



CENTRAL PROGENY TEST RESULTS

2013-2014



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In conjunction with



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



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.

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

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TABLE OF CONTENTS

Introduction	1
How to understand Central Progeny Test results	3
Central Progeny Test Growth Index (\$)	4
Central Progeny Test Meat Value Index (\$)	5
Weaning Weight eBV (kg)	6
WormFEC eBV (%)	7
Eye Muscle Area eBV (cm ²)	8
Dag Score eBV	9
Number of Lambs Born eBV	10
Hogget Oestrus eBV (days)	10
Fleece Weight eBV (kg)	11
Facial Eczema eBV	11
Top 20 Terminal Rams for Meat and Growth	12
Top 20 Dual Purpose Rams for Meat and Growth	13
Top 20 Dual Purpose Rams for Dual Purpose Indexes	14
Paternal parentage verification – sire paternity testing	15
Central Progeny Test on the Hill	16
Animal management procedures	18
Future of the Central Progeny Test	19

KEY:

Sites:	A = Ashley Dene	Years:	99 = 1999/2000 season	07 = 2007/2008 season
	W = Woodlands		00 = 2000/2001 season	08 = 2008/2009 season
	P = Poukawa		01 = 2001/2002 season	09 = 2009/2010 season
	K = Koromiko		02 = 2002/2003 season	10 = 2010/2011 season
	O = Onslow View		03 = 2003/2004 season	11 = 2011/2012 season
			04 = 2004/2005 season	12 = 2012/2013 season
			05 = 2005/2006 season	13 = 2013/2014 season
			06 = 2006/2007 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[®].

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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

This report addresses the first objective.

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 almost 300 rams, but they were not randomly selected and have greater 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. Funding for 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. 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 2013/2014 born progeny

The first data from hill sites contributed to the results of analyses presented in this booklet. The only hill site data available at this time were the growth and meat yield results for male progeny. No attempt has been made at this stage to address any issues with sires ranking differently for performance at different sites. The reasons for this 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.

Tables for dag score eBV and hogget oestrus eBV (i.e. date of first oestrus) were added to this booklet last year. Collection of hogget oestrus data were not completed by the time results were analysed for this year, so the table is the same as for last year. Hogget oestrus eBVs will be presented on an ongoing basis, but will lag a year behind as is the case for fleece weight at 12 months of age eBV, simply because the trait is measured later in time.

This is the fifth year that accuracies for breeding values are presented. They appear in parentheses beside the eBVs in the tables. The accuracy values range from 0 to 100%. The higher the accuracy, the greater the amount of data available to calculate the eBV for the ram, and the less likely the eBV would change if additional progeny were measured.

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 will 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 289 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 +1.0kg for weaning weight, we expect their progeny to be 0.5 kg heavier at weaning (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 -1.0kg for weaning weight, we expect his progeny to be 0.5kg lighter than the Central Progeny Test average. A negative eBV for weaning weight does not necessarily mean that a ram is poor for growth rate, e.g. many dual purpose rams do not have the high growth rates found in terminal sire breeds because they have been selected for many other traits. Thus, some of the better dual purpose rams for growth 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: -\$1.15 to \$4.10

TAG	Flock	Breed	Sites	Progeny	Growth Index	Rank
241/04	Ohio	Poll Dorset	A08	34	\$4.10	1
296/05	Waikite / Esselmont & Tamlet	Texel	A09	31	\$3.84	2
231/08	Goldstream	Suffolk	A10	42	\$3.57	3
570/06	MegaMeat Glengarry	Poll Dorset	P08	83	\$3.41	4
447/03	Blackdale	Texel	P06	37	\$3.37	5
499/08	Arngibbon	Poll Dorset	A11	36	\$3.17	6
17/02	Tyane	Suffolk	P06	96	\$3.16	7
21/07	Castlerock & Takitimu	Poll Dorset	A,W12	32	\$2.96	8
430/03	Glengarry	Poll Dorset	A,P,W05	117	\$2.91	9
25/99	Tyane	Suffolk	Link sire	799	\$2.83	10=
341/05	Premier Suffolk	Suffolk	W09	37	\$2.83	10=
299/01	Ohio	Poll Dorset	A04	34	\$2.74	12
J20/10	Inver	South Suffolk	A,W12	60	\$2.72	13
402/07	MegaMeat Glengarry	Poll Dorset	P09	106	\$2.64	14
4208/06	Rissington Awapai	Primera	P10	50	\$2.59	15
33/04	Myola	South Suffolk	P06	52	\$2.54	16
540/09	Central Canterbury Dorset Down SBA	Dorset Down	A,W13	57	\$2.52	17
687/12	Longdown, SIL 746	Composite	W13	47	\$2.47	18
81/06	South Suffolk NZ Myola	South Suffolk	W11	50	\$2.45	19
275/04	Goldstream	Suffolk	A07	54	\$2.40	20
543/07	Paki-iti	Suffolk	P11	96	\$2.39	21=
10/10	Charollais Sheep NZ	Charollais	A,W12	51	\$2.39	21=
2097/11	One Stop Ram Shop	Texel Suffolk	P13	72	\$2.33	23
4/10	Premier SufTex Mount Linton	SufTex	A,W13	41	\$2.32	24
1010/03	Punchbowl	Suffolk	W07	34	\$2.25	25

Dual Purpose:

Range: -\$3.35 to \$3.11

TAG	Flock	Breed	Sites	Progeny	Growth Index	Rank
D110/04	Blackdale	Textra	W07	39	\$3.11	1
349/10	The Gree	Greeline	A,W12	18	\$2.79	2
279/07	Cairnlea	Coopworth	A10	25	\$2.28	3
626/08	Blackdale	Texel	W10	27	\$1.86	4
187/09	Twin Farm	TEFRom	W11	47	\$1.85	5
432/11	TEFRom Group Twin Farm	TEFRom	A,K,O,W13	61	\$1.65	6
409/06	Blythburn	Romney	W09	38	\$1.33	7
50394/06	Kelso	Kelso	A,W09	51	\$1.19	8
23253/05	Longdowns, SIL 916	Composite	W08	23	\$1.00	9
742/04	Cairnlea	Coopworth	W07	29	\$0.97	10
777/05	Tamlet	Coopworth	W08	36	\$0.95	11
1233/02	SRDG	Romney	W08	14	\$0.89	12
1645/07	The Gree	Greeline	W10	37	\$0.86	13
9276/10	Focus Genetics	Highlander	A,K,O,P,W13	54	\$0.79	14
245/04	Tamlet	Coopworth	W09	23	\$0.76	15
50177/09	Kelso	Kelso	P11	43	\$0.62	16
301/04	Hazeldale	Perendale	A08	21	\$0.54	17
230/10	Tamlet	Texel	A,K,O,W13	76	\$0.50	18
542/04	Hazeldale	Perendale	W06	29	\$0.49	19
HG552/02	Clifton	Corriedale	A05	48	\$0.46	20
50381/11	Kelso	Kelso	A,K,O,P,W13	74	\$0.40	21
1227/06	Ngaputahi	Growbulk	P09,10	119	\$0.36	22
2247/04	Rosedale	Growbulk	W07	35	\$0.26	23
214/09	Alpha Genetics Nithdale	Romney/Texel	A,K,O,P,W13	77	\$0.22	24
1214/09	Blackdale	Textra	O13	12	\$0.20	25
5 sires	1980s sires	Romney	W07	18	-\$2.85	109

**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 \$5.41**

TAG	Flock	Breed	Sites	Progeny	Meat Value Index	Rank
530/05	Grasmere	Texel	P08	39	\$5.41	1
51/11	Texel New Zealand	Texel	A,P,W13	53	\$4.50	2
642/09	Premier Texel	Texel	P11	46	\$3.50	3
141/04	Crest	Texel	W10	32	\$3.48	4
1662/09	Focus Genetics	Lamb Supreme	A,W12	41	\$3.15	5
914/08	Southern Texel Breeders Group	Texel	W11	47	\$3.12	6
1668/08	Mt Linton	Texel	A,W12	46	\$2.98	7
207/09	Kowhai Glen	Texel	W12	59	\$2.91	8
294/10	Premier Sufutex Group	Sufutex	A,W12	46	\$2.90	9
110/03	Murray Downs	Texel	W05	37	\$2.71	10
275/04	Goldstream	Suffolk	A07	54	\$2.70	11
323/07	Tamlet	Texel	P,W12	79	\$2.57	12
TB126/08	The Burn	Texel	A11	33	\$2.46	13
101/03	Landover	Texel	W07	22	\$2.25	14
114/03	Landcorp Kepler	Lamb Supreme	A05	33	\$2.20	15
486/08	Landcorp Kepler	Lamb Supreme	W10	23	\$2.14	16
52/04	Mount Linton	Sufutex	W06	34	\$2.13	17
1982/11	Focus Genetics	Lamb Supreme	A,W13	28	\$2.09	18
Y302/07	Waterton	Suffolk	A,W12	48	\$2.03	19
44/02	WTD	Texel	P05	50	\$2.01	20
1296/03	Mount Linton	Texel Cross	W05	41	\$1.91	21
299/01	Ohio	Poll Dorset	A04	34	\$1.89	22
105/05	Fairlea	Texel	P10	51	\$1.84	23
570/06	MegaMeat Glengarry	Poll Dorset	P08	83	\$1.79	24
296/05	Waikite / Esselmont & Tamlet	Texel	A09	31	\$1.71	25

Dual Purpose:

Range: **-\$2.84 to \$3.38**

TAG	Flock	Breed	Sites	Progeny	Meat Value Index	Rank
D110/04	Blackdale	Textra	W07	39	\$3.38	1
626/08	Blackdale	Texel	W10	27	\$2.84	2
50394/06	Kelso	Kelso	A08 W09	51	\$2.61	3
66/08	Brenley	Texel	A,W12	30	\$2.38	4
1645/07	The Gree	Greeline	W10	37	\$2.15	5
187/09	Twin Farm	TEFRom	W11	47	\$1.90	6
50177/09	Kelso	Kelso	P11	43	\$1.81	7
386/03	Rene	Perendale	A07	33	\$1.52	8
3091/08	Rosedale	Growbulk	A11	25	\$1.51	9
214/09	Alpha Genetics Nithdale	Romney/Texel	A,K,O,P,W13	77	\$1.44	10
406/06	MNCC	Coopworth	P10	39	\$1.42	11
326/08	Tamlet Coopworth Genetics NZ	Coopworth	A,K,O,P,W13	62	\$1.39	12
198/09	SRDG	Romney	W11	35	\$1.21	13
50381/11	Kelso	Kelso	A,K,O,P,W13	74	\$1.18	14
4203/02	Kelso	Kelso	P06	39	\$1.14	15
301/04	Hazeldale	Perendale	A08	21	\$1.05	16=
569/07	Longview	Perendale	P09	84	\$1.05	16=
230/10	Tamlet	Texel	A,K,O,W13	76	\$0.96	18
201/10	Lincoln Coopworth Genetics NZ	Coopworth	A,K,O,W13	40	\$0.86	19
88/02	TRIGG	Romney	W05	26	\$0.85	20
23253/05	Longdowns, SIL 916	Composite	W08	23	\$0.73	21
431/04	Twin Farm	TEFRom	W07	23	\$0.70	22
1214/09	Blackdale	Textra	O13	12	\$0.50	23
179/07	Wattlebank	Corriedale	A09	34	\$0.48	24=
401/05	Hazeldale	Perendale	W08	39	\$0.48	24=
5 sires	1980s sires	Romney	W07	18	-\$1.10	78

*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: -1.14 to 4.95

TAG	Flock	Breed	Sites	Progeny	WWT eBV (Acc)	Rank
17/02	Tyane	Suffolk	P06	106	4.95 (88)	1
296/05	Waikite / Esselmont & Tamlet	Texel	A09	32	4.20 (75)	2
447/03	Blackdale	Texel	P06	43	3.93 (80)	3
231/08	Goldstream	Suffolk	A10	41	3.75 (80)	4
25/99	Tyane	Suffolk	Link sire	860	3.65 (99)	5
543/07	Paki-iti	Suffolk	P11	98	3.64 (80)	6
341/05	Premier Suffolk	Suffolk	W09	37	3.60 (78)	7
540/09	Central Canterbury Dorset Down SBA	Dorset Down	A,W13	49	3.59 (82)	8
33/04	Myola	South Suffolk	P06	60	3.58 (84)	9
241/04	Ohio	Poll Dorset	A08	37	3.55 (78)	10
2097/11	One Stop Ram Shop	Texel Suffolk	P13	91	3.44 (87)	11
570/06	MegaMeat Glengarry	Poll Dorset	P08	98	3.39 (88)	12
430/03	Glengarry	Poll Dorset	A,P,W05	126	3.28 (91)	13
10/10	Charollais Sheep NZ	Charollais	A,W12	53	3.19 (84)	14
402/07	MegaMeat Glengarry	Poll Dorset	P09	113	3.16 (90)	15
1010/03	Punchbowl	Suffolk	W07	34	2.99 (77)	16
21/07	Castlerock & Takitimu	Poll Dorset	A,W12	33	2.97 (78)	17
J20/10	Inver	South Suffolk	A,W12	60	2.91 (85)	18=
499/08	Arngibbon	Poll Dorset	A11	35	2.91 (78)	18=
867/06	Adelong	Poll Dorset	A10	34	2.73 (77)	20
169/02	Ohio	Poll Dorset	W06	37	2.72 (78)	21
687/12	Longdown, SIL 746	Composite	W13	29	2.63 (75)	22
4/10	Premier Suflex Mount Linton	Suflex	A,W13	33	2.62 (77)	23
275/04	Goldstream	Suffolk	A07	53	2.59 (81)	24
130/05	Belview	Dorset Down	A07	69	2.43 (84)	25

Dual Purpose:

Range: -3.96 to 3.76

TAG	Flock	Breed	Sites	Progeny	WWT eBV (Acc)	Rank
349/10	The Gree	Greeline	A,W12	53	3.76 (85)	1
D110/04	Blackdale	Textra	W07	85	3.54 (89)	2
279/07	Cairnlea	Coopworth	A10	46	3.48 (83)	3
187/09	Twin Farm	TEFRom	W11	96	3.17 (90)	4
409/06	Blythburn	Romney	W09	69	2.22 (87)	5
432/11	TEFRom Group Twin Farm	TEFRom	A,K,O,W13	121	2.04 (91)	6
742/04	Cairnlea	Coopworth	W07	79	1.88 (89)	7
626/08	Blackdale	Texel	W10	62	1.78 (87)	8
1233/02	SRDG	Romney	W08	34	1.57 (81)	9
50177/09	Kelso	Kelso	P11	117	1.45 (81)	10=
50394/06	Kelso	Kelso	A08 W09	109	1.45 (91)	10=
245/04	Tamlet	Coopworth	W09	70	1.37 (88)	12
HG552/02	Clifton	Corriedale	A05	123	1.24 (90)	13
23253/05	Longdowns, SIL 916	Composite	W08	70	1.05 (88)	14
1645/07	The Gree	Greeline	W10	97	1.03 (90)	15
833/02	Tamlet	Coopworth	W05,06	133	0.95 (92)	16
542/04	Hazeldale	Perendale	W06	69	0.86 (87)	17
1214/09	Blackdale	Textra	O13	26	0.85 (72)	18
97/02	Raywell	Borderdale	A03,04	79	0.77 (88)	19
2247/04	Rosedale	Growbulk	W07	74	0.74 (89)	20
9276/10	Focus Genetics	Highlander	A,K,O,P,W13	160	0.72 (93)	21
777/05	Tamlet	Coopworth	W08	80	0.50 (89)	22=
D611/04	Glenovis	Corriedale	A07	95	0.50 (88)	22=
512/05	Kamahi	Perendale	W07	28	0.49 (79)	24
50381/11	Kelso	Kelso	A,K,O,P,W13	180	0.45 (93)	25
5 sires	1980s sires	Romney	W07	32	-3.60 (80)	113

*SIL eBV. The average weaning weight was 29.7kg

WORMFEC eBV* (%)

Terminal:

Range: 96.6% to -31.2%

TAG	Flock	Breed	Sites	Progeny	WormFEC eBV (Acc)	Rank
533/11	Longdowns, SIL 746	Composite	A12	14	-31.2 (61)	1
Y302/07	Waterton	Suffolk	A,W12	22	-31.1 (69)	2
44/02	WTD	Texel	P05	14	-30.8 (58)	3
10/10	Charollais Sheep NZ	Charollais	A,W12	27	-27.6 (72)	4
3/04	Egilshay	Texel	A08	32	-23.7 (72)	5
9/03	Pahiwi	Suffolk	P05	15	-21.4 (61)	6
167/02	MEBA	Texel	W04	16	-21.2 (72)	7
110/03	Murray Downs	Texel	W05	16	-20.5 (60)	8
499/08	Arngibbon	Poll Dorset	A11	16	-19.1 (63)	9
TB126/08	The Burn	Texel	A11	15	-18.7 (62)	10
49/05	MegaMeat	Poll Dorset	P07	16	-17.2 (61)	11
24/07	Punchbowl	Suffolk	W10	16	-17.2 (61)	12
19/03	Tasvic Downs	Southdown	P05	15	-17.1 (59)	13
252/05	Brandes Burton	Texel	W09	14	-17.1 (58)	14
63/08	Longfield	SAMM (Meat Merino)	A10	16	-16.3 (62)	15
65/03	Pahiwi	Suffolk	A06	36	-16.0 (74)	16
6/09	Megameat Glengarry	Poll Dorset	P11	16	-13.3 (57)	17
207/09	Kowhai Glen	Texel	W12	16	-12.5 (63)	18
4208/06	Rissington Awapai	Primera	P10	15	-11.3 (58)	19
62/02	Silverstream	Dorset Down	W05	16	-11.1 (60)	20
236/07	Pahiwi	Suffolk	P09	15	-10.9 (63)	21
18/02	Brandes Burton	Texel	A07	25	-10.8 (68)	22
127/05	Douglas Downs	Poll Dorset	W07	16	-10.6 (62)	23
25/99	Tyanee	Suffolk	Link sire	231	-10.5 (94)	24
48/05	Premier Suffolk	Suffolk	W08	16	-9.4 (61)	25

Dual Purpose:

Range: 104.87% to -54.1%

TAG	Flock	Breed	Sites	Progeny	WormFEC eBV (Acc)	Rank
722/03	Rosemains	Perendale	W05	16	-54.1 (75)	1
386/03	Rene	Perendale	A07	25	-52.1 (76)	2
198/09	SRDG	Romney	W11	16	-45.6 (66)	3
5 sires	1980s sires	Romney	W07	16	-44.6 (70)	4
4203/02	Kelso	Kelso	P06	8	-35.9 (58)	5
1035/02	Newhaven	Perendale	W04	16	-35.2 (73)	6
201/10	Lincoln Coopworth Genetics NZ	Coopworth	A,K,O,W13	18	-33.3 (73)	7
50381/11	Kelso	Kelso	A,K,O,P,W13	12	-32.7 (74)	8
1617/04	Awareka	Romney	W07	16	-31.0 (78)	9
417/04	ARDG	Romney	P08	15	-30.8 (56)	10
255/09	Mt Guardian	Perendale	A,K,O,W13	19	-30.5 (75)	11
348/06	Sponsored Romney	Romney	A08	58	-30.4 (81)	12
50394/06	Kelso	Kelso	A08 W09	37	-28.7 (81)	13
77/09	Ashgrove	Coopworth	A,W12	32	-28.5 (76)	14
347/05	ARDG	Romney	P11	15	-28.1 (51)	15
300/03	MNCC	Coopworth	W05	16	-26.4 (75)	16
245/04	Tamlet	Coopworth	W09	17	-25.7 (70)	17=
84/04	ARDG Elite	Romney	P07	14	-25.7 (73)	17=
50177/09	Kelso	Kelso	P11	14	-25.5 (50)	19
574/06	Kylemore	Perendale	A08	28	-25.4 (74)	20
626/08	Blackdale	Texel	W10	16	-24.8 (67)	21
127/06	Avalon	Perendale	W10	17	-23.7 (65)	22
279/07	Cairnlea	Coopworth	A10	21	-21.4 (70)	23
547/02	Alpha Genetics	Romney	W09	13	-21.1 (62)	24
1707/09	Newhaven	Perendale	A,K,O,W13	66	-20.8 (75)	25

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

EYE MUSCLE AREA EBV* (cm²)

Terminal:

Range: -1.40 to 3.24

TAG	Flock	Breed	Sites	Progeny	EMA eBV(Acc)	Rank
299/01	Ohio	Poll Dorset	A04	34	3.24 (91)	1
114/03	Landcorp Kepler	Lamb Supreme	A05	33	3.18 (91)	2
65/09	Megameat Glengarry	Poll Dorset	A,P,W13	44	2.71 (92)	3
2002/02	Mount Linton	Texel Cross	A04	34	2.69 (91)	4
570/06	MegaMeat Glengarry	Poll Dorset	P08	83	2.65 (94)	5
530/05	Grasmere	Texel	P08	39	2.61 (90)	6
323/07	Tamlet	Texel	P,W12	79	2.55 (94)	7
1694/05	Landcorp Kepler	Lamb Supreme	P09	28	2.55 (89)	8
91892/05	Kelso	Kelso Ranger	P08	52	2.48 (92)	9
34/06	Southern Poll Dorset	Poll Dorset	W08	50	2.41 (91)	10
127/05	Douglas Downs	Poll Dorset	W07	32	2.30 (88)	11
141/04	Crest	Texel	W10	32	2.30 (90)	12
101/08	Longdowns, SIL 746	Composite	W11	51	2.24 (92)	13
914/08	Southern Texel Breeders Group	Texel	W11	47	2.08 (92)	14
65/03	Pahiwi	Suffolk	A06	53	2.07 (93)	15
486/08	Landcorp Kepler	Lamb Supreme	W10	23	2.02 (87)	16
642/09	Premier Texel	Texel	P11	46	2.00 (92)	17
1344/09	Mount Linton	Texel Cross	W11	40	1.93 (91)	18
T210/04	Wharetoa	Meatmaker	W06	34	1.92 (90)	19
3/04	Egilshay	Texel	A08	69	1.88 (94)	20
4208/06	Rissington Awapai	Primera	P10	50	1.87 (91)	21
430/03	Glengarry	Poll Dorset	A,P,W05	117	1.86 (96)	22
485/05	Mount Linton	Texel/Poll Dorset	W09	20	1.81 (85)	23
82/11	Goldstream	Suffolk	A,P,W13	58	1.79 (92)	24
18/02	Brandes Burton	Texel	A07	60	1.78 (93)	25

Dual Purpose:

Range: -2.47 to 2.51

TAG	Flock	Breed	Sites	Progeny	EMA eBV (Acc)	Rank
D110/04	Blackdale	Textra	W07	39	2.51 (93)	1
1560/03	The Gree	Greeline	W06	25	2.07 (92)	2
626/08	Blackdale	Texel	W10	27	1.65 (91)	3
23253/05	Longdowns, SIL 916	Composite	W08	23	1.48 (92)	4
1294/10	TRIGG	Romney	A,K,O,W13	66	1.26 (92)	5
127/06	Avalon	Perendale	W10	15	1.02 (87)	6
829/08	Rangiatea	Perendale	A10 A11	97	0.89 (96)	7
2247/04	Rosedale	Growbulk	W07	35	0.86 (92)	8
326/08	Tamlet Coopworth Genetics NZ	Coopworth	A,K,O,P,W13	62	0.71 (90)	9
70/08	Longview Perendales	Perendale	P12	87	0.69 (92)	10
124/07	Rosemains	Perendale	W11	40	0.66 (92)	11
512/05	Kamahi	Perendale	W07	14	0.62 (87)	12=
1707/09	Newhaven	Perendale	A,K,O,W13	82	0.62 (91)	12=
1269/11	Rosedale	Growbulk	A,K,O,W13	78	0.56 (90)	14
722/03	Rosemains	Perendale	W05	36	0.54 (94)	15
66/08	Brenley	Texel	A,W12	30	0.52 (90)	16
230/10	Tamlet	Texel	A,K,O,W13	76	0.47 (91)	17
214/09	Alpha Genetics Nithdale	Romney/Texel	A,K,O,P,W13	77	0.46 (92)	18
255/09	Mt Guardian	Perendale	A,K,O,W13	65	0.40 (90)	19
50177/09	Kelso	Kelso	P11	43	0.36 (92)	20
357/10	Orari Gorge Romneys	Romney	A,W12	29	0.30 (90)	21
55/01	Bonnieview	Perendale	W05	20	0.27 (90)	22
409/06	Blythburn	Romney	W09	38	0.19 (93)	23
542/04	Hazeldale	Perendale	W06	29	0.10 (93)	24
415/08	Mapari	Perendale	A11	22	0.03 (89)	25
5 sires	1980s sires	Romney	W07	18	-0.26 (87)	47

**EMA eBV is carcass weight adjusted. The average eye muscle area was 11.9cm²*

DAG SCORE EBV*

Terminal:

Range: 1.19 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	-1.18 (81)	2
26/08	Charollais Sheep NZ	Charollais	W11	33	-1.13 (85)	3
1344/09	Mount Linton	Texel Cross	W11	43	-1.11 (88)	4
81/06	South Suffolk NZ Myola	South Suffolk	W11	51	-1.08 (89)	5=
269/04	Dorper	Dorper	W08	45	-1.08 (88)	5=
570/06	MegaMeat Glengarry	Poll Dorset	P08	97	-0.94 (92)	7
543/07	Paki-iti	Suffolk	P11	96	-0.91 (79)	8
642/09	Premier Texel	Texel	P11	45	-0.81 (87)	9=
540/09	Central Canterbury Dorset Down SBA	Dorset Down	A,W13	11	-0.81 (71)	9=
430/03	Glengarry	Poll Dorset	A,P,W05	98	-0.80 (93)	11
2097/11	One Stop Ram Shop	Texel Suffolk	P13	76	-0.77 (92)	12
402/07	MegaMeat Glengarry	Poll Dorset	P09	113	-0.76 (93)	13
458/02	Landcorp Waikite	Texel	A06	27	-0.76 (84)	14
275/04	Goldstream	Suffolk	A07	53	-0.73 (88)	15
323/07	Tamlet	Texel	P,W12	78	-0.68 (85)	16
61/04	Twin Farm	Suffolk	W06	31	-0.61 (75)	17
169/02	Ohio	Poll Dorset	W06	37	-0.60 (81)	18
17/02	Tyanee	Suffolk	P06	105	-0.58 (84)	19
914/08	Southern Texel Breeders Group	Texel	W11	48	-0.57 (89)	20=
26/08	Douglas Downs	Poll Dorset	W10	37	-0.57 (86)	20=
194/08	Valdor	Suffolk	P10	33	-0.56 (83)	22=
304/08	MegaMeat	Poll Dorset	P10	57	-0.56 (83)	22=
376/03	Douglas Downs	Dorset Horn	W05	67	-0.55 (91)	24
696/07	Premier Suftex Group	Suftex	W11	44	-0.51 (88)	25

Dual Purpose:

Range: 1.68 to -1.58

TAG	Flock	Breed	Sites	Progeny	EMA eBV (Acc)	Rank
626/08	Blackdale	Texel	W10	62	-1.58 (91)	1
D110/04	Blackdale	Textra	W07	85	-1.43 (93)	2
1002/03	Mt Guardian	Perendale	W06	59	-1.03 (87)	3
198/09	SRDG	Romney	W11	68	-0.78 (92)	4
301/04	Hazeldale	Perendale	A08	51	-0.74 (90)	5=
1295/10	Focus Genetics	Romney	A,W12	73	-0.74 (92)	5=
66/08	Brenley	Texel	A,W12	74	-0.58 (92)	7
50394/06	Kelso	Kelso	A08 W09	109	-0.53 (95)	8
18/04	White Rock	Corriedale	A06	73	-0.52 (92)	9=
1227/06	Ngaputahi	Growbulk	P09,10	238	-0.52 (96)	9=
B861/12	Taratahi Home Bred	Composite	K13	20	-0.51 (79)	11
349/10	The Gree	Greeline	A,W12	53	-0.45 (90)	12
512/05	Kamahi	Perendale	W07	28	-0.40 (86)	13=
23253/05	Longdowns, SIL 916	Composite	W08	69	-0.40 (93)	13=
1645/07	The Gree	Greeline	W10	97	-0.36 (94)	15=
4203/02	Kelso	Kelso	P06	92	-0.36 (90)	15=
722/03	Rosemains	Perendale	W05	96	-0.36 (94)	15=
6448/07	TRIGG	Romney	A10	61	-0.33 (90)	18=
386/03	Rene	Perendale	A07	71	-0.33 (92)	18=
1214/09	Blackdale	Textra	O13	26	-0.32 (82)	20=
214/09	Alpha Genetics Nithdale	Romney/Texel	A,K,O,P,W13	106	-0.32 (94)	20=
84/04	ARDG Elite	Romney	P07	95	-0.28 (86)	22=
542/04	Hazeldale	Perendale	W06	68	-0.28 (89)	22=
55/01	Bonnieview	Perendale	W05	61	-0.26 (91)	24
1233/02	SRDG	Romney	W08	32	-0.25 (87)	25
5 sires	1980s sires	Romney	W07	32	0.65 (86)	99

*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: -0.30 to 0.53

TAG	Flock	Breed	Sites	Daughters lambled	NLB eBV (Acc)	Rank
1617/04	Awareka	Romney	W07	167	0.53 (96)	1
742/04	Cairnlea	Coopworth	W07	162	0.48 (95)	2
134/03	Hinenui	Coopworth	P08	222	0.44 (96)	3
1218/06	Hinenui	Coopworth	A09	173	0.43 (93)	4
214/05	TRIGG	Romney	W08	289	0.41 (96)	5
300/03	MNCC	Coopworth	W05	516	0.37 (97)	6
50394/06	Kelso	Kelso	A08 W09	163	0.36 (93)	7
279/07	Cairnlea	Coopworth	A10	57	0.35 (86)	8=
4499/09	Landcorp Waihora	Romney	W11	148	0.35 (88)	8=
124/07	Rosemains	Perendale	W11	125	0.31 (88)	10
4334/07	Landcorp Waihora	Romney	Link sire	305	0.29 (95)	11=
4399/06	Landcorp Waihora	Romney	P08	210	0.29 (95)	11=
1560/03	The Gree	Greeline	W06	136	0.29 (94)	11=
544/07	Lincoln	Coopworth	W11	152	0.28 (89)	14=
480/04	View Hill	Romney	A09	83	0.28 (90)	14=
50177/09	Kelso	Kelso	P11	92	0.28 (84)	14=
3091/08	Rosedale	Growbulk	A11	83	0.25 (86)	17=
417/04	ARDG	Romney	P08	200	0.25 (94)	17=
179/07	Wattlebank	Corriedale	A09	53	0.24 (84)	19
1035/02	Newhaven	Perendale	W04	221	0.22 (97)	20=
5828/02	Landcorp Waihora	Romney	W04	55	0.22 (89)	20=
542/04	Hazeldale	Perendale	W06	185	0.21 (95)	22=
4/06	Corriedale Breeder Group	Corriedale	A08	64	0.21 (88)	22=
406/06	MNCC	Coopworth	P10	174	0.21 (91)	22=
777/05	Tamlet	Coopworth	W08	84	0.21 (92)	22=
5 sires	1980s sires	Romney	W07	11	0.01 (66)	66

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

HOGGET OESTRUS EBV (DAYS)

Dual Purpose:

Range: 12.2 to -9.6

TAG	Flock	Breed	Sites	Progeny	Hog Oestrus (Acc)	Rank
349/10	The Gree	Greeline	A,W12	29	-9.6 (70)	1
742/04	Cairnlea	Coopworth	W07	43	-8.8 (78)	2
4/06	Corriedale Breeder Group	Corriedale	A08	20	-8.4 (66)	3
50394/06	Kelso	Kelso	A08 W09	49	-7.8 (79)	4
77/09	Ashgrove	Coopworth	A,W12	34	-7.2 (73)	5
23253/05	Longdowns, SIL 916	Composite	W08	38	-7.1 (77)	6
66/08	Brenley	Texel	A,W12	38	-6.8 (75)	7
1645/07	The Gree	Greeline	W10	50	-6.6 (78)	8
140/09	MNCC	Coopworth	A,W12	43	-6.0 (76)	9
50177/09	Kelso	Kelso	P11	51	-5.7 (58)	10
544/07	Lincoln	Coopworth	W11	36	-5.6 (73)	11
187/09	Twin Farm	TEFRom	W11	38	-5.5 (74)	12
4203/02	Kelso	Kelso	P06	40	-4.7 (73)	13
406/06	MNCC	Coopworth	P10	36	-4.7 (62)	14
34/01	Twin Farm	TEFRom	W03,06	46	-4.4 (79)	15
7180/08	Landcorp Waihora	Romney	W10	36	-4.2 (74)	16
198/09	SRDG	Romney	W11	24	-3.9 (67)	17
18/04	White Rock	Corriedale	A06	39	-3.7 (73)	18
1560/03	The Gree	Greeline	W06	25	-3.5 (72)	19
431/04	Twin Farm	TEFRom	W07	32	-3.3 (72)	20
1227/06	Ngaputahi	Growbulk	P09,10	86	-3.2 (78)	21
301/04	Hazeldale	Perendale	A08	16	-3.1 (62)	22
1233/02	SRDG	Romney	W08	13	-3.1 (59)	23
134/03	Hinenui	Coopworth	P08	40	-2.7 (69)	24
218/02	Waiohine	Romney	P07	49	-2.7 (73)	25
5 sires	1980s sires	Romney	W07	10	7.7 (57)	75

FLEECE WEIGHT EBV* (KG)

Dual Purpose:

Range: -0.86 to 0.85

TAG	Flock	Breed	Sites	Progeny	FW12 eBV (Acc)	Rank
742/04	Cairnlea	Coopworth	W07	40	0.85 (88)	1
956/09	Colhoun	Coopworth	A11	13	0.80 (75)	2
1832/02	Awareka	Romney	W,A04	28	0.69 (87)	3
544/07	Lincoln	Coopworth	W11	36	0.60 (85)	4
140/09	MNCC	Coopworth	A,W12	43	0.52 (88)	5
406/06	MNCC	Coopworth	P10	34	0.46 (78)	6
358/04	MNCC	Coopworth	P07	46	0.43 (85)	7=
187/09	Twin Farm	TEFRom	W11	37	0.43 (86)	7=
278/03	MNCC	Coopworth	W06	30	0.35 (86)	9
5828/02	Landcorp Waihora	Romney	W04	42	0.34 (89)	10
348/06	Sponsored Romney	Romney	A08	44	0.31 (86)	11
1617/04	Awareka	Romney	W07	36	0.29 (87)	12
218/02	Waiohine	Romney	P07	47	0.28 (86)	13=
279/07	Cairnlea	Coopworth	A10	12	0.28 (75)	13=
5203/04	Marlow	Coopworth	Link	223	0.27 (97)	15
4399/06	Landcorp Waihora	Romney	P08	28	0.25 (82)	16
412/06	Anui	Romney	W09	18	0.24 (80)	17
245/04	Tamlet	Coopworth	W09	40	0.20 (87)	18
4/06	Corriedale Breeder Group	Corriedale	A08	21	0.19 (81)	19=
7180/08	Landcorp Waihora	Romney	W10	36	0.19 (86)	19=
833/02	Tamlet	Coopworth	W05,06	30	0.16 (88)	21
357/10	Orari Gorge Romneys	Romney	A,W12	23	0.15 (82)	22
1645/07	The Gree	Greeline	W10	50	0.12 (89)	23
480/04	View Hill	Romney	A09	52	0.11 (87)	24
HW1695/09	Wairarapa Romney Improvement Group	Romney	A,W12	30	0.09 (84)	25
5 sires	1980s sires	Romney	W07	10	-0.54 (73)	91

*SIL eBV. Breeding values for fleece weight at 12 months of age. Average fleece weight was 3.11kg

FACIAL ECZEMA EBV★

Dual Purpose:

Range: 1.12 to -1.00

TAG	Flock	Breed	Sites	Progeny	GGT21 eBV (Acc)	Rank
7180/08	Landcorp Waihora	Romney	W10	20	-1.00 (89)	1
4334/07	Landcorp Waihora	Romney	A,K,O,P,W13	71	-0.98 (94)	2
4399/06	Landcorp Waihora	Romney	P08	32	-0.94 (91)	3
1295/10	Focus Genetics	Romney	A,W12	11	-0.85 (84)	4
179/07	Wattlebank	Corriedale	A09	5	-0.80 (59)	5
4499/09	Landcorp Waihora	Romney	W11	27	-0.79 (89)	6
5144/11	Focus Genetics	Romney	A,K,O,P,W13	11	-0.78 (82)	7
347/05	ARDG	Romney	P11	20	-0.75 (86)	8
211/10	ARDG Romney	Romney	P13	5	-0.74 (63)	9
1645/07	The Gree	Greeline	W10	5	-0.60 (65)	10
115/05	ARDG	Romney	P09	28	-0.58 (87)	11=
118/09	ARDG	Romney	P12	20	-0.58 (84)	11=
722/03	Rosemains	Perendale	W05	5	-0.58 (67)	11=
5203/04	Marlow	Coopworth	A,K,O,P,W13	89	-0.56 (94)	14
50394/06	Kelso	Kelso	A08 W09	5	-0.54 (65)	15=
77/09	Ashgrove	Coopworth	A,W12	12	-0.54 (79)	15=
34/01	Twin Farm	TEFRom	W03,06	5	-0.52 (42)	17=
279/07	Cairnlea	Coopworth	A10	5	-0.52 (56)	17=
278/03	MNCC	Coopworth	W06	11	-0.48 (83)	19
4/06	Corriedale Breeder Group	Corriedale	A08	6	-0.43 (63)	20
4203/02	Kelso	Kelso	P06	5	-0.38 (56)	21=
218/02	Waiohine	Romney	P07	5	-0.38 (59)	21=
415/08	Mapari	Perendale	A11	6	-0.35 (60)	23=
6448/07	TRIGG	Romney	A10	5	-0.35 (55)	23=
406/06	MNCC	Coopworth	P10	6	-0.35 (68)	23=

*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	\$6.99	\$5.41	\$1.58	1.04	0.4	2.61	1.76	0.27	-0.12	-0.01
51/11	Texel New Zealand	Texel	\$5.96	\$4.50	\$1.46	0.53	-5.1	1.45	1.68	-0.48	-0.80	0.01
296/05	Waikite / Esselmont & Tamlet	Texel	\$5.54	\$1.71	\$3.84	4.20	-5.2	0.70	0.18	-0.28	-0.05	0.01
570/06	MegaMeat Glengarry	Poll Dorset	\$5.20	\$1.79	\$3.41	3.39	34.4	2.65	1.00	-0.89	-1.13	-0.02
275/04	Goldstream	Suffolk	\$5.10	\$2.70	\$2.40	2.59	96.6	1.72	-1.37	0.57	0.06	0.01
241/04	Ohio	Poll Dorset	\$5.09	\$0.99	\$4.10	3.55	44.4	0.86	0.11	0.16	-0.53	-0.04
914/08	Southern Texel Breeders Group	Texel	\$4.81	\$3.12	\$1.69	1.81	48.1	2.08	1.10	-3.85	1.47	-0.06
299/01	Ohio	Poll Dorset	\$4.63	\$1.89	\$2.74	1.54	72.4	3.24	0.47	-1.40	-0.16	
486/08	Landcorp Kepler	Lamb Supreme	\$4.34	\$2.14	\$2.19	2.26	17.9	2.02	0.96	-1.51	-1.23	0.03
207/09	Kowhai Glen	Texel	\$4.32	\$2.91	\$1.41	1.68	-12.5	0.19	1.14	0.50	-0.23	
1662/09	Focus Genetics	Lamb Supreme	\$4.31	\$3.15	\$1.16	0.74	13.7	-0.43	0.75	-0.05	-0.55	0.02
141/04	Crest	Texel	\$4.22	\$3.48	\$0.74	0.03	32.7	2.30	1.40	-1.40	-0.05	0.01
1668/08	Mt Linton	Texel	\$4.17	\$2.98	\$1.19	1.32	3.9	0.55	0.89	-0.33	0.56	0.06
499/08	Arngibbon	Poll Dorset	\$4.03	\$0.86	\$3.17	2.91	-19.1	-1.17	-0.39	0.02	0.40	0.01
25/99	Tyanee	Suffolk	\$3.97	\$1.14	\$2.83	3.65	-10.5	0.32	-0.98	2.13	-0.72	0.03
447/03	Blackdale	Texel	\$3.97	\$0.60	\$3.37	3.93	-0.6	1.29	0.31	-3.90	-0.17	
341/05	Premier Suffolk	Suffolk	\$3.90	\$1.07	\$2.83	3.60	9.1	1.75	0.06	-0.53	0.12	0.01
323/07	Tamlet	Texel	\$3.87	\$2.57	\$1.30	0.20	5.7	2.55	2.53	-1.51	-0.22	-0.03
48/05	Premier Suffolk	Suffolk	\$3.87	\$1.65	\$2.22	2.41	-9.4	-0.02	0.20	-0.14	-0.30	
2097/11	One Stop Ram Shop	Texel Suffolk	\$3.87	\$1.54	\$2.33	3.44	5.1	0.25	-0.41	1.98	-0.45	-0.01

* 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	\$6.49	\$3.38	\$3.11	3.54	-16.8	2.51	0.74	-2.02	-0.07	0.02	-0.03	-0.77	-0.06
626/08	Blackdale	Texel	\$4.70	\$2.84	\$1.86	1.78	-24.8	1.65	0.53	-1.10	-0.21	0.02	0.05	-0.12	0.83
50394/06	Kelso	Kelso	\$3.80	\$2.61	\$1.19	1.45	-28.7	-0.83	-0.07	-0.48	-0.60	0.08	0.36	-0.69	-0.54
187/09	Twin Farm	TEFRom	\$3.75	\$1.90	\$1.85	3.17	22.5	-0.86	-0.37	-1.78	-0.66	0.02	0.18	0.43	-0.18
1645/07	The Gree	Greeline	\$3.00	\$2.15	\$0.86	1.03	-15.4	-0.19	0.34	0.32	-0.65	0.03	0.03	0.12	-0.6
50177/09	Kelso	Kelso	\$2.43	\$1.81	\$0.62	1.45	-25.5	0.36	0.24	0.30	-1.26	0.09	0.28	-0.45	0.01
349/10	The Gree	Greeline	\$2.37	-\$0.42	\$2.79	3.76	53.9	-1.51	-0.87	-0.84	-0.08	-0.06		0.02	
432/11	TEFRom Group, Twin Farm	TEFRom	\$1.82	\$0.17	\$1.65	2.04	8.0	-0.97	-0.01	-0.69	0.60	0.02			
23253/05	Longdowns, SIL 916	Composite	\$1.73	\$0.73	\$1.00	1.05	24.4	1.48	-0.26	0.91	-0.49	-0.01	-0.15	-0.12	-0.02
214/09	Alpha Genetics Nithdale	Romney/ Texel	\$1.66	\$1.44	\$0.22	-0.16	-14.4	0.46	0.52	-0.80	-0.63	0.11			-0.18
301/04	Hazeldale	Perendale	\$1.59	\$1.05	\$0.54	0.26	-12.0	-1.94	-1.14	0.25	-0.03	-0.01	-0.05	-0.13	-0.08
50381/11	Kelso	Kelso	\$1.58	\$1.18	\$0.40	0.45	-32.7	-0.78	1.49	-0.94	-0.05	0.02			
3091/08	Rosedale	Growbulk	\$1.58	\$1.51	\$0.06	-0.42	18.1	-0.14	-0.25	0.36	0.42	-0.02	0.25	-0.01	-0.15
230/10	Tamlet	Texel	\$1.46	\$0.96	\$0.50	-0.69	37.7	0.47	2.89	0.33	0.65	-0.03			0.19
406/06	MNCC	Coopworth	\$1.42	\$1.42	-\$0.00	0.16	5.9	-0.24	-0.87	1.40	1.31	-0.03	0.21	0.46	-0.35
66/08	Brenley	Texel	\$1.41	\$2.38	-\$0.97	-0.64	-9.5	0.52	1.38	-0.55	-0.18	0.01		-0.06	-0.07
279/07	Cairnlea	Coopworth	\$1.36	-\$0.92	\$2.28	3.48	-21.4	-0.53	-0.33	1.39	0.46	-0.04	0.35	0.28	-0.52
409/06	Blythburn	Romney	\$1.03	-\$0.30	\$1.33	2.22	5.1	0.19	-1.16	-0.72	-0.15	0.02	0.02	-0.05	0.03
1227/06	Ngaputahi	Growbulk	\$0.76	\$0.40	\$0.36	0.12	49.3	-0.28	0.32	-1.59	1.36	0.00	-0.06	0.01	0.59
1214/09	Blackdale	Textra	\$0.70	\$0.50	\$0.20	0.85	0.4		0.22						

* 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 an 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 (\$)
187/09	Twin Farm	TEFRom	33.88	25.25	-2.08	-0.94	3.00	4.10	-6.25	2.55
4499/09	Landcorp Waihora	Romney	29.62	17.71	2.45	-1.00	1.92	7.72	-7.34	11.38
124/07	Rosemains	Perendale	28.46	19.06	-7.78	2.82	2.09	6.85	-5.76	-0.44
50394/06	Kelso	Kelso	26.59	16.02	-2.43	-1.77	-1.96	8.08	1.23	7.74
134/03	Hinenui	Coopworth	25.62	12.63	-1.89	0.46	0.15	9.81	0.64	-3.85
406/06	MNCC	Coopworth	24.20	17.26	-1.45	-0.71	2.00	4.69	0.84	5.01
742/04	Cairnlea	Coopworth	23.26	15.45	-4.32	0.25	3.29	10.68	-11.81	2.23
279/07	Cairnlea	Coopworth	22.36	21.61	-9.37	-1.47	1.22	7.87	-2.56	7.41
5203/04	Marlow	Coopworth	22.16	14.33	-0.96	-0.63	2.59	4.59	-2.98	7.97
214/05	TRIGG	Romney	21.94	11.15	1.76	-0.68	0.31	9.24	-1.81	4.24
300/03	MNCC	Coopworth	21.31	9.16	-2.96	0.81	1.90	8.30	2.01	0.44
301/04	Hazeldale	Perendale	21.13	12.76	-0.36	1.43	0.97	-1.14	-4.42	1.15
1617/04	Awareka	Romney	20.67	8.87	-7.32	0.37	0.97	11.77	1.33	0.62
412/06	Anui	Romney	20.46	9.50	-1.10	0.27	1.56	3.64	-5.64	1.89
278/03	MNCC	Coopworth	20.44	6.49	7.95	-2.28	2.88	4.30	2.24	6.92
6448/07	TRIGG	Romney	20.44	17.02	-6.60	1.48	1.95	2.44	-3.31	5.01
1560/03	The Gree	Greeline	20.43	11.47	0.29	1.18	0.98	6.37	3.8	-16.11
544/07	Lincoln	Coopworth	19.93	9.18	-0.10	-0.08	4.05	6.28	2.07	3.56
1218/06	Hinenui	Coopworth	18.94	15.33	-7.85	0.26	0.80	9.57	-2.69	0.16
358/04	MNCC	Coopworth	18.88	13.37	-5.92	-1.72	2.07	3.60	0.3	4.15

* 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 only been collected from daughters of dual purpose sires since 2005.

PATERNAL PARENTAGE VERIFICATION – SIRE PATERNITY TESTING

MJ Young & CM Logan

B+LNZ Genetics & Lincoln University

DNA tools have a variety of ways they can help sheep breeders, including determining parentage when intensive shepherding is not possible or desirable, or when field records are ambiguous. Cost : benefit analyses show that for large scale breeding flocks run under extensive conditions it is cost effective to use DNA to match lambs to sires and dams with the cost largely offset by needing less labour at lambing to individually tag lambs and link their identify to their dam.

However all breeding flocks can benefit significantly from DNA parent testing of just a few animals. In this system, every year all new rams used as sires are tested and matched back to their sire's DNA sample, effectively a **sire paternity test**. The first year this is done you cannot match back to historic sires without a sample to DNA test, but over time the system will routinely verify which sire family each ram used is from. The cost of testing just sires, every year, is small relative to the price of rams sold.

Why is this important? Sire-to-sire links underpin our genetic evaluation systems. If a ram used as a sire is assigned to the wrong family, estimates of genetic merit we calculate for him will be influenced by the wrong family of half-sisters and -brothers. Since sire selection is where 80% or more of genetic gain comes from, sires are the animals we want to maximise the accuracy of "paternal" parentage for. Animals assigned to the wrong sire family reduce the accuracy of estimates of genetic merit and limit the rate of genetic gain.

How often do errors in parentage occur? Historical studies of this show that even with best practice you cannot identify parents for lambs 100% accurately. This is because you cannot be present for every mating event (matching ewe to a sire) or birthing event (matching lamb to ewe). DNA analyses on sires used across our industry have estimated an error in sire paternity (matching a ram to just his male parent) in the region of 10%, with some flocks lower and some as high as 25%!

Release of inexpensive tests to assess parentage, conducted by accredited laboratories, has opened up opportunities for all sheep breeders. Requesting tests to verify paternal parentage for all sires a ram breeder uses, each year, is a small cost for a relatively big gain. Some may look at this as a case of too little, too late. After you have used a sire is the least helpful time to find out he comes from a different family to that you thought he was from. To obtain better parentage information for ram lambs or ram hoggets, earlier in the selection cycle, you will need to test more animals simply because you want high accuracy before you make (final) selection decisions. Commercial DNA testing services can help in working out a package that is cost-effective for you (see Zoetis advertisement inside the front cover).

What is the process when a test comes back saying a ram has a different sire to the one recorded? We need to think about where potential errors can occur. A sire may have been identified as mating a ewe when another ram fathered the lamb, or an incorrect dam ID assigned to a lamb and therefore incorrect sire assignment from her mating record. Usually these two problems will show up as a match to another sire used. Occasionally an unknown sire is found where a ram (lamb) was with the ewes when it was thought no ewes were cycling. Less commonly, a sample tested could have come from the wrong animal after mislabelling or misreading a tag. A repeat DNA test is needed to eliminate such a possibility. Discussion with your DNA test provider will help you decide how to handle a test that indicates a wrong ram-to-sire match up.

The B+LNZ Genetics Central Progeny Test will be verifying **sire paternity** on all rams used. Where discrepancies are found, we will follow it up with the ram breeder concerned.

CENTRAL PROGENY TEST ON THE HILL

Do rams that perform well on easier land classes also perform well on the hill?

This question is frequently asked, and is increasing in relevance as finishing country available to sheep operations is reduced because of completion for land use. One of the major trends for sheep farming is the need to raise and finish lambs on terrain that is steeper, and probably less productive, than typical lowland finishing land. Sheep breeders need confidence that the genetic evaluation system is able to accurately rank rams for performance on both lowland and hill environments.

These so called 'genotype by environment interactions' are known to exist, particularly for some disease-related traits. For example, progeny of a ram with no resistance to facial eczema (FE) may perform well in an environment where they are not exposed to FE, but are likely to perform poorly if evaluated in an environment where they are exposed to FE. Very little is known about how other sheep production traits are affected by genotype by environment interactions.

A major component of the B+LNZ Genetics programme is to assess to what extent genotype by environment interactions exist for production traits, and, if necessary, update the genetic evaluation systems to take this into account. Two hill sites were added to the Central Progeny Test in 2013, one North Island and one South Island site, to generate the data needed to investigate this. The North Island site is "Koromiko", a Taratahi Agricultural Training Centre farm located south-east of Masterton. The South Island site is "Onslow View", in the hill country immediately to the north of Millers Flat in Central Otago and owned by EGL Pastoral Ltd.

Evidence for genotype by environment interactions from experiments in New Zealand beef cattle (Morris et al. 1993) is that they are more likely to be found in maternal rather than growth traits. As such, the focus for trait recording on the hill sites is on measuring maternal traits in ewe progeny of the dual purpose sires that are also evaluated on the lowland sites. Some growth and meat yield measurements are collected from the male progeny of these sires, but terminal sire rams are not evaluated on the hill sites.

Matings are by artificial insemination (AI) with DNA parentage testing and RFID tagging being used to determine parentage for lambs so that performance of individual progeny can be measured.

To date, all 2013 male progeny on the hill sites have been slaughtered and their growth and meat yield data were included in the results presented in this booklet. A second year of AI has been completed at the hill sites, and ewe hoggets from the first years AI programme have been mated to investigate hogget mating on the hill. Fleece weight data will be collected this winter, and all ewe progeny will be retained at least until the completion of their four-tooth mating.

Analysis of genotype by environment interactions are arguably most advanced in the forestry industries. The analysis methods used in forestry and previous agricultural programmes will be used to inform how genotype by environment interactions can be addressed in sheep genetic improvement programmes. However, it will take some time to collect sufficient data for determining the best way to analyse the data. As such, no attempt has been made to address genotype by environment interactions this year.

Field days were held at both hill sites in 2013 to promote the two new hill sites. The days included farm tours to show the country that animals are being farmed on. All ewe progeny were on display in their respective sire groups. The field days were an opportunity to hear about the programme and what traits were planned to be measured. Participants were

encouraged to provide feedback during presentations, and this feedback is being used to inform the experimental programme going forward.

Photographs of the country where the ewes were lambed on the two hill sites are presented below. The top photograph shows the higher elevation Central Otago tussock country typical of Onslow View. The second photo shows the summer dry hill country at Koromiko where the ewe flock is run.



Reference

Morris, C.A., Baker, R.L., Hickey, S.M., Johnson, D.L., Cullen, N.G. and Wilson, J.A. 1993. Evidence of genotype by environment interaction for reproductive and maternal traits in beef cattle. *Animal Production* 56: 69-83.

ANIMAL MANAGEMENT PROCEDURES

To date, a total of 289 sires from 22 terminal and 12 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 is 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 achieved 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 2013/2014

Event	Poukawa	Ashley Dene	Woodlands	Koromiko	Onslow View
Start of mating	6 Mar	27 Mar	10 Apr	16 Apr	30 Apr
Start of lambing	22 Jul	18 Aug	3 Sep	9 Sep	23 Sep
Docking	At birth	9 Sep	29 Sep	7 Oct	6 Nov
Weaning	14 Nov	2 Dec	9 Dec	16 Dec	21 Jan
First draft	19 Nov	4 Dec	9 Dec	28 Jan	25 Feb
Second draft	14 Jan	16 Jan	27 Jan	18 Feb	9 Apr
Third draft	11 Feb	19 Feb	24 Feb	26 Mar	

FUTURE OF THE CENTRAL PROGENY TEST

This year promises to be an exciting one for B+LNZ Genetics. The Ministry of Business, Innovation and Employment has approved a new partnership programme to combine and extend the activities of the Beef + Lamb New Zealand Central Progeny Test, Sheep Improvement Ltd and Ovita, along with investment in beef genetics. The idea behind combining the three existing entities is to create a genetics hub for sheep and beef.

A major part of the programme is to expand the current Central Progeny Test activities onto the Koromiko and Onslow View hill country sites. Ovita established these two sites in 2013, and the B+LNZ Genetics programme will investigate whether sires rank differently for performance in lowland compared to hill country environments, and to collect data on maternal ewe performance in harder country. DNA technologies (Shepherd Plus) will be used for parentage on all sites in the future to further improve eBVs.

We want to hear your ideas as well. What do you think are priorities for sheep genetics work, or other aspects of sheep production in New Zealand? It may be that these could be incorporated into future plans or become add-on projects for the Central Progeny Test. Please take the opportunity to contact us about this using the contact details below.

Sire entry into the Central Progeny Test

A call is made for expressions of interest to supply rams to the Central Progeny Test every November. All SIL flocks actively recording performance in New Zealand receive notification of this. Individual ram selection is left to the breeder(s), but spaces are allocated on the basis of:

- widespread use of the ram across SIL flocks with existing across flock information available
- providing stronger connections across groups of flocks to enhance validity of across-flock analyses based on Central Progeny Test flock data
- availability of meat yield performance information (e.g. ultrasonic eye muscle measurements) for the individual ram and his relatives in SIL recorded flocks

Alternatively, rams can be entered into the Central Progeny Test on a cost-recovery basis: \$5,000 per terminal sire and \$15,000 per dual purpose sire. These prices may be revised in future.

Additional traits

The Management Committee will consider adding further traits, if they are of sufficient value to the sheep industry to justify cost of their inclusion. For example, breech/belly bareness scores are currently being recorded and eBVs for this trait will be included in future reports when there is enough information available to produce reliable results.

Add-on projects

To date the unique genetic resources of the Central Progeny Test have been used for more than 20 add-on projects. These projects will continue to be an important contribution from the Central Progeny Test to advances in the sheep industry.

Genetic connectedness between breeding groups

Permission has been given to several breeding groups to use Central Progeny Test data to improve genetic connections between flocks in their groups. Any group wishing to use the CPT data in this way should get their SIL Across Flock Report Manager to apply to SIL for access to CPT flock data for this purpose (contact details below).

To provide comment, to get further information including the source of individual rams, or to have results presented at a farmer meeting, contact Dr Mark Young by telephone (03 357 0694) or email (mark.young@beeflambnz.com).

SIL eSearch Tools for Ram Buyers



FlockFinder

To find ram breeding flocks collecting performance information for specific traits

RamFinder

A ram breeders tool to find individual animals with specific combinations of trait genetic merit

BreederFinder

To find ram breeder contact information

Start
searching
online at
sil.co.nz



SIL-ACE eSearch RamFinder

Genetic Merit, Trait Criteria

[see note below]

Usage	Dual Purpose	Overall	Show ACE Indexes	Show eBVs			
SIL Goal Traits	Abbrev	Minimum	Maximum	Lo/Hi range	Average	Show	Use
SIL DP Overall	SIL_DPOc			603 to 2123	1363	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SIL DP Reproduction	SIL_DPR			-168 to 594	213	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SIL DP Survival	SIL_DPS			-276 to 488	106	<input type="checkbox"/>	<input type="checkbox"/>
SIL DP Lamb Growth	SIL_DPG			595 to 1986	1291	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SIL DP Adult Size	SIL_DPA			-956 to 189	-384	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SIL DP Meat Yield	SIL_DPM			-117 to 205	44	<input type="checkbox"/>	<input type="checkbox"/>
SIL DP Wool	SIL_DPW			-27 to 285	129	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SIL DP WormFEC	SIL_DPF			-287 to 444	78	<input type="checkbox"/>	<input type="checkbox"/>
SIL DP Facial Eczema Tolerance	SIL_DPX			-189 to 1359	585	<input type="checkbox"/>	<input type="checkbox"/>

Click this button to recalculate the ranges and averages above, and sort option below

Update

Results

Sort results by **SIL DP Overall** ordered **High to Low**

General Criteria

