



# Sheep Genetics

Annual Industry Report 2013-2014

# SHEEP GENETICS WEBSITE MAP

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## **Breeding services; Database Searches, Sire Lists Online Ram Sales and Semen Catalogues**

- LAMBPLAN
- MERINOSELECT
- DOHNE MERINO
- KIDPLAN
- Genomics

## **Getting started with ASBVs**

- Key steps
- Tips for ram breeders
- Tips for ram buyers
- ASBVs and indexes explained
- How to use the databases
- Preparing your data
- Quality assurance guidelines
  - Breeders QA Manual
- Frequently Asked Questions
- Mailing List

## **Finding animals on the Database**

- Navigating the search pages
- Sale and Semen Catalogues

## **Service providers**

- Carcase Scanners
- Data Managers
- Fleece Testing
- Genetic Advisors
- Worm Egg Count Labs Resources
- Brochures and fact sheets
  - Data Submission Calendar
  - Getting Started Sheep Genetics
  - Subscription Form
  - Fee Schedule
  - Web participation approval form
  - Navigating Search Pages
  - Pocket Guide
  - Mission Brochure
  - Visual Sheep Scores
  - Sale Cards
  - Tips for Marketing
  - Marketing with ASBV logos
  - Marketing tips for ram breeders

- LAMBPLAN Introduction
- LAMBPLAN ASBVs
- LAMBPLAN Maternal ASBVs
- LAMBPLAN Sire Index Summary
- LAMBPLAN Lambing Ease
- LAMBPLAN Logo
- MERINOSELECT Introduction
- MERINOSELECT ASBVs
- MERINOSELECT Indexes
- MERINOSELECT Logo
- Breeder Case Studies
- Software for managing data
- Managing your data
- Marketing tips
- Case studies
- Presentations
  - Navigating the Website
  - Guide to analysis changes
  - Gains from Genetics
  - Guide to quality data
- Industry links
- Genomic Results
- Proof of profit
- Glossary of terms
- Lambs Forum
- Material Order Form
- Leading Breeder 2015
- Genetic Trends

## **Updates**

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- Analysis changes
- New genetic traits
- Breeders bulletins
- Events
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- Our partners
- Committees
- Strategic plan
- Surveys by Clients (since 2009)
- Annual report
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# 01

## EXECUTIVE SUMMARY

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2013-14 was a successful year with performance on-track against, and in some cases exceeding, the Sheep Genetics key objectives as laid out in the 2010-2015 Sheep Genetics Business Plan (see Sheep Genetics website: [www.sheepgenetics.org.au](http://www.sheepgenetics.org.au)). All numbers quoted in this publication were as of July 2014.

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### 2.1 MEMBERSHIP

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The overall Sheep Genetics membership remained static over the financial year. MERINOSELECT increased membership by 3.8%, however this was offset by a loss of members from LAMBPLAN, declining by 2%. Most of the decline in LAMBPLAN membership was in the Maternal breeds however despite the decline in membership the number of animals in this analysis continued to increase.

Most of the decline in LAMBPLAN membership was from clients who had either never submitted or had not submitted for several years (40%), had retired or sold the stud (17%), or had more than one membership and were consolidating to a smaller number of flocks (12%).

The number of animals being analysed in each of the major analyses maintained numbers or continued to grow in line with, or exceed, the numbers set by the business plan. The number of animals included in the MERINOSELECT analysis in particular showed strong growth reaching approximately 135,000 animals per year.

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### 2.3 FINANCIAL REPORT

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Although income from breeders was \$40,419 below budget, expenses were \$242,416 below budget. The reduction in expenses was largely due to an additional position not being approved and appointed (tied to the Sheep CRC contribution of \$50,000, which did not occur) and a delay of some projects into the 14-15 year. Breeder contributions were within 6% of budget.

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### 2.4 OPERATIONAL ACTIVITIES

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There were no changes to Sheep Genetics staff during the 2013-14 financial year.

The Technical Committee met three times. Mr. Allan Casey and Dr. Jen Smith stepped down from the Technical Committee to allow new members, Dr. Sam Clark, Mr. Mark Mortimer, Dr. Sue Mortimer, Dr. Ben Hayes and Dr. Matt Kelly to join the committee.

The Advisory Committee met three times over the course of the year. Mr. Tom Silcock (Vic) and Mr. Don Pegler (SA) stepped down from the committee to allow Mr. Ron Cullen (NSW), Mr. Mark Murphy (Qld); and Mrs. Sara Wilson (WA) to join the committee. Mr Dale Price (SA), Mr Warren Russell, Mr Murray Long (NSW), Mr Mark Mortimer (NSW), Mr Phillip Attard - Chairman (NSW), were continuing members.

There were 11 Executive Committee meetings held for the year. Dr. Paul Swan joined the

Executive Committee to replace Dr. Jane Littlejohn. Mr Peter Vaughan, Mr Sam Gill and Mr Geoff Lindon were continuing members.

The Sheep Genetics team attended field days, shows, workshops and other events throughout the year meeting with over 4,500 producers at these events.

## 2.5 GENETIC TRENDS

The genetic trends for the major breed groups are shown against the predicted rate of gain from the Sheep Genetics Business Plan in the Figure 1 below. The Terminal breeds have progressed as expected. However, the rate of gain in the MERINOSELECT analysis has dipped below the predicted rate of gain. This is due to the large number of new animals coming into the analysis with lower productivity

than those already participating in MERINOSELECT.

## 2.6 SUBSCRIBER SURVEY

The annual survey was distributed electronically for the second year to all subscribers. There was a greater response this year than the previous year. The survey was distributed on the 4th October 2013 to 843 email addresses and responses closed on the 1st of November 2013. The survey results indicated that 83% of clients either strongly agreed or agreed that staff were easily contactable, 97% strongly agreed or agreed that staff were approachable and friendly, and 91% strongly agreed or agreed that staff were helpful and patient with requests. The full report can be viewed on the Sheep Genetics website.

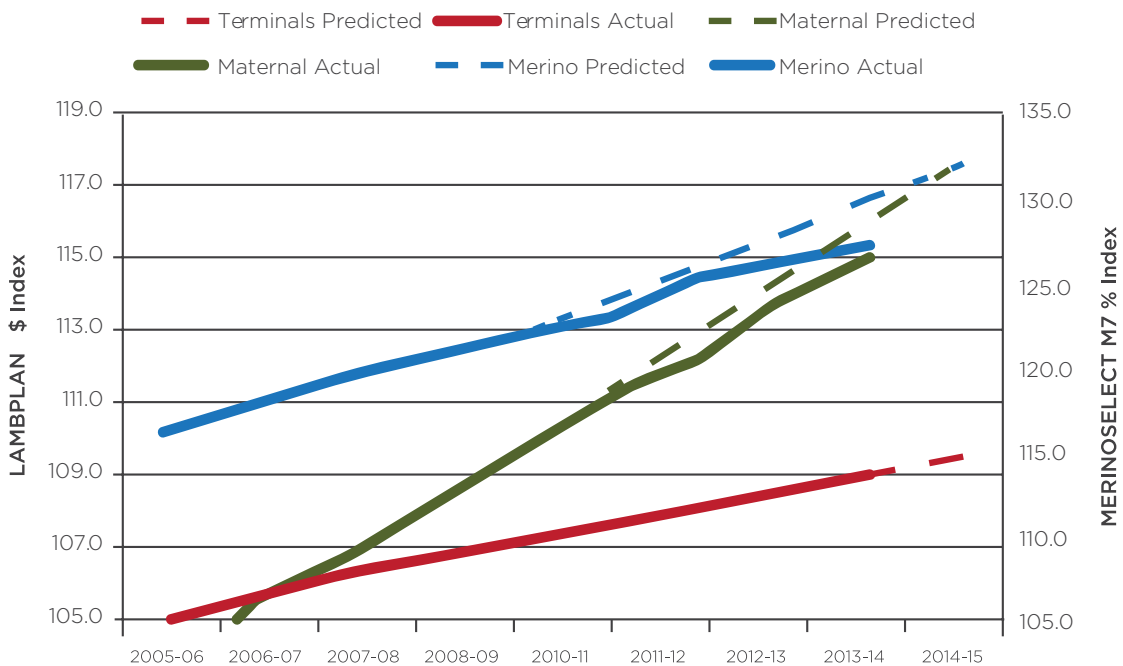


Figure 1: Rate of gain plotted against the predicted rate of gain 2005 to 2015.

# 02

## REPORT AREAS

### 2.1 MEMBERSHIP AND INDUSTRY ANIMALS CHARGED

The LAMBPLAN numbers include both maternal and terminal breeds/analysis. The MERINOSELECT numbers include both Merino and Dohne breeds/analysis, LAMBPLAN member numbers had a net decline of 12 (2%) and MERINOSELECT member numbers had a net increase of 10 (4%).

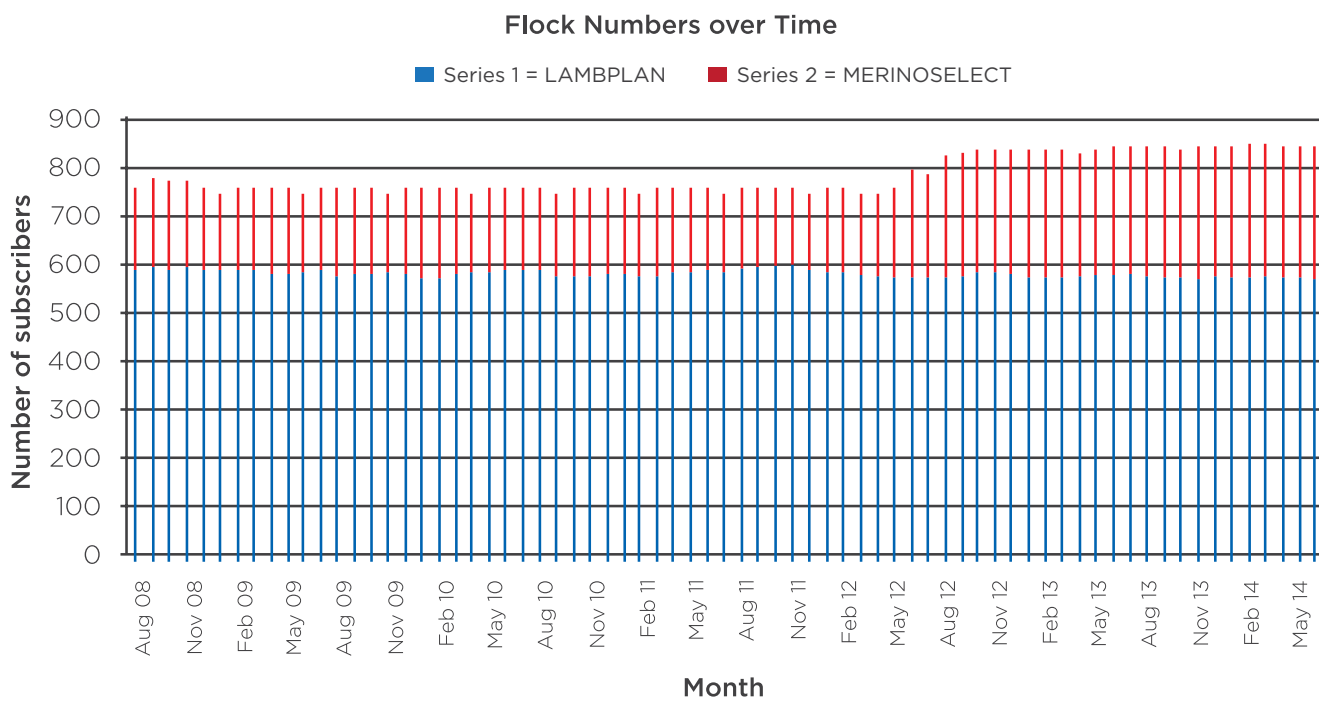
Small Studs and schools do not pay an annual subscription fee. Schools pay \$2.10 per animal for database charges and small studs pay \$9.10 per animal. Research flocks pay neither subscription or per animal charges. The membership fees are \$440 per stud and per animal data base charges are \$2.10 (GST inclusive). International member flocks pay a 20% surcharge.

**Table 1:** Changes by month in LAMBPLAN and MERINOSELECT Flocks.

	New LP	New MS	Lost LP	Lost MS	Cumulative LP	Cumulative MS	Cumulative Total	% Growth LP	% Growth MS	Overall % growth
<b>Total figures Year end 12-13</b>					584	263	847			
<b>JUL</b>	6	3	10	0	580	266	846	-0.7	1	-0.1
<b>AUG</b>	4	1	4	1	580	266	846	-0.7	0	0.0
<b>SEP</b>	4	4	7	2	577	268	845	-0.5	1	-0.1
<b>OCT</b>	4	1	6	0	575	269	844	-0.7	0	-0.1
<b>NOV</b>	0	3	2	4	573	268	841	-0.7	0	-0.4
<b>DEC</b>	2	3	1	0	574	271	845	-0.7	1	0.5
<b>JAN</b>	4	1	2	2	576	270	846	-0.7	0	0.1
<b>FEB</b>	2	3	4	0	574	273	847	-0.7	1	0.1
<b>MAR</b>	5	4	2	2	577	275	852	-0.7	1	0.6
<b>APR</b>	1	0	5	3	573	272	845	-0.7	-1	-0.8
<b>MAY</b>	1	2	2	1	572	273	845	-0.7	0	0.0
<b>JUN</b>	7	3	7	3	572	273	845	0.0	0	0.0
<b>Totals</b>	40	28	52	18	572	273	845			

**Table 2:** Member flocks by subscription type

Member Type	Small stud	School	Research	Legacy	1st Stud	2nd Stud	3rd Stud	4th Stud	4th Stud	Grand Total	Total Members
<b>BG</b>	3				10	1	0	0	0	14	14
<b>LP</b>	86	10	1	10	368	62	18	2	1	558	537
<b>MS</b>	1	1	5	16	159	26	3	1	1	213	191
<b>D</b>	6				52	2				60	60
<b>Grand Totals</b>	96	11	6	26	589	91	21	3	2	845	802



**Figure 2:** LAMBPLAN and MERINOSELECT total number of flocks over time. Note: 65 Dohne studs joined in mid 2012.

**Table 3:** Reasons why 18 MERINOSELECT members resigned during 13-14

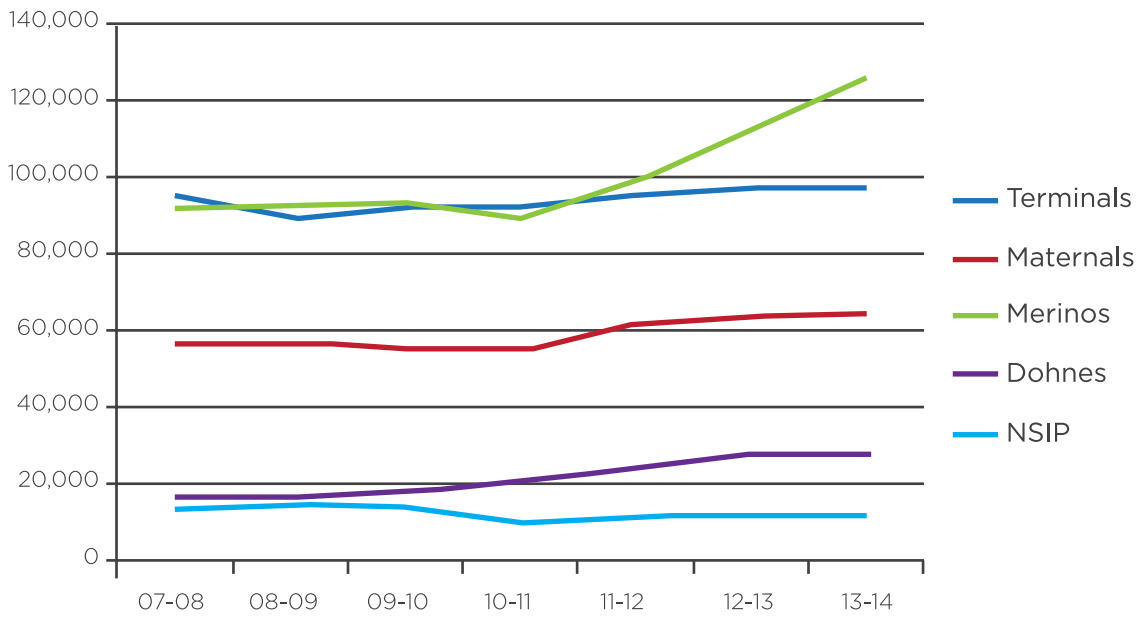
Stud dispersed or sold	47%
Haven't submitted data for several years	29%
Unknown	19%
Flock dispersal but remain a member	0%
Others	0%
Membership renewed 14-15	5%

Due to 28 MERINOSELECT members joining during 13-14 there was a net gain of 10 members.

**Table 4:** Reasons why 52 LAMBPLAN members resigned during 13-14

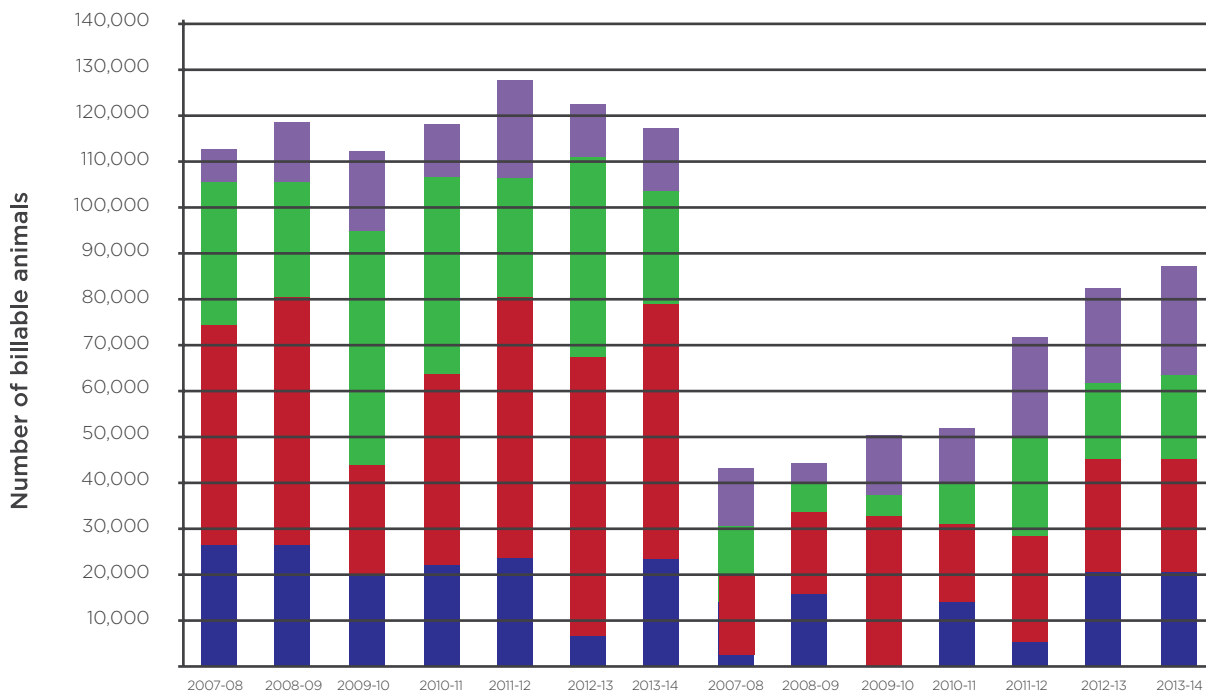
Stud dispersed or sold	17%
Never submitted / haven't submitted data for several years	40%
Unknown	21%
Flock dispersal but remain a member	15%
Others	5%
Membership renewed 14-15	2%

Due to 40 LAMBPLAN members joining during 13-14 there was a net loss of 12 members.



**Figure 3:** New animals entered each financial year from 07-08 to 12-14 NB: Dohne numbers include years 07-08 to 11-12 when they were analysed by Advanced Breeding Services (NSW DPI), NSIP = National Sheep Improvement Program USA.





Quarter	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Q4	7	12	17	12	21	11	13	12	4	13	12	21	20	23
Q3	31	25	51	42	25	43	25	11	7	4	9	21	17	18
Q2	48	54	23	41	57	60	55	17	17	32	17	22	24	25
Q1	26	26	20	22	23	7	23	2	15	-	13	6	20	20

(000's)

Figure 4: LAMBPLAN and MERINOSELECT billable animals each financial year. MERINOSELECT is showing positive growth. Note: Dohne breed shift from Advanced Breeding Services to Sheep Genetics in 11-12

## 2.2 RESEARCH ANIMALS ANALYSED

Table 5: The number of animals by year of drop analysed for the Sheep CRC

Flock	2005	2006	2007	2008	2009	2010	2011	2012	2013	Grand Total
INFORMATION NUCLEUS FLOCK	0	0	1,792	2,621	2,712	2,100	2,428	1,683	0	13,336

Table 6: The number of animals by year of drop analysed for AWI

Flock	2005	2006	2007	2008	2009	2010	2011	2012	2013	Grand Total
ARMIDALE AWI BREECH FLOCK	971	612	408	557	592		463	544		4,147
MT BARKER AWI BREECH FLOCK	678	573	478	570	713	547	632	484	573	5,248
RYLINGTON	397	380	392	456	513	439	592	560	473	4,202
TURRETFIELD DP			343	589	524	475	633	641	419	3,624
Grand Total	2,046	1,628	1,714	2,305	2,394	1,822	2,734	2,775	1,465	17,221

## 2.3 FINANCIAL REPORT

The financial report shows an increasingly long term sustainable and robust position.

A staff position tied to a contribution from the Sheep CRC was not filled which resulted in reduced income but also reduced expenditure. Some of the below budget expenditure in 2013/14 will be incurred in 2014/15.

**Table 7:** Finance summary to 30.06.14

	Fiscal year		Full life of project	Full life of project
	13/14 Actual	13/14 Bus	2013 - 2015 Actual	2013 - 2015 Bus Plan
<b>INCOME</b>				
MIA Contribution	542,749	674,725	542,749	1,349,450
AWI Contribution	235,976	247,000	235,976	494,000
Sheep CRC Contribution	0	50,000	0	100,000
Breeder Contribution	667,614	708,033	667,614	1,416,066
<b>Total Income</b>	<b>1,446,339</b>	<b>1,679,758</b>	<b>1,446,339</b>	<b>3,359,516</b>
<b>EXPENDITURE</b>				
<b>Operational</b>				
Salary +Admin	355,190	409,387	355,190	818,774
Licenses		25,000	0	50,000
AGBU Routine Contact B.SGN.0128	57,272	57,967	57,272	178,539
	<b>412,462</b>	<b>492,354</b>	<b>412,462</b>	<b>1,047,313</b>
<b>Extention</b>				
Salary +Admin	118,397	141,462	118,397	282,925
Contracted Projects	45,089	28,999	45,089	57,998
	<b>163,486</b>	<b>170,461</b>	<b>163,486</b>	<b>340,922</b>
<b>Development</b>				
Salary +Admin	245,246	399,613	245,246	699,226
Licenses	158,445	164,327	158,445	328,654
AGBU R&D Contact B.SGN.0128	466,700	462,000	466,700	943,400
	<b>870,391</b>	<b>1,025,940</b>	<b>870,391</b>	<b>1,971,280</b>
<b>Total Expenditure</b>	<b>1,446,339</b>	<b>1,688,755</b>	<b>1,446,339</b>	<b>3,359,516</b>

<b>COST RECOVERY KPI</b>	13/14 Actual	13/14 Bus	2013 - 2015 Actual	2013 - 2015 Bus Plan
Income (Breeders)	667,614	708,033	667,614	1,416,066
Expenditure (Operational + 1/2 Extention)	494,205	577,585	494,205	1,217,774
<b>Total Expenditure</b>	<b>173,409</b>	<b>130,448</b>	<b>173,409</b>	<b>198,292</b>

## 2.4 OPERATIONAL ACTIVITIES

### 2.4.1 STAFF CHANGES

- **Sheep Genetics**  
No Changes
- **Executive Committee**  
December – Jane Littlejohn left AWI  
February – Dr. Paul Swan joined the Executive Committee to replace Dr. Jane Littlejohn. Mr Peter Vaughan, Mr Sam Gill and Mr Geoff Lindon were continuing members
- **Advisory Committee**  
April – Mr. Tom Silcock (Vic) and Mr. Don Pegler (SA) stepped down from the committee to allow Mr. Ron Cullen (NSW), Mr. Mark Murphy (Qld); and Mrs. Sara Wilson (WA) to join the committee. Mr Dale Price (SA), Mr Warren Russell, Mr Murray Long (NSW), Mr Mark Mortimer (NSW), Mr Phillip Attard - Chairman (NSW), were continuing members.

- **Technical Committee**  
July – Dr Sam Clark, Mark Mortimer, and Dr Sue Mortimer joined the committee  
  
February – Mr. Allan Casey and Dr. Jen Smith stepped down from the Technical Committee to allow new members, Dr.Sam Clark, Mr. Mark Mortimer, Dr. Sue Mortimer, Dr. Ben Hayes and Dr. Matt Kelly to join the committee.

### 2.4.2 SUMMARY OF TECHNICAL COMMITTEE AND ADVISORY COMMITTEE RECOMMENDATIONS AND EXECUTIVE RESPONSE

#### TECHNICAL COMMITTEE

Operational meetings held most months.  
Three full meetings held 9 July 2013; 30 October, 2013; and 26 February, 2014.

**Table 8:** AGBU Workplan

	Work / Topics	Progress
<b>Molecular-informed Estimated Breeding Values</b>	Investigate and develop single step procedure. Develop RBVs for new traits including reproduction	<ul style="list-style-type: none"> <li>• Genomic prediction development for reproduction traits.</li> <li>• Development of pipeline for routine inclusions of genotypes from low density chip</li> <li>• Investigation of relationships between INF and rest of industry</li> <li>• Development and testing of single step analyses underway</li> </ul>
<b>Repro Traits: Enhance model</b>	Ewe lamb trait: Add pregnancy scan records. Previous parity effects. Investigate fixed effect adjustments. Develop appropriate slicing procedures based on joining/lambing intervals. New trait definitions for component traits of reproduction (fertility, litter size, survival)	<ul style="list-style-type: none"> <li>• A dataset containing pregnancy scanning records has been compiled and analysed (report attached)</li> <li>• Consultation with software providers</li> <li>• Analysis of lamb survival traits is underway</li> </ul>
<b>SheepObject</b>	Test impact of carcass traits in indexes using carcass information from CRC. Enhance model for calculating feed requirements.	<ul style="list-style-type: none"> <li>• Custom indexes for a small number of breeders are currently under development.</li> <li>• Create Dohne No-repro index</li> <li>• Updated MERINOSELECT index developed</li> </ul>

	Work / Topics	Progress
<b>Lifetime Productivity</b>	Participate in project planning Analyses Sheep Genetics data	<ul style="list-style-type: none"> <li>• Participation in planning meetings</li> <li>• Involvement in past research data collation project</li> <li>• Analysis of adult weights and condition scores from SG and INF databases. Work completed and presented to Feb TC meeting</li> <li>• Supervising additional work on Sheep CRC data by Sam Walkom</li> </ul>
<b>ASBVs for new traits from CRC research</b>	Develop methodology for ASBVs for carcass traits including genomic information (see Molecular-informed EBVs above)	<ul style="list-style-type: none"> <li>• A draft document has been completed which summaries the options available for production of breeding values for new traits</li> </ul>
<b>Diagnostic software development</b>	Development of tools for AGBU, SG staff and service providers to conduct diagnostics	<ul style="list-style-type: none"> <li>• Further refinement of the diagnostic web site has been completed.</li> </ul>
<b>Genetic Grouping</b>	Investigate the ability to utilize genomic information to improve the allocation of base animals to genetic groups.	<ul style="list-style-type: none"> <li>• Further work has also been conducted to investigate the potential to use genotypes to identify breed composition. This work is in progress.</li> </ul>
<b>Genetic Grouping: Incorporation of wether trait data</b>		<ul style="list-style-type: none"> <li>• Data has been provided by NSW DPI</li> <li>• Preliminary analyses have been completed and will be reported to the August Feb TC meeting</li> </ul>
<b>Routine Genetic Evaluation</b>		<ul style="list-style-type: none"> <li>• Extraction of data for CRC staff and other MLA projects</li> <li>• Extraction of ABVS for INF sires from each routine analysis for CRC staff</li> <li>• Estimation of INF only ABVS for CRC staff</li> <li>• Estimation of EX_INF ASBVs for Merino, Maternal and Terminal databases</li> <li>• Ongoing diagnostic support and test analyses for Sheep Genetics staff</li> </ul>
<b>AMSEA</b>		<ul style="list-style-type: none"> <li>• Conduct site analyses and reports</li> <li>• Preparation of MSS Reports</li> </ul>
<b>National Sheep Improvement Program USA (NSIP)</b>		<ul style="list-style-type: none"> <li>• Extract data for Dave Notter</li> </ul>
<b>Sheep CRC</b>		<ul style="list-style-type: none"> <li>• Attended data analysis meetings</li> <li>• Assist CRC with WEC analyses</li> <li>• Assist CRC with across trait group analyses</li> <li>• Develop CRC parameter web site</li> <li>• Assist process to clean up follower reproductive data</li> </ul>
<b>Other</b>		<ul style="list-style-type: none"> <li>• Prepare World Congress papers</li> <li>• Prepare journal papers</li> <li>• Assist Sally Martin with data quality metrics</li> <li>• Assist Tracie Bird-Gardiner with analysis of fly strike data from CRC</li> <li>• Flock by flock selection efficiency reports</li> </ul>

## ADVISORY COMMITTEE

Three full meetings held 23rd & 24th July 2013; 16th & 17th December, 2013; and 7th & 8th April, 2014.

## EXECUTIVE COMMITTEE

Teleconference held 15 July 2013, 23 July 2013, 22 August 2013, 17 September 2013, 15 October 2013,

18 October 2013, 18 November 2013, 10 December 2013, 12 February 2014, 20 March 2014, 19 June 2014

## 2.4.3 EXTENSION CONDUCTED

**Table 9:** Sum of attendees by financial year by extension type.

Sum of Attendees	Year			Grand Total
	2010-11	2011-12	2013-14	
Conference	1,555	910	595	3,060
Field Day	1,958	1,490	2,101	5,549
Forum	410	980	200	1,590
Meeting	233	75	354	662
Show	495	250	100	845
Show / Field Day	2,800	2,000	1,000	5,800
Webinar	99	196	62	357
Workshop	315	500	262	1,077
Symposium		100		100
<b>Grand Total</b>	<b>7,865</b>	<b>6,501</b>	<b>4,674</b>	<b>19,040</b>

## 2.4.4 UPDATE ON INDUSTRY PROJECTS

### SERVICE PROVIDER TRAINING

This year Sheep Genetics hosted the service provider training in Melbourne. The focus as with previous years was still on educating the service providers with the basic understanding of the principles behind genetic evaluation. With the scanner training on there was a number of carcass scanners also attending.

Unfortunately numbers this year were not as high as previous years with only 17 service providers attending. In this 17 there were a number that only attended in part. Future service provider training will need to address further upskilling the previous attendees

with new information such as Matesel and genomic implementation.

### LEADING BREEDER CONFERENCE

The Sheep Genetics leading breeder forum for 2014 was held in Wagga Wagga on Tuesday the 4th of March. As In the past, Sheep Genetics kept the event management internally and ran the forum over the one day

There was over 85 registered attendees with a further 3 who had shown up on the day. The registrations were a mix of LAMBPLAN, MERINOSELECT, DOHNE and one KIDPLAN members. There was also a group of non Sheep Genetics members as well as numerous service providers. Media were there in the form of Rural Press and ABC Rural.

The day was successful with the average score for the day being 4.1 out of 5.

### **REGIONAL FORUMS**

Sheep Genetics ran five regional forums in 2014 at Campbell Town Tasmania, Cowra NSW, Bendigo VIC, Bordertown SA and Katanning WA. The attendees came from LAMBPLAN, MERINOSELECT and DOHNE clients with one commercial sheep producer going to the Cowra forum. The lowest attendance was 11 at Bendigo with Campbell Town having 23. Most were in the 17-20 mark. All forums were deemed successful in the final room evaluations with both long term clients and service providers commenting on the effectiveness of the day. An email was received from Bruce Hancock (PIRSA) regarding the successfulness of the Bordertown forum.

### **SCANNER ACCREDITATION AND TRAINING**

The scanner accreditation workshop was held at Warrane Station, Armidale on the 26th of November 2013. The aim of the workshop was to test scanner operators for the repeatability in which they take ultrasound carcass measurements. Sixteen scanner operators attended the day. The time of year also worked well in terms of availability for the attendees. The sheep used during the workshop were also measured through the CT scanner at UNE the day prior. Proximity of Warrane to UNE and the UNE facilities meant this was done easily and with good results.

The actual outcome of the day revealed that the overall competency of scanner operators was lower than expected and as a result a scanner training day was put together.

The scanner training workshop was held on the 19th of May near Kyneton in Victoria on the O'Sullivan families property. Wayne Upton was engaged to facilitate the day and Chris Graham from BCF ultrasound provided technical support on the use of ultrasound technology. Ten operators attended the workshop and all gave positive feedback.

### **2014 WORLD MERINO CONFERENCE**

Hamish Chandler travelled to Stellenbosch, South Africa, to represent Sheep Genetics at the World Merino Conference in late April. The primary purpose of attending the conference was to gauge the interest of breeders from other countries in participating in combined genetic evaluations. The conference provided a good opportunity to network with other researchers, service providers and breeders from around the world.

The level of industry funding that has been allocated to the development of MERINOSELECT appears to have led to an evaluation that provides a wide range of breeding values of Merinos than is provided in other countries. This applies to fertility and carcass traits, and particularly the incorporation of genomic information into the evaluation. From discussions with breeders the South African system has two different types of evaluation that provide either phenotypic deviations or full BLUP breeding values, and this appeared to cause some confusion in the industry.

As a result of contacts made while in South Africa, there are ongoing discussions about including South African and Uruguayan Dohne flocks in the Australian Dohne analysis. There have been a couple of

individual Uruguayan Dohne flocks enroll in the Australian evaluation and there are continuing discussions about a more formal arrangement to provide an evaluation for their association.

#### **SOFTWARE DEVELOPERS MEETING**

A meeting of active Sheep Genetics software developers was held on the 19th of May 2014. Attendees included representatives from Practical Systems (Stockbook), Sapien (Koolperform), Gallagher, TopStud and Macrostock. Topics of discussion included an update from AGBU, extensions to the Sheep Genetics programming API, ovis result delivery and the introduction of Rampower and Matesel. Discussions also included delivery of reproduction information to Sheep Genetics.

#### **SERVICE PROVIDER REBATE**

There were seven flocks join MERINOSELECT through the service provider rebate scheme. With the increase in membership and the exclusion of being able to submit data in excel more clients are purchasing commercial software packages. Sheep Genetics staff have not run any Try Before You Buys in 2013-2014 that haven't gone through a service provider.

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## **2.5 GENETIC TRENDS**

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### **MERINOSELECT**

Table 10 below shows the average trend in MERINOSELECT has continued to improve going up nearly one index point

in the 2013-2014 financial year. This rate of gain is not as high as the predicted change as it has been impacted by new flocks entering with lower productivity compared to the average of current members.

#### **SUPER/ULTRAFINE**

The trends of the super/ultrafine type have risen approximately 3 points and are now sitting approximately four index points above where the predicted index target. The big drivers of this change have been a significant effort by these breeders to increase the performance of their body weights and clean fleece weight, this includes a nineteen percent growth of numbers.

#### **FINE/FINE-MEDIUM**

The trends of the fine-medium have increased but not at the rates originally set out in the business plan and currently sit 1.6 index points behind the predicted target. This wool type is the largest of the three wool types in MERINOSELECT making up approximately 55 percent of the data in the 2012 drop. The type has made gains of one percent in YCFW and nearly 0.5 of a kg increase in YWT.

#### **MEDIUM/STRONG**

The trends for the medium strong type have made increases and currently sit above the predicted target index. There are gains in all the production traits including YFAT, YEMD, YWT, YCFW. There has seen significant reductions in YFEC and Wrinkle.

**Table 10:** Merino Breed asbv genetic trends, includes all 3 merino types.

	ywt	yfd	ygfw	agfw	yfdcv	ycurv	ysl	yss	nlw	yfec	yfat	yemd	ebwr	ldag	DP+	MP+	FP+	Count
2003	0.3	-1.2	0.4	-0.2	-0.4	0.6	1.0	0.0	-0.5%	-0.4	0.0	0.2	0.0	0.0	116.1	117.8	119.7	116,805
2004	0.4	-1.2	0.5	-0.2	-0.4	0.2	1.2	-0.2	-0.3%	-0.1	0.0	0.2	0.0	0.0	116.7	118.5	120.3	108,788
2005	0.8	-1.2	1.6	0.3	-0.5	-0.2	1.7	0.0	-0.6%	1.3	0.0	0.2	0.0	0.0	118.1	120.0	121.0	10,0161
2006	1.2	-1.2	2.3	0.6	-0.6	-0.2	2.1	0.1	-0.3%	-3.6	0.0	0.2	-0.1	0.0	120.1	121.6	122.1	94,313
2007	1.3	-1.2	2.9	0.9	-0.6	-0.1	2.1	0.0	-0.1%	-5.1	0.0	0.2	-0.1	0.0	121.2	123.1	123.3	96,572
2008	1.6	-1.2	3.9	1.7	-0.6	-0.4	2.5	0.1	0.0%	-4.1	0.0	0.2	0.0	0.0	123.3	124.7	124.1	98,719
2009	2.0	-1.1	4.0	1.5	-0.7	-0.6	2.9	0.3	0.5%	-5.8	0.0	0.3	-0.1	0.0	124.9	125.6	124.5	94,558
2010	2.5	-1.1	5.1	2.5	-0.7	-1.5	3.6	0.2	0.5%	-7.1	0.0	0.3	-0.1	0.0	127.5	127.7	125.5	103,300
2011	2.8	-1.1	5.4	2.7	-0.7	-1.9	4.0	0.3	0.7%	-7.4	0.0	0.3	-0.1	0.0	128.7	128.8	126.0	118,203
2012	3.1	-1.1	5.8	2.8	-0.7	-1.9	4.1	0.3	0.6%	-8.1	0.1	0.3	-0.1	0.0	129.6	129.6	126.6	130,933
2013	3.5	-1.1	7.1	3.5	-0.8	-2.4	4.7	0.4	0.8%	-8.0	0.0	0.3	-0.1	0.0	132.5	132.7	128.5	55,548

**Table 11:** Super Fine/Fine Merino type ASBV genetic trends

	ywt	yfd	ygfw%	agfw%	ydcv%	ycur	ysl	yss	nlw%	yfec	yfat	yemd	ebwr	ldag	DP+	MP+	FP+	Counts
2003	-2.2	-2.0	-10.7	-10.5	-0.8	6.9	-3.3	-0.1	-1.3%	-4.0	0.2	0.2	0.0	0.0	98.2	103.8	116.0	29,409
2004	-2.3	-2.0	-10.7	-10.1	-0.9	6.8	-3.7	-0.3	-1.3%	-3.0	0.2	0.2	0.0	-0.1	99.2	105.1	117.1	28,582
2005	-1.7	-2.0	-9.5	-9.4	-0.9	6.7	-3.4	0.0	-1.4%	-4.4	0.2	0.2	0.0	0.0	101.4	107.2	118.5	24,573
2006	-1.4	-2.0	-7.7	-8.1	-0.9	6.3	-3.3	0.1	-1.5%	-3.1	0.1	0.2	0.0	0.0	103.6	110.2	120.3	24,106
2007	-1.2	-2.0	-6.7	-7.5	-0.9	6.1	-3.2	0.3	-1.1%	-4.3	0.1	0.1	0.0	0.0	106.1	112.9	122.2	24,809
2008	-1.0	-2.0	-6.1	-7.0	-0.9	5.9	-3.0	0.2	-1.0%	-4.8	0.1	0.1	0.0	0.0	107.3	113.8	122.5	24,372
2009	-0.9	-2.0	-5.9	-7.1	-0.9	5.8	-2.8	0.3	-1.1%	-6.7	0.1	0.1	0.0	-0.1	107.7	114.8	123.7	22,342
2010	-0.8	-2.0	-4.3	-5.3	-0.8	5.0	-2.7	0.2	-0.7%	-11.3	0.0	0.1	0.0	0.0	110.8	117.9	125.9	20,196
2011	-0.2	-2.0	-3.1	-4.6	-0.8	4.8	-2.2	0.3	-0.9%	-9.3	0.0	0.1	0.0	0.0	113.5	120.2	127.0	18,274
2012	-0.1	-2.0	-2.9	-4.5	-0.8	4.7	-2.2	0.2	-0.8%	-8.1	0.0	0.1	0.0	0.0	114.2	121.3	127.8	21,277
2013	0.4	-1.7	-1.3	-2.6	-0.7	3.8	-1.6	0.4	-0.4%	-11.1	0.0	0.2	0.0	0.0	118.1	122.4	127.3	8,966

**Table 12:** Fine Merino type ASBV genetic trends

	ywt	yfd	ygfw%	agfw%	ydcv%	ycur	ysl	yss	nlw%	yfec	yfat	yemd	ebwr	ldag	DP+	MP+	FP+	Counts
2003	0.6	-1.1	3.7	3.4	-0.2	-1.2	1.8	-0.1	-0.6%	0.4	-0.1	0.2	0.0	0.0	121.4	122.8	122.3	60,986
2004	0.8	-1.1	4.1	3.5	-0.2	-1.7	1.9	-0.2	-0.9%	1.4	-0.1	0.1	0.0	0.0	121.7	123.8	123.2	58,982
2005	1.2	-1.1	4.8	3.6	-0.3	-1.9	2.5	0.0	-0.9%	5.4	-0.1	0.1	0.0	0.0	122.7	124.8	123.4	55,823
2006	1.6	-1.0	5.6	3.9	-0.4	-1.9	2.9	0.0	-0.7%	-2.3	0.0	0.2	0.0	0.0	124.7	126.4	124.5	49,160
2007	1.7	-1.1	6.3	4.4	-0.4	-1.7	3.1	-0.1	-0.4%	-4.9	-0.1	0.2	0.0	0.0	126.1	127.8	125.8	49,240
2008	2.1	-1.0	7.3	4.9	-0.5	-1.8	3.7	0.1	0.0%	-3.8	0.0	0.2	0.0	0.0	128.4	129.4	126.5	50,502
2009	2.5	-1.0	6.9	4.3	-0.6	-1.9	3.9	0.3	0.6%	-5.2	0.0	0.3	-0.1	0.0	129.9	129.6	126.4	47,218
2010	3.0	-1.0	8.0	5.1	-0.6	-2.3	4.2	0.3	0.3%	-5.0	0.0	0.3	-0.1	0.0	132.6	132.6	128.6	50,792
2011	3.1	-1.1	7.5	4.5	-0.7	-2.4	4.3	0.4	0.6%	-6.4	0.0	0.3	-0.1	0.0	132.6	132.9	129.1	56,202
2012	3.5	-1.1	8.5	5.2	-0.6	-2.8	4.5	0.4	0.5%	-7.1	0.0	0.3	-0.1	0.0	134.0	134.2	129.7	61,337
2013	4.2	-1.1	9.8	5.1	-0.8	-3.1	6.1	0.4	0.9%	-6.2	-0.1	0.2	-0.1	0.0	137.3	137.5	131.6	25,864



**Table 13:** Medium Merino type ASBV genetic trends

	ywt	yfd	ygfw	agfw%	ydcv	ycur	ysl	yss	nlw %	yfec	yfat	yemd	ebwr	ldag	DP+	MP+	FP+	Counts
2003	2.4	-0.5	7.1	4.1	-0.4	-4.2	5.2	0.2	1.0%	3.4	0.0	0.2	-0.2	0.0	124.9	123.3	118.2	18,293
2004	3.0	-0.4	6.4	3.3	-0.5	-4.9	7.1	-0.1	2.6%	-3.3	0.1	0.4	-0.3	0.0	126.7	122.1	116.0	16,846
2005	3.3	-0.5	7.2	3.7	-0.5	-5.1	6.8	0.1	1.6%	-7.7	0.1	0.4	-0.2	0.0	127.8	123.4	117.2	15,275
2006	3.8	-0.5	7.1	3.3	-0.6	-5.3	7.5	0.2	2.1%	-16.3	0.2	0.5	-0.3	0.0	130.0	124.7	118.2	16,583
2007	3.7	-0.5	7.4	3.4	-0.5	-5.4	7.6	-0.1	2.1%	-18.7	0.1	0.5	-0.3	0.0	129.9	125.3	118.7	15,870
2008	3.9	-0.4	8.0	4.2	-0.6	-6.0	7.5	0.3	2.1%	-13.8	0.1	0.4	-0.3	0.0	130.9	126.3	118.9	16,491
2009	4.2	-0.4	8.2	4.1	-0.7	-6.0	7.7	0.4	2.3%	-19.5	0.1	0.4	-0.4	0.0	132.0	127.5	119.8	17,049
2010	4.7	-0.5	7.7	3.5	-0.7	-6.0	8.2	0.0	2.1%	-15.6	0.1	0.6	-0.2	0.0	131.9	126.2	118.6	20,950
2011	4.4	-0.5	7.8	4.0	-0.7	-5.9	7.9	0.1	2.1%	-19.0	0.1	0.5	-0.5	0.0	132.2	128.0	120.6	26,021
2012	5.0	-0.5	8.0	3.6	-0.8	-6.2	8.9	0.3	1.9%	-26.0	0.2	0.6	-0.5	-0.1	133.7	128.4	120.7	26,532
2013	4.3	-0.7	8.7	4.8	-0.8	-6.1	7.7	0.2	1.6%	-26.5	0.0	0.3	-0.3	-0.1	135.1	133.1	126.0	12,194

**NOTE:**

1. Not all 2013 drop animals had been submitted by July 2014.
2. Most, but not all Merino flocks have a “designated type”.
3. While there is overlap between types there are some large differences in ASVBs and trends between the types.

**Table 14:** Dohne trends for key traits and indexes

	ywt	ytd	ycfw%	yfdcvc%	ysl%	nlw%	ywt	yfat	yemd	Dohne+	Dohne	Counts
2006	1.4	-0.2	2.6	-0.2	-0.3	-0.3	1.4	0.04	0.26	110.9	111.7	47,329
2008	1.7	-0.3	2.7	-0.2	-0.5	0.0	1.7	0.05	0.28	113.4	114.0	47,075
2007	2.0	-0.3	3.0	-0.3	-0.6	-0.1	2.0	0.04	0.28	114.6	115.7	47,710
2008	2.3	-0.3	3.5	-0.3	-0.5	0.1	2.3	0.06	0.29	116.1	117.2	50,577
2008	2.6	-0.3	3.9	-0.3	-0.5	0.1	2.6	0.06	0.29	117.7	119.2	51,200
2010	2.8	-0.4	4.3	-0.4	-0.4	0.2	2.8	0.06	0.31	119.5	120.8	47,063
2011	2.8	-0.3	4.5	-0.5	-0.1	0.1	2.8	0.08	0.40	120.0	120.8	26,810
2012	3.2	-0.3	5.0	-0.5	-0.2	0.3	3.2	0.09	0.47	122.9	123.3	27,479
2013	<b>3.4</b>	<b>-0.3</b>	<b>6.0</b>	<b>-0.5</b>	<b>-0.1</b>	<b>0.4</b>	<b>3.4</b>	<b>0.09</b>	<b>0.47</b>	<b>124.6</b>	<b>125.0</b>	<b>21,960</b>

Consistent genetic gains are being achieved across the flocks subscribed to LAMBPLAN. Figure 6 illustrates the ongoing gain achieved over time for the flocks within the terminal analysis. The gains being achieved within the terminal analysis are at the rate predicted in

the Sheep Genetics business plan.

Consistent gains are also illustrated in figure 5 for the flocks within the maternal analyses as demonstrated by the trend in Maternal\$ index.

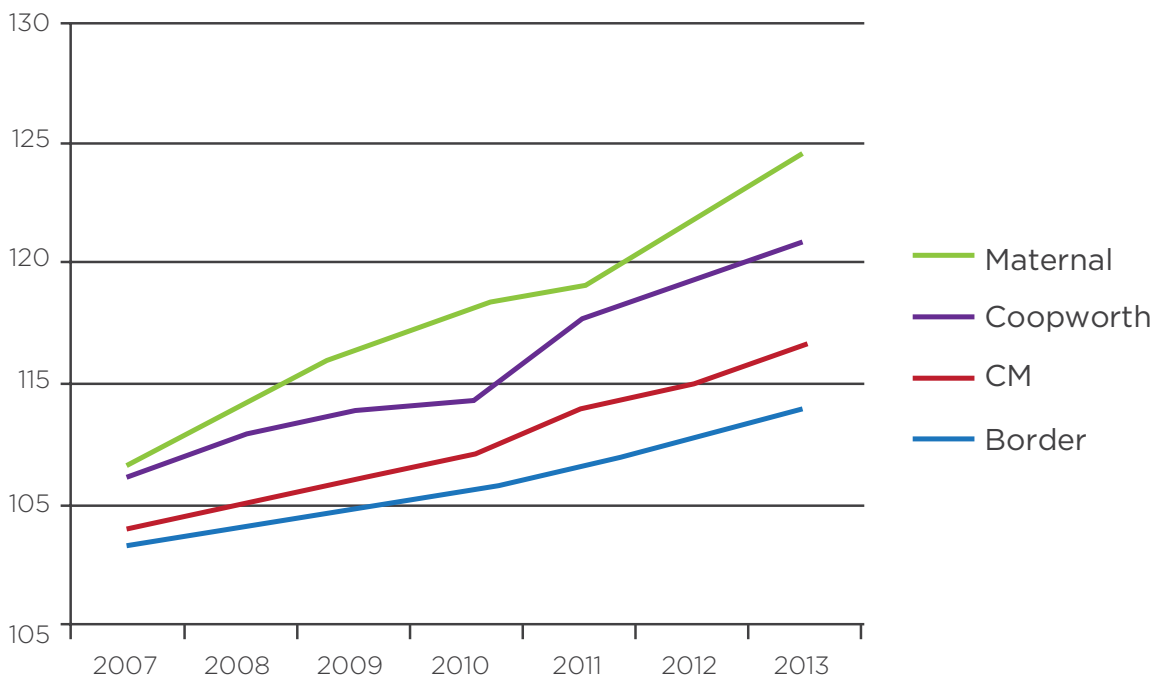


Figure 5: LAMBPLAN Maternal Genetic Trends

## 2.6 SUBSCRIBER SURVEY

The annual survey was distributed electronically for the second year to all subscribers. There was a greater response this year than the previous year. The survey was distributed on the 4/10/13 and closed on the 1/11/13, it was successfully delivered to 843 email addresses. This included

National Sheep Improvement Program USA (NSIP) clients, whose responses were removed from this survey report as the service provided to them is markedly different to a normal fee paying client.

The full report can be viewed on the Sheep Genetics website.

**Table 15:** Maternal Trends for key traits and index

	WWT	PWWT	PFAT	PEMD	YGFW%	YFD	NLW%	YNLW%	PFEC	Maternal \$	Counts
2005	3.1	4.5	-0.5	-0.4	13.5	0.56	1.0	0.7	3.2	106.9	79,356
2006	3.5	5.0	-0.4	-0.3	12.8	0.61	1.1	0.7	14.2	108.1	83,878
2007	3.8	5.5	-0.4	-0.2	12.6	0.56	1.4	1.3	0.6	109.8	82,152
2008	4.2	5.9	-0.4	-0.1	11.5	0.53	1.5	1.5	8.6	111.0	74,046
2009	4.6	6.5	-0.5	-0.1	11.3	0.54	1.8	1.8	-2.5	112.7	72,428
2010	4.8	7.0	-0.5	0.0	10.2	0.58	1.9	2.3	-6.1	114.0	71,835
2011	5.1	7.4	-0.5	0.1	10.1	0.62	2.5	2.8	-5.1	115.2	82,145
2012	5.4	7.9	-0.4	0.2	10.8	0.74	3.4	3.9	-8.5	117.0	79,643
2013	5.5	8.0	-0.4	0.2	10.9	0.75	3.9	4.2	-9.2	117.7	69,632
2014	<b>6.1</b>	<b>9.3</b>	<b>-0.4</b>	<b>0.2</b>	<b>4.6</b>	<b>0.85</b>	<b>6.5</b>	<b>6.8</b>	<b>-16.3</b>	<b>123.2</b>	<b>30,123</b>

**Table 16:** Terminal Trends for key traits and indexes

	BWT	WWT	PWWT	PFAT	PEMD	LAMB2020	CARCASE +	Counts
2005	0.20	4.63	6.99	-0.53	0.45	105.7	142.5	114,564
2006	0.19	5.04	7.63	-0.52	0.58	106.3	147.1	123,776
2007	0.21	5.39	8.18	-0.55	0.62	106.8	150.4	120,209
2008	0.23	5.74	8.73	-0.59	0.66	107.2	153.7	123,087
2009	0.23	6.04	9.23	-0.59	0.72	107.7	156.9	123,934
2010	0.23	6.33	9.72	-0.58	0.81	108.2	160.3	71,835
2011	0.24	6.58	10.13	-0.56	0.89	108.6	163.1	82,145
2012	0.25	6.89	10.62	-0.56	1.01	109.1	167.0	79,643
2013	0.27	7.26	11.19	-0.56	1.12	109.6	171.1	69,632
2014	<b>0.29</b>	<b>7.79</b>	<b>12.10</b>	<b>-0.53</b>	<b>1.37</b>	<b>110.6</b>	<b>178.1</b>	<b>30,123</b>

