



Central Progeny Test Results

2010-11



with the support of



in conjunction with



New Zealand's specialist land-based university

TABLE OF CONTENTS

Introduction	2
How to understand Central Progeny Test results	3
Central Progeny Test Growth Index (\$)	5
Central Progeny Test Meat Value Index (\$)	6
Weaning Weight eBV (kg)	7
WormFEC eBV (%)	8
Eye Muscle Area eBV (cm²)	9
Number of Lambs Born eBV	10
Fleece Weight eBV (kg)	10
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
Link Sires across Sites and Years	15
Staying connected	16
Date of first oestrus in ewe hoggets	17
Animal management procedures	19
Future of the Central Progeny Test	20

KEY:

Sites:	A = Ashley Dene W = Woodlands P = Poukawa	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
---------------	---	---------------	--	--	--

eBV	Estimated breeding value	GGT21	Facial Eczema
EMA	Eye Muscle Area	NLB	Number of lambs born
FEC or WormFEC	Faecal Egg Count	FW12	Fleece weight at 12 months of age
Acc	Accuracy value		

The results presented in this booklet comprise the top terminal and top 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®.

The information in this booklet is not to be reproduced or copied in whole or in part without the written consent of Beef + Lamb New Zealand.

All due care has been taken in preparing this information. However, Beef + Lamb New Zealand Limited does not guarantee its accuracy, and opinions expressed can change without notice. To the extent possible Beef + Lamb New Zealand's liability is excluded, and persons acting in reliance on the information do so at their own risk.

For information relating to the Beef + Lamb New Zealand 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:

Dr Andy Bray Beef + Lamb New Zealand 1/585 Wairakei Road Harewood P O Box 39085 Christchurch 8545	Phone: (03) 357 3090 Email: andy.bray@beeflambnz.com
--	---

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 by using the same rams across sites (often called reference or link sires) that create genetic connections between flocks. However, there are 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 the use of novel or expensive measurement methods.

Objectives

The Beef + Lamb New Zealand 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 the best genetics regardless of breed. Breed comparisons require testing many randomly selected rams per breed, with few progeny per ram. The Central Progeny Test has used a small number of rams, with a greater number 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 has provided critical genetic connections for this to be undertaken.

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 there was a change to include maternal traits for dual purpose rams. Dual purpose 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 by the then Meat & Wool New Zealand. In 2005 a third site was established at Poukawa (Hawkes Bay) with On-Farm Research and historic weaning and carcass weight 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. Funding for the Central Progeny Test is now provided by Beef + Lamb New Zealand and the programme is known as the B+LNZ Central Progeny Test. The results in the following tables are based on analysis of data from all rams evaluated to date. Results are presented as two indexes (Central Progeny Test Growth Index and Central Progeny Test Meat Value Index) and individual breeding values for traits of interest.

Changes to the presentation of results for 2010/2011 born progeny

There have been no changes to the traits presented or the format of the results compared to last year's results booklet. A ram 'aging' policy was introduced three years ago, whereby rams that are older than ten years of age **and** have no progeny born in SIL-recorded flocks in the last four years are not listed regardless of their ranking. This means that the rams listed are currently, or were recently, available.

The term used for breeding value is "eBV" (for "estimated breeding value") in this booklet rather than the "BV" term used previously. This is because breeding values based on DNA tests ("molecular breeding values") have been released and there is the need to distinguish between the different types of breeding value.

This is the second year that accuracies for breeding values are presented. They appear in parentheses beside the breeding value 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 breeding value for the ram, and the less likely the breeding value would change if additional progeny are measured.

This is also the second year that a table summarising the dual purpose performance of dual purpose rams is presented. The top 20 rams are listed on the basis of their dual purpose performance. The table ranks rams on the SIL "Dual Purpose Production" (DPP) index, and lists the sub-indexes that make up the DPP index, and the WormFEC and facial eczema breeding values, all of which are expressed in dollar terms.

Within this booklet, SIL across-flock breeding values have been calculated from an across-flock analysis of the three Central Progeny Test flocks for weaning weight; WormFEC and fleece weight. SIL-ACE breeding values (i.e. including data outside the Central Progeny Test) are used where the breeding value needs greater numbers of records to improve the accuracy of breeding values, namely for number of lambs born and facial eczema breeding values. All other breeding values are estimated using Central Progeny Test data in stand-alone analyses. These include breeding values for the traits: hindleg lean; loin lean; shoulder lean; carcass weight; and eye muscle area.

Breeding values for the traits dressing percentage, pH, meat colour and fat colour are presented only in the tables of 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.

In all of the dual purpose results tables there is a ram called "1980s Sires". These are the average results 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. The results are interesting in that they give an indication of the genetic improvement that has accumulated over the last three decades.

HOW TO UNDERSTAND CENTRAL PROGENY TEST RESULTS

This booklet contains breeding values and indexes for rams used in the Alliance Central Progeny Test[®] and B+LNZ Central Progeny Test. In addition, rams used in the Elite Lamb programme at Poukawa from 1998 to 2004 have been included for the evaluation of growth. A total of 212 rams have been evaluated in the Central Progeny Test to date, and the breeding values for the **top 25 terminal sire and top 25 dual purpose rams** are presented for each trait or index.

A breeding value 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. A breeding value 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, numbers of lambs born and facial eczema) are adjusted so the average of animals born in 1995

was zero. Central Progeny Test breeding values and indexes presented here are given as deviations from an average of zero, which means that half of the rams tested will have negative breeding values.

To give an example of how to use a breeding value, if a ram has a breeding value of +1.0kg for weaning weight, we would expect the progeny to be 0.5 kg heavier at weaning (the sire provides half of the genes) than the progeny of the average ram in the Central Progeny Test. Likewise, if a ram has a breeding value of -1.0kg for weaning weight, we would expect his progeny to be 0.5kg lighter than the Central Progeny Test average. A negative breeding value for weaning weight does not necessarily mean that the ram is poor for growth rate, e.g. many dual purpose rams do not have the high growth rates found in the terminal sire breeds because they have been selected for many other traits. Thus, some of the better dual purpose rams for growth have negative breeding values because higher values are more likely to be for terminal sire rams.

A breeding index is simply a way of adding together the breeding values for a number of traits, but with an economic weighting applied to each breeding value so that the best economic response is achieved. For example, the Central Progeny Test Growth Index is a combination of the weaning weight and carcass weight breeding values.

Some Central Progeny Test breeding values and indexes differ from those produced by the SIL genetic evaluation system in several ways. The Central Progeny Test collects additional measurements which are not routinely collected in the wider industry. For example, the Central Progeny Test Meat Value Index is based on the weight of meat in each of the hindleg, loin and shoulder cuts as measured by the VIAscan[®] grading system.

For further information on breeding values, indexes and selection, visit the SIL website (www.sil.co.nz). Follow the link to “Technical Information” to find the SIL Users Manual and a number of technical documents.

Historical weaning and carcass weight data have been included from the Poukawa Elite Lamb programme making it possible to include these rams in the Central Progeny Test Growth Index. However, no results for these rams can now be reported because they do not meet the Central Progeny Test aging policy.

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

CENTRAL PROGENY TEST GROWTH INDEX (\$)

Terminal:

Range: **-\$0.96 to \$3.82**

TAG	Flock	Breed	Sites	Progeny	Growth Index	Rank
296/05	Waikite / Esselmont & Tamlet	Texel	A09	31	\$3.82	1
231/08	Goldstream	Suffolk	A10	42	\$3.75	2
241/04	Ohio Poll Dorset	Poll Dorset	A08	34	\$3.44	3
486/08	Landcorp Kepler	Lamb Supreme	W10	23	\$3.36	4
447/03	Blackdale Stud	Texel	P06	37	\$3.32	5
570/06	MegaMeat Glengarry	Poll Dorset	P08	83	\$3.22	6
17/02	Tyanee	Suffolk	P06	96	\$3.16	7
4012/99	Bilberry Oaks	Hampshire	W02 W03	50	\$2.95	8
341/05	Premier Suffolk	Suffolk	W09	37	\$2.95	9
*128/97	Punchbowl	Suffolk	W03	37	\$2.94	10
25/99	Tyanee	Suffolk	Link sire	767	\$2.83	11
430/03	Glengarry	Poll Dorset	A05 P05 W05	117	\$2.82	12
4208/06	Rissington	Primera	P10	50	\$2.76	13
299/01	Ohio Poll Dorset	Poll Dorset	A04	34	\$2.71	14
33/04	Myola	South Suffolk	P06	52	\$2.51	15
211/98	Kurralea	Poll Dorset	W02	28	\$2.49	16
767/99	Darenal	Dorset Down	A03	14	\$2.42	17
867/06	Adelong	Poll Dorset	A10	40	\$2.41	18
26/08	Douglas Downs	Poll Dorset	W10	35	\$2.38	19
231/97	Bankhead	Southdown	A05	44	\$2.27	20
402/07	MegaMeat Glengarry	Poll Dorset	P09	106	\$2.25	21
48/05	Premier Suffolk	Suffolk	W08	37	\$2.19	22
275/04	Goldstream	Suffolk	A07	54	\$2.19	23
120/00	Glendhu	Dorset Down	W03	33	\$2.15	24
1010/03	Punchbowl	Suffolk	W07	34	\$2.12	25

Dual Purpose:

Range: **-\$3.35 to \$2.85**

TAG	Flock	Breed	Sites	Progeny	Growth Index	Rank
D110/04	Blackdale Stud	Textra	W07	39	\$2.85	1
626/08	Blackdale Stud	Texel	W10	27	\$2.42	2
279/07	Cairnlea	Coopworth	A10	25	\$2.15	3
1645/07	The Gree	Greeline	W10	37	\$1.73	4
742/04	Cairnlea	Coopworth	W07	27	\$1.02	5
7180/08	Landcorp Waihora	Romney	W10	30	\$1.00	6
409/06	Blythburn	Romney	W09	38	\$0.96	7
245/04	Tamlet	Coopworth	W09	23	\$0.96	8
23253/05	Longdowns	Composite	W08	21	\$0.94	9
32/05	TRIGG	Romney	W10	29	\$0.94	10
2165/97	Wairere	Romney	W02 W03 A04	86	\$0.94	11
50394/06	Kelso	Kelso	A08 W09	51	\$0.85	12
5203/04	Marlow	Coopworth	Link sire	46	\$0.58	13
232/01	TRIGG	Romney	W03	21	\$0.55	14
542/04	Hazeldale	Perendale	W06	29	\$0.49	15
1233/02	SRDG Romney	Romney	W08	14	\$0.40	16
HG552/02	Clifton	Corriedale	A05	48	\$0.36	17
777/05	Tamlet	Coopworth	W08	35	\$0.29	18
300/03	MNCC	Coopworth	W05	27	\$0.26	19
2247/04	Rosedale	Growbulk	W07	35	\$0.23	20
5093/99	Meadowslea	Romney	A03	22	\$0.19	21
1218/06	Hinenui	Coopworth	A09	35	\$0.17	22
301/04	Hazeldale	Perendale	A08	21	\$0.16	23
426/99	Mt Guardian	Perendale	W03	19	\$0.15	24
833/02	Tamlet	Coopworth	W05 W06	54	\$0.01	25
5 sires	1980s sires	Romney	W07	18	-\$2.69	93

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

CENTRAL PROGENY TEST MEAT VALUE INDEX (\$)

Terminal:

Range: -\$2.24 to \$5.45

TAG	Flock	Breed	Sites	Progeny	Meat Value Index	Rank
530/05	Grasmere	Texel	P08	39	\$5.45	1
299/00	Landcorp Waikite	Texel	W02 W03	58	\$3.50	2
141/04	Crest	Texel	W10	32	\$3.44	3
110/03	Murray Downs	Texel	W05	37	\$2.77	4
275/04	Goldstream	Suffolk	A07	54	\$2.74	5
XA2/99	The Burn	Texel	W02	22	\$2.41	6
101/03	Landover	Texel	W07	21	\$2.41	7
114/03	Landcorp Kepler	Lamb Supreme	A05	33	\$2.41	8
52/04	Mount Linton	Suftex	W06	32	\$2.19	9
486/08	Landcorp Kepler	Lamb Supreme	W10	23	\$2.18	10
911/99	Murray Downs	Texel	W03	31	\$2.04	11
44/02	WTD	Texel	P05	50	\$2.02	12
1296/03	Mount Linton	Texel Cross	W05	41	\$1.98	13
400/00	Brandes Burton	Texel	W02 W04	62	\$1.93	14
299/01	Ohio Poll Dorset	Poll Dorset	A04	34	\$1.93	15
296/05	Waikite / Esselmont & Tamlet	Texel	A09	31	\$1.92	16
570/06	MegaMeat Glengarry	Poll Dorset	P08	83	\$1.82	17
105/05	Fairlea	Texel	P10	51	\$1.78	18
60159/07	Kelso	Kelso Ranger	A09	36	\$1.65	19
122/05	Blackdale Stud	Texel	W08	40	\$1.60	20
70/01	Torresdale	Suffolk	W05	40	\$1.51	21
1694/05	Landcorp Kepler	Lamb Supreme	P09	28	\$1.51	22
3091/03	One Stop Ram Shop	Texel/Suffolk	P09	33	\$1.49	23
021/01	Broken Hut	Texel	A03	29	\$1.49	24
48/05	Premier Suffolk	Suffolk	W08	37	\$1.46	25

Dual Purpose:

Range: -\$3.00 to \$3.36

TAG	Flock	Breed	Sites	Progeny	Meat Value Index	Rank
D110/04	Blackdale Stud	Textra	W07	39	\$3.36	1
626/08	Blackdale Stud	Texel	W10	27	\$2.46	2
50394/06	Kelso	Kelso	A08 W09	51	\$2.08	3
1645/07	The Gree	Greeline	W10	37	\$2.02	4
4203/02	Kelso	Kelso	P06	39	\$1.36	5
406/06	MNCC	Coopworth	P10	39	\$1.33	6
386/03	Rene	Perendale	A07	33	\$1.26	7
569/07	Longview Perendale	Perendale	P09	84	\$1.02	8
88/02	TRIGG	Romney	W05	26	\$1.01	9
431/04	Twin Farm	TEFRom	W07	22	\$0.95	10
179/07	Wattlebank	Corriedale	A09	34	\$0.81	11
23253/05	Longdowns	Composite	W08	21	\$0.73	12
1227/06	Ngaputahi	Growbulk	P09 P10	119	\$0.60	13
358/04	MNCC	Coopworth	P07	43	\$0.58	14
301/04	Hazeldale	Perendale	A08	21	\$0.52	15
401/05	Hazeldale	Perendale	W08	38	\$0.50	16
542/04	Hazeldale	Perendale	W06	29	\$0.49	17
132/01	Kelso	Kelso	W03	31	\$0.46	18
1218/06	Hinenui	Coopworth	A09	35	\$0.46	19
574/06	Kylemore	Perendale	A08	21	\$0.34	20
774/02	Flockton	Perendale	A04	37	\$0.33	21
435/98	Kelso	Kelso	W02	29	\$0.30	22
138/01	Edale	Growbulk	A03	34	\$0.26	23
11/01	Little River	Cheviot	A03 W03	60	\$0.25	24
781/00	Shoreford	Romney	W03	30	\$0.24	25
5 sires	1980s sires	Romney	W07	18	-\$0.56	48

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: -0.91 to 5.02

TAG	Flock	Breed	Sites	Progeny	WWT eBV (Acc)	Rank
17/02	Tyane	Suffolk	P06	106	5.02 (88)	1
296/05	Waikite / Esselmont & Tamlet	Texel	A09	32	4.24 (75)	2
486/08	Landcorp Kepler	Lamb Supreme	W10	24	4.13 (72)	3
447/03	Blackdale Stud	Texel	P06	43	3.91 (80)	4
231/08	Goldstream	Suffolk	A10	41	3.82 (78)	5
25/99	Tyane	Suffolk	Link sire	828	3.81 (98)	6
341/05	Premier Suffolk	Suffolk	W09	37	3.77 (78)	7
33/04	Myola	South Suffolk	P06	60	3.59 (84)	8
231/97	Bankhead	Southdown	A05	53	3.34 (82)	9
767/99	Darenal	Dorset Down	A03	14	3.23 (78)	10
4012/99	Bilberry Oaks	Hampshire	W02 W03	55	3.21 (85)	11
430/03	Glengarry	Poll Dorset	A05 P05 W05	126	3.21 (91)	11
211/98	Kurralea	Poll Dorset	W02	28	3.20 (83)	13
570/06	MegaMeat Glengarry	Poll Dorset	P08	98	3.18 (88)	14
*128/97	Punchbowl	Suffolk	W03	38	3.15 (86)	15
402/07	MegaMeat Glengarry	Poll Dorset	P09	113	3.00 (89)	16
867/06	Adelong	Poll Dorset	A10	34	2.99 (76)	17
X0050/87	Sheepac	Oxford	W03	31	2.96 (77)	18
*419/96	Punchbowl	Suffolk	W02	13	2.91 (78)	19
77/95	Douglas Downs	Dorset Horn	W02 W04	121	2.90 (91)	20
26/08	Douglas Downs	Poll Dorset	W10	38	2.89 (79)	21
241/04	Ohio Poll Dorset	Poll Dorset	A08	37	2.87 (77)	22
1010/03	Punchbowl	Suffolk	W07	34	2.84 (77)	23
169/02	Ohio Poll Dorset	Poll Dorset	W06	37	2.68 (78)	24
130/05	Belview	Dorset Down	A07	69	2.58 (84)	25

Dual Purpose:

Range: -3.96 to 3.23

TAG	Flock	Breed	Sites	Progeny	WWT eBV (Acc)	Rank
D110/04	Blackdale Stud	Textra	W07	85	3.23 (88)	1
279/07	Cairlea	Coopworth	A10	46	3.22 (80)	2
626/08	Blackdale Stud	Texel	W10	62	3.17 (86)	3
1645/07	The Gree	Greeline	W10	97	2.72 (90)	4
32/05	TRIGG	Romney	W10	64	2.57 (86)	5
742/04	Cairlea	Coopworth	W07	79	1.83 (88)	6
409/06	Blythburn	Romney	W09	69	1.81 (86)	7
7180/08	Landcorp Waihora	Romney	W10	73	1.47 (88)	8
1233/02	SRDG Romney	Romney	W08	34	1.44 (79)	9
245/04	Tamlet	Coopworth	W09	70	1.35 (86)	10
232/01	TRIGG	Romney	W03	21	1.33 (71)	11
HG552/02	Clifton	Corriedale	A05	123	1.31 (90)	12
23253/05	Longdowns	Composite	W08	70	1.23 (87)	13
833/02	Tamlet	Coopworth	W05 W06	133	1.03 (92)	14
50394/06	Kelso	Kelso	A08 W09	109	1.02 (90)	15
2165/97	Wairere	Romney	W02 W03 A04	127	0.98 (92)	16
5203/04	Marlow	Coopworth	Link sire	137	0.94 (93)	17
542/04	Hazeldale	Perendale	W06	66	0.88 (87)	18
531/98	Wharetoa	Coopworth	W03	48	0.67 (84)	19
2247/04	Rosedale	Growbulk	W07	74	0.65 (88)	20
97/02	Raywell	Borderdale	A03 A04	79	0.62 (88)	21
D611/04	Glenovis	Corriedale	A07	95	0.50 (87)	22
5093/99	Meadowslea	Romney	A03	24	0.50 (72)	22
781/00	Shoreford	Romney	W03	43	0.48 (83)	24
4334/07	Landcorp Waihora	Romney	Link sire	233	0.45 (95)	25
5 sires	1980s sires	Romney	W07	32	-3.67 (79)	26

*SIL eBV. The average weaning weight was 29.5kg

WORMFEC EBV* (%)

Terminal:

Range: 96.1% to -39.0%

TAG	Flock	Breed	Sites	Progeny	WormFEC eBV (Acc)	Rank
E-140/00	Turnberry	Composite	W02	10	-39.0 (57)	1
299/00	Landcorp Waikite	Texel	W02 W03	26	-38.5 (76)	2
44/02	WTD	Texel	P05	14	-30.5 (58)	3
3/04	Egilshay	Texel	A08	32	-26.1 (71)	4
9/03	Pahiwi	Suffolk	P05	15	-21.6 (61)	5
167/02	MEBA	Texel	W04	16	-21.4 (71)	6
61/97	Oringi	Oxford Down	A04	32	-21.3 (74)	7
110/03	Murray Downs	Texel	W05	16	-20.7 (60)	8
X0050/87	Sheepac	Oxford	W03	11	-19.8 (58)	9
77/95	Douglas Downs	Dorset Horn	W02 W04	23	-18.9 (76)	10
49/05	MegaMeat	Poll Dorset	P07	16	-17.7 (61)	11
19/03	Tasvic Downs	Southdown	P05	15	-17.2 (59)	12
65/03	Pahiwi	Suffolk	A06	36	-17.0 (74)	13
252/05	Brandes Burton	Texel	W09	14	-17.0 (58)	13
63/08	Longfield	SAMM (Meat Merino)	A10	16	-15.6 (62)	15
929/00	Craig Annat	South Suffolk	W02	10	-15.4 (58)	16
24/07	Punchbowl	Suffolk	W10	16	-14.6 (62)	17
165/00	Torresdale	Suffolk	W02	7	-13.9 (53)	18
18/02	Brandes Burton	Texel	A07	25	-11.8 (68)	19
62/02	Silverstream	Dorset Down	W05	16	-11.2 (60)	20
127/05	Douglas Downs	Poll Dorset	W07	16	-11.2 (62)	21
911/99	Murray Downs	Texel	W03	16	-10.8 (67)	22
236/07	Pahiwi	Suffolk	P09	15	-10.7 (62)	23
14/07	Torresdale	Suffolk	A09	16	-10.4 (60)	24
25/99	Tyane	Suffolk	Link sire	219	-9.8 (94)	25

Dual Purpose:

Range: 96.4% to -57.6%

TAG	Flock	Breed	Sites	Progeny	WormFEC eBV (Acc)	Rank
386/03	Rene	Perendale	A07	25	-57.6 (72)	1
722/03	Rose Mains	Perendale	W05	16	-48.7 (74)	2
348/06	Sponsored Romney	Romney	A08	58	-44.6 (79)	3
4014/96	Waihora	Romney	W04	16	-42.2 (68)	4
649/01	ARDG Romney	Romney	P06	8	-41.3 (59)	5
1127/95	Awareka	Romney	W03	14	-40.3 (63)	6
4203/02	Kelso	Kelso	P06	8	-37.7 (56)	7
5 sires	1980s sires	Romney	W07	21	-37.7 (69)	8
JL1695/1	WRIG	Romney	P05	13	-34.8 (57)	9
300/03	MNCC	Coopworth	W05	16	-32.9 (73)	10
1035/02	Newhaven	Perendale	W04	16	-32.8 (72)	11
417/04	ARDG Romney	Romney	P08	15	-32.1 (52)	12
279/07	Cairnlea	Coopworth	A10	21	-31.2 (67)	13
850/00	Hillcrest	Perendale	W03	16	-31.0 (66)	14
664/98	ARDG Elite	Romney	W03	15	-30.9 (64)	15
1617/04	Awareka	Romney	W07	46	-30.1 (75)	16
50394/06	Kelso	Kelso	A08 W09	37	-28.6 (77)	17
706/00	Lincoln	Coopworth	Link sire	494	-28.0 (97)	18
574/06	Kylemore	Perendale	A08	28	-27.9 (72)	19
34/02	Wai-iti Romneys	Romney	P06	8	-25.8 (57)	20
132/01	Kelso	Kelso	W03	16	-25.7 (65)	21
D110/04	Blackdale Stud	Textra	W07	45	-25.1 (75)	22
147/01	Tresco	Romney	W05	17	-24.4 (69)	23
5093/99	Meadowslea	Romney	A03	16	-23.5 (61)	24
626/08	Blackdale Stud	Texel	W10	16	-23.0 (64)	25

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

EYE MUSCLE AREA EBV (cm²)

Terminal:

Range: -1.38 to 3.63

TAG	Flock	Breed	Sites	Progeny	EMA eBV(Acc)	Rank
299/00	Landcorp Waikite	Texel	W02 W03	58	3.63 (95)	1
299/01	Ohio Poll Dorset	Poll Dorset	A04	34	3.20 (91)	2
114/03	Landcorp Kepler	Lamb Supreme	A05	33	3.14 (91)	3
2002/02	Mount Linton	Texel Cross	A04	34	2.66 (91)	4
1694/05	Landcorp Kepler	Lamb Supreme	P09	28	2.59 (89)	5
570/06	MegaMeat Glengarry	Poll Dorset	P08	83	2.44 (94)	6
530/05	Grasmere	Texel	P08	39	2.43 (90)	7
34/06	Southern Poll Dorset	Poll Dorset	W08	50	2.40 (91)	8
127/05	Douglas Downs	Poll Dorset	W07	32	2.39 (88)	9
106/99	Ohio Poll Dorset	Poll Dorset	W02	45	2.33 (92)	10
91892/05	Kelso	Kelso Ranger	P08	52	2.31 (92)	11
141/04	Crest	Texel	W10	32	2.24 (89)	12
65/03	Pahiwi	Suffolk	A06	53	1.95 (93)	13
021/01	Broken Hut	Texel	A03	29	1.95 (90)	14
486/08	Landcorp Kepler	Lamb Supreme	W10	23	1.94 (86)	15
T210/04	Wharetoa	Meatmaker	W06	34	1.89 (90)	16
430/03	Glengarry	Poll Dorset	A05 P05 W05	117	1.86 (96)	17
4208/06	Rissington	Primera	P10	50	1.81 (90)	18
458/02	Waikite	Texel	A06	42	1.77 (92)	19
341/05	Premier Suffolk	Suffolk	W09	37	1.76 (89)	20
3/04	Egilshay	Texel	A08	69	1.75 (93)	21
485/05	Mount Linton	Texel/Poll Dorset	W09	20	1.73 (85)	22
18/02	Brandes Burton	Texel	A07	60	1.72 (93)	23
275/04	Goldstream	Suffolk	A07	54	1.67 (93)	24
110/03	Murray Downs	Texel	W05	37	1.59 (90)	25

Dual Purpose:

Range: -2.69 to 2.50

TAG	Flock	Breed	Sites	Progeny	EMA eBV (Acc)	Rank
D110/04	Blackdale Stud	Textra	W07	39	2.50 (92)	1
1560/03	The Gree	Greeline	W06	24	1.98 (91)	2
626/08	Blackdale Stud	Texel	W10	27	1.83 (88)	3
23253/05	Longdowns	Composite	W08	21	1.72 (88)	4
829/08	Rangiatea	Perendale	A10	36	1.08 (88)	5
138/01	Edale	Growbulk	A03	34	0.90 (91)	6
2247/04	Rosedale	Growbulk	W07	35	0.89 (92)	7
722/03	Rose Mains	Perendale	W05	36	0.63 (93)	8
127/06	Avalon	Perendale	W10	15	0.54 (83)	9
1127/95	Awareka	Romney	W03	19	0.51 (86)	10
55/01	Bonnieview	Perendale	W05	20	0.42 (90)	11
426/99	Mt Guardian	Perendale	W03	19	0.37 (87)	12
512/05	Kamahi	Perendale	W07	13	0.35 (83)	13
542/04	Hazeldale	Perendale	W06	29	0.30 (92)	14
85/00	Tahakita	Coopworth	W04 A04	75	0.23 (96)	15
107/97	Strathblane	Corriedale	A03	15	0.22 (83)	16
300/03	MNCC	Coopworth	W05	27	0.20 (92)	17
11/01	Little River	Cheviot	A03 W03	60	0.15 (94)	18
401/05	Hazeldale	Perendale	W08	38	0.12 (91)	19
409/06	Blythburn	Romney	W09	38	0.06 (91)	20
5 sires	1980s sires	Romney	W07	18	0.03 (86)	21
JL1695/1	WRIG	Romney	P05	36	0.00 (90)	22
569/07	Longview Perendale	Perendale	P09	84	-0.02 (94)	23
4203/02	Kelso	Kelso	P06	39	-0.03 (94)	24
115/05	ARDG Romney	Romney	P09	51	-0.04 (92)	25

The average eye muscle area was 11.8cm².

NUMBER OF LAMBS BORN EBV*

Dual Purpose:

Range: -0.28 to 0.51

TAG	Flock	Breed	Sites	Daughters lambled	NLB eBV (Acc)	Rank
1617/04	Awareka	Romney	W07	163	0.51 (94)	1
742/04	Cairnlea	Coopworth	W07	162	0.47 (93)	2
214/05	TRIGG	Romney	W08	156	0.46 (90)	3
147/01	Tresco	Romney	W05	224	0.40 (96)	4
1560/03	The Gree	Greeline	W06	117	0.38 (92)	5
134/03	Hinenui	Coopworth	P08	171	0.37 (92)	6
300/03	MNCC	Coopworth	W05	383	0.33 (96)	7
313/01	Valley	Coopworth	W04	80	0.30 (90)	8
4014/96	Waihora	Romney	W04	403	0.30 (98)	9
50394/06	Kelso	Kelso	A08 W09	42	0.29 (77)	10
4399/06	Landcorp Waihora	Romney	P08	112	0.28 (87)	11
84/04	ARDG Elite	Romney	P07	71	0.26 (86)	12
278/03	MNCC	Coopworth	W06	73	0.26 (87)	13
358/04	MNCC	Coopworth	P07	175	0.25 (92)	14
4/06	Corriedale	Corriedale	A08	42	0.25 (78)	15
1035/02	Newhaven	Perendale	W04	204	0.25 (96)	15
542/04	Hazeldale	Perendale	W06	98	0.23 (90)	17
401/05	Hazeldale	Perendale	W08	55	0.23 (81)	17
417/04	ARDG Romney	Romney	P08	74	0.23 (84)	19
5828/02	Waihora	Romney	W04	52	0.22 (88)	20
422/00	Wattlebank	Corriedale	A04 A05	186	0.22 (95)	21
706/00	Lincoln	Coopworth	Link sire	382	0.22 (97)	21
D611/04	Glenovis	Corriedale	A07	79	0.22 (85)	23
5203/04	Marlow	Coopworth	Link sire	274	0.21 (94)	24
5 sires	1980s sires	Romney	W07	11	-0.04 (54)	26

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

FLEECE WEIGHT EBV*

Dual Purpose:

Range: -0.82 to 0.81

TAG	Flock	Breed	Sites	Progeny	FW12 eBV (Acc)	Rank
742/04	Cairnlea	Coopworth	W07	40	0.81 (86)	1
1832/02	Awareka	Romney	W04 A04	28	0.66 (86)	2
313/01	Valley	Coopworth	W04	32	0.58 (86)	3
531/98	Wharetoa	Coopworth	W03	18	0.48 (81)	4
278/03	MNCC	Coopworth	W06	30	0.38 (85)	5
358/04	MNCC	Coopworth	P07	46	0.35 (85)	6
245/04	Tamlet	Coopworth	W09	40	0.32 (85)	7
1617/04	Awareka	Romney	W07	36	0.31 (85)	8
5203/04	Marlow	Coopworth	Link sire	27	0.30 (84)	9
781/00	Shoreford	Romney	W03	13	0.30 (76)	9
5828/02	Waihora	Romney	W04	42	0.29 (89)	11
4334/07	Landcorp Waihora	Romney	Link sire	20	0.27 (82)	12
706/00	Lincoln	Coopworth	Link sire	313	0.27 (98)	12
348/06	Sponsored Romney	Romney	A08	44	0.27 (85)	12
412/06	WB Philip	Romney	W09	18	0.24 (77)	15
211/99	Blackdale Stud	Coopworth	W03	18	0.23 (80)	16
218/02	Waiohine	Romney	P07	47	0.22 (85)	17
4399/06	Landcorp Waihora	Romney	P08	28	0.18 (81)	18
1233/02	SRDG Romney	Romney	W08	15	0.18 (74)	18
2165/97	Wairere	Romney	W02 W03 A04	4	0.17 (77)	20
833/02	Tamlet	Coopworth	W05 W06	30	0.16 (87)	21
457/00	Nithdale	Romney	W06	17	0.15 (78)	22
172/02	Glen Rannoch	Perendale	A04	10	0.13 (64)	23
1218/06	Hinenui	Coopworth	A09	39	0.12 (84)	24
4/06	Corriedale	Corriedale	A08	21	0.11 (78)	25
5 sires	1980s sires	Romney	W07	10	-0.48 (70)	26

*SIL eBV. Breeding values for fleece weight at 12 months of age. Average fleece weight was 3.17kg.

FACIAL ECZEMA EBV*

Dual Purpose:

Range: 1.12 to -1.04

TAG	Flock	Breed	Sites	Progeny	GGT21 eBV (Acc)	Rank
649/01	ARDG Romney	Romney	P06	5	-1.04 (90)	1
7180/08	Landcorp Waihora	Romney	W10	5	-0.96 (85)	2
4399/06	Landcorp Waihora	Romney	P08	5	-0.95 (90)	3
4334/07	Landcorp Waihora	Romney	Link sire	19	-0.85 (90)	4
115/05	ARDG Romney	Romney	P09	5	-0.73 (82)	5
179/07	Wattlebank	Corriedale	A09	5	-0.66 (59)	6
214/05	TRIGG	Romney	W08	5	-0.54 (57)	7
279/07	Cairnlea	Coopworth	A10	5	-0.47 (55)	8
50394/06	Kelso	Kelso	A08 W09	5	-0.47 (60)	8
1645/07	The Gree	Greeline	W10	5	-0.46 (56)	10
278/03	MNCC	Coopworth	W06	5	-0.44 (81)	11
722/03	Rose Mains	Perendale	W05	5	-0.44 (64)	11
5203/04	Marlow	Coopworth	Link sire	10	-0.41 (83)	13
4203/02	Kelso	Kelso	P06	5	-0.37 (55)	14
4/06	Corriedale	Corriedale	A08	6	-0.35 (62)	15
6448/07	TRIGG	Romney	A10	5	-0.32 (55)	16
386/03	Rene	Perendale	A07	5	-0.31 (52)	17
218/02	Waiohine	Romney	P07	5	-0.29 (56)	18
706/00	Lincoln	Coopworth	Link sire	75	-0.27 (93)	19
569/07	Longview Perendale	Perendale	P09	5	-0.26 (58)	20
18/04	White Rock	Corriedale	A06	5	-0.24 (56)	21
417/04	ARDG Romney	Romney	P08	5	-0.23 (83)	22
55/01	Bonnieview	Perendale	W05	5	-0.22 (76)	23
542/04	Hazeldale	Perendale	W06	5	-0.20 (61)	24
358/04	MNCC	Coopworth	P07	4	-0.14 (89)	25

SIL ACE eBV. Breeding values are expressed as the amount of the liver enzyme GGT (Gamma glutamyl transferase) present 21 days after challenging progeny with sporidesmin. GGT indicates the amount of liver damage, so low (more negative) breeding values indicate resistance to facial eczema.

Facial eczema measurements have only been collected from dual purpose sires for six years, so 67 rams have been evaluated to date.

TOP 20 TERMINAL RAMS FOR MEAT AND GROWTH

TAG	Flock	Breed	Progeny	Meat & growth index* (\$)	Meat Value Index (\$)	Growth Index (\$)	WWT eBV (kg)	Worm FEC eBV (%)	EMA eBV (cm ²)	Dress % eBV (%)	Fat colour eBV (b*)	Meat colour eBV (a*)	pH eBV
530/05	Grasmere	Texel	39	6.89	5.45	1.44	0.91	-0.2	2.43	1.7%	0.51	-0.14	-0.01
296/05	Waikite / Esselmont & Tamlet	Texel	32	5.74	1.92	3.82	4.24	-4.9	0.86	0.1%	-0.28	-0.13	0.01
486/08	Landcorp Kepler	Lamb Supreme	23	5.54	2.18	3.36	4.13	14.1	1.94	0.8%	-1.49	-1.26	0.03
141/04	Crest	Texel	32	5.32	3.44	1.89	1.81	33.0	2.24	1.2%	-1.65	0.05	0.01
570/06	MegaMeat Glengarry	Poll Dorset	83	5.03	1.82	3.22	3.18	31.5	2.44	0.9%	-0.75	-1.23	-0.01
275/04	Goldstream	Suffolk	54	4.92	2.74	2.19	2.34	96.1	1.67	-1.4%	0.58	0.02	0.01
299/01	Ohio Poll Dorset	Poll Dorset	34	4.63	1.93	2.71	1.55	72.4	3.20	0.4%	-1.48	-0.22	0.00
299/00	Landcorp Waikite	Texel	58	4.45	3.50	0.95	-0.35	-38.5	3.63	2.2%	-0.95	-0.28	0.00
241/04	Ohio Poll Dorset	Poll Dorset	34	4.23	0.79	3.44	2.87	37.4	0.78	0.2%	-0.04	-0.52	-0.03
25/99	Tyane	Suffolk	767	4.11	1.28	2.83	3.81	-9.8	0.33	-1.0%	2.11	-0.78	0.03
*128/97	Punchbowl	Suffolk	37	4.05	1.11	2.94	3.15	7.6	1.35	-0.5%	-1.53	-1.36	0.07
447/03	Blackdale Stud	Texel	37	4.04	0.71	3.32	3.91	-0.9	1.28	0.3%	-3.92	-0.13	0.00
341/05	Premier Suffolk	Suffolk	37	3.96	1.01	2.95	3.77	9.3	1.76	0.1%	-0.50	0.11	0.01
48/05	Premier Suffolk	Suffolk	37	3.66	1.46	2.19	2.58	-7.4	-0.02	0.1%	-0.17	-0.31	0.00
231/08	Goldstream	Suffolk	42	3.62	-0.14	3.75	3.82	-4.1	-1.09	-1.1%	0.74	-0.15	0.07
911/99	Murray Downs	Texel	31	3.53	2.04	1.49	0.72	-10.8	1.13	1.4%	-0.55	-0.63	0.02
101/03	Landover	Texel	21	3.48	2.41	1.07	0.09	-7.0	1.21	1.1%	0.13	-0.72	0.00
430/03	Glengarry	Poll Dorset	117	3.44	0.62	2.82	3.21	31.4	1.86	0.6%	-1.80	-0.70	-0.02
867/06	Adelong	Poll Dorset	34	3.38	0.97	2.41	2.99	8.2	0.98	-0.5%	0.58	-1.24	0.01
1296/03	Mount Linton	Texel Cross	41	3.36	1.98	1.38	1.51	35.2	0.48	0.1%	-1.71	-0.94	0.03

* The combined Growth and Meat Value indexes, calculated by adding together the two individual indexes.

TOP 20 DUAL PURPOSE RAMS FOR MEAT AND GROWTH

TAG	Flock	Breed	Progeny	Meat & growth Index* (\$)	Meat Value Index (\$)	Growth Index (\$)	WWT eBV (kg)	Worm FEC eBV (%)	EMA eBV (cm ²)	Dress % eBV (%)	Fat colour eBV (b*)	Meat colour eBV (a*)	pH eBV	NLB eBV	FW12 eBV (kg)	FE eBV
D110/04	Blackdale Stud	Textra	39	6.21	3.36	2.85	3.23	-25.1	2.50	1.0%	-1.50	-0.24	0.03	-0.05	-0.77	-0.09
626/08	Blackdale Stud	Texel	75	4.88	2.46	2.42	3.17	-23.0	1.83	0.4%	-1.53	-0.23	0.01			0.62
1645/07	The Gree	Greeline	115	3.75	2.02	1.73	2.72	-19.5	-0.31	-0.1%	0.07	-0.49	0.03			-0.46
50394/06	Kelso	Kelso	51	2.93	2.08	0.85	1.02	-28.6	-1.03	0.1%	-0.63	-0.75	0.09	0.29	-0.80	-0.47
23253/05	Longdowns	Composite	21	1.67	0.73	0.94	1.23	14.3	1.72	0.1%	0.69	-0.48	-0.03	-0.02	-0.08	0.11
542/04	Hazeldale	Perendale	29	0.98	0.49	0.49	0.88	-6.7	0.30	-0.6%	0.93	0.34	-0.02	0.23	-0.48	-0.20
279/07	Cairnlea	Coopworth	64	0.94	-1.22	2.15	3.22	-31.2	-0.58	-0.3%	0.65	0.33	-0.03			-0.47
406/06	MNCC	Coopworth	112	0.88	1.33	-0.45	-0.23	-8.7	-0.40	-1.0%	0.43	1.01	-0.02			-0.12
409/06	Blythburn	Romney	38	0.83	-0.13	0.96	1.81	16.9	0.06	-1.1%	-0.38	-0.17	0.02		-0.04	0.26
301/04	Hazeldale	Perendale	21	0.68	0.52	0.16	0.03	-5.7	-1.71	-0.6%	-0.30	-0.16	-0.03	0.08	-0.15	-0.05
1218/06	Hinenui	Coopworth	34	0.63	0.46	0.17	-0.19	41.3	-0.06	0.0%	-0.76	-0.60	0.02		0.12	0.19
358/04	MNCC	Coopworth	43	0.35	0.58	-0.23	0.12	31.9	-1.12	-0.6%	1.12	1.39	-0.04	0.25	0.35	-0.14
4203/02	Kelso	Kelso	39	0.28	1.36	-1.08	-1.19	-37.7	-0.03	0.1%	0.50	0.06	0.01	0.07	-0.42	-0.37
2247/04	Rosedale	Growbulk	35	0.26	0.03	0.23	0.65	-5.2	0.89	-0.4%	0.25	0.47	-0.04	0.08	-0.20	0.22
245/04	Tamlet	Coopworth	23	0.14	-0.82	0.96	1.35	-11.5	-0.26	-0.2%	1.57	0.54	-0.02		0.32	0.51
55/01	Bonnieview	Perendale	20	0.12	0.18	-0.06	0.23	27.6	0.42	-0.6%	-1.73	-0.78	0.03	0.05	-0.04	-0.22
1227/06	Ngaputahi	Growbulk	82	0.11	0.60	-0.49	-0.14	66.7	-0.36	0.4%	-1.54	1.28	0.00		0.09	0.62
569/07	Longview Perendales	Perendale	84	0.08	1.02	-0.94	-0.24	-1.2	-0.02	0.4%	-1.24	0.43	0.00		-0.27	-0.26
627/01	TRIGG	Romney	73	-0.05	0.17	-0.22	0.03	8.2	-1.99	-0.5%	1.32	0.14	0.02	0.12	-0.14	0.07
32/05	TRIGG	Romney	81	-0.06	-1.00	0.94	2.57	36.6	-1.16	-0.7%	0.75	-0.03	0.01			0.47

* The combined Growth and Meat Value indexes, calculated by adding together the two individual indexes.

TOP 20 DUAL PURPOSE RAMS FOR DUAL PURPOSE INDEXES*

TAG	Flock	Breed	Production (\$)*	Lamb growth (\$)	Adult size (\$)	Meat (\$)	Wool (\$)	Reproduction (\$)	WormFEC (\$)	Facial Eczema (\$)
742/04	Cairnlea	Coopworth	26.00	12.24	-2.16	0.43	3.44	11.51	-8.28	0.68
4/06	Corriedale	Corriedale	22.86	10.55	-2.70	0.67	3.69	6.11	-4.32	3.18
134/03	Hinenui	Coopworth	21.13	10.62	-2.76	1.10	0.45	8.99	-0.90	-2.22
1617/04	Awareka	Romney	20.70	7.14	-3.62	0.72	1.09	12.30	1.48	0.45
301/04	Hazeldale	Perendale	18.97	9.80	-0.49	1.51	0.97	2.01	-2.98	0.42
300/03	MNCC	Coopworth	18.60	6.61	-2.39	1.37	1.85	8.13	1.25	0.06
5203/04	Marlow	Coopworth	18.24	10.91	-2.45	0.38	2.68	5.20	-2.83	3.73
358/04	MNCC	Coopworth	17.56	11.05	-5.28	-0.90	2.27	6.18	1.69	1.25
1560/03	The Gree	Greeline	17.35	8.72	-2.61	1.13	0.95	9.28	2.84	-10.07
278/03	MNCC	Coopworth	17.17	6.13	2.27	-1.49	3.14	6.33	0.91	3.95
777/05	Tamlet	Coopworth	16.83	13.26	-4.03	0.49	0.67	3.88	-3.89	-5.56
4399/06	Landcorp	Romney	16.69	11.49	-2.14	-2.00	2.18	6.84	-0.42	8.56
2247/04	Rosedale	Growbulk	16.22	9.03	-1.97	-0.09	0.95	1.92	-0.44	-2.03
214/05	TRIGG Romney	Romney	16.22	8.72	-3.46	-0.77	0.06	11.15	0.57	4.92
1002/03	Mt Guardian	Perendale	15.17	11.51	-2.11	-0.86	0.01	0.56	-1.42	0.25
50394/06	Kelso	Kelso	15.08	13.59	-0.24	-1.13	-2.02	6.93	1.28	4.22
542/04	Hazeldale	Perendale	14.67	11.23	-4.45	0.07	0.44	5.51	-4.62	1.79
457/00	Nithdale	Romney	14.26	7.21	0.43	-0.82	1.91	3.23	2.36	-0.10
147/01	Tresco	Romney	13.95	3.86	-1.01	-0.56	0.30	9.76	1.06	-1.17
401/05	Hazeldale	Perendale	13.44	7.45	-3.24	2.09	0.72	5.52	1.60	0.24

* 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, so 48 rams have been evaluated to date.

LINK SIRES ACROSS SITES AND YEARS

Terminal sire

TAG	Flock	Breed	Years and sites used											
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
T533/01	Wharetoa	Composite			W	W								
31/02	Kaya Dorper	Dorper							A		P			
767/99	Darenal	Dorset Down				A, P								
77/95	Douglas Downs	Dorset Horn			W		W							
4012/99	Bilberry Oaks	Hampshire			W	W								
263/95	Aorere	Poll Dorset	P	P	P	P								
35/01	Glengarry	Poll Dorset				A, P, W								
430/03	Glengarry	Poll Dorset							A, P, W					
211/98	Kurralea	Poll Dorset	P		W									
106/99	Ohio	Poll Dorset		P	W									
299/01	Ohio	Poll Dorset				P	A, P							
U33/97	Mornish	Suffolk			P, W									
*128/97	Punchbowl	Suffolk			P	W								
*326/94	Punchbowl	Suffolk	P			P								
*419/96	Punchbowl	Suffolk		P	W									
165/00	Torresdale (NZ Suffolk)	Suffolk			P, W									
25/99	Tyanee	Suffolk		P	P	P	A, P	P	A, P, W	A, P, W	A, P, W	A, P, W	A, P, W	A, P, W
400/00	Brandes Burton	Texel			W		W							
299/00	Landcorp	Texel			W	W								

Dual Purpose

TAG	Flock	Breed	Years and sites used											
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
97/02	Raywell	Borderdale				A	A							
11/01	Little River	Cheviot				A, W								
706/00	Lincoln	Coopworth				A, W	A	A, W	A, P, W	A, P, W	A, P, W	A, P, W	A	
5203/04	Marlow	Coopworth									W			W
85/00	Tahakita	Coopworth					A, W							
833/02	Tamlet	Coopworth						W	W					
422/00	Wattlebank	Corriedale					A	A						
1227/06	Ngaputahi	Growbulk											P	P
50394/06	Kelso	Kelso									A	W		
664/98	ARDG Elite	Romney				W	P							
1832/02	Awareka	Romney					A, W							
433407	Landcorp Waihora	Romney											W	A, P, W
2165/97	Wairere	Romney			W	W	A							
34/01	Twin Farm	TEFRom				W			W					

STAYING CONNECTED

The SIL Advanced Central Evaluation (SIL-ACE) is the largest genetic evaluation of sheep in the world. The SIL-ACE combines data from hundreds of flocks and millions of animals in a single nationwide analysis so that individual breeding values can be compared directly across flocks and breeds. This allows ram buyers to identify the sources of the best genetic material for the traits important to them, irrespective of what flock or breed it is in.

A flock must be genetically 'connected' to other flocks in the SIL-ACE analysis for results to be available. Connections are created when a 'link' ram is mated over about 40 ewes in each of two or more flocks. Sire reference groups have used link sires for decades to generate genetic connections between flocks in their group. These connections are essential for SIL-ACE, but they are not enough on their own.

The Central Progeny Test is critical to the SIL-ACE analysis because it is one of the few places where across-breed connections are generated and maintained. However, it is not the only place they occur and the Central Progeny Test cannot generate enough connections on its own to support the SIL-ACE analysis.

Genetic connections allow an animal's observed performance to be divided into a genetic component and an environmental component (i.e. management and environmental effects). In simple terms, we can easily rank animals on their genetic merit within the same flock because they are essentially under a single management system and a single environment. Ranking animals across flocks is difficult because they may be managed differently and experience different environmental conditions, and we must account for these differences in order to be able to rank the genetic merit of a ram used in one flock against another ram used in another flock. The scale of the environmental differences between flocks can be calculated by comparing the average performance of link sire's progeny in each flock, and correction factors applied so that all animals are compared on the same basis.

Link sires with adequate numbers of progeny that have had performance assessed across traits are critical to this process. Without this we cannot validly compare the genetic merit of animals from different flocks.

Key points on connectedness

- Connectedness is created by using a ram in two or more flocks, ideally in the same year
- A link sire is a ram with progeny in at least two flocks. A ram from another flock does not create connections if it was not used as a sire in the source flock first
- Progeny of link sires need to have all measurements collected that the breeder records. We need at least 25 progeny within each flock measured for the key traits to contribute to across-flock connectedness calculations
- Connectedness is progressively lost as the years pass. Breeders need to share rams regularly – ideally every year, but at least once every two years
- The CPT cannot maintain sufficient connections to keep all flocks connected, so breeders have to ensure that they share rams on a regular basis. The CPT focus is on connections between major breeding groups.

Without good flock connections, top genetics will not show their true superiority in the SIL-ACE. Building genetic connections is the best way to identify top genetics. It also provides breeders with more options than those they have within their own flock or flock groups.

Beef + Lamb New Zealand invests farmer levies to support SIL and the Central Progeny Test to ensure that ram breeders and buyers can make breeding decisions based on objective information. SIL-ACE is one of the ways such information is delivered to industry.

DATE OF FIRST OESTRUS IN EWE HOGGETS

One of the objectives of the B+LNZ Central Progeny Test is to record data on traits that are not part of standard breeding programmes at present, but for which there may be a demand in the future. In previous Central Progeny Test results booklets there have been articles on meat yield, meat quality and bare points. The Central Progeny Test sites have been recording hogget oestrus for the daughters of dual purpose rams since 2005. Some basic information can now be presented with four years of data collected.

Hogget lambing is an increasingly common practice among commercial sheep farmers in New Zealand. The practice may increase due to the high prices currently being paid for lamb. Hogget lambing also spreads lambing as most farmers mate their hoggets around three weeks later than the main ewe flock. This spreads the risk of high lamb losses due to adverse weather events.

The Central Progeny Test does not evaluate dual purpose rams on the basis of their daughter's hogget lambing performance. This is because of variability between rams in the numbers of hoggets that conceive, and the impact that this has on their subsequent reproductive performance relative to non-lambing contemporaries. However, the date of first oestrus has been recorded at all three Central Progeny Test sites since 2005. Vasectomised rams with mating crayons are run with the ewe hoggets, and date of first oestrus is defined as the date when the hogget is first marked with the mating crayon.

These hogget oestrus records have been analysed to get an initial estimate of the heritability for date of first oestrus, and to look at the differences between sires in this trait. A total of 82.2% of ewe hoggets were recorded as being marked by the vasectomised rams across all sites and years by the time the rams were removed at the end of May each year.

There is research which shows that, at least in some breeds, ewe hoggets have to reach a certain live weight before they can go through puberty. Data were analysed both with and without adjustment for live weight to make sure that the rams were not simply being ranked on growth rate, rather than actually evaluating them on differences in ability to cycle early as a hogget.

The heritability of date of first oestrus was 9.8% when the data had not been corrected for hogget live weight and 9.0% when the data had been corrected for live weight. The difference in heritability with and without live weight, while statistically significant, was small. This indicates that when looking across all of the breeds measured to date, achieving a target live weight was not a major factor in determining how early a ewe hogget would cycle.

Heritability (\pm the standard error) for date of first oestrus

	h^2 excluding live weight	h^2 including live weight
Hogget oestrus (days)	9.8 \pm 3.9%	9.0 \pm 3.9

A heritability of around 10% is considered low to moderate and is about the same level as the heritability for number of lambs born used by SIL. This indicates that reasonable progress could be made in advancing the date of first oestrus, or more importantly increasing the proportion of ewe hoggets that conceive to a natural mating, if a breeder were to select for an earlier date of first oestrus.

An important factor when selecting for a trait is determining the correlated responses in other traits. While we did not have sufficient data to calculate genetic correlations with other traits, it is possible to get an indication via the correlation with eBVs for other traits. The relationship between hogget oestrus eBV and both weaning weight and number of lambs born eBV were investigated to see if selection for an early date of first oestrus might be

associated with changes in either growth or reproduction traits. The results are presented in the Table below.

Correlations (R) for hogget oestrus eBV with both weaning weight and number of lambs born eBVs

	Weaning weight eBV	Number of lambs born eBV
Hogget oestrus eBV	-0.31	-0.25

The relationships between hogget oestrus and either weaning weight or NLB were weak and slightly negative. Our preliminary estimates are sufficiently low that it appears breeders should be able to increase weaning weight and number of lambs born while selecting for earlier date of first oestrus as long as index selection is used

Hogget oestrus breeding values are presented in the table below for the 15 top ranking rams. Breeding values ranged from -7.91 days to +8.03 days for the 69 rams that had data available. The units of the eBVs are days, and a negative number means that the ewe hogget was in oestrus earlier than average, while a positive number indicate the ewe hoggets were later than average. These are the breeding values for the rams themselves, and half is passed on to ewe progeny. Therefore, we would expect that the average difference in date of first oestrus in ewe hoggets between the highest and lowest ranked rams will be about 8 days. The top ranked ram (742/04) would have an average date of first oestrus in his progeny about 4 days earlier than the average across all of the rams.

DATE OF FIRST OESTRUS EBV

TAG	Flock	Breed	Sites	Hogget Oestrus eBV (days)
742/04	Cairnlea	Coopworth	W07	-7.91
4/06	Corriedale	Corriedale	A08	-6.25
50394/06	Kelso	Kelso	A08 W09	-5.60
4203/02	Kelso	Kelso	P06	-4.89
431/04	Twin Farm	TEFRom	W07	-3.77
34/01	Twin Farm	TEFRom	W03 W06	-3.49
134/03	Hinenui	Coopworth	P08	-3.36
23253/05	Longdowns	Composite	W08	-2.63
18/04	White Rock	Corriedale	A06	-2.32
706/00	Lincoln	Coopworth	Link sire	-2.25
1560/03	The Gree	Greeline	W06	-2.24
480/04	View Hill	Romney	A09	-2.20
1227/06	Ngaputahi	Growbulk	P09 P10	-2.03
218/02	Waiohine	Romney	P07	-1.87
457/00	Nithdale	Romney	W06	-1.86

These results indicate that date of first oestrus can be advanced through genetic selection without necessarily affecting weaning weight or numbers of lambs born. We intend to keep recording hogget oestrus in the Central Progeny Test to learn more about factors influencing its heritability and relationships with other production traits.

ANIMAL MANAGEMENT PROCEDURES

To date, a total of 212 sires from 15 terminal and 12 dual purpose breeds have been evaluated in the B+LNZ Central Progeny Test (formerly the M&WNZ Central Progeny Test, and before that the Alliance CPT[®]). There are some differences in animal management across the three sites that reflect differences in geographical location and average performance of the ewe flock at each site. However, wherever possible animal management procedures are the same across sites. Following is a brief summary of management procedures applied across sites.

Mating

The aim across the three 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 sires, and 25 ewe progeny retained for maternal evaluations of the dual purpose sires. 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. Lambs are tagged and weighed within 12 hours of birth. Sex, birth rank and rearing rank are recorded at the same time. At some sites, the smallest triplet is mothered onto a single bearing ewe.

Docking

Lambs are vaccinated for diseases and conditions that are relevant to each site. Live weights are collected at docking. Lambing mobs are usually joined together at docking and the grazing mob is recorded.

Weaning

Weaning occurs at 12 weeks of age. Live weight is recorded at weaning and a faecal sample collected to measure faecal egg count. Lambs are also dag scored at this time. Lambs which remain after weaning (the first draft for slaughter occurs at weaning) are drenched with an oral anthelmintic.

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 monthly intervals thereafter. All remaining slaughter lambs are drafted at the March slaughter. Measurements collected at slaughter include the VIAscan[®] measurements of lean weight in the hindleg, loin and shoulder, dressing percentage, eye muscle area, meat and fat colour and meat pH.

Ewe maternal performance assessment for dual purpose sires

Some ewe lambs from dual purpose sires are retained for evaluation of maternal traits. Date of first oestrus is recorded in hoggets and they are mated as two-tooths and four-tooths. Number of lambs born and lamb survival are recorded at each lambing. No further data are recorded on the ewes after the four-tooth lambing results are collected.

Timetable of events for key dates at the three Central Progeny Test sites for 2009/2010

Event	Poukawa	Ashley Dene	Woodlands
Start of mating	2 March	30 March	12 April
Start of lambing	22 July	25 August	4 September
Docking	At birth	12 September	5 October
Weaning	5 November	29 November	14 December
First draft	25 November	30 November	15 December
Second draft	19 January	18 January	26 January
Third draft	29 March	22 February	2 March

FUTURE OF THE CENTRAL PROGENY TEST

The tenth cycle of matings has been completed at Ashley Dene, Poukawa and Woodlands. A total of 12 new terminal sire rams and 10 new dual purpose rams have been mated this year to bring to 234 the total rams to be reported on in 2012.

The sixth year-group of ewe progeny (i.e. 2009 born) have now been mated as two-tooths so that rankings of dual purpose rams are increasing in value. Likewise, numbers of rams with facial eczema breeding values are increasing rapidly.

Sire entry into the Central Progeny Test

A call is made for expressions of interest to supply rams to the Central Progeny Test in November each year. All SIL recorded flocks in New Zealand receive notification of the call. The individual ram selection decision is left to the breeder, but spaces in the Central Progeny Test 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 performance information (e.g. ultrasonic eye muscle measurements) for the individual ram 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.

Additional traits

Currently dag score and breech/belly bareness are recorded and will be included in future reports when enough information is available to produce reliable results. The Management Committee is willing to consider adding further traits that are of sufficient value to the sheep industry to justify the cost of their inclusion.

Add-on projects

To date the unique genetic resources of the Central Progeny Test have been used for 23 add-on projects. Many of them assist with identification and evaluation of gene markers and whole genome scans. It is envisaged that such uses will continue to be an important contribution of the Central Progeny Test to advances in the sheep industry.

Genetic connectedness between breeding groups

Permission has been granted for several breeding groups to use Central Progeny Test data to improve genetic connections between flocks in their groups. This use is positively supported by the Management Committee. Consideration is being given to changes in the objectives and structure of the Central Progeny Test that will increase its value to ram breeders and ram buyers. Suggestions are welcome.

To provide comment and to get further information including on the source of individual rams, or if you want results presented to a farmer meeting, contact Andy Bray andy.bray@beeflambnz.com Phone (03) 357 3090



freephone 0800 beeflamb (0800 233 352) email enquiries@beeflambnz.com
website www.beeflambnz.com