generated for each ram.

WHY IS THE CENTRAL PROGENY TEST IMPORTANT?

The CPT enables estimated breeding values (EBVs) to be generated with greater accuracy across the full range of production and ease-of-care traits.

What sets this CPT apart from other sire evaluations is its contribution to the development of a breeding value for footrot resistance in fine-wool sheep. Furthermore, it is being used to determine the genetic correlations between footrot resistance and other important traits. More information about the footrot breeding value can be found on page 19.

INTRODUCTION TO ESTIMATED BREEDING VALUES

Every CPT ram and his progeny have been DNA sampled and genotyped, along with the dam, to create accurate pedigree records.

We have collected data for each trait from the progeny of each sire.

The raw data has been submitted to Sheep Genetics, where it is used with each animal's pedigree records to create an EBV for each trait.

WHAT IS AN ESTIMATED BREEDING VALUE?

- An EBV provides information about a ram's genetic potential.
- EBVs are independent of the environment, nutrition, birth type and management, and, are a more objective comparison between sires than averages of raw data.
- EBVs are an extra tool to assist you with ram selection – they should be used alongside other selection methods, such as visual assessment of conformation.

WHY DO WE USE ESTIMATED BREEDING VALUES?

- EBVs allow breeders to compare the genetic potential of animals, independent of the environment and location.
- EBVs are particularly useful for non-visible traits – for example, for health traits such as worm resistance (WEC).
- EBVs can help you target the traits that are most relevant for your business – whether you want to boost production or save on labour costs – enabling you to speed up genetic gain where you need it most.

In the MERINOSELECT analysis, the EBVs for most traits are given as deviations from the average animal in the database born in 1990.

More recently developed EBVs, such as breech wrinkle, breech cover and dag, use the average animal born in 2000.

WHAT DOES EACH ESTIMATED BREEDING VALUE MEAN?

A ram will only pass half of its DNA to its progeny. For example, a ram with a weaning weight (WWT) EBV of +6 (this EBV is measured in kilograms) will, on average, produce progeny 3kg heavier than a ram with a WWT EBV of 0.

We have provided a brief description of the most commonly used production, health and ease-of-care EBVs below (using Estimated Breeding Values – A Guide for Ram Buyers, written by Dr Mark Ferguson, which is available via: www.perfectsheep.co.nz/estimated-breeding-values/)

You can find the full range of MERINOSELECT traits on the Sheep Genetics website: www.sheep.genetics.org.au

TRAITS

FLEECE TRAITS

YFD – Yearling fibre diameter.

Measured from a mid-side sample at the first shearing and quoted in microns.

A YFD EBV of -1.6 means that the animal has the genetic potential to produce wool 1.6 microns finer than the 1990 average.

YFDCV – Yearling fibre diameter coefficient of variation.

Measured from the mid-side sample at the first shearing and quoted as a percentage.

The larger the variation in fibres in the fleece, the higher the co-efficient of variation, and the higher the YFDCV will be.

A YFDCV EBV of -2% means that the animal has the genetic potential to produce wool with a co-efficient of variation 2% lower than the 1990 average.

YSL – Yearling staple length.

Measured from a mid-side sample at the first shearing and quoted in millimetres (mm).

A YSL EBV of +10 means that the animal has the genetic potential to produce wool staples that are 10mm longer than the 1990 average.

YSS – Yearling staple strength.

Measured from a mid-side sample at the first shearing and quoted in newtons per kilotex (N/ktex).

A YSS EBV of +5 means that the animal has the genetic potential to produce wool with a staple strength 5 N/ktex higher than the 1990 average.

WEIGHT TRAITS

Each of the weight EBVs is quoted in kilograms.

WWT – Weaning weight.

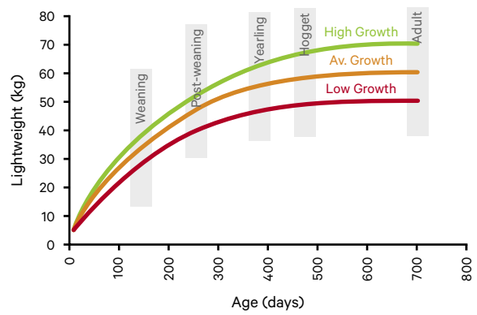
PWT – Post weaning weight.

YWT – Yearling weight.

AWT – Adult weight.

An EBV of +4kg for any of the weight EBVs means that the animal has the genetic potential to be 4kg heavier at that age than the 1990 average.

Although the weight EBVs for each age are correlated (see graph), you can balance the EBVs for weight at different ages to suit your production system. For example, by selecting for low AWT, alongside high WWT, you can breed for a faster growing sheep that reaches a moderate-sized mature weight.



CARCASS TRAITS

YEMD – Yearling eye muscle depth (EMD).

Measured by ultrasound in live animals (between the 12th and 13th long ribs, when the animal is one year old) and quoted in millimetres.

YEMD reflects carcass muscling.

A YEMD EBV of +1.2 means that the animal has the genetic potential to have an eye muscle that is 1.2mm deeper than the 1990 average.

YFAT – Yearling carcass fatness.

Measured at the same time as EMD (see above) and quoted in millimetres.

Carcass fatness reflects the depth of fat between the skin and eye muscle.

A YFAT EBV of +0.6 means that the animal has the genetic potential to have 0.6mm more subcutaneous fat than the 1990 average.

HEALTH TRAITS

YWEC – Yearling worm egg count.

WEC measures worm eggs in one gram of faeces and is quoted in % deviations from the 1990 average.

The more negative the WEC EBV, the more resistant to worms the animal will be.

EASE-OF-CARE TRAITS

The following ease-of-care traits are measured on a scale of 1 to 5 using the 'Visual Sheep Scores' guide produced by Australian Wool Innovation Limited (AWI) and Meat & Livestock Australia. You can access this guide on the AWI website: www.wool.com/on-farm-research-and-development/sheep-health-welfare-and-productivity/sheep-breeding/visual-sheep-scores/.

EBWR – Early breech wrinkle.

EBWR is scored in the lamb marking cradle (i.e. at tailing / docking) on a scale of 1 to 5.

A score of 1 is given to an animal with no breech wrinkle and a score of 5 to an animal with excessive wrinkle.

An EBWR EBV of -1.0 means that the animal has the genetic potential to be one score less wrinkly than the 2000 average.

EBCOV – Early breech cover.

EBCOV is also scored in the lamb marking cradle on a 1 to 5 scale.

A score of 1 is given for a large bare area around the anus and a score of 5 for complete wool coverage around the anus.

An EBCOV EBV of -1.0 means that the animal has the genetic potential to be one score less covered around the anus than the 2000 average.

LDAG – Late dag.

LDAG is scored once a sufficient level of dags have accumulated within a mob and is scored on a 1 to 5 scale.

A score of 1 is given to an animal with no dags and a score of 5 to an animal with excessive dags.

An LDAG EBV of -1.0 means that the animal has the genetic potential to be one score less daggy than the 2000 average.

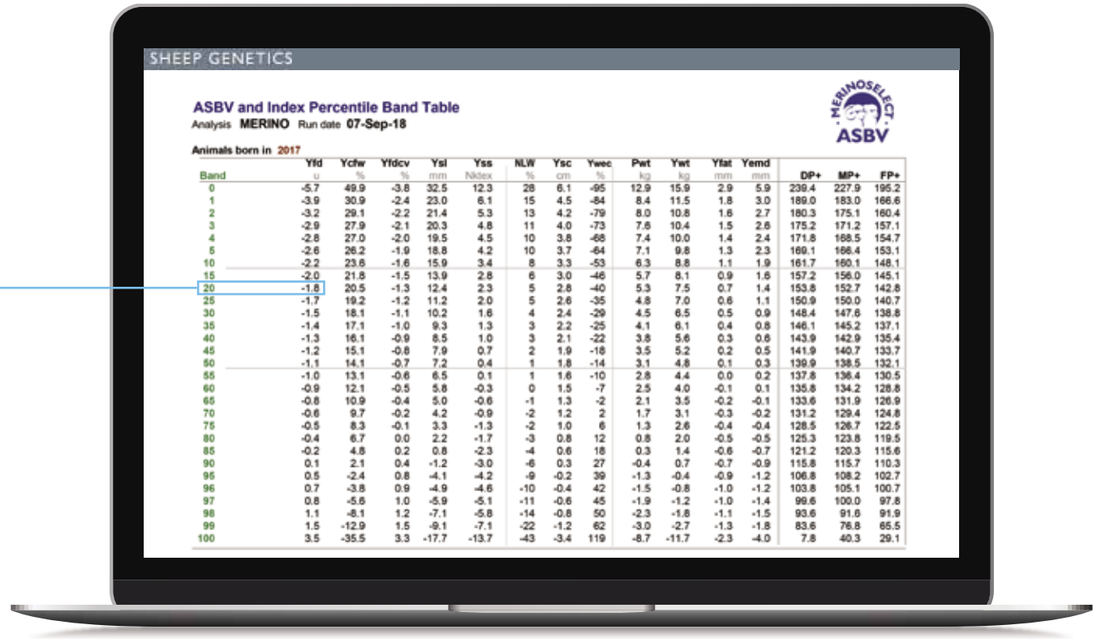
HOW DOES A PARTICULAR RAM COMPARE TO OTHER RAMS?

You can use the percentile band tables generated by Sheep Genetics to compare a ram's relative performance for a trait against the full MERINOSELECT database.

The most recent percentile band table can be viewed or downloaded from the Sheep Genetics website.

For example, if you are viewing a ram with an EBV for yearling fibre diameter (YFD) of -1.8, use the percentile band table to determine how it compares to other rams in the database. An animal with YFD -1.8 is in the 20th percentile; that is, he is in the top 20% of animals in the MERINOSELECT database.

The percentile band table also demonstrates the variation within a trait across the industry. For example, YFD ranges from -5.7 micron to 3.5 micron.



SHEEP GENETICS

ASBV and Index Percentile Band Table

Analysis **MERINO** Run date **07-Sep-18**

MERINOSELECT ASBV

Animals born in 2017

Band	Yfd	Ycfw	Yfdcv	Ysl	Yss	NLW	Ysc	Ywec	Pwt	Ywt	Yfat	Yemd			
	u	%	%	mm	Nktex	%	cm	%	kg	kg	mm	mm	DP+	MP+	FP+
0	-5.7	49.9	-3.8	32.5	12.3	28	6.1	-95	12.9	15.9	2.9	5.9	239.4	227.9	195.2
1	-3.9	30.9	-2.4	23.0	6.1	15	4.5	-84	8.4	11.5	1.8	3.0	189.0	183.0	166.6
2	-3.2	29.1	-2.2	21.4	5.3	13	4.2	-79	8.0	10.8	1.6	2.7	180.3	175.1	160.4
3	-2.9	27.9	-2.1	20.3	4.8	11	4.0	-73	7.6	10.4	1.5	2.6	175.2	171.2	157.1
4	-2.8	27.0	-2.0	19.5	4.5	10	3.8	-68	7.4	10.0	1.4	2.4	171.8	168.5	154.7
5	-2.6	26.2	-1.9	18.8	4.2	10	3.7	-64	7.1	9.8	1.3	2.3	169.1	166.4	153.1
10	-2.2	23.6	-1.6	15.9	3.4	8	3.3	-53	6.3	8.8	1.1	1.9	161.7	160.1	148.1
15	-2.0	21.8	-1.5	13.9	2.8	6	3.0	-46	5.7	8.1	0.9	1.6	157.2	156.0	145.1
20	-1.8	20.5	-1.3	12.4	2.3	5	2.8	-40	5.3	7.5	0.7	1.4	153.8	152.7	142.8
25	-1.7	19.2	-1.2	11.2	2.0	5	2.6	-35	4.8	7.0	0.6	1.1	150.9	150.0	140.7
30	-1.5	18.1	-1.1	10.2	1.6	4	2.4	-29	4.5	6.5	0.5	0.9	148.4	147.6	138.8
35	-1.4	17.1	-1.0	9.3	1.3	3	2.2	-25	4.1	6.1	0.4	0.8	146.1	145.2	137.1
40	-1.3	16.1	-0.9	8.5	1.0	3	2.1	-22	3.8	5.6	0.3	0.6	143.9	142.9	135.4
45	-1.2	15.1	-0.8	7.9	0.7	2	1.9	-18	3.5	5.2	0.2	0.5	141.9	140.7	133.7
50	-1.1	14.1	-0.7	7.2	0.4	1	1.8	-14	3.1	4.8	0.1	0.3	139.9	138.5	132.1
55	-1.0	13.1	-0.6	6.5	0.1	1	1.6	-10	2.8	4.4	0.0	0.2	137.8	136.4	130.5
60	-0.9	12.1	-0.5	5.8	-0.3	0	1.5	-7	2.5	4.0	-0.1	0.1	135.8	134.2	128.8
65	-0.8	10.9	-0.4	5.0	-0.6	-1	1.3	-2	2.1	3.5	-0.2	-0.1	133.6	131.9	126.9
70	-0.6	9.7	-0.2	4.2	-0.9	-2	1.2	2	1.7	3.1	-0.3	-0.2	131.2	129.4	124.8
75	-0.5	8.3	-0.1	3.3	-1.3	-2	1.0	6	1.3	2.6	-0.4	-0.4	128.5	126.7	122.5
80	-0.4	6.7	0.0	2.2	-1.7	-3	0.8	12	0.8	2.0	-0.5	-0.5	125.3	123.8	119.5
85	-0.2	4.8	0.2	0.8	-2.3	-4	0.6	18	0.3	1.4	-0.6	-0.7	121.2	120.3	115.6
90	0.1	2.1	0.4	-1.2	-3.0	-6	0.3	27	-0.4	0.7	-0.7	-0.9	115.8	115.7	110.3
95	0.5	-2.4	0.8	-4.1	-4.2	-9	-0.2	39	-1.3	-0.4	-0.9	-1.2	106.8	108.2	102.7
96	0.7	-3.8	0.9	-4.9	-4.6	-10	-0.4	42	-1.5	-0.8	-1.0	-1.2	103.8	105.1	100.7
97	0.8	-5.6	1.0	-5.9	-5.1	-11	-0.6	45	-1.9	-1.2	-1.0	-1.4	99.6	100.0	97.8
98	1.1	-8.1	1.2	-7.1	-5.8	-14	-0.8	50	-2.3	-1.8	-1.1	-1.5	93.6	91.6	91.9
99	1.5	-12.9	1.5	-9.1	-7.1	-22	-1.2	62	-3.0	-2.7	-1.3	-1.8	83.6	76.8	65.5
100	3.5	-35.5	3.3	-17.7	-13.7	-43	-3.4	119	-8.7	-11.7	-2.3	-4.0	7.8	40.3	29.1

WHAT DATA IS BEING COLLECTED AT THE CENTRAL PROGENY TEST?

The following table shows what data has been collected for each year group in the CPT.

Collecting physical data on all the CPT progeny is essential to generate high-accuracy breeding values for each sire. The data collected from each sire's progeny contributes to the EBVs of all animals linked to that sire.

CPT DATA COLLECTED TO DATE OCTOBER 2018

DATA COLLECTED		2013 DROP	2014 DROP	2015 DROP	2016 DROP	2017 DROP
Live weights	Weaning weight – WWT (kg)	All progeny	All progeny	All progeny	All progeny	All progeny
	Early post-weaning weight (kg)	All progeny	All progeny	All progeny	All progeny	All progeny
	Post-weaning weight – PWT (kg)	All progeny	All progeny	All progeny	All progeny	All progeny
	Yearling weight – YWT (kg)	All progeny	All progeny	All progeny	All progeny	All progeny
Wool	Fibre diameter – FD (µm)	All progeny	All progeny	All progeny	All progeny	All progeny
	Coefficient of variation of fibre diameter – FDCV (%)	All progeny	All progeny	All progeny	All progeny	All progeny
	Staple length – SL (mm)	All progeny	All progeny	All progeny	All progeny	All progeny
	Staple strength – SS (N/ktex)	All progeny	All progeny	All progeny	All progeny	All progeny
	Fleece weight – FW (%)	All progeny	All progeny	All progeny	All progeny	All progeny
Visual	Face cover	All progeny	All progeny	All progeny	All progeny	All progeny
	Breech wrinkle	All progeny	All progeny	All progeny	All progeny	All progeny
	Breech cover	All progeny	All progeny	All progeny	All progeny	All progeny
	Dag score	All progeny	All progeny	All progeny	All progeny	All progeny
Health	Worm egg count – WEC (%)	All progeny	Wether progeny only	Wether progeny only	All progeny	All progeny
	Footrot score (EBV in development)	Wether progeny only	Wether progeny only	Wether progeny only	Wether progeny only	Still to be collected
Carcass	Eye muscle depth – EMD (mm)	All progeny	All progeny	All progeny	All progeny	Still to be collected
	Fat depth – FAT (mm)	All progeny	All progeny	All progeny	All progeny	Still to be collected
	GR (mm)	Wether progeny only	Wether progeny only	Wether progeny only	Wether progeny only	Still to be collected
	Hot carcass weight (kg)	Wether progeny only	Wether progeny only	Wether progeny only	Wether progeny only	Still to be collected
	Pre-slaughter live weight (kg)	Wether progeny only	Wether progeny only	Wether progeny only	Wether progeny only	Still to be collected
Reproduction	Number of lambs weaned – NLW (%)	Ewe progeny only	Ewe progeny only	Analysis in progress		
Classing	Wool assessment	All progeny	All progeny	All progeny	All progeny	All progeny
	Overall classer grade	All progeny	All progeny	All progeny	All progeny	All progeny
	Structural assessment	All progeny	All progeny	All progeny	All progeny	Still to be collected

SIRE EBVs

The EBVs in the following tables are for sires entered in the CPT from 2013 to 2016.

- On page 5 you will find explanations for each of the EBVs published here.
- These EBVs have been downloaded from the Sheep Genetics website and are from the MERINOSELECT analysis that took place on 5 October 2018.
- The EBVs for a small number of sires have not been published. This is due to a request from the ram's breeder and / or owner for the information to not be disclosed, or because an insufficient number of progeny were born.
- The EBVs for an individual sire entered in the CPT do not reflect the performance of an entire stud or ram breeder.

TRAIT LEADERS

All animals in the top 10% of the MERINOSELECT database for a trait are highlighted in blue.

See page 6 for an explanation of the MERINOSELECT percentile band tables and how you can use the percentile band tables to benchmark an animal against other animals in the database.

MATING PROGRAMME AND BREED TYPE

The sire's breed is indicated for non-Merinos on the EBV table, and whether the sire was a part of the natural or artificial insemination (AI) breeding programme (note, all sires in the 2013 and 2014 mating programmes were AI sires).

LINK SIRES

To allow comparison between animals that have been managed separately (for example, between different year groups or between the progeny from sires used in either the natural or AI breeding programmes), 'linkage' is required.

Without linkage, it is not possible to know whether the variation between the groups is due to environmental factors, rather than genetic differences.

The link sires used in the CPT connect progeny groups across years, sexes and the natural / AI mating programmes.

We have indicated in the table which sires have been used as link sires.
These sires are also listed below:

Matarae 099040, **Merinotech** 088579, **Moojepin** 120652, **Moojepin** 090781, **NZM** 110216, **NZM** 110292, **NZM** 110294, **NZM** 110349, **NZM** 110647.

HOW TO READ AN EBV TABLE

The weaning weight (WWT) EBV for this ram is 4.8. His progeny will, on average, be 2.4kg heavier than the average animal in the 1990 database, as rams only pass on half of their genetics.

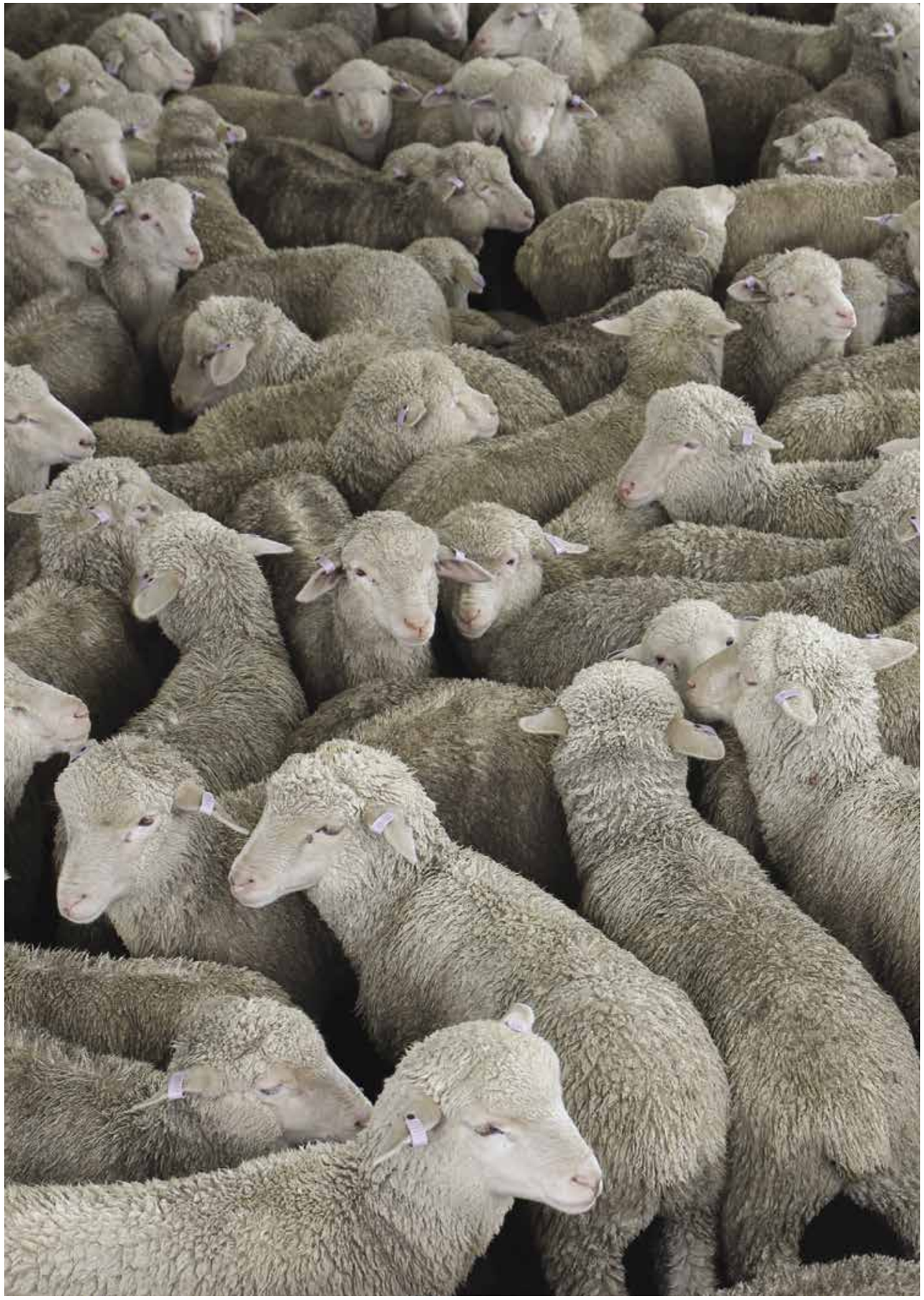
The accuracy of the post-weaning weight (PWT) EBV for this ram is 95%. This means the EBV will behave the way we expect, 95% of the time. The higher the accuracy, the more information there is available on that animal, (e.g. data from his siblings, progeny and other related animals) making us more confident in the EBV.

SIRE	MATING PROGRAMME AND BREED	WWT	PWT	YWT	AWT	YEMD
Nine Mile	AI	4.8	5.8	7.1	6.6	1.1
130019		95%	95%	95%	91%	91%
Southern X	Natural	4.9	9.3	12.5	11.0	1.4
140343	Quarterbred	90%	90%	86%	83%	75%

This ram was mated to CPT ewes via artificial insemination (AI).

If the breed type is non-Merino, it is noted.

Blue highlight shows this EBV is in the 10th percentile for this trait. That is, it is within the top 10% of animals in the database.



SIRE EBVs

2016 CPT

SIRE	MATING PROGRAMME AND BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Awapiri	Natural	2.9	2.9	5.2	4.8	0.2	-0.4	19.2	-0.7	1.1	5.7	-2.8	24	-0.1	-0.1	0.1
140027		76	77	78	74	74	69	75	82	76	78	73	54	76	71	52
Benmore	AI	-1.1	-0.2	1.6	0.6	0.9	0.2	5.7	-1.0	-1.4	8.5	6.1	7	0.2	-0.3	-0.2
T19-15		93	92	94	91	87	84	93	96	93	94	93	68	86	83	75
Benmore	AI	3.0	3.0	4.0	3.7	-1.1	-0.8	19.1	-0.9	0.7	-3.9	0.8	-23	1.2	-0.4	0.4
TC99-15		92	90	93	89	84	81	92	95	92	93	91	65	83	78	68
Cleardale	AI	5.6	10.6	14.9	12.4	3.9	2.6	22.2	1.5	0.0	24.6	-3.1	-34	-1.1	0.2	-0.2
AB 97/14	Quarterbred	94	91	91	90	87	84	89	92	89	89	86	67	88	84	74
Cleardale	AI	1.4	4.6	8.2	8.1	1.8	0.7	6.8	0.6	-1.9	5.3	2.3	9	-0.9	0.4	-0.3
L242/12		94	93	93	91	91	88	92	94	91	92	90	68	91	88	73
CPT	Natural	-2.5	-3.3	-2.4	-0.6	0.4	-0.7	-0.7	-1.5	1.7	-6.6	-4.9	-9	0.5	0.1	-0.2
18		95	91	92	90	84	76	87	83	76	79	71	46	74	67	55
CPT	Natural	-3.0	-3.5	-2.7	-2.1	0.8	-0.8	-16.2	-0.4	-1.3	-8.0	2.4	7	0.0	-0.6	0.1
45		91	92	92	91	90	86	91	94	92	93	90	68	91	89	80
CPT	Natural	-0.4	-1.0	-1.5	-1.8	0.9	-0.1	-9.6	-0.8	-0.2	-10.3	1.0	-12	0.8	-0.4	0.0
57		89	90	91	89	87	84	89	93	90	91	88	64	89	85	73
CPT	Natural	0.1	2.2	3.5	4.4	0.1	0.1	-6.2	0.3	0.2	9.8	-0.4	3	-0.9	-0.3	-0.1
80	Quarterbred	88	89	90	88	87	83	89	92	89	90	88	64	89	86	73
Earnscleugh	AI	-0.8	-1.0	-1.6	-2.6	-1.3	-0.5	-14.5	-5.3	0.0	-15.7	-8.9	-24	0.5	0.1	0.1
AS - 1383/13		97	95	97	93	91	87	97	98	97	97	95	63	84	79	66
Glenflora	Natural	4.9	8.4	11.2	12.3	4.0	2.5	-8.0	4.0	1.1	11.3	-6.2	-19	-1.8	0.2	0.0
135912	Fine wool composite	90	91	92	90	89	86	90	94	91	92	90	66	91	88	75
Glenloe	Natural	2.8	5.5	8.2	6.6	0.9	0.5	11.4	0.8	-0.9	5.5	3.2	31	-0.7	-0.1	0.0
140045	Quarterbred	72	73	74	71	69	63	72	79	72	75	70	46	73	66	46
Glenovis	Natural	1.1	3.7	8.8	9.0	1.9	1.9	-1.9	4.9	1.5	10.6	-3.5	-52	-1.4	0.0	0.3
K110-13	Corriedale	89	90	91	90	88	84	89	93	90	91	88	65	90	87	77
Ida Valley	Natural	-0.2	0.1	1.3	1.6	2.2	1.2	0.5	0.9	1.1	7.4	-0.4	-46	-0.8	0.1	-0.1
140049	Polwarth	87	88	89	87	86	81	87	92	88	89	86	63	88	85	68
Ida Valley	Natural	0.1	0.6	2.1	2.5	0.8	1.2	-6.8	0.5	-1.7	6.5	5.5	-5	-0.4	-0.6	-0.2
140501	Polwarth	90	90	91	90	89	85	90	93	90	91	89	66	91	87	75
Lockerbie	Natural	2.0	4.6	10.4	11.9	1.6	1.9	18.6	4.6	1.7	10.1	3.1	-23	-0.5	-0.1	-0.1
42/13	Corriedale	79	80	81	80	76	71	79	85	80	82	77	53	80	74	61
Longfield	AI	4.6	6.3	7.8	7.7	0.5	0.5	17.8	1.5	0.1	3.8	2.1	6	0.1	-0.3	0.2
20/14	Quarterbred	88	88	89	87	86	82	87	91	88	89	86	64	88	84	73
Longfield	AI	7.3	12.7	17.4	16.8	4.5	3.4	15.5	5.7	0.9	15.8	0.1	-34	-0.9	0.4	-0.2
S206/14	Corriedale	86	87	88	87	85	80	87	91	87	89	85	62	87	84	70
Mallochvale	Natural	2.1	5.8	11.2	13.5	0.8	1.5	6.1	4.7	3.0	11.3	-5.8	-31	-0.9	-0.1	0.1
K601-12	Corriedale	92	92	93	92	91	87	92	95	92	93	91	68	92	90	80
Matakanui	AI	1.6	1.8	3.2	-0.5	1.9	1.5	30.4	1.5	3.3	7.4	0.9	-8	0.0	0.0	0.2
F108/14	Polwarth	85	87	88	86	85	80	86	91	87	87	84	60	86	82	67
Matakanui	AI	3.8	5.2	6.8	4.3	1.8	1.5	22.9	1.3	-0.2	12.5	2.1	3	0.0	0.1	0.2
F126/14	Polwarth	84	86	87	85	83	78	85	90	85	86	82	59	85	80	60
Matarae	Natural	-5.5	-8.8	-8.7	-8.9	1.7	-0.8	-20.8	-2.8	-0.6	-19.2	3.4	-28	0.8	-0.6	0.3
099040		94	94	94	93	89	86	94	96	94	95	93	73	92	88	87

SIRE	MATING PROGRAMME AND BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Middlehurst	AI	5.4	7.6	9.8	8.5	1.0	0.9	28.0	-1.2	0.3	26.1	-5.9	5	-0.4	0.1	-0.2
150504		85	86	86	84	81	76	82	87	83	84	80	63	83	79	67
Middlehurst	AI	1.6	3.1	5.3	5.8	1.5	0.7	19.7	0.3	-1.6	20.9	2.4	14	-0.9	-0.2	0.0
150607		89	89	90	88	86	82	87	92	88	89	86	66	88	85	72
Melrose	AI	5.9	8.5	11.7	10.6	1.6	1.7	0.5	1.5	-1.0	12.7	-1.5	-80	-0.8	0.2	-0.2
9/14	Quarterbred	96	96	96	92	91	88	92	95	92	93	91	77	89	86	91
Merinotech	AI	1.9	3.0	5.3	5.0	1.6	1.1	24.6	0.6	-1.8	11.4	7.6	-39	-0.4	-0.1	0.2
088579		98	98	98	97	97	96	98	98	98	98	97	92	94	93	95
Moojepin	AI	4.7	6.9	9.9	7.0	3.9	2.5	20.1	-0.6	-0.5	27.0	-4.3	-43	-1.2	0.0	-0.3
120652		99	99	99	97	98	97	97	98	98	98	95	84	97	96	93
Moojepin	AI	6.4	8.5	11.8	12.3	1.3	0.9	12.2	0.7	-1.0	26.5	1.3	-24	-1.0	-0.3	0.3
141692		93	93	92	88	87	83	86	90	86	86	80	65	80	84	78
Muller	AI	5.0	6.2	8.2	7.5	0.0	-0.2	23.3	-0.6	1.3	2.4	-2.0	20	0.1	-0.1	0.0
WD27-14		96	95	93	91	89	85	92	95	92	92	90	67	87	83	67
Mumblebone	AI	1.8	3.1	4.0	2.6	2.5	1.3	13.1	0.4	-2.3	15.5	2.6	-31	-0.5	0.2	-0.1
130389		98	98	98	97	97	96	97	98	97	97	96	80	97	96	90
Nine Mile	AI	4.8	5.8	7.1	6.6	1.1	0.2	-1.2	-2.0	-2.1	8.1	-1.3	-19	-0.8	-0.1	-0.2
130019		95	95	95	91	91	89	92	97	95	96	90	64	86	83	72
Nine Mile	AI	3.7	5.6	8.4	9.5	0.5	0.3	-3.7	-1.3	-1.5	6.7	-1.2	-2	-0.7	0.0	0.0
130054		95	96	95	91	92	89	92	97	96	96	90	65	87	83	71
NZM	Natural	-0.9	-0.5	0.9	1.7	-0.6	-0.8	6.5	0.2	1.4	-4.6	-1.3	26	0.2	-0.3	-0.1
110349		96	96	95	95	92	90	95	97	95	96	95	76	95	92	92
NZM	Natural	-3.7	-4.3	-2.8	-0.4	1.5	0.1	-1.8	-1.8	2.1	0.6	-4.7	27	0.3	-0.1	0.0
110219		94	94	94	94	90	88	94	96	94	95	93	75	92	89	89
NZM	Natural	-2.9	-5.9	-6.0	-7.3	-0.3	-1.4	-14.9	-2.5	-0.9	-15.6	6.0	-9	0.8	-0.3	0.3
110647		95	95	95	94	92	89	94	96	95	95	94	75	93	91	90
NZM	Natural	-4.7	-5.6	-3.8	-1.9	-0.6	-0.9	-14.4	-2.9	-0.2	-7.0	-3.4	-29	-0.2	-0.3	0.2
110294		96	96	96	96	93	90	96	97	96	96	95	82	94	90	92
NZM	Natural	-2.0	-1.0	0.9	2.0	1.6	0.4	1.6	-1.2	-1.1	12.2	0.6	12	-0.6	0.0	-0.1
110292		93	93	93	92	90	87	93	95	93	94	92	71	92	89	82
Otematata	Natural	0.8	-0.1	1.2	0.9	-0.2	-1.1	11.7	-1.5	0.3	-9.4	1.5	21	0.8	-0.2	0.0
AD3-28		83	84	85	82	80	75	83	88	83	85	81	58	84	79	58
Otematata	Natural	-1.7	-2.8	-2.3	-1.2	-1.0	-1.2	-6.3	-1.0	0.5	-8.6	0.0	-13	0.5	-0.2	0.6
AD2-45		92	93	93	91	91	88	92	95	92	93	91	69	93	90	78
Rokeby	AI	-1.3	-3.1	-3.0	-2.7	-1.1	-1.4	-15.3	-2.8	0.3	-19.7	0.1	38	1.3	-0.1	0.2
2111/02		80	81	82	80	77	72	80	86	80	82	78	56	80	75	62
Southern X	Natural	3.4	4.7	8.0	7.5	2.5	1.6	-0.4	0.4	-1.8	18.7	-2.2	-43	-1.2	-0.4	-0.5
140230	Quarterbred	93	94	92	90	87	83	88	93	89	91	85	63	87	83	72
Southern X	Natural	4.9	9.3	12.5	11.0	1.4	1.2	18.5	1.8	-0.8	19.6	-2.3	-36	-0.8	-0.2	-0.4
140343	Quarterbred	90	90	86	83	75	71	78	83	77	79	69	55	69	64	64
Southern X	AI	4.8	9.0	13.5	12.3	2.4	1.7	19.2	2.2	-2.2	17.9	1.2	-56	-1.0	0.2	-0.5
140440	Quarterbred	96	96	95	93	92	90	92	95	93	93	90	71	91	88	80
Strathblane	AI	4.0	7.3	9.4	9.5	1.8	1.5	9.4	4.4	2.8	15.0	-2.7	-49	-1.2	0.5	-0.2
494-14	Corriedale	82	83	84	82	80	75	82	88	83	85	81	57	83	78	59
Trigger Vale	AI	6.9	9.4	11.9	12.0	1.5	1.7	13.9	0.8	-2.2	13.9	1.5	-29	-1.6	-0.4	-0.1
140477		98	98	98	96	96	94	96	98	97	97	96	78	98	97	94
Wallaloo Park	AI	4.3	3.6	5.4	3.3	1.1	0.4	5.1	-1.7	-1.1	8.7	0.5	-7	-1.1	0.1	-0.4
140261		98	98	98	91	96	94	92	97	96	96	89	69	94	91	64

SIRE EBVs

2015 CPT

SIRE	MATING PROGRAMME AND BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Armidale	Natural	4.2	5.1	7.5	8.7	1.0	0.4	13.2	-0.4	0.5	-2.3	0.2	5	0.5	-0.4	0.0
111900		92	92	89	91	86	78	91	95	92	92	90	66	87	63	87
Armidale	Natural	1.5	1.6	3.0	0.7	-0.1	-0.4	11.5	-1.0	0.6	3.4	-3.3	-34	0.3	-0.3	0.2
131528		89	89	86	88	82	75	88	92	88	89	87	64	83	62	83
Benmore	AI	0.4	0.8	2.1	2.6	1.4	0.4	-0.9	-2.0	-1.8	-1.8	4.3	-45	-0.3	0.0	0.1
T29/13		96	93	96	93	90	88	94	96	94	95	93	65	80	58	79
Benmore	AI	1.5	2.8	4.5	4.3	0.5	0.2	3.4	-0.7	-1.8	10.8	4.3	-7	-0.3	0.1	0.1
T52/13		96	94	97	93	91	88	95	97	95	96	95	66	81	56	80
Blairich	AI back up ram	-0.6	-0.5	0.8	0.5	-0.5	-1.1	-8.6	-2.6	-1.6	-15.6	5.1	-1	1.2		0.3
120671		92	92	89	92	87	77	92	95	92	93	91	66	85		87
Cleardale	AI	3.3	5.3	7.5	6.3	2.4	1.2	22.4	1.9	-0.1	17.1	-1.3	-9	-0.6	0.1	-0.1
D00016		92	92	91	90	85	80	88	92	88	89	86	64	83	62	83
Cleardale	AI	-0.2	0.9	3.8	3.5	0.4	-0.2	13.3	1.7	0.0	4.3	2.9	-7	0.1		-0.2
S00536		94	92	91	91	86	80	92	95	92	89	87	60	81		80
Earnscleugh	Natural	1.6	2.9	5.3	5.2	1.0	0.5	19.3	-0.3	-0.8	4.8	1.0	-12	-0.1	-0.2	0.4
134006		96	95	96	94	91	85	96	97	96	97	94	72	86	68	86
Eskhead	Natural	0.7	1.5	2.7	2.1	0.7	0.3	-2.8	-0.3	-1.5	7.1	1.2	0	-0.3	-0.2	0.3
158/12		92	92	87	90	82	71	89	92	89	90	87	55	89	81	88
Eudunda	Natural	4.2	8.3	12.0	11.5	2.5	2.6	16.9	7.4	0.6	26.8	2.2	-7	-1.5	-0.1	-0.2
902/10	Corriedale	92	93	89	92	85	74	92	94	92	93	91	65	88	66	88
Glenmore	AI	0.5	-0.1	0.3	1.5	-0.9	-1.1	8.6	-1.4	1.4	-2.0	-2.9	18	0.5		0.1
090092		85	87	89	87	86	81	91	93	90	86	84	52	77		75
Glenmore	AI	0.6	0.7	1.5	1.4	0.6	-0.7	4.4	-1.9	0.2	-5.1	-0.5	5	0.8	0.3	-0.1
90224		88	89	87	90	85	75	93	95	93	89	87	55	80	51	79
Glenovis	Natural	5.7	10.9	15.0	16.6	2.5	2.9	6.1	7.8	3.6	10.4	-2.0	-50	-1.2	0.4	-0.2
242/07	Corriedale	90	91	87	90	83	71	89	93	90	91	88	61	86	62	85
Glentanner	AI	-1.4	-2.1	-2.0	-2.3	1.1	-0.1	15.1	-0.9	-0.6	5.1	1.7	44	0.5	0.1	-0.2
11TW31		97	93	91	92	89	79	91	92	88	89	85	61	80	51	80
Glentanner	Natural	-1.6	-1.2	1.0	2.6	0.7	-0.3	10.8	-0.3	-1.2	5.7	3.8	-6	-0.1	-0.1	0.2
12NR19		96	91	90	90	85	74	87	83	76	79	70	44	70	44	64
Grays Hills	AI	0.0	-0.8	0.8	-1.3	0.4	0.0	14.3	-2.2	0.3	-8.9	-0.5	-7	0.6		0.2
120218		93	92	93	90	88	83	92	97	96	96	87	58	79		79
Ida Valley	AI	1.3	1.3	0.8	0.5	0.4	0.5	13.6	1.1	1.4	14.7	-0.7	-8	-0.2		0.1
13P039	Quarterbred	94	95	90	91	88	77	94	96	95	86	85	51	76		73
Longfield	AI	2.8	3.6	6.4	7.1	0.5	0.9	11.7	1.1	-0.6	10.0	2.6	22	-0.5	-0.2	0.3
130281	Quarterbred	93	93	89	90	85	76	91	94	91	92	90	71	82	43	88
Malven Downs	Natural	0.0	1.5	2.1	1.7	0.1	-0.5	4.7	-0.8	0.6	-5.7	1.9	16	0.4		0.2
090009		73	74	71	73	63	53	72	80	73	75	69	39	68		62
Maryburn	Natural	-1.2	-0.3	0.5	-1.3	-0.6	-0.9	14.6	-1.4	1.7	-0.7	-6.7	66	0.7	0.2	0.6
39/13		87	88	83	86	78	66	85	90	86	87	84	53	81	50	80
Maryburn	Natural	0.7	2.4	3.3	2.6	0.3	-0.3	0.7	-1.4	0.4	-8.6	-1.6	8	0.4	0.0	-0.2
73/10		92	93	88	92	85	74	92	95	92	93	91	68	87	57	88
Matakanui	AI	0.8	0.3	0.4	-2.3	2.0	1.2	9.7	1.3	0.1	0.5	3.8	-10	0.1		-0.1
F63/13	Polwarth	86	87	84	86	80	70	85	91	86	87	83	57	78		77
Matakanui	AI	1.4	0.2	-0.8	-3.1	1.4	0.9	5.9	0.4	0.0	7.5	0.9	-8	-0.4		0.1
MIL44/13	Polwarth	96	94	93	91	88	82	92	94	90	89	86	61	80		79
Matangi	AI back up ram	-0.1	-1.0	-2.2	-2.4	-1.9	-1.7	-7.1	-1.5	-0.7	-14.2	2.8	7	0.3	0.0	0.0
19/11		89	89	85	88	82	73	88	92	89	90	87	67	83	46	82

SIRE	MATING PROGRAMME AND BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Matangi	AI back up ram	-0.6	0.3	1.4	1.5	-1.9	-0.8	-8.1	-2.0	-0.6	-10.9	-0.3	33	0.6		0.3
105/11		80	80	77	81	71	61	80	86	80	82	77	41	73		70
Matarae	AI	-1.3	-2.6	-1.6	-1.2	0.8	-1.3	-12.0	-1.7	-2.6	-9.3	8.4	48	0.5		0.2
100271		82	83	81	81	75	65	87	96	94	94	83	52	74		71
Matarae	AI back up ram	-5.5	-8.8	-8.7	-8.9	1.7	-0.8	-20.8	-2.8	-0.6	-19.2	3.4	-28	0.8	-0.6	0.3
099040		94	94	94	93	89	86	94	96	94	95	93	73	92	88	87
Melrose	AI	6.0	8.6	14.2	15.9	4.4	3.0	-5.2	4.4	2.2	-6.1	-3.9	-36	-0.8	0.0	0.4
130398	Corriedale	95	94	93	92	88	83	92	95	93	93	91	76	82	51	90
Melrose	AI	6.5	8.6	11.8	9.9	1.9	1.9	22.3	1.1	2.0	24.5	-3.7	-30	-1.3	0.0	-0.5
140094	Quarterbred	97	97	96	92	91	89	93	95	93	94	92	81	82	65	93
Merinotech	AI	5.7	7.4	12.4	11.6	0.6	0.2	30.1	-0.6	-0.7	3.0	2.9	-36	-0.3	-0.6	0.6
122295		98	98	98	95	97	95	97	98	97	97	97	94	92	88	95
Middlehurst	AI	1.0	-0.7	-0.1	1.5	0.0	-0.5	12.6	-1.6	-1.0	7.6	1.4	59	-0.3	0.3	0.0
130203		96	96	95	92	91	85	90	95	92	92	86	61	81	55	78
Middlehurst	AI	0.9	-1.0	-1.3	-0.4	-1.3	-1.5	27.1	-1.2	1.3	8.1	1.6	-8	0.5	0.3	0.1
130364		96	96	94	91	90	84	89	94	91	92	86	59	79	44	77
Muller	AI	-0.9	-1.7	-1.8	-4.6	-0.8	-1.2	23.4	-1.4	-0.2	6.8	3.9	-3	0.1		0.2
D62/12		96	92	89	91	87	77	92	95	92	92	90	55	77		75
Muller	AI & Natural (link)	0.1	0.0	0.8	-0.5	-0.7	-0.9	15.7	-1.3	-0.8	1.5	3.4	10	0.3	0.3	-0.1
D82/12		92	92	88	91	85	74	91	94	92	93	90	67	86	50	87
Nine Mile	AI	4.2	6.2	8.1	7.6	1.2	0.4	7.1	-1.9	-1.1	12.2	-7.6	-14	-0.6	-0.1	-0.1
130005		94	94	92	90	87	84	91	96	94	95	88	64	80	54	80
Nine Mile	AI	2.0	4.2	6.9	6.1	3.4	1.5	-11.8	-0.7	-1.2	16.1	-3.5	-5	-1.0	-0.3	-0.1
130047		96	96	94	92	90	88	93	97	96	97	91	61	82	55	81
Nine Mile	AI	3.6	5.0	8.4	7.5	1.8	0.6	11.2	-0.8	-2.1	12.9	0.0	8	-0.5	-0.2	0.2
140881		94	95	92	91	89	85	92	96	94	95	89	67	83	62	81
Nokomai	Natural	2.8	6.1	9.1	8.9	2.7	1.9	5.6	2.2	0.8	13.8	-4.7	-39	-1.2	0.2	-0.1
110214	Quarterbred/Halfbred	93	94	89	93	87	75	93	95	93	94	92	67	89	66	90
NZM	AI back up ram	-2.7	-4.3	-6.4	-5.3	-1.0	-1.7	-11.4	-1.6	-2.5	-14.4	6.7	49	0.3		0.2
110210		86	87	83	86	78	69	86	92	88	87	84	53	79		78
NZM	AI back up ram	-3.7	-4.3	-2.8	-0.4	1.5	0.1	-1.8	-1.8	2.1	0.6	-4.7	27	0.3	-0.1	0.0
110219		94	94	94	94	90	88	94	96	94	95	93	75	92	89	89
NZM	AI back up ram	-2.0	-1.0	0.9	2.0	1.6	0.4	1.6	-1.2	-1.1	12.2	0.6	12	-0.6	0.0	-0.1
110292		93	93	93	92	90	87	93	95	93	94	92	71	92	89	82
NZM	AI back up ram	-4.7	-5.6	-3.8	-1.9	-0.6	-0.9	-14.4	-2.9	-0.2	-7.0	-3.4	-29	-0.2	-0.3	0.2
110294		96	96	96	96	93	90	96	97	96	96	95	82	94	90	92
NZM	AI back up ram	-0.9	-0.5	0.9	1.7	-0.6	-0.8	6.5	0.2	1.4	-4.6	-1.3	26	0.2	-0.3	-0.1
110349		96	96	95	95	92	90	95	97	95	96	95	76	95	92	92
NZM	AI back up ram	0.9	-0.3	-1.5	-4.6	0.9	0.2	9.5	-0.5	-0.2	2.8	4.8	-2	0.0		0.1
110500		84	85	81	83	76	64	85	90	86	86	82	58	78		76
NZM	AI back up ram	-2.9	-5.9	-6.0	-7.3	-0.3	-1.4	-14.9	-2.5	-0.9	-15.6	6.0	-9	0.8	-0.3	0.3
110647		95	95	95	94	92	89	94	96	95	95	94	75	93	91	90
Roseville Park	AI	2.3	1.7	3.0	2.6	-3.7	-1.9	21.5	-1.9	-0.4	1.4	2.1	27	0.5	0.5	0.7
090014		98	98	98	97	97	96	98	99	98	97	97	94	95	93	90
Strathblane	AI	0.5	2.4	3.9	3.9	0.6	0.9	5.3	4.6	3.0	9.3	0.2	-45	-0.8		0.0
120/13	Corriedale	86	87	83	86	79	67	86	91	87	88	85	55	80		79
The Gums	AI	-1.0	-0.5	4.3	3.8	1.7	2.0	2.8	2.5	1.7	12.2	-4.3	-2	-0.9		0.3
132034	Halfbred	94	92	89	90	85	75	93	95	92	93	86	56	79		77
The Gums	AI	0.8	1.9	7.0	7.9	2.4	1.9	-3.3	2.5	0.9	11.9	-3.8	-21	-1.0		0.0
132037	Halfbred	91	91	90	90	87	78	92	95	92	93	87	55	80		79

SIRE EBVs

2014 CPT

SIRE	BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Armidale		1.9	1.7	3.2	3.4	-1.1	-0.5	19.8	-0.9	1.8	-4.0	-4.9	13	0.8	0.0	0.6
121938		93	93	92	90	84	79	90	93	90	93	85	68	80	44	80
Awapiri		3.8	4.1	4.1	2.9	0.0	-0.2	5.2	-0.1	0.3	0.6	5.9	-3	0.0	0.0	-0.2
090025		83	84	80	83	75	65	82	88	83	84	80	52	77	44	75
Benmore		1.1	0.7	1.1	1.1	-1.0	-0.8	5.5	-2.4	-0.5	-0.9	0.1	68	0.8	0.1	0.3
12N952		90	91	94	91	88	84	92	95	92	92	90	69	82	47	79
Blairich		-0.7	-2.2	-2.5	-2.7	-1.2	-1.8	2.7	-2.6	0.1	-11.8	-1.7	56	0.7	0.2	0.4
120310		96	97	97	94	93	88	95	98	97	92	91	77	84	68	83
Blairich		1.8	1.4	2.1	1.8	-0.2	-0.8	18.1	-1.4	0.2	-8.1	-0.5	97	0.5	0.2	0.0
110175		96	97	97	93	93	88	93	98	97	90	90	70	81	39	81
Cleardale		2.5	5.2	7.2	9.1	0.5	1.0	14.0	2.6	-0.9	20.3	4.5	11	-0.8	0.2	-0.3
11L130		91	91	89	91	86	78	91	94	91	92	90	75	85	52	85
Cleardale		5.8	7.9	9.2	12.2	0.5	1.0	11.3	2.3	-1.6	34.6	-0.8	-31	-1.4	0.0	-0.3
13AB15	Quarterbred	95	95	94	93	90	85	92	94	92	93	90	77	86	66	89
CPT		2.7	4.3	6.4	7.5	0.2	0.4	8.8	1.2	-1.0	5.6	4.3	-41	0.0	0.3	0.3
14		94	93	90	92	87	77	91	94	91	92	90	78	86	52	86
Earnscleugh		3.2	2.9	6.5	5.7	1.3	1.3	9.2	0.9	-0.1	18.2	1.7	7	-0.2	-0.1	0.0
95022		98	98	98	97	96	92	98	99	98	98	98	84	86	57	90
Glenmore		1.7	0.5	0.7	2.7	-0.5	-1.1	15.2	-0.1	-0.4	4.9	3.9	28	0.5	0.3	0.4
070403		88	89	88	87	84	80	89	92	88	89	86	69	81	44	82
Glen Orkney		0.6	0.9	2.0	3.0	-0.1	-0.3	12.8	-0.8	-1.1	14.6	1.1	9	-0.1	-0.3	0.1
110138		96	95	95	93	90	86	91	93	90	90	87	71	83	52	91
Glenovis		3.6	7.1	10.7	9.4	2.2	2.2	17.1	4.9	2.6	6.5	-2.9	11	-0.2	-0.1	0.5
12K214	Corriedale	89	89	85	89	82	72	88	92	89	90	87	69	83	48	82
Ida Valley		1.1	0.6	2.0	1.4	1.4	0.5	9.0	0.3	-0.5	5.8	-0.6	4	-0.1	0.0	0.1
00Jacob63	Quarterbred	95	95	90	92	87	76	91	92	93	90	88	66	82	42	80
Leahcim		3.3	3.8	5.8	5.6	1.5	0.6	19.4	-0.9	0.1	9.4	-3.8	152	-1.0	-0.3	-0.4
123170		95	95	96	91	94	92	92	96	95	91	86	71	89	60	85
Longfield		5.8	9.5	13.3	12.5	3.6	3.0	12.2	5.2	1.6	14.7	1.2	-67	-1.3	0.0	0.1
11EE18	Corriedale	88	89	85	88	82	72	88	92	89	90	87	72	83	47	82
Maryburn		0.8	2.3	3.9	3.4	0.7	0.1	1.9	-1.2	0.5	-1.0	-3.0	-58	-0.1	-0.2	0.1
120073		86	87	83	85	79	67	86	90	86	88	85	73	80	42	79
Matakanui		1.9	2.4	3.4	-0.3	1.3	1.3	13.3	-0.4	-0.2	1.0	5.4	77	0.3	0.2	0.4
110375	Polwarth	97	96	96	94	92	89	94	96	94	91	90	72	83	43	88
Matakanui		3.4	4.2	5.5	4.6	0.6	1.1	28.5	1.3	0.8	11.4	3.2	49	0.0	0.1	0.3
12F236	Polwarth	96	94	93	91	88	83	91	93	90	87	85	58	79	40	76
Matarae		-0.4	-0.8	-0.3	-0.9	0.8	-1.2	-10.4	-2.5	-2.5	-7.6	5.9	61	0.1		0.0
070017		78	79	75	77	69	58	77	84	78	80	75	54	71		67

SIRE	BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Melrose		4.9	6.0	8.3	7.8	2.6	2.3	2.9	5.1	1.1	6.5	1.5	-59	-0.9	-0.1	0.1
100217	Corriedale	97	97	95	95	92	87	93	96	95	95	92	85	84	59	94
Middlehurst		1.5	1.3	2.3	4.5	-0.3	0.3	11.7	-1.2	-1.1	11.6	1.1	-16	-0.4	0.3	0.1
120248		95	94	92	92	89	81	91	96	94	90	88	74	82	57	80
Middlehurst		0.5	1.1	3.0	6.5	-1.1	-0.9	20.4	-1.6	-0.7	19.1	2.6	4	-0.5	0.0	-0.4
120371		94	94	92	92	89	81	91	95	93	92	89	71	84	55	82
Moojepin		5.7	7.4	10.7	11.3	1.3	0.8	4.0	-0.2	-2.8	16.6	2.0	-29	-1.4	-0.2	-0.3
090781		98	98	98	97	96	95	96	98	96	97	96	88	95	95	95
Moojepin		5.7	7.4	11.5	10.0	3.3	2.2	16.0	0.5	-0.9	25.4	-2.0	-49	-1.4	-0.6	-0.4
100248		98	98	98	97	98	97	98	98	98	98	97	92	96	96	96
Moojepin		4.7	6.9	9.9	7.0	3.9	2.5	20.1	-0.6	-0.5	27.0	-4.3	-43	-1.2	0.0	-0.3
120652		99	99	99	97	98	97	97	98	98	98	95	84	97	96	93
Moutere		1.9	2.1	6.4	4.7	0.8	0.3	22.2	-1.1	0.6	-7.6	1.4	11	0.4	0.0	-0.1
124660		96	96	95	93	91	89	95	96	94	93	91	77	86	65	86
Muller		4.4	4.4	5.6	2.6	0.1	0.4	26.6	-1.0	0.2	-1.5	-2.0	-28	0.2	-0.3	0.0
12MD01		99	98	98	98	97	96	98	98	98	98	97	88	95	93	91
Muller		2.4	2.6	3.5	4.0	-0.5	-1.0	20.7	-0.5	-0.6	5.9	7.9	6	-0.1	-0.1	-0.1
120A20		89	90	87	89	83	74	89	93	90	90	88	74	83	50	83
Mumblebone		3.4	4.2	6.6	6.6	1.4	1.5	3.5	-0.3	-2.1	12.7	7.0	-2	-0.8	-0.3	0.2
120431		97	97	97	96	96	94	94	97	95	96	91	87	92	88	89
Nerstane		1.3	1.8	2.9	3.8	-1.4	-1.8	14.9	-1.8	-0.6	-1.3	-0.3	39	0.4	0.0	0.0
080290		98	98	98	97	94	92	97	98	97	97	95	90	92	89	90
Nine Mile		3.9	3.8	5.0	5.2	1.8	0.6	0.1	-2.2	-0.7	-5.3	0.7	89	-0.3	-0.1	0.1
120455		95	94	93	91	88	84	92	96	95	95	89	70	81	58	79
NZM		-3.2	-1.6	0.1	-1.4	0.8	0.4	8.9	-0.4	0.3	-6.5	1.4	44	1.0	-0.4	0.3
110183		88	89	85	88	82	71	88	92	88	90	87	71	83	46	82
NZM		0.6	-0.1	0.5	-1.1	-0.5	-0.6	18.0	0.5	-1.5	5.4	12.7	103	0.1	0.0	-0.2
110195		88	89	85	87	81	70	88	92	88	89	86	73	82	41	82
NZM		-2.8	-4.0	-4.5	-4.1	0.8	-0.7	-8.0	-0.6	-1.8	-15.3	7.9	-12	0.9	0.0	0.4
110196		88	88	85	87	81	71	87	92	88	89	86	74	82	44	81
NZM		-4.7	-5.6	-3.8	-1.9	-0.6	-0.9	-14.4	-2.9	-0.2	-7.0	-3.4	-29	-0.2	-0.3	0.2
110294		96	96	96	96	93	90	96	97	96	96	95	82	94	90	92
NZM		-1.2	-1.7	-0.3	-0.1	1.4	-0.2	4.1	1.3	1.1	-7.9	3.4	31	0.7	0.2	0.1
110365		94	95	93	91	86	77	90	92	89	90	87	71	83	47	87
NZM		-0.1	0.2	0.8	-1.1	2.1	1.1	10.9	0.8	1.0	0.6	1.9	9	0.3		0.2
110492		86	87	83	86	79	68	86	90	86	88	84	68	80		79
NZM		-4.1	-6.8	-6.1	-5.7	-0.3	-0.9	-28.5	-2.9	-1.9	-20.2	6.0	17	1.0	0.0	0.0
110662		84	85	81	83	77	68	83	88	84	85	81	63	78	50	76
Stonehenge		1.2	2.3	3.0	4.4	-1.3	-0.6	1.2	-2.3	1.5	-11.4	-8.4	32	1.0	0.1	0.7
110035		86	87	83	86	79	69	86	90	87	88	85	67	80	44	78
Strathblane		2.0	5.7	7.8	8.0	2.6	2.2	0.7	4.4	-0.4	13.1	5.4	-59	-1.0	0.0	-0.1
110654	Corriedale	90	91	87	90	84	74	90	93	90	91	89	74	85	54	84

SIRE EBVs

2013 CPT

SIRE	BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Armidale		1.7	2.0	3.2	1.8	0.5	0.3	7.8	-1.5	-1.0	-8.4	3.3	16	0.3	-0.1	0.0
110631		94	94	91	91	87	81	86	95	92	93	89	67	60	86	85
Armidale		0.2	1.1	2.9	2.5	0.1	-0.5	6.6	-2.1	0.5	-10.2	-4.1	44	0.5	0.0	0.5
111735		96	95	92	92	89	83	87	95	92	92	89	69	60	87	86
Awapiri		0.6	1.4	0.7	-0.2	-1.4	-0.9	3.1	-1.3	0.3	-2.7	0.8	16	0.0	0.0	-0.1
100085		86	87	84	86	79	68	76	90	86	87	84	60	53	81	78
Benmore		0.9	0.0	-0.2	0.0	-0.3	-1.4	-3.6	-1.5	-0.8	-8.5	6.9	51	0.6	0.0	0.6
091053		96	95	97	95	93	91	97	98	97	97	97	68	68	87	83
Benmore		1.9	2.5	4.1	4.6	-0.3	-0.7	5.0	-1.9	0.4	3.6	2.2	38	0.3	0.0	0.3
100969		95	94	97	94	92	91	95	97	96	96	95	63	61	82	79
Blackforest		0.4	2.2	3.5	1.8	0.4	0.7	-3.1	-1.9	-0.8	-5.4	-3.4	1	0.6	0.0	0.6
080572		88	89	85	87	81	70	78	92	88	89	86	64	53	84	81
Blairich		0.4	-0.2	0.4	0.1	-2.1	-1.8	6.7	-1.9	-1.0	-11.1	1.9	21	0.3	0.2	0.8
110106		93	94	94	92	89	83	85	97	96	89	89	69	61	85	82
CPT		2.4	3.9	4.7	3.9	1.2	1.0	-4.0	-1.6	-0.4	-5.5	0.1	-18	0.5	0.0	-0.2
4		89	90	86	88	83	71	79	93	89	90	88	66	55	86	83
Cleardale		2.1	3.1	5.0	4.9	1.3	0.0	8.8	-0.1	-1.2	1.4	4.1	36	-0.4	-0.2	-0.4
100127		95	95	94	94	91	88	91	95	93	91	89	66	68	86	90
Earnscleugh		1.5	1.0	3.1	2.7	-1.2	-0.7	18.6	-0.7	-0.8	8.9	0.6	25	0.4	0.2	-0.1
083006		97	96	96	95	93	88	97	98	97	97	96	76	67	88	86
Earnscleugh		2.2	3.6	7.0	5.3	0.9	0.2	8.4	-1.4	-0.8	4.8	-3.8	2	0.2	-0.1	0.1
114323		96	96	96	94	92	86	96	97	96	97	95	76	74	89	87
Glenloe		1.2	3.9	6.7	5.9	1.3	0.8	-6.8	-0.1	-1.7	-9.1	2.7	10	0.1	0.3	0.1
092888	Dohne Merino	89	90	86	88	83	71	79	93	89	90	88	66	51	87	83
Glenmore		0.2	-0.4	-0.8	1.4	-1.0	-1.5	5.0	-0.3	0.5	-1.0	2.7	-23	0.8	0.2	0.1
020016		91	91	90	91	87	82	92	95	94	91	90	69	71	85	84
Glen Orkney		2.2	3.2	3.9	5.2	-0.9	-0.3	13.6	-0.2	-0.6	10.2	0.4	19	-0.1	-0.2	-0.3
100200		97	96	96	95	93	86	95	97	96	92	91	79	65	88	94
Glen Orkney		0.9	0.0	0.5	0.6	0.4	-0.3	20.7	-0.6	3.0	15.7	-2.3	-10	-0.2	0.0	-0.3
110184		96	95	95	93	91	83	92	96	94	91	90	69	60	87	93
Glentanner		-1.8	-2.5	-1.6	0.0	-0.1	-0.8	15.3	-0.1	0.4	0.8	0.4	55	0.4	0.1	-0.1
08TW20		96	95	93	94	90	81	88	93	89	91	87	65	67	85	83
Glentanner		-0.3	-0.2	1.2	2.2	0.2	-0.7	13.6	0.1	-1.1	-1.4	5.0	13	0.0	-0.3	0.1
10UM18		91	91	89	91	84	75	84	93	90	90	88	69	66	86	83
Grays Hills		2.9	2.9	5.0	0.7	0.3	0.6	20.0	-1.2	0.2	4.4	0.5	-30	-0.2	0.2	0.3
100506		97	98	98	96	95	92	94	98	97	98	94	75	69	89	94
Grays Hills		3.1	4.0	5.9	3.0	1.2	0.4	21.1	-0.9	0.4	4.4	-4.5	25	0.1	0.1	-0.3
110149		91	92	93	91	88	81	87	96	91	95	87	64	63	84	81

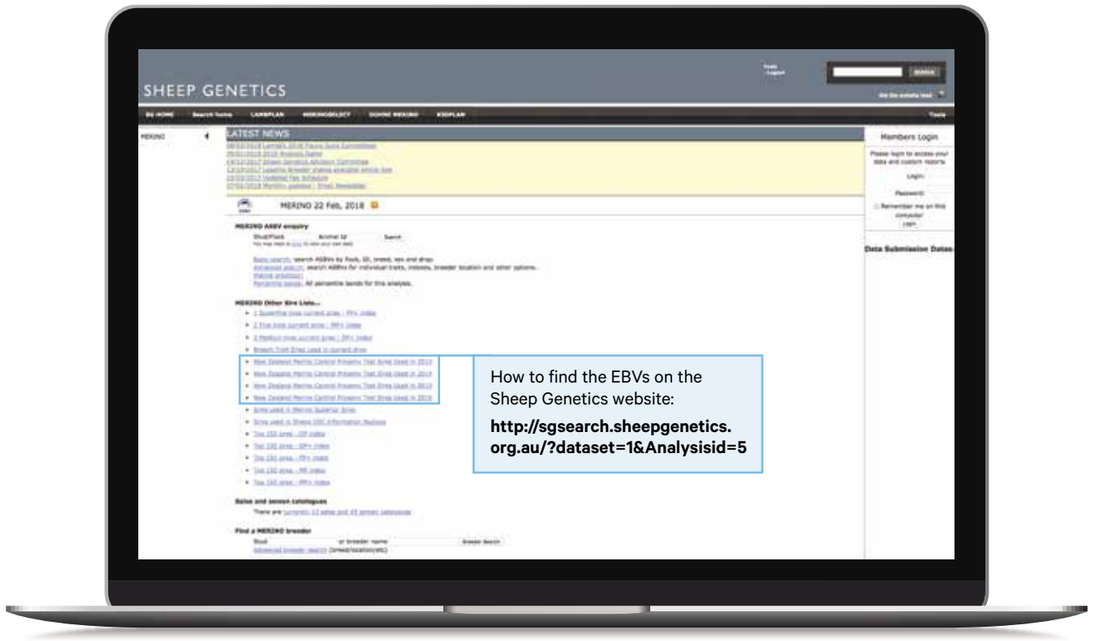
SIRE	BREED	WWT	PWT	YWT	AWT	YEMD	YFAT	YCFW	YFD	YFDCV	YSL	YSS	YWEC	EBWR	EBCOV	LDAG
Koonwarra		0.3	1.2	2.1	1.0	0.5	-0.6	6.5	0.1	2.3	-8.8	-0.7	9	0.0	-0.1	0.0
3JSN14		87	88	85	87	80	69	76	91	87	88	85	61	52	84	80
Longfield		4.9	9.7	14.8	14.8	3.5	3.5	-6.4	2.3	-0.9	2.4	0.0	-44	-0.5	0.0	-0.1
110711	Quarterbred	90	91	88	90	84	76	83	93	90	91	88	68	71	87	84
Melrose		6.8	9.0	13.9	14.7	2.3	2.3	-2.9	4.3	1.9	-2.9	-3.5	-33	-0.8	0.0	0.2
080361	Corriedale	98	98	96	96	93	90	93	97	96	96	93	86	71	85	95
Merinotech		1.9	3.0	5.3	5.0	1.6	1.1	24.6	0.6	-1.8	11.4	7.6	-39	-0.4	-0.1	0.2
088579		98	98	98	97	97	96	98	98	98	98	97	92	94	93	95
Middlehurst		0.4	0.4	2.0	3.3	1.1	-0.1	2.8	-1.9	0.6	9.1	-7.4	69	-0.4	0.1	0.0
100103		92	94	93	92	89	86	85	95	93	91	89	70	69	86	83
Moojepin		5.7	7.4	10.7	11.3	1.3	0.8	4.0	-0.2	-2.8	16.6	2.0	-29	-1.4	-0.2	-0.3
090781		98	98	98	97	96	95	96	98	96	97	96	88	95	95	95
Moojepin		5.3	6.1	8.4	8.5	2.6	1.8	5.0	0.1	-1.6	24.0	-2.4	-40	-1.6	-0.3	-0.3
110530		98	98	97	96	96	95	96	98	97	97	95	83	85	91	94
Moojepin		6.0	8.0	10.6	10.1	2.7	1.7	8.9	0.9	-0.9	26.3	-1.3	-22	-1.6	-0.5	-0.3
110669		98	97	97	95	96	94	92	97	96	97	93	74	75	89	87
Muller		2.4	3.8	4.2	3.8	0.4	-0.3	11.3	0.1	-0.5	-1.5	2.9	31	0.4	0.1	-0.1
090088		90	91	88	90	84	75	82	93	90	91	89	67	65	87	84
Muller		1.7	2.4	3.2	2.9	0.0	-1.0	11.5	-0.4	-1.6	5.3	5.7	33	0.0	0.0	-0.7
100002		88	89	87	89	83	74	81	92	89	89	87	66	62	85	81
Moutere		1.5	1.1	2.9	2.6	-1.1	-0.4	11.5	-1.4	2.3	1.0	-8.7	-8	-0.1	-0.2	0.6
082251		95	94	93	92	90	86	93	96	93	94	92	68	68	88	85
Nine Mile		1.8	2.8	4.9	4.4	1.4	0.7	11.2	-1.2	-1.8	2.0	3.6	60	0.0	0.3	0.2
090015		97	97	96	94	93	91	92	97	96	97	92	75	73	87	89
Nine Mile		-0.6	0.1	0.7	-0.1	0.8	0.2	0.2	-1.7	-2.0	-0.4	1.1	21	-0.4	0.1	0.4
110189		96	96	94	93	90	86	88	97	96	96	92	70	65	88	85
Nine Mile		-1.6	-1.8	-0.1	-1.2	-0.6	-0.4	5.6	-2.7	-0.4	4.2	1.7	73	0.0	0.1	0.2
110196		96	96	93	91	89	85	88	97	96	97	90	68	58	85	82
Tara Park		-0.1	1.0	3.6	2.1	-0.2	-0.7	9.1	-0.8	0.2	-2.0	-1.7	70	0.3	0.2	0.0
000685		91	92	89	91	85	76	83	94	91	92	90	70	69	88	86
The Glen		1.2	1.6	1.9	1.1	-1.3	-1.4	13.8	-1.7	0.1	7.8	-1.3	49	0.2	-0.1	0.6
110065		91	92	90	92	87	80	86	95	92	92	90	72	70	89	86
The Glen		-0.1	-0.3	1.1	1.3	0.3	-0.2	8.0	-0.7	1.6	-4.3	-3.0	5	0.3	0.0	-0.1
110207		91	92	90	91	87	78	85	95	92	92	90	69	63	89	86
The Gums		2.0	0.8	3.3	1.3	-0.2	-0.1	16.5	-0.3	0.1	-10.6	1.2	38	0.2	-0.2	0.3
101861		94	94	92	92	89	83	90	94	92	92	89	66	66	85	85
The Gums		1.7	1.5	3.6	3.0	0.2	-0.1	12.2	-0.5	1.1	1.1	-1.3	27	0.0	-0.1	0.3
110207		87	88	87	88	83	73	86	92	89	90	83	55	51	77	72
The Gums		-2.0	-2.7	-1.6	-1.0	-0.5	-1.0	-1.4	-1.0	0.5	-3.6	-2.6	53	0.3	0.3	0.2
110703		91	92	89	91	85	76	84	94	91	92	90	70	71	89	86
Trigger Vale		3.9	4.5	6.4	6.4	1.8	1.0	6.4	0.1	-0.4	10.0	3.2	-27	-0.4	0.0	-0.3
110839		98	98	97	96	95	94	95	97	96	96	93	77	95	93	93

ESTIMATED BREEDING VALUES IN REAL-TIME!

You can access the EBVs for the CPT sires within the MERINOSELECT analysis (Merino breed codes 50, 60, 74 and 85 ONLY; breed codes 51, 83 and 71 are excluded at present) on the Sheep Genetics website.

- On the Sheep Genetics home page, click the 'Breeding services' tab and select 'MERINOSELECT'.
- Underneath 'Select your sheep type', select 'MERINO'.
- Under 'MERINO Other Sire Lists...', select 'New Zealand Merino Central Progeny Test Sires Used in 20...'.

Depending on your internet connection, it can take time for the list to load. Please contact us if you are having difficulty accessing EBVs via Sheep Genetics and MERINOSELECT.



INTRODUCTION TO THE FOOTROT BREEDING VALUE

The objective of the project[1] is to develop a breeding value for footrot resistance in fine-wool sheep; this will enable breeders to identify which animals are the most genetically resistant to footrot.

At present, the footrot breeding value (BV) is still in a development stage (i.e. it is not yet an EBV in the standard MERINOSELECT analysis). There is more work to do to get the same level of confidence in the BV's predictive capacity as we have for traits that have been recorded for decades (e.g. EBV for fleece weight). A trait like fleece weight, which has been recorded for millions of sheep along with a lot of pedigree information, has an EBV in the MERINOSELECT analysis because the trait has been well characterised, the EBV readily predicts an animal's performance and the EBV has been proven to be reliable across different environments.

The footrot BV information published here is generated using an across-flock analysis, in the same way that an EBV for fleece weight (or any other trait with an EBV) is generated. However, in the case of the footrot breeding value, the genetic linkage between flocks is not yet as strong as it is for other traits (and genetic linkage between flocks is what makes EBVs so powerful). That is what the next phase of the project is about.

The project will continue to build the genetic linkage between flocks to a point that we are confident to compare animals across different environments. The goal remains for the footrot BV to be treated the same as other EBVs (and to be included in the routine MERINOSELECT analysis produced by Sheep Genetics) in the future.

WHAT HAVE WE LEARNT?

- While footrot is predominantly a disease of the weather, approximately 20% of the variation we see in incidences of footrot is due to genes (i.e. the heritability of footrot is approximately 20%).
- There are many genes that control footrot – 21 of the 27 pairs of chromosomes in the sheep genome contain genes that influence footrot resistance.
- Exposing rams to footrot and selecting the rams that stay footrot-free, when others in the mob do not, is an effective method for finding resistant rams.
- Progeny testing in a central location is the most effective way of determining a sire's genetic resistance to footrot.
- Footrot resistance is present in all types of fine-wool sheep – whatever your sheep type, there will be sires that are genetically resistant to footrot (and others that are not).

HOW DOES THE CENTRAL PROGENY TEST CONTRIBUTE TO THE FOOTROT BREEDING VALUE?

The CPT is essential for data collection for the project. We have scored the feet of the wether progeny each year (2013-16 drops) in conditions where footrot was present. We have also collected DNA from these animals and their sires.

All this data – foot scores and DNA – has enabled us to prove the linkage between genomic testing for the likelihood of footrot resistance and an animal's actual susceptibility to footrot when challenged.

By being part of the CPT, studs around New Zealand have the opportunity to be well-linked to this dataset, which improves their ability to generate footrot breeding values for their rams. The better linked a stud is to the CPT (that is, the more similar their genetics are to animals that have been foot scored following a footrot challenge), the more able they are to generate accurate breeding values for footrot.

[1] The project has been led by NZM, with co-funding from New Zealand Merino Incorporated (Merino Inc.) and the Ministry for Primary Industries (MPI).

HOW DO I INTERPRET THE FOOTROT BREEDING VALUE?

The BV is for average footrot. The lower the BV, the more resistant the progeny of the animal are expected to be (i.e. the less likely the progeny of the animal are to succumb to footrot).

The better animals in the flock for footrot are the ones with a more negative BV. For example, a ram with a footrot BV of -0.18 will have more genetic resistance to footrot than a ram with -0.05, which is better than a ram with a footrot BV of 0.07.

Because of the limitations around linkage at present, the breeding values should be used to compare animals within a flock rather than comparing across flocks. It is still a very useful tool to select for more resistant sires to retain from within the flock or to provide to ram buyers for them to do likewise.

ACCURACY OF THE FOOTROT BREEDING VALUE

The accuracy of the footrot BV tells us the relationship between the BV and the true genetic merit of the animal. The highest accuracy animals are the progeny-tested sires and / or animals that have been scored in a footrot challenge (or animals closely related to these sires).

We are aiming for an accuracy of 0.40 (40%) and above. This is achieved where animals are well-linked to the project database either through participation in the CPT, or by making animals available for foot-scoring during a footrot challenge.

At a low accuracy, there is less confidence that the breeding value reflects the true genetic merit of an animal. Genetic gain can still be made using breeding values of lower accuracy, but that gain will be made at a slower rate.

THE FOOTROT BREEDING VALUE GOING FORWARD

To develop the footrot BV to the point that it is included in the routine MERINOSELECT analysis (and to ensure that the footrot BV remains accurate and relevant once it is a reported EBV in MERINOSELECT), it will be essential to continue collecting footrot data from across the industry (e.g. progeny-testing via the CPT and at studs where a footrot challenge is possible). As for other EBVs reported by MERINOSELECT (e.g. fleece weight, growth and worm resistance), new data needs to be added to the database each year for the EBV to stay useful. This ongoing work will require continued investment from the industry.

SIRE FOOTROT BREEDING VALUES

2016 DROP SIRES	BV	ACCURACY
Awapiri 140027	-0.14	56%
Benmore T19-15	0.04	65%
Benmore TC99-15	0.04	64%
Cleardale AB 97/14	0.09	84%
Cleardale L242/12	-0.27	89%
CPT 18	0.13	42%
CPT 45	-0.03	68%
CPT 57	0.00	68%
CPT 80	0.00	67%
Earnscleugh 131383	-0.07	60%
Glenflora 135912	-0.09	68%
Glenloe 140045	0.15	40%
Glenovis K110-13	0.04	56%
Ida Valley 140049	-0.15	72%
Ida Valley 140501	-0.06	74%
Lockerbie 42/13	-0.12	41%
Longfield 20/14	0.16	67%
Longfield S206/14	-0.04	53%
Mallochvale K601-12	-0.17	63%
Matakanui F108/14	0.04	61%
Matakanui F126/14	-0.03	66%
Matarae 099040	-0.41	84%
Melrose 9/14	0.02	92%
Merinotech 088579	-0.18	86%
Middlehurst 150504	0.08	63%
Middlehurst 150607	0.21	69%
Moojepin 120652	0.14	91%
Moojepin 141692	-0.04	42%
Muller WD27-14	0.68	84%
Mumblebone 130389	0.11	49%
Nine Mile 130019	0.14	75%
Nine Mile 130054	0.00	74%
NZM 110219	-0.06	85%
NZM 110292	-0.29	81%
NZM 110294	-0.30	86%
NZM 110349	-0.08	88%
NZM 110647	-0.08	84%
Otematata AD2-45	-0.01	80%
Otematata AD3-28	-0.07	64%
Rokeby 2111/02	0.11	57%
Southern Cross 140230	0.17	81%
Southern Cross 140343	0.54	71%
Southern Cross 140440	0.24	89%
Strathblane 494-14	-0.10	50%
Trigger Vale 140477	-0.05	64%
Wallaloo Park 140261	0.01	63%

2015 DROP SIRES	BV	ACCURACY
Armidale 111900	0.14	77%
Armidale 131528	0.14	74%
Benmore T29/13	-0.25	69%
Benmore T52/13	-0.01	71%
Blairich 120671	-0.07	80%
Cleardale D00016	0.07	86%
Cleardale S00536	-0.24	92%
Earnscleugh 134006	0.01	78%
Eskhead 158/12	0.38	69%
Eudunda 902/10	-0.11	61%
Glenmore 090092	0.12	60%
Glenmore 90224	0.15	59%
Glenovis D242/07	0.07	61%
Glentanner 11TW31	-0.09	71%
Glentanner 12NR19	0.05	46%
Grays Hills 120218	-0.09	89%
Ida Valley 39/13	0.11	78%
Longfield 130281	0.34	75%
Malvern Downs 090009	0.05	46%
Maryburn 39/13	0.17	60%
Maryburn 73/10	0.06	79%
Matakanui 44/13	-0.07	86%
Matakanui F63/13	0.03	65%
Matangi 105/11	0.03	47%
Matangi 19/11	-0.01	75%
Matarae 099040	-0.41	84%
Matarae 100271	-0.12	60%
Melrose 130398	-0.36	87%
Melrose 140094	0.11	93%
Merinotech 122295	0.17	74%
Middlehurst 130203	-0.00	67%
Middlehurst 130364	-0.16	69%
Muller D62/12	0.22	79%
Muller D82/12	0.01	82%
Nine Mile 130005	0.10	75%
Nine Mile 130047	0.18	74%
Nine Mile 140881	0.27	81%
Nokomai 110214	-0.26	74%
NZM 110210	-0.04	66%
NZM 110219	-0.06	85%
NZM 110292	-0.29	81%
NZM 110294	-0.30	86%
NZM 110349	-0.08	88%
NZM 110500	0.01	66%
NZM 110647	-0.08	84%
Roseville Park 090014	-0.02	77%
Strathblane 120/13	0.01	53%
The Gums 132034	0.40	79%
The Gums 132037	0.05	61%

The footrot BV information published here shows:

1. That within the CPT each year (when exposure to the environmental factors that contribute to footrot are the same for each sire's progeny) there is variation between different sires (i.e. some are more resistant (negative BV), some are more susceptible (positive BV)).
2. Where a stud has entered multiple rams, there is typically variation between those rams, meaning that each stud can make progress towards more footrot resistance by choosing rams with better footrot BVs.
3. There are rams across all fine-wool sheep types that are more resistant (i.e. with more negative BVs).
4. That good accuracies for a sire's footrot BV can be achieved by testing a sire's progeny for resistance to a footrot challenge. The accuracy will improve as the genetic linkage with other flocks increases.

Only sires that meet the accuracy threshold of 40% in the October 2018 BV analysis have been included in the following tables:

2014 DROP SIRES	BV	ACCURACY
Armidale 121938	0.07	70%
Awapiri 090025	0.21	59%
Benmore 12N952	-0.03	53%
Blairich 110175	0.04	86%
Blairich 120310	-0.13	84%
Cleardale 11L130	0.04	63%
Cleardale 13AB15	0.24	82%
CPT 14	0.37	74%
Earnscleugh 095022	-0.04	78%
Glen Orkney 110138	0.28	72%
Glenmore 070403	-0.23	70%
Glenovis 12K214	-0.07	61%
Ida Valley 00Jacob63	0.00	68%
Leahcim 123170	0.24	51%
Longfield 11EE18	0.30	59%
Maryburn 120073	-0.30	73%
Matakanui 110375	0.17	88%
Matakanui 12F236	-0.34	86%
Matarae 070017	-0.27	54%
Melrose 100217	-0.36	85%
Middlehurst 120248	-0.16	72%
Middlehurst 120371	-0.02	72%
Moojepin 090781	0.04	83%
Moojepin 100248	0.18	73%
Moojepin 120652	0.14	91%
Moutere 124660	0.57	73%
Muller 120A20	0.13	74%
Muller 12MD01	0.23	85%
Mumblebone 120431	0.53	65%
Nerstane 080290	-0.15	49%
Nine Mile 120455	0.09	74%
NZM 110183	-0.05	69%
NZM 110195	0.07	74%
NZM 110196	-0.38	74%
NZM 110294	-0.30	86%
NZM 110365	-0.42	74%
NZM 110492	-0.15	67%
NZM 110662	-0.36	64%
Stonehenge 110035	-0.28	66%
Strathblane 110654	-0.04	58%

2013 DROP SIRES	BV	ACCURACY
Armidale 110631	-0.02	75%
Armidale 111735	0.37	77%
Awapiri 100085	0.27	69%
Benmore 091053	0.24	76%
Benmore 100969	0.01	67%
Black Forest 080572	0.44	76%
Blairich 110106	-0.19	75%
Cleardale 100127	-0.06	86%
CPT 4	0.18	79%
Earnscleugh 083006	-0.39	78%
Earnscleugh 114323	-0.05	79%
Glen Orkney 100200	0.21	80%
Glen Orkney 110184	0.21	79%
Glenloe 092888	-0.01	50%
Glenmore 020016	0.26	71%
Glentanner 08TW20	-0.07	75%
Glentanner 10UM18	-0.10	74%
Grays Hills 100506	-0.26	87%
Grays Hills 110149	-0.24	75%
Koonwarra 3JSN14	0.02	68%
Longfield 110711	0.08	45%
Melrose 080361	-0.29	88%
Merinotech 088579	-0.18	86%
Middlehurst 100103	0.02	70%
Moojepin 090781	0.04	83%
Moojepin 110530	0.14	90%
Moojepin 110669	0.24	83%
Moutere 082251	-0.06	79%
Muller 090088	0.03	72%
Muller 100002	-0.34	74%
Nine Mile 090015	0.38	80%
Nine Mile 110189	0.23	79%
Nine Mile 110196	0.30	79%
Tara Park 000685	0.03	75%
The Glen 110065	0.18	78%
The Glen 110207	0.08	79%
The Gums 101861	0.19	77%
The Gums 110207	0.32	63%
The Gums 110703	0.15	76%
Trigger Vale 110839	0.04	69%

CARCASS DATA

INTRA-MUSCULAR FAT, PH, GR, AND YIELD PERCENTAGE

The 2016 drop wethers were processed in January 2018, through Alliance Group at the Smithfield plant, near Timaru.

New hyperspectral imaging technology at the plant allowed us to capture intra-muscular fat (IMF) and pH data, along with GR and yield percentage, record the data against the animals' EIDs and calculate sire averages for the 2016 CPT sires.

IMF is a measure of the fat that occurs within the muscle, rather than under the skin (subcutaneous fat). IMF content is generally between 2 – 7 % in lamb. More selection for lean tissue (muscle) in recent years has resulted in a reduced IMF across the sheep industry.

pH is a measure of acidity in the carcass. The pH of the carcass has an impact on meat quality; specifically, it impacts on longevity, colour, tenderness and taste. A normal pH for lamb is 5.4-5.6, with eating quality deteriorating over pH 5.8.

GR is a measurement in mm of the animal's soft tissue depth at the girth rib (GR) site.

Yield percentage is a sum of the loin, leg and shoulder yield, and tells us the overall proportion of saleable meat, after deboning and trimming, compared to the hot carcass weight.

SIRE AVERAGES (2016 DROP)

The following table shows the sire average (based on raw data only) for carcass IMF, pH, GR and yield percentage in their progeny.

SIRE	IMF	PH	GR	YIELD %
2016 DROP AVERAGE	**4.1**	**5.8**	**6.9**	**53.7%**
Awapiri 140027	4.3	5.7	6.1	53.4%
Benmore T19-15	4.5	5.7	5.7	51.9%
Benmore TC99-15	4.2	5.7	4.7	53.2%
CPT 18	3.0	5.9	5.3	52.1%
CPT 45	3.8	5.7	5.2	54.4%
CPT 57	4.2	5.7	5.1	52.9%
CPT 80	4.1	5.7	7.4	53.3%
Cleardale AB 97/14	4.9	5.8	8.7	54.9%
Cleardale L242/12	3.6	5.8	7.6	53.6%
Earnscleugh 131383	4.0	5.7	4.1	54.9%
Glenflora 135912	3.6	5.9	9.0	55.8%
Glenloe 140045	4.4	5.8	8.6	54.2%
Glenovis K110-13	4.6	5.7	7.9	53.8%
Ida Valley 140049	3.7	5.8	7.3	53.9%
Ida Valley 140501	4.8	5.7	6.9	53.5%
Lockerbie 42/13	4.8	5.7	9.9	54.5%
Longfield 20/14	3.9	5.7	6.2	54.6%
Longfield S206/14	4.7	5.8	10.9	53.7%
Mallochvale K601-12	4.6	5.8	9.9	53.1%
Matakanui F108/14	4.2	5.7	6.4	54.0%
Matakanui F126/14	4.7	5.8	7.7	53.3%
Matarae 099040	3.6	5.8	6.8	52.5%
Melrose 9/14	4.5	5.7	8.5	52.9%
Middlehurst 150504	4.7	5.8	7.7	52.8%
Middlehurst 150607	3.4	5.8	5.5	56.4%
Merinotech 088579	3.6	5.7	8.3	52.9%
Moojepin 120652	4.9	5.8	8.9	52.7%
Moojepin 141692	4.0	5.8	5.5	55.0%
Muller WD27-14	3.4	5.9	4.4	54.0%
Mumblebone 130389	4.0	5.8	6.5	55.1%
Nine Mile 130019	4.9	5.7	3.6	54.7%
Nine Mile 130054	4.4	5.7	6.0	54.7%
NZM 110219	4.2	5.8	7.1	53.7%
NZM 110292	4.2	5.7	7.6	53.2%
NZM 110294	3.7	5.8	5.5	54.0%
NZM 110349	4.2	5.8	6.4	52.8%
NZM 110647	5.3	5.7	5.3	53.0%
Otematata AD2-45	3.7	5.8	5.0	53.8%
Otematata AD3-28	3.7	5.7	4.7	53.4%
Rokeby 2111/02	3.4	5.9	4.4	51.9%
Southern X 140230	4.0	5.7	8.9	52.1%
Southern X 140343	5.1	5.7	10.0	52.7%
Southern X 140440	4.4	5.8	7.8	54.4%
Strathblane 494-14	4.9	5.7	8.0	52.5%
Trigger Vale 140477	3.8	5.8	7.1	54.7%
Wallaloo Park 140261	4.0	5.8	6.8	53.8%

VISUAL CLASSING

DESCRIPTIONS OF THE WOOL TRAITS

Each of these traits (except nourishment) is scored on a 1-5 scale, and measurement requires a minimum of 5 months' wool growth.

DUST PENETRATION

1 means that the staple is free, or near free, of dust (less than 6% of the staple).

5 means that there is 71-100% dust penetration of the staple.

STAPLE STRUCTURE

1 means that the staple is made up of very fine bundles less than 6mm in diameter.

5 means that the staple is made up of large bundles, 30mm or greater in diameter.

STAPLE WEATHERING

1 means that the staple is free or near free of deterioration (less than 6% of the staple) caused by penetration of light and water.

5 means that there is staple deterioration of 71-100% due to light and water penetration.

WOOL COLOUR

1 means bright, white wool.

5 means wool with an intense yellow colour.

WOOL CHARACTER

1 means a very well-defined crimp.

5 means no crimp definition and the wool appears 'flat'.

FLEECE ROT

1 means no stain or crusting.

5 means a band of crusting more than 5mm wide, with or without stain.

NOURISHMENT

Nourishment is scored using a different scale, and is scored based on the fleece's sheen and consistency.

1 means over-nourished.

3 means optimum nourishment.

5 means under-nourished.

DESCRIPTIONS OF THE STRUCTURAL TRAITS

Some of the structural traits are scored on a 1-5 scale; while others are scored as 1, 3, or 5, with 3 being the optimum.

OVERALL STRUCTURAL CONFORMATION

Scored on a 1-5 scale, with 1 the best and 5 worst, looking at the animal's overall body structure only. Note that this score, taken together with the animal's score for the wool traits, contributes to the animal's overall classing grade.

FACE COVER

Scored on a 1-5 scale, with score 1 being an open face with no wool in front of the ears, topknot, or on the jowls, and score 5 being heavy wool growth over the face and wool from the top and side of the muzzle joining together.

JAW

The upper and lower jaws of a score 3 sheep line up squarely (i.e. the teeth rest 'on the pad').

A score 1 sheep has a heavily undershot jaw, and 5 has a heavily overshot jaw.

FRONT LEGS

The legs and pasterns of a score 3 sheep point forward normally.

Score 1 is extreme inward orientation of the front feet.

Score 5 is extreme outward orientation of the front feet.

SHOULDER

A score 3 means that the shoulder blades sit squarely either side of the spine (i.e. no trough or ridge between the shoulders) and a straight back between shoulders and hips.

Score 1 means that the shoulder blades are extremely low and narrow and sit below the spine.

Score 5 means that the shoulder blades are extremely wide and high and sit above the spine.

BACK

A score 3 is straight between shoulders and hips.

Score 1 has an extremely dipped backline.

Score 5 has an extremely arched backline.

BODY WRINKLE

Scored on a 1-5 scale, with score 1 being a plain body with no wrinkles, and score 5 being extensive wrinkles and heavy folds of skin over the entire body.

HOCKS

A score 3 is a normal hock.

Score 1 has the least possible hock angulation, referred to as 'post-legged'.

Score 5 has greatest possible hock angulation, referred to as 'sickle-hocked'.

PASTERNS

A score 3 is a normal pastern.

Score 1 has the least possible pastern angulation (i.e. walking on the toe).

Score 5 has greatest possible pastern angulation (i.e. pasterns on the ground).

BACK LEGS

A score 3 means that the hind legs stand squarely over the feet.

Score 1 means that the hocks touch and there is extreme inward angulation at the hock joint.

Score 5 means that the back legs are 'bowed' and there is extreme outward angulation of the hocks.

BREECH WRINKLE

Scored on a 1-5 scale, with score 1 being no wrinkle, and score 5 being extensive wrinkle at the tail set, sides of the tail (bat wings), adjacent to the anus/vulva and down the hind legs.

BARE BREECH

Scored on a 1-5 scale, with score 1 being a natural bare area extending outwards around the anus and vulva, and down to the bottom of the breech area (the channel), and a score 5 being complete wool cover (i.e. no natural bare area at all).

WOOL CLASSING

2016 CPT

The following visual traits are measured on a scale of 1 to 5 using the 'Visual Sheep Scores' guide produced by Australian Wool Innovation Limited (AWI) and Meat & Livestock Australia. You can access this guide on the AWI website – www.wool.com/on-farm-research-and-development/sheep-health-welfare-and-productivity/sheep-breeding/visual-sheep-scores/.

For each trait, a score of 1 indicates the least expression of a trait and a score of 5 indicates the most expression of the trait. See page 5 for a brief description of each trait and how the scoring system is used.

Importantly, these figures are averages of the raw data only; unlike an EBV, they have not been adjusted to take into account the effect of birth type or management. We note that management practices were kept consistent within contemporary groups and within each drop.

SIRE	DUST PENETRATION	STAPLE WEATHERING	STAPLE STRUCTURE	WOOL COLOUR	WOOL CHARACTER	FLEECE ROT	WOOL NOURISHMENT
2016 Drop Average	**2.4**	**2.6**	**2.7**	**1.7**	**2.9**	**1.8**	**3.3**
Awapiri 140027	2.0	2.4	2.8	1.3	3.0	1.4	2.8
Benmore T19-15	2.1	2.3	2.4	1.3	2.5	1.6	3.1
Benmore TC99-15	2.1	2.2	2.1	1.4	2.3	2.1	2.8
Cleardale AB 97/14	2.6	3.0	2.7	1.7	3.0	1.7	3.4
Cleardale L242/12	2.6	2.8	2.9	1.8	3.1	1.7	3.2
CPT 18	2.3	2.5	2.1	1.4	2.6	1.9	3.1
CPT 45	2.3	2.4	2.3	1.9	2.4	2.1	2.9
CPT 57	2.1	2.3	1.9	1.5	2.1	1.8	3.0
CPT 80	2.3	2.6	2.6	1.3	2.8	1.6	3.2
Earnscleugh 131383	2.1	2.1	1.8	1.4	1.6	1.8	3.1
Glenflora 135912	3.0	3.3	3.4	2.3	3.8	2.2	4.3
Glenloe 140045	2.2	2.4	2.7	1.8	3.0	1.7	3.6
Glenovis K110-13	2.9	3.1	3.5	1.9	3.9	2.0	4.0
Ida Valley 140049	2.8	3.0	3.1	1.4	3.5	1.8	3.7
Ida Valley 140501	2.3	2.6	2.4	1.3	2.9	1.7	3.2
Lockerbie 42/13	2.6	2.9	3.5	2.3	3.9	2.3	4.0
Longfield 20/14	2.8	2.9	3.4	2.1	3.4	1.8	3.6
Longfield S206/14	3.4	3.5	4.0	2.3	4.4	2.1	4.4
Mallochvale K601-12	2.8	3.2	3.6	2.2	3.9	2.0	3.9
Matakanui F108/14	2.4	2.8	3.5	2.2	3.7	2.2	3.8
Matakanui F126/14	2.4	2.5	2.7	1.7	3.0	1.3	3.4
Matarae 099040	2.5	2.5	2.3	1.7	2.2	1.8	3.3
Melrose 9/14	2.5	2.7	2.8	2.1	3.0	2.0	3.5

SIRE	DUST PENETRATION	STAPLE WEATHERING	STAPLE STRUCTURE	WOOL COLOUR	WOOL CHARACTER	FLEECE ROT	WOOL NOURISHMENT
Merinotech 088579	2.1	2.3	2.6	1.5	3.1	1.6	3.2
Middlehurst 150504	2.2	2.4	2.4	1.9	2.6	1.4	3.3
Middlehurst 150607	2.3	2.5	2.9	1.3	3.3	1.8	3.2
Moojepin 120652	2.4	2.7	2.4	2.0	2.7	1.8	2.9
Moojepin 141692	2.3	3.3	2.9	1.8	3.3	2.0	3.7
Muller WD27-14	2.3	2.4	2.2	1.5	2.6	1.5	2.8
Mumblebone 130389	2.3	2.3	2.2	1.4	2.7	1.7	2.9
Nine Mile 130019	2.3	2.3	2.3	1.6	2.7	1.5	3.2
Nine Mile 130054	2.5	2.5	2.0	1.6	2.2	1.7	3.0
NZM 110219	2.3	2.6	2.7	1.5	2.8	1.7	3.1
NZM 110292	2.3	2.6	2.4	1.8	3.0	1.9	3.3
NZM 110294	2.3	2.4	2.5	1.4	2.6	1.9	3.2
NZM 110349	2.5	2.8	3.0	1.9	3.3	1.9	3.6
NZM 110647	2.4	2.4	2.3	1.2	2.0	1.9	3.2
Otematata AD2-45	2.1	2.3	2.3	1.4	2.3	1.9	2.9
Otematata AD3-28	2.2	2.6	2.1	2.1	2.2	1.5	2.5
Rokeby 2111/02	1.9	2.1	2.3	1.1	2.0	2.1	2.9
Southern X 140230	2.7	2.7	2.7	1.7	3.3	1.6	3.4
Southern X 140343	2.0	2.3	4.0	2.0	4.3	2.3	3.7
Southern X 140440	2.4	2.7	2.9	1.8	3.2	1.7	3.5
Strathblane 494-14	3.1	3.3	3.6	2.4	4.1	2.0	4.4
Trigger Vale 140477	2.5	2.5	2.3	1.7	2.5	1.7	3.1
Wallaloo Park 140261	2.2	2.0	2.1	1.4	2.4	1.2	2.8

WOOL CLASSING

2015 CPT

SIRE	DUST PENETRATION	STAPLE STRUCTURE	STAPLE WEATHERING	WOOL COLOUR	WOOL CHARACTER	FLEECE ROT	WOOL NOURISHMENT
2015 Drop Average	**2.6**	**2.8**	**2.8**	**1.8**	**2.7**	**1.3**	**2.4**
Armidale 111900	2.6	2.8	2.4	1.5	2.5	1.2	2.5
Armidale 131528	2.3	2.7	2.7	2.1	2.2	1.3	2.6
Benmore 130029	2.1	2.2	2.6	1.1	2.2	1.0	2.7
Benmore 130052	2.5	2.8	2.6	1.3	2.7	1.1	2.6
Blairich 120671	2.2	2.3	2.2	1.2	2.0	1.1	2.9
Cleardale D00016	2.6	2.9	3.0	2.3	2.8	1.3	2.1
Cleardale S00536	2.4	2.7	2.7	1.9	2.5	1.2	2.7
Earnscleugh 134006	2.5	2.8	2.5	2.1	2.7	1.3	2.6
Eskhead 120158	2.5	3.1	2.9	1.5	2.6	1.5	2.4
Eudunda 100902	3.0	3.8	3.9	2.8	4.2	1.3	1.3
Glenmore 090092	2.4	2.5	2.4	1.5	2.2	1.3	2.9
Glenmore 090224	2.5	2.3	2.4	1.4	1.9	1.3	2.9
Glenovis 070242	2.8	3.8	3.4	3.2	4.6	1.2	1.4
Glentanner 11TW31	2.4	2.3	2.7	1.4	2.3	1.1	2.7
Glentanner 12NR19	2.3	2.8	2.6	1.3	2.4	1.0	2.8
Grays Hills 120218	2.3	2.1	2.2	1.4	1.6	1.2	3.3
Ida Valley 13P039	2.8	3.0	3.2	2.0	3.2	1.2	2.2
Longfield 130281	2.6	2.9	2.9	1.7	2.6	1.1	2.6
Malvern Downs 090009	2.7	3.0	2.2	1.7	2.4	1.3	2.8
Maryburn 100073	2.3	2.6	2.4	1.5	2.3	1.3	2.6
Maryburn 130039	2.2	2.3	1.9	1.9	1.6	1.4	3.4
Matakanui F00063	2.7	3.3	3.2	2.1	3.8	1.2	1.9
Matakanui MIL044	2.6	3.2	3.2	1.7	3.1	1.1	1.9
Matangi 110019	2.7	2.7	2.8	1.8	2.4	1.5	2.7
Matangi 110105	2.5	2.5	2.5	1.5	2.3	1.4	3.1
Matarae 099040	2.7	2.9	2.9	1.4	2.6	1.7	2.4
Matarae 100271	2.5	2.7	2.3	1.1	2.7	1.0	2.5
Melrose 130398	2.8	3.7	3.1	2.6	3.9	1.2	1.5
Melrose 140094	2.7	3.1	3.1	1.9	3.4	1.1	2.2
Merinotech 122295	2.5	2.5	2.7	2.0	2.0	1.3	2.4
Middlehurst 130203	2.5	2.2	2.8	1.5	2.0	1.1	2.7
Middlehurst 130364	2.5	2.3	2.3	2.2	1.8	1.7	3.1
Muller D00062	2.4	2.4	2.4	1.8	1.9	1.0	2.9
Muller D00082	2.5	2.1	2.3	2.1	1.5	1.5	2.9
Nine Mile 130005	2.6	2.4	2.4	1.6	2.0	1.2	2.7
Nine Mile 130047	2.7	2.6	3.1	1.8	2.3	1.2	2.4
Nine Mile 140881	2.5	2.5	2.9	1.5	2.2	1.1	2.5
Nokomai 110214	2.8	3.4	3.4	2.5	3.1	1.2	1.6
NZM 110210	2.2	2.5	2.3	1.1	2.1	1.0	2.8
NZM 110219	2.5	2.4	2.4	1.4	2.0	1.2	3.1
NZM 110292	2.2	2.2	2.3	1.2	2.0	1.3	3.1
NZM 110294	2.4	2.3	2.7	1.4	1.7	1.4	2.6
NZM 110349	2.6	3.0	2.7	2.2	3.1	1.5	2.6
NZM 110500	2.7	2.9	3.0	1.8	3.0	1.4	2.6
NZM 110647	2.3	2.5	2.4	1.2	2.6	1.2	2.8
Roseville Park 090014	2.4	2.3	2.2	1.4	2.2	1.1	3.3
Strathblane 130120	2.8	3.7	3.4	2.0	4.2	1.1	1.8
The Gums 132034	2.9	3.4	3.6	2.0	3.7	1.2	2.0
The Gums 132037	2.7	3.1	3.4	2.0	3.5	1.1	1.8

WOOL CLASSING

2014 CPT

SIRE	DUST PENETRATION	STAPLE STRUCTURE	STAPLE WEATHERING	FLEECE COLOUR	WOOL CHARACTER	FLEECE ROT	WOOL NOURISHMENT
2014 Drop Average	**2.1**	**2.7**	**2.3**	**1.5**	**2.4**	**1.5**	**2.7**
Armidale 121938	1.7	2.6	1.8	1.4	2.1	1.3	2.5
Awapiri 090025	1.8	3.1	2.0	1.5	2.3	1.5	2.6
Benmore 12N952	1.8	2.5	2.2	1.3	2.0	1.5	2.6
Blairich 110175	2.0	2.7	2.1	1.4	2.1	2.0	2.7
Blairich 120310	1.8	2.6	2.3	1.6	1.8	1.8	2.7
Cleardale 11L130	2.3	3.0	2.2	1.4	2.7	1.2	2.9
Cleardale 13AB15	2.4	2.5	2.9	1.7	2.7	1.2	2.2
CPT 14	2.2	2.8	2.3	1.6	2.6	1.3	2.9
Earnscleugh 095022	2.3	2.6	2.2	1.3	2.5	1.1	2.7
Glen Orkney 110138	2.1	2.5	2.2	1.3	2.1	1.4	2.8
Glenmore 070403	1.8	2.7	2.1	1.6	2.0	1.4	2.5
Glenovis 12K214	2.8	3.6	2.4	2.3	4.0	1.7	2.8
Ida Valley 00Jacob63	2.2	2.9	2.4	1.8	2.7	1.5	2.7
Leahcim 123170	1.9	2.3	2.6	1.6	2.0	1.6	2.2
Longfield 11EE18	2.7	3.5	2.6	2.0	3.7	1.3	2.9
Maryburn 120073	2.1	2.6	2.1	1.4	2.4	1.2	2.6
Matakanui 110375	2.5	3.1	2.1	1.4	2.6	1.3	2.8
Matakanui 12F236	1.9	2.6	2.4	1.8	2.8	1.4	2.5
Matarae 070017	1.8	2.7	1.8	1.5	2.7	1.5	2.6
Melrose 100217	2.4	3.0	2.3	1.5	3.0	1.3	2.3
Middlehurst 120248	1.6	2.3	2.4	1.6	1.9	1.8	2.9
Middlehurst 120371	1.8	2.3	2.4	1.4	1.8	1.8	2.6
Moojepin 090781	2.2	2.0	2.7	1.6	2.1	1.4	2.6
Moojepin 100248	2.4	2.4	2.6	1.5	2.9	1.2	2.8
Moojepin 120652	2.1	2.4	2.4	1.1	2.3	1.4	2.6
Moutere 124660	1.9	2.7	1.8	1.5	2.2	1.6	2.8
Muller 120A20	1.9	2.5	2.2	1.2	2.1	1.6	2.8
Muller 12MD01	2.0	2.1	2.3	1.5	1.8	1.5	3.0
Mumblebone 120431	1.8	2.1	2.2	1.3	1.9	1.2	2.6
Nerstane 080290	1.7	2.5	2.1	1.4	2.0	1.2	2.6
Nine Mile 120045	1.9	2.7	2.4	1.6	2.1	1.9	2.6
NZM 110183	1.9	2.7	2.1	1.5	2.0	1.5	2.7
NZM 110195	1.8	2.5	2.3	1.6	2.1	1.5	2.8
NZM 110196	2.0	2.9	2.1	1.4	2.5	1.3	2.5
NZM 110294	2.1	2.6	2.5	1.5	2.2	1.9	2.7
NZM 110365	2.2	3.1	2.2	1.7	2.7	1.3	2.6
NZM 110492	2.3	2.8	2.3	1.8	2.8	2.0	2.7
NZM 110662	2.0	3.0	1.9	1.0	2.2	1.2	2.7
Stonehenge 110035	1.8	3.0	1.9	1.3	2.2	1.6	2.9
Strathblane 110654	2.4	3.1	2.3	1.6	3.1	1.6	2.7
The Gums 120354	2.4	3.2	2.6	1.6	3.4	1.2	2.8

WOOL CLASSING

2013 CPT

SIRE	DUST PENETRATION	STAPLE STRUCTURE	STAPLE WEATHERING	FLEECE COLOUR	WOOL CHARACTER	FLEECE ROT	WOOL NOURISHMENT
2013 Drop Average	**1.8**	**2.5**	**2.6**	**1.9**	**2.4**	**0.9**	**2.2**
Armidale 110631	1.5	2.8	2.4	1.5	2.3	0.7	2.2
Armidale 111735	1.7	2.9	2.5	2.1	2.7	1.0	2.3
Awapiri 100085	2.1	2.5	2.7	2.1	2.4	0.9	1.7
Benmore 091053	1.6	2.6	2.3	1.4	2.4	0.8	2.3
Benmore 100969	1.9	2.6	2.4	1.8	2.4	0.8	1.8
Blackforest 080572	1.9	2.5	2.6	2.0	2.5	0.8	2.5
Blairich 110106	1.5	2.6	2.4	1.4	2.1	0.8	2.5
Cleardale 100127	1.9	2.6	2.6	1.7	2.5	0.9	1.9
CPT 4	1.7	2.7	2.2	1.5	2.8	0.8	2.0
Earnscleugh 083006	1.7	2.1	2.7	1.2	2.1	0.8	2.6
Earnscleugh 114323	1.7	2.5	2.1	1.7	2.2	0.8	2.4
Glen Orkney 100200	1.9	2.2	2.7	1.8	2.2	0.8	2.0
Glen Orkney 110184	1.7	2.5	2.5	1.9	2.4	0.9	2.4
Glenloe Patari 092888	1.7	2.4	2.6	1.9	2.3	0.9	2.0
Glenmore 020016	1.8	2.6	2.6	1.6	2.2	0.8	2.2
Glentanner 08TW20	1.4	2.7	2.2	1.9	2.4	0.8	2.3
Glentanner 10UM18	1.6	2.6	2.5	1.9	2.5	0.8	2.1
Grays Hills 100506	1.8	2.2	2.6	1.9	2.3	0.8	1.9
Grays Hills 110149	1.9	2.3	2.7	2.1	2.5	0.9	2.1
Koonwarra 3JSN14	1.8	3.1	2.7	2.2	3.1	1.1	2.4
Longfield 110711	2.4	3.0	2.5	2.9	3.4	0.9	1.3
Melrose 080361	2.6	3.4	2.4	2.9	3.9	0.9	1.6
Merinotech 088579	1.7	2.2	2.8	1.9	2.2	0.8	2.2
Middlehurst 100103	2.0	1.9	3.0	1.9	2.0	0.9	2.1
Moojepin 090781	2.4	2.1	3.0	2.5	2.1	0.9	2.2
Moojepin 110530	2.2	1.9	3.0	2.0	2.1	0.8	1.7
Moojepin 110669	2.4	1.9	3.4	2.0	2.0	0.8	1.8
Moutere 082251	1.5	2.5	2.2	1.7	2.3	0.7	2.6
Muller 090088	1.7	2.3	2.5	1.8	2.1	0.9	2.5
Muller 100002	2.3	2.1	3.0	1.4	2.0	0.8	1.9
Nine Mile 090015	1.9	2.7	2.6	2.3	2.1	1.1	2.4
Nine Mile 110189	1.8	2.4	2.6	2.0	2.1	0.8	2.3
Nine Mile 110196	1.9	2.1	2.8	2.1	2.2	1.0	2.1
Tara Park 000685	1.8	2.3	2.8	2.3	2.3	1.0	2.3
The Glen 110065	1.9	2.1	2.8	1.9	2.3	0.8	2.2
The Glen 110207	1.6	2.6	2.6	2.1	2.5	1.0	2.5
The Gums 101861	1.9	2.8	2.1	1.7	2.3	0.8	2.4
The Gums 110207	1.5	2.7	2.4	2.0	2.3	1.0	2.5
The Gums 110703	1.6	2.3	2.5	1.6	2.0	0.8	2.5
Trigger Vale 110839	1.8	2.7	2.8	1.7	2.7	0.9	2.1

STRUCTURAL CLASSING

2016 CPT

SIRE	TAILING		LATE MARCH										
	EARLY BREECH WRINKLE	BARE BREECH	FACE COVER	OVERALL CONFORMATION	JAW	FRONT LEGS	SHOULDER	BACK	BODY WRINKLE	HOCKS	PASTERNS	BACK LEGS	BREECH WRINKLE
2016 Drop Average	2.8	4.4	2.9	1.8	**2.9**	**3.4**	**2.7**	**2.6**	**1.9**	**3.2**	**3.4**	**2.6**	**2.0**
Awapiri 140027	2.9	4.8	2.7	2.1	2.7	3.4	2.7	2.4	2.2	3.3	3.3	2.7	2.1
Benmore T19-15	3.4	4.4	3.0	1.7	3.0	3.4	2.6	2.5	2.3	3.1	3.4	2.3	2.3
Benmore TC99-15	4.3	4.8	3.3	1.8	2.9	3.9	2.1	2.2	3.0	3.3	3.5	2.4	3.2
Cleardale AB 97/14	2.6	4.2	3.1	1.5	3.0	3.6	2.7	2.9	1.4	3.0	3.2	2.8	1.6
Cleardale L242/12	2.2	3.9	2.8	1.5	3.0	3.3	2.8	2.6	1.7	3.3	3.6	2.7	1.8
CPT 18	3.2	4.3	2.8	2.1	3.0	3.9	2.7	2.5	2.2	3.2	3.3	2.0	2.5
CPT 45	2.9	4.7	2.7	2.4	3.0	3.4	2.6	2.4	1.9	3.3	3.6	2.6	2.1
CPT 57	3.4	4.8	3.1	2.0	3.0	3.1	2.5	2.6	2.3	3.1	3.4	2.5	2.3
CPT 80	2.4	4.6	2.6	1.7	2.9	3.2	2.6	2.7	1.4	3.2	3.3	2.7	1.5
Earnscleugh 131383	3.2	4.5	2.9	2.0	3.0	3.4	2.4	2.3	2.6	3.1	3.5	2.4	2.9
Glenflora 135912	1.7	4.0	1.9	1.9	2.9	3.4	2.9	2.8	1.0	3.2	3.6	2.9	1.2
Glenloe 140045	2.1	4.3	2.3	1.8	2.9	3.3	2.4	2.7	1.8	3.2	3.4	2.7	1.8
Glenovis K110-13	2.0	4.3	3.3	1.5	2.9	3.2	2.8	2.9	1.4	3.0	3.2	2.7	1.3
Ida Valley 140049	2.4	4.3	3.0	1.9	2.9	3.6	2.7	2.7	1.6	3.1	3.2	2.8	1.7
Ida Valley 140501	2.8	4.8	2.8	1.6	3.0	3.4	2.7	2.7	1.6	3.1	3.5	2.4	1.8
Lockerbie 42/13	2.7	4.3	2.9	1.4	2.9	3.0	3.1	2.9	1.3	3.1	3.2	3.0	1.3
Longfield 20/14	3.3	4.5	3.0	1.5	3.0	3.1	2.9	2.6	2.1	3.2	3.3	2.6	2.0
Longfield S206/14	2.5	4.0	3.3	1.3	2.9	3.5	2.9	2.8	1.5	3.2	3.3	2.9	1.4
Mallochvale K601-12	2.5	4.4	3.2	1.8	3.0	3.2	3.0	2.8	1.4	3.1	3.3	2.8	1.4
Matakanui F108/14	2.8	4.3	3.1	1.7	2.8	3.7	2.7	2.6	2.7	3.4	3.5	2.2	2.4
Matakanui F126/14	3.1	4.3	3.2	1.4	2.9	3.5	2.7	2.6	2.0	3.1	3.2	2.6	2.0
Matarae 099040	3.1	4.9	3.1	2.6	2.8	3.3	2.5	2.3	2.6	3.3	3.4	2.2	2.7
Melrose 9/14	2.6	4.0	2.7	1.6	3.0	3.4	2.8	2.7	1.2	3.2	3.5	2.7	1.3
Merinotech 088579	2.5	4.5	2.2	1.5	2.9	3.4	2.7	2.4	1.7	3.1	3.3	2.5	1.8
Middlehurst 150504	3.3	4.3	2.9	1.4	3.0	3.4	2.6	2.6	1.6	3.1	3.2	2.9	1.8
Middlehurst 150607	2.4	4.1	2.8	1.6	3.0	3.4	2.8	2.5	1.7	3.2	3.5	2.4	1.9
Moojepin 120652	3.0	4.0	2.9	1.7	3.0	3.3	2.8	2.6	1.6	3.1	3.4	2.8	1.8
Moojepin 141692	2.4	4.1	2.8	1.6	2.8	3.3	2.6	2.4	1.1	3.0	3.4	2.8	1.2
Muller WD27-14	3.0	4.6	3.1	1.9	2.9	3.8	2.4	2.6	2.5	3.3	3.5	2.5	2.3
Mumblebone 130389	3.3	4.5	2.9	1.8	2.9	3.4	2.8	2.7	2.0	2.9	3.3	2.6	2.2
Nine Mile 130019	2.8	4.4	2.8	1.7	2.9	3.5	2.6	2.3	1.6	3.3	3.4	2.4	1.9
Nine Mile 130054	2.7	4.4	2.7	2.1	3.0	3.5	2.8	2.6	1.4	3.1	3.4	2.8	1.5
NZM 110219	2.9	4.5	3.0	1.8	3.0	3.2	2.5	2.6	2.0	3.2	3.3	2.6	2.1
NZM 110292	2.4	4.4	3.1	2.1	2.9	3.3	2.6	2.5	1.7	3.1	3.5	2.7	1.6
NZM 110294	2.7	4.7	2.8	2.3	2.9	3.3	2.5	2.4	1.8	3.3	3.4	2.4	2.1
NZM 110349	2.8	4.7	2.9	1.9	3.0	3.2	2.7	2.7	2.2	3.2	3.5	2.6	2.3
NZM 110647	3.2	4.8	3.0	2.0	3.0	3.5	2.4	2.6	2.3	3.1	3.4	2.1	2.5
Otematata AD2-45	3.1	4.6	3.0	2.1	2.9	3.6	2.4	2.4	2.4	3.2	3.4	2.2	2.5
Otematata AD3-28	3.3	4.6	2.9	2.0	3.0	3.3	2.3	2.4	2.7	3.2	3.3	2.4	2.8
Rokeby 2111/02	3.9	4.8	3.7	2.3	2.9	3.6	2.5	2.3	2.9	3.1	3.5	2.3	3.3
Southern X 140230	2.3	4.5	2.6	1.6	2.8	3.2	2.6	2.9	1.3	3.2	3.4	2.6	1.6
Southern X 140343	2.0	4.0	3.0	1.7	3.0	3.3	3.0	2.8	1.3	3.0	3.3	3.0	1.5
Southern X 140440	2.3	4.0	2.4	1.4	3.0	3.3	2.8	2.7	1.5	3.2	3.3	2.8	1.6
Strathblane 494-14	2.2	3.8	4.2	1.6	3.0	3.3	2.8	2.9	1.3	3.1	3.3	2.9	1.4
Trigger Vale 140477	2.7	4.0	2.8	1.4	3.0	3.3	2.9	2.8	1.7	3.2	3.5	2.4	1.8
Wallaloo Park 140261	2.7	4.1	2.7	1.4	3.0	3.3	2.7	2.8	1.6	3.1	3.4	2.8	1.6

STRUCTURAL CLASSING

2015 CPT

SIRE	OVERALL CONFORMATION	JAW	FRONT LEGS	SHOULDER	BACK	BODY WRINKLE	HOCKS	PASTERN	BACK LEGS	BREECH WRINKLE
2015 Drop Average	**2.0**	**3.0**	**3.3**	**2.7**	**2.6**	**2.0**	**3.1**	**3.3**	**2.5**	**2.0**
Armidale 111900	1.4	3.0	3.1	3.1	2.7	2.0	3.1	3.3	2.6	1.8
Armidale 131528	1.8	3.0	3.5	2.7	2.5	2.1	3.2	3.5	2.4	2.2
Benmore 130029	2.3	3.0	3.1	2.6	2.8	1.8	2.9	3.2	2.5	1.8
Benmore 130052	1.9	2.9	3.4	2.3	2.7	2.0	3.2	3.1	2.5	1.8
Blairich 120671	2.5	2.9	3.6	2.3	2.3	2.7	3.1	3.4	2.1	2.9
Cleardale D00016	2.1	3.0	3.2	2.6	2.7	1.8	3.0	3.2	2.4	1.9
Cleardale S00536	2.3	3.0	3.3	2.6	2.4	2.4	3.0	3.3	2.4	2.3
Earnscleugh 134006	1.4	2.9	3.2	3.0	2.7	2.0	3.1	3.2	2.7	2.0
Eskhead 120158	1.6	3.0	3.2	2.9	2.7	1.5	3.3	3.5	2.6	1.6
Eudunda 100902	1.4	3.0	3.1	3.0	2.9	1.0	3.1	3.1	2.9	1.1
Glenmore 090092	2.3	3.0	3.3	2.6	2.4	2.2	3.0	3.1	2.4	2.3
Glenmore 090224	2.3	3.0	3.4	2.3	2.4	2.6	3.0	3.3	2.4	2.4
Glenovis 070242	1.3	3.0	3.1	2.9	2.9	1.2	3.1	3.2	2.9	1.3
Glentanner 11TW31	2.1	3.0	3.2	2.9	2.6	2.6	3.2	3.5	2.3	2.5
Glentanner 12NR19	1.7	3.0	3.1	3.2	2.8	1.7	3.1	3.4	2.3	1.8
Grays Hills 120218	2.2	2.9	3.3	2.5	2.4	2.7	3.2	3.4	2.3	2.7
Ida Valley 13P039	2.0	3.0	3.2	2.7	2.7	1.6	3.0	3.3	2.6	1.9
Longfield 130281	2.0	3.0	3.2	2.7	2.8	1.7	3.2	3.2	2.6	1.8
Malvern Downs 090009	1.8	2.9	3.3	2.9	2.7	2.3	3.1	3.7	2.7	2.1
Maryburn 100073	1.9	3.0	3.3	2.4	2.4	2.1	3.1	3.4	2.3	2.2
Maryburn 130039	1.9	3.0	3.4	2.5	2.3	2.8	3.0	3.2	2.2	2.6
Matakanui F00063	2.2	3.0	3.4	2.4	2.7	1.9	3.0	3.2	2.3	2.1
Matakanui MIL044	1.9	3.0	3.3	2.7	2.6	1.7	3.1	2.9	2.4	1.8
Matangi 110019	2.7	3.0	3.7	2.3	2.3	2.2	3.1	3.5	2.1	2.2
Matangi 110105	2.8	3.0	3.5	2.7	2.3	2.2	3.1	3.4	2.1	2.6
Matarae 099040	2.0	3.0	3.2	2.5	2.6	2.3	3.1	3.4	2.3	2.4
Matarae 100271	2.2	3.0	3.2	2.2	2.7	2.3	3.0	3.0	2.2	2.5
Melrose 130398	1.7	2.9	3.0	3.2	3.0	1.5	3.0	3.1	3.0	1.5
Melrose 140094	1.9	2.9	3.2	2.9	2.7	1.4	3.0	3.1	2.9	1.5
Merinotech 122295	2.0	3.0	3.5	2.7	2.7	2.3	3.0	3.2	2.5	2.1
Middlehurst 130364	2.1	2.9	3.1	2.3	2.2	2.8	3.2	3.4	2.1	2.8
Middlehurst 130203	2.4	3.0	3.3	2.4	2.4	1.8	3.2	3.3	2.5	1.8
Muller D00062	2.5	3.0	3.5	2.2	2.5	2.2	3.1	3.5	2.1	2.1
Muller D00082	2.2	3.0	3.5	2.5	2.4	2.5	3.1	3.5	2.2	2.4
Nine Mile 130005	1.9	2.9	3.2	3.0	2.6	1.9	3.1	3.1	2.6	1.9
Nine Mile 130047	2.0	3.0	3.2	2.9	2.8	1.5	3.1	3.2	2.6	1.5
Nine Mile 140881	2.1	3.0	3.6	2.5	2.7	1.7	3.1	3.3	2.5	1.8
Nokomai 110214	1.3	3.0	3.3	2.8	2.9	1.2	3.1	3.3	2.8	1.3
NZM 110210	2.2	3.0	3.5	2.1	2.4	1.9	3.1	3.3	2.1	2.2
NZM 110219	2.4	3.0	3.3	2.6	2.3	2.6	3.1	3.2	2.3	2.6
NZM 110292	2.2	3.0	3.0	3.2	2.5	2.2	3.2	3.4	2.5	2.2
NZM 110294	2.5	2.9	3.3	2.6	2.4	2.2	3.0	3.2	2.4	2.4
NZM 110349	2.3	3.0	3.4	2.4	2.5	2.5	3.2	3.3	2.4	2.7
NZM 110500	2.2	3.0	3.4	2.5	2.4	2.1	3.2	3.5	2.3	2.1
NZM 110647	2.7	3.0	3.3	2.5	2.5	2.3	3.1	3.2	2.1	2.7
Roseville Park	2.2	3.0	3.3	2.3	2.3	2.6	3.1	3.1	2.3	2.6
Strathblane 130120	2.0	3.0	3.2	2.9	2.8	1.2	3.0	3.2	2.5	1.3
The Gums 132034	1.8	3.0	3.2	2.9	2.9	1.2	3.1	3.1	2.6	1.4
The Gums 132037	1.8	3.0	3.1	3.0	2.9	1.1	3.1	3.3	2.9	1.3

STRUCTURAL CLASSING

2014 CPT

SIRE	OVERALL CONFORMATION	JAW	FRONT LEGS	SHOULDER	BACK	BODY WRINKLE	HOCKS	PASTERN	BACK LEGS	BREECH WRINKLE
2014 Drop Average	**2.2**	**2.9**	**3.4**	**2.9**	**2.6**	**1.9**	**3.0**	**3.4**	**2.4**	**2.0**
Armidale 121938	2.4	3.0	3.4	2.7	2.6	2.1	3.1	3.4	2.1	2.6
Awapiri 090025	1.9	3.0	3.5	3.4	2.4	2.2	3.1	3.5	2.1	2.0
Benmore 12N952	2.9	2.9	3.7	2.8	2.5	2.2	3.0	3.3	2.3	2.4
Blairich 110175	2.3	2.9	3.4	2.8	2.3	2.4	3.0	3.1	2.3	2.3
Blairich 120310	2.5	2.8	3.6	2.7	2.4	2.2	3.0	3.2	2.2	2.5
Cleardale 11L130	2.0	2.8	3.5	2.9	2.5	1.9	3.1	3.4	2.5	1.9
Cleardale 13AB15	1.6	3.0	3.3	3.0	2.8	1.1	3.0	3.4	2.5	1.2
CPT 14	1.9	3.0	3.3	3.1	2.7	1.9	3.1	3.4	2.2	2.2
Earnscleugh 095022	1.7	2.9	3.3	3.2	2.8	1.8	3.0	3.4	2.4	1.7
Glen Orkney 110138	1.7	3.0	3.6	2.9	2.7	1.8	3.1	3.6	2.4	2.1
Glenmore 070403	2.3	3.0	3.3	2.7	2.5	2.3	2.9	3.3	2.3	2.3
Glenovis 12K214	1.9	2.9	3.4	3.3	2.8	1.8	3.0	3.4	2.7	1.8
Ida Valley 00Jacob63	2.4	3.0	3.6	3.1	2.8	2.0	2.9	3.2	2.3	2.1
Leahcim 123170	1.9	2.9	3.3	3.3	2.5	1.8	2.9	3.2	2.3	2.0
Longfield 11EE18	1.4	3.0	3.3	3.2	2.9	1.3	2.9	3.3	2.8	1.3
Maryburn 120073	2.3	3.0	3.7	2.8	2.6	1.9	3.2	3.3	2.3	2.0
Matakanui 110375	2.2	2.9	3.4	3.1	2.4	2.4	3.1	3.4	2.3	2.4
Matakanui 12F236	2.0	2.9	3.2	2.8	2.7	2.0	3.2	3.5	2.4	2.0
Matarae 070017	2.1	2.9	3.4	2.5	2.5	1.8	3.0	3.4	2.1	2.0
Melrose 100217	1.7	2.9	3.1	2.9	2.8	1.4	3.0	3.2	2.7	1.3
Middlehurst 120248	2.5	3.0	3.4	3.0	2.6	1.9	3.0	3.4	2.4	1.8
Middlehurst 120371	2.2	3.0	3.3	3.1	2.6	1.8	3.0	3.3	2.7	1.8
Moojepin 090781	2.1	3.0	3.2	3.0	2.6	1.3	3.1	3.4	2.4	1.4
Moojepin 100248	2.2	2.9	3.5	3.3	2.7	1.6	3.1	3.4	2.4	1.5
Moojepin 120652	1.4	2.9	3.3	2.9	2.9	1.6	3.2	3.5	2.7	1.5
Moutere 124660	1.9	3.0	3.3	2.8	2.7	2.2	3.1	3.3	2.3	2.3
Muller 120A20	2.4	3.0	3.3	2.9	2.5	1.9	3.1	3.5	2.2	1.9
Muller 12MD01	2.2	3.0	3.3	3.0	2.3	2.2	2.8	3.2	2.3	2.2
Mumblebone 120431	2.3	2.8	3.5	3.1	2.8	1.6	3.0	3.3	2.4	1.6
Nerstane 080290	2.5	2.9	3.5	3.0	2.5	2.1	3.1	3.6	2.3	2.2
Nine Mile 120045	2.6	2.9	3.3	2.9	2.5	1.8	3.0	3.3	2.2	1.9
NZM 110183	2.8	2.9	3.5	2.8	2.5	2.6	2.9	3.5	2.1	2.5
NZM 110195	2.4	3.0	3.6	2.9	2.4	2.2	3.2	3.3	2.3	2.1
NZM 110196	2.9	2.9	3.5	2.5	2.5	2.4	3.1	3.7	2.1	2.7
NZM 110294	2.7	2.9	3.5	2.7	2.5	1.8	3.0	3.4	2.4	2.1
NZM 110365	2.4	3.0	3.5	2.8	2.4	2.3	3.0	3.6	2.1	2.5
NZM 110492	2.6	3.0	3.6	2.9	2.6	2.2	3.1	3.5	2.3	2.3
NZM 110662	3.0	3.0	3.8	2.7	2.8	2.4	2.8	3.0	2.3	2.7
Stonehenge 110035	2.4	2.8	3.5	2.5	2.6	2.3	3.0	3.2	2.2	2.9
Strathblane 110654	1.9	2.9	3.3	3.0	2.9	1.3	3.0	3.3	2.7	1.5
The Gums 120354	2.0	3.0	3.3	3.0	2.7	1.6	3.0	3.3	2.4	1.6

STRUCTURAL CLASSING

2013 CPT

SIRE	OVERALL CONFORMATION	JAW	SHOULDER	BACK	BODY WRINKLE	PASTERN	BACK LEGS	BREECH WRINKLE
2013 Drop Average	**1.9**	**3.0**	**3.9**	**2.7**	**2.4**	**3.6**	**2.3**	**2.4**
Armidale 110631	1.8	3.0	3.9	2.4	2.8	3.8	2.1	2.9
Armidale 111735	1.8	2.8	3.7	2.7	2.8	3.6	2.4	2.8
Awapiri 100085	2.2	3.3	3.9	2.6	2.6	3.5	2.2	2.7
Benmore 091053	1.8	2.8	3.9	2.6	3.1	3.3	2.3	3.2
Benmore 100969	1.9	2.9	3.8	2.6	2.4	3.5	1.9	2.5
Blackforest 080572	2.2	3.0	3.8	2.7	2.5	3.6	2.3	2.6
Blairich 110106	2.1	3.0	4.0	2.4	2.6	3.4	2.3	2.7
Cleardale 100127	1.6	3.2	3.8	2.8	2.3	3.3	2.3	2.3
CPT 4	1.8	3.1	3.7	2.8	2.2	3.6	2.2	2.3
Earnscleugh 083006	2.1	3.2	4.0	2.5	2.6	3.9	2.4	2.6
Earnscleugh 114323	1.5	3.1	3.8	2.7	2.5	3.5	2.2	2.5
Glen Orkney 100200	1.9	3.0	3.8	2.5	2.5	3.7	2.1	2.6
Glen Orkney 110184	2.0	2.9	3.9	2.7	2.5	3.5	2.4	2.5
Glenloe Patari 092888	1.7	3.0	3.7	2.7	2.4	3.9	2.4	2.5
Glenmore 020016	1.7	3.1	3.9	2.5	2.7	3.6	2.2	2.7
Glentanner 08TW20	1.9	3.0	4.0	2.7	2.8	3.6	2.2	2.8
Glentanner 10UM18	2.1	3.0	3.8	2.6	2.2	3.4	2.2	2.2
Grays Hills 100506	1.6	2.8	3.7	2.7	2.2	3.3	2.3	2.2
Grays Hills 110149	1.8	2.6	3.8	2.6	2.0	3.6	2.1	2.0
Koonwarra 3JSN14	2.2	2.8	4.3	2.4	3.3	3.9	2.4	3.2
Longfield 110711	1.3	2.9	3.5	2.9	1.4	3.6	2.8	1.5
Melrose 080361	1.3	2.6	3.5	2.9	2.0	3.4	2.7	2.0
Merinotech 088579	1.9	2.6	4.0	2.6	1.8	3.8	2.5	1.9
Middlehurst 100103	1.8	3.3	4.0	2.7	1.8	3.6	2.2	1.9
Moojepin 090781	1.8	2.9	4.0	2.8	1.7	3.7	2.6	1.6
Moojepin 110530	1.7	2.9	3.9	2.6	1.3	3.8	2.2	1.4
Moojepin 110669	1.7	2.9	3.8	2.7	1.3	3.9	2.5	1.3
Moutere 082251	1.7	3.0	4.1	2.7	2.6	3.7	2.2	2.7
Muller 090088	1.6	3.1	3.8	2.8	2.6	3.6	2.4	2.7
Muller 100002	2.1	2.8	3.8	2.7	2.1	3.8	2.4	2.1
Nine Mile 090015	2.0	3.0	3.8	2.7	2.3	3.7	2.1	2.5
Nine Mile 110189	2.1	3.1	3.8	2.8	2.3	3.7	1.9	2.4
Nine Mile 110196	2.1	3.0	3.9	2.8	1.9	3.6	2.1	2.0
Tara Park 000685	2.3	3.2	3.9	2.8	2.5	3.3	2.3	2.5
The Glen 110065	1.9	2.9	3.9	2.5	2.2	3.5	2.1	2.3
The Glen 110207	1.8	3.1	4.2	2.5	3.1	3.7	2.0	3.2
The Gums 101861	2.0	2.9	4.0	2.8	2.7	3.6	2.0	2.7
The Gums 110207	2.2	3.1	4.1	2.5	3.1	3.5	1.9	3.1
The Gums 110703	2.1	3.2	3.9	2.7	2.4	3.6	2.2	2.4
Trigger Vale 110839	1.8	3.1	3.8	2.9	2.0	3.9	2.0	1.9

TOP / FLOCK / CULL GRADES

Each of the CPT progeny have been visually classed as yearlings according to the following breeding objective: **The aim is to produce an animal that optimises returns from wool and meat in non-traditional merino growing areas. More specifically, the goal is to select sheep of sound conformation with wool of sufficient quality and that can produce a valuable carcass. The ewes should be capable of rearing multiple lambs to good weaning weights.**

As for the wool and structural classing data, these figures are raw data averages only and have not been adjusted for the impacts of environment and management.

2016 CPT

SIRE	TOP	FLOCK	CULL
2016 Drop Average	**13%**	**57%**	**30%**
Awapiri 140027	22%	67%	11%
Benmore T19-15	25%	67%	8%
Benmore TC99-15	0%	56%	44%
Cleardale AB 97/14	32%	52%	16%
Cleardale L242/12	18%	70%	13%
CPT 18	0%	80%	20%
CPT 45	4%	45%	51%
CPT 57	3%	70%	27%
CPT 80	15%	72%	13%
Earnscleugh 131383	11%	68%	21%
Glenflora 135912	2%	35%	63%
Glenloe 140045	11%	67%	22%
Glenovis K110-13	0%	65%	35%
Ida Valley 140049	6%	58%	36%
Ida Valley 140501	22%	54%	24%
Lockerbie 42/13	0%	53%	47%
Longfield 20/14	18%	64%	18%
Longfield S206/14	0%	48%	52%
Mallochvale K601-12	3%	52%	44%
Matakanui F108/14	0%	69%	31%
Matakanui F126/14	32%	59%	9%
Matarae 099040	0%	33%	68%
Melrose 9/14	6%	74%	19%
Merinotech 088579	29%	65%	6%
Middlehurst 150504	50%	43%	7%
Middlehurst 150607	26%	41%	33%
Moojepin 120652	55%	25%	20%
Moojepin 141692	25%	42%	33%
Muller WD27-14	8%	79%	13%
Mumblebone 130389	11%	83%	6%
Nine Mile 130019	42%	42%	17%
Nine Mile 130054	21%	50%	29%
NZM 110219	13%	62%	24%
NZM 110292	13%	49%	38%
NZM 110294	2%	54%	44%
NZM 110349	2%	66%	33%
NZM 110647	3%	66%	31%
Otematata AD2-45	11%	54%	34%
Otematata AD3-28	5%	79%	16%
Rokeby 2111/02	0%	60%	40%
Southern X 140230	19%	74%	7%
Southern X 140343	0%	67%	33%
Southern X 140440	30%	61%	9%
Strathblane 494-14	5%	20%	75%
Trigger Vale 140477	23%	62%	15%
Wallaloo Park 140261	52%	43%	5%

2015 CPT

SIRE	TOP	FLOCK	CULL
2015 Drop Average	**12%**	**58%**	**30%**
Armidale 111900	41%	55%	4%
Armidale 131528	14%	79%	7%
Benmore 130029	18%	59%	23%
Benmore 130052	25%	67%	8%
Blairich 120671	4%	63%	33%
Cleardale D00016	0%	64%	36%
Cleardale S00536	4%	67%	29%
Earnscleugh 134006	44%	54%	2%
Eskhead 120158	23%	69%	8%
Eudunda 100902	0%	40%	60%
Glenmore 090092	15%	65%	20%
Glenmore 090224	4%	68%	28%
Glenovis 070242	0%	30%	70%
Glentanner 11TW31	15%	74%	11%
Glentanner 12NR19	44%	44%	12%
Grays Hills 120218	18%	64%	18%
Ida Valley 13P039	11%	53%	36%
Longfield 130281	14%	63%	23%
Malvern Downs 090009	22%	78%	0%
Maryburn 100073	23%	61%	16%
Maryburn 130039	24%	60%	16%
Matakanui F00063	0%	42%	58%
Matakanui MIL044	0%	79%	21%
Matangi 110019	0%	43%	57%
Matangi 110105	7%	40%	53%
Matarae 099040	10%	75%	15%
Matarae 100271	15%	54%	31%
Melrose 130398	4%	35%	61%
Melrose 140094	10%	70%	20%
Merinotech 122295	12%	80%	8%
Middlehurst 130364	6%	50%	44%
Middlehurst 130203	27%	68%	5%
Muller D00062	19%	44%	37%
Muller D00082	18%	46%	36%
Nine Mile 130005	36%	50%	14%
Nine Mile 130047	3%	80%	17%
Nine Mile 140881	17%	75%	8%
Nokomai 110214	16%	62%	22%
NZM 110210	17%	66%	17%
NZM 110219	11%	47%	42%
NZM 110292	15%	54%	31%
NZM 110294	10%	47%	43%
NZM 110349	0%	48%	52%
NZM 110500	0%	61%	39%
NZM 110647	3%	45%	52%
Roseville Park 090014	7%	72%	21%
Strathblane 130120	0%	48%	52%
The Gums 132034	0%	68%	32%
The Gums 132037	11%	64%	25%

TOP / FLOCK / CULL GRADES

2014 CPT

SIRE	CLASSSER ONE TOP	CLASSSER ONE FLOCK	CLASSSER ONE CULL	CLASSSER TWO TOP	CLASSSER TWO FLOCK	CLASSSER TWO CULL
2014 Drop Average	**11%**	**74%**	**15%**	**13%**	**70%**	**17%**
Armidale 121938	26%	58%	16%	24%	53%	24%
Awapiri 090025	0%	100%	0%	0%	100%	0%
Benmore 12N952	0%	85%	15%	0%	63%	37%
Blairich 110175	14%	62%	24%	16%	74%	11%
Blairich 120310	17%	54%	29%	9%	50%	41%
Cleardale 11L130	7%	90%	3%	14%	82%	5%
Cleardale 13AB15	19%	78%	3%	35%	59%	7%
CPT 14	12%	79%	9%	9%	85%	6%
Earnscleugh 095022	32%	65%	3%	33%	60%	7%
Glen Orkney 110138	29%	71%	0%	46%	55%	0%
Glenmore 070403	11%	68%	21%	6%	75%	19%
Glenovis 12K214	0%	73%	27%	0%	83%	17%
Ida Valley 00Jacob63	5%	76%	19%	6%	78%	17%
Leahcim 123170	29%	57%	14%	18%	73%	9%
Longfield 11EE18	0%	96%	4%	0%	100%	0%
Maryburn 120073	17%	61%	22%	15%	70%	15%
Matakanui 110375	12%	85%	4%	15%	80%	5%
Matakanui 12F236	12%	71%	18%	19%	63%	19%
Matarae 070017	17%	67%	17%	13%	75%	13%
Melrose 100217	12%	81%	8%	29%	62%	10%
Middlehurst 120248	11%	58%	32%	10%	60%	30%
Middlehurst 120371	21%	63%	17%	10%	75%	15%
Moojepin 090781	15%	78%	7%	11%	79%	11%
Moojepin 100248	6%	72%	22%	6%	81%	13%
Moojepin 120652	33%	67%	0%	57%	43%	0%
Moutere 124660	14%	75%	11%	4%	93%	4%
Muller 120A20	10%	85%	5%	16%	68%	16%
Muller 12MD01	19%	69%	13%	16%	63%	21%
Mumblebone 120431	13%	78%	9%	20%	68%	12%
Nerstane 080290	5%	81%	14%	19%	71%	10%
Nine Mile 120045	11%	67%	22%	6%	63%	31%
NZM 110183	0%	83%	17%	0%	65%	35%
NZM 110195	8%	76%	16%	14%	69%	17%
NZM 110196	0%	74%	26%	0%	60%	40%
NZM 110294	3%	68%	30%	3%	68%	29%
NZM 110365	0%	75%	25%	0%	79%	21%
NZM 110492	4%	65%	30%	0%	46%	54%
NZM 110662	9%	64%	27%	0%	50%	50%
Stonehenge 110035	11%	79%	11%	0%	79%	21%
Strathblane 110654	7%	81%	13%	10%	86%	5%
The Gums 120354	5%	86%	9%	13%	81%	6%

2013 CPT

SIRE	CLASSSER ONE TOP	CLASSSER ONE FLOCK	CLASSSER ONE CULL	CLASSSER TWO TOP	CLASSSER TWO FLOCK	CLASSSER TWO CULL
2013 Drop Average	**25%**	**60%**	**15%**	**20%**	**61%**	**19%**
Armidale 110631	31%	59%	10%	25%	62%	14%
Armidale 111735	15%	63%	22%	12%	61%	28%
Awapiri 100085	10%	58%	32%	7%	53%	39%
Benmore 091053	26%	62%	13%	20%	63%	17%
Benmore 100969	39%	54%	7%	32%	59%	10%
Blackforest 080572	14%	62%	24%	11%	60%	30%
Blairich 110106	24%	62%	14%	18%	63%	18%
Cleardale 100127	33%	58%	9%	27%	61%	12%
CPT 4	20%	63%	17%	15%	63%	22%
Earnscleugh 083006	37%	55%	8%	30%	59%	11%
Earnscleugh 114323	41%	52%	7%	34%	57%	9%
Glen Orkney 100200	25%	62%	13%	20%	63%	17%
Glen Orkney 110184	28%	60%	11%	22%	63%	15%
Glenloe Patari 092888	30%	59%	10%	24%	62%	14%
Glenmore 020016	28%	61%	12%	22%	63%	16%
Glentanner 08TW20	28%	60%	11%	22%	63%	15%
Glentanner 10UM18	23%	63%	15%	18%	63%	19%
Grays Hills 100506	38%	54%	8%	31%	59%	10%
Grays Hills 110149	30%	60%	11%	23%	63%	14%
Koonwarra 3JSN14	8%	56%	36%	6%	50%	44%
Longfield 110711	18%	63%	19%	14%	62%	24%
Melrose 080361	20%	63%	16%	16%	63%	21%
Merinotech 088579	31%	59%	10%	24%	62%	14%
Middlehurst 100103	21%	63%	16%	16%	63%	21%
Moojepin 090781	25%	62%	13%	20%	63%	17%
Moojepin 110530	27%	61%	12%	21%	63%	16%
Moojepin 110669	25%	62%	14%	19%	63%	18%
Moutere 082251	38%	54%	8%	31%	59%	10%
Muller 090088	30%	59%	10%	24%	62%	14%
Muller 100002	14%	62%	24%	10%	59%	31%
Nine Mile 090015	31%	59%	10%	24%	62%	14%
Nine Mile 110189	19%	63%	17%	15%	63%	23%
Nine Mile 110196	10%	59%	31%	8%	55%	38%
Tara Park 000685	15%	63%	22%	12%	61%	28%
The Glen 110065	28%	61%	12%	22%	63%	16%
The Glen 110207	21%	63%	16%	16%	63%	21%
The Gums 101861	23%	63%	15%	18%	63%	19%
The Gums 110207	31%	59%	10%	24%	62%	14%
The Gums 110703	22%	63%	15%	17%	63%	20%
Trigger Vale 110839	24%	62%	14%	19%	63%	18%

FERTILITY AND LAMB SURVIVAL

The results in this section highlight the importance for the industry to select for traits that improve both ewe condition, and the survival of their lambs.

The 2014-born female progeny) had one opportunity to conceive and raise a lamb (the 2016/17 breeding season).

The 2013-born female progeny had two opportunities to conceive and raise a lamb (the 2015/16 and 2016/17 breeding seasons).

At pregnancy scanning, any ewes that scanned 'dry' were removed from the mob. At lamb marking, any ewes that were 'wet/dry' (i.e. any ewe that had been pregnant at scanning but had failed to raise a lamb) were identified and removed from the mob.

The tables include the average weight and condition score for each sire group at joining. The 2013 and 2014 in-lamb ewes were run together, with no preferential feeding for lighter ewes at any stage (except for multiple-bearing ewes between scanning and weaning).

We note that some sire groups were smaller than others at the outset. In these groups, each ewe loss results in a bigger percentage loss of the total than in the larger groups.

2014

SIRE	NUMBER OF EWES MATED 2016	WEIGHT AT MATING 2016	CONDITION SCORE AT MATING 2016	SCANNING PERCENTAGE	EWES REMAINING AT WEANING 2017	PERCENTAGE REMAINING IN FLOCK
Flock average	**624**	**49.62**	**2.88**	**126%**	**470**	**75%**
Armidale 121938	9	45.7	2.7	111%	8	89%
Awapiri 090025	10	50	2.8	150%	9	90%
Benmore 12N952	14	46	2.7	93%	6	43%
Blairich 110175	11	46.2	2.7	109%	9	82%
Blairich 120310	16	44.6	2.6	106%	11	69%
Cleardale 11L130	20	51	2.9	140%	15	75%
Cleardale 13AB15	22	55.9	3.1	150%	18	82%
CPT 14	21	50.8	2.8	105%	19	91%
Earnscleugh 95022	22	50.2	3.0	136%	15	68%
Glenmore 070403	11	49.5	2.8	136%	9	82%
Glenovis 12K214	20	53.9	3.1	135%	18	90%
Glen Orkney 110138	17	51.2	2.9	171%	13	77%
Ida Valley 00JACOB63	19	47.9	2.9	142%	17	90%
Leahcim 123170	9	50.6	2.8	100%	6	67%
Longfield 11EE18	17	54.7	3.2	159%	13	77%
Maryburn 120073	8	49.1	2.9	125%	5	63%
Matakanui 110375	18	48.5	2.8	111%	11	61%
Matakanui 12F236	14	50.6	2.9	107%	7	50%
Matarae 070017	7	50.6	2.8	114%	2	29%
Melrose 100217	21	54.1	3.2	114%	17	81%
Middlehurst 120248	10	48.3	2.8	100%	6	60%
Middlehurst 120371	16	51.2	2.8	163%	13	81%
Moojepin 090781	19	53.4	3.0	132%	16	84%
Moojepin 100248	13	49.8	2.9	123%	11	85%
Moojepin 120652	5	51.1	3.0	120%	5	100%
Moutere 124660	21	49.7	2.9	143%	15	71%
Muller 120A20	16	49.2	2.8	144%	11	69%
Muller 12MD01	14	47.1	2.8	93%	10	71%
Mumblebone 120431	16	48.4	3.0	144%	12	75%
Nerstane 080290	19	47.9	2.8	132%	12	63%
Nine Mile 120455	10	49.4	2.9	110%	8	80%
NZM 110183	17	46.1	2.7	129%	14	82%
NZM 110195	13	44.4	2.6	100%	10	77%
NZM 110196	8	44.7	2.7	89%	6	75%
NZM 110294	34	45.2	2.8	109%	25	74%
NZM 110365	16	46.4	2.8	106%	14	88%
NZM 110492	13	47.8	2.9	115%	8	62%
NZM 110662	9	45.6	2.9	111%	5	56%
Stonehenge 110035	12	50	2.7	158%	9	75%
Strathblane 110654	21	54.5	3.2	124%	19	91%
The Gums 120354	16	52.7	3.0	119%	13	81%

2014 DROP

- In the 2016/17 season, these ewes scanned 126% overall with 5.1% dry.
- The table below shows the number of ewes from each sire group that were mated in 2016, and how many of those ewes remained in the flock following weaning at the end of the 2016/17 breeding season.

2013 DROP

- In the 2015/16 season, these ewes scanned 102% overall with 8.4% dry.
- In the 2016/17 season, these ewes scanned 142% overall with 3.6% dry.
- The table below shows the number of ewes from each sire group that were mated in 2015, and how many of those ewes remained in the flock following weaning at the end of the 2016/17 breeding season.

2013

SIRE	NUMBER OF EWES MATED 2015	WEIGHT AT MATING 2015	CONDITION SCORE AT MATING 2015	WEIGHT AT MATING 2016	CONDITION SCORE AT MATING 2016	EWES REMAINING AT WEANING 2017	PERCENTAGE REMAINING IN FLOCK
Flock average	**673**	**46.4**	**2.96**	**49.87**	**2.79**	**395**	**64%**
Armidale 110631	17	42.9	2.8	49.1	2.9	8	47%
Armidale 111735	16	43.8	3.0	48.7	2.8	7	44%
Awapiri 100085	14	42.4	2.9	46.3	2.6	7	50%
Benmore 091053	16	43.6	2.9	46.9	2.7	8	50%
Benmore 100969	12	48.5	3.0	49.5	2.7	5	42%
Black Forest 080572	12	43.6	2.9	47.9	2.7	7	58%
Blairich 110106	15	43.3	2.7	47.1	2.6	2	13%
Cleardale 100127	19	46.9	2.9	51.2	2.8	11	58%
CPT 4	12	47.8	3.1	49.0	2.8	7	58%
Earnscleugh 083006	17	42.7	2.8	46.4	2.8	4	24%
Earnscleugh 114323	25	47.4	2.9	49.0	2.8	18	72%
Glenloe 092888	12	49.3	3.0	52.7	2.9	6	50%
Glen Orkney 100200	16	48.8	3.0	50.1	2.7	10	63%
Glen Orkney 110184	14	42.4	2.9	48.4	2.8	10	71%
Glenmore 020016	18	43.8	2.9	48.1	2.7	16	89%
Glentanner 08TW20	15	44.9	2.9	48.0	2.7	11	73%
Glentanner 10UM18	16	46.4	3.1	49.6	2.8	10	63%
Grays Hills 100506	18	45.2	2.9	48.9	2.7	14	78%
Grays Hills 110149	17	44.7	2.9	47.5	2.7	7	41%
Koonwarra 3JSN14	16	43.5	2.9	49.2	2.8	6	38%
Longfield 110711	23	55	3.2	57.4	3.2	17	74%
Melrose 080361	13	56.4	3.2	58.5	3.2	12	92%
Merinotech 088579	14	47.5	3.1	48.3	2.7	7	50%
Middlehurst 100103	15	49.4	3.1	50.4	2.8	6	40%
Moojepin 090781	22	49.3	3.1	51.3	2.9	13	59%
Moojepin 110530	20	47.1	3.1	49.1	2.9	17	85%
Moojepin 110669	24	51.9	3.1	56.0	3.0	13	54%
Moutere 082251	18	46.5	2.8	50.1	2.8	12	67%
Muller 090088	23	46.1	2.9	49.8	2.7	10	44%
Muller 100002	14	44.8	3.0	50.1	2.8	8	57%
Nine Mile 090015	11	49.9	3.0	53.3	2.7	8	73%
Nine Mile 110189	19	43.3	3.1	45.8	2.7	11	58%
Nine Mile 110196	10	44.5	2.9	49.3	2.8	6	60%
Tara Park 000685	29	46.4	3.0	48.3	2.8	16	55%
The Glen 110065	22	45.0	2.9	48.9	2.7	15	68%
The Glen 110207	19	45.5	3.0	49.7	2.8	9	47%
The Gums 101861	14	44.5	2.9	46.6	2.8	9	64%
The Gums 110207	11	43	2.9	49.7	2.7	6	55%
The Gums 110703	24	44.5	2.9	47.7	2.7	19	79%
Trigger Vale 110839	11	48.7	3.1	53.1	3.0	7	64%

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For more information on this project, using Sheep Genetics, breeding values, how you can access the footrot breeding value for your stud or genotyping, please do not hesitate to contact the Production Science team at NZM.

NOTES

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