beef+lamb new zealand GENETICS

CENTRAL PROGENY TEST RESULTS

2014-2015

With the support of

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In conjunction with

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On-Farm Research

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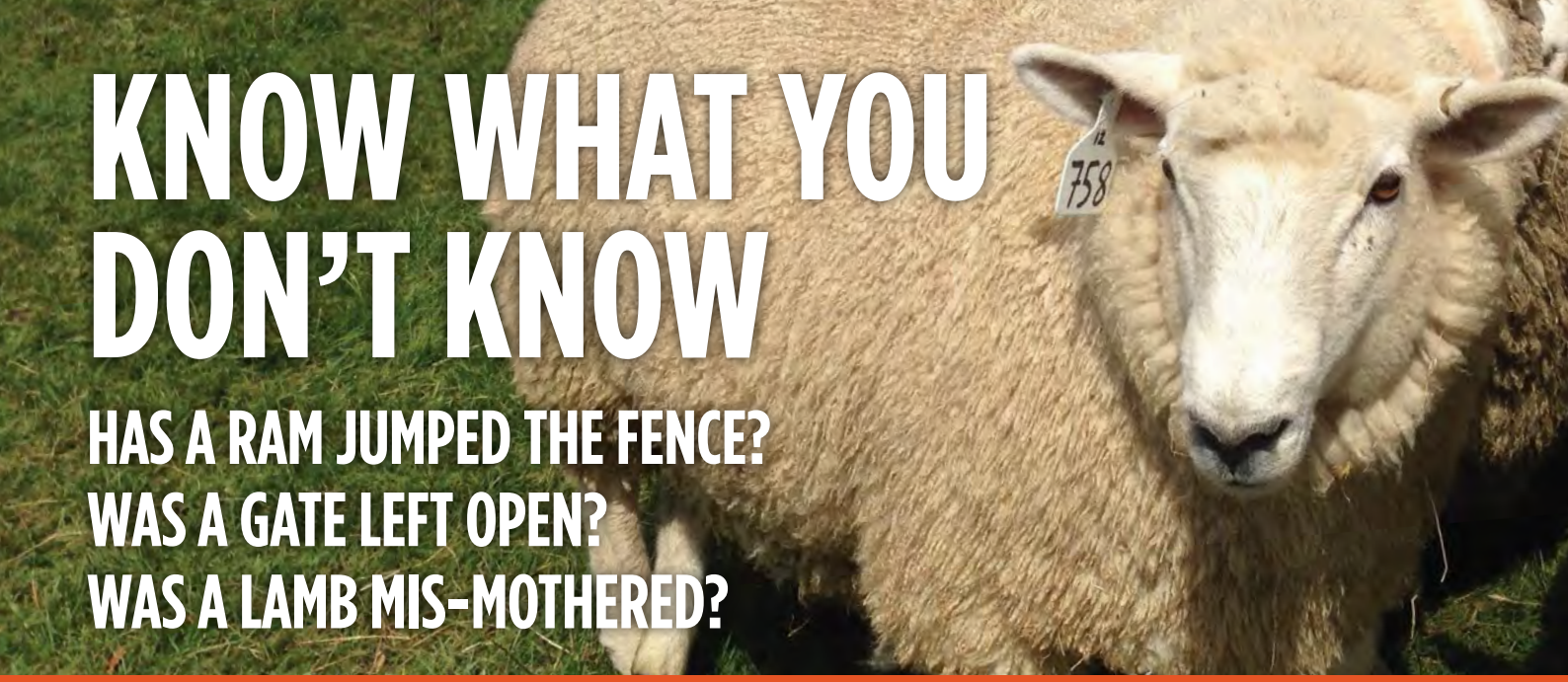

KNOW WHAT YOU DON'T KNOW

HAS A RAM JUMPED THE FENCE?
WAS A GATE LEFT OPEN?
WAS A LAMB MIS-MOTHERED?

Use DNA technology for Sire Paternity Testing, or whole flock parentage

Shepherd® PLUS

Manually recording pedigree is not free from error. Recent industry demonstration has shown that the average pedigree error over two years was 9% (Ovita 5K beta trials). The reality is that most pedigree errors occur at mating, not lambing.

Establishing a lamb's sire or dam using DNA technology enables less work, less interruption, improved lamb survival and more accuracy in your breeding program.

Sheep5K

FEATURES	BENEFITS
Accurate pedigree with Shepherd Plus	More accurate BVs
	Better selection decisions
	Accelerated genetic gain
	Producing sale rams that meet buyer expectation
No need for manual pedigree recording	Create labour savings without lambing beats
	Pedigree recording errors at mating and lambing eliminated
Multi-sire mating	Better utilisation of autumn feed
	More ewes pregnant to a stud ram in the first cycle and less ewes pregnant to a back-up ram
Stud breeding in commercial conditions	Scale up breeding operations on the hills
Marker assisted selection with economically important genes	Influence Meat Yield, Number of Lambs Born and other traits
	Monitor unwanted genetic conditions
Utilise all the benefits of DNA technology with one sample and test: Sheep5K	Sire and Dam DNA pedigree verification
	Seamless integration of genomics on SIL
	5 Single marker gene results
	Specific molecular breeding values for up to 21 separate traits

Create pedigree certainty in your breeding program and for your ram buyers

Zoetis New Zealand Limited
PO Box 5520, Moray Place, Dunedin 9058, New Zealand
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KEY:

Sites:
A = Ashley Dene
W = Woodlands
P = Poukawa
K = Koromiko
O = Onslow View

Years:
99 = 1999/2000 season
00 = 2000/2001 season
01 = 2001/2002 season
02 = 2002/2003 season
03 = 2003/2004 season
04 = 2004/2005 season
05 = 2005/2006 season
06 = 2006/2007 season
07 = 2007/2008 season
08 = 2008/2009 season
09 = 2009/2010 season
10 = 2010/2011 season
11 = 2011/2012 season
12 = 2012/2013 season
13 = 2013/2014 season
14 = 2014/2015 season

eBV	Estimated breeding value	**GGT21**	Facial Eczema tolerance
EMA	Eye Muscle Area	**NLB**	Number of lambs born
FEC or WormFEC	Faecal Egg Count	**FW12**	Fleece weight at 12 months of age
DAGS	Dag score	**Hogget Oestrus**	Age at first oestrus

The results presented in this booklet comprise the top terminal and dual purpose rams for each index or trait. The Central Progeny Test Growth Index is based on weaning weight and carcass weight breeding values. The Central Progeny Test Meat Value Index is based on the breeding values for weight of meat in the leg, loin and shoulder lean as measured by VIAscan®.

For information relating to the Beef + Lamb New Zealand Genetics Central Progeny Test, information on the source of individual rams, or if you want Central Progeny Test results presented to a farmer's meeting, contact:

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INTRODUCTION

Background
Progeny tests are used to 'prove' the genetics of a ram by comparing how his progeny perform relative to progeny from other rams under the same conditions. Rams can be compared across multiple flocks when some rams are used across flocks (often called reference or link sires) to create genetic connections between flocks. However, there are other good reasons to run a progeny test at a central location, usually termed a "central progeny test". Reasons include facilitating comparisons of rams that would not normally be made in industry, and demonstrating or trialling the use of novel or expensive measurement methods.

Objectives
The Beef + Lamb New Zealand (B+LNZ) Genetics Central Progeny Test has four objectives:

- Identify sources of high performing rams by extending and strengthening comparisons across flocks and breeding groups
- Develop genetic parameters for, and industry understanding of, novel traits
- Foster links between ram breeding groups
- Provide a genetic resource for add-on projects of value to sheep farmers and allied industries

The Central Progeny Test was not set up as a breed comparison, but rather as a **ram** comparison. It has focused on identifying top genetics regardless of breed. Breed comparisons require testing many randomly selected rams per breed, with few progeny per ram. The Central Progeny Test has evaluated over 300 rams, but they were not randomly selected and have large numbers of progeny per ram, from as many breeds as possible, to improve genetic connections within the New Zealand sheep industry.

Genetic connections between breeding groups established through the Central Progeny Test have been used in large scale evaluations performed across flocks and across breeds by Sheep Improvement Ltd (SIL). These are the "SIL-ACE" (SIL Advanced Central Evaluation; www.sil.co.nz/SIL-ACE/ACE-reports.aspx) evaluations. Central Progeny Test data provide critical genetic connections needed for the SIL-ACE evaluation.

History of the Central Progeny Test
In 2002, the "Alliance Central Progeny Test®" was established at Woodlands, in Southland, with significant investment from the Alliance Group and the collaboration of AgResearch, SIL and AbacusBio. Terminal sire and dual purpose rams were sourced from industry and mated to Coopworth or Coopworth-cross ewes. Lambs were assessed for growth rate and carcass merit, making use of Alliance's VIAscan® technology for carcass assessment. This was repeated in 2003, with the addition of a second site at Ashley Dene in collaboration with Lincoln University. Lambs continued to be assessed for growth rate and carcass merit.

In 2004 the programme was extended to include maternal traits for daughters of dual purpose rams. These rams were mated to sufficient ewes to generate female progeny to be retained for assessment of maternal traits. Surplus females and all male lambs were assessed for growth rate and carcass merit. Investment in the work with female progeny was provided then by Meat & Wool New Zealand.

In 2005, a third site was established at Poukawa (Hawkes Bay) with On-Farm Research and historic liveweight data from the Poukawa Elite Lamb programme (1998 to 2004) were added to the analysis. From 2005, matings and measurements have been carried out using the same protocols at all three sites. From 2012, sires were used at all three sites where possible, by AI, to increase genetic connections between sites.

In 2013, two hill country sites were established to investigate whether sire rankings changed depending on the environment they were evaluated in. The two sites comprised Taratahi Agricultural Training Centre's "Koromiko" property in the hill country close to Masterton in the Wairarapa, and EGL Pastoral Ltd's "Onslow View" property near Millers Flat in Central Otago. The same dual purpose sires evaluated on the lowland sites were also used on the hill sites, and

maternal performance will be measured through to their four-tooth lambing. B+LNZ has been the primary investor in the Central Progeny Test from 2005 to 2013. With the establishment of B+LNZ Genetics in 2014, the Central Progeny Test programme is part of that programme and is now known as the B+LNZ Genetics Central Progeny Test.

Results in the following tables are based on analysis of data from all rams evaluated to date. However, our 'aging policy' means that results are not presented for rams older than ten years of age **and** which have no progeny born in SIL-recorded flocks in the last four years, regardless of their ranking. This means that rams listed are currently, or were recently, available for use. A total of 147 and 164 Dual Purpose and Terminal Sire rams, respectively, have been evaluated over the lifetime of the Central Progeny Test programme. However, the results presented here are for 104 and 115 Dual Purpose and Terminal Sire rams, respectively, after removal of the 'aged' rams.

Results are presented as two indexes (Central Progeny Test Growth Index and Central Progeny Test Meat Value Index) and individual breeding values (eBVs) for traits of interest. Three summary tables are presented at the back of the booklet, listing all relevant eBVs for the top 20 terminal rams based on the combined growth and meat indexes, the top 20 dual purpose rams based on the combined growth and meat indexes, and the top 20 dual purpose rams based on a SIL Dual Purpose Production index including merit for other traits as well.

Changes to the presentation of results for 2014/2015 born progeny

The second year of data from hill sites contributed to the results of analyses presented in this booklet. The hill site data available at this time are growth and meat yield results for male progeny. No attempt has been made yet to address any issues with sires ranking differently for performance at different sites. The reasons are that there are a number of ways that genotype by environment interactions can be analysed and the main issues we are investigating is the stability of genetic merit for maternal traits. We do not have sufficient data yet to do the research to find the optimum way to analyse the data and there are no maternal performance data yet on sire progeny from the hill sites. As such, the Management Committee decided the best action was to combine the data from the five sites for this analysis and the results presented here.

There is a change to the data used in estimating WWT eBVs for the 2015 Results Booklet. Many lambs in the CPT flocks have only a weaning weight and then a carcass weight at slaughter. This reflects the design of the CPT trial whereby the focus was on carcass merit and animals slaughtered close to a target carcass weight. In the last year, we have added extra live weight data where it was available as autumn live weight to better predict genetic merit for growth. This has resulted in changes in WWT eBV for some rams. We consider these latest results for 2015 are giving us better estimates of genetic merit for growth than we previously had, and more in agreement with SIL breeding values.

Within this booklet, there are three types of eBV presented. Our aim is to use SIL eBVs based on data from the Central Progeny Test flock where possible provided they give acceptable accuracy. SIL across-flock eBVs have been used for weaning weight; WormFEC, fleece weight and dag score. SIL-ACE eBVs (i.e. including data outside the Central Progeny Test) are used where the eBV needs greater numbers of records to improve the accuracy, namely for number of lambs born and facial eczema eBVs. All other eBVs are estimated using Central Progeny Test data in stand-alone (i.e. non-SIL) analyses. These include eBVs for weights of lean in the hindleg, loin and shoulder, carcass weight, eye muscle area and hogget oestrus.

Breeding values for the traits dressing percentage, pH, meat colour and fat colour are presented only in the tables for the top 20 dual purpose and top 20 terminal sire rams for meat and growth. They continue to be measured so that the genetic relationships between these quality traits and growth and yield traits can be monitored.

A ram called "1980s Sires" appears in all dual purpose results tables. This is the average result for a group of five leading Romney rams from the early 1980s that the Central Progeny Test obtained using semen held in storage by AgResearch. Results clearly show the significant genetic improvement that has occurred since then.

HOW TO UNDERSTAND CENTRAL PROGENY TEST RESULTS

This booklet contains eBVs and indexes for rams used in the Alliance Central Progeny Test® and B+LNZ Genetics Central Progeny Test. A total of 311 sires have been evaluated in the Central Progeny Test to date. In addition, data from rams used in the Elite Lamb programme at Poukawa from 1998 to 2004 have been included for the evaluation of growth. However, no animals from Poukawa's Elite Lamb programme are presented in the tables of results due to the aging policy.

Breeding values for the **top 25 terminal sire and top 25 dual purpose rams** are presented for each trait or index. An eBV is an estimate of the animal's true genetic worth, or the value of a parent's genes, half of which are passed on to its offspring. An eBV does not necessarily reflect the observed performance of the animal itself because the observed performance is a combination of both the animal's genes and effects of the environment it has been raised in.

Breeding values that were sourced from SIL or SIL-ACE (i.e. weaning weight, WormFEC, dag score, numbers of lambs born and facial eczema) are adjusted so the average of animals born in 1995 was zero. Breeding values and indexes derived from only Central Progeny Test data and presented here are given as deviations from an overall average of zero, which means that half of the rams tested will have negative breeding values.

If a ram has an eBV of +1.0 cm^2 for eye muscle area, we expect their progeny to have 0.5 cm^2 larger eye muscle areas (the sire provides half their genes) than progeny of an average ram in the Central Progeny Test. Likewise, if a ram has an eBV of -1.0 cm^2 for eye muscle area, we expect his progeny to have 0.5 cm^2 smaller eye muscle area than the Central Progeny Test average. A negative eBV for eye muscle area does not necessarily mean that a ram is poor for lean weight, e.g. many dual purpose rams do not have the high eye muscle areas found in terminal sire breeds because they have been selected for many other traits. Thus, some of the better dual purpose rams for eye muscle area could have negative eBVs simply because terminal sire rams are more likely to have high values.

A breeding index is a simple way of combining eBVs for a number of traits, with an economic weighting applied to each eBV to best characterise economic merit. For example, the Central Progeny Test Growth Index uses the weaning weight and carcass weight eBVs to characterise value of the genetic merit for lamb growth.

Some Central Progeny Test eBVs and indexes differ from those produced by the SIL genetic evaluation system in several ways. The Central Progeny Test collects additional measurements that are not routinely collected in the wider industry, or are analysed in a different way to SIL because of the experimental design. For example, eye muscle area (EMA) is measured in the Central Progeny Test from tracings of the loin at slaughter and in SIL from ultrasonic eye muscle depth and width. So CPT EMA eBVs are estimated from different data to the SIL EMA eBV.

For further information on breeding values, indexes and selection, visit the SIL website (www.sil.co.nz).

Central Progeny Test results are available to download on the SIL website (www.sil.co.nz), the B+LNZ website (www.beeflambnz.co.nz) or the Alliance Group website (www.alliance.co.nz).

CENTRAL PROGENY TEST GROWTH INDEX* ($)

Terminal: **Range: -$0.60 to $4.40**

TAG	Flock	Breed	Sites	Progeny	Growth Index	Rank
241/04	**Ohio**	**Poll Dorset**	**A08**	**35**	**$4.40**	**1**
499/08	Arngibbon	Poll Dorset	A11	36	$3.59	2
296/05	**Waikite / Esselmont & Tamlet**	**Texel**	**A09**	**31**	**$3.56**	**3**
570/06	MegaMeat Glengarry	Poll Dorset	P08	88	$3.39	4
231/08	**Goldstream**	**Suffolk**	**A10**	**41**	**$3.13**	**5**
140/11	MegaMeat Pinelands	Poll Dorset	A,P,W14	41	$2.98	6
J20/10	**Inver**	**South Suffolk**	**A,W12**	**60**	**$2.81**	**7**
447/03	Blackdale	Texel	P06	43	$2.78	8
299/01	**Ohio**	**Poll Dorset**	**A04**	**70**	**$2.77**	**9**
38/10	Poll Dorset NZ, Arngibbon	Poll Dorset	A,W14	62	$2.70	10
33/04	**Myola**	**South Suffolk**	**P06**	**59**	**$2.56**	**11=**
10/10	Charollais Sheep NZ	Charollais	A,W12	51	$2.56	11=
867/06	**Adelong**	**Poll Dorset**	**A10**	**40**	**$2.51**	**13**
81/06	South Suffolk NZ Myola	South Suffolk	W11	50	$2.49	14
543/07	**Paki-iti**	**Suffolk**	**P11**	**96**	**$2.46**	**15**
66/12	Longdowns, SIL 746	Composite	A,P,W14	64	$2.45	16=
97508/11	**EGL Site ram**	**Composite**	**O14**	**9**	**$2.45**	**16=**
130/05	Belview	Dorset Down	A07	71	$2.44	18
25/99	**Tyanee**	**Suffolk**	**Link sire**	**1043**	**$2.35**	**19**
430/03	Glengarry	Poll Dorset	A,P,W05	125	$2.22	20
341/05	**Premier Suffolk**	**Suffolk**	**W09**	**35**	**$2.21**	**21**
3/04	Egilshay	Texel	A08	73	$2.20	22
4208/06	**Rissington Awapai**	**Primera**	**P10**	**50**	**$2.12**	**23=**
T284/12	Wharetoa	Meatmaker	A,W14	43	$2.12	23=
402/07	**MegaMeat Glengarry**	**Poll Dorset**	**P09**	**105**	**$2.11**	**25**

Dual Purpose: **Range: -$3.40 to $3.05**

TAG	Flock	Breed	Sites	Progeny	Growth Index	Rank
230/09	**Ile de France NZ**	**Ile de France**	**A,K,O,P,W14**	**73**	**$3.05**	**1**
626/08	Blackdale	Texel	W10	27	$2.28	2=
D110/04	**Blackdale**	**Textra**	**W07**	**39**	**$2.28**	**2=**
349/10	The Gree	Greeline	A,W12	18	$2.19	4
279/07	**Cairnlea**	**Coopworth**	**A10**	**25**	**$1.98**	**5**
187/09	Twin Farm	TEFRom	W11	47	$1.82	6
92724/09	**Te Rakau**	**Texel**	**A,K,O,P,W14**	**81**	**$1.80**	**7**
857/11	Alpha Sheep Genetics	TEFRom	A,K,O,W14	81	$1.45	8
432/11	**TEFRom Group Twin Farm**	**TEFRom**	**A,K,O,W13**	**61**	**$1.35**	**9**
50394/06	Kelso	Kelso	A08 W09	51	$1.32	10
1645/07	**The Gree**	**Greeline**	**W10**	**37**	**$1.15**	**11**
409/06	Blythburn	Romney	W09	37	$1.14	12
777/05	**Tamlet**	**Coopworth**	**W08**	**36**	**$1.11**	**13**
3012/11	Focus Genetics LP	Romney	A,K,O,P,W14	94	$1.05	14
23253/05	**Longdowns, SIL 916**	**Composite**	**W08**	**23**	**$0.96**	**15**
245/04	Tamlet	Coopworth	W09	23	$0.91	16
542/04	**Hazeldale**	**Perendale**	**W06**	**29**	**$0.88**	**17=**
301/04	Hazeldale	Perendale	A08	20	$0.88	17=
230/10	**Tamlet**	**Texel**	**A,K,O,W13**	**76**	**$0.87**	**19**
7180/08	Landcorp Waihora	Romney	W10	30	$0.84	20
9800/12	**Focus Genetics LP**	**Highlander**	**A,K,O,P,W14**	**71**	**$0.82**	**21**
1269/11	Rosedale	Growbulk	A,K,O,W13	77	$0.63	22
50177/09	**Kelso**	**Kelso**	**P11**	**43**	**$0.60**	**23**
9276/10	Focus Genetics Highlander	Highlander	A,K,O,P,W13	53	$0.57	24
5 sires	**1980s sires**	**Romney**	**W07**	**18**	**-$2.28**	**99**

**This index is a terminal sire growth index based on weaning and carcass weight breeding values*

CENTRAL PROGENY TEST MEAT VALUE INDEX* ($)

Terminal: **Range: -$2.27 to $5.39**

TAG	Flock	Breed	Sites	Progeny	Meat Value Index	Rank
530/05	**Grasmere**	**Texel**	**P08**	**39**	**$5.39**	**1**
51/11	Texel New Zealand	Texel	A,P,W13	53	$4.70	2
10/10	**The Burn**	**Texel**	**A,W14**	**60**	**$3.52**	**3**
141/04	Crest	Texel	W10	32	$3.45	4
642/09	**Premier Texel**	**Texel**	**P11**	**46**	**$3.44**	**5**
914/08	Southern Texel Breeders Group	Texel	W11	47	$3.20	6
1662/09	**Focus Genetics Lamb Supreme**	**Lamb Supreme**	**A,W12**	**41**	**$3.17**	**7**
207/09	Kowhai Glen	Texel	W12	59	$2.99	8
1668/08	**Mount Linton**	**Texel**	**A,W12**	**46**	**$2.96**	**9**
294/10	Premier Suftex Group	Suftex	A,W12	46	$2.91	10
110/03	**Murray Downs**	**Texel**	**W05**	**38**	**$2.70**	**11**
275/04	Goldstream	Suffolk	A07	57	$2.67	12
323/07	**Tamlet**	**Texel**	**P,W12**	**79**	**$2.57**	**13**
1982/11	Focus Genetic Lamb Supreme	Lamb Supreme	A,W13	28	$2.49	14
TB126/08	**The Burn**	**Texel**	**A11**	**33**	**$2.44**	**15**
258/11	Premier Suftex – Twin Farm	Suftex	A,W14	57	$2.32	16
2772/12	**Focus Genetics Primera**	**Primera**	**A,P,W14**	**45**	**$2.28**	**17**
101/03	Landover	Texel	W07	17	$2.24	18
114/03	**Landcorp Kepler**	**Lamb Supreme**	**A05**	**37**	**$2.21**	**19**
52/04	Mount Linton	Suftex	W06	34	$2.14	20=
486/08	**Landcorp Kepler**	**Lamb Supreme**	**W10**	**23**	**$2.14**	**20=**
Y302/07	Waterton	Suffolk	A,W12	48	$2.09	22
450/12	**Longdowns, SIL 746**	**Composite**	**A,W14**	**72**	**$1.97**	**23**
1296/03	Mount Linton	Texel Cross	W05	41	$1.91	24
299/01	**Ohio**	**Poll Dorset**	**A04**	**70**	**$1.85**	**25**

Dual Purpose: **Range: -$2.88 to $3.24**

TAG	Flock	Breed	Sites	Progeny	Meat Value Index	Rank
D110/04	**Blackdale**	**Textra**	**W07**	**39**	**$3.24**	**1**
626/08	Blackdale	Texel	W10	27	$2.69	2
92724/09	**Te Rakau**	**Texel**	**A,K,O,P,W14**	**81**	**$2.46**	**3**
50394/06	Kelso	Kelso	A08 W09	51	$2.45	4
66/08	**Brenley**	**Texel**	**A12 W12**	**30**	**$2.39**	**5**
857/11	Alpha Sheep Genetics	TEFRom	A,K,O,W14	81	$2.33	6
1645/07	**The Gree**	**Greeline**	**W10**	**37**	**$2.11**	**7**
123/11	Longdowns, SIL 916	Composite	A,K,O,P,W14	78	$2.04	8
187/09	**Twin Farm**	**TEFRom**	**W11**	**47**	**$2.02**	**9**
50177/09	Kelso	Kelso	P11	43	$1.78	10
3091/08	**Rosedale**	**Growbulk**	**A11**	**25**	**$1.73**	**11**
386/03	Rene	Perendale	A07	34	$1.57	12
198/09	**SRDG**	**Romney**	**W11**	**35**	**$1.56**	**13**
406/06	MNCC	Coopworth	P10	39	$1.40	14
214/09	**Alpha Genetics Nithdale**	**Romney/Texel**	**A,K,O,P,W13**	**77**	**$1.37**	**15**
326/08	Tamlet - Coopworth Genetics NZ	Coopworth	A,K,O,P,W13	61	$1.33	16
50381/11	**Kelso**	**Kelso**	**A,K,O,P,W13**	**74**	**$1.11**	**17**
569/07	Longview	Perendale	P09	83	$1.05	18
301/04	**Hazeldale**	**Perendale**	**A08**	**20**	**$0.91**	**19**
23253/05	Longdowns, SIL 916	Composite	W08	23	$0.90	20
431/04	**Twin Farm**	**TEFRom**	**W07**	**23**	**$0.82**	**21**
201/10	Lincoln - Coopworth Genetics NZ	Coopworth	A,K,O,W13	40	$0.77	22
230/10	**Tamlet**	**Texel**	**A,K,O,W13**	**76**	**$0.73**	**23**
179/07	Wattlebank	Corriedale	A09	34	$0.58	24
5 sires	**1980s sires**	**Romney**	**W07**	**18**	**-$1.02**	**67**

**The relative value for meat in the loin was 4x that of meat in the shoulder and 2x that of meat in hindleg*

WEANING WEIGHT EBV* (KG)

Terminal: **Range: -1.60 to 4.06**

TAG	Flock	Breed	Sites	Progeny	WWT eBV (Acc)	Rank
241/04	**Ohio**	**Poll Dorset**	**A08**	**37**	**4.06 (79)**	**1**
296/05	Waikite / Esselmont & Tamlet	Texel	A09	32	3.79 (78)	2
130/05	**Belview**	**Dorset Down**	**A07**	**69**	**3.74 (85)**	**3=**
543/07	Paki-iti	Suffolk	P11	98	3.74 (80)	3=
33/04	**Myola**	**South Suffolk**	**P06**	**60**	**3.61 (85)**	**5**
499/08	Arngibbon	Poll Dorset	A11	35	3.58 (79)	6
10/10	**Charollais Sheep NZ**	**Charollais**	**A,W12**	**53**	**3.45 (85)**	**7**
570/06	MegaMeat Glengarry	Poll Dorset	P08	98	3.36 (88)	8
867/06	**Adelong**	**Poll Dorset**	**A10**	**34**	**3.21 (80)**	**9**
231/08	Goldstream	Suffolk	A10	41	3.14 (81)	10
J20/10	**Inver**	**South Suffolk**	**A,W12**	**60**	**3.07 (86)**	**11**
447/03	Blackdale	Texel	P06	43	3.04 (80)	12
25/99	**Tyanee**	**Suffolk**	**Link sire**	**860**	**2.92 (99)**	**13**
38/10	Poll Dorset NZ, Arngibbon	Poll Dorset	A,W14	59	2.89 (85)	14
540/09	**Central Canterbury Dorset Down SBA**	**Dorset Down**	**A,W13**	**57**	**2.82 (85)**	**15**
140/11	MegaMeat Pinelands	Poll Dorset	A,P,W14	37	2.80 (81)	16=
T284/12	**Wharetoa**	**Meatmaker**	**A,W14**	**37**	**2.80 (81)**	**16=**
176/03	Totaranui	Dorset Down	P06	76	2.76 (86)	18
341/05	**Premier Suffolk**	**Suffolk**	**W09**	**37**	**2.67 (80)**	**19**
2097/11	One Stop Ram Shop	Texel Suffolk	P13	91	2.49 (87)	20
402/07	**MegaMeat Glengarry**	**Poll Dorset**	**P09**	**113**	**2.36 (90)**	**21**
81/06	South Suffolk NZ Myola	South Suffolk	W11	51	2.34 (84)	22
207/09	**Kowhai Glen**	**Texel**	**W12**	**62**	**2.27 (86)**	**23=**
238/11	Suffolk NZ	Suffolk	A,P,W14	43	2.27 (82)	23=
430/03	**Glengarry**	**Poll Dorset**	**A,P,W05**	**126**	**2.25 (91)**	**25**

Dual Purpose: **Range: -3.42 to 3.23**

TAG	Flock	Breed	Sites	Progeny	WWT eBV (Acc)	Rank
230/09	**Ile de France NZ**	**Ile de France**	**A,K,O,P,W14**	**154**	**3.23 (93)**	**1**
279/07	Cairnlea	Coopworth	A10	46	3.07 (84)	2
187/09	**Twin Farm**	**TEFRom**	**W11**	**96**	**3.01 (90)**	**3**
349/10	The Gree	Greeline	A,W12	53	2.77 (86)	4
D110/04	**Blackdale**	**Textra**	**W07**	**85**	**2.32 (89)**	**5**
3012/11	Focus Genetics LP	Romney	A,K,O,P,W14	187	2.29 (94)	6
626/08	**Blackdale**	**Texel**	**W10**	**62**	**2.20 (87)**	**7**
92724/09	Te Rakau	Texel	A,K,O,P,W14	173	2.16 (93)	8
857/11	**Alpha Sheep Genetics**	**TEFRom**	**A,K,O,W14**	**156**	**2.08 (93)**	**9**
409/06	Blythburn	Romney	W09	69	1.87 (88)	10
50394/06	**Kelso**	**Kelso**	**A08 W09**	**109**	**1.64 (92)**	**11**
432/11	TEFRom Group Twin Farm	TEFRom	A,K,O,W13	121	1.60 (92)	12
9800/12	**Focus Genetics LP**	**Highlander**	**A,K,O,P,W14**	**145**	**1.57 (92)**	**13**
245/04	Tamlet	Coopworth	W09	70	1.54 (88)	14
1645/07	**The Gree**	**Greeline**	**W10**	**97**	**1.49 (90)**	**15**
50177/09	Kelso	Kelso	P11	117	1.40 (82)	16
542/04	**Hazeldale**	**Perendale**	**W06**	**69**	**1.38 (88)**	**17**
32/05	TRIGG	Romney	W10	64	1.31 (87)	18
123/11	**Longdowns, SIL 916**	**Composite**	**A,K,O,P,W14**	**194**	**1.26 (94)**	**19**
7180/08	Landcorp Waihora	Romney	W10	73	1.21 (89)	20
777/05	**Tamlet**	**Coopworth**	**W08**	**80**	**0.90 (89)**	**21**
1214/09	Blackdale	Textra	O13	26	0.83 (76)	22
234/07	**Lochern**	**Perendale**	**Link sire**	**440**	**0.81 (97)**	**23=**
23253/05	Longdowns, SIL 916	Composite	W08	70	0.81 (88)	23=
5 sires	**1980s sires**	**Romney**	**W07**	**32**	**-2.67 (81)**	**100**

**SIL eBV. The average weaning weight was 30.1kg*

WORMFEC EBV* (%)

Terminal: **Range: 86.7% to -26.8%**

TAG	Flock	Breed	Sites	Progeny	WormFEC eBV (Acc)	Rank
110/03	**Murray Downs**	**Texel**	**W05**	**16**	**-26.8 (56)**	**1**
533/11	Longdowns, SIL 746	Composite	A12	14	-25.7 (60)	2
Y302/07	**Waterton**	**Suffolk**	**A,W12**	**22**	**-25.4 (69)**	**3**
10/10	Charollais Sheep NZ	Charollais	A,W12	27	-22.6 (72)	4
3/04	**Egilshay**	**Texel**	**A08**	**32**	**-21.4 (69)**	**5**
9/03	Pahiwi	Suffolk	P05	15	-19.9 (61)	6
18/02	**Brandes Burton**	**Texel**	**A07**	**25**	**-19.2 (67)**	**7**
101/03	Landover	Texel	W07	16	-18.9 (59)	8
49/05	**MegaMeat**	**Poll Dorset**	**P07**	**16**	**-17.0 (61)**	**9=**
19/03	Tasvic Downs	Southdown	P05	15	-17.0 (59)	9=
63/08	**Longfield**	**SAMM (Meat Merino)**	**A10**	**16**	**-15.6 (61)**	**11**
252/05	Brandes Burton	Texel	W09	14	-14.8 (58)	12
207/09	**Kowhai Glen**	**Texel**	**W12**	**16**	**-14.6 (63)**	**13**
499/08	Arngibbon	Poll Dorset	A11	16	-14.1 (62)	14
21/07	**Castlerock & Takitimu**	**Poll Dorset**	**A,W12**	**16**	**-13.5 (62)**	**15**
14/07	Torresdale	Suffolk	A09	16	-13.4 (63)	16
6/09	**MegaMeat Glengarry**	**Poll Dorset**	**P11**	**16**	**-13.3 (57)**	**17**
101/08	Longdowns, SIL 746	Composite	W11	16	-12.9 (62)	18=
24/07	**Punchbowl**	**Suffolk**	**W10**	**16**	**-12.9 (61)**	**18=**
25/99	Tyanee	Suffolk	Link sire	231	-11.1 (94)	20
TB126/08	**The Burn**	**Texel**	**A11**	**15**	**-8.2 (62)**	**21**
236/07	Pahiwi	Suffolk	P09	15	-7.4 (63)	22
48/05	**Premier Suffolk**	**Suffolk**	**W08**	**16**	**-7.0 (56)**	**23=**
65/03	Pahiwi	Suffolk	A06	36	-7.0 (74)	23=
447/03	**Blackdale**	**Texel**	**P06**	**11**	**-5.3 (53)**	**25**

Dual Purpose: **Range: 98.7% to -53.8%**

TAG	Flock	Breed	Sites	Progeny	WormFEC eBV (Acc)	Rank
722/03	**Rosemains**	**Perendale**	**W05**	**16**	**-53.8 (75)**	**1**
635/12	Frontier Genetics	Coopworth	A,K,O,W14	21	-52.6 (76)	2
230/09	**Ile de France NZ**	**Ile de France**	**A,K,O,P,W14**	**14**	**-48.6 (74)**	**3**
50381/11	Kelso	Kelso	A,K,O,P,W13	12	-45.9 (76)	4
5 sires	**1980s sires**	**Romney**	**W07**	**16**	**-44.8 (69)**	**5**
198/09	SRDG	Romney	W11	16	-42.4 (67)	6
386/03	**Rene**	**Perendale**	**A07**	**25**	**-42.2 (76)**	**7**
255/09	Mt Guardian	Perendale	A,K,O,W13	19	-37.0 (78)	8
348/06	**Sponsored Romney**	**Romney**	**A08**	**58**	**-36.2 (81)**	**9**
1707/09	Newhaven	Perendale	A,K,O,W13	66	-34.5 (78)	10
201/10	**Lincoln - Coopworth Genetics NZ**	**Coopworth**	**A,K,O,W13**	**18**	**-31.8 (74)**	**11**
1617/04	Awareka	Romney	W07	16	-30.9 (77)	12
574/06	**Kylemore**	**Perendale**	**A08**	**28**	**-30.6 (74)**	**13**
417/04	ARDG	Romney	P08	15	-29.8 (57)	14
50394/06	**Kelso**	**Kelso**	**A08 W09**	**37**	**-28.7 (82)**	**15**
127/06	Avalon	Perendale	W10	17	-28.5 (66)	16
77/09	**Ashgrove**	**Coopworth**	**A,W12**	**32**	**-27.9 (77)**	**17**
347/05	ARDG	Romney	P11	15	-26.8 (51)	18
92724/09	**Te Rakau**	**Texel**	**A,K,O,P,W14**	**13**	**-26.1 (73)**	**19**
84/04	ARDG Elite	Romney	P07	14	-24.8 (73)	20
50177/09	**Kelso**	**Kelso**	**P11**	**14**	**-24.5 (51)**	**21**
626/08	Blackdale	Texel	W10	16	-24.1 (69)	22
100728/10	**Perendale Society**	**Perendale**	**A,K,O,P,W14**	**17**	**-23.8 (75)**	**23**
300/03	MNCC	Coopworth	W05	16	-21.8 (74)	24
279/07	**Cairnlea**	**Coopworth**	**A10**	**21**	**-19.31 (70)**	**25**

**SIL eBV. WormFEC breeding values are expressed as a percentage reduction in eggs shed.*

EYE MUSCLE AREA EBV* (cm^2)

Terminal: **Range: -1.38 to 3.41**

TAG	Flock	Breed	Sites	Progeny	EMA eBV(Acc)	Rank
10/10	**The Burn**	**Texel**	**A,W14**	**60**	**3.41 (93)**	**1**
299/01	Ohio	Poll Dorset	A04	70	3.24 (91)	2
114/03	**Landcorp Kepler**	**Lamb Supreme**	**A05**	**37**	**3.19 (91)**	**3**
570/06	MegaMeat Glengarry	Poll Dorset	P08	88	2.64 (94)	4
65/09	**MegaMeat Glengarry**	**Poll Dorset**	**A,P,W13**	**44**	**2.63 (92)**	**5**
530/05	Grasmere	Texel	P08	39	2.60 (90)	6
450/12	**Longdowns, SIL 746**	**Composite**	**A,W14**	**72**	**2.59 (94)**	**7**
1694/05	Landcorp Kepler	Lamb Supreme	P09	28	2.55 (89)	8
323/07	**Tamlet**	**Texel**	**P,W12**	**79**	**2.54 (94)**	**9**
91892/05	Kelso	Kelso Ranger	P08	52	2.47 (92)	10
34/06	**Southern Poll Dorset**	**Poll Dorset**	**W08**	**49**	**2.39 (91)**	**11**
2772/12	Focus Genetics Primera	Primera	A,P,W14	45	2.37 (92)	12
127/05	**Douglas Downs**	**Poll Dorset**	**W07**	**31**	**2.31 (88)**	**13**
141/04	Crest	Texel	W10	32	2.30 (90)	14
101/08	**Longdowns, SIL 746**	**Composite**	**W11**	**51**	**2.21 (92)**	**15**
914/08	Southern Texel Breeders Group	Texel	W11	47	2.15 (92)	16
486/08	**Landcorp Kepler**	**Lamb Supreme**	**W10**	**23**	**2.12 (87)**	**17**
65/03	Pahiwi	Suffolk	A06	53	2.08 (93)	18
642/09	**Premier Texel**	**Texel**	**P11**	**46**	**1.99 (92)**	**19**
T284/12	Wharetoa	Meatmaker	A,W14	43	1.95 (92)	20=
1344/09	**Mount Linton**	**Texel Cross**	**W11**	**40**	**1.95 (91)**	**20=**
T210/04	Wharetoa	Meatmaker	W06	34	1.94 (90)	22
3/04	**Egilshay**	**Texel**	**A08**	**73**	**1.91 (94)**	**23**
430/03	Glengarry	Poll Dorset	A,P,W05	125	1.85 (96)	24
4208/06	**Rissington Awapai**	**Primera**	**P10**	**50**	**1.84 (91)**	**25**

Dual Purpose: **Range: -2.42 to 2.58**

TAG	Flock	Breed	Sites	Progeny	EMA eBV (Acc)	Rank
D110/04	**Blackdale**	**Textra**	**W07**	**39**	**2.58 (94)**	**1**
1560/03	The Gree	Greeline	W06	25	2.03 (92)	2
626/08	**Blackdale**	**Texel**	**W10**	**27**	**1.97 (91)**	**3**
23253/05	Longdowns, SIL 916	Composite	W08	23	1.60 (92)	4
1294/10	**TRIGG**	**Romney**	**A,K,O,W13**	**66**	**1.27 (92)**	**5**
829/08	Rangiatea	Perendale	A10 A11	96	0.87 (96)	6
66/08	**Brenley**	**Texel**	**A12 W12**	**30**	**0.84 (91)**	**7**
1707/09	Newhaven	Perendale	A,K,O,W13	82	0.81 (92)	8
2247/04	**Rosedale**	**Growbulk**	**W07**	**35**	**0.78 (93)**	**9**
127/06	Avalon	Perendale	W10	15	0.73 (88)	10
326/08	**Tamlet - Coopworth Genetics NZ**	**Coopworth**	**A,K,O,P,W13**	**61**	**0.69 (90)**	**11**
70/08	Longview Perendales	Perendale	P12	87	0.64 (92)	12
722/03	**Rosemains**	**Perendale**	**W05**	**36**	**0.52 (94)**	**13=**
124/07	Rosemains	Perendale	W11	40	0.52 (94)	13=
1269/11	**Rosedale**	**Growbulk**	**A,K,O,W13**	**77**	**0.46 (90)**	**15=**
230/10	Tamlet	Texel	A,K,O,W13	76	0.46 (92)	15=
214/09	**Alpha Genetics Nithdale**	**Romney/Texel**	**A,K,O,P,W13**	**77**	**0.43 (92)**	**17**
512/05	Kamahi	Perendale	W07	14	0.42 (87)	18
50177/09	**Kelso**	**Kelso**	**P11**	**43**	**0.35 (92)**	**19**
255/09	Mt Guardian	Perendale	A,K,O,W13	64	0.34 (90)	20
55/01	**Bonnieview**	**Perendale**	**W05**	**20**	**0.26 (90)**	**21**
230/09	Ile de France NZ	Ile de France	A,K,O,P,W14	73	0.24 (91)	22
857/11	**Alpha Sheep Genetics**	**TEFRom**	**A,K,O,W14**	**81**	**0.23 (91)**	**23**
357/10	Orari Gorge Romneys	Romney	A12 W12	29	0.19 (90)	24
5 sires	**1980s sires**	**Romney**	**W07**	**18**	**-0.33 (88)**	**52**

**EMA eBV is carcass weight adjusted. The average eye muscle area was 11.8cm^2*

DAG SCORE EBV*

Terminal: **Range: 1.16 to -1.37**

TAG	Flock	Breed	Sites	Progeny	EMA eBV(Acc)	Rank
252/05	**Brandes Burton**	**Texel**	**W09**	**25**	**-1.37 (82)**	**1**
486/08	Landcorp Kepler	Lamb Supreme	W10	23	-1.19 (82)	2
10/10	**The Burn**	**Texel**	**A,W14**	**56**	**-1.18 (87)**	**3**
26/08	Charollais Sheep NZ	Charollais	W11	33	-1.11 (86)	4
81/06	**South Suffolk NZ Myola**	**South Suffolk**	**W11**	**51**	**-1.09 (89)**	**5**
1344/09	Mount Linton	Texel Cross	W11	43	-1.08 (88)	6
269/04	**Dorper**	**Dorper**	**W08**	**45**	**-1.03 (88)**	**7**
570/06	MegaMeat Glengarry	Poll Dorset	P08	97	-0.94 (92)	8
543/07	**Paki-iti**	**Suffolk**	**P11**	**96**	**-0.90 (79)**	**9**
66/12	Longdowns, SIL 746	Composite	A,P,W14	62	-0.83 (89)	10
642/09	**Premier Texel**	**Texel**	**P11**	**45**	**-0.80 (87)**	**11**
430/03	Glengarry	Poll Dorset	A,P,W05	98	-0.79 (93)	12=
2097/11	**One Stop Ram Shop**	**Texel Suffolk**	**P13**	**76**	**-0.79 (92)**	**12=**
450/12	Longdowns, SIL 746	Composite	A,W14	49	-0.77 (86)	14
402/07	**MegaMeat Glengarry**	**Poll Dorset**	**P09**	**113**	**-0.76 (93)**	**15**
540/09	Central Canterbury Dorset Down SBA	Dorset Down	A,W13	25	-0.74 (82)	16
221/12	**Longdowns, SIL 746**	**Composite**	**A,W13**	**19**	**-0.73 (79)**	**17=**
275/04	Goldstream	Suffolk	A07	53	-0.73 (88)	17=
323/07	**Tamlet**	**Texel**	**P,W12**	**78**	**-0.70 (85)**	**19**
61/04	Twin Farm	Suffolk	W06	31	-0.61 (75)	20
26/08	**Douglas Downs**	**Poll Dorset**	**W10**	**37**	**-0.58 (86)**	**21=**
914/08	Southern Texel Breeders Group	Texel	W11	48	-0.58 (89)	21=
194/08	**Valdor**	**Suffolk**	**P10**	**33**	**-0.55 (83)**	**23=**
304/08	MegaMeat	Poll Dorset	P10	57	-0.55 (83)	23=
376/03	**Douglas Downs**	**Dorset Horn**	**W05**	**67**	**-0.55 (91)**	**23=**

Dual Purpose: **Range: 1.74 to -1.63**

TAG	Flock	Breed	Sites	Progeny	EMA eBV (Acc)	Rank
626/08	**Blackdale**	**Texel**	**W10**	**62**	**-1.63 (92)**	**1**
D110/04	Blackdale	Textra	W07	85	-1.42 (94)	2
1002/03	**Mt Guardian**	**Perendale**	**W06**	**59**	**-1.02 (87)**	**3**
1295/10	Focus Genetics Romney	Romney	A,W12	73	-0.81 (93)	4
301/04	**Hazeldale**	**Perendale**	**A08**	**51**	**-0.74 (90)**	**5**
198/09	SRDG	Romney	W11	68	-0.72 (92)	6
66/08	**Brenley**	**Texel**	**A,W12**	**74**	**-0.63 (93)**	**7**
1227/06	Ngaputahi	Growbulk	P09,10	239	-0.52 (96)	8
18/04	**White Rock**	**Corriedale**	**A06**	**73**	**-0.51 (92)**	**9**
50394/06	Kelso	Kelso	A08 W09	109	-0.49 (95)	10
349/10	**The Gree**	**Greeline**	**A,W12**	**53**	**-0.48 (91)**	**11**
214/09	Alpha Genetics Nithdale	Romney/Texel	A,K,O,P,W13	116	-0.38 (95)	12
722/03	**Rosemains**	**Perendale**	**W05**	**96**	**-0.35 (94)**	**13=**
1645/07	The Gree	Greeline	W10	97	-0.35 (94)	13=
23253/05	**Longdowns, SIL 916**	**Composite**	**W08**	**69**	**-0.34 (93)**	**15=**
1214/09	Blackdale	Textra	O13	26	-0.34 (82)	15=
512/05	**Kamahi**	**Perendale**	**W07**	**28**	**-0.34 (87)**	**15=**
6448/07	TRIGG	Romney	A10	61	-0.33 (90)	18
123/11	**Longdowns, SIL 916**	**Composite**	**A,K,O,P,W14**	**176**	**-0.32 (91)**	**19=**
386/03	Rene	Perendale	A07	71	-0.32 (92)	19=
92724/09	**Te Rakau**	**Texel**	**A,K,O,P,W14**	**161**	**-0.31 (91)**	**21**
230/10	Tamlet	Texel	A,K,O,W13	160	-0.30 (96)	22=
77/09	**Ashgrove**	**Coopworth**	**A12 W12**	**75**	**-0.30 (93)**	**22=**
50381/11	Kelso	Kelso	A,K,O,P,W13	154	-0.30 (96)	22=
5 sires	**1980s sires**	**Romney**	**W07**	**32**	**0.71 (87)**	**92**

**SIL eBV. Dags are scored on a scale of 0 to 5, where 0 is for no dags and 5 is the most daggy*

NUMBER OF LAMBS BORN EBV*

Dual Purpose: **Range: -0.29 to 0.61**

TAG	Flock	Breed	Sites	Daughters lambed	NLB eBV (Acc)	Rank
77/09	**Ashgrove**	**Coopworth**	**A,W12**	**108**	**0.61 (86)**	**1**
1617/04	Awareka	Romney	W07	167	0.51 (96)	2
742/04	**Cairnlea**	**Coopworth**	**W07**	**162**	**0.49 (95)**	**3**
1295/10	Focus Genetics Romney	Romney	A,W12	94	0.48 (88)	4
134/03	**Hinenui**	**Coopworth**	**P08**	**222**	**0.46 (96)**	**5=**
1218/06	Hinenui	Coopworth	A09	174	0.46 (94)	5=
214/05	**TRIGG**	**Romney**	**W08**	**290**	**0.40 (97)**	**7**
50394/06	Kelso	Kelso	A08 W09	210	0.38 (95)	8=
300/03	**MNCC**	**Coopworth**	**W05**	**517**	**0.38 (97)**	**8=**
4334/07	Landcorp Waihora	Romney	Link sire	387	0.36 (96)	10
140/09	**MNCC**	**Coopworth**	**A,W12**	**72**	**0.34 (82)**	**11**
124/07	Rosemains	Perendale	W11	139	0.31 (91)	12
417/04	**ARDG**	**Romney**	**P08**	**200**	**0.30 (94)**	**13**
4399/06	Landcorp Waihora	Romney	P08	234	0.29 (96)	14=
1560/03	**The Gree**	**Greeline**	**W06**	**136**	**0.29 (94)**	**14=**
7180/08	Landcorp Waihora	Romney	W10	217	0.29 (95)	14=
279/07	**Cairnlea**	**Coopworth**	**A10**	**79**	**0.28 (89)**	**17**
179/07	Wattlebank	Corriedale	A09	68	0.27 (85)	18
544/07	**Lincoln**	**Coopworth**	**W11**	**167**	**0.26 (92)**	**19**
480/04	View Hill	Romney	A09	84	0.25 (90)	20
4/06	**Corriedale Breeder Group**	**Corriedale**	**A08**	**64**	**0.24 (89)**	**21**
4499/09	Landcorp Waihora	Romney	W11	220	0.23 (93)	22=
406/06	**MNCC**	**Coopworth**	**P10**	**174**	**0.23 (92)**	**22=**
777/05	Tamlet	Coopworth	W08	84	0.22 (92)	24
5 sires	**1980s sires**	**Romney**	**W07**	**11**	**0.01 (66)**	**63**

**SIL ACE eBV. Results are for rams with at least 20 daughters with two-tooth lambing records*

HOGGET OESTRUS EBV (DAYS)

Dual Purpose: **Range: 15.6 to -11.5**

TAG	Flock	Breed	Sites	Progeny	Hog Oestrus (Acc)	Rank
9276/10	**Focus Genetics Highlander**	**Highlander**	**A,K,O,P,W13**	**37**	**-11.5 (71)**	**1**
432/11	TEFRom Group Twin Farm	TEFRom	A,K,O,W13	25	-11.5 (64)	1=
349/10	**The Gree**	**Greeline**	**A,W12**	**29**	**-10.0 (65)**	**3**
742/04	Cairnlea	Coopworth	W07	43	-9.2 (75)	4
4/06	**Corriedale Breeder Group**	**Corriedale**	**A08**	**20**	**-9.0 (60)**	**5**
4/11	Ngaio Glen	Romney	A,K,O,W13	34	-8.0 (70)	6
1645/07	**The Gree**	**Greeline**	**W10**	**50**	**-7.9 (76)**	**7**
50394/06	Kelso	Kelso	A08 W09	49	-7.8 (77)	8
77/09	**Ashgrove**	**Coopworth**	**A,W12**	**34**	**-7.2 (69)**	**9=**
70/08	Longview Perendales	Perendale	P12	41	-7.2 (60)	9=
66/08	**Brenley**	**Texel**	**A,W12**	**38**	**-6.9 (71)**	**11**
23253/05	Longdowns, SIL 916	Composite	W08	38	-6.7 (74)	12
7180/08	**Landcorp Waihora**	**Romney**	**W10**	**36**	**-6.3 (71)**	**13**
5203/04	Marlow	Coopworth	Link sire	367	-6.1 (95)	14
544/07	**Lincoln**	**Coopworth**	**W11**	**36**	**-5.9 (69)**	**15=**
140/09	MNCC	Coopworth	A,W12	43	-5.9 (72)	15=
187/09	**Twin Farm**	**TEFRom**	**W11**	**38**	**-5.8 (71)**	**17**
50381/11	Kelso	Kelso	A,K,O,P,W13	39	-5.1 (71)	18
255/09	**Mt Guardian**	**Perendale**	**A,K,O,W13**	**29**	**-5.0 (67)**	**19**
406/06	MNCC	Coopworth	P10	36	-4.9 (56)	20
50177/09	**Kelso**	**Kelso**	**P11**	**51**	**-4.8 (51)**	**21**
198/09	SRDG	Romney	W11	24	-4.0 (62)	22
1227/06	**Ngaputahi**	**Growbulk**	**P09 P10**	**86**	**-3.8 (76)**	**23**
1560/03	The Gree	Greeline	W06	25	-3.6 (68)	24
5 sires	**1980s sires**	**Romney**	**W07**	**10**	**7.8 (48)**	**79**

FLEECE WEIGHT EBV* (KG)

Dual Purpose: **Range: -0.83 to 0.79**

TAG	Flock	Breed	Sites	Progeny	FW12 eBV (Acc)	Rank
544/07	**Lincoln**	**Coopworth**	**W11**	**36**	**0.79 (87)**	**1**
742/04	Cairnlea	Coopworth	W07	40	0.78 (89)	2
956/09	**Colhoun**	**Coopworth**	**A11**	**13**	**0.76 (75)**	**3**
140/09	MNCC	Coopworth	A,W12	43	0.60 (89)	4
187/09	**Twin Farm**	**TEFRom**	**W11**	**37**	**0.50 (88)**	**5**
406/06	MNCC	Coopworth	P10	34	0.46 (78)	6
358/04	**MNCC**	**Coopworth**	**P07**	**46**	**0.44 (85)**	**7**
326/08	Tamlet - Coopworth Genetics NZ	Coopworth	A,K,O,P,W13	48	0.42 (91)	8
5203/04	**Marlow**	**Coopworth**	**Link sire**	**327**	**0.41 (98)**	**9**
1294/10	TRIGG	Romney	A,K,O,W13	48	0.40 (91)	10
278/03	**MNCC**	**Coopworth**	**W06**	**30**	**0.37 (87)**	**11**
245/04	Tamlet	Coopworth	W09	40	0.27 (88)	12
1617/04	**Awareka**	**Romney**	**W07**	**36**	**0.25 (88)**	**13=**
279/07	Cairnlea	Coopworth	A10	12	0.25 (76)	13=
4399/06	**Landcorp Waihora**	**Romney**	**P08**	**28**	**0.25 (82)**	**13=**
412/06	Anui	Romney	W09	18	0.24 (82)	16
348/06	**Sponsored Romney**	**Romney**	**A08**	**44**	**0.23 (87)**	**17**
4/06	Corriedale Breeder Group	Corriedale	A08	21	0.21 (81)	18=
7180/08	**Landcorp Waihora**	**Romney**	**W10**	**36**	**0.21 (88)**	**18=**
357/10	Orari Gorge Romneys	Romney	A,W12	23	0.20 (83)	20
201/10	**Lincoln - Coopworth Genetics NZ**	**Coopworth**	**A,K,O,W13**	**18**	**0.14 (82)**	**21=**
HW1695/09	Wairarapa Romney Improvement Group	Romney	A,W12	30	0.14 (85)	21=
124/07	**Rosemains**	**Perendale**	**W11**	**47**	**0.13 (89)**	**23**
1645/07	The Gree	Greeline	W10	50	0.12 (90)	24
5 sires	**1980s sires**	**Romney**	**W07**	**10**	**-0.52 (75)**	**82**

**SIL eBV. Breeding values for fleece weight at 12 months of age. Average fleece weight was 3.01kg*

FACIAL ECZEMA EBV★

Dual Purpose: **Range: 1.10 to -1.05**

TAG	Flock	Breed	Sites	Progeny	GGT21 eBV (Acc)	Rank
495/09	**MNCC - Coopworth Genetics NZ**	**Coopworth**	**A,K,O,P,W14**	**10**	**-1.05 (78)**	**1**
3012/11	Focus Genetics LP	Romney	A,K,O,P,W14	27	-1.04 (89)	2
4399/06	**Landcorp Waihora**	**Romney**	**P08**	**32**	**-1.00 (91)**	**3**
7180/08	Landcorp Waihora	Romney	W10	20	-0.99 (89)	4=
4334/07	**Landcorp Waihora**	**Romney**	**Link sire**	**83**	**-0.99 (95)**	**4=**
1295/10	Focus Genetics Romney	Romney	A,W12	11	-0.92 (84)	6
4499/09	**Landcorp Waihora**	**Romney**	**W11**	**27**	**-0.87 (90)**	**7**
5144/11	Focus Genetics Romney	Romney	A,K,O,P,W13	11	-0.83 (83)	8
179/07	**Wattlebank**	**Corriedale**	**A09**	**5**	**-0.82 (59)**	**9**
347/05	ARDG	Romney	P11	20	-0.76 (87)	10
211/10	**ARDG Romney**	**Romney**	**P13**	**5**	**-0.75 (63)**	**11**
9800/12	Focus Genetics LP	Highlander	A,K,O,P,W14	9	-0.74 (75)	12
100728/10	**Perendale Society**	**Perendale**	**A,K,O,P,W14**	**12**	**-0.69 (81)**	**13**
1645/07	The Gree	Greeline	W10	5	-0.65 (67)	14
77/09	**Ashgrove**	**Coopworth**	**A,W12**	**12**	**-0.62 (81)**	**15**
50394/06	Kelso	Kelso	A08 W09	5	-0.61 (67)	16
115/05	**ARDG**	**Romney**	**P09**	**28**	**-0.60 (87)**	**17**
722/03	Rosemains	Perendale	W05	5	-0.59 (67)	18=
5203/04	**Marlow**	**Coopworth**	**Link sire**	**89**	**-0.59 (94)**	**18=**
117/11	ARDG	Romney	P14	14	-0.58 (78)	20
635/12	**Frontier Genetics**	**Coopworth**	**A,K,O,W14**	**69**	**-0.54 (78)**	**21**
118/09	ARDG	Romney	P12	27	-0.52 (87)	22=
279/07	**Cairnlea**	**Coopworth**	**A10**	**5**	**-0.52 (56)**	**22=**
278/03	MNCC	Coopworth	W06	11	-0.50 (83)	24
4/06	**Corriedale Breeder Group**	**Corriedale**	**A08**	**6**	**-0.43 (63)**	**25**

★*SIL ACE eBV. The amount of the liver enzyme GGT present after challenging progeny with sporidesmin*

TOP 20 TERMINAL RAMS FOR MEAT AND GROWTH

TAG	Flock	Breed	Meat & growth index* ($)	Meat Value Index ($)	Growth Index ($)	WWT eBV (kg)	Worm FEC eBV (%)	EMA eBV (cm2)	Dress % eBV (%)	Fat colour eBV (b*)	Meat colour eBV (a*)	pH eBV
530/05	**Grasmere**	**Texel**	**$6.59**	**$5.39**	**$1.20**	**0.47**	**2.3**	**2.60**	**1.75**	**0.27**	**-0.12**	**-0.01**
51/11	Texel New Zealand	Texel	$6.47	$4.70	$1.77	0.84	-0.7	1.29	1.74	-0.57	-0.90	0.01
241/04	**Ohio**	**Poll Dorset**	**$5.42**	**$1.01**	**$4.40**	**4.06**	**37.4**	**0.92**	**0.04**	**0.10**	**-0.53**	**-0.04**
296/05	Waikite / Esselmont & Tamlet	Texel	$5.26	$1.70	$3.56	3.79	-4.8	0.72	0.18	-0.27	-0.05	0.01
10/10	**The Burn**	**Texel**	**$5.22**	**$3.52**	**$1.70**	**2.01**	**-4.3**	**3.41**	**1.17**	**-2.73**	**-1.04**	**0.01**
570/06	MegaMeat Glengarry	Poll Dorset	$5.16	$1.77	$3.39	3.36	34.1	2.64	0.98	-0.89	-1.13	-0.02
207/09	**Kowhai Glen**	**Texel**	**$4.81**	**$2.99**	**$1.82**	**2.27**	**-14.6**	**0.26**	**1.05**	**0.46**	**-0.19**	**0.00**
141/04	Crest	Texel	$4.73	$3.45	$1.28	0.81	33.2	2.30	1.36	-1.62	-0.06	0.01
914/08	**Southern Texel Breeders Group**	**Texel**	**$4.69**	**$3.20**	**$1.49**	**1.43**	**45.4**	**2.15**	**1.05**	**-3.67**	**1.56**	**-0.06**
299/01	Ohio	Poll Dorset	$4.62	$1.85	$2.77	1.58	72.3	3.24	0.45	-1.39	-0.15	
275/04	**Goldstream**	**Suffolk**	**$4.54**	**$2.67**	**$1.87**	**1.78**	**86.7**	**1.70**	**-1.36**	**0.56**	**0.06**	**0.01**
499/08	Arngibbon	Poll Dorset	$4.46	$0.88	$3.59	3.58	-14.1	-1.17	-0.52	-0.04	0.44	
258/11	**Premier Suftex – Twin Farm**	**Suftex**	**$4.40**	**$2.32**	**$2.08**	**1.83**	**24.4**	**0.19**	**0.98**	**-0.11**	**0.37**	**-0.01**
1662/09	Focus Genetics Lamb Supreme	Lamb Supreme	$4.23	$3.17	$1.06	0.59	18.6	-0.37	0.73	-0.03	-0.50	0.02
TB126/08	**The Burn**	**Texel**	**$4.17**	**$2.44**	**$1.73**	**1.06**	**-8.2**	**0.06**	**-1.02**	**0.48**	**0.72**	**-0.05**
1668/08	Mount Linton	Texel	$4.08	$2.96	$1.12	1.27	-2.6	0.59	0.76	-0.37	0.64	0.05
323/07	**Tamlet**	**Texel**	**$4.04**	**$2.57**	**$1.47**	**0.46**	**2.1**	**2.54**	**2.39**	**-1.55**	**-0.19**	**-0.03**
140/11	MegaMeat Pinelands	Poll Dorset	$4.03	$1.06	$2.98	2.80	29.2	1.66	0.74	-0.04	-1.52	0.04
486/08	**Landcorp Kepler**	**Lamb Supreme**	**$3.86**	**$2.14**	**$1.72**	**1.49**	**-2.6**	**2.12**	**0.89**	**-1.61**	**-1.20**	**0.03**
10/10	Charollais Sheep NZ	Charollais	$3.71	$1.15	$2.56	3.45	-22.6	-1.27	-0.97	-0.11	0.11	0.04

** The combined Growth and Meat Value indexes, calculated by adding together the two individual indexes.*
Positive (i.e. higher) values are better for all traits except WormFEC, fat colour and pH eBV where a negative (i.e. lower) value is better.

TOP 20 DUAL PURPOSE RAMS FOR MEAT AND GROWTH

TAG	Flock	Breed	Meat & growth Index* ($)	Meat Value Index ($)	Growth Index ($)	WWT eBV (kg)	Worm FEC eBV (%)	EMA eBV (cm2)	Dress % eBV (%)	Fat colour eBV (b*)	Meat colour eBV (a*)	pH eBV	NLB eBV	FW12 eBV (kg)	FE eBV
D110/04	**Blackdale**	**Textra**	**$5.52**	**$2.28**	**$3.24**	**2.32**	**-15.5**	**2.58**	**0.71**	**-2.06**	**-0.11**	**0.02**	**-0.07**	**-0.83**	**-0.03**
626/08	Blackdale	Texel	$4.96	$2.28	$2.69	2.20	-24.1	1.97	0.65	-1.12	-0.29	0.02	0.00	-0.12	0.79
92724/09	**Te Rakau**	**Texel**	**$4.27**	**$1.80**	**$2.46**	**2.16**	**-26.1**	**0.13**	**0.51**	**1.20**	**-0.31**	**-0.01**			**0.79**
187/09	Twin Farm	TEFRom	$3.83	$1.82	$2.02	3.01	21.0	-0.67	-0.31	-1.48	-0.39	0.02	0.11	0.5	-0.21
857/11	**Alpha Sheep Genetics**	**TEFRom**	**$3.78**	**$1.45**	**$2.33**	**2.08**	**2.5**	**0.23**	**0.37**	**-0.02**	**0.95**	**0.02**			**-0.27**
50394/06	Kelso	Kelso	$3.77	$1.32	$2.45	1.64	-28.7	-0.89	-0.19	-0.34	-0.55	0.08	0.38	-0.61	-0.61
1645/07	**The Gree**	**Greeline**	**$3.25**	**$1.15**	**$2.11**	**1.49**	**-9.2**	**-0.17**	**0.25**	**0.45**	**-0.66**	**0.03**	**0.02**	**0.12**	**-0.65**
123/11	Longdowns, SIL 916	Composite	$2.46	$0.42	$2.04	1.26	7.1	-0.02	-0.93	-1.16	-0.13	-0.01			0.16
50177/09	**Kelso**	**Kelso**	**$2.38**	**$0.60**	**$1.78**	**1.40**	**-24.5**	**0.35**	**0.18**	**0.25**	**-1.26**	**0.09**	**0.18**	**-0.43**	**0.01**
349/10	The Gree	Greeline	$2.09	$2.19	-$0.09	2.77	49.6	-1.49	-0.88	-1.10	0.11	-0.07	0.21	-0.02	-0.02
230/09	**Ile de France NZ**	**Ile de France**	**$2.01**	**$3.05**	**-$1.04**	**3.23**	**-48.6**	**0.24**	**0.61**	**1.89**	**-0.51**	**0.02**			**0.09**
3091/08	Rosedale	Growbulk	$1.99	$0.25	$1.73	0.01	25.5	-0.06	-0.42	0.20	0.53	-0.03	0.20	0.07	-0.13
23253/05	**Longdowns, SIL 916**	**Composit e**	**$1.87**	**$0.96**	**$0.90**	**0.81**	**20.6**	**1.60**	**-0.39**	**0.69**	**-0.42**	**-0.01**	**-0.15**	**-0.09**	**-0.05**
301/04	Hazeldale	Perendale	$1.79	$0.88	$0.91	0.66	-10.6	-1.94	-1.22	0.61	0.06	-0.01	-0.09	-0.11	-0.12
230/10	**Tamlet**	**Texel**	**$1.60**	**$0.87**	**$0.73**	**-0.17**	**25.5**	**0.46**	**2.67**	**0.27**	**0.71**	**-0.03**	**0.06**	**-0.37**	**0.19**
50381/11	Kelso	Kelso	$1.56	$0.45	$1.11	0.52	-45.9	-0.86	1.41	-0.92	-0.02	0.02	0.26	-0.71	-0.25
214/09	**Alpha Genetics Nithdale**	**Romney/T exel**	**$1.50**	**$0.13**	**$1.37**	**-0.29**	**-16.6**	**0.43**	**0.44**	**-0.82**	**-0.59**	**0.11**	**0.10**	**-0.48**	**-0.04**
66/08	Brenley	Texel	$1.45	-$0.94	$2.39	-0.82	-15.6	0.84	1.02	-0.47	0.07	-0.01	-0.25	-0.07	-0.13
432/11	**TEFRom Group Twin Farm**	**TEFRom**	**$1.40**	**$1.35**	**$0.05**	**1.60**	**5.4**	**-0.94**	**-0.09**	**-0.78**	**0.65**	**0.02**	**0.16**	**-0.22**	**0.08**
198/09	SRDG	Romney	$1.22	-$0.34	$1.56	0.51	-42.4	-1.19	-1.52	-2.10	0.33	0.05	-0.12	-0.26	0.44

** The combined Growth and Meat Value indexes, calculated by adding together the two individual indexes.*
Positive (i.e. higher) values are better for all traits except WormFEC, fat colour, pH and FE eBV where a negative (i.e. lower) value is better.
Rams with no values for NLB do not yet have any two-tooth daughters lambing, and missing FW12 eBV have no progeny yet assessed

TOP 20 DUAL PURPOSE RAMS FOR DUAL PURPOSE INDEXES*

TAG	Flock	Breed	Production ($)*	Lamb growth ($)	Adult size ($)	Meat ($)	Wool ($)	Reproduction ($)	WormFEC ($)	Facial Eczema ($)
140/09	**MNCC**	**Coopworth**	**$29.47**	**$11.69**	**-$0.50**	**-$1.18**	**$3.22**	**$7.61**	**$2.58**	**$4.07**
187/09	Twin Farm	TEFRom	$28.28	$24.38	-$3.60	-$1.10	$3.04	$2.41	-$6.15	$3.07
77/09	**Ashgrove**	**Coopworth**	**$26.44**	**$9.05**	**-$1.92**	**$0.80**	**$0.05**	**$13.60**	**$3.56**	**$8.91**
124/07	Rosemains	Perendale	$26.07	$18.06	-$10.11	$2.38	$1.87	$6.88	-$6.45	$0.05
4499/09	**Landcorp Waihora**	**Romney**	**$24.38**	**$17.33**	**-$1.88**	**-$1.39**	**$1.85**	**$5.18**	**-$4.96**	**$12.51**
406/06	MNCC	Coopworth	$23.17	$17.18	-$2.00	-$1.14	$2.11	$5.13	$1.81	$5.74
742/04	**Cairnlea**	**Coopworth**	**$22.77**	**$14.80**	**-$4.12**	**$0.21**	**$3.31**	**$10.90**	**-$11.69**	**$2.12**
5203/04	Marlow	Coopworth	$21.83	$14.33	-$1.73	-$1.04	$2.75	$4.61	-$3.22	$8.51
134/03	**Hinenui**	**Coopworth**	**$21.19**	**$12.40**	**-$2.17**	**$0.27**	**$0.04**	**$10.27**	**$0.40**	**-$4.28**
1617/04	Awareka	Romney	$20.30	$8.46	-$6.72	$0.23	$1.00	$11.42	$1.26	-$0.81
279/07	**Cairnlea**	**Coopworth**	**$20.27**	**$20.90**	**-$9.28**	**-$1.51**	**$1.18**	**$6.24**	**-$2.74**	**$7.44**
301/04	Hazeldale	Perendale	$20.17	$12.42	$0.55	$1.22	$0.93	-$2.06	-$4.81	$1.78
300/03	**MNCC**	**Coopworth**	**$20.14**	**$8.88**	**-$3.05**	**$0.54**	**$1.79**	**$8.41**	**$2.14**	**$1.44**
1560/03	The Gree	Greeline	$19.96	$10.87	$1.16	$0.87	$0.91	$6.43	$3.73	-$15.82
4/06	**Corriedale Breeder Group**	**Corriedale**	**$19.64**	**$11.18**	**-$6.37**	**$0.34**	**$2.98**	**$5.39**	**-$4.62**	**$6.14**
278/03	MNCC	Coopworth	$19.62	$7.23	$7.22	-$2.23	$2.89	$4.06	$2.02	$7.22
HW1695/09	**Wairarapa Romney Improvement Group**	**Romney**	**$19.01**	**$12.12**	**$0.72**	**-$1.36**	**$3.72**	**$2.96**	**-$3.12**	**$2.88**
544/07	Lincoln	Coopworth	$18.48	$9.17	-$1.12	-$0.36	$3.97	$5.87	$1.87	$1.90
50394/06	**Kelso**	**Kelso**	**$18.43**	**$15.82**	**-$4.87**	**-$1.68**	**-$1.51**	**$8.53**	**$1.66**	**$8.78**
6448/07	TRIGG	Romney	$17.95	$17.04	-$6.59	$0.92	$1.85	$1.25	-$3.73	$5.04

** These results are the SIL Dual Purpose Production (DPP) index, and the sub-indexes that make up the DPP (www.sil.co.nz). The DPP does not include health traits, so WormFEC and facial eczema are listed as well. All indexes are in dollar values. Maternal traits have been collected from daughters of dual purpose sires since 2005.*

GENETIC TRENDS IN THE NEW ZEALAND SHEEP INDUSTRY

In future, B+LNZ Genetics will produce an annual report detailing rates of genetic change achieved and current levels of genetic merit in the sheep industry. This article looks at genetic gain for sheep in terms of New Zealand Standard Worth indexes and key marker trait eBVs.

Genetic trends for selected traits are shown on the next page. These come from a SIL-ACE analysis over 20 years and show merit for the largest group of connected flock.

Gains in economic merit are significant. The value of 1529 cents per ewe lambing for NZ Standard Maternal Worth comes from changes in Reproduction (20%), Lamb Survival (17%), Lamb Growth plus Adult Size (56%), Meat Yield (0%) and Wool (8%). The comparable figure for NZ Standard Terminal Worth is 784 cents per lamb coming from Lamb Survival (10%), Lamb Growth (+73%) and Meat Yield (+17%). Greater total economic gain for maternal sheep occurs because more traits affect economic returns and some are very valuable e.g. reproduction.

Two things are worth noting from these graphs of genetic trends.

1. Maternal and Terminal sheep show similar trends for lamb growth, with slightly higher gains for Terminal sheep. However maternal sheep have a marked dip in the line around 2004 for adult size (EWT BV). This coincides with the time SIL increased the penalty on ewe size and when more breeders began to collect adult ewe BW data.
2. Terminal sheep have shown significant and steady gains in lean yield, and a parallel lowering of fat yield but maternal sheep have shown relatively little change. This may reflect two things – a lower emphasis on meat yield in an index containing more traits or breeders avoiding selection of animals with very low fat ratings due to concerns this might affect ewe body condition. Tension between lamb carcass fatness and ewe BCS is an area of B+LNZ Genetics funded research.

Our best estimate of average genetic merit in industry is currently obtained from SIL-ACE data for connected flocks. Non-connected flocks may be higher or lower in genetic merit for any trait, but we cannot tell in the absence of adequate genetic connectedness. Genetic connectedness is fundamentally important for making valid comparisons of genetic merit across flocks. B+LNZ Genetics is funding project work to enhance our understanding of connectedness and produce better tools for actively managing this for a flock and for flock groups.

Not all flocks are genetically connected for a trait. Obviously, if a flock does not assess a trait it will not be connected for that trait. Good connectedness results when two flocks share a common (link) sire and his progeny are assessed for the same trait(s) in both flocks. So if a link sire's progeny are not kept until a trait is measured, connectedness is adversely affected for that trait. The following table shows how many of the 351 active flocks in SIL-ACE are connected to the main group of flocks for New Zealand Standard Worth indexes and key marker trait BVs. There are 243 flocks classed as Maternal (DP) and 150 flocks classified as Terminal (TS). These sum to more than 351 because some flocks class themselves as both DP & TS.

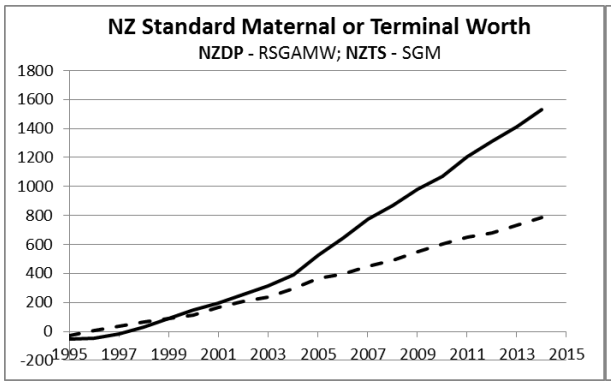
Number of SIL-ACE flocks genetically connected for different traits.

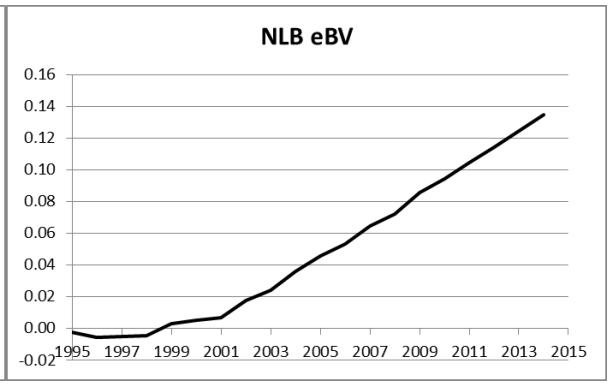
Index/ trait	Maternal (DP) flocks	Terminal (TS) flocks
NZ Standard Worth index	**69**	**73**
Reproduction	187	n/a
Lamb Survival	182	87
Lamb Growth	208	107
Adult Size	121	n/a
Meat Yield	133	87
Wool production	136	n/a
FE Tolerance	21	n/a
WormFEC	32	0
Dag score	27	4

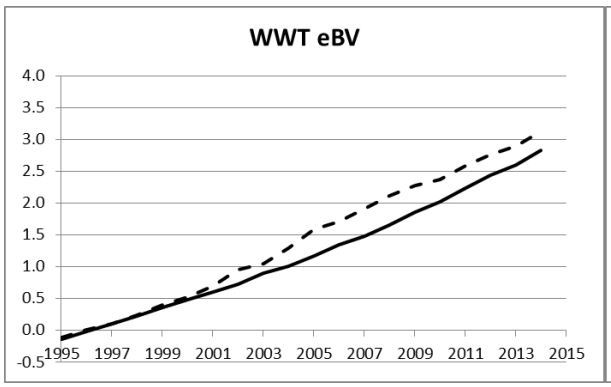
Any comments about the data presented here, or about what you might like to see in annual reports by B+LNZ Genetics to industry can be sent to info@blnzgenetics.com or posted to **B+LNZ Genetics, PO Box 5501, Dunedin 9058**.

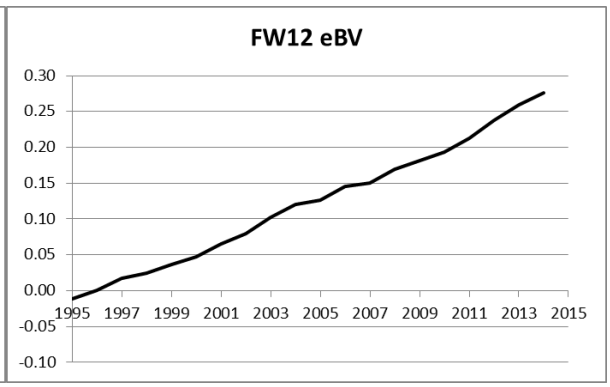
Graphs of genetic trends for NZ sheep based on data from connected flocks in the April 2015 SIL-ACE genetic evaluation. Separate lines are presented for maternal (DP) sheep (solid line) and for meat (TS) sheep (dashed lines for relevant traits).

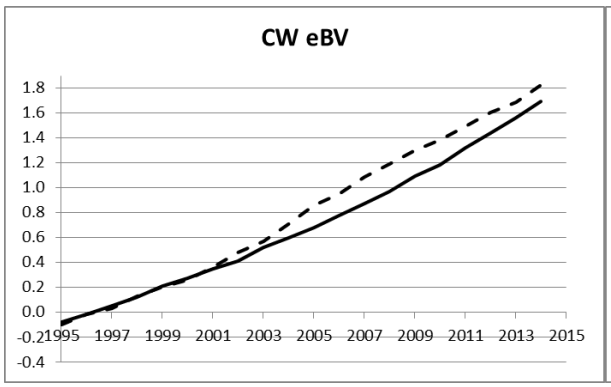
- **NZ Standard Maternal Worth** indexes include WWT (lamb weaning weight), CW (carcass weight), EWT (adult ewe weight), NLB (number of lambs born per ewe, FW12 (hogget fleece weight) and LEANY (lean meat yield from carcass).
- **NZ Standard Terminal Worth** indexes include WWT (lamb weaning weight), CW (carcass weight), LEANY (lean meat yield from carcass) and FATY (fat yield from carcass).

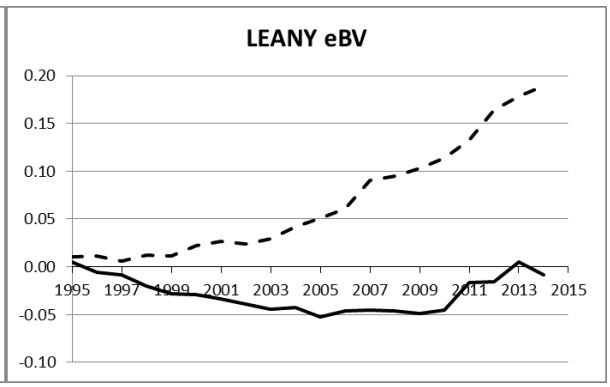


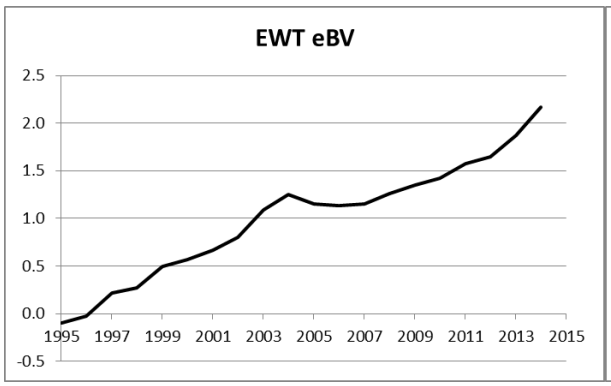


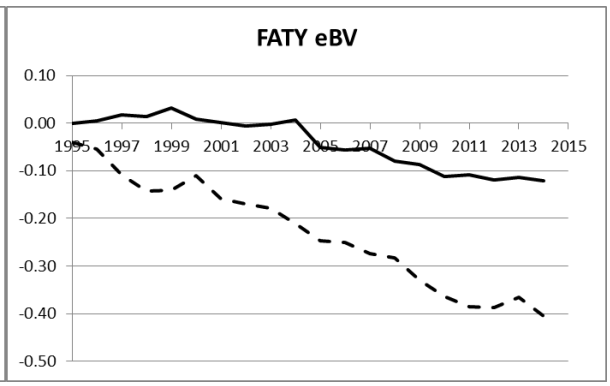












THE GENETIC BASIS OF PNEUMONIA IN THE NEW ZEALAND SHEEP INDUSTRY

Respiratory diseases, including pneumonia, are common in most livestock around the world. Both animals that have subclinical pneumonia (no obvious symptoms) and those that have survived clinical pneumonia (separation of the animal from the flock, nasal discharge and shallow panting) may develop pleurisy, where the lungs adhere to the chest wall. Pneumonia results from a complex interaction of infectious agents (bacteria, mycobacteria and viruses) and the sheep's defence mechanisms, which can often be compromised by environmental factors such as stress.

It is estimated that the economic cost of pneumonia to the New Zealand sheep industry is currently around $100 million per annum. The majority of loss occurs not through mortality, but also through slower growth and reduced carcass value at slaughter. Traditionally, farm management practices and vaccine development have been the main focus for prevention of pneumonia. However, a recent study by AgResearch estimated the heritability of pneumonic lesions in the lung at slaughter to be 0.12±0.06. The use of genetic improvement as a tool to increase resistance to pneumonia can therefore be explored.

An accurate diagnosis of pneumonia requires examination of the lungs at slaughter, and investigation of the underlying genetic relationships requires the collection of prevalence data from a large number of pedigree-recorded flocks. The team at AgResearch have developed a method to collect pneumonic lesion scores at chain speed, which has resulted in the collection of phenotypes from over 10,000 animals since 2009, including the Woodlands CPT flock.

Incidence of pneumonic lung lesions and pleurisy at slaughter in Woodlands CPT lambs

Year born	No. animals (lungs scored)	Pneumonia (%)	Pleurisy (%)
2009	198	30 (15%)	0 (0%)
2010	247	96 (39%)	5 (2%)
2011	486	75 (15%)	15 (3%)
2012	191	24 (13%)	3 (2%)
2014	437	93 (21%)	17 (4%)

Over the five years for which data are available, the incidence of pneumonic lesions at slaughter ranged from 13 to 39%. Pneumonic lesions were only scored at the second and third kills (January-March), as evidence of pneumonia is not usually observed in December-killed lambs. Extension of the current study is required to capture on-farm death data; to date pneumonic lesion data have only been collected from animals that have survived to slaughter. Pneumonic lesions were highest in 2010, likely as a result of heavy snow during lambing. Pleurisy in these animals ranged from 0 to 3%.

While pleurisy is currently routinely recorded and reported to farmers by processing plants, our studies show that this is not an accurate indicator of the levels of pneumonic lesions. Farmers may therefore be unaware of sub-clinical pneumonia in their lambs, which can be affecting growth rate.

These results form part of a larger ongoing project, which aims to investigate the underlying genetic relationships and associations between the presence of pneumonia, as assessed by pneumonic lung lesion score, and production and health traits.

ANIMAL MANAGEMENT PROCEDURES

To date, a total of 311 sires from 24 terminal and 16 dual purpose breeds or composites have been evaluated in the B+LNZ Genetics Central Progeny Test (formerly the M&WNZ Central Progeny Test, and before that the Alliance CPT®). There are differences in animal management across the five sites that reflect differences in geographical location and average performance of the ewes at each site. However, animal management procedures are the same across sites wherever possible. A brief summary of management procedures applied across sites follows.

Mating
The aim across lowland Central Progeny Test sites is to have at least 20 progeny per sire for the evaluation of a sire's meat and growth performance for both terminal and dual purpose rams. For dual purpose sires, the aim is to have 25 ewe progeny retained for maternal evaluations on the three lowland sites and another 25 ewe progeny across the two hill. Numbers of ewes allocated varies between sites due to differences in fertility in the ewe flocks. All ewes are synchronised for mating using CIDRs, whether mated naturally or by AI.

Lambing
Flocks are split into single-bearing and multiple-bearing mobs prior to lambing for all sites with the exception of Onslow View, where they are run as a single mob. On lowland sites, lambs are tagged and weighed within 12 hours of birth. Sex, birth rank and rearing rank are recorded at the same time. At some lowland sites, the smallest triplet is mothered onto a single bearing ewe. DNA parentage is used to determine parentage on the hill sites.

Docking
Lambs are vaccinated for diseases and conditions that are relevant to each site. Lambing mobs are usually joined together at docking and the grazing mob recorded. Tissue samples are collected for DNA parentage on the hill sites at docking.

Weaning
Weaning occurs at 12 weeks of age. Live weight and dag score are recorded at weaning, and the first draft for slaughter occurs.

Drafting for meat and growth performance assessment
All lambs from the terminal sires are drafted for slaughter once they reach the target live weight to achieve a carcass weight of 18kg. All ram lamb progeny, plus surplus ewe lamb progeny from the dual purpose sires, are slaughtered. The first draft occurs at weaning, followed by drafts at around monthly intervals thereafter. All remaining slaughter lambs are drafted at the third slaughter. Measurements collected at slaughter for all sites include VIAscan® measurements of lean weight in the hindleg, loin and shoulder, dressing percentage. Animals from lowland sites also have eye muscle area, meat and fat colour and meat pH measured.

Ewe maternal performance assessment for dual purpose sires
Some ewe lambs from dual purpose sires are retained for evaluation of maternal traits. A faecal sample is collected in autumn to measure faecal egg count. For lowland sites, date of first oestrus is recorded in hoggets and all ewe progeny are mated as a minimum as two- and four-tooths (i.e. no culling for performance prior to the four-tooth lambing). In addition, hill sites hogget mate if they achieve a target live weight. Number of lambs born and lamb survival are recorded at each lambing across all five sites. Data from additional matings are recorded if the ewe progeny are retained in the flock, but they can be culled after the four-tooth lambing.

Timetable of events for key dates at the five Central Progeny Test sites for 2014/2015

Event	Poukawa	Ashley Dene	Woodlands	Koromiko	Onslow View
Start of mating	4 Mar	3 Apr	8 Apr	16 Apr	13 May
Start of lambing	24 Jul	24 Aug	1 Sep	9 Sep	7 Oct
Docking	At birth	5 Sep	25 Sep	7 Oct	11 Nov
Weaning	10 Nov	3 Dec	8 Dec	16 Dec	20 Jan
First draft	26 Nov	4 Dec	10 Dec	14 Jan	25 Feb
Second draft	17 Feb	14 Jan	4 Feb	18 Feb	1 Apr
Third draft		18 Feb	26 Feb	25 Mar	

FUTURE OF THE CENTRAL PROGENY TEST

B+LNZ Genetics is currently reviewing the Central Progeny Test to ensure it delivers maximum value to industry. A Progeny Test (PT) programme in some form will continue but it is likely to evolve from its current form to one better suited to future needs. Those needs focus on facilitating connectedness, increased accuracy in genetic evaluations and achieving high rates of genetic gain.

As part of this review, B+LNZ Genetics held consultation meetings around the country. Dr Brian Wickham, an independent animal breeding specialist and consultant, has produced a report which B+LNZ Genetics is now considering as part of the review process.

We expect to call for Expressions of Interest later in 2015 to supply rams for the 2016 mating to an ongoing PT programme. This will likely be at a similar time to that of past years. However, sire selection may be a collaborative process between B+LNZ Genetics and your flock group.

In order to obtain synergies with other B+LNZ Genetics projects, in a new PT programme we plan to test new data capture systems and to showcase best practice in performance recording for the full range of SIL standard traits.

Genetics for hill country is an important issue that a next generation PT programme will help to address. B+LNZ Genetics will continue to work with groups in industry with common goals in this area. Those groups running their own progeny test programmes are encouraged to discuss with B+LNZ Genetics how we can align our objectives to maximise the value for our investments by focussing on common goals.

Your ideas on a future PT programme are welcome. What do you think are priorities for a revised PT programme to address? It may be these could be incorporated into an evolving PT programme. You can contact us about this using the contact details below.

Changes to publishing of results from the B+LNZ Central Progeny Test

Some problems have occurred for users when there are differences between results from different SIL analyses or between SIL analyses and CPT results. Users were unsure which data were best. To address this, B+LNZ Genetics will be introducing a single, all-SIL, National Genetic Evaluation carried out on a weekly basis. In future we will not carry out separate analyses of data collected in B+LNZ Genetics PT flocks where eBVs for those traits are produced routinely by SIL.

We will also cease to produce this results booklet in its present form. Given that the CPT has assessed only just over 300 sires in 13 years, there are many more good rams out there not assessed in the CPT. Having a single National Genetic Evaluation, of all SIL flocks, provides a much richer dataset to examine and find where particular combinations of genetic merit exist. So look out for a revised B+LNZ Genetics report to industry that considers a wider pool of genetic merit.

Sire entry into the Central Progeny Test

A call is made for expressions of interest to supply rams to the PT programme around late October. SIL flocks in New Zealand actively recording performance will receive notification of this. *In future, choice of ram(s) from a group may involve input from B+LNZ Genetics*.

Building between flock connectedness will continue to be a priority for B+LNZ Genetics in the PT programme. Groups submitting Expressions of Interest will be assessed in terms of:

- widespread use of the ram across SIL flocks, particularly in collaborative breeding groups
- providing stronger connections across different flock groups
- availability of a wide range of trait information, meat yield performance in particular, in group member flocks

B+LNZ Genetics reserves the right to source rams from other groups where this adds value to the PT programme. Whether rams can be entered into the revised PT programme, at supplier cost, cannot be confirmed at present.

To provide comment or to get further information including the source of individual rams, or if you want results presented to a farmer meeting, contact Mark Young mark.young@blnzgenetics.com Phone (03) 357 0694

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