

SHEEP GENETICS



Annual Report 2010 - 2011

Project Name: Sheep Genetics Annual Report 2010-2011

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Project Status Report

1 EXECUTIVE SUMMARY

This is a report to the Sheep Genetics Executive and Advisory Committees as per the Sheep Genetics Management Agreement

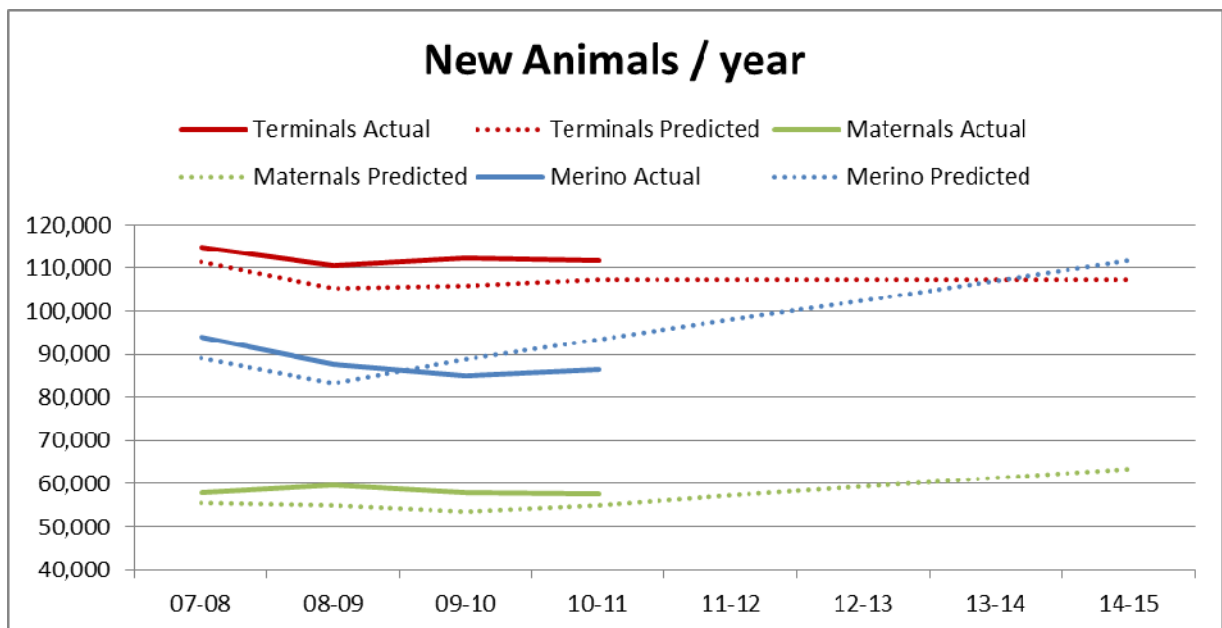
2010-11 can be seen as a successful year with performance on-track against the Sheep Genetics key objectives. Development of new tools was limited due to the new Sheep Genetics Management Agreement not signed until 9 months into the financial year.

The key objectives for Sheep Genetics 2010-13 are based on increasing the value of genetic gain (more animals improving at higher rates), providing new decision support tools and services to achieve these rates of gain, while simplifying and improving the existing services, products and activities.

Performance in 2010-11 against these objectives are summarised below, with reference to the report section that contains the details.

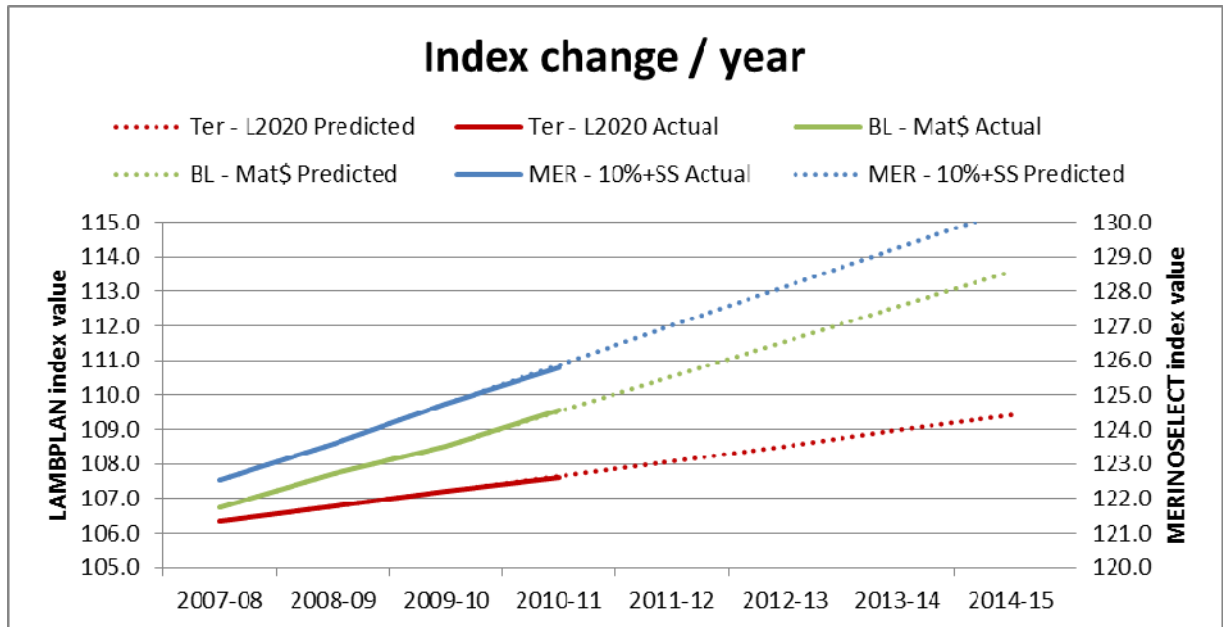
1) Continue to maintain or grow the annual number of new animals analysed each year.

2.1.1. The overall breed numbers of new animals have increased by 7% from the previous year. Increases have been made in Merinos and Maternals, though there are slightly lower than expected numbers in Terminals. The major difference between predicted and actual numbers is due to the Australian Dohne Breeders Association not using Sheep Genetics during this period.



- 2) **Maintain or improve the value of genetic gain, as measured by the improvement in the rate of index change over time.**

2.1.2 In almost all segments, the predicted index value for 2010-11 has been met or exceeded.



- 3) **Introduce new traits from Sheep CRC / MLA / AWI research, subject to breeder support and economic analysis of industry benefit**

2.4.1 ASBVs for Weaning Scans, Breech Cover, Dag Score and Wool Colour released

2.3.5 RBVs (Research Breeding Values) for Lean Meat Yield; Shear Force; Intramuscular Fat; Carcase Weight; Carcase Eye Muscle Depth and Carcase Fat released

- 4) **Introduce new breeding and diagnostic tools, such as mate selection, SheepObject etc, and trial through the industry implementation of genomic outcomes**

2.3.6 This area of development was limited due to the late signing of the business plan. However, several new tools and reports were developed and released.

- Breeder login area developed and released.
- On-property visits for diagnostic trend reports underway.
- Rampower software continued testing and development during 2010-11

- 5) **Provide training and exposure to breeders and service providers for new traits and tools, including genomics outcomes**

2.6.1 Sheep Genetics presented at 43 industry events and workshops in 2010-11, to a total of 2,774. Additionally, a further 27 industry events were attend by Sheep Genetics staff, involving a further 5,091 attendees. A total of 7,099 Sheep Genetics publications were circulated for wider distribution

6) Contribute to supply chain development work integrated with other business units and programs in MLA / AWI / Sheep CRC

2.3.5 The Sheep Genetics team spent over 1200 hours collaborating on Sheep CRC projects. This is separated into 86 hours on Lean Meat Yield and Supply Chains, 266 hours on the Information Nucleus design and analysis, 478 hours on Information Nucleus operations, 391 hours on the Information Nucleus management, and 117 hours on easy care sheep.

7) Balance breeder/producer and taxpayer contributions with private and public good, ensuring that Sheep Genetics charges are consistent with trends in CPI since 2005

2.2 Continued gains were made to improving the balance between public and private expenditure in Sheep Genetics. Operational income (subscription fees and database charges) were lower than budgeted for MERINOSELECT, which was balanced against fewer development projects implemented due to the late signing of the AWI-MLA management agreement.

Subscription fees were increased from \$350 to \$365 as per the Sheep Genetics Business Plan, with lower than expected resignations

8) Simplify the data management processes and reduce the associated costs, including maintenance and upgrades to existing Sheep Genetics systems

2.6.4 There have been fewer activities in this area due to the late signing of the business plan. However, the upgrade of the Sheep Genetics website has been scoped and is now in the process of development through a three phase project:

- Phase I is a review and redesign of the website layout and architecture, to provide a better fit with MLA website requirements, while making it easier for the user to find information
- Phase II funding will create new visual reporting tools for the reporting and public display of ASBVs and indexes
- Phase III funding will address the integration of mobile solutions for the SG website, including ram finder and flock finder smart phone applications

9) Fully evaluate opportunities for new products and services where appropriate, ensuring that resources are available to conduct such evaluations

2.6.5 Sheep Genetics has worked closely with the Sheep CRC and AWI in the evaluation of new breeding values as they are developed, and has helped facilitate the initial Sheep CRC Pilot Project where RBVs for traits analysed using only genomic information were reported back to sheep breeders for the first time.

2 REPORT AREAS

2.1 Performance against Objectives

2.1.1 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	
Terminals	91,483	86,048	88,802	87,285	-	-	-	-	Actual
				90,500	90,500	90,500	90,500	90,500	Predicted
Poll Dorset	47,166	44,608	45,908	43,541					Actual
				45,000	45,000	45,000	45,000	45,000	Predicted
White Suffolk	37,086	34,640	36,980	37,522					Actual
				40,000	40,000	40,000	40,000	40,000	Predicted
Suffolk	4,000	3,985	3,575	3,869					Actual
				3,500	3,500	3,500	3,500	3,500	Predicted
Texel	3,231	2,815	2,339	2,353					Actual
				2,000	2,000	2,000	2,000	2,000	Predicted
Maternals	54,405	54,217	52,517	55,065	-	-	-	-	Actual
				54,268	56,719	59,171	61,622	64,074	Predicted
Border Leicester	19,017	19,846	20,473	19,724					Actual
				21,000	21,500	22,000	22,500	23,000	Predicted
Coopworth	10,066	11,422	11,160	10,653					Actual
				11,743	12,194	12,646	13,097	13,549	Predicted
Corriedale	9,726	9,718	9,192	10,583					Actual
				9,450	9,450	9,450	9,450	9,450	Predicted
Dorper	10,613	9,661	7,133	10,399					Actual
				7,350	8,350	9,350	10,350	11,350	Predicted
SAMM	4,983	3,570	4,559	3,706					Actual
				4,725	5,225	5,725	6,225	6,725	Predicted
Merino	84,243	79,048	73,297	74,141	-	-	-	-	Actual
				77,175	80,850	84,525	88,200	91,875	Predicted
Superfine	17,016	15,293	14,909	15,685					Actual
				15,750	16,500	17,250	18,000	18,750	Predicted
Fine	47,933	45,416	39,918	40,271					Actual
				42,000	44,000	46,000	48,000	50,000	Predicted
Medium	19,294	18,339	18,470	18,185					Actual
				19,425	20,350	21,275	22,200	23,125	Predicted
Other	*	*	*	13,000	-	-	-	-	Actual
				29,300	30,765	32,304	33,920	35,617	Predicted
Dohnes	*	*	*	*					Actual
				16,300	17,115	17,971	18,870	19,814	Predicted
NSIP	*	*	*	13,000					Actual
				13,000	13,650	14,333	15,050	15,803	Predicted
TOTAL	230,131	219,313	214,616	229,491					Actual
				251,243	258,834	266,500	274,242	282,066	Predicted

Details of the change in new animals analysed each year are contained in Table 1. The major breeds for each analysis segment have been split out to indicate progress over time.

The overall breed numbers of new animals have increased by 7% from the previous year, which is lower than the predicted amount. Small increases have been made in Merinos and Maternals, though there are lower than expected numbers in Terminals. The largest increase is due to the new animals coming in from NSIP – the USA sheep genetic analysis. The major difference between predicted and actual numbers is due to the Australian Dohne Breeders Association not using Sheep Genetics during this period.

2.1.2 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	
Terminal sires	106.4	106.9	107.3	107.7					Actual
				<i>107.7</i>	<i>108.2</i>	<i>108.6</i>	<i>109.1</i>	<i>109.5</i>	Predicted
Poll Dorset	107.2	107.6	108.1	108.7					Actual
				<i>108.5</i>	<i>109.0</i>	<i>109.4</i>	<i>109.9</i>	<i>110.3</i>	Predicted
White Suffolk	106.3	106.8	107.5	107.9					Actual
				<i>108.0</i>	<i>108.5</i>	<i>109.0</i>	<i>109.5</i>	<i>110.0</i>	Predicted
Suffolk	104.4	105.0	105.3	105.8					Actual
				<i>105.7</i>	<i>106.0</i>	<i>106.4</i>	<i>106.7</i>	<i>107.1</i>	Predicted
Texel	106.4	106.6	106.9	107.3					Actual
				<i>107.1</i>	<i>107.4</i>	<i>107.6</i>	<i>107.9</i>	<i>108.1</i>	Predicted
Maternal sires									
Border Leicester	106.9	107.6	108.2	109.5					Actual
				<i>109.2</i>	<i>110.1</i>	<i>111.1</i>	<i>112.0</i>	<i>113.0</i>	Predicted
Coopworth	108.3	109.8	111.0	114.3					Actual
				<i>112.3</i>	<i>113.6</i>	<i>114.9</i>	<i>116.2</i>	<i>117.5</i>	Predicted
Corriedale	108.1	108.0	108.6	109.2					Actual
				<i>109.2</i>	<i>109.9</i>	<i>110.5</i>	<i>111.1</i>	<i>111.7</i>	Predicted
Dorper	121.6	121.2	121.0	121.2					Actual
				<i>121.4</i>	<i>121.8</i>	<i>122.1</i>	<i>122.5</i>	<i>122.9</i>	Predicted
SAMM	104.0	103.6	105.0	104.8					Actual
				<i>105.6</i>	<i>106.2</i>	<i>106.8</i>	<i>107.4</i>	<i>108.0</i>	Predicted
Merino	121.9	123.2	125.3	127.7					Actual
				<i>127.0</i>	<i>128.6</i>	<i>130.3</i>	<i>132.0</i>	<i>133.6</i>	Predicted
Superfine	122.4	123.8	124.5	123.5					Actual
				<i>124.8</i>	<i>125.1</i>	<i>125.5</i>	<i>125.8</i>	<i>126.1</i>	Predicted
Fine	124.3	124.7	125.7	128.4					Actual
				<i>127.0</i>	<i>128.3</i>	<i>129.6</i>	<i>130.9</i>	<i>132.3</i>	Predicted
Medium	126.0	129.3	127.3	132.7					Actual
				<i>127.8</i>	<i>128.3</i>	<i>128.7</i>	<i>129.2</i>	<i>129.7</i>	Predicted

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.

2.2 Financial Reports

Table 3: Summary - Sheep Genetics costs 2010-2011

Sheep Genetics P & L YTD		LAMBPLAN	MERINOSELECT	TOTAL
Costs				
TOTAL SALARIES		468,261	168,603	636,863
AGBU Routine Evaluation	B.SGN.0128	26,200	26,200	52,400
AGBU R&D	B.SGN.0127	164,032	164,032	328,065
New Tools	B.SGA.0153	7,509	7,509	15,019
Committees Total	B.SGA.0137	7,255	7,255	14,510
Sheep CRC Costs	B.SGA.0146	7,088	7,088	14,177
Management Agreement	B.SGA.0149	-	13,670	13,670
Breech Validation Project	B.SGA.0150	-	2,352	2,352
AMSEA Administration	B.SGA.0153	-	1,104	1,104
Website	B.SGA.0154	4,778	4,778	9,555
TOTAL CONTRACTS		216,863	233,989	441,297
B.ZSA.2010.0010	Local Travel	28,523.94	32,140.49	60,664.43
B.ZSA.2010.0040	Staff Amenities	687.05	826.66	1,513.71
B.ZSA.2011.0050	meeting Room	2,196.68	2,196.68	4,393.36
B.ZSA.2010.0060	Conferences	1,542.28	2,508.82	4,051.10
B.ZSA.2010.0070	Memberships	969.80	997.07	1,966.87
B.ZSA.2010.0080	Phones	3,102.68	1,876.23	4,978.91
B.ZSA.2010.0090	Postage & Couriers	4,182.04	4,750.34	8,932.38
B.ZSA.2010.0100	Stationary	2,894.80	2,792.51	5,687.31
B.ZSA.2010.0110	Magazines & Info	175.18	631.19	806.37
B.ZSA.2010.0150	Staff Development	3,846.09	5,918.09	9,764.18
B.ZSA.2010.0160	Education	132.11	132.11	264.22
B.ZSA.2010.0180	Other Office costs	8,201.92	6,897.15	15,099.07
TOTAL SUPPORT COSTS		56,455	61,667	118,122
TOTAL COSTS		741,578	464,259	1,196,282

Table 4: Summary - Sheep Genetics income 2009-2010

Sheep Genetics P & L YTD				LAMBPLAN	MERINOSELECT	TOTAL
INCOME		No.	Unit			
	Full Rate	6	300.00	1,800		
	Full Rate	453	350.00	158,550		
	Additional Stud	1	90.00	90		
	Additional Stud	141	100.00	14,100		
	Small members	5	50.00	250		
	OS Flocks	2	360.00	720		
	OS Flocks	6	420.00	2,520		
	OS Flocks					
	Additional Stud	2	108	216		
	OS Flocks					
	Additional Stud	1	120	120		
	Add-on	33	25.00	825		
LAMBPLAN membership		617		179,191	-	179,191
	Full Rate	3	300.00		900	
	Full Rate	101	350.00		35,350	
	Additional Stud	2	90.00		180	
	Additional Stud	28	100.00		2,800	
	OS Flocks	5	360.00		1,800	
	Small members	1	50.00		50	
	Add-on	8	25.00		190	
MERINOSELECT membership		140		-	41,270	41,270
	Full Rate	116,607	1.50	174,911		
	Small members	480	7.50	3,600		
	International	1,389	2.00	2,778		
		30	9.00	270		
LAMBPLAN Per Animal Charges				181,559	-	181,559
	Full Rate	48,728	1.50		73,092	
	OS Flocks	3,405	2.00		6,810	79,902
MERINOSELECT Animal Charges				-	79,902	79,902
	Workshops			1,000		1,000
	Other Income			162	30	191
Total Other Income				1,162	30	1,191
NSIP Revenue		7,347		15,315		
TOTAL INDUSTRY INCOME				361,911	121,202	483,113
NET POSTION SO FAR				- 379,667	- 343,058	- 713,170
AWI Contribution				0	246,814	246,814
MLA Contribution				379,667	96,244	475,911
NET POSITION				0	0	0

2.2.1 MERINOSELECT Support Costs + Income

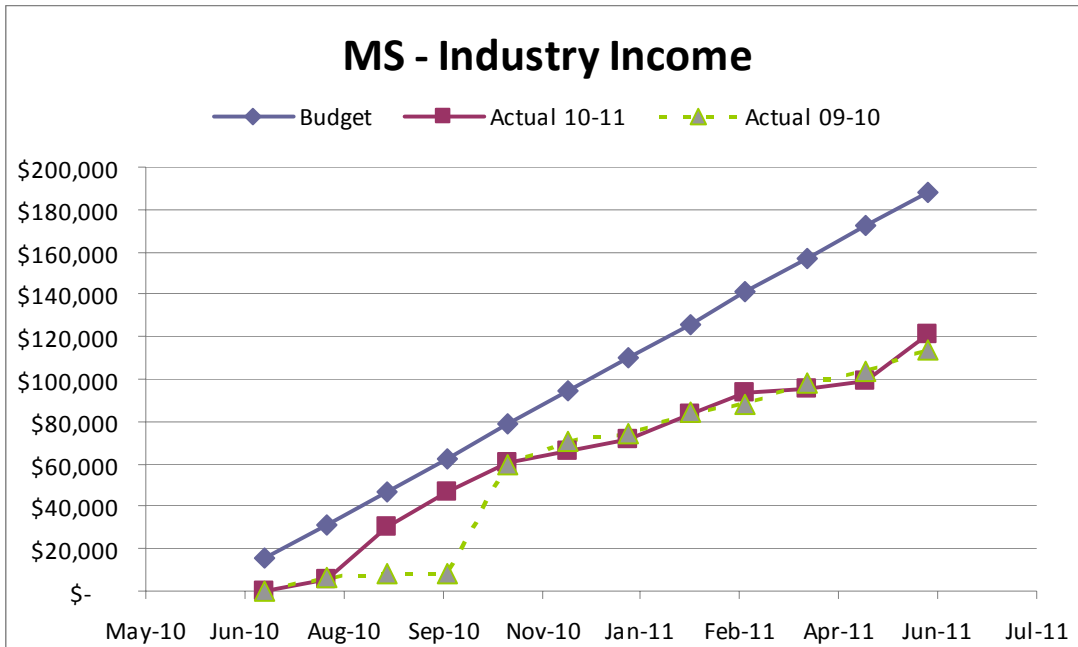


Figure 1: Tracking MERINOSELECT income against budget

MERINOSELECT income for the 2010-2011 financial year fell short of the re-forecasted budgeted amount by \$3998, and exceed last financial year by \$7472.53. The actual income was \$67,246 short of the original budget mostly because the Dohne breeders were not able to join MERINOSELECT in this financial year as planned. The original budget also budgeted for ~ 160 subscribers, when there are ~ 20 of these that are small stud, legacy or research flocks that do not pay any annual subscription fee. A paper that is included in the appendices was put to the Sheep Genetics Executive Committee in April and May was approved by the committee explains the differences in the budgeted income.

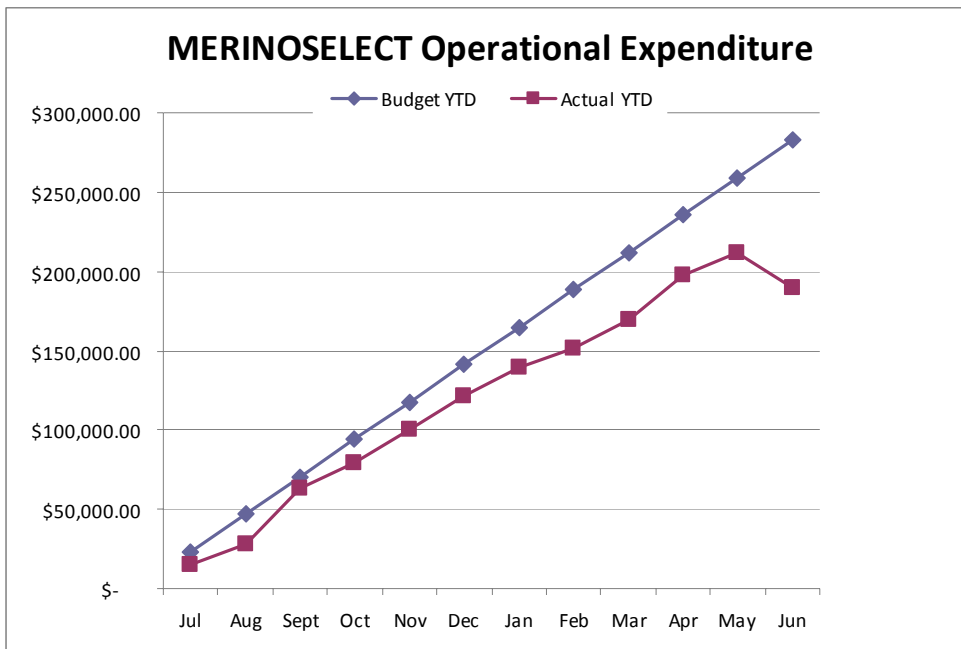


Figure 2: Tracking MERINOSELECT operational expenditure against budget

Operational costs for MERINOSELECT were well below budget and below those of the previous year. Operations were kept to a minimum while there was not a current management agreement in place for most of the financial year. The reduction at the end of the financial year was due to a correction of the distribution of salary between projects. The graph above includes salaries and on costs as well as the support costs. It does not include expenditure from specific contracts.

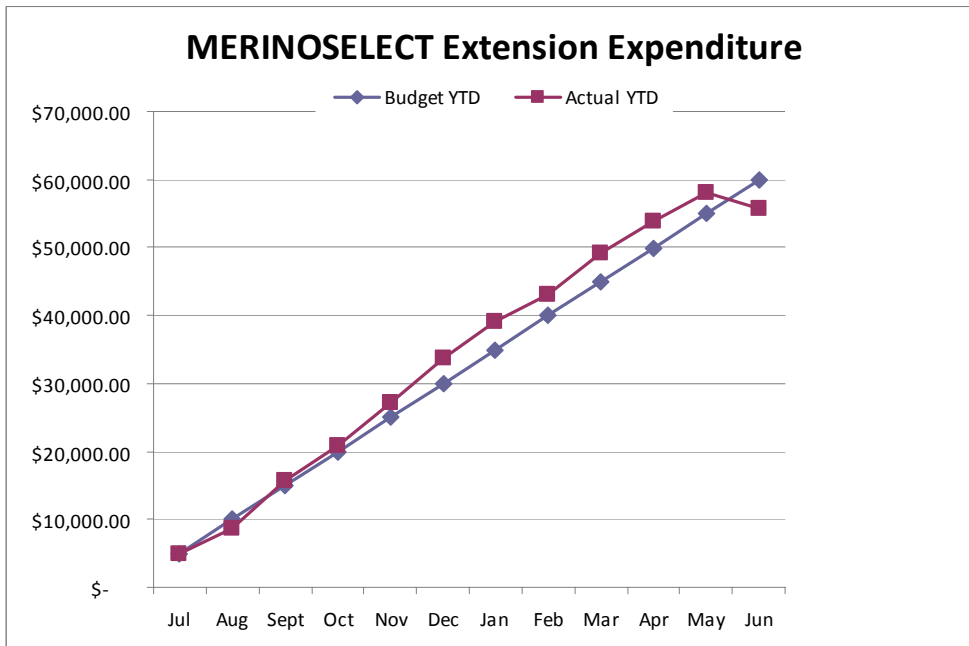


Figure 3: Tracking MERINOSELECT Extension expenditure against budget

Extension costs for MERINOSELECT on budget. The reduction at the end of the financial year was due to a correction of the distribution of salary between projects.

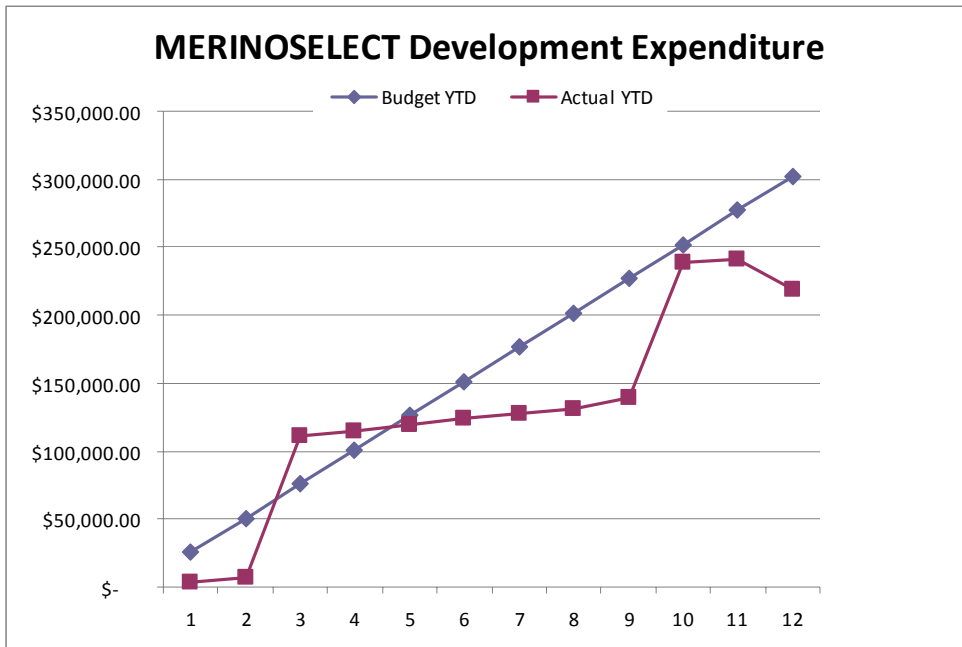


Figure 4: Tracking MERINOSELECT Development expenditure against budget

MERINOSELECT development expenditure fell below budget as the product could not be developed while there was not agreement in place. In June there was money returned from the previous AGBU contract to cause a drop in development expenditure as well as the re-distribution of salaries between LAMBPLAN and MERINOSELECT.

2.2.2 LAMBPLAN Support Costs + Income

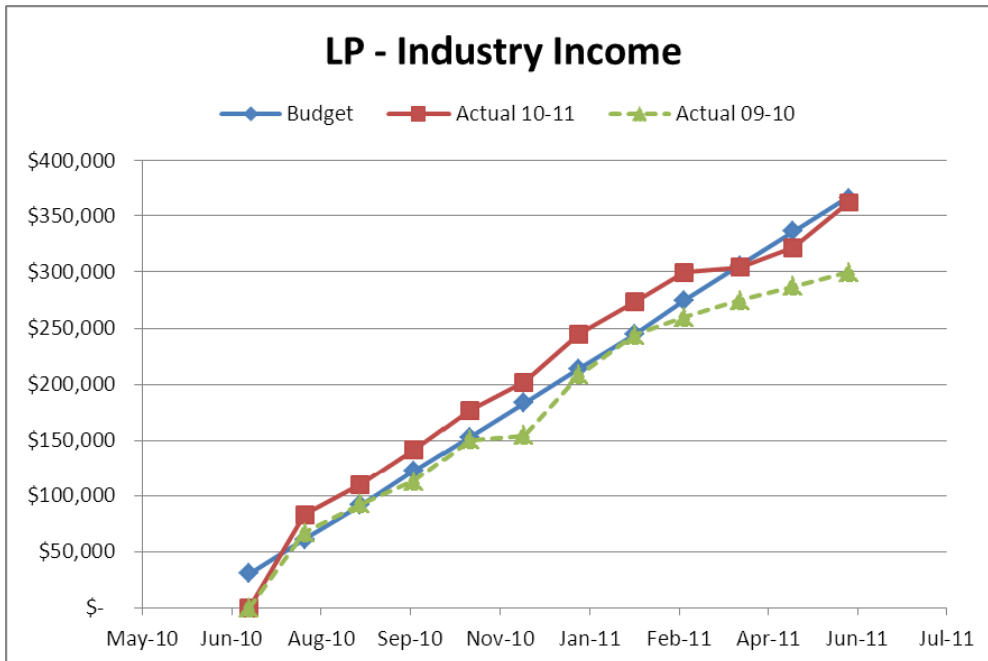


Figure 5: Tracking LAMBPLAN income against budget

LAMBPLAN income was close to the budgeted income for the year and well above that of the previous financial year.

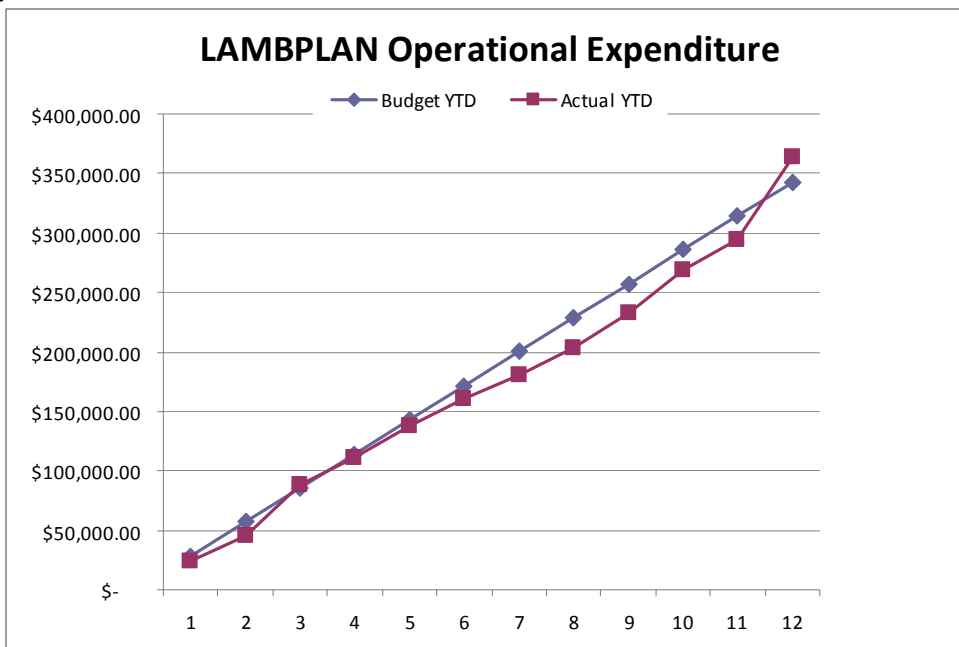


Figure 6: Tracking LAMBPLAN operational expenditure against budget

LAMBPLAN support costs were above budget and rose sharply in the last month when the distribution of salaries between projects was corrected.

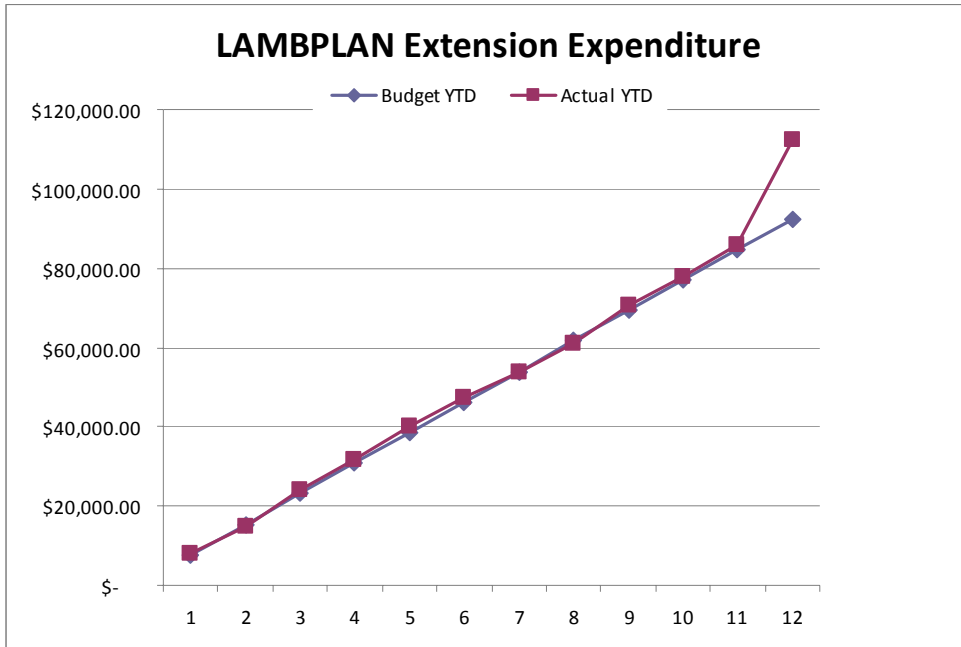


Figure 7: Tracking LAMBPLAN Extension expenditure against budget

LAMBPLAN extension costs were above budget and rose sharply in the last month when the distribution of salaries between projects was corrected.

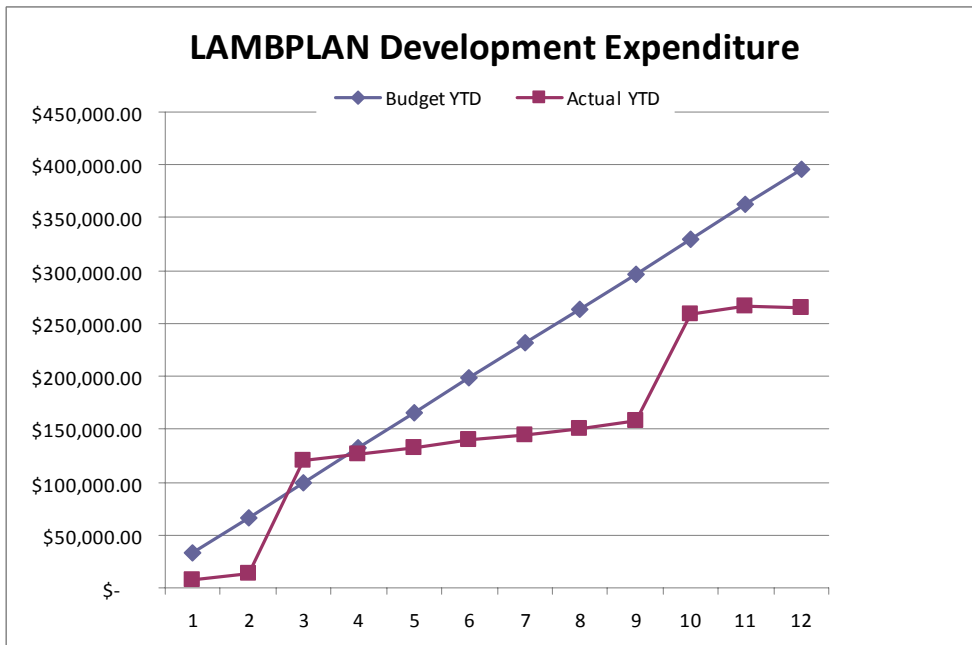


Figure 8: Tracking LAMBPLAN Development expenditure against budget

LAMBPLAN development expenditure was below budget due in part to the transfer of returned funds from the previous AGBU contract.

2.3 Key Activities

2.3.1 Staff Changes

- **Sheep Genetics**
 - Nicole Williams on maternity leave from 16th May, 2011, replaced by Jaime Carey.
- **Executive Committee**
 - MLA - Ian Johnsson replaced by Rob Banks in May, 2011
- **Technical Committee**
 - Dr Dave Notter joined in February, 2011

2.3.2 TBYP

MERINOSELECT

- **July**
 - Pastora Poll *Not subscribed, will be aiming at trying again in 2012*
 - Kerin Poll *Subscribed*
- **August**
 - Hill Padua: *Subscribed*
- **September**
 - Challara: *Subscribe next year, submitted performance data for 2011, subscribed*
 - Derella Downs: *Subscribed*
 - Gracemere: *Subscribe next year, submitted performance data for 2011, subscribing*
- **January**
 - Norwood *Subscribe in 2011*
- **May**
 - Kiandra Poll *Subscribe in 2011*
- **June**
 - Ridgway Poll *Subscribed*

LAMBPLAN

- **March**
 - Wetfish Dorpers *Subscribe next year*
- **May**
 - Tipple Dorpers *Subscribe next year*
 - Macabee Dorpers *Subscribed August 2011*

2.3.3 International Business

MERINOSELECT

- **August**
 - New NZ MERINOSELECT member

LAMBPLAN

- **July**
 - Targhee; Suffolk and Polypay reports and Pedigree Wizards uploaded to NSIP
- **August**
 - Various teething issues with indexes; reported traits and invoicing thresholds sorted out
- **September**
 - First quarterly invoice to NSIP
- **October**
 - Hampshire data imported for testing
 - Katahdin data imported for testing
 - Katahdins reports and Pedigree Wizards uploaded to NSIP
 -
- **November**

- NSIP maternal data imported for testing
- New code developed for OVIS to calculate linkage within analysis and within breed
- US LAMBPLAN breeders included in NSIP data
- NSIP maternal analysis test run. All breeds included but reported within breed only
-
- **December**
 - Email to all US LAMBPLAN clients discussing upcoming price changes and NSIP alternative – all clients stayed with LAMBPLAN
 - Second quarterly invoice to NSIP
- **January**
 - Linkage analysis matrix developed
 - US LAMBPLAN breeder data included in NSIP Terminal analysis
- **February**
 - NSIP technical development meeting with Dr Dave Notter
 - Accelerated lambing
 - Short interval lambing
- **March**
 - Clun Forest breed now subscribing through NSIP (4 breeders)
 - Third quarterly invoice to NSIP
- **April**
 - Columbia data included in NSIP rangeland analysis
- **June**
 - Fourth quarterly invoice to NSIP

2.3.4 Promotional activity

Advertisements run in

- WA Stud Merino Breeders Annual.
- The Muster: magazine for smaller breeds
- Wagin Woolerama, editorial feature as well
- Adelaide Show: inkind for sponsorship
- Merino Superior Sires

2.3.5 Sheep CRC, Genomics

- **July**
 - Genomics presentation at Narrogin, WA
- **August**
 - Genomics tool development and planning meeting @ Armidale
- **September**
 - Genomics tool development and planning meeting @ Armidale
- **October**
 - Sheep CRC conference at Adelaide
 - Lamb Supply Chain Group meeting in Adelaide
- **November**
 - Breech traits launch webinar – Breech cover, dag now routine ASBVs; colour, wool character
 - CRC information management group meeting - final review of publications and RBVs before distribution
 - Technical update to Pilot Project participants was mailed out
 - First RBVs combining measurement and genotype information
- **December**
 - CRC information management group meeting - final review of publications and RBVs before distribution
 - Sires selected for Information Nucleus Flock joining, semen organized to be transferred to Genstock NSW.
 - Planning and development of genomics benefit cost analysis project with Sonja Dominik

- Pilot Project I results webinar held 15 Dec. Invitation distributed to all participants + CRC staff. Attendance low - 15 registrations, and 12 producers attending.
- Sheep genomics commercialisation meeting
- **January**
 - CRC program 1.1 review – Armidale (24/1)
 - CRC Economic Value workshop – Armidale (25/1)
- **February**
 - Pilot Project/Eating Quality update at White Suffolk conference; Cleanskin
 - CRC information management group meeting (9/2) – resolve to report EQ RBVs in March; updated RBVs in May
- **March**
 - Eating Quality RBVs reported to all Pilot Project participants
 - IN research team update on Sheep Genetics /Pilot Project activity – Drummond College Armidale
 - CRC Planning Conference- Coffs Harbour
- **April**
 - Pilot Project II planning meeting – Armidale (21/4)
 - Genomics benefit cost workshop – CSIRO Chiswick (27-28/4)
- **May**
 - International Genomics Conference – Melbourne (2-5/5)
 - Lamb Supply Chain Group – Sydney (10-11/5)
 - Pilot Project II planning meeting – Armidale (13/5)
 - Z-Plan workshop (18-19/5)
- **June**
 - IN 2 planning meeting – Sydney (1/6)
 - Pilot Project 2 meeting Armidale (3/6)
 - Genetic Training Initiative workshop (16-17/6)

Table 5: 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
Grand Total	4,590	6,948	8,076	7,490	27,104

Table 6: Total hours spent by sheep Genetics staff on Sheep CRC activities

Program	Staff	Q1	Q2	Q3	Q4	Total
1.1	SG	32	5	52	28	117
1.1	Total	32	5	52	28	117
3.3	SG	9	10	37	30	86
3.3	Total	9	10	37	30	86
4.1	SG	46	28	51	84	209
4.1	FM	57	84	15	9	164
4.1	Total	102.5	111.5	66	93	373
4.2	SG	21	67	26		114
4.2	HC		2	40	44	86
4.2	LS	18	46	36	50	150
4.2	DR			16		16
4.2	SF	12	12	12		36
4.2	FM			16	9	25
4.2	NW		35	16		51
4.2	Total	51	162	162	103	478
4.3	SG		7	50	28	85
4.3	HC	16	17		10	43
4.3	LS	3	0		10	13
4.3	DR	11	10	10	12	43
4.3	SF	9	9	9	12	39
4.3	NW				4	4
4.3	Total	39	43	69	76	227
CRC	Grand Total	233.5	331.5	386	330	1281

The Sheep Genetics team spent over 1200 hours working on Sheep CRC projects. Broken down this was 86 hours working on Lean Meat Yield and Supply Chains, 266 hours on the Information Nucleus design and analysis, 478 hours on Information Nucleus operations, 391 hours on the Information Nucleus management, and 117 hours on easy care sheep.

2.3.6 Rampower indexes

- **September**
 - Final stages of analysis set up with AGBU. Website in final stages of design
- **October**
 - RAMPOWER website set up, test data used from Luke and Sam's Commercial operation.
 - Also first commercial run using data sent from Richard Gardiner, Tasmania.
 - Output file was altered to show the name of the index being created.
- **November**
 - How to use RAMPOWER document created by Dave Rubie, RAMPOWER tested with Michelle Cousins, Cousins Merino Services. Modifications made to results file to show rank at suggestion of Michelle
- **December**
 - RAMPOWER tested with Greg Johnsson with feedback provided, Michelle Cousins provided feedback after testing with her commercial clients. Output file changed to show submission details added at suggestion of Greg.
- **February**
 - RAMPOWER tested with Classing lab Murray Bridge
- **April**
 - Data run for Warrane
 - Data run for The Ridge
 - Goddards wool trading set up as username

2.3.7 Other

- **July**
 - Presence at Bendigo National Sheep Show
- **August**
 - Presence at Sheepvention and LAMBEX
 - Presentation at Making More from Sheep forum at Clare
 - 'Why Merino' conference at Dubbo
 - First test analysis of Dohne database
 - Update with Sapien software
 - Final updates to SG search engine and website
- **September**
 - Market update to Council of Wool Exporters
- **October**
 - Presentation at Dohne AGM, Victoria
 - Joint AWI/MLA sheep genetics extension planning workshop held at MLA, with attendance by MLA/AWI on-farm teams and SG staff
- **November**
 - Ultrasound scanning accreditation workshop held at UNE. Fine wool merinos measured twice by scanners, with results compared against CT scans of same site
 - Second test run of Dohne database
- **December**
 - Update with Practical Systems software
 - Face to face update with NSW SMBA – update on pilot project; genomic research; SG business plan; CRC information nucleus flock;
 - Trial of Bred Well Fed Well workshop at Karbullah Merinos, Goondiwindi QLD
- **March**
 - Technical update (phone) on Sheep Genetics to Matthew Coddington (NSWSMBA); Warren Russell (Vic SMBA)

2.4 Committees

2.4.1 Technical Committee

Operational meetings were held most months. Key issues have been:

- Benefit-Cost Analysis of Breeding for Breech Traits
- Weaning Scans
- Terminal Update
- Breed Composition
- Adult Ewe Weight
- Dag ASBV
- Validation Routines
- NSIP & Dohne
- Maternal
- Other Issues

August

- Operational meeting:
 - A brief update was given about all the items discussed in the previous meeting. An issue with the Merino run was raised which led to a new resolution – *Do not include syndicates with more than 10 sires.*

September

- *Technical Committee (8th of September, 2010)*
 - Heterosis in maternal breeds
 - Visual Traits – Resolution: All agreed that the trend will only include animals that have been measured for these traits.
 - Genomic breeding values
 - Potential work areas
 - AGBU work priorities.
- *Operational meeting (22nd of September, 2010):*
 - Maternal breed composition
 - Genomic breeding values
 - Visual traits
 - Carcase traits
 - Pilot Project
 - Birth weight/Maternal birth weight

February

- *Technical Committee (9th of February, 2011):*
 - Across-breed Maternal work
 - Bloodline analysis
 - Association analysis
 - GEBVs
 - Research Bvs for eating quality traits
 - AGBU work plan

Project Status Report

Work Plan for 2011

				work required (till July 2011)						2011												
Task	Breed Group	Priority (1-5)	Expected Comp Date	Time Req (m)	DB	AS	KB	AP	Work / Outcomes	Associated Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SheepObject (Test Index)	All	1.00	June TC	3.0		3.0			Terminals Completed. Continue to compare SheepObject Indexes for Materials and Merinos. Progress report to June TC	Breeding Objectives workshops												
Molecular-informed EBVs	All	1.00	Ongoing	4.0		4.0			Estimation and routine evaluation continuing working with CRC and best group to investigate blending and utilizing the GNRM	Association analysis by CRC, more genotypes from CRC, 2nd Pilot Project												
Combined Maternal Analysis	Mat	2.00	Update at June TC	6.0			2.4		Test applying HerdG model to within breed runs. Lower genetic correlation between weight and mbw. Understand impacts of rg and heterosis on genetic group variance for mb. Investigate low regressions for mb/mbw. Add IMF, SF and LMY into CWS	SG to identify flocks for site coding. Target a group of breeders to collect additional information. SG to develop mating module to collect adequate mating and lambing records. Discussion papers from CRC required for genetic parameters, inc correlations with other traits												
New traits into CWS from CRC	All	2.07	Update at June TC	2.0	2.0																	
Diagnostic software development	All	2.27	Aug-11	3.0	1.0	0.5		2.0	Development of tools for SG staff to conduct diagnostics	Required prior to implementation of combined maternal run												
Weaning weight scan traits (Estimation)	All	2.07	Mar-11	1.0	1.0				Data available, analysis to be completed and report to TC TC. Include WCF and WEMD in CWS.													
New traits from CRC into breeding objectives	All	2.50	Update at Dec TC	2.0		2.0			Include IMF, SF and LMY into SheepObject	Discussion papers from CRC required for genetic parameters, inc correlations with other traits and value propositions.												
Dee Lambs	All	2.50	Update at June TC	2.0	2.0				effect on production traits: effect of lambing at 12 months of age on weight etc and later reproduction. Included in the repro work													
Using Preg Scan data in reproduction analyses	All	2.00	Update at Dec TC	2.0	2.0					Requires on-farm software and database changes to capture data in an appropriate format												
Repro Traits: Enhance model	All	2.73	Update at Dec TC	3.0			2.4		Ewe lamb traits, component traits, other traits such as weight of lamb weaned, age at lambing, days to lambing, inter lambing interval and survival	Requires on-farm software and database changes to capture data in an appropriate format or a good research data set which reflects industry												
NSIP	Other	NA		1.0	1.0																	
Routine GE	All	NA		5.0	1.0	0.5		3.5														
CRC	All	NA		2.0	1.0	1.0																
Other	All	NA		2.5	1.0	1.0		0.5														
Total				38.5	12.0	12.0	4.8	6.0														

Figure 9: AGBU Workplan 2011

2.4.2 Advisory Committee

Meeting held after the management agreement was signed at the Mantra Tullamarine on Friday the 6th of May, 2011.

Items discussed were:

- AWI/MLA management agreement
- Current AGBU Priorities
- Overview of planned combined AC/TC meeting
- Sheep Genetics strategic extension (including RamBoss)
- Sheep Genetics 2010 survey
- AMSEA integration
- Sheep Genetics response

2.4.3 Executive Committee

July - 26.07.10

- Discussion of next management agreement
- Key Objectives for the next 3 year project, MLA and AWI perspective
 - **AWI objectives**
 - AWI has three key objectives in new management agreement

1. Get a benchmark on previous project
 2. Demonstrate successful management on current project through consistent reports
 3. Clear mechanism for AWI staff to respond to industry feedback
- **AWI board has to now approve management agreement and business plan for Sheep Genetics.**
 - **MLA objectives**
 - SG business plan describes MLA objectives
 - For management agreement, MLA focus is on operational efficiency
 - MLA is managing agent of project
 - Improve efficiency of approval, with communications requiring multiple decisions before signoff
 - Less frequent Executive Committee meetings and budget reviews

August - 13.08.10

- Review of business plan. Summary of resolutions arising from this meeting are listed below.

Management Agreement	July 10	<ul style="list-style-type: none"> ▪ New agreement to reflect that it operates under a joint SG brand; AWI is observer for LP executive components; AWI and MLA joint operate MS components. Items impacting on SG brand are discussed in MS meetings ▪ SG EC to annually review KPIs for business plan ▪ Industry concerns to go through executive to either TC or AC ▪ Standard agreement option to occur at the cost of the RDC requesting the audit ▪ Stalemate at EC level escalates to CEO / MD level ▪ Annual domestic and international price review for MS by advisory committee based on recommendations from executive in second quarter ▪ Any information required from SG that is additional to the current management agreement to be funded at AWI's cost
Annual report (Management Agreement item 2.3.2)	August 10	Annual report on SG performance measured against KPIs is now due by 30 th August 2010
EC Meetings	August 10	There will be at least 2 EC meetings per Qtr, which include an operational report.
Logos for publications	August 10	Agree to the use of the LP and MS ASBV logos on marketing material, Sheep Genetics logo optional

September – 21.09.2010

- Management agreement
- AMSEA Future Directions.

November – 9.11.2010

- Management agreement
- Review of business plan
- AMSEA position paper

December – 14.12.2010

- AMSEA Integration
- MERINOSELECT Communication Protocol
- Roll over of Advisory Committee members.

January – 18.01.2011

- AMSEA Integration
- MERINOSELECT Communication Protocol
- AWI Sensitive word list
- Dohne Agreement
- Business Plan
- Advisory Committee meeting

February – 16.02.2011

- Sheep Genetics Business Plan
- Management Agreement Update
- IP split in amended AGBU deeds
- Nominated matters in MLA/AWI SG Agreement Clarification
- ADBA contract
- Advertising process for Sheep Genetics

SG Communications Nominated Matters	February 11	SG staff to have slide in every presentation to highlight words that cannot be discussed
Value Adding	February 11	annual reminder in breeders bulletin to remind subscribers to value add by using MS/LP logos in advertising

March – 29.03.2011

- ADBA Short Term Contract
- MLA/AWI response to CRC genetic training needs analysis and RamBoss project
- Approval of technical Committee Priorities
- AMSEA Executive Chair
- SG Reporting Process
- Advisory Committee meeting agenda
- Sheep Connect day – Trangie
- Methane emissions as a sensitive topic

April – 12.04.2011

- Technical Committee Milestone Approval
- Revised Budget
- Operating Plan 2011
- AMSEA Costs
- Advisory Committee meeting
- Breech validation process
- I&I Dohne Issues
- 15th April LAMBPLAN changes

TC Work Plan	April 11 (out of session)	Members of the SG Executive understand and endorse the following process: “The final workplan prioritization from each of the 4 monthly SG Technical Committee meetings will not be implemented without the SG Executive prior written approval. The voting rights will then apply within the SG EC and if no agreement can be reached, the matter will be referred to the CEOs of MLA and AWI.”
---------------------	---------------------------	---

May – 17.05.2011

- Sheep Genetics Website Update (Part 1)
- Updated Budget
- AMSEA Funding
- Dohne Agreement
- Bloodline work
- Advertising

Sheep Genetics Website Upgrade	May 2011	Proceed this to contract on Monday if there have not been any objections from EC members this week.
Updated Budget	May 2011	Wait for decision on EC for AMSEA. Keep \$20k in as core component. Business model review to be funded 75% MLA, 25% AWI. AOP agreed by the EC and will be reviewed each year. This is now the three year budget (pending the decision on AMSEA funding) but will be reviewed annually.

June – 14.06.2011

- AMSEA Contract
- AMSEA Data Management
- Updated Dohne Agreement
- Quarterly report
- RamBoss

2.5 Subscriber Report

Table 7: Total number of active flocks in MERINOSELECT and LAMBPLAN

Type	July '10	New	Left	June '11	Compared to June '09
LAMBPLAN	591	42	46	587	585
MERINOSELECT	169	9	16	162	172
Total	760	51	62	749	757

Table 8: 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	1	1	0	0	0	0	0	0	2
LP	77	409	72	24	2	1	0	0	587
MS	18	119	20	2	2	1	0	0	162
Grand Total	96	529	92	26	4	2	0	0	749

2.5.1 MERINOSELECT subscriber resignations

2	animals now recorded under a different flock	12.5%
1	dispersals	6.2%
8	never submitted / haven't submitted data for several years	50%
4	unknown	25%
1	would expect to re-join as has submitted current lambs	6.3%

2.5.2 LAMBPLAN subscriber resignations

1	animals now recorded under a different flock	2.1%
4	dispersals	8.7%
23	never submitted / haven't submitted data for several years	50%
3	flock too small to get effective results	6.5%
7	unknown	15.2%
8	would expect to re-join as has submitted current lambs	17.4%

2.6 Extension and development

2.6.1 Activities List – Summary

Tracking of activities improved during 2010-11 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	2009-10		2010-11		Total Events	Total Audience
		Events	Audience	Events	Audience		
Attended	Conference	1	35	5	770	6	805
	Field Day	6	380	7	838	13	1,218
	Forum	3	120	1	150	4	270
	Meeting	3	55	4	153	7	208
	Show	1	60	3	295	4	55
	Show / Field Day	2	1,080	5	2,800	7	3,880
	Workshop			2	85	2	85
Attended Total		16	1,730	27	5,091	43	6,821
Presentation	Conference	4	450	8	785	12	1,235
	Field Day	4	195	12	1,120	16	1,315
	Forum	2	45	3	260	5	305
	Meeting	1	25	4	80	5	105
	Show			1	200	1	200
	Webinar	2	70	5	99	7	169
	Workshop	6	111	10	230	16	341
Presentation Total		19	896	43	2,774	62	3,670
Grand Total		35	2,626	70	7,865	105	10,491

2.6.2 Publications – development and distribution

Material Type	Number Sent
Introduction to LAMBPLAN	1,424
Understanding LP ASBVs	1,131
Understanding LP Maternal ASBVs	644
Introduction to MERINOSELECT	413
Understanding MERINOSELECT ASBVs	291
Pocket Guide	3,073
Webinar Recording	3
Visual Score Guide	30
Field Day Pack	35
LAMBPLAN Information Pack	45
MERINOSELECT Information Pack	10

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

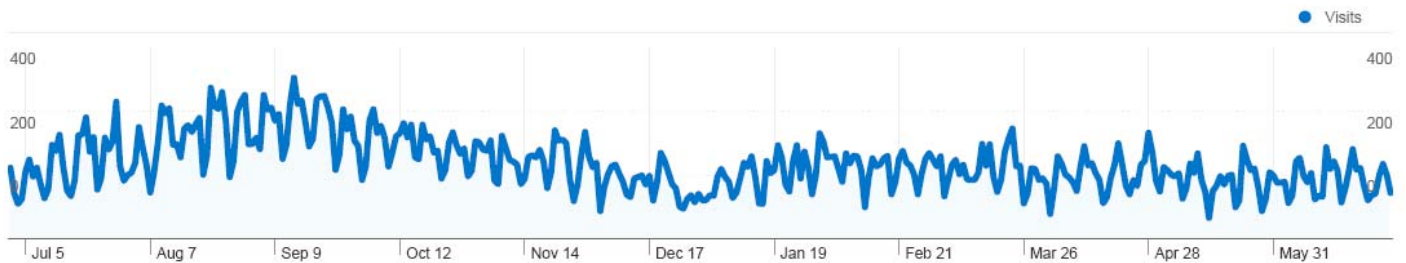
2.6.3 Website Analytics

www.sheepgenetics.org.au

Dashboard

Jul 1, 2010 - Jul 1, 2011

Comparing to: Site



Site Usage

58,187 Visits

23.19% Bounce Rate

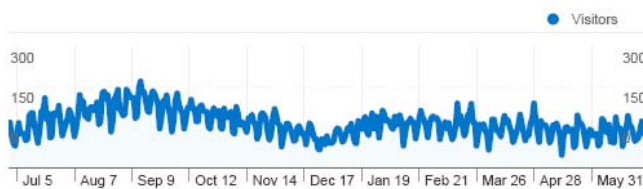
697,147 Pageviews

00:07:20 Avg. Time on Site

11.98 Pages/Visit

25.42% % New Visits

Visitors Overview



Visitors
15,871

Map Overlay



Traffic Sources Overview



■ **Direct Traffic**
20,163.00 (34.65%)
■ **Search Engines**
20,086.00 (34.52%)
■ **Referring Sites**
17,938.00 (30.83%)

Content Overview

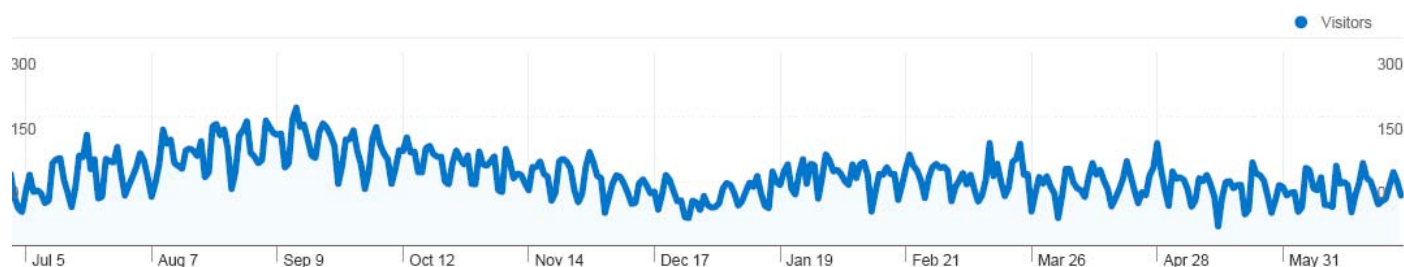

Pages	Pageviews	% Pageviews
/sgsearch/Search/Default.aspx	36,706	5.27%
/sgsearch/Default.aspx?DATAS	27,008	3.87%
/lambplan/	23,926	3.43%
/	20,262	2.91%
/InformationItem.aspx?ITEM=1	15,389	2.21%

www.sheepgenetics.org.au

Visitors Overview

Jul 1, 2010 - Jul 1, 2011

Comparing to: Site

**15,871 people visited this site** **58,187** Visits **15,871** Absolute Unique Visitors **697,147** Pageviews **11.98** Average Pageviews **00:07:20** Time on Site **23.19%** Bounce Rate **25.42%** New Visits

Technical Profile

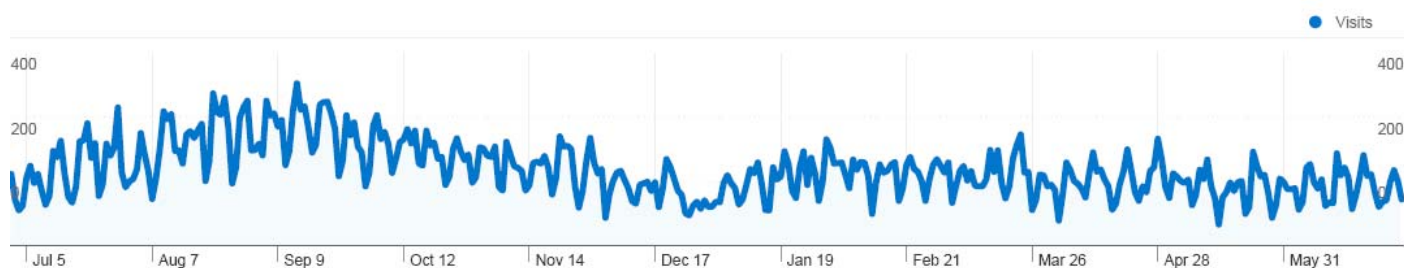
Browser	Visits	% visits	Connection Speed	Visits	% visits
Internet Explorer	43,879	75.41%	Unknown	34,538	59.36%
Firefox	9,417	16.18%	Cable	13,872	23.84%
Safari	2,475	4.25%	DSL	6,211	10.67%
Chrome	1,975	3.39%	T1	3,019	5.19%
BlackBerry9700	201	0.35%	Dialup	494	0.85%

www.sheepgenetics.org.au

Traffic Sources Overview

Jul 1, 2010 - Jul 1, 2011

Comparing to: Site



All traffic sources sent a total of 58,187 visits

 34.65% Direct Traffic

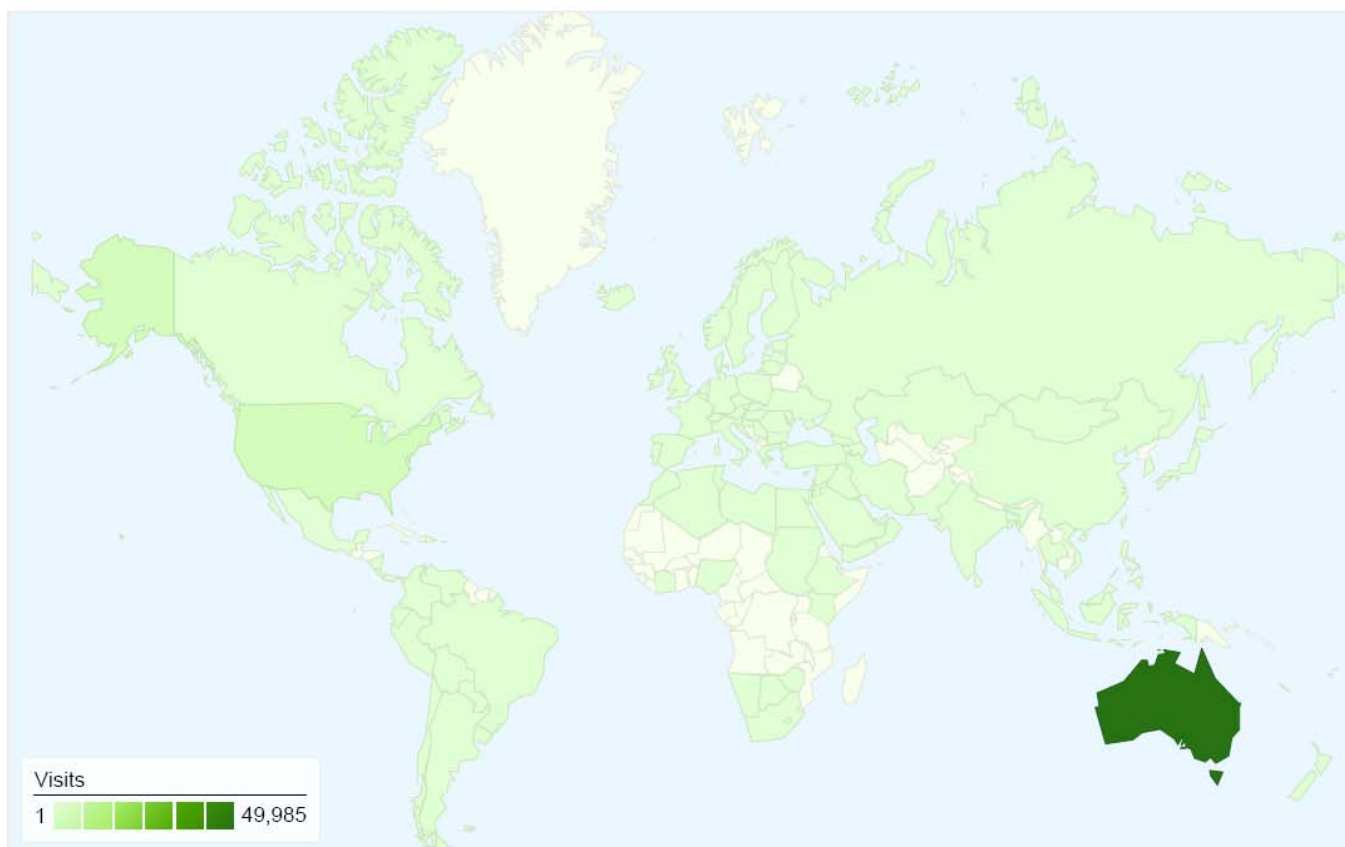
 30.83% Referring Sites

 34.52% Search Engines


■ **Direct Traffic**
 20,163.00 (34.65%)
■ **Search Engines**
 20,086.00 (34.52%)
■ **Referring Sites**
 17,938.00 (30.83%)

Top Traffic Sources

Sources	Visits	% visits	Keywords	Visits	% visits
(direct) ((none))	20,163	34.65%	lambplan	5,729	28.52%
google (organic)	17,759	30.52%	sheep genetics	2,254	11.22%
bing (organic)	1,449	2.49%	merino select	1,107	5.51%
pendarra.com (referral)	900	1.55%	lambplan.com.au	973	4.84%
mla.com.au (referral)	808	1.39%	sheep genetics australia	761	3.79%



58,187 visits came from 115 countries/territories

Site Usage

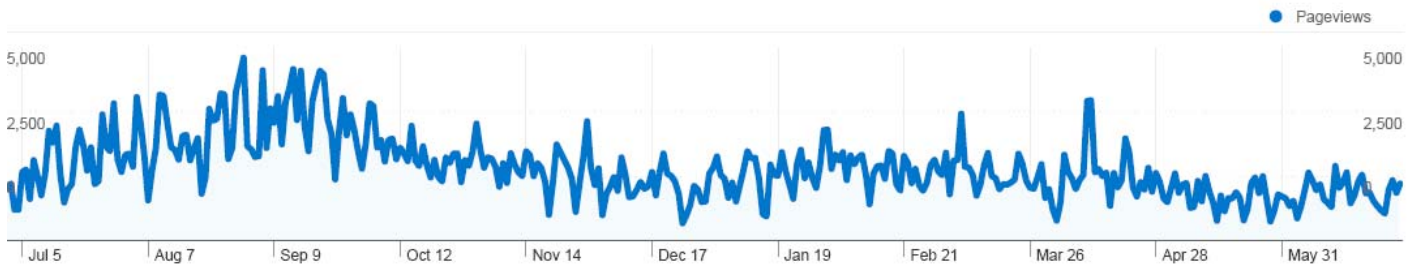
Visits 58,187 % of Site Total: 100.00%	Pages/Visit 11.98 Site Avg: 11.98 (0.00%)	Avg. Time on Site 00:07:20 Site Avg: 00:07:20 (0.00%)	% New Visits 25.45% Site Avg: 25.42% (0.14%)	Bounce Rate 23.19% Site Avg: 23.19% (0.00%)	
Country/Territory	Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
Australia	49,985	12.61	00:07:40	21.35%	21.40%
United States	3,634	7.10	00:04:27	45.68%	31.18%
New Zealand	546	10.72	00:07:24	40.66%	25.46%
Canada	394	4.29	00:02:47	54.82%	35.28%
Israel	369	15.86	00:07:13	10.57%	10.30%
Uruguay	341	13.88	00:09:32	37.83%	20.53%
Brazil	324	8.59	00:06:39	61.42%	37.35%
United Kingdom	317	5.10	00:03:52	61.83%	44.48%
Argentina	194	12.27	00:08:42	41.24%	30.41%

www.sheepgenetics.org.au


Content Overview

Jul 1, 2010 - Jul 1, 2011

Comparing to: Site



Pages on this site were viewed a total of 697,147 times

 **697,147** Pageviews **411,207** Unique Views **23.19%** Bounce Rate

Top Content

Pages	Pageviews	% Pageviews
/sgsearch/Search/Default.aspx?PageSize=300	36,706	5.27%
/sgsearch/Default.aspx?DATASET=2	27,008	3.87%
/lambplan/	23,926	3.43%
/	20,262	2.91%
/InformationItem.aspx?ITEM=100	15,389	2.21%

2.6.4 Web Re-design

Purpose: The Sheep Genetics website is currently designed developed and maintained in-house. This project will provide a professional redesign of the website architecture to make the website easier to use and find information.

Background: To improve the ease of use and functionality of the Sheep Genetics website, a three phase upgrade has been proposed over the three years of the sheep genetics Business Plan:

- Phase I is a review and redesign of the website layout and architecture, to provide a better fit with MLA website requirements, while making it easier for the user to find information
- Phase II funding will create new visual reporting tools for the reporting and public display of ASBVs and indexes
- Phase III funding will address the integration of mobile solutions for the SG website, including ram finder and flock finder smart phone applications

Details: The current Sheep Genetics database has been designed by the SG team, and is maintained by the SG team using freeware internet tools. Feedback from the CRC review has mentioned that the SG website is hard to navigate to find required information and Google Analytics show that most web visitors only access the web search engine. A web redesign would help visitors quickly find additional information they might be search for, while at the same time providing easier access to the most used web pages. Additionally, it would provide a content management system for SG staff to better maintain the website.

A web design company has provided an initial quote for the website based around feedback from the Sheep Genetics manager, and MERINOSELECT database manager. Requested features are listed below:

- Updated visual, navigation and information design
- Updated information architecture - a structural design of the information space to facilitate intuitive access to content
- A review and update of the content requirements for the site
- Updated design of the Sheep Genetics database front end to facilitate easier access to content
- Updated design to strengthen Sheep Genetics brand identity
- Update the database ontology to facilitate easier access to content
- Paper mock up of social networking / sharing facilities
- Selected Rambos tools and widgets to be included. Update visual design and navigation to align with new Sheep Genetics website
- Optimise site for mobile (A standalone mobile site design is not covered)
- Site design should be account for low bandwidth Internet connections
- Site must be designed according to Lambplan's technical requirements
- Presentation to be consistent with Lambplan brand and editorial guidelines
- User centred design, adhering to web best practice

The proposed cost is \$9,555, plus additional Sheep Genetics on-cost for development time. In light of previous quotes, this cost is much lower than previous redesign quotes.

2.6.5 Subscriber Survey

A survey was sent to all current subscribers to Sheep Genetics. A total of 627 surveys were distributed with 94 or 15% 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	
	47%	23%	29%	0%	1%	
What is the size of your flock?	0-50	50-100	100-300	300-600	600+	
LAMBPLAN	11%	18%	26%	32%	13%	
MERINOSELECT	0%	4%	15%	23%	58%	
How often do you visit the Sheep Genetics website?	Daily	Weekly	Monthly	Quarterly	Never	
LAMBPLAN	8%	37%	32%	12%	11%	
MERINOSELECT	4%	44%	36%	16%	0%	
Do you use the search section of the website?	Yes	No				
LAMBPLAN	84%	16%				
MERINOSELECT	96%	4%				
Do you use the web catalogue to advertise sale animals	Yes	Maybe	No			
LAMBPLAN	14%	50%	36%			
MERINOSELECT	4%	79%	17%			
Do you use the web catalogue to advertise semen sales?	Yes	Maybe	No			
LAMBPLAN	18%	36%	46%			
MERINOSELECT	16%	56%	28%			
Do you use the website as an information source?	Yes	No				
LAMBPLAN	89%	11%				
MERINOSELECT	92%	8%				
Would you like to receive training via online workshops?	Yes	Maybe	No			
LAMBPLAN	36%	42%	22%			
MERINOSELECT	36%	48%	16%			
Would you like to participate with other breeders in online forums/blogs?	Yes	Maybe	No			
LAMBPLAN	20%	44%	36%			
MERINOSELECT	16%	56%	28%			

Project Status Report

Products & Services					
	Agree		Neither Agree or Disagree		Disagree
Staff members can be contacted easily LAMBPLAN MERINOSELECT	22%	52%	24%	2%	0%
	24%	40%	32%	0%	4%
Requests are dealt with in a timely manner LAMBPLAN MERINOSELECT	18%	42%	25%	12%	3%
	12%	28%	24%	24%	12%
Sheep Genetics reports can be easily interpreted LAMBPLAN MERINOSELECT	23%	52%	14%	6%	5%
	36%	40%	20%	4%	0%
ASBVs assist achieving breeding objectives LAMBPLAN MERINOSELECT	40%	38%	14%	3%	5%
	48%	36%	12%	0%	4%
ASBVs are an effective marketing tool LAMBPLAN MERINOSELECT	31%	25%	36%	6%	2%
	36%	24%	28%	8%	4%
ASBVs are used to assist in making joining decisions LAMBPLAN MERINOSELECT	43%	28%	20%	6%	3%
	54%	25%	13%	4%	4%
ASBVs are used routinely by my clients to purchase rams or ewes LAMBPLAN MERINOSELECT	9%	33%	27%	16%	16%
	8%	25%	33%	21%	13%
Do you find the Elite animal listing useful? LAMBPLAN MERINOSELECT	Yes	Maybe	No		
	59%	29%	13%		
	44%	32%	24%		
Do you (or your clients) find accuracies confusing? LAMBPLAN (You) MERINOSELECT (You) LAMBPLAN (Clients) MERINOSELECT (Clients)	45%	15%	40%		
	30%	17%	52%		
	83%	17%			
	100%				
Have you had the opportunity to attend a workshop in the past year? LAMBPLAN MERINOSELECT	31%	6%	63%		
	46%	0%	54%		

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

26%	Other Breeders	18%	Only Sheep Genetics
10%	Web	08%	Sheep CRC
07%	MSS	05%	Consultants
05%	Catalogues		

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

Publications	Poor		Good		Excellent
Please rate the Sheep Genetics Breeder's Bulletin	0%	6%	42%	40%	11%
LAMBPLAN					
MERINOSELECT	4%	0%	48%	40%	8%
Please rate the Sheep Genetics Pen Cards	6%	11%	29%	49%	6%
LAMBPLAN					
MERINOSELECT	17%	25%	17%	33%	8%
Please rate the other publications and marketing material	0%	11%	39%	46%	4%
LAMBPLAN					
MERINOSELECT	5%	0%	55%	35%	5%

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

	LAMBPLAN	MERINOSELECT
Yes	84%	89%
No	16%	11%

2. Would you like more information on Genomics?

	LAMBPLAN	MERINOSELECT
Yes	80%	81%
No	20%	18%

3. At what price should the mate selection software be priced?

	LAMBPLAN	MERINOSELECT
\$100	39%	22%
\$250	39%	44%
\$500	23%	33%
\$1000	0%	0%

* Only 46% answered this as most seemed confused about the mate selection software.

3 REPORT APPROVALS

Prepared by _____
Project Manager

Approved by _____
MLA

AWI

4 APPENDICES

4.1 AGBU Report

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

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

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

4.2.1 Maternal breed trends

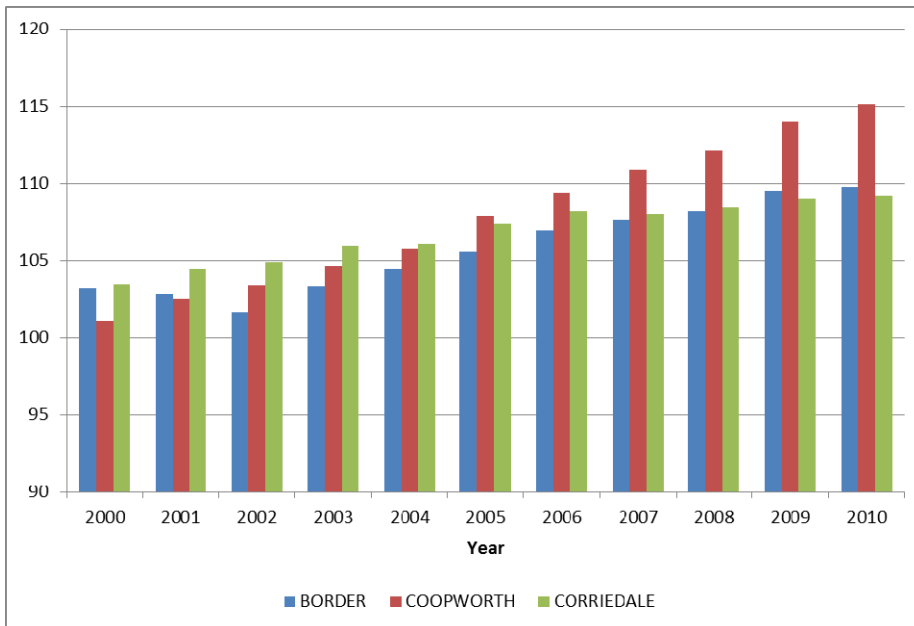


Figure 10: Border Leicester (02), Coopworth (15) and Corriedale (03) - Maternal \$ Index trend.

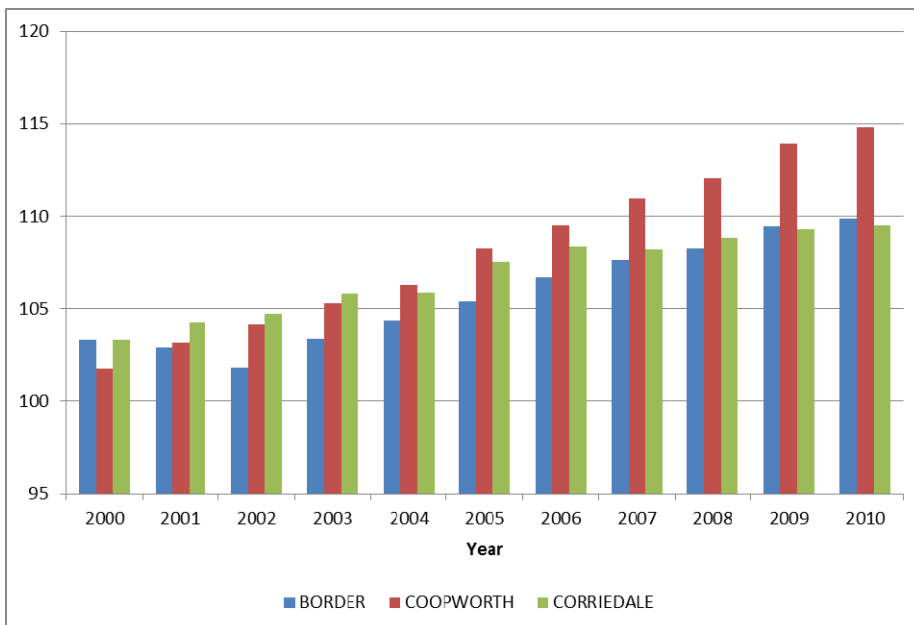


Figure 11: Border Leicester (02), Coopworth (15) and Corriedale (03) - Dual Purpose \$ Index trend.

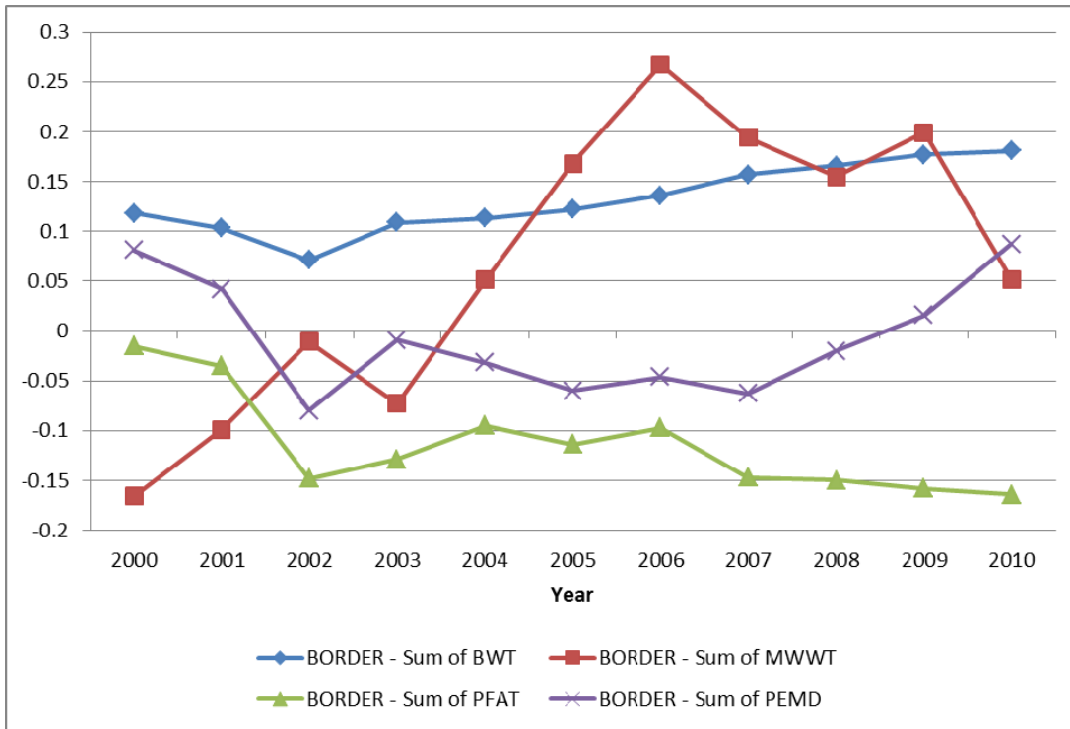


Figure 12: Border Leicester (02) genetic trends for BWT; MWWT; PFAT and PEMD.

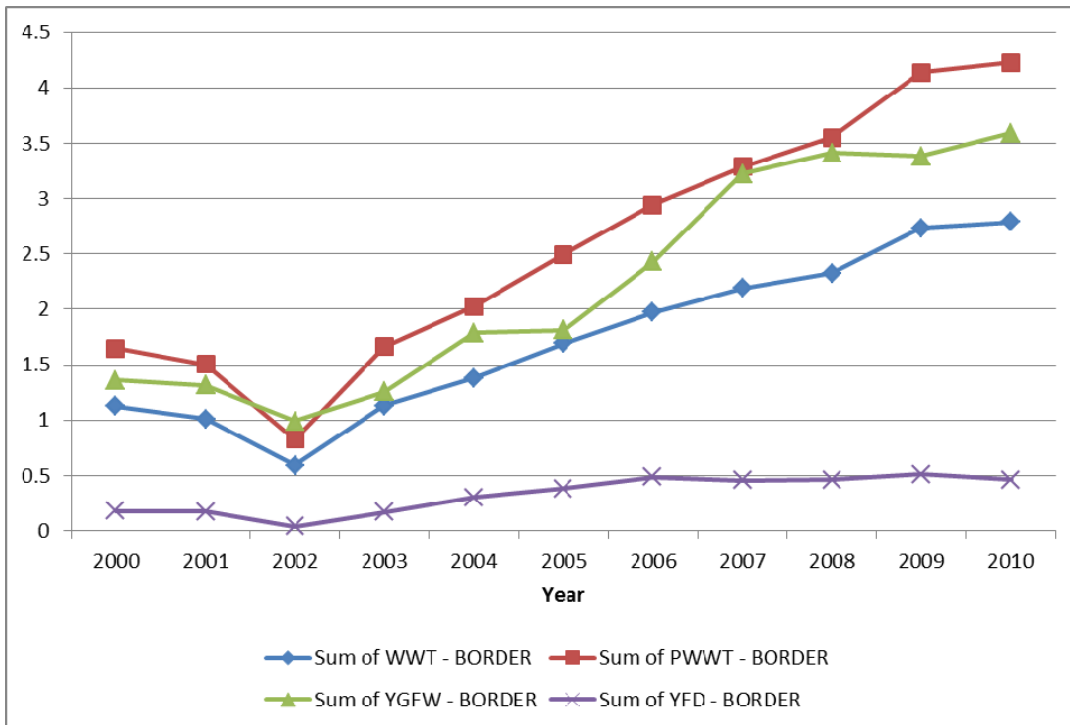


Figure 13: Border Leicester (02) genetic trends for WWT; PWWT; YGFW and YFD.

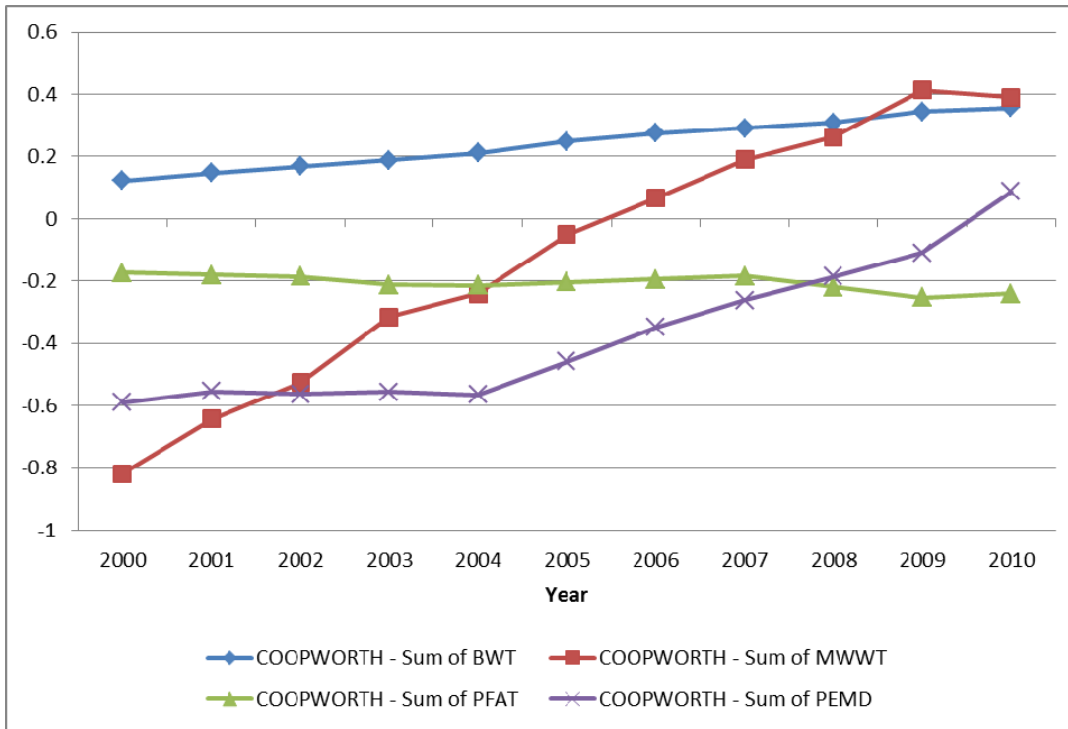


Figure 14: Coopworth (15) genetic trends for BWT; MWWT; PFAT and PEMD.

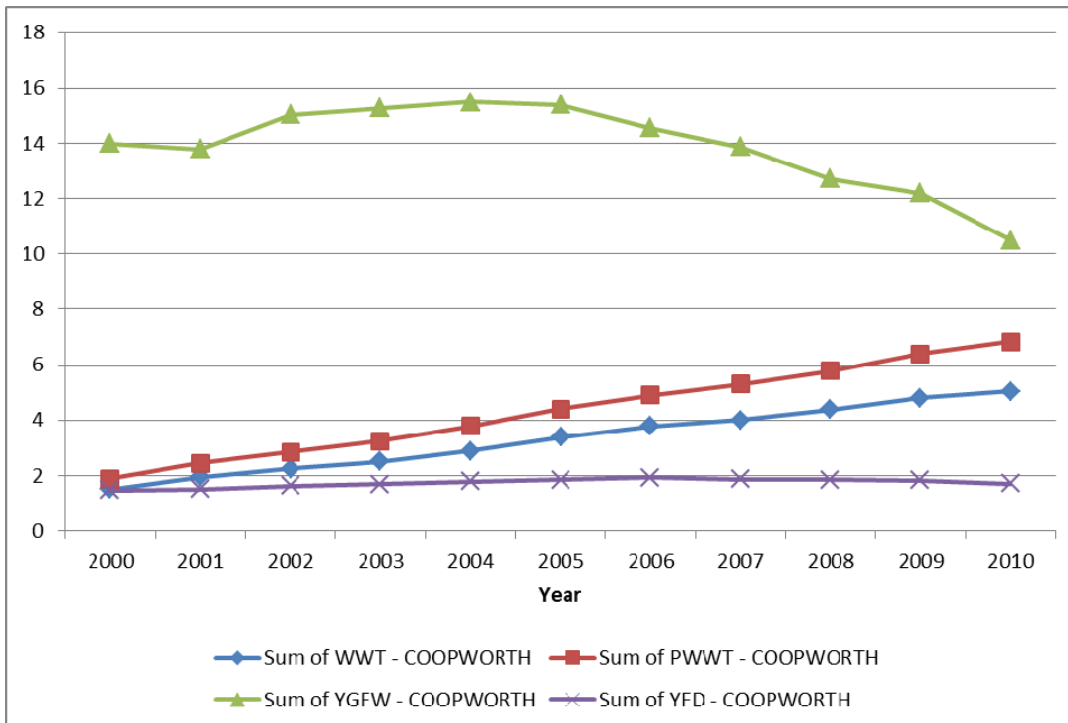


Figure 15: Coopworth (15) genetic trends for WWT; PWWT; YGFW and YFD.

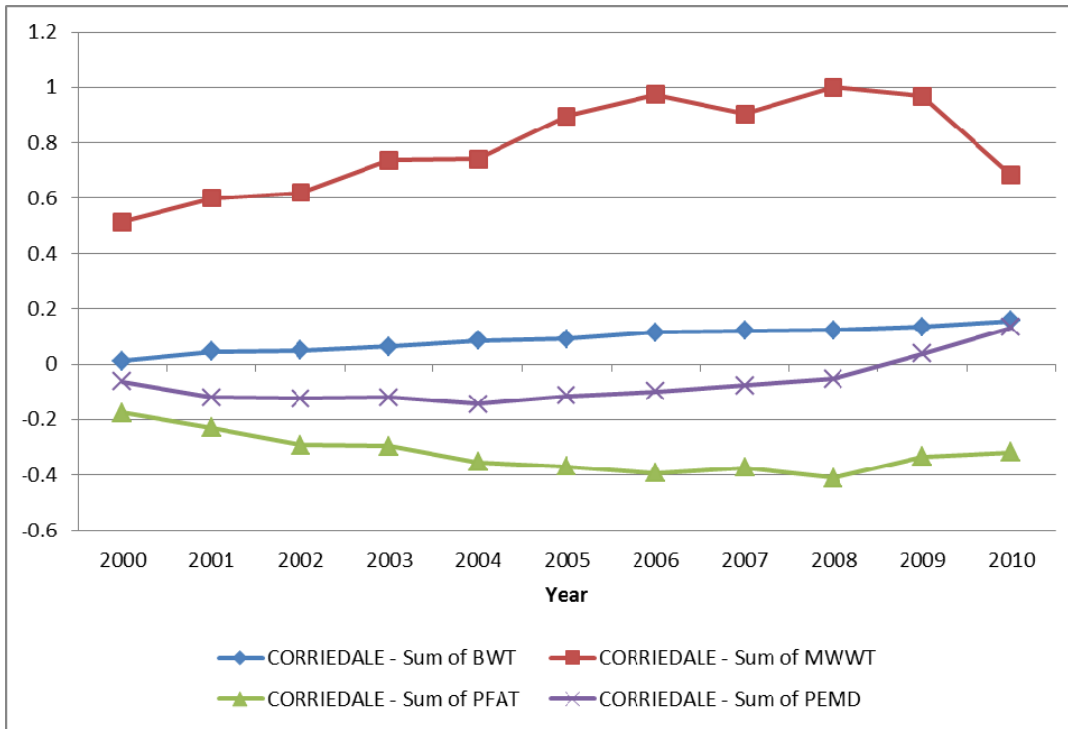


Figure 16: Corriedale (03) genetic trends for BWT; MWWT; PFAT and PEMD

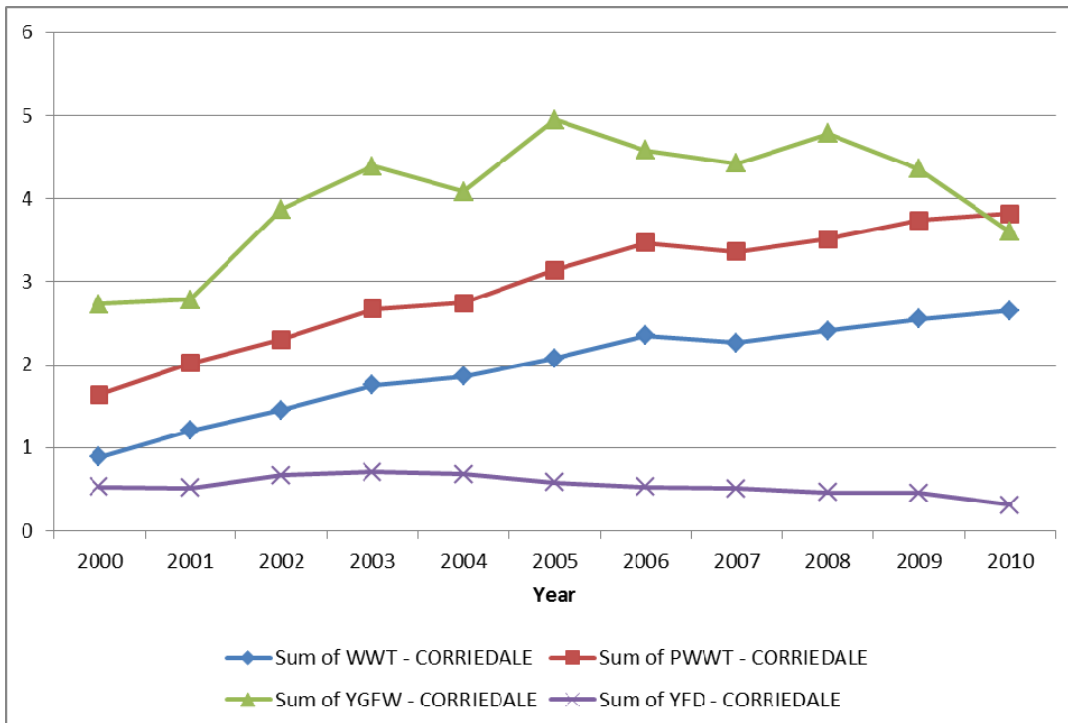


Figure 17: Corriedale (03) genetic trends for WWT; PWWT; YGFW and YFD.

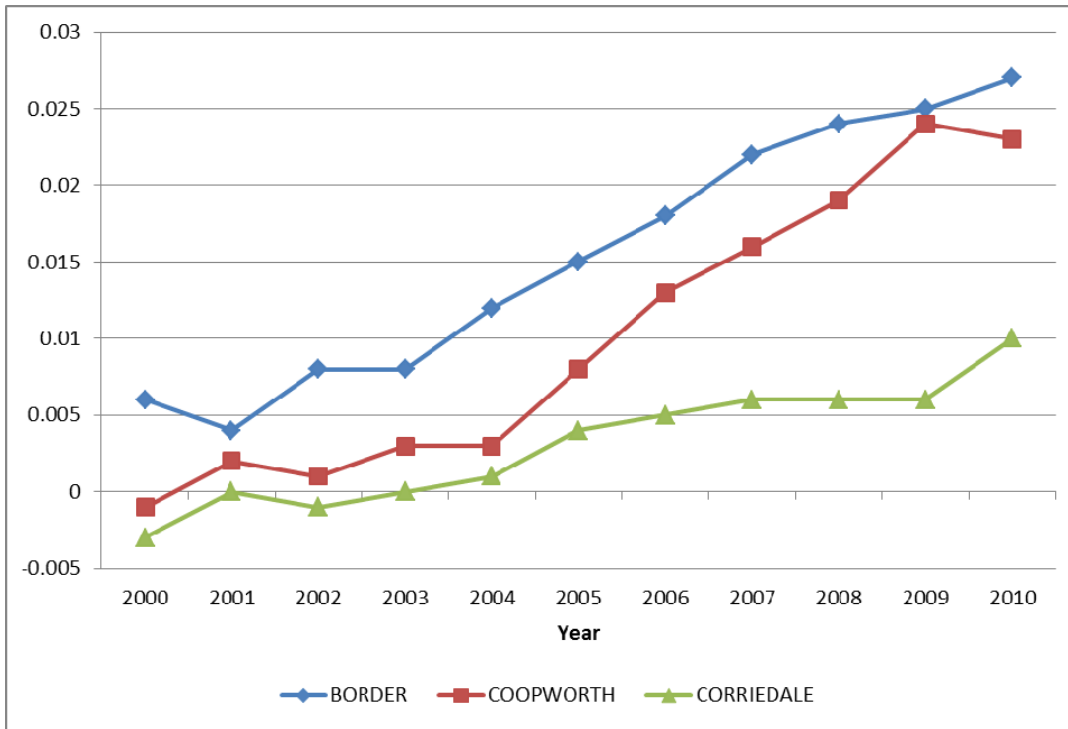


Figure 18: Border Leicester (02), Coopworth (15) and Corriedale (03) NLW genetic trend.

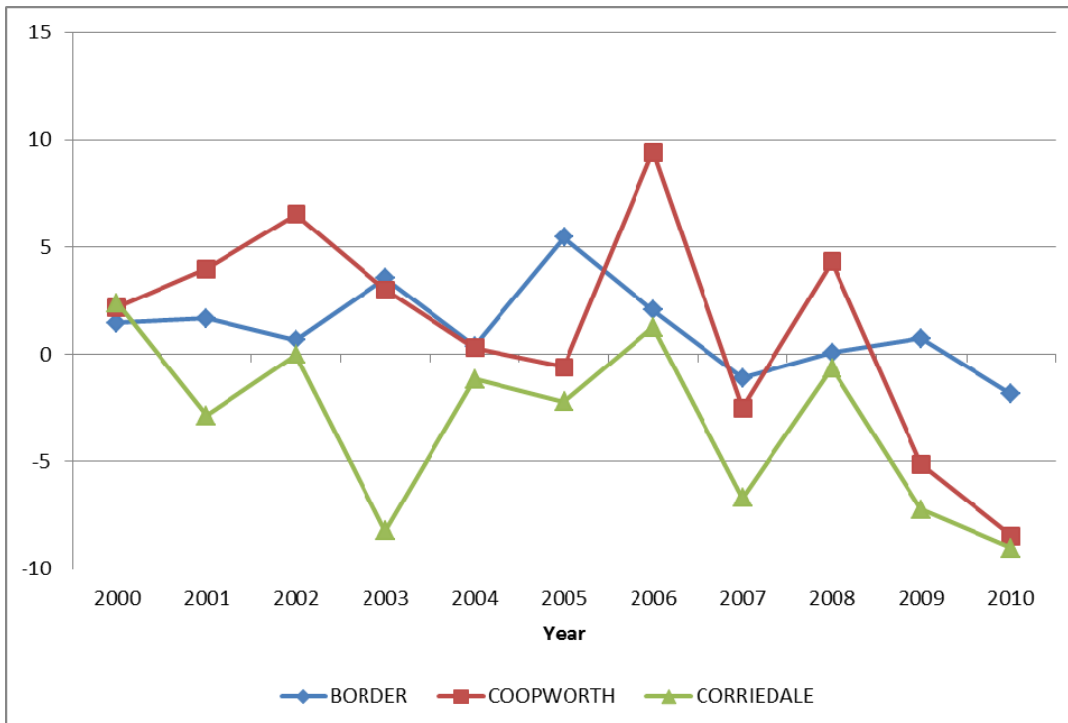


Figure 19: Border Leicester (02), Coopworth (15) and Corriedale (03) PFEC genetic trend.

4.2.2 Terminal breed trends

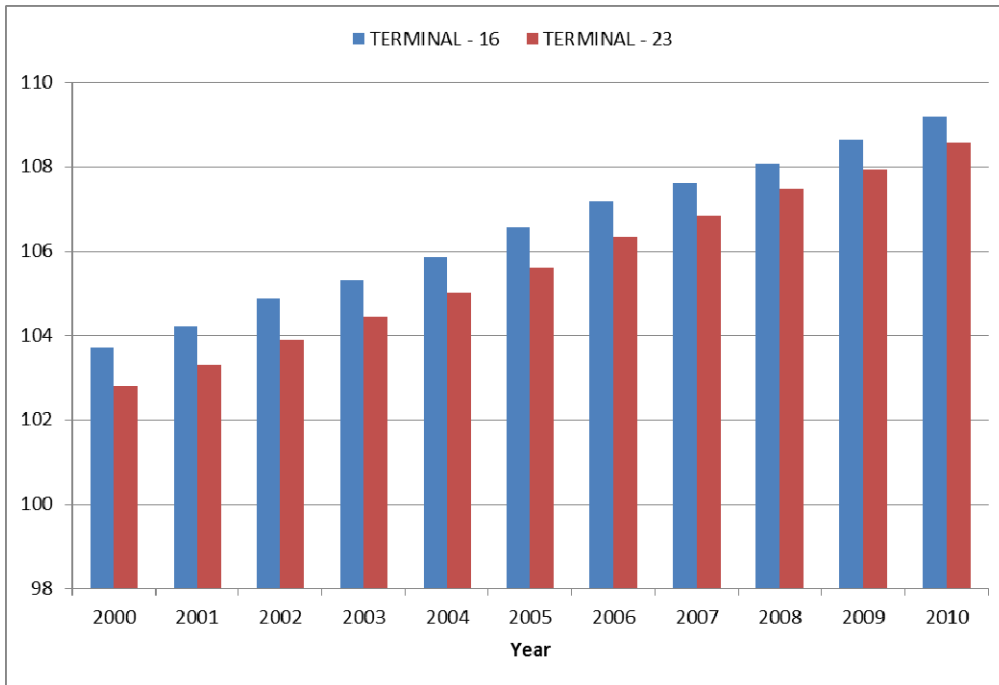


Figure 20: Poll Dorset (16) and White Suffolk (23) - Lamb2020 index trend.

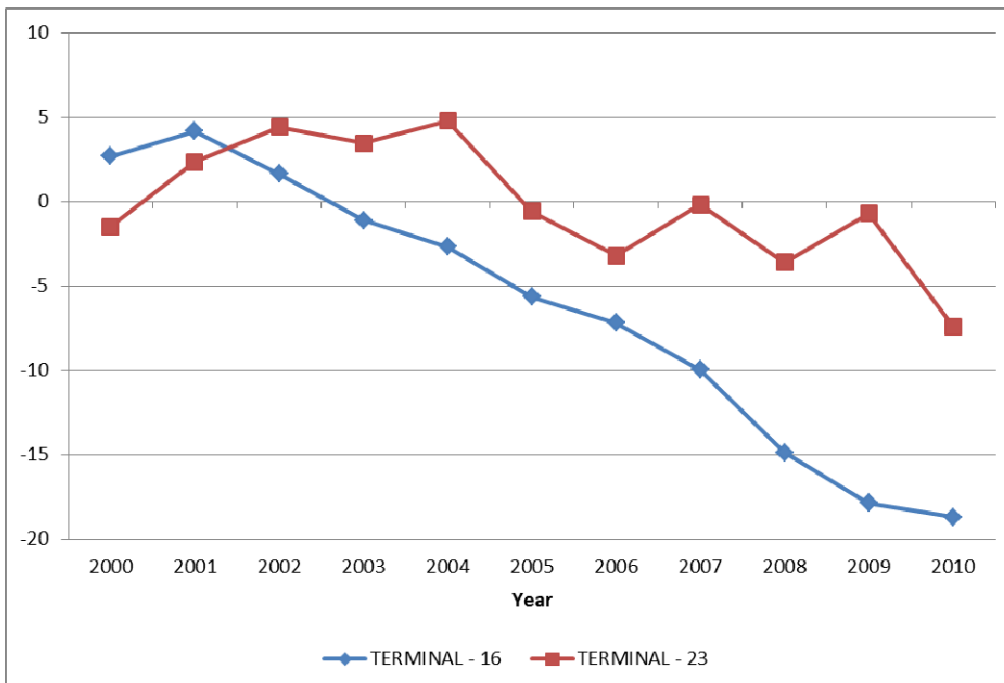


Figure 21: Poll Dorset (16) and White Suffolk (23) - PWEC genetic trend.

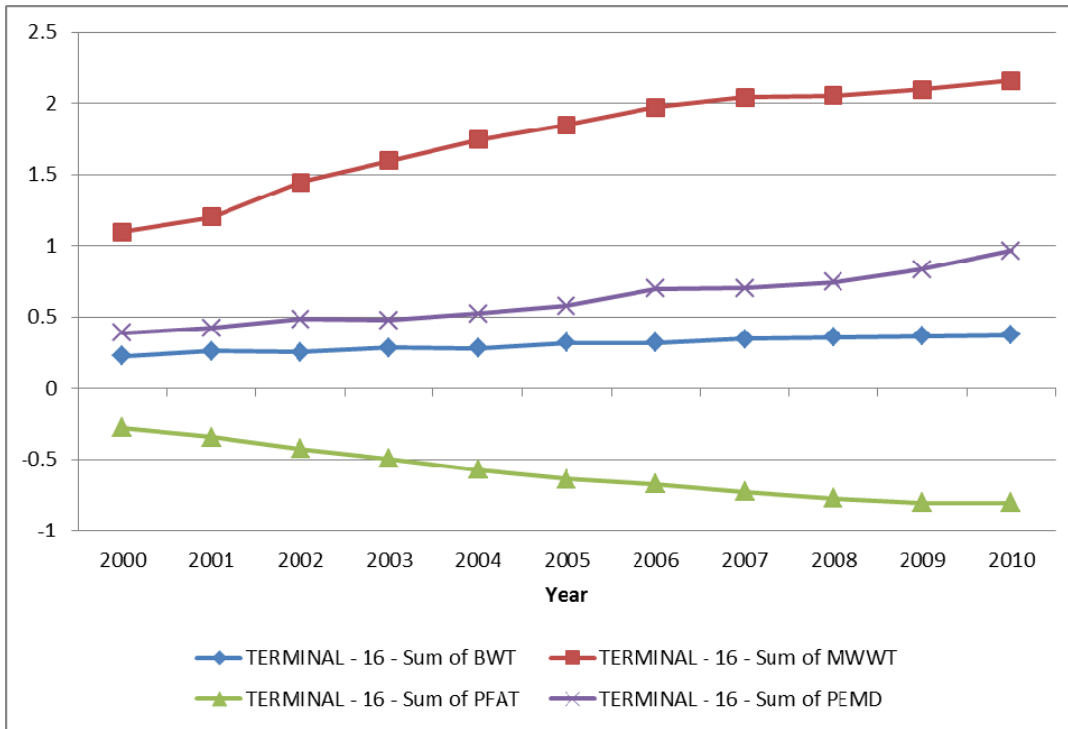


Figure 22: Poll Dorset (16) genetic trends for BWT; MWWT; PFAT and PEMD

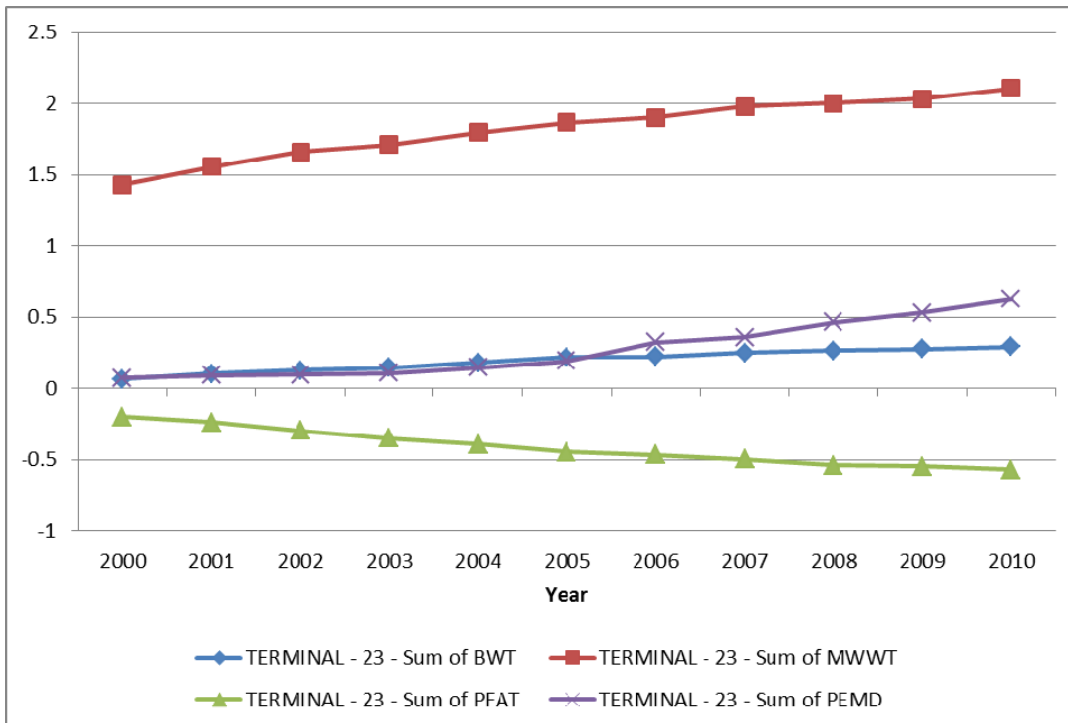


Figure 23: White Suffolk (23) genetic trends for BWT; MWWT; PFAT and PEMD

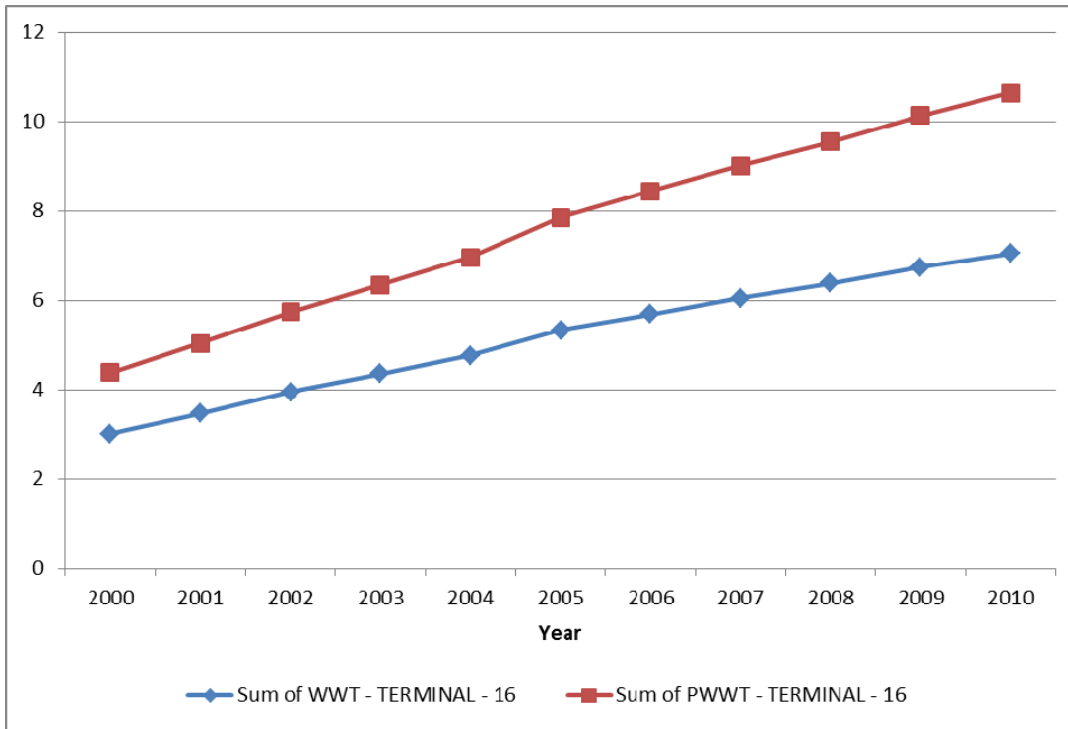


Figure 24: Poll Dorset (16) genetic trends for WWT; PWWT

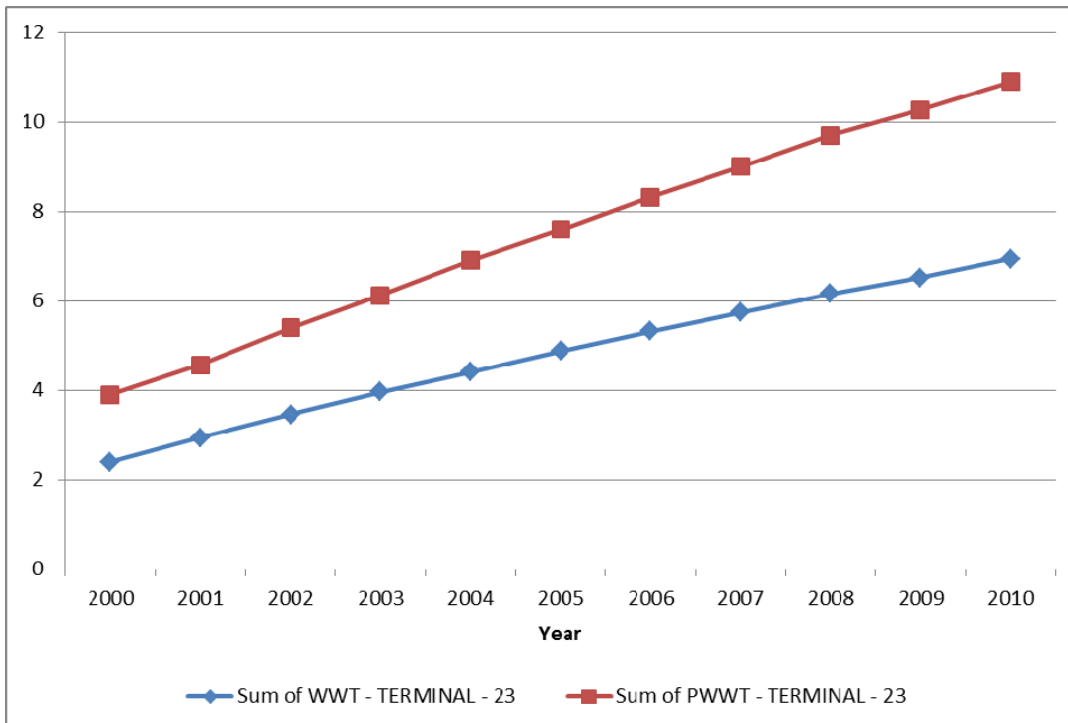


Figure 25: White Suffolk (23) genetic trends for WWT; PWWT

4.2.3 Merino trends

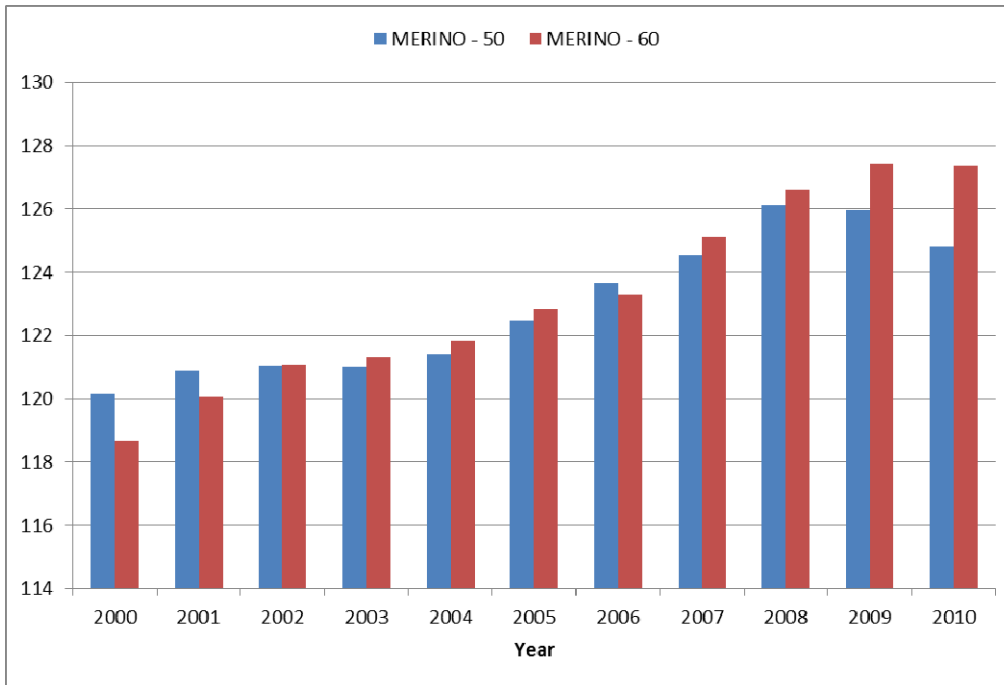


Figure 26: Merino (50) and Poll Merino (60) - 10% SS Index trend.

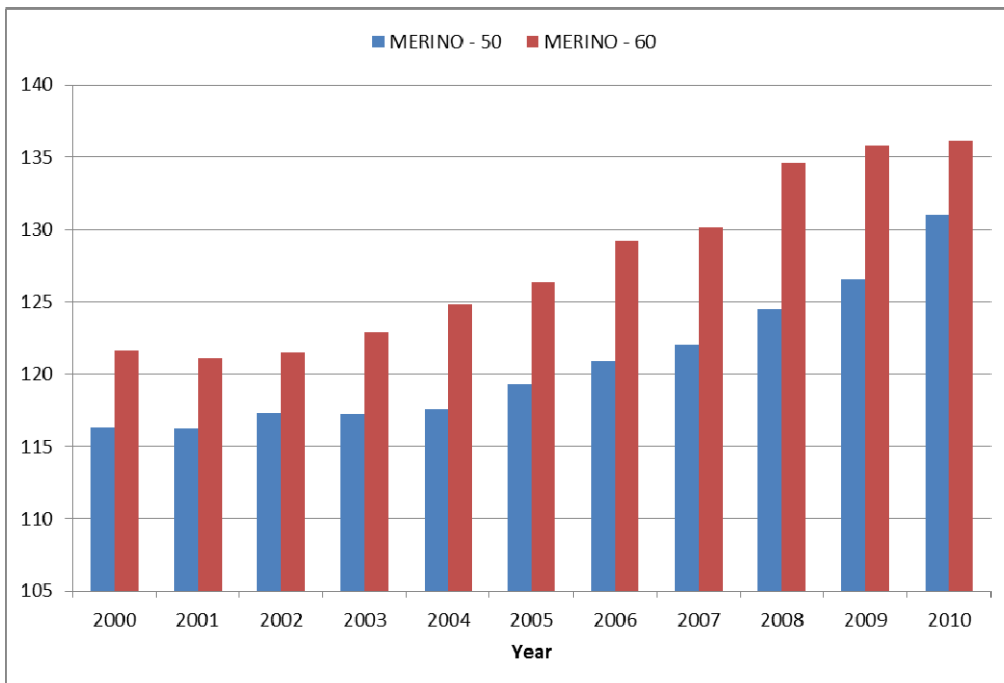


Figure 27: Merino (50) and Poll Merino (60) - 7% Dual Purpose Index trend.

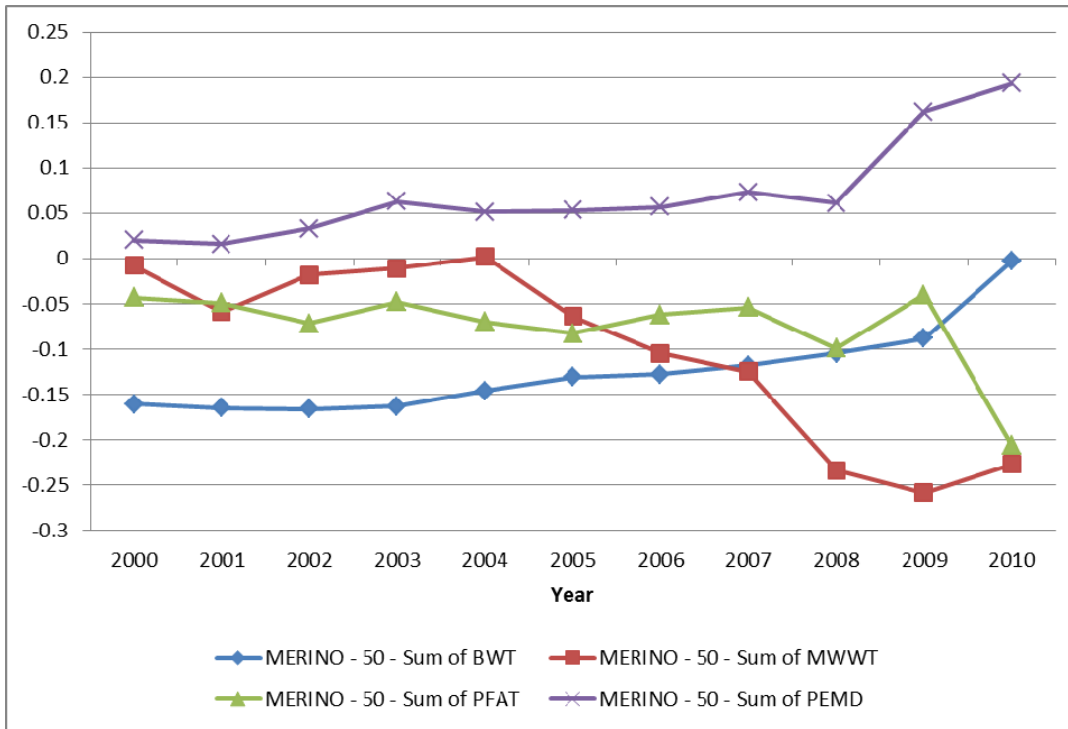


Figure 28: Merino (50) genetic trends for BWT; MWWT; PFAT and PEMD

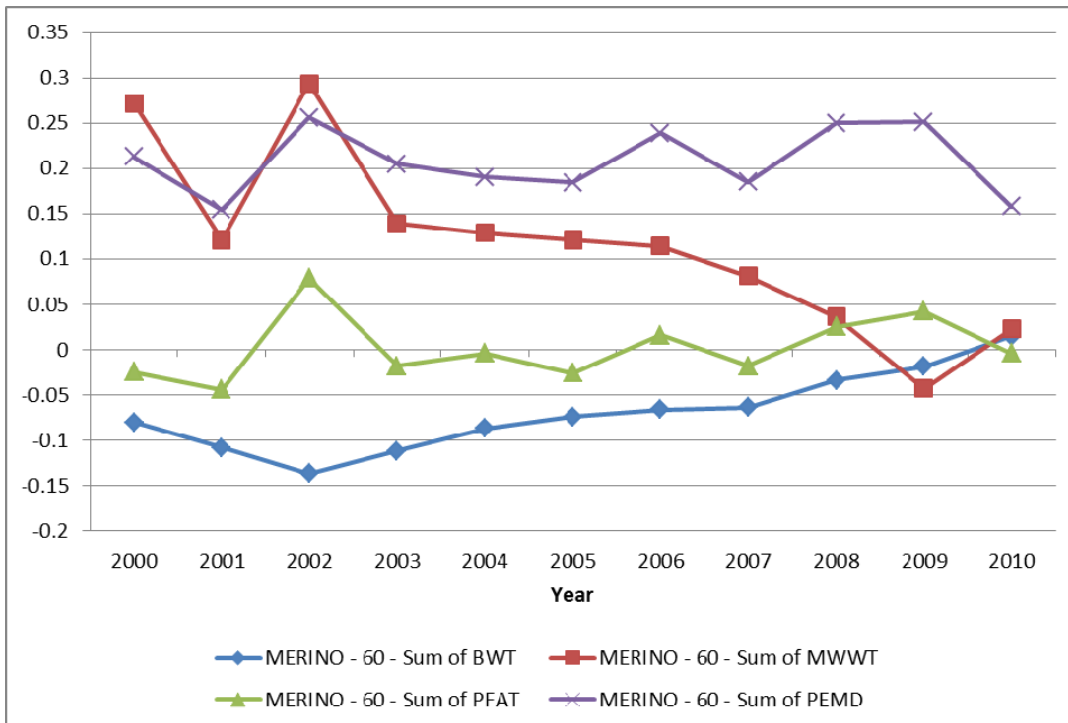


Figure 29: Poll Merino (60) genetic trends for BWT; MWWT; PFAT and PEMD

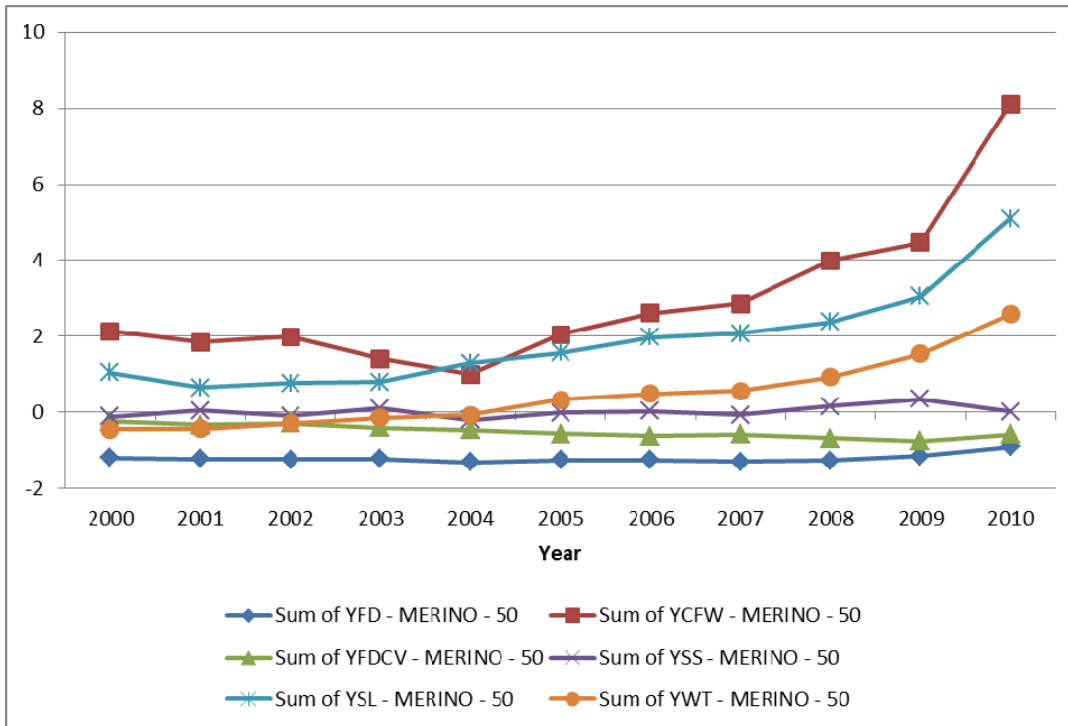


Figure 30: Merino (50) genetic trends for YFD; YCFW; YFDCV; YSS; YSL; YWT.

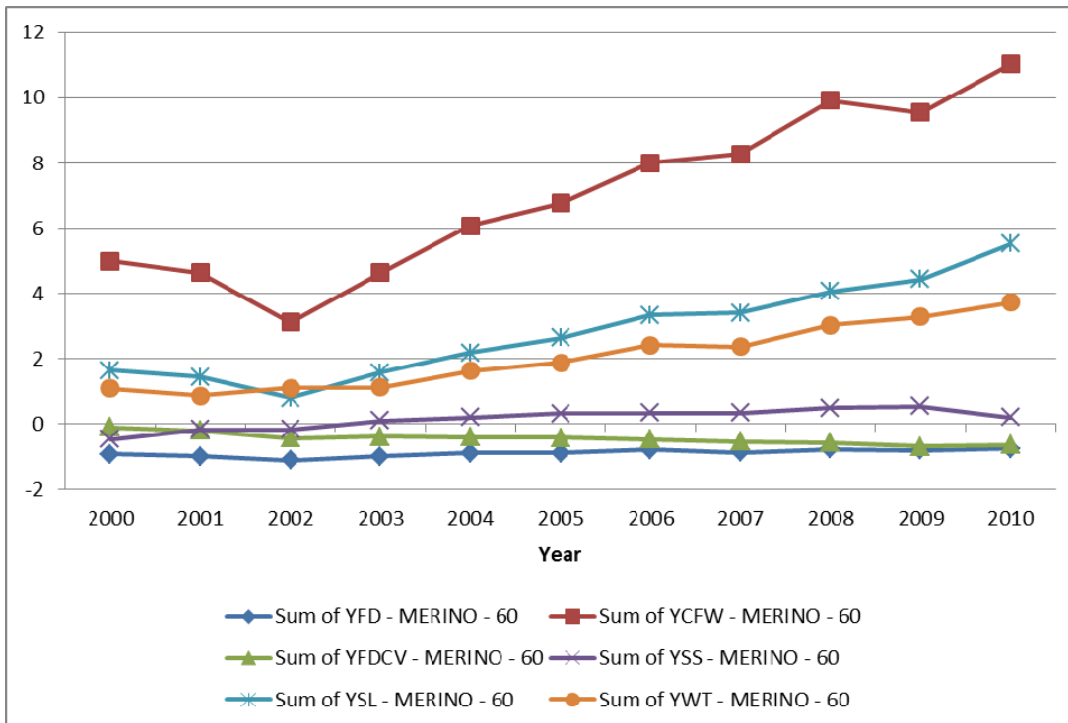


Figure 31: Poll Merino (60) genetic trends for YFD; YCFW; YFDCV; YSS; YSL; YWT.

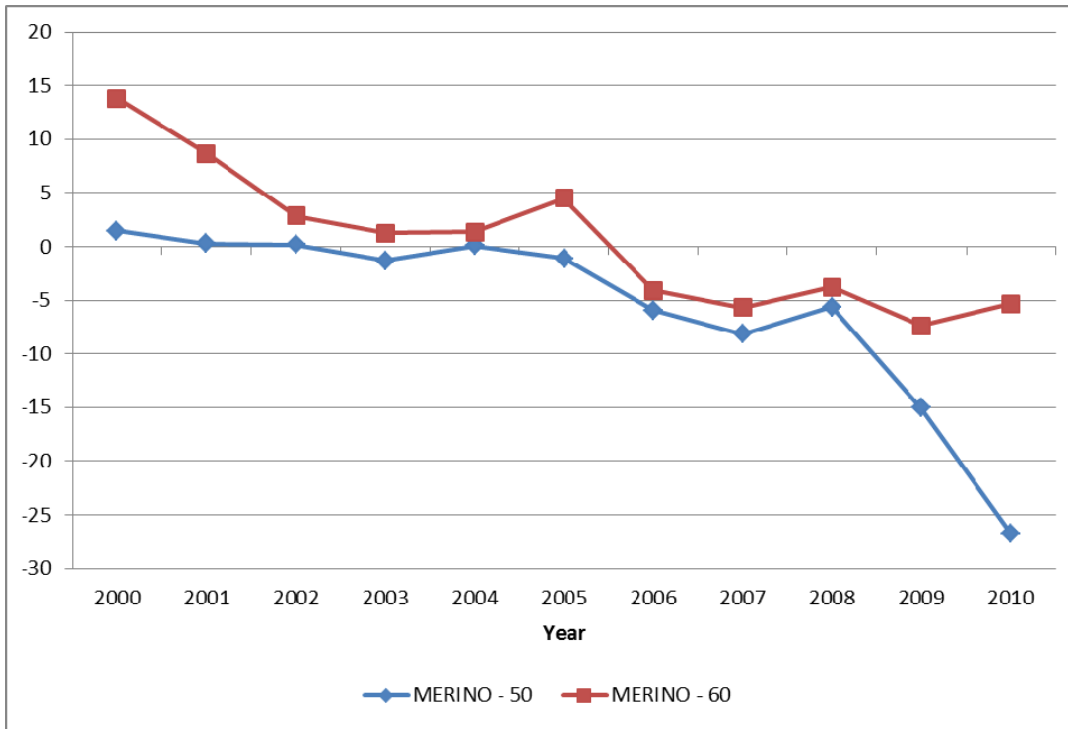


Figure 32: Merino (50) and Poll Merino (60) PWEC genetic trend.

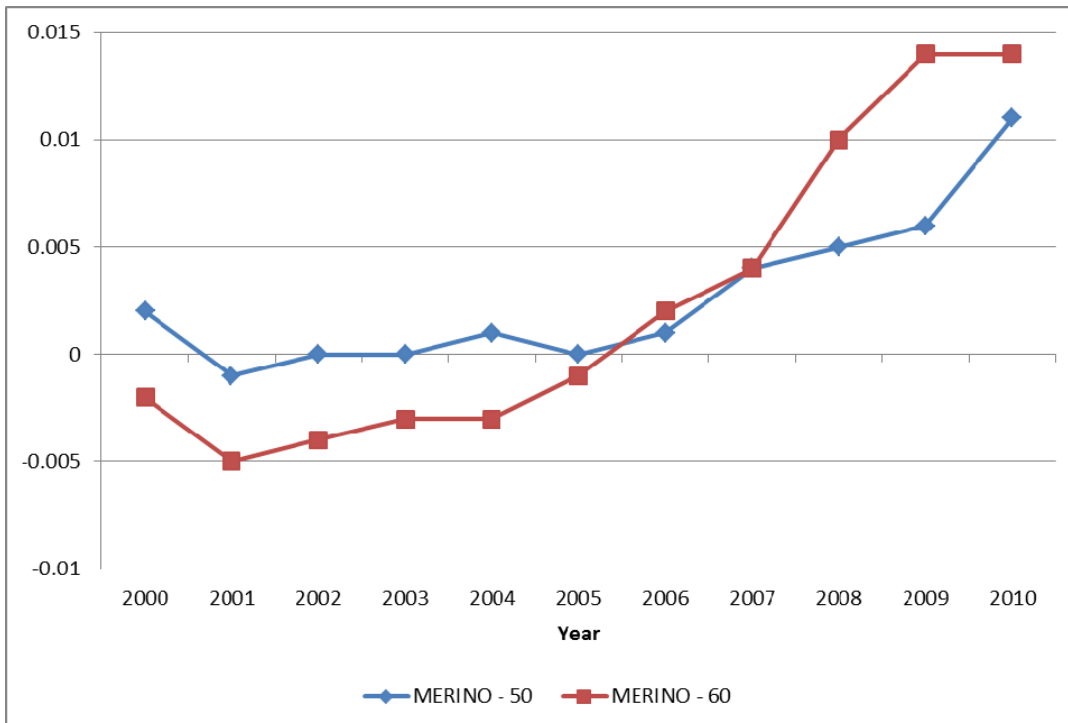


Figure 33: Merino (50) and Poll Merino (60) NLW genetic trend.

4.3 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		

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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	Cleanskins 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

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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		

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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

4.4 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 ASBVs	LP	MLA	RA	AB, FM, MD	1-Jul-05	1-Jul-07
Publications	Tips and Tools	Understanding LAMBPLAN Maternal ASBVs	LP	MLA	RA	AB, FM, MD	1-Jul-05	1-Jul-07
Publications	Tips and Tools	Understanding MERINOSELECT ASBVs	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 – ASBV's	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	

4.5 Project Status Report Sections Omitted

Research animal numbers to come.

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