final report

Project code: **B.PRS.0705 / 2007/V02**

Prepared by: **Stuart Robinson**
Central Highlands Farming Systems
Maryborough Regional BestWool
BestLamb Group

Date published: **November 2011**

ISBN: **9781741916669**

PUBLISHED BY
Meat & Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

Sheep meat production systems

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Summary

The Maryborough BestWool-BestLamb group conducted a sheep meat production systems project to compare systems on members farms. The aim was to increase prime lamb production and whole flock profitability from enterprises that have, in the past being based on medium-fine wool.

Fourteen group members measured the performance of 57 ewe and lambs groups over the 2007-08, 2008-09 and 2009-10 seasons. Enterprises studied included; (i) second cross prime lambs from Border Leicester x Merino ewe as well as White Suffolk x Merino cross ewes. (ii) first cross prime lambs from terminal sires over merino ewes, (iii) Self replacing Merino flocks marketing lambs as either refinisher stores at ages from 4 to 10 months or prime merino wether lambs from 11 to 13 months of age and (iv) Self replacing merino flocks marketing wethers between 1.5 and 2.5 years of age.

Members compared their measurements and discussed their results. Farm management changes resulting from these studies included; (i) marketing merino lambs at younger ages as stores rather than holding them for extended periods as stores; (ii) using specialty fodder crops for finishing lambs over the summer-autumn; (iii) very limited use of intensive grain feeding; (iv) improving pasture based nutrition for merino wether lambs; (v) changes to lambing time; for some spring lambing flocks, it meant bringing lambing forward 4 to 6 weeks, for an autumn lambing flock, it meant putting it back a month; (vi) changing ewe breeds and in particular retaining White Suffolk x Merino cross prime lambs as crossbred ewes for lamb production and the trailing of dual purpose Merinos; (vii) pregnancy scanning and differential treatment of ewes carrying singles or twins or dry ewes; (viii) seeking better merino lamb marketing opportunities and; (ix) commencing a Lifetime Ewe course.

Economic analyses done as part of this project and using data from other studies indicated priorities as; (i) for short term cash flow were a change to lambing time and pregnancy scanning, each of which has the potential to increase whole farm income by nil to $10,000 per year in a 5000 DSE flock; (ii) medium term cash flow was to retain White Suffolk x Merino cross ewes that could lead to an annual income increase of around $22,000 per year in a 5000 DSE crossbred ewe flock; less if a proportion of the flock was retained as merinos; and (iii) long term cash flow benefited most from a change to high performing dual purpose Merinos that had the potential to increase whole farm income by up to $60,000 per year in a 5000 DSE flock, but it would take 8 to 10 years for the full benefits of this to flow through the flock.

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1 Project objective

To have all members critically measure and analyse components of their sheep farming system to increase the profitability of sheep meat production. This involves the following:
1. Demonstrate an increase from $18 to $26/DSE by changing the emphasis from wool to best practice prime lamb and merino wether lamb production.
2. Demonstrate the potential of quality pastures with best management to lift stocking rates on focus paddocks from 8 to 12 DSE/ha while reducing weeds and increasing ground cover in autumn.
3. Demonstrate how improved marketing of merino wether lambs can increase carcase prices by 30 c/kg.
4. Investigate the most cost effective means to increase growth rates in merino wether lambs to achieve suitable carcase weights for the prime meat market.
5. Investigate the potential of dual purpose merinos to increase sheep meat production without sacrificing wool quality and productivity.

2 Method

The Group measured and compared the productivity and profitability of alternate 'sheep production systems'. The results of these comparisons, made on members' own farms, were analyzed and discussed to enable increased sheep meat production and whole farm profitability.

Members measured their sheep performance, the results analyzed, comparative reports prepared and the results discussed to assist members improve their sheep meat production systems.

A series of component kits were developed to evaluate components of prime lamb, merino wether lamb and merino wether production systems. Fourteen group members undertook at least one component of the farm systems analyses. Kits were developed to ensure uniform recording techniques. On-farm meetings were held to inspect and discuss the progress of on-farm trials. Other discussion meetings compared the analyses of these trials.

Sheep management issues investigated included:

(i) Young lamb growth rates
Members compared growth rates of alternative genetic types e.g. first cross lambs versus fine wool merino lambs versus dual purpose sheep prime lambs to investigate the potential of genetics to achieve fast growth rates.

(ii) Lamb growth after seasonal pasture dry off
Alternative methods of finishing merino wether lambs and prime lambs were compared. Finishing methods included grain, specialty fodder crops, lucerne and on-selling store lambs to other district farmers for finishing.

(iii) Lamb marketing analyses
Marketing lambs, in particular merino wether lambs has provided many challenges to members. The project officer, in conjunction with participants developed a 'lamb marketing performance indicator' for members to analyze their meat prices on a per kilo basis.

(iv) Gross margins of production systems
Gross margins per lamb and per lamb per month were compared within and between farms. Some farms compared 2 or 3 sheep enterprises; for example first cross lambs, merino wether lambs sold early, merino wether lambs finished as prime lambs or merino wethers.

(v) Pasture quality, productivity and utilization
Several members measured focus paddocks for productivity and stocking rates.

(vi) Dual purpose merinos
Two members have introduced dual purpose merino genetics and are comparing the Centre Plus dual purpose type merino for meat and wool productivity.

The project officer assisted by (i) developing uniform recording methods to be used across farms, (ii) producing and distributing the recording kits, (iii) training members to take and analyze their own measurements, (iv) collating group reports, (v) distributing reports to members, (vi) organizing and facilitate farmer meetings and workshops, (vii) preparing periodic reports for MLA and (viii) publicizing the project.

3 Group outcomes

3.1 Members participation

Fourteen of the 18 farm businesses in the group took on-farm measurements over the project period from 2007 to 2010. The number of flocks with measurements in each category is shown in Table 1. Some farms had up to three flock types monitored.

Table 1. Member participation in on-farm measurements. Fourteen farm businesses took measurements over the PIRD project period. Some farms measured up to three flock types.

	Member participation each year		
Flock type measured	2007-08 lambs	2008-09 lambs	2009-10 lambs
Merino self replacing flock producing wether lambs	10	11	7
1st cross Border Leicester x Merino cross	4	4	3
1st cross, Terminal sire x Merino	3	3	3
2nd cross prime lambs	3	3	3
Total number of lamb groups monitored	20	21	16

Group members inspecting a lucerne paddock used to finished lambs measured as part of the PIRD. This lucerne paddock was cleaned of grasses and weeds and provided 2500 kg/ha dry matter of green lucerne to finish lambs.

3.2 Range of enterprises on members farms

Management on members farms varied within each flock type.. Flock types included:

- Border Leicester x Merino ewes for prime lamb production (ewes home bred from Merinos).

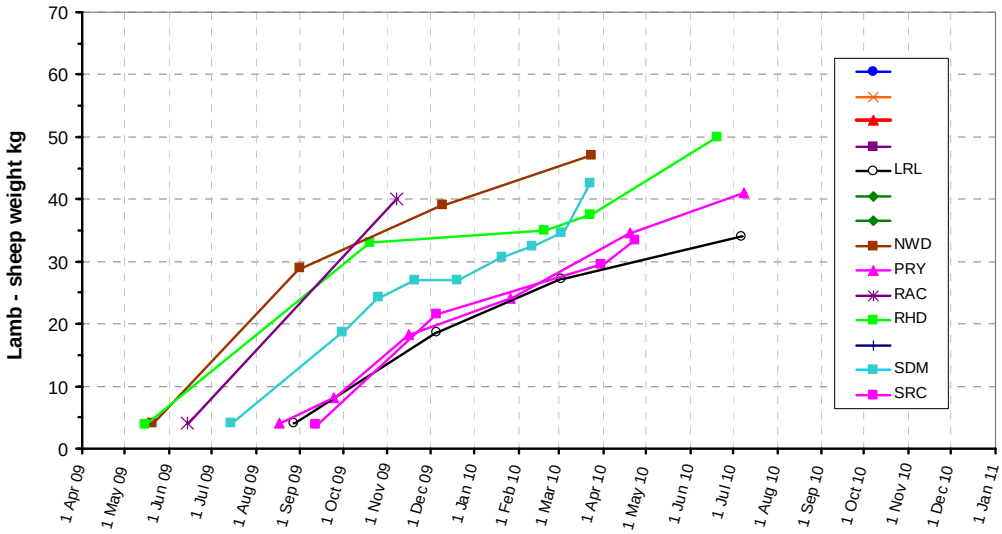
- White Suffolk x Merino ewes for prime lamb production, (WS x Mer ewes are retained from prime lambs on the same farm).
- Merino ewes to terminal sires for prime lamb production.
- Merino self replacing flock – wether lambs sold at 4 to 5 months into refinisher market.
- Merino self replacing flock – wether lambs sold at 10 to 13 months into refinisher or prime meat market.
- Merino self replacing flock – wethers retained as woolgrowers until 1.5 to 2.5 years of age.
- Merino self replacing flock – being converted to dual purpose merinos using 'Merino Select' dual purpose breeding values as a guide.

3.3 Results from the on-farm measurements

Lamb growth rates

Lamb growth rates from birth to pasture dry-off were measured for the 2007, 2008 and 2009 lamb drops. Unfortunately drought conditions severely limited lamb growth in 2007 and 2008, but the 2009 season, although it had a very late seasonal break, allowed the potential of several flocks to be expressed. The lamb growth for Merino and crossbred lambs, 2009 drop, are shown in Figure 1. a & b.

(a) PIRD, Merino lambs, 2009 Drop, growth to July 2010, 7 groups on 7 farms



(b) PIRD, Prime lamb weights from merino or XB ewes, 2009 drop, 9 groups on 6 farms

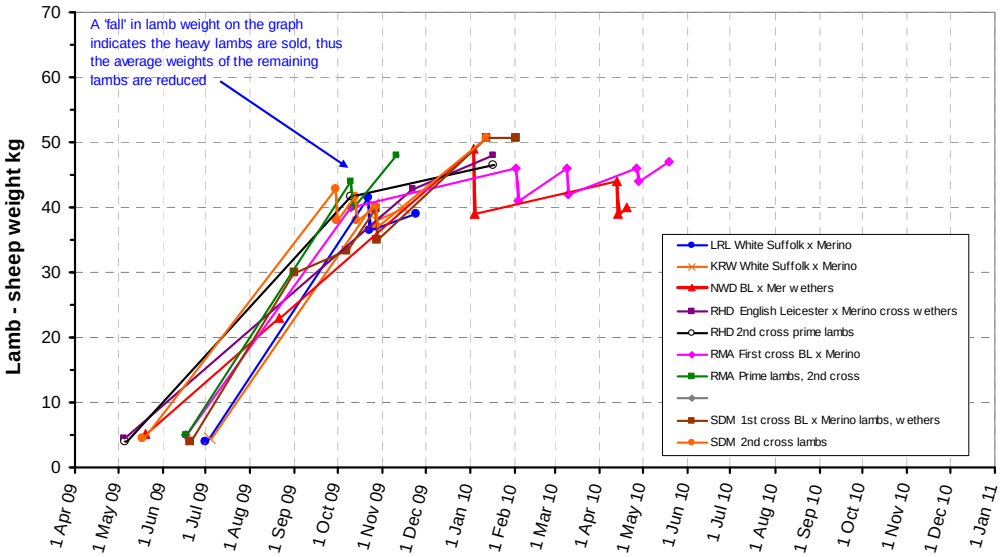


Figure 1. a & b. Lamb growth rates in the 2009-10 season. (a) Merino wether lambs. (b) Crossbreds including 1st and 2nd cross lambs.

In 2009 two of the 7 groups of merino lambs were able to achieve growth rates of 240 g/day over a 5 month period despite the late break over most of the district. The higher growth potential of crossbreds was demonstrated with 5 of the 9 groups achieving 300 g/day or higher growth rates.

Lamb weights at sale

Merino wether lamb live weights at sale varied from 31 to 50 kg in 2008-09 in drought conditions and from 33 to 50 kg in 2009-10, a year with a very late break and reasonable spring (Figure2). This reflected the range of farm management decisions. Some farms sold merino lambs at light weights at 4 to 5 months of age, while others opted to finish them to slaughter markets weights at 10 to 13 months of age on pasture, lucerne or grain. Two producers sold merino wether lambs at weights around 35 kg live weight or 12.5 kg carcase into the slaughter market and boat trade.

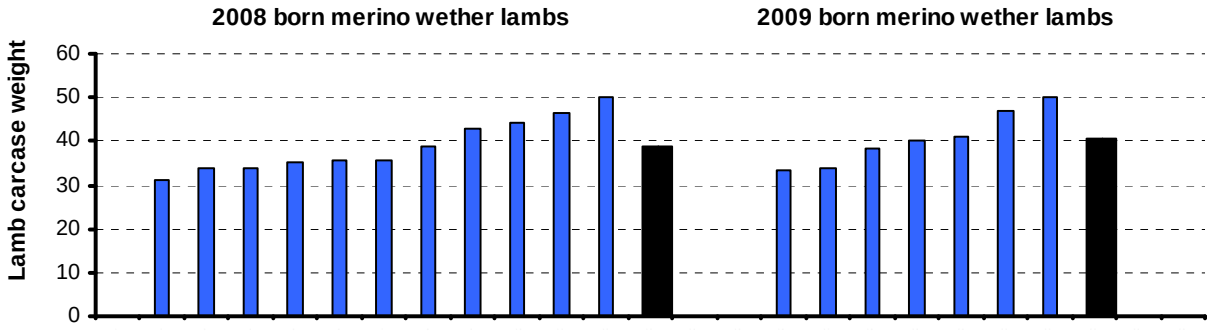


Figure 2. The live weight at marketing of merino wether lambs on each property and the average of all farms for the 2008 and 2009 drop.

Merino wether lambs were marketed at an average live weights 5 to 12 kg lighter than crossbred lambs (Figure3). This reflects the difficulty of merino genetics reaching heavy weights and the farm managers decisions to sell them at younger ages, rather than attempting to finish them.

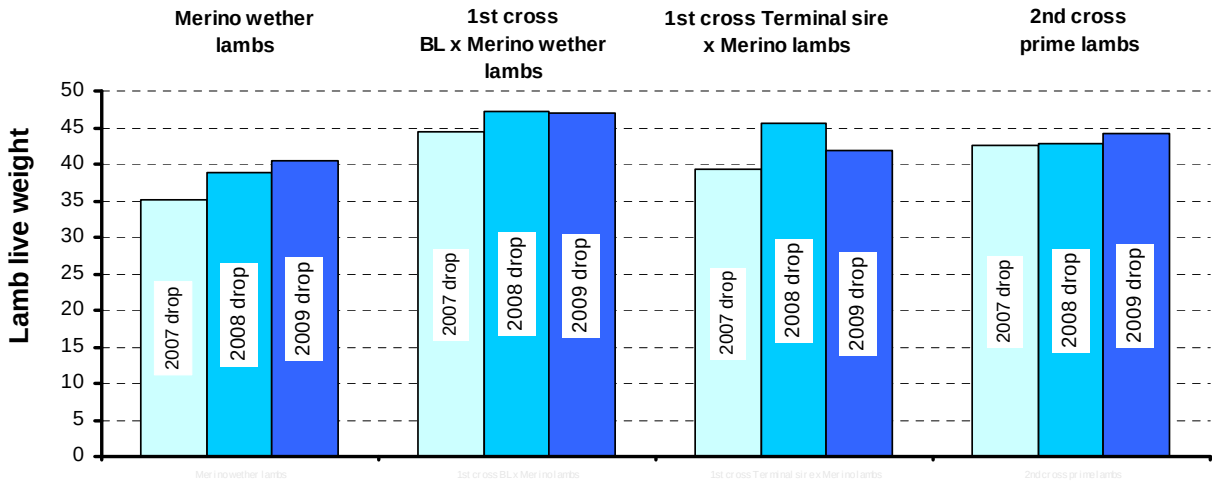


Figure 3. The average live weight at marketing for each lamb type on member farms for lambs born in 2007, 2008 and 2009.

Lamb price

Marketing lambs, in particular merino wether lambs provided many challenges to members. The project officer, in conjunction with participants developed a lamb marketing performance index for members to compare their carcase price per kilo with the weekly MLA market indicator price. The 'Lamb Market Index' was calculated as the price achieved as a percentage of the weekly market indicator prices from the MLA Meat and Livestock Weekly publication. The weekly indicator price for Merino lambs was the ‘Merino Lamb 16-22 kg’ price and for crossbred lambs

the average of the ‘Trade 18-22 kg’ and ‘Heavy Lamb 22+ kg’ prices. Where carcase weights were not available they were estimated from the live weights.

The ‘Lamb Market Index’ indicated that most crossbred lambs achieved close to the weekly prime lamb market indicator in all years, with second cross lambs achieving a slightly better price, relative to the weekly indicator, than the Border Leicester x Merino cross lambs. The merino wether lambs only achieved 58% and 78% of their Lamb Market Index for the 2007 and 2008 drop, while in 2009 they achieved an average index of 107% . The very good result for Merino lambs in 2009-10 was due to exceptional sales at 34 kg and 35 kg liveweight by two members. One sold 34 kg store lambs to a refinisher at 132% on the Lamb Market Index while another sold 35 kg live weight lambs at 167% of the index to the boat trade.

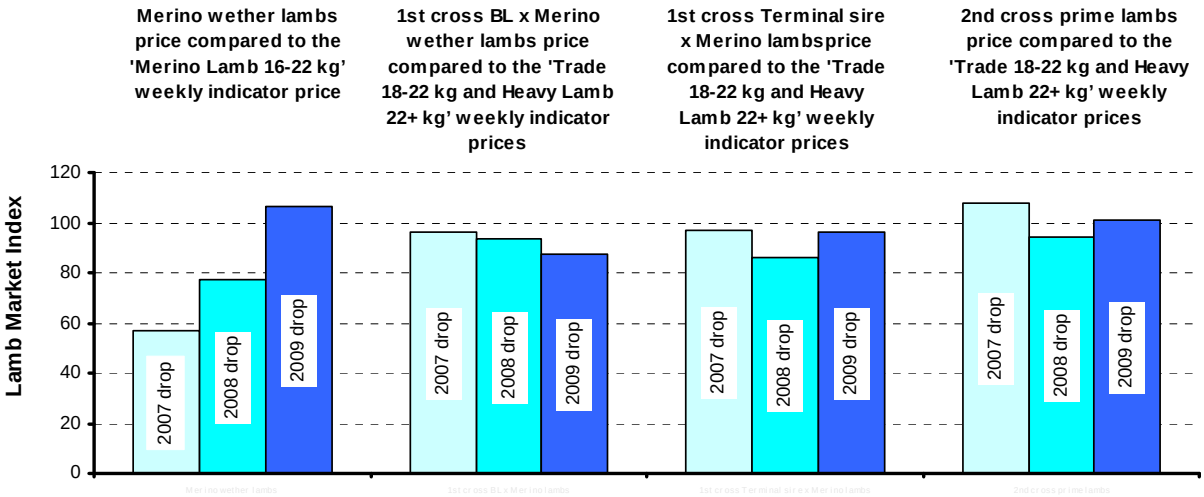


Figure 4. The Prime Lamb Marketing Index for each lamb type on member farms each year. The 'Lamb Market Index' is calculated from the carcase price received as a percentage of the Merino, trade and heavy prime lamb weekly market indicator.

Gross margins per lamb

Gross margins per lamb were calculated by two methods; (i) the gross margin per lamb from birth to sale and; (ii) the gross margin per lamb per month from birth to sale.

Gross margins were calculated from gross receipts; meat plus wool if the lamb was shorn; less the variable costs after birth including lamb marking, animal health, marketing costs, pasture costs, shearing and crutching and supplementary feed. The gross margin per lamb per month was calculated by dividing the gross margin by the time in months from birth to sale. Figures 5 show the results for three mobs in 2009-10 out of the 57 mobs monitored over the three years.

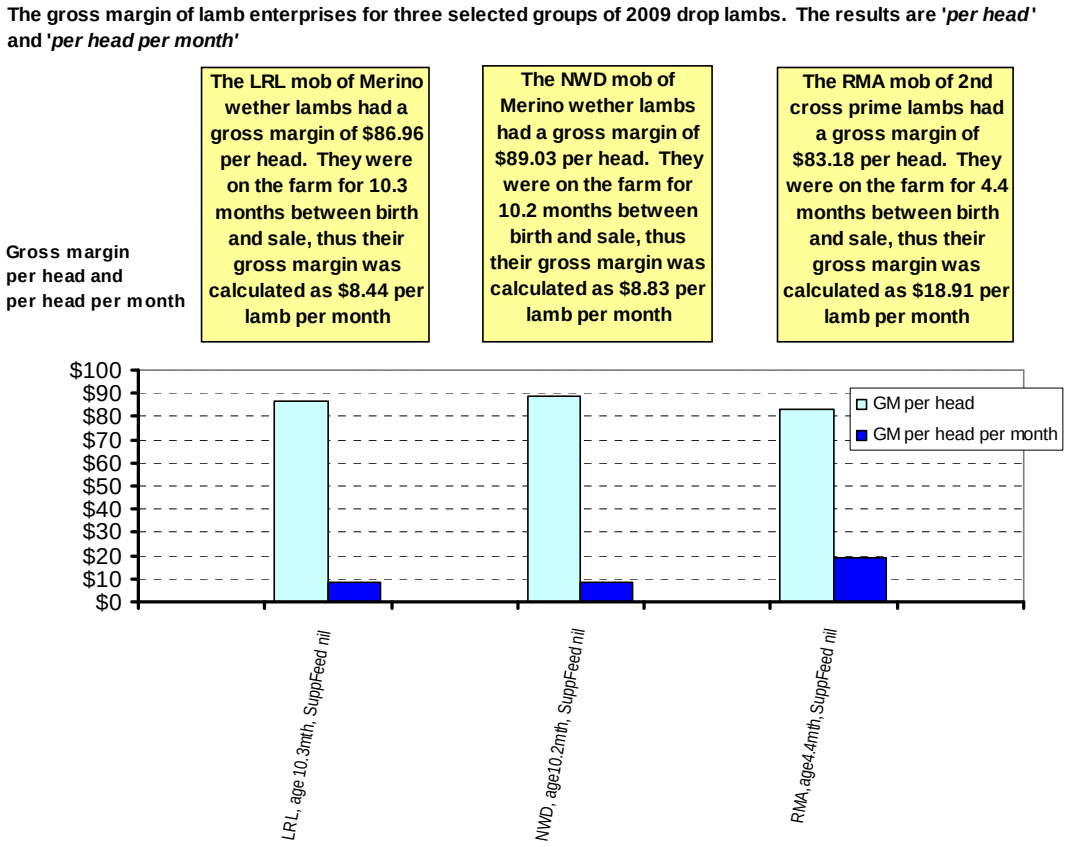


Figure 5. The gross margin 'per lamb' and 'per lamb per month' for three selected lamb mobs from the 2009 lamb drop.

The group discussed each of the 57 mobs monitored. Appendix 4.2 shows all mobs for 2008-09 and 2009-10. These discussions led group members to conclude that most of the profits were made in the first 5 months of the lambs' life and keeping the lambs on for up to 13 months generated only a small extra profit per lamb but substantially decreased the profit per lamb per month. In some cases merino lambs were kept on the farm for 10 to 13 months, but their gross margin per month was about one third that of crossbred lambs. As a result some members changed management and now sell merino wether lambs at younger ages, about 4 to 10 months rather than keeping them for 10 to 13 months.

The average gross margins 'per lamb' and 'per lamb per month' for the three years of the study are shown in
Figure 6 a & b. The year 2007 was near drought and merino wether lambs averaged a profit of about $3 per month while all crossbred lambs averaged three times higher monthly returns. The year 2008 was a slightly better season than 2007 and merino wether lambs returned a similar gross margin result to 2007. The year 2009 had a very late break and reasonable spring. The prime lamb price was good in late 2009 and this continued into 2010. As a result the gross margins for merino lambs were similar to that from crossbred lambs, around $71 per head for merinos and $76 per head for all crossbreds; overall an excellent result from merino wether lambs. As well several members finished their 2009 drop merinos to slaughter weights at younger ages and the gross margin per month from crossbreds was only about 50% higher than for merinos, compared to 300% higher in the previous two near drought years. There was also less urgency to sell lambs early in 2009-10 due to the better season.

The results from the three seasons have suggested best management is (i) feed merino lambs well and get them to as heavy weights as possible by the end of spring; (ii) if the season is poor sell wether lambs rather than feed them through and (iii) if the season is good feed merino wether lambs to slaughter weights at younger ages.

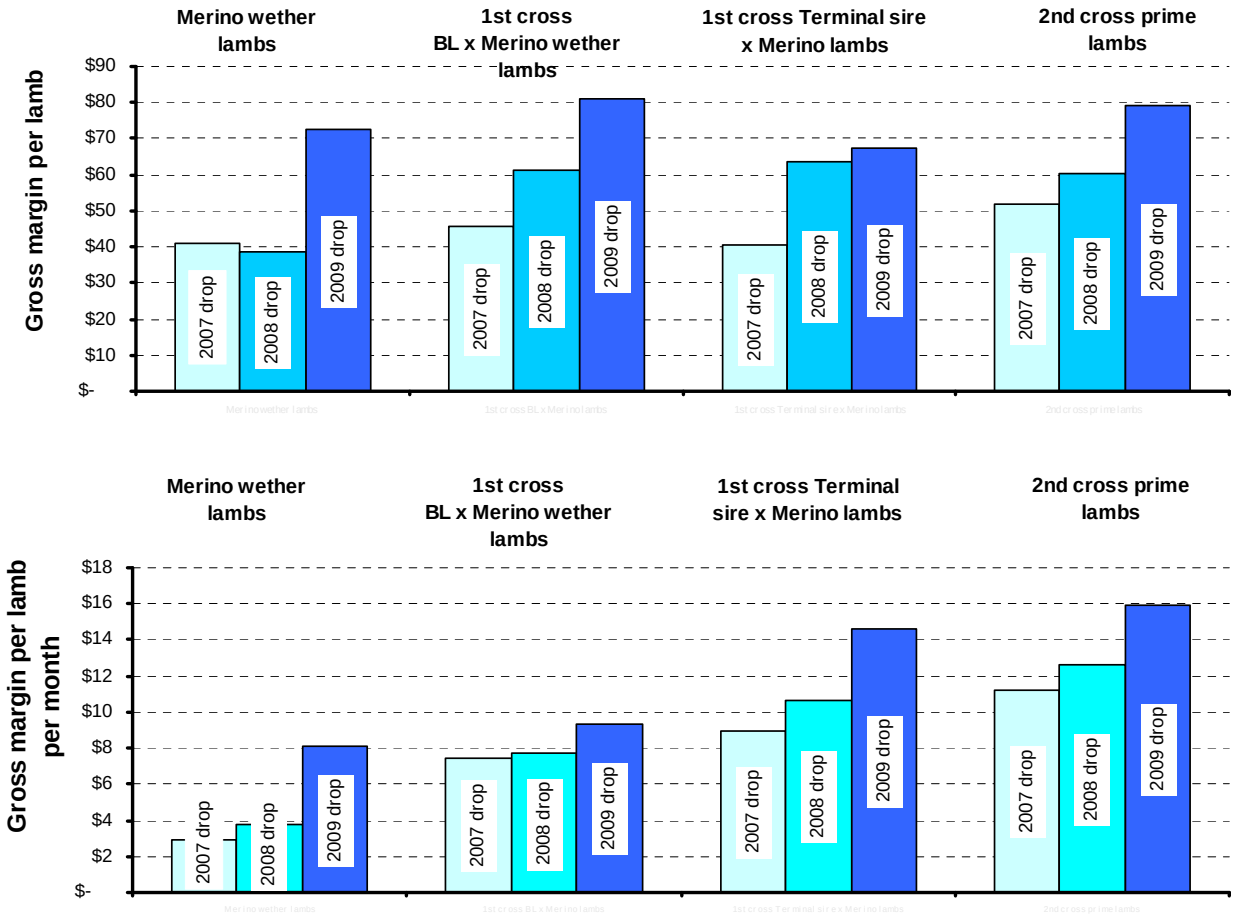


Figure 6, a & b. The average gross margin for each lamb type for the three years of the Study. (a) is the gross margin per lamb and (b) is the growth margin per lamb per month. Results from individual mobs are shown in Appendix 4.2.

3.4 Farm management changes

Discussions on the comparisons between farms resulted in members making the following farm management changes.

Enterprise and flock structure changes

Merino wether lambs are now mostly marketed earlier, at 4 to 11 months of age rather than keeping them until around 18 months of age. Enterprise comparisons indicated that keeping merino wethers for extended periods as stores or woolgrowers had a gross margin of between $1.50 to $3.00 per head per month. This was well below the gross margin of prime crossbred lambs that ranged from $4.00 to $11.00 per head per month. There is a ready market for store merino wether lambs, mainly from other farms with surplus fodder crops or pasture. Selling merino wether lambs, rather than keeping them, enabled flock structures to change to more ewes and less store sheep.

Lambing time change

Lambing time has moved forward by 4 to 6 weeks on several farms. Prior to the PIRD these farms had a wool production focus; there was little urgency to grow out lambs; maintaining lambs as stores around 28 kg weight over summer – autumn ensured wool production was optimized. Now, heavier, earlier drop lambs are attracting more store buyers and in some cases are enabling lambs to be finished on lucerne, fodder crops and grain to 48 kg and over slaughter weights by 12 months of age on their home farm.

Ewe breed changes

Members have two approaches to changing their ewe genetics.

(i) To retain a portion of White Suffolk x Merino cross prime lambs as prime lamb mothers. These lambs will reach acceptable joining weights by 7 to 8 months of age and are expected to lamb at around 100% at 12 to 14 months of age. This is an alternative strategy to purchasing Border Leicester x Merino crossbred ewes. Maternal central progeny tests indicated White Suffolk x Merino cross ewes have similar lambing percentages to the traditional Border Leicester x merino cross ewes. This farm intends to maintain a base flock of merinos of 25 to 35% of ewes to supply a continuing supply of crossbred ewes.

(ii) Two farms are changing to dual purpose Merinos using the Sheep Genetics Australia dual purpose breeding values as the key information source to help in purchasing dual purpose merino rams.

Improved nutrition for merino wether lambs
Members are giving higher quality pasture and feed to merino wether lambs in addition to lambing time changes to improve weights. The drought years of 2007 and 2008 limited members ability to achieve good pasture for merino wether lambs but satisfactory pasture conditions in 2009 enabled merino lambs to achieve growth rates of 240 grams per day over a 5 month period. Several members are continuing to monitor merino lambs in the excellent 2010 pasture season and excellent final results are expected.

Grain finishing merino wether lambs
Several members have finished merino wether lambs on grain, with mixed success. In 2007 the high cost of grain and difficult market conditions gave a marginal financial benefit while 2009 drop lambs fed $21 worth of grain per head were marketed in late autumn – early winter 2010 for $118 per head, a financially pleasing result. As a result of group discussions, members are generally wary of finishing merinos on grain, preferring to on-sell unfinished stock to other farms for finishing on fodder crops or good pasture.

Group members discussing grain finishing merino wether lambs

Opportunity sourcing and finishing merino wether lambs
The un-seasonally good pasture conditions in early autumn 2010 enabled one member to purchase store lambs from distant locations in difficult conditions and finish them on pasture and grazing cereals.

Getting lambs off early
Members have preferred to sell unfinished lambs at younger ages to other lamb finishers in difficult seasons rather than keep them as stores for an extended period until the chance of good seasonal conditions or prices might enable them to make a profit. The analyses of profit per lamb per month has supported this practice.

Lifetime ewe course
Six members have enrolled in the lifetime ewe course , commencing in late 2010 to improve ewe and lamb nutrition and lambing percentages.

Pregnancy test and feed to requirements
Several members are now pregnancy testing for dry ewes, singles and multiple births and using this information to increase lambing percentages. Information on the pregnancy status of ewes has enables members to: (i) identify and manage ewes separately according to pregnancy status, (ii) identify and potentially cull dry ewes from flock, (iii) identify early and late joined single bearing ewes, and (iv) to calculate lamb losses between scanning and marking

Seek good lamb marketing opportunities
The merino wether lamb market has evolved over the last 10 years to be an integral part of many sheep operations. Discussions between members, including sharing success stories and weighing lambs has made members more aware of marketing and sheep trading opportunities. Successful opportunities include over the hooks sale of light weight lambs in difficult seasons, marketing light lambs to the boat trade and using the internet to source lambs in distant districts.

Keeping ewes to older ages
Members are increasing ewes as a percentage their total farm DSE. On some farms this is achieved by keeping ewes until older ages.

Continuing the on farm comparisons of lamb growth and sale.
Members have indicated that they have learnt from sharing and discussing their sheep measurements and plan to continue for at least another year, especially considering 2007 and 2008 were drought years.

3.5 Whole flock economic benefits of key changes

Gross margins of production systems
The gross margins of the alternative production systems (Table 2) were estimated from members information with costs being standardized using the Victorian DPI 'Livestock Farm Monitor' information. The dry sheep equivalent (DSE) ratings were adjusted for ewe body weight, lambing percentage, lamb growth rate and time lambs were on the farm before sale.

Table 2. Estimated gross margins from alternative sheep enterprises on members farms. Production has been standardised to reflect similar management. Prices received reflect the last 4 years. The bottom line reflects the gross margin for a 5000 DSE flock. Costs were standardized using the Victorian DPI 'Livestock Farm Monitor' information.

Flock structure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
Ewe details	XB ewes joined to terminal sire rams. Replacement ewes policy, lambs purchased, cost $150	XB ewes joined to terminal sires. Replacement ewes, White Suffolk 1st cross ewe lambs retained, transfer in cost $100	Merino ewes joined to terminal sire rams	Merino self replacing flock, wether lamb portion only	Merino self replacing flock, wether lamb portion only	Merino self replacing flock, wether lamb portion only	Dual purpose Merino to terminal sire	Dual purpose Merino, wether lamb portion only	
Lamb management and sale details	All lambs sold as prime	All lambs sold as prime	All lambs sold as prime	Wether lambs sold at 5 months of age, weight 35 kg, not shorn	Wether lambs sold 10 months, weight 35 kg, shorn once	Wethers hoggets sold at 17 months of age, weight 50 kg	All lambs sold as prime	Wether lambs sold at10 months weight 45 kg. Shorn one month before slaughter	
Key inputs and results									**units**
Ewe body wt	70	70	58	58	58	58	63	63	kg
Ewe transfer in or purchase price	$150 - purchase	$100 - transfer	$100 - transfer	$100 - transfer	$100 - transfer	$100 - transfer	$100 - transfer	$100 - transfer	/head
CFA ewe sale	$30	$30	$30	$30	$30	$30	$30	$30	/head
Age at first	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	years
Age of CFA	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	years
Opportunities	5.5	5.5	5.0	5.0	5.0	5.0	5.0	5.0	times before CFA
Ewe death rate	5	5	5	5	5	5	5	5	%

Ewe depreciation	$32	$19	$20	$20	$20	$20	$20	$20	/ewe joined annually
Lambing %	120	120	86	86	86	86	106	106	%
Lamb age at	5.0	5.0	5.5	5.0	10.0	12.0	5.5	10.5	months
Lamb sale wt	46	46	45	35	35	50	46	45	kg
Lamb price including skin	$99	$99	$97	$55	$55	$86	$99	$76	/head
Ewe wool	$15.30	$15.30	$34.80	$34.80	$34.80	$34.80	$34.80	$34.80	/head
Lamb wool					$22.75	$10.80		$24.05	/head
Hogget wool						$26.60			/head
Ewe shear-	$6.00	$6.00	$6.00	$6.00	$6.00	$6.00	$6.00	$6.00	/head
Lamb shear-					$6.00	$5.00		$6.00	/head
Supp feed	25	25	25	25	55	55	25	60	kg/ewe & lamb
Supp feed cost	$5.78	$5.78	$5.40	$5.40	$11.08	$12.93	$5.62	$13.79	/ewe-lamb unit
Gross margin per ewe joined	$68.23	$80.83	$66.68	$33.89	$40.89	$62.27	$85.31	$71.94	/head
DSE rating per ewe & lamb	2.82	2.82	2.14	2.02	2.36	2.95	2.53	3.06	DSE per ewe & lamb unit
Gross	$24.23	$28.70	$31.19	$16.74	$17.31	$21.11	$33.69	$23.53	/DSE
Gross margin	$121,133	$143,494	$155,959	$83,708	$86,552	$105,571	$168,446	$117,628	for 5000 DSE

Notes from table

The flock structures above may refer to only part of the whole farm flock. For example 'Part A' of a flock will be a self replacing merino flock, while 'Part B' refers to the ewes joined to terminal sires. Within a self replacing merino flock there will also be a 'Part E', those ewes rearing ewe lambs and a 'Part W', those ewes rearing wether lambs.

The potential benefits on members farms of some management alternatives are discussed below. Gross margin information is taken from Table 2.

Farm management change	Time to benefit from the change	Possible effect on whole flock, using average prices over last 4 years
Retain White Suffolk x Merino (WS x M) cross ewe lambs (1st cross prime lambs) as breeding ewes, joining them at 7 to 8 months of age.	Medium term, 3 months to 3 years. The foregone income from prime lamb sales is more than offset by eliminating the need to purchase crossbred ewes.	Retaining WS x M ewe lambs provides a low cost method to quickly increase the prime lambs returns from a Merino flock where 75 to 80% of ewes are joined to merinos to maintain ewe numbers. Details from Table 2 indicate that replacement crossbred ewes transferred within the same farm compared to replacements purchased off the farm would increase the gross margin by around $12.50 per crossbred ewe each year (Table 2, flock structures 1 and 2). The projected benefits of retaining WS x M ewes depend on them having similar lambing percentages to purchased ewes. Information from the Central Maternal Progeny Testing Program indicates there is little difference in lambing percentage between Border Leicester x Merino or WS x M cross ewes. Table 2 suggests the returns from specialist dual purpose merinos joined to terminals are higher than the returns from retained WS x M cross ewes. However it would take 8 to 10 years to change most of the ewe genetics.
Change from medium-fine merino type to dual purpose high body weight merino type with similar wool.	Long term, 3 to 10 years. Time delay as whole ewe flock genetics changes over the years.	There is limited information on the possible benefits from changing from a wool type merino to a dual purpose type in the Maryborough district. Two members have commenced trials on their farms. Figures from Sheep Genetics Australia and the Elmore ewe breed trial suggest ewes could be around 8 kg heavier and lambing percentages could increase by at least 20%. A comparison of traditional wool type sheep structures (Table 2. flock structures 3, 4, 5, and 6) and dual purpose genetics flock structures (Table 2. flock structures 7 and 8) indicate whole farm income could rise by $10,000 to $40,000 on a farm capable of carrying 5000 DSE from this change. However these genetic changes will take years. The higher benefits will come from an increasing lambing percentage enabling about 50% of ewes to be joined to terminals, rather than around 20% with the lambing percentages in most merino flocks.
Change of lambing time. Lambing time has moved forward by 4 to 6	Short term. The cash flow benefits are in the current year.	The expected increase in gross margin in a 5000 DSE flock would be around $15,000 in normal years. This assumes no reduction in stocking rate, an increase in supplementary feeding of 10 kg grain per ewe, wether lambs weighing an extra 8 kg in early December and

weeks on several farms.		worth $15 per head more. Simulation studies at Heathcote and Rutherglen in northern Victoria 20 to 30 years ago suggested an early winter lambing was optimal for both prime lamb and wool flocks in north central Victoria. This is in contrast to south west Victoria where a spring lambing has been optimal for wool production.
Pregnancy scanning and using the results to help in managing lambing ewes	Short term. The cash flow benefits are in the current year.	The Lifetime Wool project suggests benefits of nil to $10,000 in a typical 5000 DSE flock depending on assumptions about culling dry ewes and increasing lambing percentages.

3.6 Discussion

Meeting initial objectives with discussion
Table 3. below briefly outlines how the project met its initial objectives,

Table 3. The project objective with a brief discussion about how each objective was met.

Objective	How objective was met
Member participation	Fourteen of the 18 group members measured the performance of 57 ewe and lambs groups over the 2007-08, 2008-09 and 2009-10 seasons.
Demonstrate an increase from $18 to $26/DSE by changing the emphasis from wool to best practice prime lamb and merino wether lamb production.	The gross margins of alternative enterprises (Table 2) indicated scope to increase gross margins from $16 to $21 per DSE by changing from a wool focused flock (flock structure 4, 5 and 6 in Table 2) to gross margins of $29 to $33 per DSE by a suite of farm management alternatives that include wool and meat. These changes, when fully integrated into a whole farm system could increase the returns from a 5000 DSE flock by up to $60,000.
Demonstrate the potential of quality pastures with best management to lift stocking rates on focus paddocks from 8 to 12 DSE/ha while reducing weeds and increasing ground cover in autumn.	The pasture utilization was measured on three paddocks. Drought conditions in the first 2 seasons limited production. A highlight was a lucerne paddock that provided the equilivalent of 8 DSEs per hectare of green fodder over the summer period to finish lambs during the difficult 2008-09 season.
Demonstrate how improved marketing of merino wether lambs can increase carcase prices by 30 c/kg.	The lamb marketing analyses indicated the range in the "Lamb Marketing Index' for merino wether lambs varied from 55% to 160% of the current merino wether lamb indicator price per kilo as published in the MLA Market Weekly. The increased awareness of marketing opportunities will continue to help members increase their returns from better marketing.
Investigate the most cost effective means to increase growth rates in merino wether lambs to achieve suitable carcase weights for the prime meat market.	Flexibility in managing merino wether lambs in different situations was the answer on members farms. A range of techniques including (i) summer fodder crops, including lucerne and fodder rape; (ii) selling store lambs to other farms with surplus feed, (iii) grain finishing when it is likely to return a profit.

Investigate the potential of dual purpose merinos to increase sheep meat production without sacrificing wool quality and productivity.	Two farms have introduced dual purpose merinos and will continue to evaluate them over the coming years. Projections using information from other sources indicates large whole farm profitability increases from an increase in lambing percentages and young stock growth if management changes to best utilize the new genetics.

Priorities for farm management
Group discussions, held continuously as part of the project have resulted in many farm management changes (listed in section 3.4 of this report). The length of time the likely financial benefits of these changes will flow through to whole farm profitability have been grouped as short, medium and long term.

(i) The short term cash flow benefits came from a change to lambing time, pregnancy scanning and improved nutrition of ewes and lambs. Each of which has the potential to increase whole farm income by nil to $10,000 in a 5000 DSE flock. The financial benefits would start within a few months and be continuous.

(ii) A medium term cash flow was to retain White Suffolk x Merino cross ewes that could lead to an annual increase of around $22,000 in a 5000 DSE crossbred ewe flock; less if a proportion of the flock was retained as merinos. The immediate cost would be the foregone income from the sale of prime lambs, the benefits would start with no outlay for the purchase of replacement ewes. These benefits would be continuous over years as the practice was maintained.

(iii) The largest benefits potentially come from a change to high performing dual purpose Merinos. However it is a long term strategy as it would take 8 to 10 years for the full benefits of this to flow through the flock. Calculations indicate this has the potential to increase whole farm income by up to $60,000 per year in a 5000 DSE flock. Further monitoring on the farms that have taken this option will indicate the validity of these projections.

3.7 Future activities

Presentation at BestWool / BestLamb conference, Bendigo, July 2011
The group chairman and project officer will report on the PIRD results to an estimated 250 people at the BestWool / BestLamb conference at Bendigo in July 2011. This will ensure the project messages reach a wide audience as a local field day would only attract a relatively small audience from outside the group. It will also fulfill the project aim to have two public presentations of the results.

Press articles
A press article is being prepared for the Maryborough Advertiser, BestWool / BestLamb newsletter and the Stock and Land. This press release with group results needs to be ratified by the group members before its release.

Continuation of on farm measurements
Group members have indicated their wish to continue with the measurements initially undertaken with the PIRD.

4 Appendices

4.1 Appendix Group activities

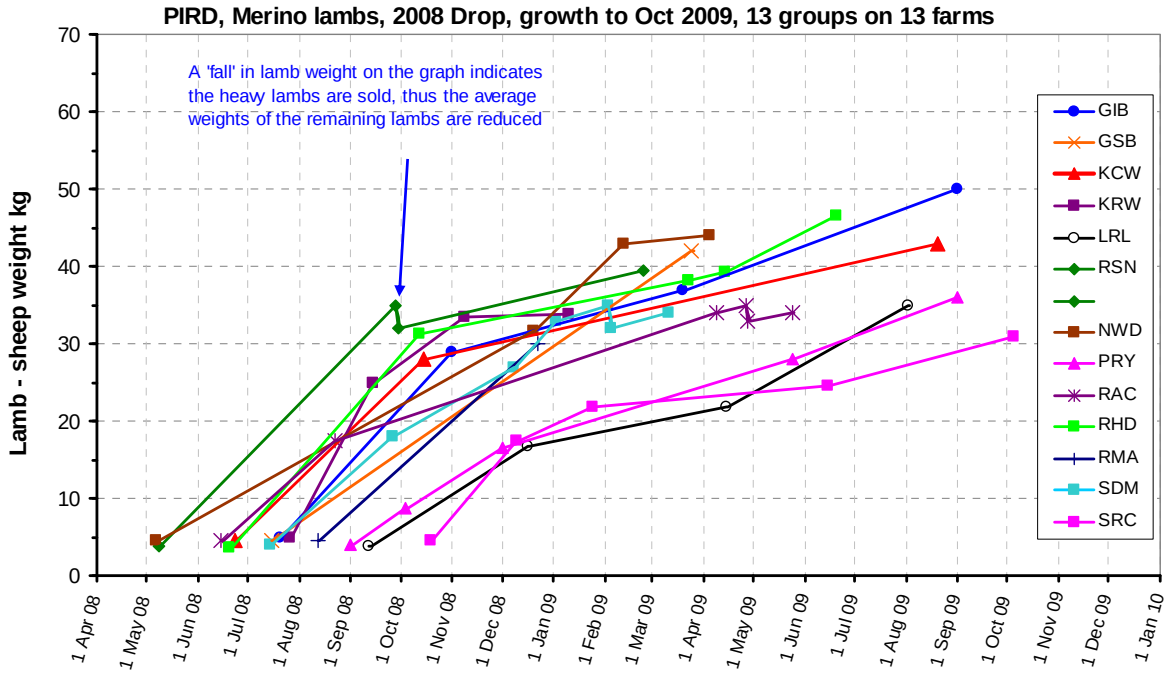
Date & location	Activity and comment
16 July 2007 Fyffe farm Newstead	was on using the standard recording forms for the project and updating pasture assessment skills.
5 Sept 2007 Maryborough Highland Society	Update on PIRD from members at general meeting
19 Sept 2007 Calder farm, Wareek	Update on PIRD from members at general meeting
7 Nov 2007 Robinson farm Clunes	The focus on the second meeting was to measure lamb growth from birth to pasture dry off and complete the recording forms.
19 Feb 2008 Muller Farm, Avoca	The field activity at this meeting was an inspection of pastures, paddocks and sheep being compared on the Muller farm. There are three groups being compared (i) Merino wether lambs, (ii) first cross Border Leicester x Merino wether lambs and (iii) second cross prime lambs. The group inspected several pasture paddocks where the lambs were grazed. There was particular interest in (i) a paddock of Winifred fodder rape sown after an early summer storm in the drought, (ii) a paddock of lucerne sown after a storm in late spring and (iii) rocky paddocks that were sown by air to improved perennial pastures about 10 years previously. At the sheep yards a group of first cross wether lambs was weighed and assessed prior to market.
25 Mar 2008 MLA Meat Profit Day Kyneton	Presentation at MLA, Meat Profit Day, Kyneton Group chairman, Stuart Robinson presented a report on the PIRD at the Kyneton MLA Meat Profit Day to 300 people. The presentation covered; (i) A report on the PIRD with powerpoint graphs of results to date (see appendix) and (ii) the benefits of being in a farmer group.
21 Apr 2008 Allen Farm Carisbrook.	The PIRD Merino wethers and pasture paddocks were inspected. After a BBQ tea comparative graphs of lamb weights from participants farms were discussed by the group.
2 Jul 2008 Highland Society Maryborough.	PIRD participation was discussed at a meeting mainly concerning other issues.
17 Sept 2008, Sewell Farm, Newstead.	Group members inspected Merino wether lambs and first cross lambs being measured as part of the PIRD. Several pasture paddocks were inspected, a highlight was a lucerne paddock that is used for hay as well as finishing lambs. The output of this paddock will be measured as part of the PIRD in 2008-09. After the BBQ group PIRD results were discussed. Updated graphs of lamb – weaner – hogget weights were discussed. Fourteen members committed themselves to on farm measurements for the current drop of lambs.
12 Nov 2008 Dohnt Farm, Baringhup	This meeting was dedicated to PIRD work. The aim was to (i) to review the progress of the PIRD, (ii) discuss the results to date on each participants property, (iii) collate the farm management changes on each farm as a result of the PIRD and (iv) to inspect the progress of the PIRD on the host farm.
25 Mar 2009 Ipsen Farm	The group inspected and weighed PIRD merino wether lamb reared on dryland lucerne. There was also a tour of the lucerne paddocks and

Bowenvale.	discussions on merino wether lamb management and marketing.
31 Aug 2009 Railway Hotel Newstead	This meeting was dedicated to PIRD work. The aim was to (i) to share the measurements on each farm, (ii) discuss the results to date on each participants property and overall trends, and (iii) continue the collation of the farm management changes on each farm as a result of the PIRD.
14 Oct 2009 Dellavedova farm Maryborough	Most of this meeting concerned pasture issues but each member gave an update on the PIRD progress on their home farm.
30 Nov 2009, Railway Hotel Newstead	This meeting was a general discussion on a range of issues concerning farming. Again members gave a PIRD update from their farm measurements. There was discussion about the value of the PIRD. Members highly value the learnings from the PIRD and are making decisions from the results. Appendix 5 summarises some additional points made about farm management. Members agreed to continue to take and share their prime lamb and merino wether lamb measurements after the formal conclusion of the PIRD in June 2010.
17 Feb 2010 Highland Society Maryborough	The PIRD was a minor agenda item at this meeting, the discussion concerned the continual measurements on carry-over lambs and merino wether lambs. It was also decided to visit a farm in another district that is using dual purpose merino genetics with an emphasis on lambing percentages. This farm also operates a feedlot to finish merino wether lambs.
19 Sept 2010 Highland Society Maryborough	Review of three years of PIRD results

4.2 Selection of graphs illustrating results

Lamb weights

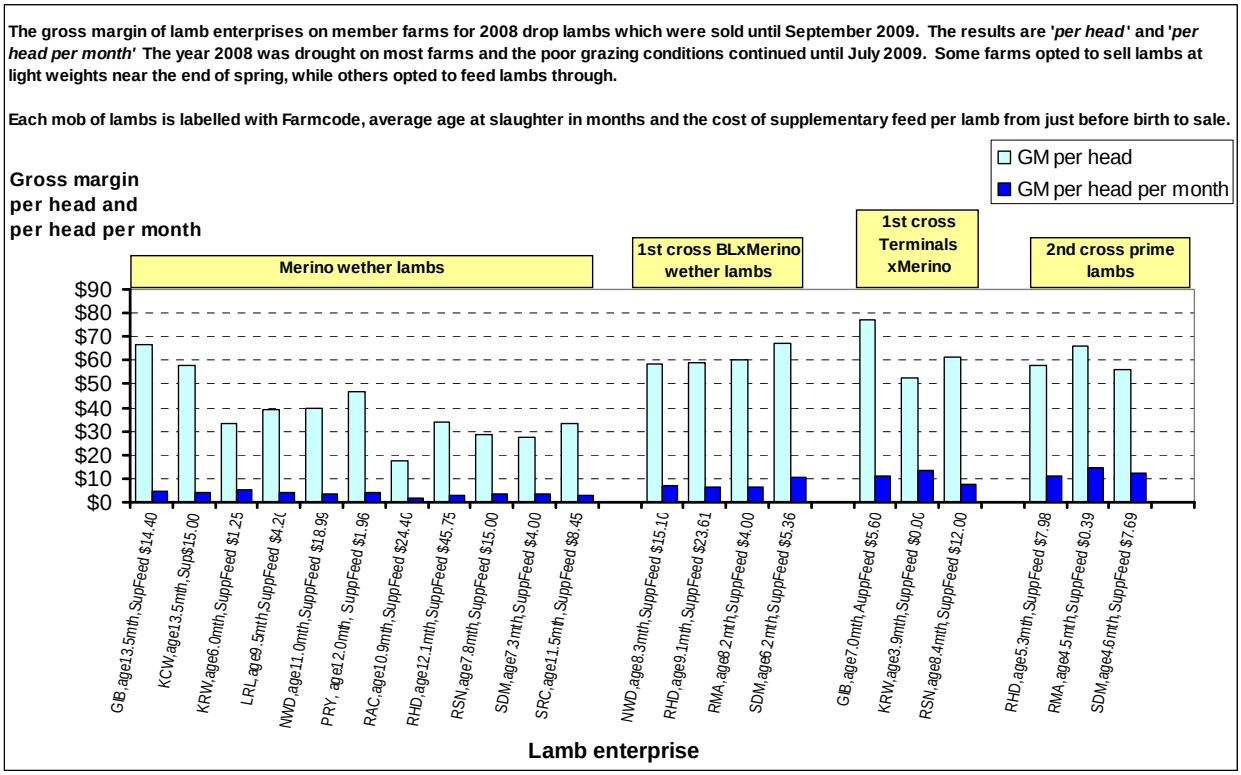
The lamb weights measured by members are plotted on graphs and discussed at meetings.



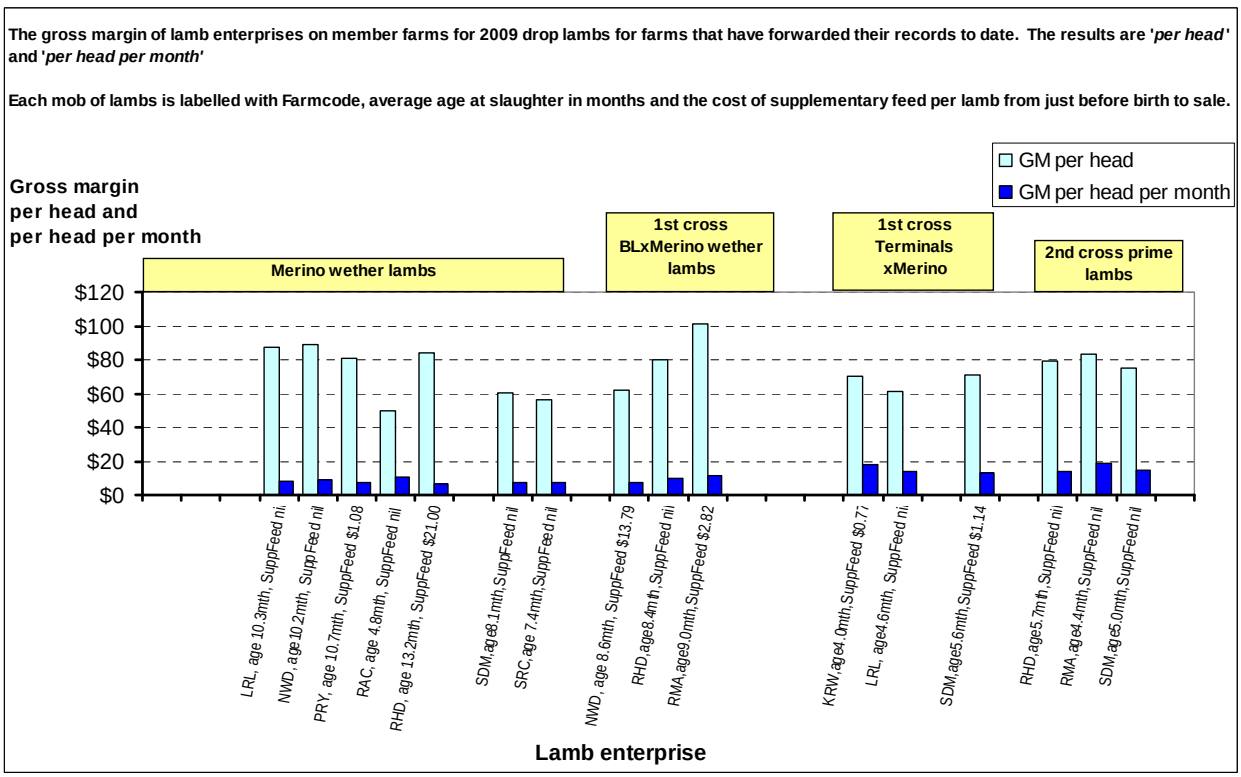
Gross margin per lamb and per lamb per month

Graphs of gross margin per lamb per month below indicates that merino wether lambs sometimes achieved high gross margin per head but this was about one sixth of the per month gross margin of good 1st and 2nd cross lamb enterprises. The 2008 and 2009 lamb drop results are shown below. The details of the method and conclusions are explained in 'Section 3.3 Gross margin per lamb' of this report.

2008 drop lamb results

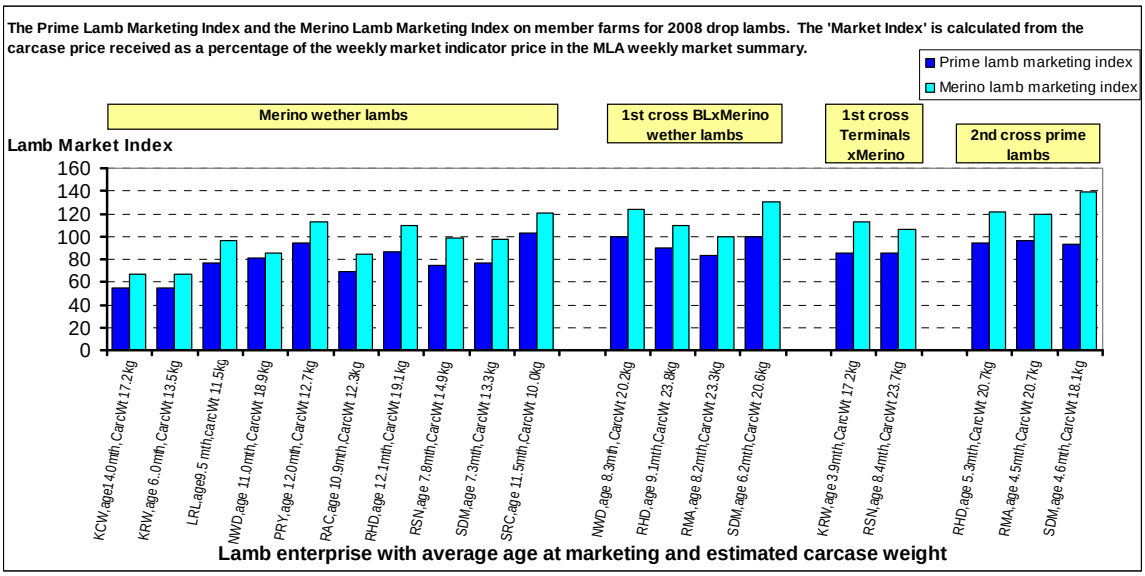


2009 drop lamb results



Lamb marketing report

This report calculates the lamb carcase price per kilo and compares market performance with the relevant MLA Market Indicator Price as published each week in the 'MLA Meat and Livestock Weekly'. The Prime lamb marketing index % and the Merino lamb marketing index % allows members to compare their prices as a percentage of the MLA weekly indicator and thus help future marketing decisions.



Pasture production and utilization on two paddocks.

Two members estimated pasture feed on offer and kept grazing diaries to estimate the pasture utilization by sheep and lambs. The GrazFeed model was used to estimate pasture intake by stock.

Season, from Apr to Mar	Farm	Pasture description on monitored paddock	Growing season rain Apr-Oct mm	Season total rain Apr-Mar mm	Stocking rate as estimated by pasture eaten DSEs/ha	Estimated amount of pasture eaten kg DM/ha
2008-09	KRW	Annual grasses, barley grass, silver grass, 10% clover	197	357	10.1	3,042
2008-09	RSN	Lucerne, cleaned with Raptor	217	366	9.0	2,448