

# SHEEP GENETICS



## Annual Report 2011 - 2012

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**Project Name:** Sheep Genetics Annual Report 2011-2012

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### Project Status Report Version Control

Version	Date	Author	Change Description
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Draft	14.09.12	Fiona McLoughlin	<ul style="list-style-type: none"><li>Updated finance, client numbers, activities summary and committees</li></ul>
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## Project Status Report

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# 1 REPORT AREAS

## 1.1 Performance against Objectives

### 1.1.1 Grow the annual number of new animals analysed each year

- Maintain Terminal numbers to 107,500 new animals per annum by 2015
- Increase Maternal numbers by 20% to 63,500 new animals per annum by 2015
- Increase Merino numbers by 25% to 111,500 new animals per annum by 2015

**Table 1: Predicted and actual numbers analysed in LAMBPLAN and MERINOSELECT**

Segment x Breed	New animals entered per year								
	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	
<b>Terminals</b>	<b>91,483</b>	<b>86,048</b>	<b>88,802</b>	<b>87,285</b>	-	-	-	-	<b>Actual</b>
				90,500	90,500	90,500	90,500	90,500	<i>Predicted</i>
Poll Dorset	47,166	44,608	45,908	43,541					Actual
				45,000	45,000	45,000	45,000	45,000	<i>Predicted</i>
White Suffolk	37,086	34,640	36,980	37,522					Actual
				40,000	40,000	40,000	40,000	40,000	<i>Predicted</i>
Suffolk	4,000	3,985	3,575	3,869					Actual
				3,500	3,500	3,500	3,500	3,500	<i>Predicted</i>
Texel	3,231	2,815	2,339	2,353					Actual
				2,000	2,000	2,000	2,000	2,000	<i>Predicted</i>
<b>Maternals</b>	<b>54,405</b>	<b>54,217</b>	<b>52,517</b>	<b>55,065</b>	-	-	-	-	<b>Actual</b>
				54,268	56,719	59,171	61,622	64,074	<i>Predicted</i>
Border Leicester	19,017	19,846	20,473	19,724					Actual
				21,000	21,500	22,000	22,500	23,000	<i>Predicted</i>
Coopworth	10,066	11,422	11,160	10,653					Actual
				11,743	12,194	12,646	13,097	13,549	<i>Predicted</i>
Corriedale	9,726	9,718	9,192	10,583					Actual
				9,450	9,450	9,450	9,450	9,450	<i>Predicted</i>
Dorper	10,613	9,661	7,133	10,399					Actual
				7,350	8,350	9,350	10,350	11,350	<i>Predicted</i>
SAMM	4,983	3,570	4,559	3,706					Actual
				4,725	5,225	5,725	6,225	6,725	<i>Predicted</i>
<b>Merino</b>	<b>84,243</b>	<b>79,048</b>	<b>73,297</b>	<b>74,141</b>	-	-	-	-	<b>Actual</b>
				77,175	80,850	84,525	88,200	91,875	<i>Predicted</i>
Superfine	17,016	15,293	14,909	15,685					Actual
				15,750	16,500	17,250	18,000	18,750	<i>Predicted</i>
Fine	47,933	45,416	39,918	40,271					Actual
				42,000	44,000	46,000	48,000	50,000	<i>Predicted</i>
Medium	19,294	18,339	18,470	18,185					Actual
				19,425	20,350	21,275	22,200	23,125	<i>Predicted</i>
<b>Other</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>13,000</b>	-	-	-	-	<b>Actual</b>
				29,300	30,765	32,304	33,920	35,617	<i>Predicted</i>
Dohnes	*	*	*	*					Actual
				16,300	17,115	17,971	18,870	19,814	<i>Predicted</i>
NSIP	*	*	*	13,000					Actual
				13,000	13,650	14,333	15,050	15,803	<i>Predicted</i>
<b>TOTAL</b>	<b>230,131</b>	<b>219,313</b>	<b>214,616</b>	<b>229,491</b>					<b>Actual</b>
				251,243	258,834	266,500	274,242	282,066	<i>Predicted</i>

### 1.1.2 Maintain or improve the value of genetic gain

- Maintain rate of genetic gain in Terminal sires to 2015
- Increase rate of genetic gain by 25% in Maternal sires by 2015
- Increase rate of genetic gain by 60% in Merino sires by 2015

**Table 2: Predicted and actual changes in index values for sheep breeds in LAMBPLAN and MERINOSELECT**

Segment x Breed	Average Index value for each breed								
	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	
<b>Terminal sires</b>	<b>106.4</b>	<b>106.9</b>	<b>107.3</b>	<b>107.7</b>					<b>Actual</b>
				<i>107.7</i>	<i>108.2</i>	<i>108.6</i>	<i>109.1</i>	<i>109.5</i>	<i>Predicted</i>
Poll Dorset	107.2	107.6	108.1	108.7					<b>Actual</b>
				<i>108.5</i>	<i>109.0</i>	<i>109.4</i>	<i>109.9</i>	<i>110.3</i>	<i>Predicted</i>
White Suffolk	106.3	106.8	107.5	107.9					<b>Actual</b>
				<i>108.0</i>	<i>108.5</i>	<i>109.0</i>	<i>109.5</i>	<i>110.0</i>	<i>Predicted</i>
Suffolk	104.4	105.0	105.3	105.8					<b>Actual</b>
				<i>105.7</i>	<i>106.0</i>	<i>106.4</i>	<i>106.7</i>	<i>107.1</i>	<i>Predicted</i>
Texel	106.4	106.6	106.9	107.3					<b>Actual</b>
				<i>107.1</i>	<i>107.4</i>	<i>107.6</i>	<i>107.9</i>	<i>108.1</i>	<i>Predicted</i>
<b>Maternal sires</b>									
Border Leicester	106.9	107.6	108.2	109.5					<b>Actual</b>
				<i>109.2</i>	<i>110.1</i>	<i>111.1</i>	<i>112.0</i>	<i>113.0</i>	<i>Predicted</i>
Coopworth	108.3	109.8	111.0	114.3					<b>Actual</b>
				<i>112.3</i>	<i>113.6</i>	<i>114.9</i>	<i>116.2</i>	<i>117.5</i>	<i>Predicted</i>
Corriedale	108.1	108.0	108.6	109.2					<b>Actual</b>
				<i>109.2</i>	<i>109.9</i>	<i>110.5</i>	<i>111.1</i>	<i>111.7</i>	<i>Predicted</i>
Dorper	121.6	121.2	121.0	121.2					<b>Actual</b>
				<i>121.4</i>	<i>121.8</i>	<i>122.1</i>	<i>122.5</i>	<i>122.9</i>	<i>Predicted</i>
SAMM	104.0	103.6	105.0	104.8					<b>Actual</b>
				<i>105.6</i>	<i>106.2</i>	<i>106.8</i>	<i>107.4</i>	<i>108.0</i>	<i>Predicted</i>
<b>Merino</b>	<b>121.9</b>	<b>123.2</b>	<b>125.3</b>	<b>127.7</b>					<b>Actual</b>
				<i>127.0</i>	<i>128.6</i>	<i>130.3</i>	<i>132.0</i>	<i>133.6</i>	<i>Predicted</i>
Superfine	122.4	123.8	124.5	123.5					<b>Actual</b>
				<i>124.8</i>	<i>125.1</i>	<i>125.5</i>	<i>125.8</i>	<i>126.1</i>	<i>Predicted</i>
Fine	124.3	124.7	125.7	128.4					<b>Actual</b>
				<i>127.0</i>	<i>128.3</i>	<i>129.6</i>	<i>130.9</i>	<i>132.3</i>	<i>Predicted</i>
Medium	126.0	129.3	127.3	132.7					<b>Actual</b>
				<i>127.8</i>	<i>128.3</i>	<i>128.7</i>	<i>129.2</i>	<i>129.7</i>	<i>Predicted</i>

Details in improvements to the rate of index change over time are detailed in the table below. Again, the major breeds for each analysis segment have been split out to indicate progress over time. In almost all segments, the predicted index value for 2010-11 has been met or exceeded.

## 1.2

## Finance Summary- Sheep Genetics To 30th June 2012

(Values in AUD)

	Fiscal year		Fiscal year		Life of project to 30 Jun 2012		
	10/11 Actual	10/11 Bus Plan	11/12 Actual	11/12 Bus Plan	2010-12 Actual	2010-12 Bus Plan	2010-12 Var %
<b><u>INCOME:</u></b>							
MLA Contribution	514,637	665,478	1,273,473	654,213	1,788,110	1,319,691	35%
AWI Contribution	59,675	246,814	187,359	249,758	247,034	496,572	-50%
Breeder Contribution	496,047	555,000	566,163	598,937	1,062,210	1,153,937	-8%
<b>Total Income</b>	<b>1,070,359</b>	<b>1,467,292</b>	<b>2,026,995</b>	<b>1,502,908</b>	<b>3,097,354</b>	<b>2,970,200</b>	<b>4%</b>
<b><u>EXPENDITURE:</u></b>							
<b>Operational</b>							
Salary + Admin	374,603	387,039	356,772	402,110	731,375	789,149	-7%
AGBU Routine Contract B.SGN.0128	52,400	119,273	153,126	123,448	205,526	242,721	-15%
	<b>427,003</b>	<b>506,312</b>	<b>509,898</b>	<b>525,558</b>	<b>936,901</b>	<b>1,031,869</b>	<b>-9%</b>
<b>Extension</b>							
Salary + Admin	124,868	152,393	118,924	157,349	243,792	309,741	-21%
Contracted Projects	<b>124,868</b>	<b>152,393</b>	<b>118,924</b>	<b>157,349</b>	<b>243,792</b>	<b>309,741</b>	<b>-21%</b>
<b>Development</b>							
Salary + Admin	254,745	248,917	255,936	241,653	510,681	490,570	4%
Contracted Projects	74,873	171,931	81,417	177,949	156,290	349,879	-55%
AGBU R&D Contract	188,870	387,740	1,060,820	400,400	1,249,690	788,140	59%



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B.SGN.0127	518,489	808,588	1,398,173	820,001	1,916,661	1,628,589	18%
		1,467,292		1,502,908			
<b>Total Expenditure</b>	<b>1,070,359</b>		<b>2,026,995</b>	<b>8</b>	<b>3,097,354</b>	<b>2,970,200</b>	<b>4%</b>

**COST RECOVERY**

**KPI:**

	10/11 Actual	10/11 Bus Plan	11/12 Actual	11/12 Bus Plan		2010-13 Actual	2010-13 Bus Plan	2010- 13 Var %
Income (Breeders)	496,047	555,000	566,163	598,937	#	1,062,210	1,153,937	-8%
Expenditure (Operational + 1/2 Extension)	489,437	582,508	569,360	604,232	#	1,058,797	1,186,740	-11%
<b>Cost recovery</b>	<b>6,610</b>	<b>(27,508)</b>	<b>(3,197)</b>	<b>(5,295)</b>		<b>3,413</b>	<b>(32,803)</b>	<b>0.3%</b>

**1.3 Financial Reports**

**Table 3: Summary - Sheep Genetics Profit and Loss 2011-2012**

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<b><u>INCOME:</u></b>					
			<b>MERINOSELECT</b>	<b>LAMBPLAN</b>	<b>TOTAL</b>
<b>Breeder Income</b>	<b>Project Code</b>	<b>Description</b>	<b>\$ 216,097</b>	<b>\$ 350,066</b>	<b>\$ 566,163</b>
	502000	SGA - Subscriptions	\$ 73,215	\$ 140,831	\$ 214,046
	502100	SGA - Database Charges	\$ 142,657	\$ 203,602	\$ 346,259
	502200	SGA - Genetic Services Charge	\$ 225	\$ 5,559	\$ 5,784
	507000	Sale of Products/Services	\$ -	\$ 74	\$ 74
<b>MLA Contribution</b>			<b>\$ 538,111</b>	<b>\$ 735,362</b>	<b>\$ 1,273,473</b>
<b>AWI Contribution</b>			<b>\$ 187,359</b>	<b>\$ -</b>	<b>\$ 187,359</b>
<b>Total Income</b>			<b>\$ 941,567</b>	<b>\$ 1,085,428</b>	<b>\$ 2,026,995</b>
<b><u>EXPENDITURE:</u></b>					
			<b>MERINOSELECT</b>	<b>LAMBPLAN</b>	<b>TOTAL</b>
<b>Salary + Admin</b>	<b>Project Code</b>	<b>Description</b>	<b>\$ 291,751</b>	<b>\$ 439,881</b>	<b>\$ 731,632</b>
	B.ZSA.2013	Employee costs	\$ 249,871	\$ 388,116	\$ 637,987
	B.ZSA.2013	Travel	\$ 24,659	\$ 29,086	\$ 53,745
	B.ZSA.2013	Advertising and Promotion	\$ 1,605	\$ 1,373	\$ 2,978
	B.ZSA.2013	Entertainment	\$ 117	\$ 117	\$ 234
	B.ZSA.2013	Corp legal and Professional	\$ 1,098	\$ 1,134	\$ 2,232
	B.ZSA.2013	Computer Services	\$ 489	\$ 294	\$ 783
	B.ZSA.2013	Communication costs	\$ 2,938	\$ 4,266	\$ 7,203
	B.ZSA.2013	Office costs	\$ 10,975	\$ 10,902	\$ 21,877
	B.ZSA.2013	Depreciation	\$ -	\$ 4,593	\$ 4,593
<b>Contracted Projects</b>	<b>Project Code</b>	<b>Description</b>	<b>\$ 649,816</b>	<b>\$ 645,547</b>	<b>\$ 1,295,363</b>
Development	B.SGA.0137	CMA : sheep Genetics technical and adviso	-\$ 599	-\$ 599	-\$ 1,198
Development	B.SGA.0153	CMA: New Tools & Support Costs	-\$ 738	-\$ 738	-\$ 1,477
Development	B.SGA.0157	CMA :11/12 SG Sheep CRC cost	\$ 6,370	\$ 6,370	\$ 12,740
Development	B.SGA.0158	CMA :11/12 SG Technical	\$ 10,329	\$ 10,329	\$ 20,658
Development	B.SGA.0159	CMA :11/12 NSIP support cost	\$ -	\$ 6,672	\$ 6,672
Development	B.SGA.0160	CMA: 2011/12 Repro Workshop	\$ 5,373	\$ 5,373	\$ 10,746
Development	B.SGA.0162	CMA :11/12 new tool and support	\$ 6,455	\$ 6,455	\$ 12,910
Development	B.SGA.0165	CMA :11/12 Breech validation	\$ 1,047	\$ -	\$ 1,047
Development	B.SGA.0166	CMA :11/12 Cleanskin project	\$ -	\$ 607	\$ 607
Development	B.SGA.0170	Merinoselect index review	\$ 10,500	\$ -	\$ 10,500
Development	B.SGA.0171	Phase 2: Website Content and User Experi	\$ 4,106	\$ 4,106	\$ 8,212
Development	B.SGN.0127	Genentic evaluation of Australian Sheep	\$ 530,410	\$ 530,410	\$ 1,060,820
Operational	B.SGN.0128	Sheep Genetics (SG) # Evaluation Service	\$ 76,563	\$ 76,563	\$ 153,126
<b>Total Expenditure</b>			<b>\$ 941,567</b>	<b>\$ 1,085,428</b>	<b>\$ 2,026,995</b>

### 1.3.1 MERINOSELECT Support Costs + Income

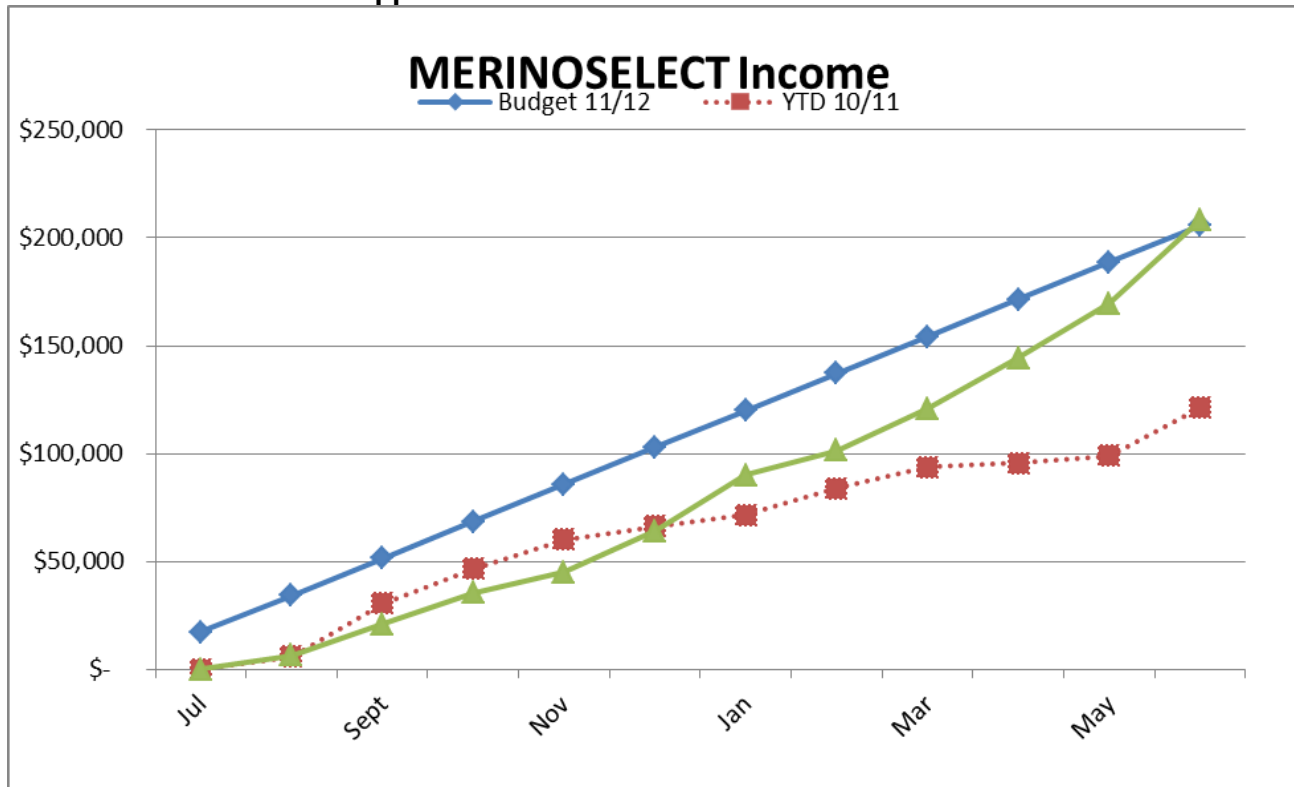


Figure 1: Tracking MERINOSELECT income against budget and previous year income

MERINOSELECT income well ahead of previous year and above budget by \$2500.

### LAMBPLAN Support Costs + Income

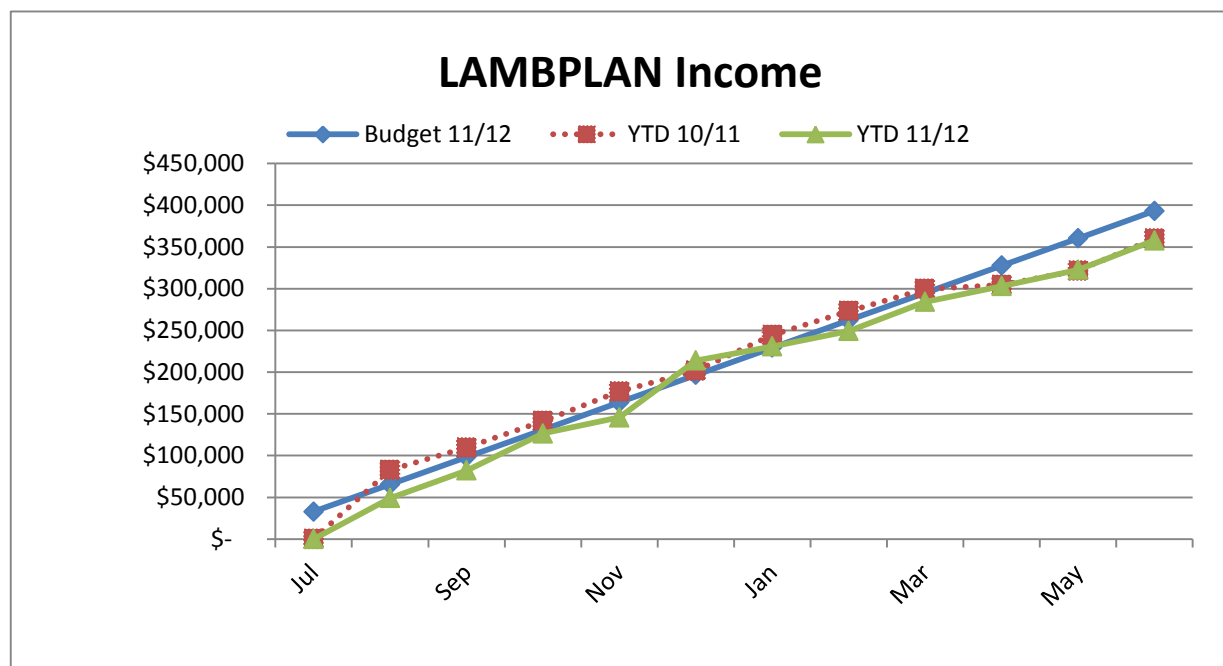


Figure 2: Tracking LAMBPLAN income against budget and previous year income

LAMBPLAN income was again below budget, but similar to previous year's income.

## 1.4 Key Activities

### 1.4.1 Staff Changes

- **Sheep Genetics**

*September* – Nicole Williams returned from maternity leave

*October* – Jaime Carey finished

*October* – Tom Hooke started as LAMBPLAN Project officer

*November* – Hamish Chandler finished as LAMBPLAN project officer

- **Advisory Committee**

*February* – Andrew Mosley resigned

- **Technical Committee**

*December* – Kevin Atkins resigned

*April* – Troy Fisher resigned

### 1.4.2 TBYB

#### MERINOSELECT

*There hasn't been a lot done with MERINOSELECT TBYB in the past year. A reason for this is the people contacting Sheep Genetics looking to put data straight in and signing up.*

Flock	Result
-------	--------

Brookdale	Has rejoined after being involved in MVP
Woodpark Poll	Has signed up. Single sire progeny only included in main run as a lot of syndicate present
Greendale	Has signed up. Back data has meant linked straight away with high quality data
Blue Gate	Has signed up. Sire usage an issue in 2012 but sorted for 2013
The Springs	Has signed up. Previously ABS client

#### LAMBPLAN

Christo Harmse Castlebar Dorper and White Dorper 400626, 470168

#### KIDPLAN

The below Boer Goat breeders were identified by Colin Ramsay as potential participants in the TBYB and a newly formed breeder group known as BoerSelect. Five studs took part in the TBYB and of those three are now members. Others have shown keen interest however they have not actually signed up yet. Colin has also indicated that he may have up to another half dozen breeders interested.

Member Status	Breeder Name	Stud Name
KP	Colin & Rob Ramsay	Dubauman Park
TBYB only	Karen Hoskin & John Randell	Currabunga
KP	Carole Axton	Cadenza
Keen	Justin Gilbert	Booma
KP	Isobel Palmer	Tambookie
OUT	Ben Stanford	Bengara
KP	Celia Burnett-Smith	Terraweena
KP	Fleur Tarlinton & Emma Cabot (Fleurs details)	MacGregors
Keen	Heather Osborne	Winfield
TBYB only	Judith D'Aloisio & Chris Lawrance	Ghin Ghin
KP- Angora	Keith Cowen	Yarran Park
KP- Angora	Graham Dau	Dauson

In addition two Angora Goat breeders have joined recently. Both are under the guidance of Dr Jim Watts in the SRS breeding program and are crossing in Boer genetics to produce a dual purpose

animal. Within the whole SRS group there are around 3000 does joined each year, there may be scope there to expand KIDPLAN within this group.

### **1.4.3 Promotional activity**

#### *MERINOSELECT & LAMBPLAN*

Sheep Genetics no longer advertises publically in press. Promotional activity has been limited to sponsoring the following all purpose classes

- Bendigo Sheep and Wool show all-purpose merino
- Bendigo Sheep and Wool show LAMBPLAN maternal class
- Bendigo Sheep and Wool show LAMBPLAN terminal
- Royal Adelaide show LAMBPLAN maternal class

With the exception of the merinos which was a full years subscription the other class winners were entitled to 100 dollars off their annual membership.

#### *KIDPLAN*

### **Breeder Case Study**

A breeder case study has been written on Isobel Palmer of Tambookie Stud. This was done with MLA funding and is in the final stages of completion to be used as advertising/support material to encourage new members.

### **Industry Genetic Stocktake**

Ben Swain has recently completed an industry review and has identified KIDPLAN as any area that needs to grow as a way of improving the industry. It is however identified that KIDPLAN is currently under resourced.

### **Bendigo Workshop**

MLA has funded a goat cost of production workshop to be held in Bendigo on the 25<sup>th</sup> of July. The BoerSelect group have initiated their own catch-up to be held after this event and to assist them Stefan Spiker has been approached to attend to give advice on using pedigree wizard and EBVs in general. An additional meeting has been flagged for later in the year to be held in Armidale.

### **1.4.4 Sheep CRC, Genomics**

**Table 4: Total number of Information Nucleus Flock animals analysed.**

Drop	2007	2008	2009	2010	Grand Total
26IN01	991	1,271	1,502	1,246	5,010
26IN02		753	770	841	2,364
26IN03	809	667	976	868	3,320
26IN04	659	740	918	740	3,057
26IN05	678	585	747	698	2,708
26IN06	758	534	820	604	2,716
26IN07	692	784	807	595	2,878
26IN08	3	1,614	1,536	1,459	4,612
26IN09				439	439
<b>Grand Total</b>	<b>4,590</b>	<b>6,948</b>	<b>8,076</b>	<b>7,490</b>	<b>27,104</b>

**Table 5: Total hours spent by sheep Genetics staff on Sheep CRC activities**

### 1.4.5 Rampower indexes

Rampower over the past twelve months had 6 submitters:

- Greg Johnsson
- Michelle Cousins
- Mark Ferguson
- Sally Martin
- Rose Walker
- Dave Rubie

There has been ~40000 animals put through the rampower run: in terms of animals and submissions per service provider this is

	Data	
Submitter	Sum of Animals	Number of submissions
Dave Rubie	3512	13
Greg Johnsonn	1100	3
Rose Walker	3447	11
Michelle Cousins	2055	13
Mark Ferguson	135	3
Sally Martin	28892	22
<b>Grand Total</b>	<b>39141</b>	<b>65</b>

### 1.4.6 MERINOSELECT Survey

The decision was made as part of the review of the MERINOSELECT indexes to get the relative emphasis people were putting on traits to use in their breeding objectives. As part of this Abacus Bio was contracted to produce a survey that had two parts to it:

- A demographic survey to find out information about the flocks that were answering

- The 1000 minds technology with 16 traits being included in the survey and asks breeders to differentiate between traits.

A pilot survey went to 18 MERINOSELECT and non-MERINOSELECT members in January. The main survey was launched on the 31st of March and ran for two months. The survey was initially distributed by the following channels:

- MERINOSELECT subscribers
- AASMB members
- ASWGA members
- Wool producers
- CRC subscribers

When the survey was closed 271 people had responded representing just shy of 800 000 breeding ewes.

#### **1.4.7 Service Provider Training**

An initial pilot in Armidale on the 21<sup>st</sup> – 23<sup>rd</sup> of November 2012 was well attended with ~ 30 service providers attending the workshop. The training was designed as an introductory course to cover the key areas of genetic evaluation and its practical application to the sheep industry. Topics covered were:

- Refresher on genetics theory – the how and why of how genetic evaluation works
- Applying theory to practise – OVIS and Sheep Genetics operations (presented by Julius van der Werf, Daniel Brown and Andrew Swan))
- Data management essentials (presented by David Rubie)
- Service provider support products, tools and services (presented by Lu Hogan, Rob banks, Sam Gill and Luke Stephen)

After the initial service provider pilot was run in November in Armidale a second Pilot was run in May. This pilot was taken out of Armidale and run at the Best Western Melbourne Airport on the 22<sup>nd</sup> to the 24<sup>th</sup> of May. Attendees ranged from all facets of service provision as well as some DPI staffs with 19 attending the 3 day course.

The Genetic theory sections were presented by Drs Daniel Brown and Sam Clark. Luke Stephen, David Rubie and Sam Gill presented the sections on Sheep Genetics with presentations also coming from Nathan Scott from MS&A on pedigree match maker and Anne Ramsay on her work on proof of profit.

The attendees all enjoyed the course with the average rating being 8.5 out of 10.

#### **1.4.8 Leading Breeder Conference**

Following the service provider training workshop Sheep Genetics hosted a leading breeder conference in Armidale on the 24<sup>th</sup> and 25<sup>th</sup> of November, which many of the service providers also attended making a total of ~ 60 participants in the forum. Topics included:

- Latest updates on Sheep Genetics activities and genetic analysis
- Improving the way information is collected, collated and used
- New genetic technologies and how they can be practically used by ram breeders
- What innovations are occurring in other industries and what they mean for ram breeders.

A large number of speakers were available for the two days. Speakers included Rob Banks and Alex Ball from MLA; Geoff Lindon from AWI; Sam Gill, Hamish Chandler and David Rubie from Sheep Genetics; Andrew Swan, Kim Bunter, Daniel Brown and David Johnson from AGBU; Brian Kinghorn and Julius van der Werf from UNE; and Sonja Dominik from the CSIRO. The conference was very well received by all that attended.



## **1.5 Committees**

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### **1.5.1 Technical Committee**

Operational meetings held most months. Key issues have been:

#### **Full meeting held 27 July 2011**

- Across breed maternal analysis
- Ewe Lambs – effect on reproduction traits
- ASBVs for reproduction traits
- Wrinkle & Fertility
- Delivering Genomically enhanced EBVs for Pilot Project II
- Modelling the economic benefit of utilizing genomic information to the wool and meat industries
- Bloodline Analysis

#### **Combined Advisory and Technical Committees Strategic meeting held 29 August 2011**

- Major achievements past 5-7 years
- Next 10 years
- Sheep Improvement Limited
- Where are we at?
  - Operational
  - Technical
- Operational Challenges
  - Genomics
  - Sheep Genetics business structure
  - Adoption Challenges
  - Technical Development
  - Managing Information
  - Business Growth
- Breakout sessions with attendees broken into groups (breeder, research, service provider and RDC) to discuss challenges.

#### **Full meeting held 14 December 2011**

- Across breed maternal analysis
- Impact of wrinkle on repro rate
- Season in reproduction
- Reproduction traits
- Genomic Breeding Values
- Review of visual sheep scores
- Post Weaning Fleece Traits
- Bloodline Analysis Paper
- Work Plan

#### **Teleconference held 8 February 2012**

- New Reproduction Trait Analysis / Estimates of genetic parameters for NLB in yearling vs mature ewes

#### **Full meeting held 17 April 2012**

- Reproduction analysis changes
- Index Development
- Puberty in Sheep
- Genomic Breeding Values
- Bloodline Analysis
- Post Weaning Fleece Traits
- AGBU Work plan
- Index Development

**Figure 3: AGBU Workplan 2011**

### **1.5.2 Advisory Committee**

#### **Combined Advisory and Technical Committees Strategic meeting held 29 August 2011**

- Major achievements past 5-7 years
- Next 10 years
- Sheep Improvement Limited
- Where are we at?
  - Operational
  - Technical
- Operational Challenges
  - Genomics
  - Sheep Genetics business structure
  - Adoption Challenges
  - Technical Development
  - Managing Information
  - Business Growth
- Breakout sessions with attendees broken into groups (breeder, research, service provider and RDC) to discuss challenges.

#### **Full meeting held 23 & 24 April 2012**

- Progress against business plan
- Sheep Genetics operating plan
- Path to Sheep Genetics version 2
- Committee views on progress, strengths, weaknesses of current model
- Technical Committee priorities
- Genetics Training Initiative work plan
- Reproduction strategy
- Changes to indexes
- Website development

### **1.5.3 Executive Committee**

#### **Combined Advisory and Technical Committees Strategic meeting held 29 August 2011**

- Major achievements past 5-7 years
- Next 10 years

- Sheep Improvement Limited
- Where are we at?
  - Operational
  - Technical
- Operational Challenges
  - Genomics
  - Sheep Genetics business structure
  - Adoption Challenges
  - Technical Development
  - Managing Information
  - Business Growth
- Breakout sessions with attendees broken into groups (breeder, research, service provider and RDC) to discuss challenges.

### Teleconference 6 September 2011

- Implications for NLW communications with Industry of Kim Bunters paper to the last TC meeting
- Progressing the reconciliation of Merino Bloodline performance indexes and SG indexes
- Industry engagement in SheepObject process
- AGBU tops and culls
- AGBU review of post weaning wool weights
- Annual reports to RDCs
- Annual report to industry
- SG Executive to ratify the TC priorities at first meeting post 7<sup>th</sup> of September meeting
- Sheep CRC Genetics initiative
- Update on Pilot Trial 2 and exchange of contracts

AGBU Tops and Culls	September 2011	The EC endorse the recommendations from the Technical Committee report.
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### Teleconference 11 October 2011

- Sheep genetics Survey
- MERINOSELECT Indexes
- Train the trainer update
- Genetics support material review
- Price updates
- SG annual report
- Merino bloodline performance indexes
- New Zealand Merino Company

Service Provider Rebate	November 2011	EC agree to trial the Rebate on new memberships and first data submissions in MS for 12 months.
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### Teleconference 20 December 2012

- Sheep Genetics additional services
- Self serve TGRM

- New Zealand MERINOSELECT support
- Service Provider training

#### Meeting in Armidale 17 February 2012

- New Zealand genetics options
- Sheep genetics additional resources
- Operating Plan 2011
- Operating Plan 2012
- Sheep CRC Interactions
- Merino Index review

#### Teleconference 27 March 2012

- Technical Committee Priorities
- Debrief from CRC
- Upcoming activities
- Topics for next AC meeting in April
- AWI Management Agreement Invoicing

#### Teleconference 29 March 2012

- Technical Committee priorities

#### Teleconference 20 April 2012

- Changes to CAP
- CRC Genomics implementation
- Annual report
- 2011/2012 Update
- 1000 Minds Survey
- Repro changes
- Ram buyers guide

<b>AWI Invoices</b>	April 2012	Invoicing is to be as per the management agreement
<b>Client CAP</b>	April 2012	Once communicated with clients, the CAP is to be changed to 1250 animals with subscription fees in addition.

#### Teleconference 31 May 2012

- Letter from Tom Silcock
- AMSEA-AWI Contract obligations
- MLA-AWI funding of the CRC
- Williams Review TOR
- 2010-11 Annual Report
- 2011-12 Update
- Update on Sheep Genetics activities
  - Changes to analysis

- Website
- Travel
- TBYB Funding

### Teleconference 22 June 2012

- Discussion about actions arising from Tom Silcock letter
- Background to Merino indexes
- CRC Genetics Training Initiative
- TBYB with additional CRC funding

Contract out over-flow work	June 2012	EC happy that Hamish Chandler be contracted to do over-flow work for Sheep Genetics.
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## 1.6 Subscriber Report

Table 6: Total number of active flocks in MERINOSELECT and LAMBPLAN

Type	July '11	New	Left	June '12	Compared to June '10
LAMBPLAN	587	45	54	578	591
MERINOSELECT	162	65	11	216	169
<b>Total</b>	<b>749</b>	<b>110</b>	<b>65</b>	<b>794</b>	<b>760</b>

Table 7: Total number of flocks by subscription type in MERINOSELECT and LAMBPLAN

Sheep Genetics Flock numbers by subscription type									
Member Type	Small stud or research	1st stud	2nd stud	3rd stud	4th stud	5th stud	6th stud	7th stud	Grand Total
BG	0	5	1	0	0	0	0	0.0	6
LP	89	391	70	19	2	1	0	0.0	572
MS	20	130	19	3	2	1	1	0	176
Dohne	7	32	1						40
<b>Grand Total</b>	<b>112</b>	<b>562</b>	<b>91</b>	<b>22</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>0.0</b>	<b>794</b>

### 1.6.1 MERINOSELECT subscriber resignations

Have another flock remaining in SG	9%
dispersals	19%
never submitted / haven't submitted data for several years	9%
unknown	63%

### 1.6.2 LAMBPLAN subscriber resignations

13 of the flock have since renewed their subscription. Others are listed below.

Have another flock remaining in SG	17%
dispersals	9%
never submitted / haven't submitted data for several years	24%
Joined NSIP	2%
unknown	46%

## 1.7 Extension and development

### 1.7.1 Activities List – Summary

Tracking of activities improved during 2011-12 in terms of the number of events attended and contributions made. The average audience size for presentations was ~ 100 breeders, indicating good exposure for MERINOSELECT and LAMBPLAN information.

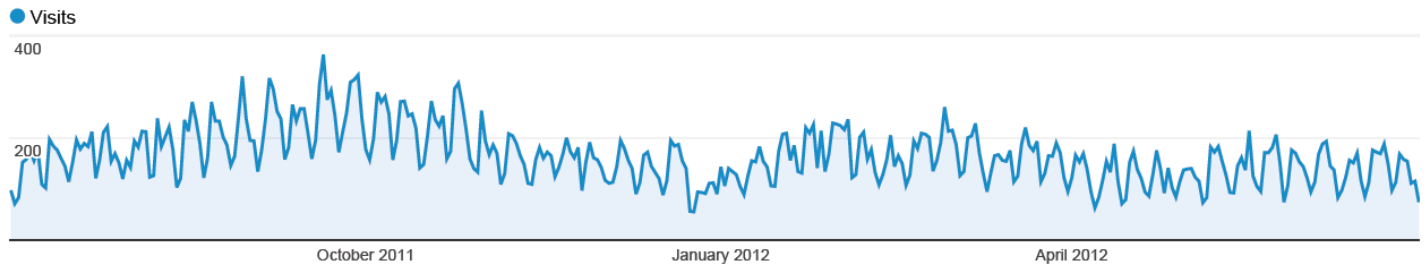
Contribution	Activity Type	2010-11		2011-12		Total Events	Total Audience
		Events	Audience	Events	Audience		
Attended	Conference	5	770			5	770
	Field Day	7	838	2	450	9	1288
	Forum	1	150	1	40	2	190
	Meeting	4	153			4	153
	Show	3	295	1	200	4	495
	Show / Field Day	5	2,800	2	2000	7	4800
	Workshop	2	85	1	15	3	100
Attended Total		27	5,091	7	2705	34	7796
Presentation	Conference	8	785	3	380	11	1165
	Field Day	12	1,120	3	130	15	1250
	Forum	3	260	10	900	13	1160
	Meeting	4	80			4	80
	Show	1	200			1	200
	Webinar	5	99	2	65	7	164
	Workshop	10	230	14	392	24	622
Presentation Total		43	2,774	32	1867	75	4641
Grand Total		70	7,865	39	4572	109	12437

### 1.7.2 Publications – development and distribution

Material Type	Number Sent
Introduction to LAMBPLAN	575
Understanding LP ASBVs	412
Understanding LP Maternal ASBVs	288
Introduction to MERINOSELECT	108
Understanding MERINOSELECT ASBVs	584
Pocket Guide	538
Webinar Recording	0
Visual Score Guide	0
Field Day Pack	2
LAMBPLAN Information Pack	22
MERINOSELECT Information Pack	13
KIDPLAN Information Pack	15
Service Provider Tool Kits	8

Material Under Development/Updates	Status
Breeders Guide/QA Manual	Editing

### 1.7.3 Website Analytics



**17,664 people visited this site**



**73.31% Returning Visitor**

44,666 Visits

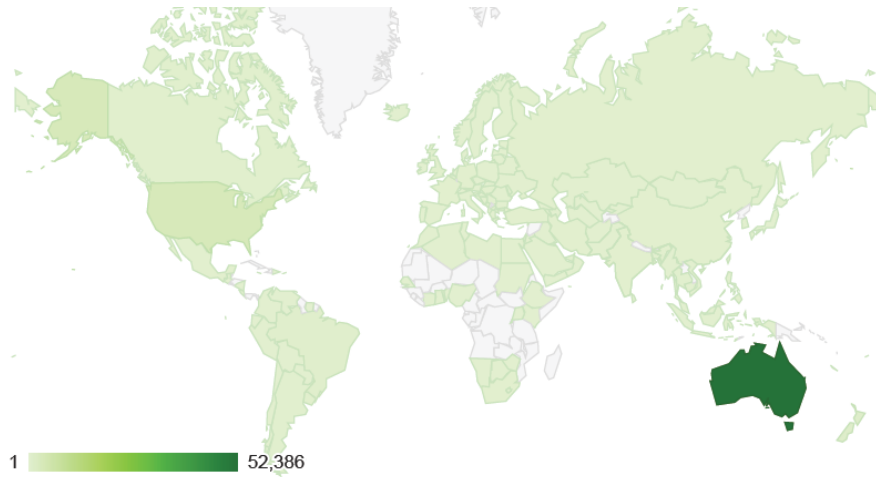
**26.69% New Visitor**

16,265 Visits

Language		Visits	% Visits
1.	en-us	51,720	84.88%
2.	en-gb	5,757	9.45%
3.	es	672	1.10%
4.	en	551	0.90%
5.	pt-br	345	0.57%
6.	en-au	276	0.45%
7.	he	187	0.31%
8.	es-es	176	0.29%
9.	fr	158	0.26%
10.	zh-cn	133	0.22%



## Project Status Report



Visits		Pages / Visit		Avg. Visit Duration		% New Visits		Bounce Rate	
60,931		12.40		00:08:35		26.63%		23.84%	
% of Total: 100.00% (60,931)		Site Avg: 12.40 (0.00%)		Site Avg: 00:08:35 (0.00%)		Site Avg: 26.63% (0.00%)		Site Avg: 23.84% (0.00%)	
Country / Territory				Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate	
1.	Australia			52,386	13.16	00:09:06	21.64%	21.40%	
2.	United States			3,216	7.28	00:04:39	55.29%	38.15%	
3.	New Zealand			770	11.89	00:07:56	45.97%	22.60%	
4.	Brazil			409	9.63	00:07:09	59.17%	37.90%	
5.	Canada			369	3.63	00:01:53	57.99%	34.15%	
6.	United Kingdom			369	3.43	00:02:55	76.15%	48.51%	
7.	Uruguay			361	14.57	00:12:17	31.30%	15.24%	
8.	Thailand			203	27.62	00:18:29	32.51%	18.72%	
9.	Israel			194	17.22	00:06:46	22.16%	6.19%	
10.	Argentina			191	13.10	00:13:54	50.26%	29.32%	

## Project Status Report

● Visits



Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
<b>60,931</b>	<b>12.40</b>	<b>00:08:35</b>	<b>26.63%</b>	<b>23.84%</b>
% of Total: 100.00% (60,931)	Site Avg: 12.40 (0.00%)	Site Avg: 00:08:35 (0.00%)	Site Avg: 26.63% (0.00%)	Site Avg: 23.84% (0.00%)

Browser	Visits	Visits	Contribution to total: Visits
1. Internet Explorer	38,910	63.86%	
2. Firefox	9,411	15.45%	
3. Safari	8,174	13.42%	
4. Chrome	3,694	6.06%	
5. Android Browser	360	0.59%	
6. Opera	128	0.21%	
7. Mozilla Compatible Agent	110	0.18%	
8. IE with Chrome Frame	54	0.09%	
9. Opera Mini	23	0.04%	
10. RockMelt	17	0.03%	

Rows 1 - 10 of 26

#### 1.7.4 Web Re-design

The project to replace the main Sheep Genetics website was started during 2012, with the final deployment missing the original May deadline by some months (eventually launching in September). The overall goal of the replacement was to build a system which allowed searching of documentation and help materials, was more tightly integrated with the MLA systems, was better documented, was easier to use and update and much easier for end users to find what they were looking for.

Overall, the project wasn't entirely a success – while all the original content from the old website was successfully moved to the new content system, there is still a large amount of unreviewed material. Most of the dynamic features of the website (more tightly integrated with the “search” site) were held over as technical problems with converting the supplied page templates to the Seamless CMS caused delays. Some of the features are far better than the old system (the text search of documents is something Sheep Genetics never had before, the page templates make adding new content much easier than it was). Using an MLA standard system have already paid dividends in that Sheep Genetics is no longer the only team who have knowledge of how the website works – a major advance in risk management.

The backlog of changes to add more dynamic content will be cleared in 2012-2013 as Sheep Genetics move toward an open data model based around RESTful web services. It is hoped that we will encourage 3<sup>rd</sup> party developers to take advantage of this open, easy to use data with the aim of making ASBV's ubiquitous in the sheep industry wherever technology starts to appear in the sheep breeding industry.

### 1.7.5 Subscriber Survey

A survey was sent to all current subscribers to Sheep Genetics. Over 600 surveys were distributed with 124 or 19% returned. A summary of the results of those returned are as follows and the full report can be viewed on our website. All comments and suggestions are included in the full report on the web.

General Information and Website						
What type of Breeder are you?	Terminal	Maternal	Merino	Goat	Other	
	52%	19%	27%	2%	0%	
What is the size of your flock?  LAMBPLAN MERINOSELECT	0-50	50-100	100-300	300-600	600+	
	6%	19%	28%	26%	21%	
	0%	0%	22%	25%	53%	
How often do you visit the Sheep Genetics website? LAMBPLAN MERINOSELECT	Daily	Weekly	Monthly	Quarterly	Never	
	2%	30%	37%	20%	11%	
	6%	38%	31%	19%	6%	
Do you use a computer to look up websites website? LAMBPLAN MERINOSELECT	Yes	No				
	93%	7%				
	97%	3%				
How easy is it to use the search section of the website? LAMBPLAN MERINOSELECT	Very Easy	Easy	OK	Difficult	Very Difficult	
	7%	39%	37%	15%	2%	
	10%	30%	43%	17%	0%	
Do you use the advance search function? LAMBPLAN MERINOSELECT	Yes	No	?			
	56%	42%	2%			
	71%	29%				
Is the web catalogue useful for your business to advertise sale animals? LAMBPLAN MERINOSELECT	Yes	Maybe	No			
	31%	2%	67%			
	31%	0%	69%			
Is the web catalogue useful for your business to advertise semen sales? LAMBPLAN MERINOSELECT	Yes	Maybe	No			
	31%	4%	65%			
	25%	0%	75%			
Do you use the website as an information source? LAMBPLAN MERINOSELECT	Yes	No				
	73%	27%				
	84%	16%				
Have you ever participated in an online workshop / webinar? LAMBPLAN MERINOSELECT	Yes	No				
	35%	65%				
	33%	67%				

Products & Services	Agree			Disagree	
Staff members can be contacted easily	25%	44%	26%	4%	1%
LAMBPLAN					
MERINOSELECT	16%	50%	28%	6%	0%
Sheep Genetics staff are approachable and friendly	40%	44%	13%	3%	0%
LAMBPLAN					
MERINOSELECT	48%	39%	9%	4%	0%
Sheep Genetics staff are helpful and patient with requests	34%	45%	13%	8%	0%
LAMBPLAN					
MERINOSELECT	34%	41%	19%	6%	0%
Requests are dealt with in a timely manner	24%	48%	11%	17%	0%
LAMBPLAN					
MERINOSELECT	19%	41%	28%	12%	0%
Sheep Genetics reports can be easily interpreted	27%	35%	31%	5%	2%
LAMBPLAN					
MERINOSELECT	26%	48%	13%	10%	3%
ASBVs assist achieving breeding objectives	38%	35%	14%	8%	5%
LAMBPLAN					
MERINOSELECT	52%	42%	6%	0%	0%
ASBVs are an effective marketing tool	26%	32%	28%	9%	5%
LAMBPLAN					
MERINOSELECT	29%	32%	36%	3%	0%
ASBVs are used to assist in making joining decisions	40%	36%	9%	7%	8%
LAMBPLAN					
MERINOSELECT	48%	36%	10%	6%	0%
ASBVs are used routinely by my clients to purchase rams or ewes	10%	27%	30%	26%	7%
LAMBPLAN					
MERINOSELECT	10%	24%	38%	14%	14%
Do you use an index?	Yes	Maybe	No		
LAMBPLAN	83%	1%	16%		
MERINOSELECT	75%	0%	25%		
Do your clients prefer to select from an index?	40%	10%	56%		
LAMBPLAN					
MERINOSELECT	32%	12%	52%		
Do you promote the index to your clients?	60%	5%	55%		

LAMBPLAN	57%	4%	39%	
MERINOSELECT				

Apart from material supplied by Sheep Genetics, from where else do you source genetic information? These answers were not prompted.

18%	Other Breeders	13%	Sheep Genetics/MLA
13%	Web	13%	Sales/Catalogues
12%	Sheep CRC	08%	Service Providers
07%	Journals/press	06%	Dept Ag/trials
05%	Consultants	04%	Overseas

The next section refers to the publications produced by Sheep Genetics.

Publications	Excellent		Good	Poor	
Please rate the other publications and marketing material LAMBPLAN MERINOSELECT	11%	33%	<b>49%</b>	4%	3%
	30%	23%	<b>47%</b>	0%	0%
Please rate the Sheep Genetics Pocket Guide LAMBPLAN MERINOSELECT	17%	33%	<b>41%</b>	5%	4%
	43%	36%	21%		

1. Is there enough commercial service available to assist with your breeding enterprise?

	LAMBPLAN	MERINOSELECT
Yes	84%	81%
No	16%	14%
?		5%

## 2 REPORT APPROVALS

Prepared by \_\_\_\_\_  
Project Manager

Approved by \_\_\_\_\_  
MLA

\_\_\_\_\_  
AWI

### 3 APPENDICES

#### 3.1 AGBU Report

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MLA project code:	<b>B.SGN.0127</b>
MLA project title:	<b>Genetic Evaluation for the Australian Sheep Industry: Better targeted and faster genetic gain</b>
Project leader:	<b>Dr Daniel Brown</b>
MLA project manager/coordinator:	<b>Dr Robert Banks</b>
Milestone number:	<b>3</b>
Milestone Date:	<b>July 2011</b>
Principle Investigator:	<b>Daniel Brown</b>
Co Investigators:	<b>Andrew Swan Kim Bunter</b>

#### **Milestone**

Progress Report on completion of Work Plan, and revision of Work Plan priorities for next 6 months.

#### **Abstract**

A research and development report was presented to Sheep Genetics Technical Committee in July 2011 with subsequent discussions of the key findings and identification of high priority research issues. The key areas of investigation during this period have included;

- GEBVs
  - Single Step Method - BLUP analyses enhanced by genomic information for carcase and eating quality traits
  - Development of new methods to combine genotypic and phenotypic information
- Investigation of new / novel traits
  - Weaning carcase scans – repeated weaning weight
- Further work on a combined analysis of maternal breeds
  - Implementation of refinements to the maternal analyses
- Further work on reproduction traits
- Updated parameters for NSIP analyses
- Updated parameters for Dohne analyses
- Effect of ewe lamb joining on later production traits
- Diagnostic activities

## **Project objectives**

1. Accelerate genetic change in the Australian sheep industry through the provision of a world-class genetic evaluation system.
2. Develop Australian Sheep Breeding Values (ASBVs) for new traits which improve the specification of breeding objectives.
3. Enhance breeding objectives.
4. Analysis of breeding program design.
5. Industry engagement to increase adoption and genetic gain.

## **Success in achieving milestone**

Most scheduled tasks were achieved with additional activities detailed in the attached Technical Committee report. It should be noted that the research program has to adapt to the needs of Sheep Genetics, as use of the system by breeders progresses. Rather than following a fixed project plan, it is re-prioritised by the Sheep Genetics Technical Committee on an annual basis. The current list of research and development priorities is attached as an appendix to this report.

### **Across breed maternal runs**

Further work was conducted to develop a combined across breed maternal analysis. The outcome of this work was the delivery of an updated analysis for each of the maternal within breed runs with the view to implement a combined maternal run in March 2012.

Changes made to the routine analyses of Border Leicester, Corriedale, Coopworth and East Friesian analyses from April 2011 included;

- Genetic groups defined by breed and period
- Reproduction and WEC are now run as independent analyses
  - Reproduction without genetic groups fitted
  - FEC has genetic groups fitted by flock
- Heterosis adjustment is included in all these analyses
- The genetic correlation between weight traits and reproduction traits was reduced from about 0.3 down to 0.1-0.15
- Allocation of dummy dams for maternal effects for lambs born via embryo transfer
- Base ~ Australian animals in 2005 were fixed to their previous analysis

### **Genomically enhanced ASBVs**

Genomically enhanced ASBVs were produced for carcase traits in April 2011 using the single step approach (a more detailed description has been published in the Applied Genomics for Sustainable Livestock Breeding conference and AAABG papers listed below). A strategy for delivery of enhanced ASBVs for the second pilot project has been developed and is also included in the appendices.

### **Effect of age of first lambing on production traits**



Joining young ewes is becoming more common in some breeds. This may have an impact on the traits recorded in these animals later in life. This study aimed to identify the magnitude of these effects in the Sheep Genetic data. Age of first lambing is calculated from the difference in age between a ewe birth date and the appearance of their first lamb. This will not be accurate for ewes whose first lamb is not recorded, but this should be a relatively small percentage of the data. In summary, maternal and terminal breeds have approximately 10% of ewes having a lamb at <1.5 yrs, whereas this is very uncommon in Merinos. Age of first lambing has significant effects when fitted as a covariate on hogget weight, adult weight, hogget greasy fleece weight and hogget worm egg count. There were no significant differences in the variance components, with the possible exception of FEC.

More data that accurately separates parity and age are required to properly estimate the size of effects and identify the most appropriate way to adjust for these effects. In the short term breeders should be advised to record all lambing opportunities for their animals.

## Reproduction Traits

The reproduction traits have been studied in more detail in the Border Leicester data. Various problems have been identified with the recording of these traits. A strategy has been developed to improve this trait which includes additional data collection from breeders and separation of net reproduction rate into its 3 component traits of fertility, litter size and survival to weaning. Data is currently being collected to investigate these traits in more detail to develop an improved analysis of reproduction. There may be opportunity to fast track this research through a PhD project. A more detailed report is attached in the appendix.

## Other activities

A range of other activities has been completed and include:

- Investigating the effects of heterosis adjustment and correlated traits on genetic group effects
- Updates to the NSIP parameters
- Updates to the Dohne parameters
- Within breed linkage analyses for the across breed NSIP analyses
- Addition of a repeat weaning weight for the terminal sire analysis – this has been developed, tested and is awaiting release
- Comparison of wether trial results to flock mean ASBVs
- Investigation of the relationship between wrinkle and fertility in MERINOSELECT data
- Investigation of linkage for reproduction traits in the Border Leicester data
- Investigation of key industry sires to genotype
- Investigation of genetic relationships between INF sires and industry animals
- Principle component / cluster analysis of MERINOSELECT data
- Ongoing diagnostic support and test analyses for Sheep Genetic staff

## Communication

### *Scientific Publications*

**Swan** AA, Johnston DJ, **Brown** DJ, Tier B and Graser HU (2011) Integration of genomic information into beef cattle and sheep genetic evaluations in Australia, *Animal Production Science* (submitted)

**Swan AA, Brown DJ, Tier B and van der Werf JHJ** (2011) Use of genomic information to estimate breeding values for carcass traits in sheep, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 331-334.

**Brown DJ, Swan AA and Mortimer ML** (2011) Pedigree matchmaker: Can it tell us more than just pedigree?, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 231-234.

Ball AJ, Banks RB, **Brown DJ** and Field SR (2011) Genetic progress in Australian young sire programs: A sustainable model for increasing the rate of genetic improvement, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 403-406.

Brien FD, Hinch GN, van der Werf JHJ, **Brown DJ** and **Swan AA** (2011) Selection strategies for the genetic improvement of reproductive performance in sheep, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 151-158.

Barwick SA, **Swan AA**, Hermes S and Graser HU (2011) Experience in breeding objectives for beef cattle, sheep and pigs, new developments and future needs, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 23-30.

Mortimer SI, **Swan AA**, Jacob RH, Warner RD, Pearce KL, Pethick DW, van der Werf JHJ, Hocking Edwards JE, Geesink GH, Gardner GE, Ball AJ and Hopkins DL (2001) Genetic correlation estimates for lamb carcass composition, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 227-230.

Piper LR, **Swan AA** and Brewer HG (2011) Effects of lifetime reproductive performance of phenotypic selection for fleece weight, fibre diameter, body weight and related selection indexes. II. Selection group x environment interaction, *Proceedings of the Association for the Advancement of Animal Breeding and Genetics* 19, 335-338.

Maximini L., **Brown D.J.**, Fuerst-Waltl B. (2011) Genetic parameters for live weight, ultrasound scan traits and muscling scores in Austrian meat sheep. *62nd Annual Meeting of the European Association for Animal Production (EAAP)*, 29.08.-02.09.2011, Stavanger, Norway (accepted).

#### *Presentations*

- R&D insights – Melbourne March 2011
- Applied Genomics for Sustainable Livestock Breeding (2 presentations) – May 2011
- AAABG presentations (3 presentations) - Perth July 2011
- SuperBorder conference - Bendigo June 2011

#### *Meetings / Workshops*

- CRC pilot project / IMG meetings (approximately 5)
- Breeding objectives workshop – Armidale January 2011
- Breeding objectives workshop – Coffs March 2011
- CRC reproduction workshop – Perth July 2011
- ZPLAN workshop – CSIRO June 2011
- Advisory Committee – Melbourne May 2011

- CRC meeting with Jen Smith – AGBU July 2011

## **Overall progress of the project**

The project is progressing well with the tasks assigned priority by the Technical Committee at their half-yearly meetings being completed or commenced. The scheduled activities for the remainder of this year is attached in Appendix A.

## **Attachments**

Please note that all these documents are working/discussion papers which have been presented to the Technical Committee for discussion.

A: Work Plan for 2011

B: TC Discussion paper - Examination of current reproduction data (Border Leicester extract as of March 2011)

C: TC Discussion paper - Delivering Genomically Enhanced EBVs in Pilot Project II

D: TC Discussion paper - The effect of age of first lambing on production traits

## 3.2 Genetic Trends (2000-2010) for key breeds in LAMBPLAN and MERINOSELECT

### 3.2.1 Maternal breed trends

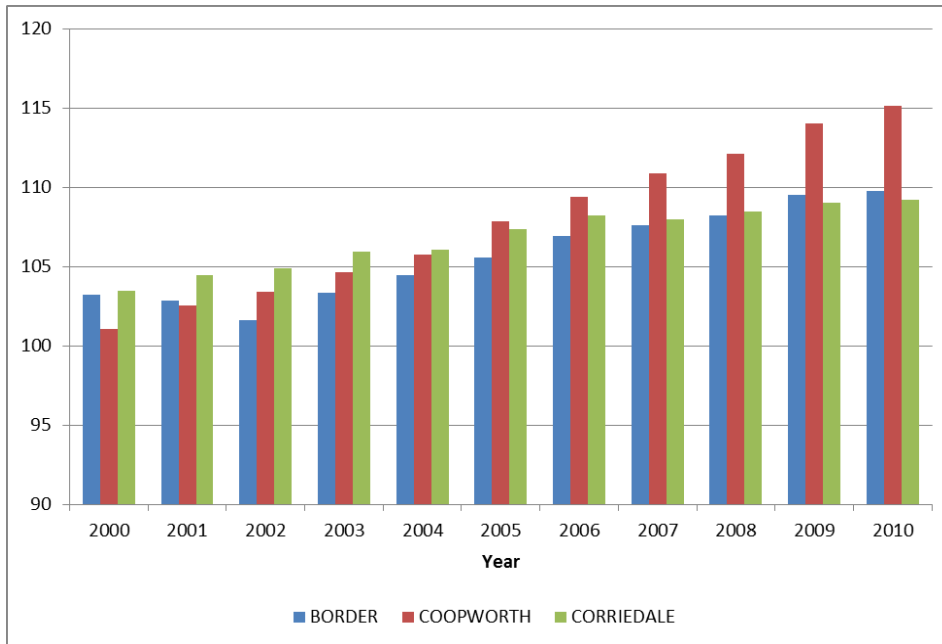


Figure 4: Border Leicester (02), Coopworth (15) and Corriedale (03) - Maternal \$ Index trend.

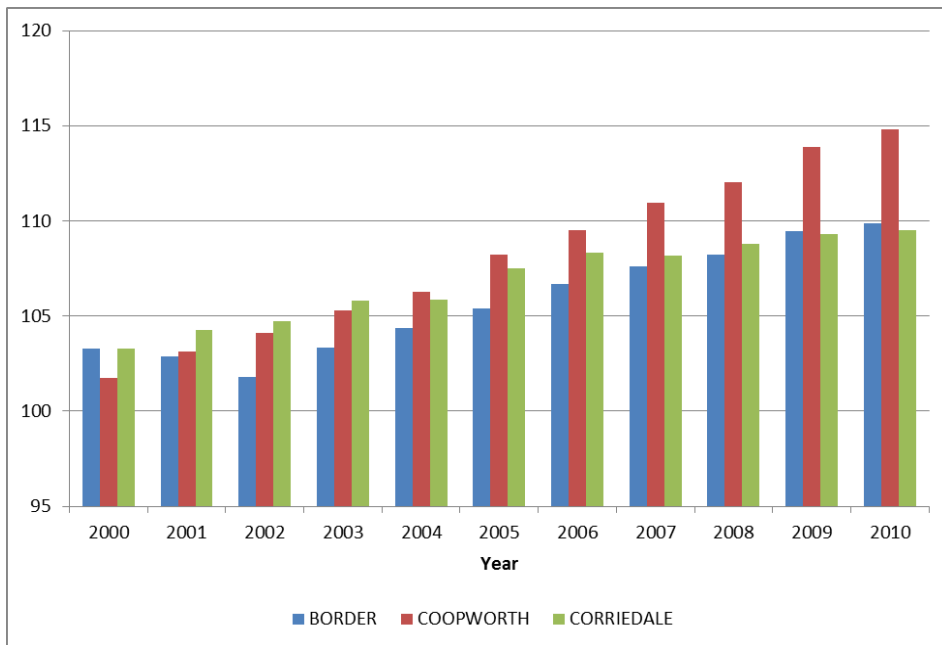


Figure 5: Border Leicester (02), Coopworth (15) and Corriedale (03) - Dual Purpose \$ Index trend.

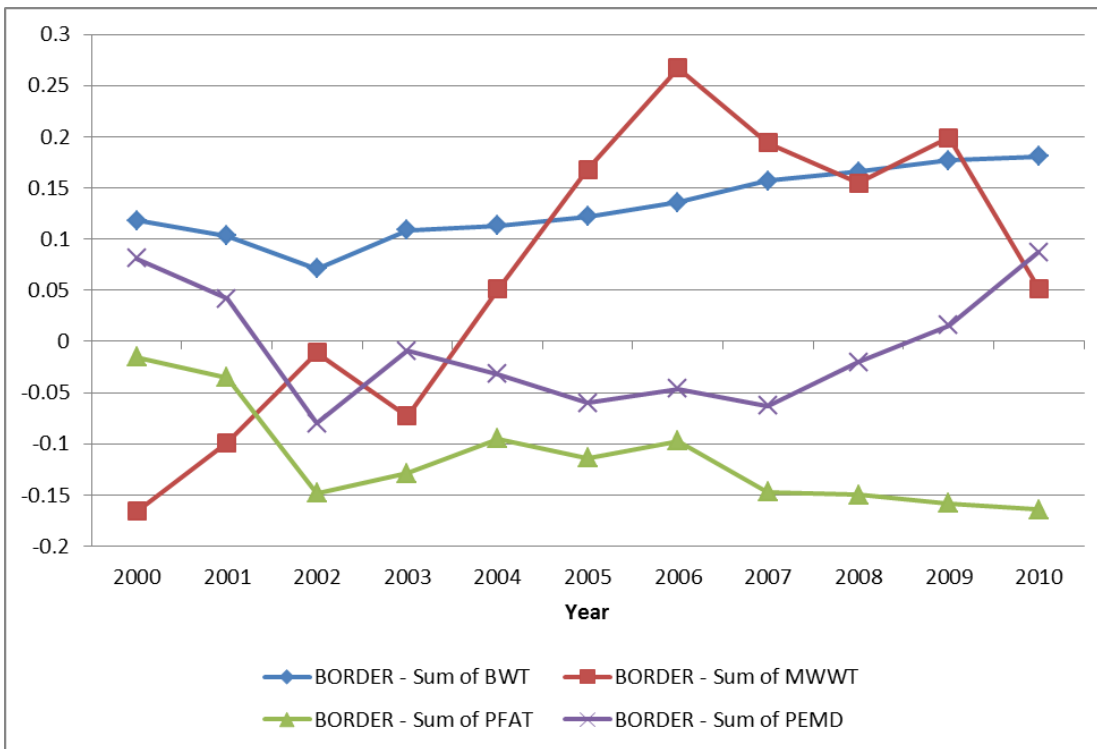


Figure 6: Border Leicester (02) genetic trends for BWT; MWWT; PFAT and PEMD.

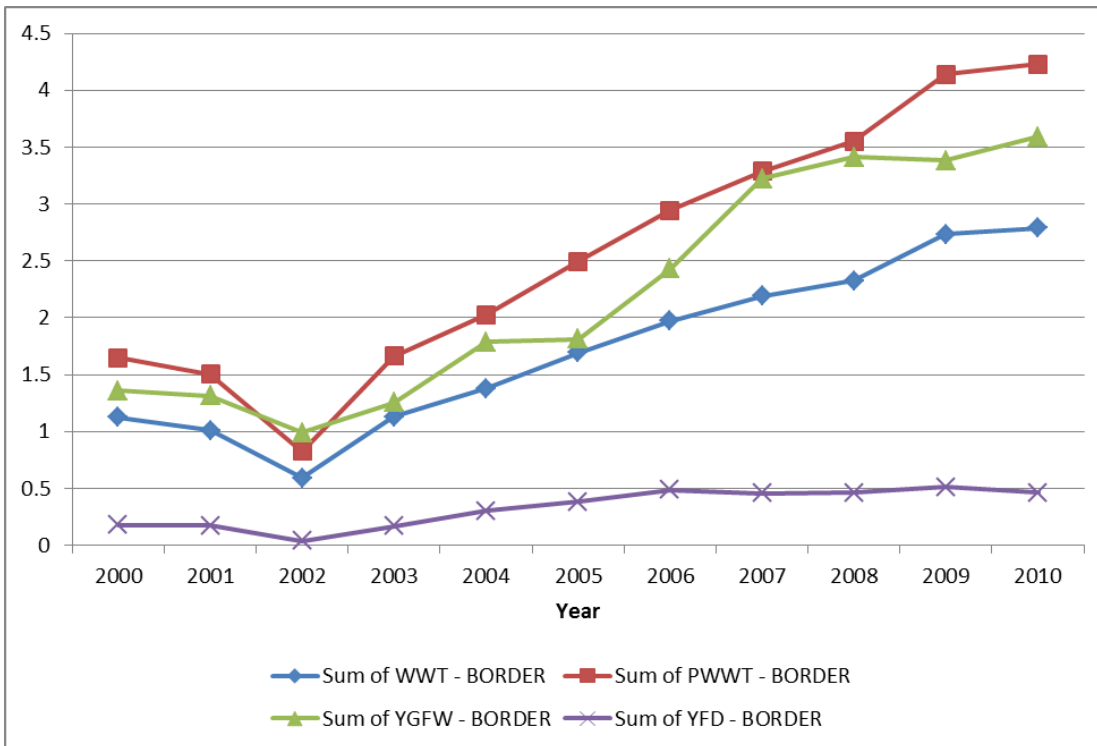


Figure 7: Border Leicester (02) genetic trends for WWT; PWWT; YGFW and YFD.

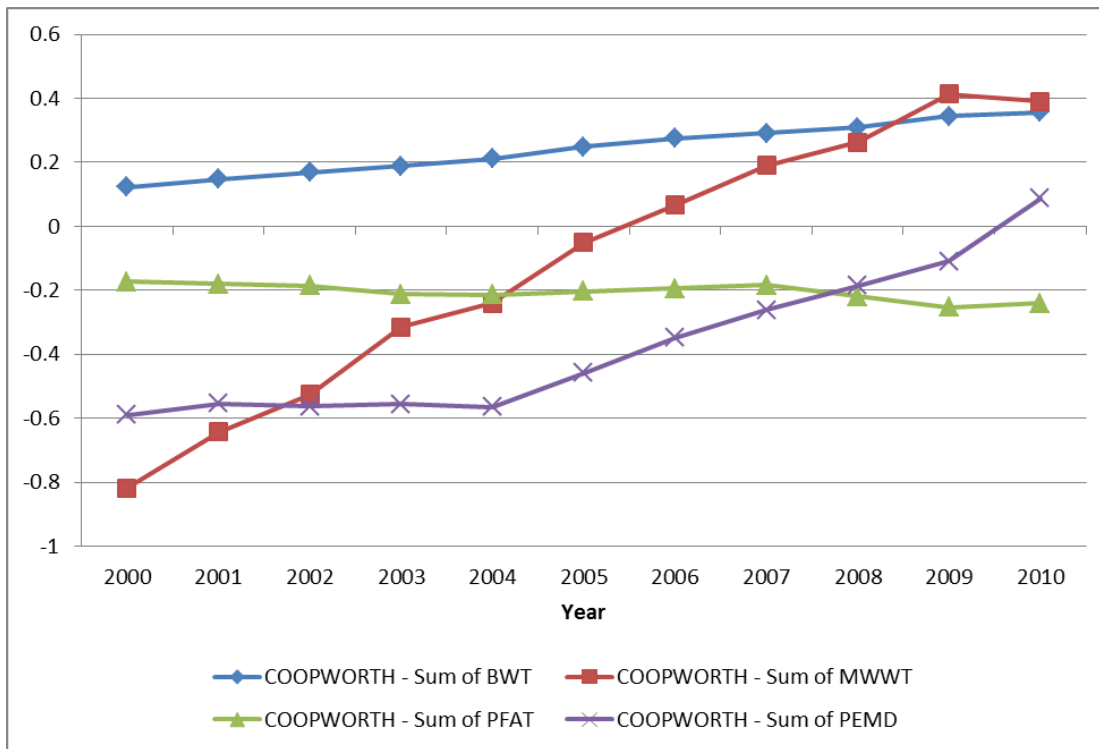


Figure 8: Coopworth (15) genetic trends for BWT; MWWT; PFAT and PEMD.

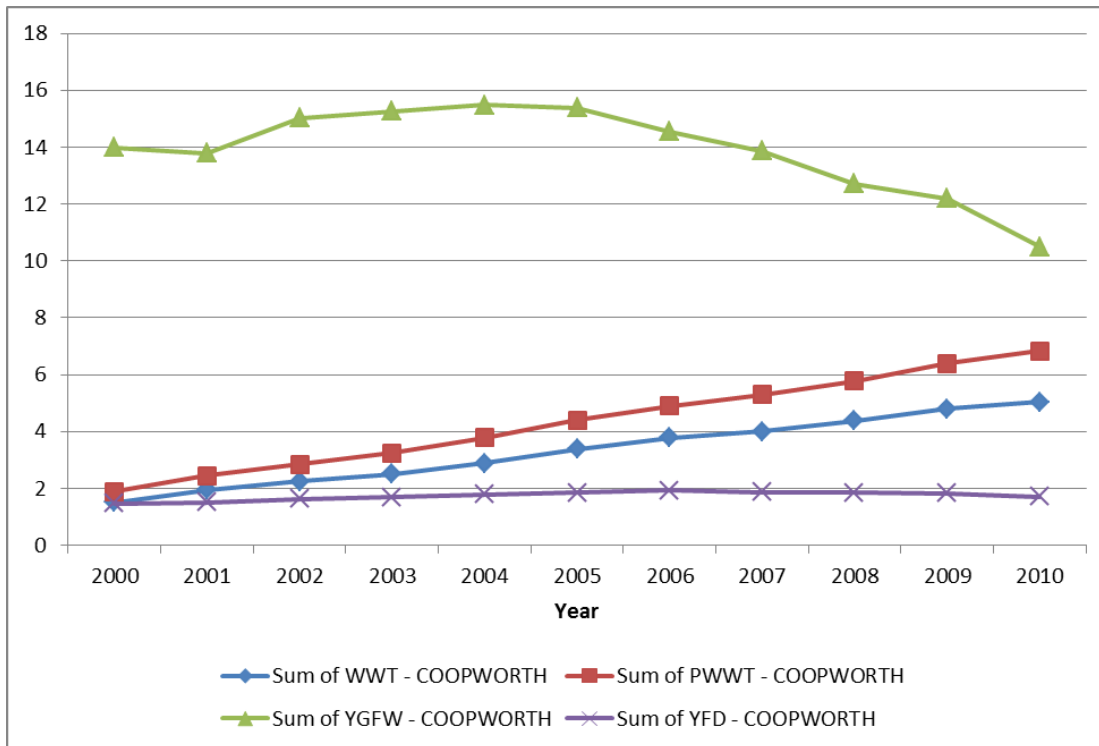


Figure 9: Coopworth (15) genetic trends for WWT; PWWT; YGFW and YFD.

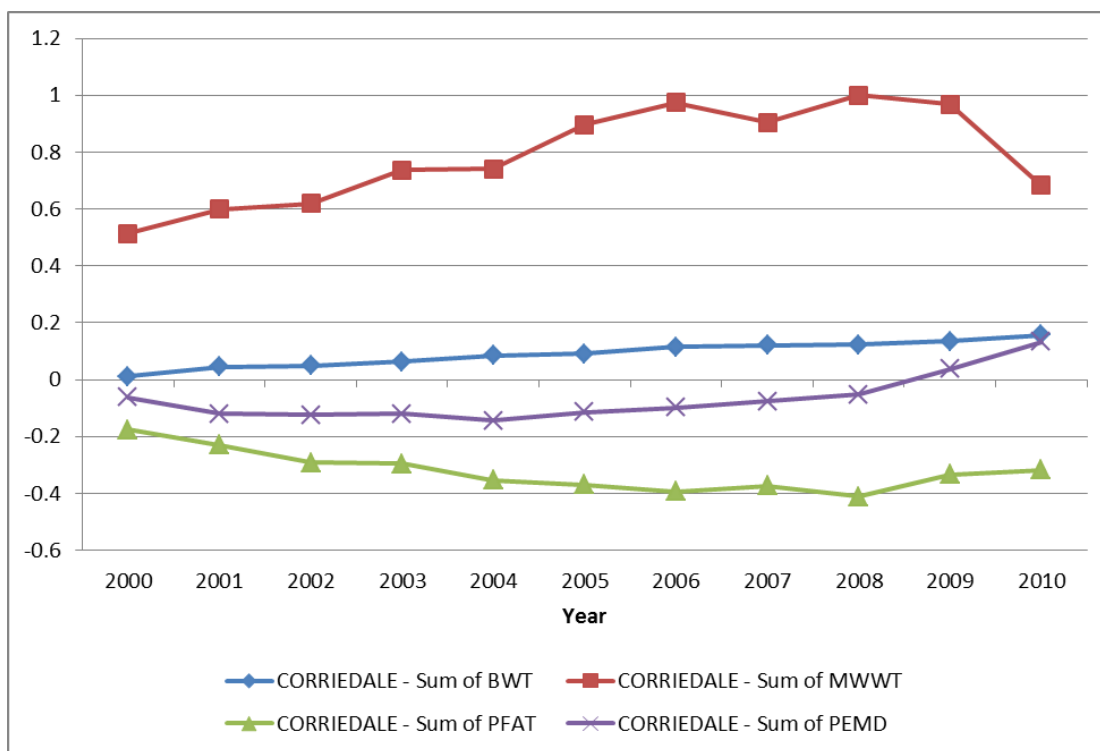


Figure 10: Corriedale (03) genetic trends for BWT; MWWT; PFAT and PEMD

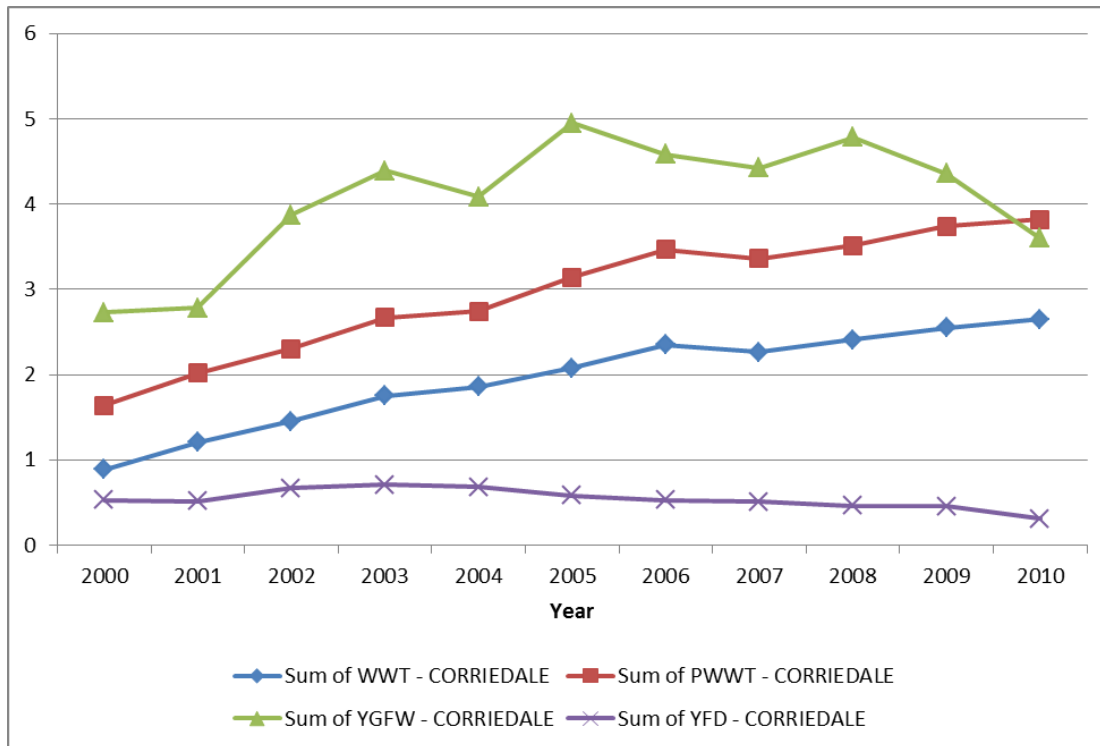


Figure 11: Corriedale (03) genetic trends for WWT; PWWT; YGFW and YFD.

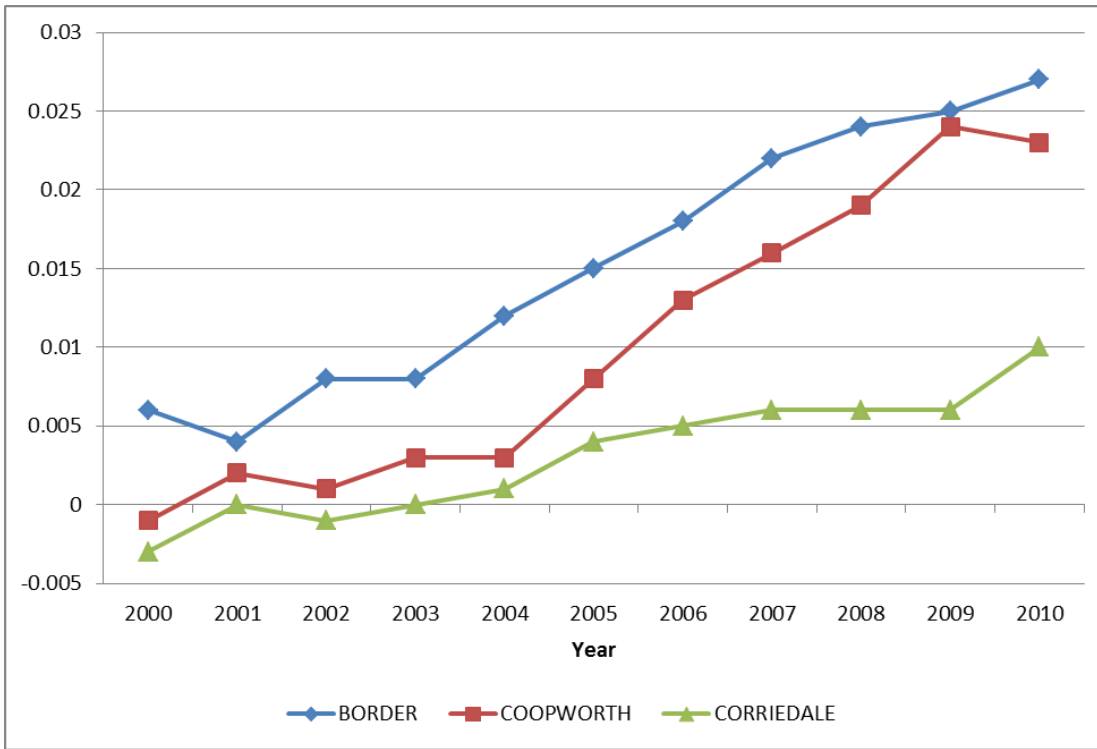


Figure 12: Border Leicester (02), Coopworth (15) and Corriedale (03) NLW genetic trend.

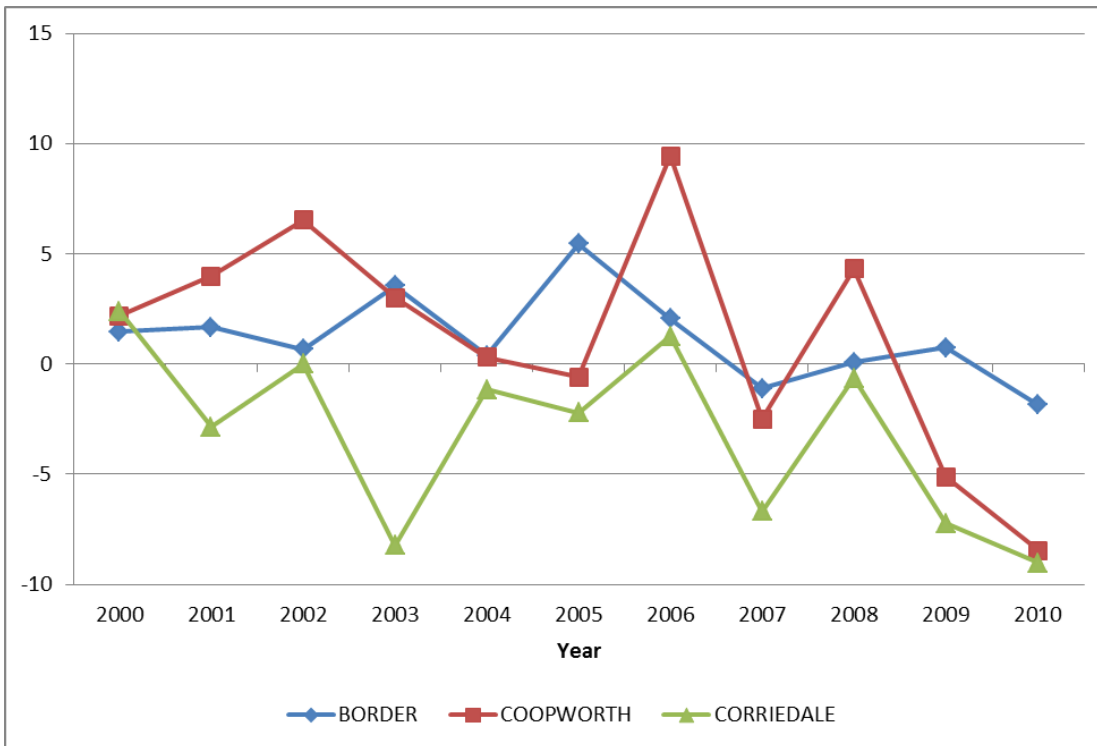


Figure 13: Border Leicester (02), Coopworth (15) and Corriedale (03) PFEC genetic trend.



### 3.2.2 Terminal breed trends

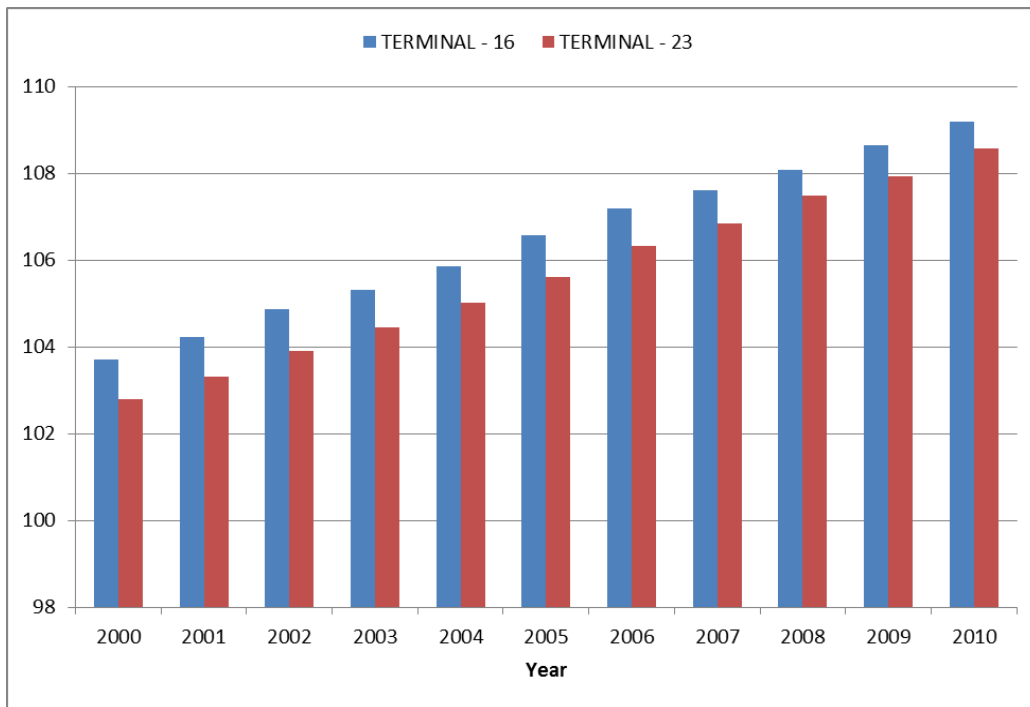


Figure 14: Poll Dorset (16) and White Suffolk (23) - Lamb2020 index trend.

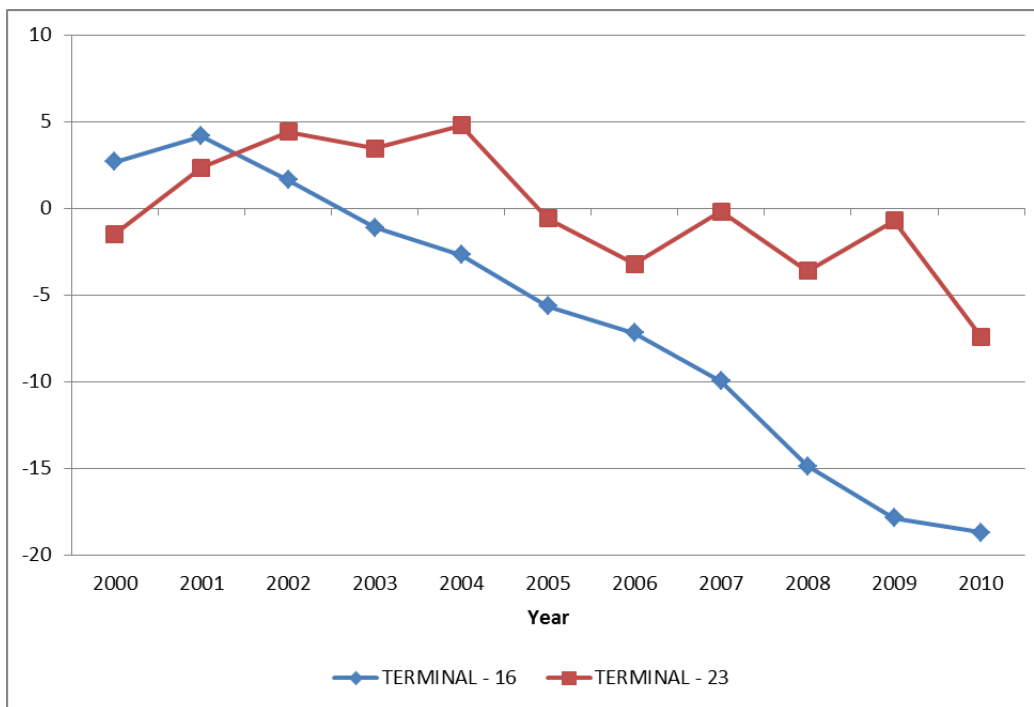


Figure 15: Poll Dorset (16) and White Suffolk (23) - PWEC genetic trend.

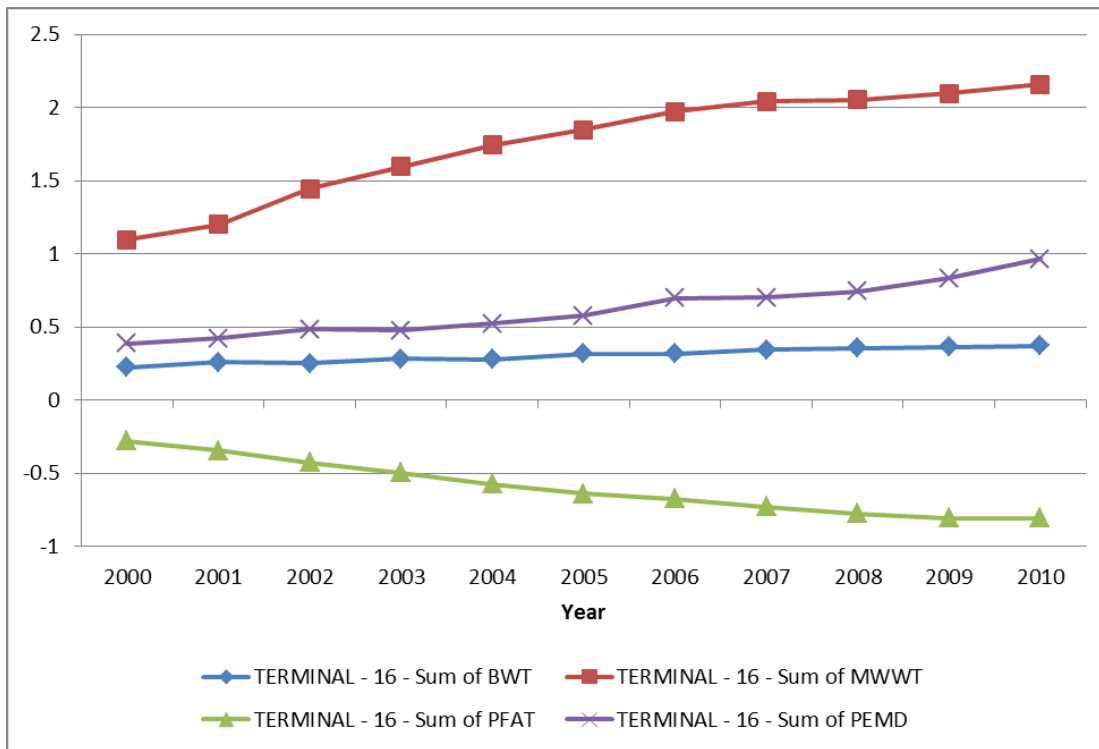


Figure 16: Poll Dorset (16) genetic trends for BWT; MWWT; PFAT and PEMD

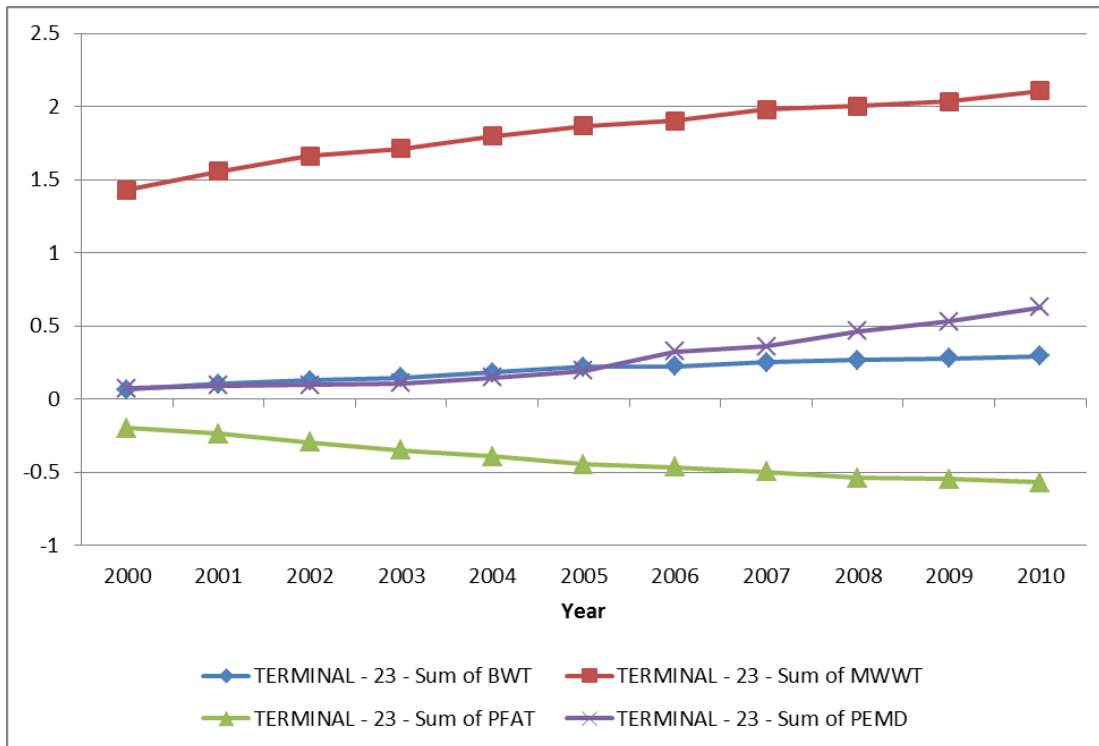


Figure 17: White Suffolk (23) genetic trends for BWT; MWWT; PFAT and PEMD

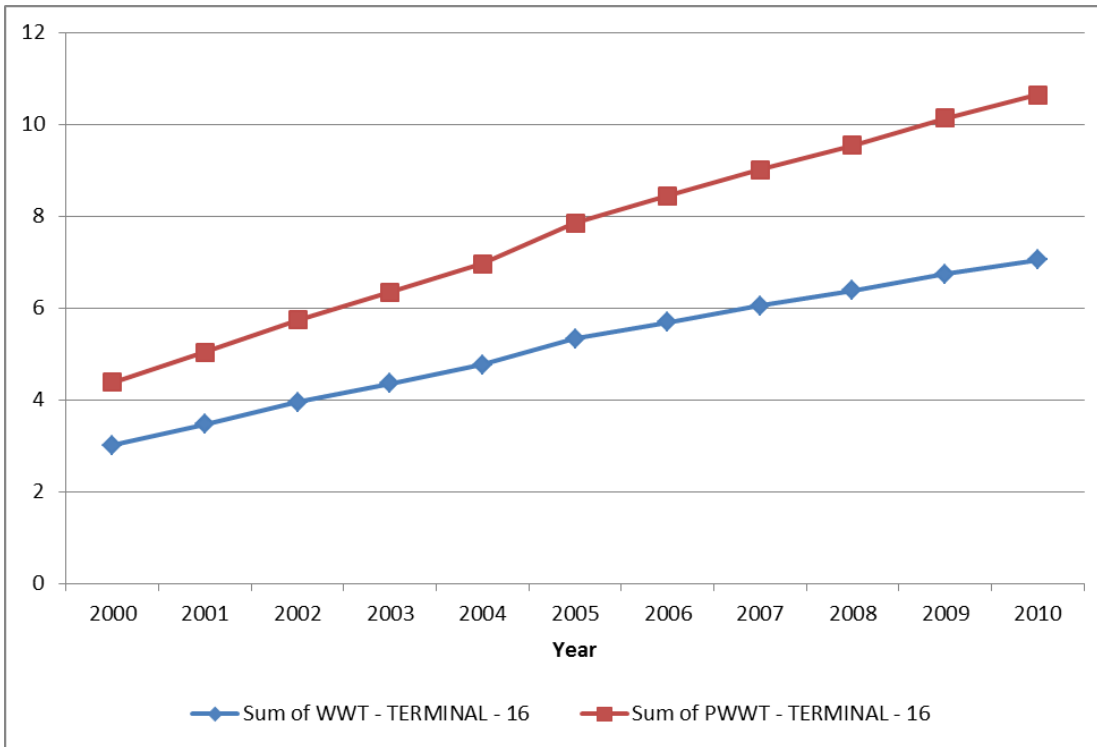


Figure 18: Poll Dorset (16) genetic trends for WWT; PWWT

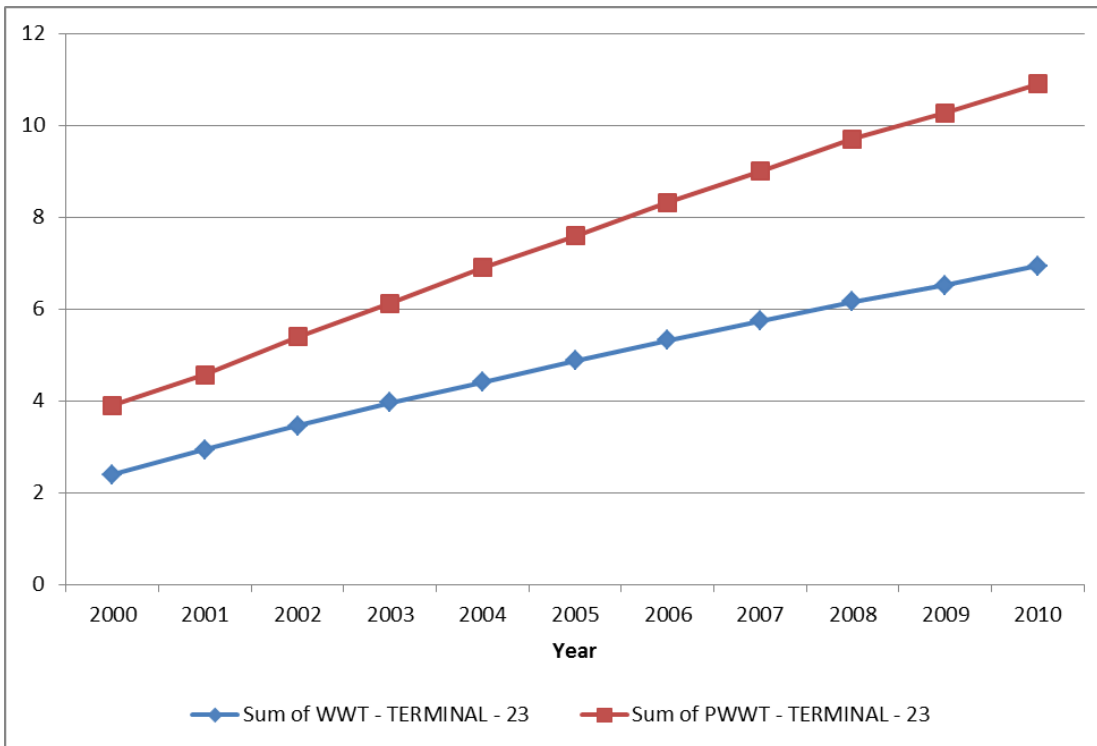


Figure 19: White Suffolk (23) genetic trends for WWT; PWWT

### 3.2.3 Merino trends

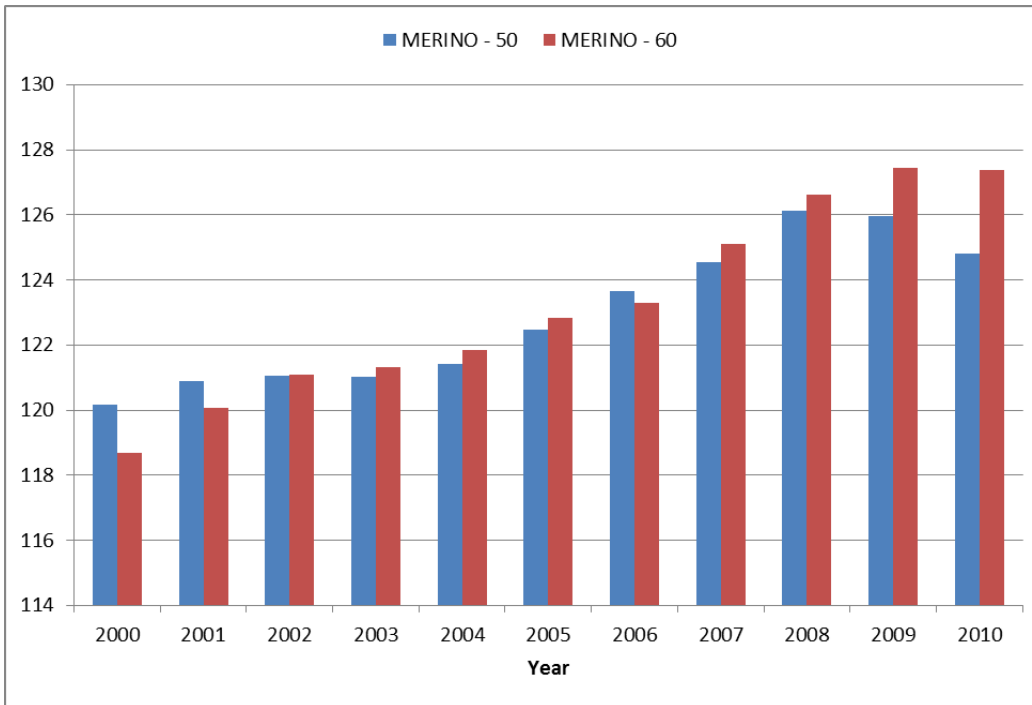


Figure 20: Merino (50) and Poll Merino (60) - 10% SS Index trend.

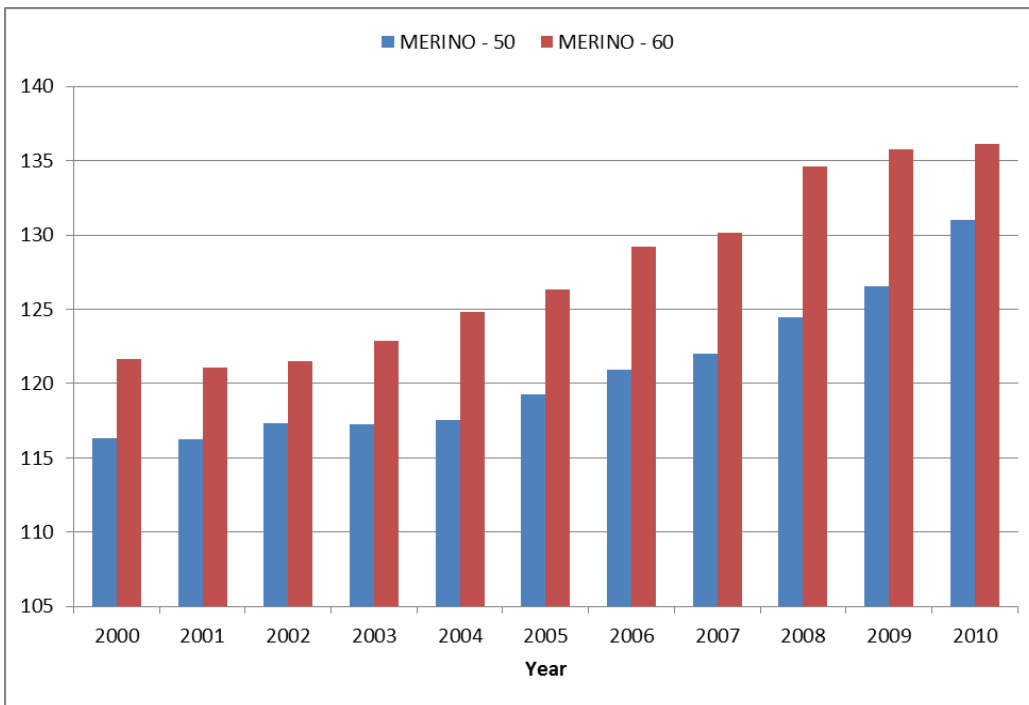


Figure 21: Merino (50) and Poll Merino (60) - 7% Dual Purpose Index trend.

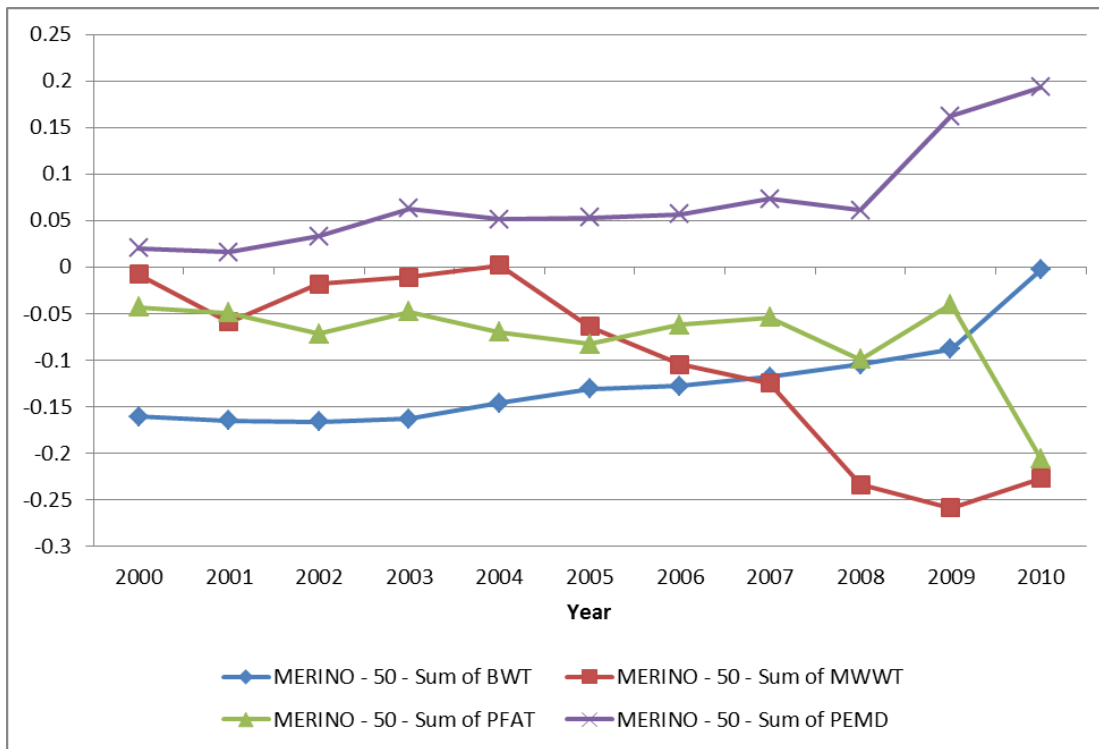


Figure 22: Merino (50) genetic trends for BWT; MWWT; PFAT and PEMD

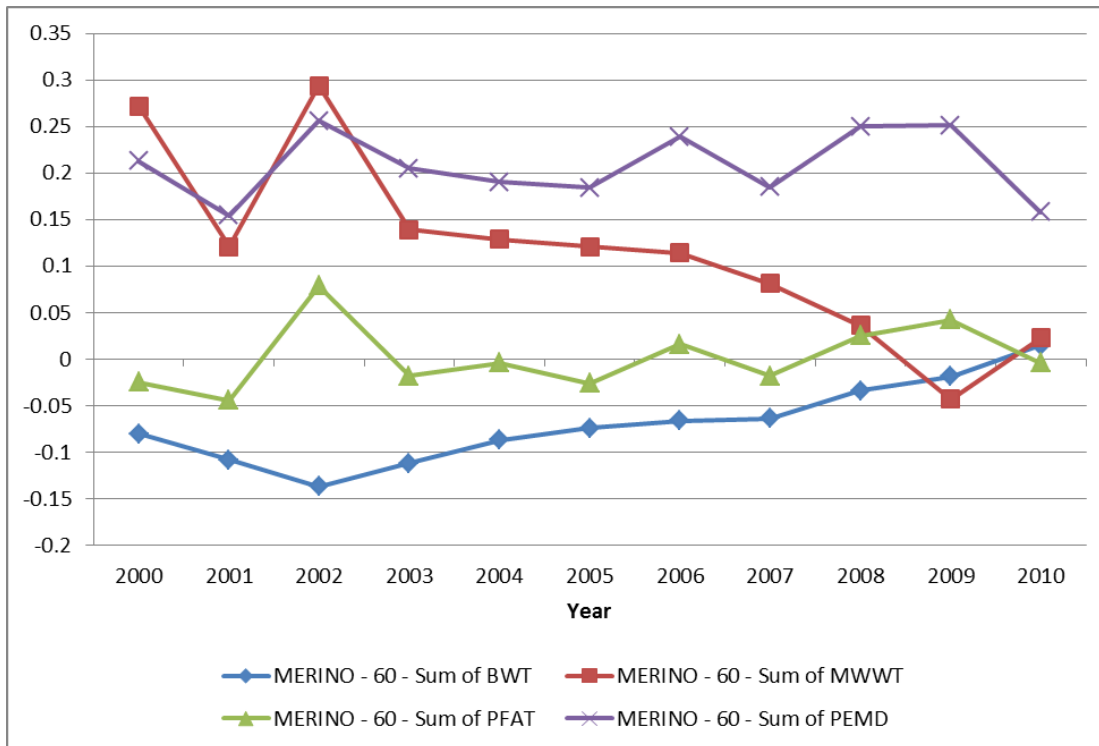


Figure 23: Poll Merino (60) genetic trends for BWT; MWWT; PFAT and PEMD

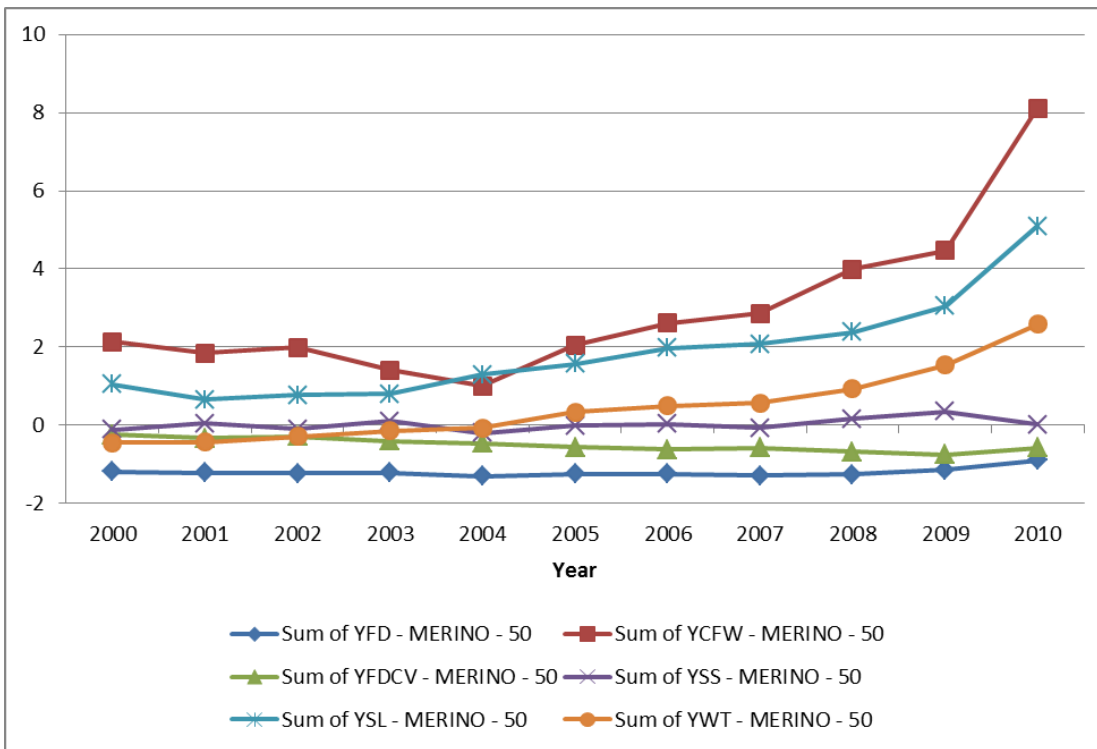


Figure 24: Merino (50) genetic trends for YFD; YCFW; YFDCV; YSS; YSL; YWT.

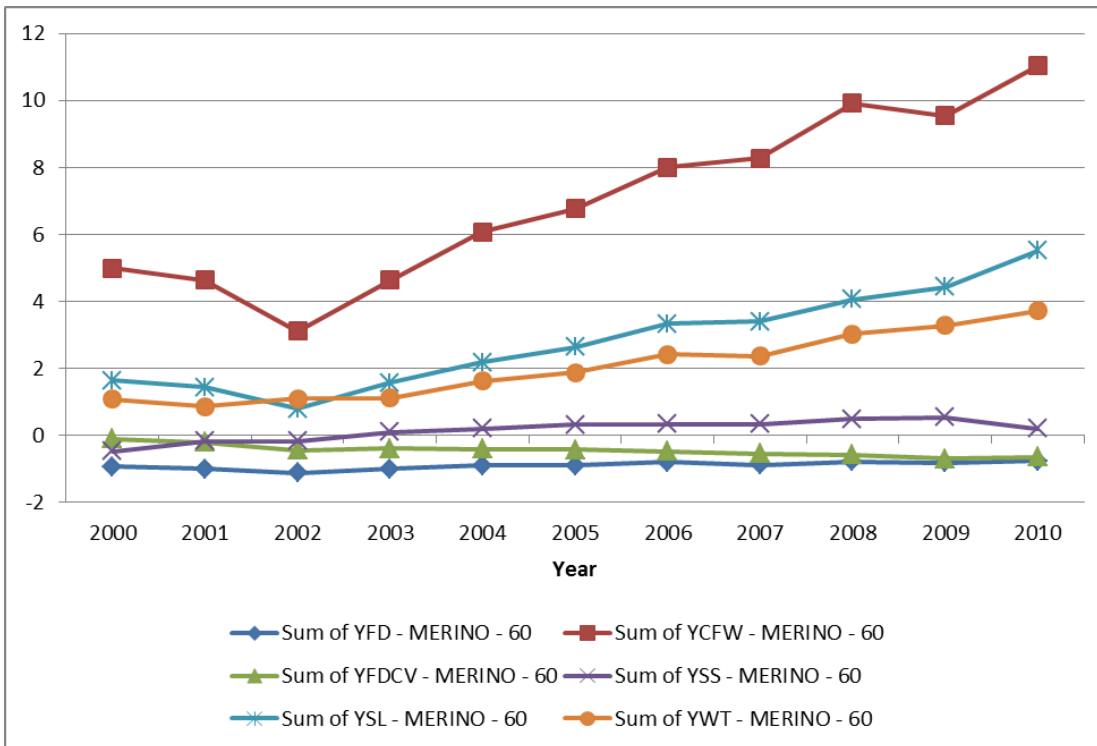


Figure 25: Poll Merino (60) genetic trends for YFD; YCFW; YFDCV; YSS; YSL; YWT.

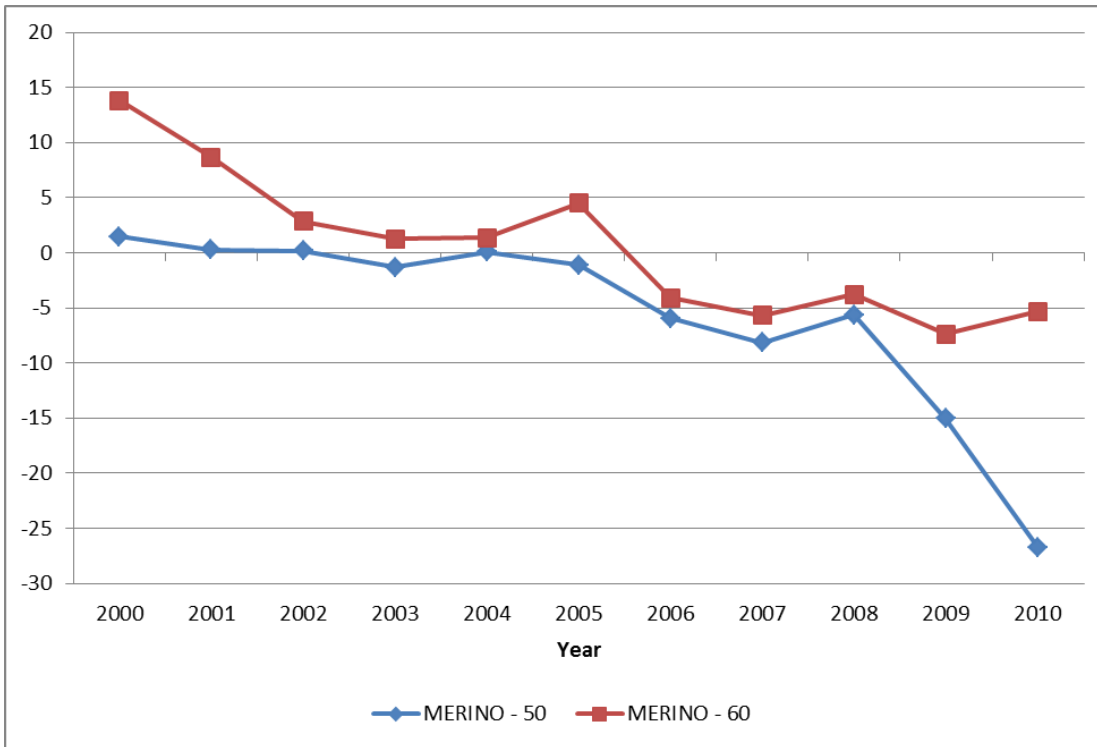


Figure 26: Merino (50) and Poll Merino (60) PWEC genetic trend.



Figure 27: Merino (50) and Poll Merino (60) NLW genetic trend.

### 3.3 Activities list – details

Date	Title	Location	Activity Type	Contribution	Time (days)	Staff	Attendees	What was the value in attending this event?	Should SG attend this event in the future?
7/07/2010	Walker MERINOSELECT Workshop	Murray Bridge, SA	Workshop	Presentation	1	SG & LS	25		
8/07/2010	MERINOSELECT Workshop	Kelvale, Burra, SA	Workshop	Presentation	1	SG & LS	35		
9/07/2010	Mid North Young Guns Workshop	Roseworthy, SA	Workshop	Presentation	1	SG & LS	20		
16/07/2010	Bendigo Sheep & Wool Show	Bendigo, Vic	Show / Field Day	Attended	3	SG, LS, HC & DR	1000	Engagement with a large number of stud breeders, both existing and potential clients	Yes
22/07/2010	Wellard Information Day	Kojonup, WA	Field Day	Presentation	1	SG	80		
29/07/2010	Merino Consultative Group	Teleconference	Meeting	Attended	1	SG	15		
2/08/2010	Sheepvention	Hamilton, Vic	Show / Field Day	Attended	3	SG, HC, LS	1000	Engagement with a large number of stud breeders, both existing and potential clients and commercial breeders	Yes
4/08/2010	LAMBEX	Perth, WA	Show / Field Day	Attended	1	SG, HC, LS	500	Interaction with both breeders and researchers	Yes
16/08/2010	WA Merino Week	WA	Show / Field Day	Attended	3	LS	200		
16/08/2010	Victorian Poll Dorsets breeders	Armidale, NSW	Forum	Presentation	1	HC	20	Engagement with stud breeders including active LAMBPLAN opponents	Yes - one off event
18/08/2010	MMfS Forum	Clare, SA	Forum	Presentation	1	SG	200		
19/08/2010	Why Merino Conference	Dubbo, NSW	Forum	Attended	1	LS & SG	150		
20/08/2010	Riverina Elders Field Day	Deniliquin, NSW	Show / Field Day	Attended	1	HC	100	Engagement with breeders in area that is poorly serviced	No - unless higher numbers can be guaranteed
24/08/2010	Dubbo Show & Sale	Dubbo, NSW	Sale	Attended	1	LS	100		
26/08/2010	Gloroy Open Day	Vic	Field Day	Presentation	1	HC	60	Client support and engagement with commercial clients	No - unless user pays service



# Project Status Report

Date	Title	Location	Activity Type	Contribution	Time (days)	Staff	Attendees	What was the value in attending this event?	Should SG attend this event in the future?
27/08/2010	Trigger Vale Information Day	Lockhart, NSW	Field Day	Presentation	1	HC	100	Client support and engagement with commercial clients	Yes - though not annually
2/09/2010	Adelaide Show	Adelaide, SA	Show	Presentation	1	HC	200	Engagement with a large number of breeders	Yes
9/09/2010	Adelaide Show	Adelaide, SA	Show	Attended	1	LS	150		
9/09/2010	Ramsay Park Field Day	Minlaton, SA	Field Day	Presentation	1	LS	30		
17/09/2010	Kerin Poll	Yeoval, NSW	Field Day	Presentation	1	SG	45		
20/09/2010	Boyanga and Karbullah Sale	Goondiwindi, QLD	Field Day	Presentation	1	LS	40		
30/09/2010	Best Wool/Best lamb Group	Goulburn, NSW	Field Day	Attended	1	HC	20	Engagement with commercial breeders	Yes - for other similar groups, could be done over web
1/10/2010	Best Wool/Best lamb Group	Webinar	Webinar	Presentation	1	HC	20	Engagement with commercial breeders	Yes - for other similar groups, could be done over web
14/10/2010	Dohne AGM	Attwood, Vic	Meeting	Presentation	1	SG	35		
17/10/2010	Dorper Group	Inverell, NSW	Forum	Presentation	1	HC	40	Engagement with Stud breeders in developing breed	Yes - one off event
21/10/2010	Sheep CRC Conference	Adelaide, SA	Conference	Attended	1	SG	260		
28/10/2010	Cloven Hills Open Day	Coleraine, Vic	Field Day	Presentation	1	HC	30	Client support and engagement with commercial clients	Yes - though not annually
18/11/2010	Sheep Genetics Service Providers	Webinar	Webinar	Presentation	1	LS	10		
22/11/2010	Visual Trait Launch	Webinar	Webinar	Presentation	1	SG, LS	40		
24/11/2010	Ultra-Sound Scan Accreditation	Armidale, NSW	Workshop	Presentation	1	HC, SG, LS	40	Accreditation of service providers	Yes
30/11/2010	Sheep Genetics Workshop	Kangaroo Island	Workshop	Presentation	1	SG	40		
1/12/2010	Turretfield Dual Purpose flock day	Turretfield, SA	Workshop	Attended	1	LS	60		

# Project Status Report

Date	Title	Location	Activity Type	Contribution	Time (days)	Staff	Attendees	What was the value in attending this event?	Should SG attend this event in the future?
2/12/2010	NSW I&I Conference	Tamworth, NSW	Conference	Presentation	1	HC	30	Updating sheep extension officers	Yes
3/12/2010	NSW Stud merino Council Meeting	Sydney, NSW	Meeting	Presentation	1	LS	25		
9/12/2010	Karbullah Open Day	Goondiwindi, QLD	Field Day	Presentation	1	HC	70	Client support and engagement with commercial clients	Yes - though not annually
12/01/2011	Practical Ram Selection Workshop	Armidale, NSW	Workshop	Presentation	1	LS	15		
21/01/2011	Smithston Ram Sale	Glencoe, NSW	Sale	Attended	1	HC	200	Support for new client and engagement with commercial breeders	Yes - though not annually
24/01/2011	REV Workshop	Armidale, NSW	Workshop	Presentation	1	SG	5		
29/01/2011	Tasmanian Dorper Expo	Deleraine, TAS	Field Day	Presentation	1	HC	120	Engagement with stud and commercial breeders	Yes
31/01/2011	Unhoused Ram Sale	Armidale, NSW	Sale	Attended	1	LS	60		
1/02/2011	Dookie Sire Evaluation and Ram Sale	Dookie Ag College	Field Day	Attended	1	LS	50		
1/02/2011	CRC Third Year Review	Armidale, NSW	Meeting	Presentation	1	SG	5		
2/02/2011	Poll Dorset Fair	Guyra, NSW	Sale	Attended	1	HC	40	Client support and engagement with commercial clients	Yes
2/02/2011	Housed Ram Sale	Armidale, NSW	Sale	Attended	1	SG	50		
9/02/2011	Walcha Ram Sale	Walcha, NSW	Sale	Attended	1	HC	80	Client support and engagement with commercial clients	Yes
10/02/2011	Cleanskings Conference	Adelaide, SA	Conference	Presentation	2	HC	160	Engagement with large number of stud and commercial breeders	Yes
14/02/2011	White Suffolk Conference	SA	Conference	Presentation	2	HC	120	Engagement with large number of stud breeders	Yes
16/02/2011	Super Whites Conference	Barossa Valley, SA	Conference	Presentation	1	HC	15	Engagement with performance	Yes

# Project Status Report

Date	Title	Location	Activity Type	Contribution	Time (days)	Staff	Attendees	What was the value in attending this event?	Should SG attend this event in the future?
								group	
17/02/2011	Sheep Genetics Data Quality	Webinar	Webinar	Presentation	1	LS	15		
23/02/2011	Meat Elite Conference	Kyeton, Vic	Conference	Presentation	1	HC	25	Engagement with performance group	Yes
25/02/2011	AMSEA Executive	Sydney, NSW	Meeting	Attended	1	SG	10		
3/03/2011	Coopworth Committee Meeting	Hamilton, Vic	Meeting	Presentation	1	SG, HC	15	Engagement with stud breeders	Yes
4/03/2011	Corriedale Conference	Hamilton, Vic	Conference	Presentation	1	HC	150	Engagement with large number of stud and commercial breeders	Yes
11/03/2011	Wagin Woolarama	Wagin, WA	Field Day	Presentation	1	LS	500		
21/03/2011	Poll Dorset Conference	Wagga Wagga	Conference	Attended	1	HC	140	Engagement with large number of stud breeders	Yes
21/03/2011	Stud Merino Field Days	SA	Field Day	Attended	1	LS	300		
22/03/2011	CRC Conference	Coffs Harbour, NSW	Conference	Attended	2	SG	50		
24/03/2011	Meat Profit Day	Bingara, NSW	Field Day	Attended	1	HC	320	Engagement with levy payers	Yes
27/03/2011	White Suffolk Conference	Serpentine, WA	Conference	Attended	2	HC	20	Engagement with stud breeders	Yes - one off event
28/03/2011	Iada Vale	WA	Field Day	Attended	1	HC	18	Client support and engagement with commercial clients	Yes - one off event
29/03/2011	Jilakin Workshop	WA	Workshop	Presentation	1	HC	15	Client support and engagement with commercial clients	Yes - one off event
1/04/2011	WA Stud Merino Breeders	WA	Meeting	Attended	1	SG	120		
6/04/2011	Sheep Connect Day	Trangie, NSW	Field Day	Attended	1	LS	80		
14/04/2011	LAMBPLAN Analysis changes	Webinar	Webinar	Presentation	1	HC	14	Client support	Yes
15/04/2011	Balmoral Open Day	Balmoral	Field Day	Attended	1	SG	50		
19/04/2011	Sydney Royal Easter Show	Sydney, NSW	Show	Attended	1	SG	75		
28/04/2011	Genomics Workshop	Armidale, NSW	Workshop	Attended	1	SG, HC, LS	25		

## Project Status Report

Date	Title	Location	Activity Type	Contribution	Time (days)	Staff	Attendees	What was the value in attending this event?	Should SG attend this event in the future?
2/05/2011	Genomics Conference	Melbourne, Vic	Conference	Presentation	4	SG	250	Engagement with several breeders	
5/05/2011	Boer Goat Day	Stanthorpe, Qld	Field Day	Presentation	1	LS	20		
5/05/2011	Edenhope Farm Forum	Edenhope, Vic	Field Day	Presentation	1	HC	25	Engagement with some stud breeders and commercial breeders	No - unless can confirm higher numbers of attendees
24/05/2011	Goat R&D Workshop	Sydney, NSW	Workshop	Presentation	2	SG	25	Development of goat genetic strategy - KIDPLAN reboot.	Yes - one off event
27/05/2011	Dubbo Show & Sale	Dubbo, NSW	Show	Attended	1	SG	70	Engagement with scanners and several LP	Yes though biannually
23/06/2011	SuperBorder\$ Conference	Bendigo, Vic	Conference	Presentation	1	HC, SG, AGBU	35	Present outcomes of reproduction reviews, trial new reports	Yes - engagement with 60% of BL breeders
27/06/2011	Orrie Cowie/Leahcim Workshop	Teleconference	Workshop	Presentation	0.2	LS	10		
29/06/2011	Best Wool/Best lamb Group	Bendigo, Vic	Conference	Attended	1	LS	300	Engage with commercial producers	Yes

### 3.4 IP Register

Section	Sub	Name	Type	Developer	Lead Author	Contributing Authors	Creation Date	Modified Date
Publications	Forms	Domestic Subscription Form	SG	MLA	MLA	SG,FM,NW,RA,AB, RB	1-Jul-05	1-Jul-10
Publications	Forms	International Subscription Form	SG	MLA	MLA	SG,FM,NW,RA,AB, RB	1-Jul-05	1-Jul-10
Publications	Forms	Web participation form	SG	MLA	MLA	AB, RA, SG	1-Jul-05	
Publications	Brochures	Mission Brochure	SG	MLA	Cox Inall	AB, EW	1-Jul-05	
Publications	Brochures	Breeders Case Studies	SG	MLA	Cox Inall	AB, RA, SG, EW	1-Jul-05	1-Jul-10
Publications	Brochures	MERINOSELECT Case studies	MS	MLA		AR, SG, LS, BC	1-Jul-05	
Publications	Brochures	Breeder's Bulletin (published quarterly)	SG	MLA	Multiple	multiple	1-Jul-05	
Publications	Manuals	Quality Assurance Manual	SG	MLA	AC	AB, EW, SG, RA	1-Jul-05	
Publications	Manuals	Breeder's Guide	SG	MLA	RA	AB	1-Jul-05	
Publications	Manuals	Making More from Sheep Genetics Workshop Manual	SG	MLA	RA		1-Jul-05	
Publications	Manuals	Ram Breeders Communications Kits	SG	MLA	Cox Inall	AB, EW	1-Jul-05	
Publications	Manuals	Service Provider Toolkits	SG	AWI	Anne Ramsay	NW, SG	1-Mar-10	
Publications	Tips and Tools	Getting Started with Sheep Genetics	SG	MLA	AR	MD, FM, NW, RA	1-Jul-07	
Publications	Tips and Tools	Introduction to LAMBPLAN	LP	MLA	RA	AB, FM, MD	1-Jul-05	1-Jul-08
Publications	Tips and Tools	Introduction to MERINOSELECT	MS	MLA	SG		1-Jul-05	1-Jul-07
Publications	Tips and Tools	Understanding LAMBPLAN ASBV's	LP	MLA	RA	AB, FM, MD	1-Jul-05	1-Jul-07
Publications	Tips and Tools	Understanding LAMBPLAN Maternal ASBV's	LP	MLA	RA	AB, FM, MD	1-Jul-05	1-Jul-07
Publications	Tips and Tools	Understanding MERINOSELECT ASBV's	MS	MLA	SG	AB	1-Jul-05	1-Jul-07
Publications	Tips and Tools	Pocket Guide's	SG	MLA	MD	AR, SG, LS,	1-Jul-08	
Publications	Tips and Tools	Planning Wheels	SG	MLA	AR	RA, MD	1-Jul-07	
Publications	Tips and Tools	LAMBPLAN Calendar	LP	MLA	AB	LH	1-Jul-05	

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Section	Sub	Name	Type	Developer	Lead Author	Contributing Authors	Creation Date	Modified Date
Publications	Tips and Tools	Index Explanations - MERINOSELECT	MS	MLA	SG		1-Jul-05	
Publications	Tips and Tools	Index Explanations - LAMBPLAN Maternal	LP	MLA	RA	AB, RA	1-Jul-05	
Publications	Tips and Tools	Index Explanations - LAMBPLAN Terminal	LP	MLA	RA	AB, RA	1-Jul-05	
Publications	Marketing	Lambing Data Entry Book	LP	MLA	AB		1-Jul-05	
Publications	Marketing	Sale Cards	SG	MLA	AB	RA, MD, AR, NW, FM	1-Jul-05	1-Jul-09
Publications	Marketing	Presentation Folders	SG	MLA	MD		1-Jul-08	
Publications	Marketing	Stickers LP/MS		MLA	AR	NW,	1-Jul-07	1-Jul-09
Publications	Marketing	Note Pads	SG	MLA	NW		1-Jul-09	
Publications	Marketing	Pens	SG	MLA	NW		1-Jul-09	
Publications	Marketing	Poster – ASBVs	SG	MLA	AB	RA, SG, MD, EW, FM, AR, NW	1-Jul-05	1-Jul-08
Publications	Marketing	Poster – Sheep Genetics	SG	MLA	AB	RA, SG, MD, EW, FM, AR, NW	1-Jul-05	1-Jul-08
Publications	Marketing	Pull-up banners	SG	MLA	EW	AB, SG, RA, MD, AR	1-Jul-05	1-Jul-08
Publications	Reviews	Sheep Genetics Business Model (January 2010)	SG	MLA	SED Consulting	SG	1-Jan-10	
Publications	Reviews	The Future Development of SGA Client Support & Industry Services (May 2006)	SG	MLA			1-Jul-05	
Publications	Reviews	Sheep Genetics Roadmap Project Report (December 2007)	SG	MLA	Philip Pogson	AB	1-Jul-05	
Software		GEM database	LP	MLA	SF		1-Jul-05	
Software		MERINOSELECT database	MS	MLA	DR		1-Jul-05	
Software		Pedigree Wizard - on-farm recording software	LP	MLA	SF		1-Jul-05	
Software		SGAR - Sheep Genetics reporting software	SG	MLA	SF		1-Jul-05	
Website	Website	Sheep Genetics Website	SG	MLA			1-Jul-05	
Website	Tools	Searchable web database	SG	MLA			1-Jul-05	

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Section	Sub	Name	Type	Developer	Lead Author	Contributing Authors	Creation Date	Modified Date
Website	Tools	Advanced search function	SG	MLA			1-Jul-05	
Website	Tools	Customisable trait selection	SG	MLA			1-Jul-05	
Website	Tools	Secure user portal	SG	MLA			1-Jul-05	
Website	Tools	Mating predictor	SG	MLA			1-Jul-05	
Website	Tools	AJAX simplified search page	SG	MLA			1-Jul-05	
Website	Tools	PDF printer	SG	MLA			1-Jul-05	
Website	Tools	Ram sale catalogue	SG	MLA			1-Jul-05	
Website	Tools	Semen catalogue	SG	MLA			1-Jul-05	
Website	Tools	Request report feature	SG	MLA			1-Jul-05	
AGBU - OVIS Development	Regular updates of existing variance components meat and wool sheep.	Analysis of reproduction traits	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Regular updates of existing variance components meat and wool sheep.	Routine analysis of reproduction traits ~ Service sire screening	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Regular updates of existing variance components meat and wool sheep.	Routine analysis of reproduction traits ~ Influence of body weight	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Regular updates of existing variance components meat and wool sheep.	Weaning Weight	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Regular updates of existing variance components meat and wool sheep.	Sire by Flock Year effects	SG	MLA	AGBU	Technical Committee	1-Jul-05	

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Section	Sub	Name	Type	Developer	Lead Author	Contributing Authors	Creation Date	Modified Date
AGBU - OVIS Development	Regular updates of existing variance components meat and wool sheep.	Estimates of Heterosis in maternal breeds	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	SheepObject	Development of SheepObject	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	SheepObject	OVIS and SheepObject systems operating effectively together to generate a number of standard indices	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	SheepObject	Customizable indexes available for producers.	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	Maternal temperament traits	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	CRC novel wool traits	SG	MLA	AGBU	Technical Committee, CRC	1-Jul-05	
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	Lambing ease and gestation length	SG	MLA	AGBU	Technical Committee	1-Jul-05	
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	Days to lambing	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	LoinMax data analysis	SG	MLA	AGBU	TC	1-Jul-05	



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Section	Sub	Name	Type	Developer	Lead Author	Contributing Authors	Creation Date	Modified Date
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	Myostatin data analysis	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Novel traits and measures examined for inclusion in genetic evaluation.	Number of lambs scanned	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Improved genetic grouping strategies	MERINOSELECT	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Improved genetic grouping strategies	LAMBPLAN ~ Terminal sire breeds	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Improved genetic grouping strategies	The effect of selection lines in QPLU\$ and SDF on the Sheep CRC Information Nucleus Flock (INF) genetic evaluation	SG	MLA	AGBU	Technical Committee, CRC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Linkage analyses	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Trans-Tasman analyses	SG	MLA	AGBU	TC, SF	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Effects of recording strategies on reproduction ASBV's	SG	MLA	AGBU	Tc	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Toland ~ Selective Recording proposal	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	AMSEA report	SG	MLA	AGBU	AMSEA	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Serial Scrotal Measurements	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Scrotal Circumference and reproduction	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Analysis of Keiller Evaluation Study and Faulkner 2007 drop data	SG	MLA	AGBU	TC	1-Jul-05	

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Section	Sub	Name	Type	Developer	Lead Author	Contributing Authors	Creation Date	Modified Date
AGBU - OVIS Development	Additional Research and Development.	Alternative trait adjustments by breed and sex for the LAMPLAN analysis	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Early age fat and eye muscle depth measurements	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Post weaning wool information in MERINOSELECT	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Characterisation of breed structures for combined maternal breed genetic evaluation	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Index accuracy	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Adjustment of wool traits using weaning weight	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Maternal effects for embryo transfer and fostered animals	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Marker assisted breeding values	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Unlinked management groups	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	Diagnostics	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Additional Research and Development.	National Sheep Improvement Program development	LP	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Other	Improved diagnostic tools and reporting tools.	SG	MLA	AGBU	TC	1-Jul-05	
AGBU - OVIS Development	Other	Upgrade software to reduce runtime and allow larger data sets to be processed.	SG	MLA	AGBU	TC	1-Jul-05	

### 3.5 Project Status Report Sections Omitted

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Research animal numbers to come.

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