



A review of economic transfer models suitable for lamb breeder-finisher systems and 1st cross ewe supply

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EXECUTIVE SUMMARY

- The principal aim of Stage 1 of this study was to investigate whether economic transfer mechanisms hold the key to unlocking the productivity improvement opportunities between the 1st X ewe breeder, the prime lamb breeder, and the specialist finisher. If they do then a list of best bet mechanisms is to be generated to be tested through modelling in Stage 2.
- Utilisation of superior genetics for 1st X ewe breeding and the development of a specialist prime lamb finishing industry are considered two key areas where substantial productivity gains can be made in the prime lamb industry.
- The key findings from the interviews were:
 1. The key characteristics of successful pricing mechanisms are simplicity and transparency. Additional complexity through the introduction of pricing mechanisms creates difficulties in maintaining business relationships. Because the industry is very fragmented with largely small players and minimal business training it is considered that complexity needs to be kept to a minimum.
 2. Building demand through marketing, to increase price paid, not economic transfer mechanism (pricing structure) is the constraint to adoption of superior genetics in 1st X ewe production.
 3. Creating market transparency between the feeder lamb market and the finished lamb markets through \$/kg pricing is required to allow prime lamb breeders to make rational decisions on which market they want to supply based on the price offered. The aim of this system is to make price comparisons between potential markets (feeder lambs v's finished lambs) more transparent and provide the industry with a basis by which they can make rational decisions on which market they want to produce for. The aim is not to recognise better genetics or management.
- Two key underlying principals form the basis for the recommendations:
 1. Genetic value must be 'marketed' in order to capture a share of the value created through increased price. This applies to seed stock, 1st X ewe producers, and feeder lamb breeders. Estimated breeding values provide a valuable marketing tool because they give reliable comparative information on the product.
 2. For a large and efficient specialist finishing industry to develop there must be an incentive for prime lamb breeders to supply the feeder lamb market with high quality genetics specifically for that market. This must come through a net benefit in the combination of productivity gains (kilograms of lamb per hectare), cost of production per kilogram and price received.

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- Recommendations:

1. As new pricing models are not considered the solution to adoption of improved genetics or development of a specialist feeder lamb production, stage 2 of this project is not needed. Alternative research should be conducted into providing relevant extension material that is needed to drive change through education of the market. In particular the information relating to the second and third key findings of stage 1.
 - (a) Given 1st X ewes represent only approximately 1/3 of income of the 1st X ewe breeder it is proposed that a study be done to investigate the 1st x ewe price required to impact producer profitability and encourage change of sire selection practices in the industry. This information can then be used to let specialist prime lamb breeders know how much of a premium they need to give to 1st x ewe breeders to encourage change.
 - (b) It is proposed that in conjunction with an effort to make market prices transparent between the feeder lamb market and the prime lamb markets, the potential productivity benefits from producing feeder lambs and the required market price needed to change production systems is modelled. This information is then utilised to promote a change in production system.
 - (c) It is proposed that a study be done to investigate the price that can be paid by specialist finishers for superior quality genetics to encourage specialist feeder lamb production and the relative differential to finished lamb prices. The crux of this study is what the specialist finisher can afford to pay. This information is necessary to confirm that the industry can deduce a large part of its profitability from weight gain rather than a trading margin or value added to grain.

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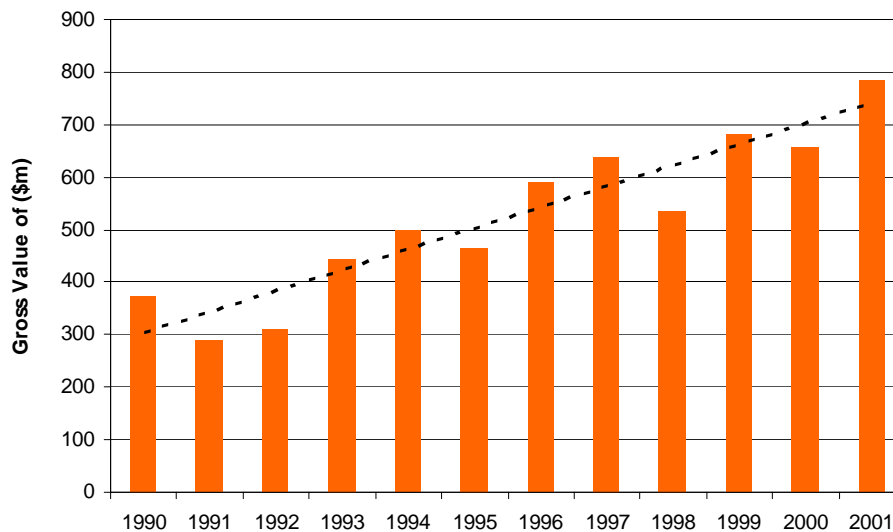
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1. INDUSTRY BACKGROUND

The gross value of lamb production in Australia has increased from \$300 million to \$750 million over a period of ten years (Graph 1). Declining Australian sheep flock numbers and the current drought have generated industry concern on how supply can continue to fulfil demand.

Graph 1: Gross Value of Lamb Production (1990-2001)



Source: Meat & Livestock Australia

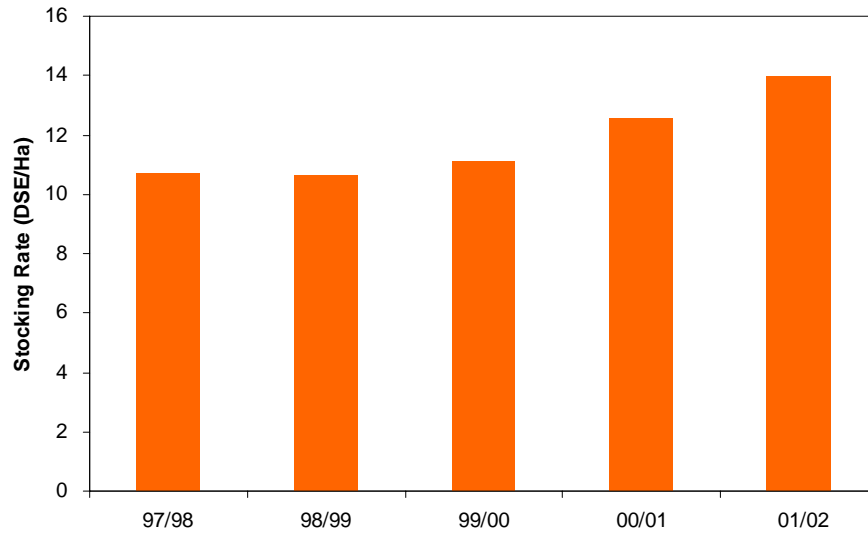
Increasing productivity through more kilograms of lamb produced per hectare is driven by three variables:

- Stocking rate
- Weaning percent
- Sale weight of lambs

Whilst stocking rate has increased (Graph 6) over the last five years there has been no clear trend in weaning percent (Graph 3) and there is significant variation in weight at sale of lambs (Graph 4). Improving management systems to address these two variables is a key concern to the industry.

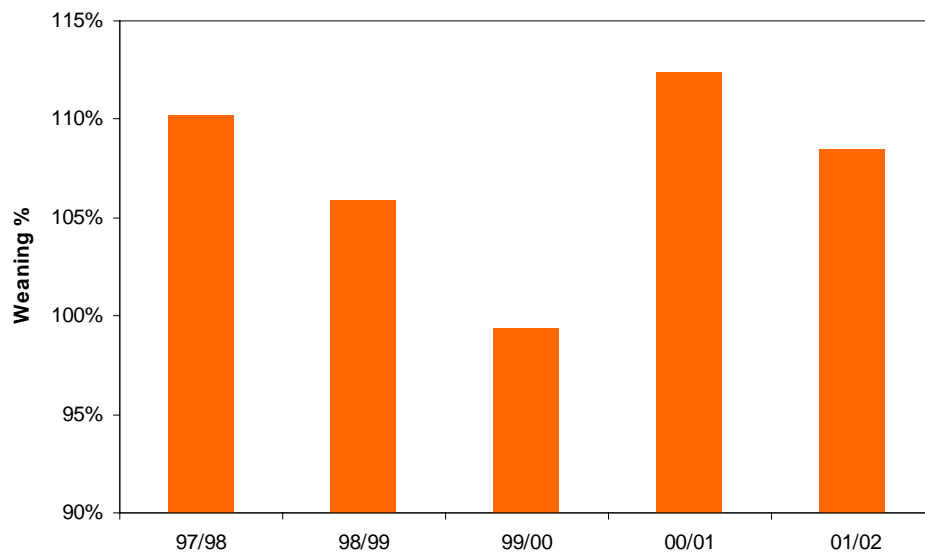
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Graph 2: Average annual stocking rate for benchmarked prime lamb producers



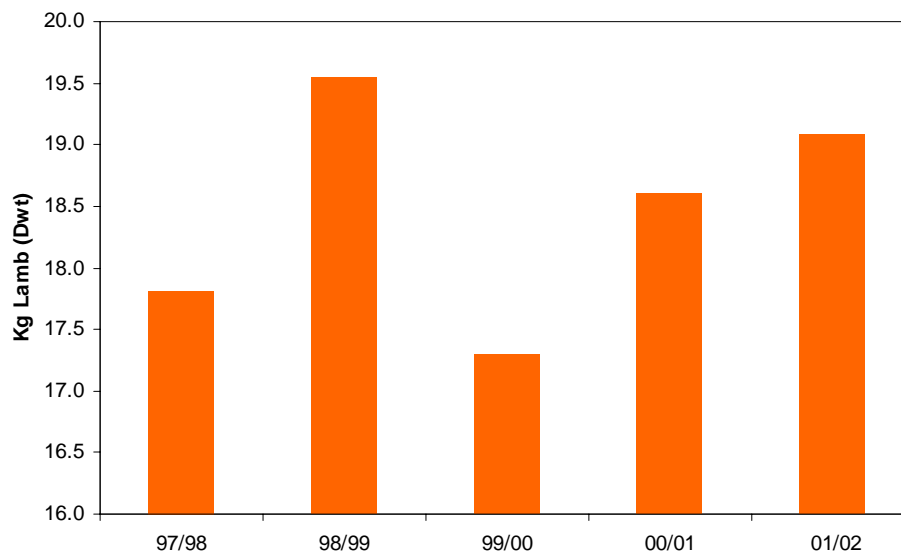
Source: Holmes Sackett & Associates Pty Ltd

Graph 3: Average weaning % for benchmarked prime lamb producers



Source: Holmes Sackett & Associates Pty Ltd

Graph 4: Average weight of lamb at sale for benchmarked prime lamb producers



Source: Holmes Sackett & Associates Pty Ltd

1.1 Weaning %

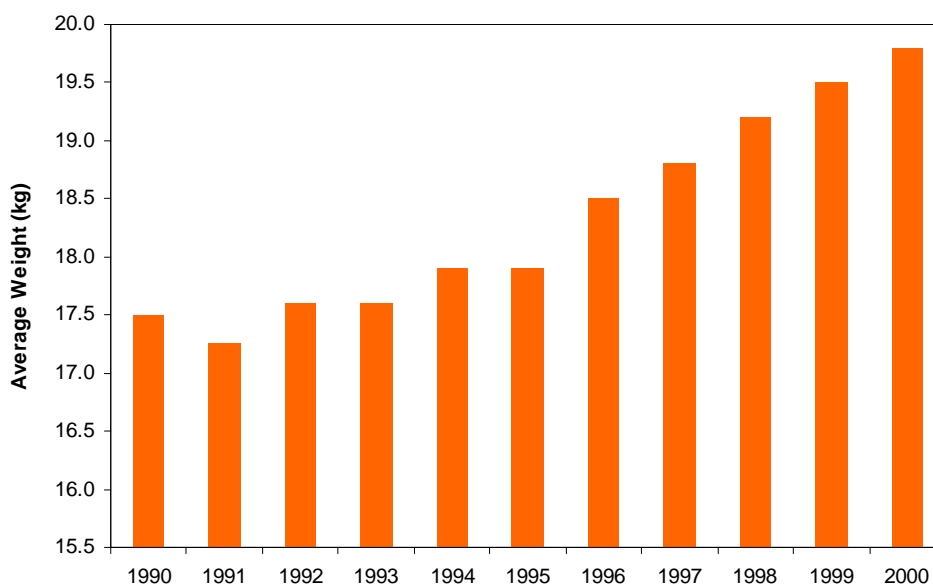
The Maternal Central Progeny Testing (MCPT) trials have shown the potential for genetics to play a large role in providing superior maternal traits. These trials have shown substantial variation within and between breeds in genetic potential for fertility and lamb survival. Utilising this genetic variation and selectively breeding for improvement has the potential to significantly lift the weaning percent achieved by prime lamb flocks and the pre weaning weight gains.

1.1.1 Sale Weight of Lambs

The vast majority of producers breed and finish their own lambs. For those that don't supplementary feed to meet market specification sale weights are therefore seasonally determined by the availability of pasture to finish the lambs.

Both the US export and the domestic market are demanding heavier carcasses; however there is substantially more variation in prime lamb breeder sale weights (Graph 4) than the industry average carcase weights at slaughter which have steadily increased from 17.5kg to almost 20kg (Graph 5) in the last ten years.

Graph 5: Average Slaughter Weights for Lamb (1990-2001)



Source: Meat & Livestock Australia

The variation in prime lamb breeder sale weights is a consequence of seasonal availability of pastures, whilst the steady increase in slaughter weights is aided by the presence of a specialist finishing industry.

A targeted production system to supply finisher lambs has the potential to be more efficient than a production system aimed at breeding and finishing. Because most prime lamb breeders do not intentionally supply the finishing industry the specialist finishers are forced to either:

- Purchase the 'tail' of a whole lamb drop which are either the poorest genetically or have experienced an environmental constraint. In which case the prime lamb breeder experiences a discounted price for lambs going to finishers.
- Compete in slaughter markets for lambs in which case the prime lamb breeder may remain oblivious to who bought the lambs.

2. PROJECT OBJECTIVES & METHODOLOGY

2.1 Objectives

The principal aim of Stage 1 of this study is to investigate whether economic transfer mechanisms hold the key to unlocking the productivity improvement opportunities between the 1st X ewe breeder, the prime lamb breeder, and the specialist finisher. If they do then a list of best bet mechanisms is to be generated to be tested through modelling in Stage 2.

Economic transfer mechanisms refer to the method and pricing system by which lambs are transferred between stages of the lamb supply chain. Possible methods investigated are

public auction, private sale, contracts, and vertical integration. Pricing systems are broken down into the payment system (i.e. \$/kg or \$/head) and the structures for information flow.

The structures for information flow are explained below:

2.2 Marketing

Marketing involves creating buyer demand for your product to achieve a higher price; it is a means of capturing some of the value you have created. This involves creating buying demand for the product to attain some level of premium for it above the average market price. Historically the seedstock industries in sheep and cattle have relied on the ability to market their product in order to capture value.

The actual premium attained will be a function of the amount of value added and the demand for that additional value. In a competitive market buyers don't pay a set portion of the additional value created, they pay only what is necessary to attain the product.

2.1.1 Grid-based Pricing

Grid-based pricing mechanisms principally transfer information on the desired attributes of a product more clearly to suppliers through price signals.

A good example of this is grid based pricing used by processors in 'over the hooks' trading. Processors use carcase weights and fat scores to specify the product they desire. Each processor maintains their own grid and the discounts are adjusted according to market forces including supply and demand.

Demand signals are clearer back to the supplier with the benefit that it allows the supplier to make a rational decision on whether it is cost effective to meet specifications. For grid based pricing to be effective the desired attributes must be measurable at the point of sale, as carcase weight and fat score are in over the hooks trading. If traits are not measurable at the point of sale then neither party knows whether they have hit the target market specifications.

2.1.2 Performance Based Pricing

Performance based pricing is about returning the vendor a reward for the actual performance of the purchased animals in the subsequent production system. This type of pricing mechanism provides incentives for breeders to deliver an animal that will have superior performance for a trait that is hard to measure at point of sale.

As an example some beef feedlots give Angus breeders a bonus based on the carcase marbling score at slaughter. The animals must go through the whole production stage and be measured at the end before the breeder is paid. This requires individual identification of animals, their source and the ability to accurately measure their performance.

Performance based pricing requires a controlled environment in subsequent production systems that will allow true measurement of the potential.

2.3 Methodology

A total of 36 qualitative interviews either in person or over the phone were conducted with participants at each stage of the prime lamb supply chain, advisors to producers (Consultants and State Department Extension Officers), selling agents, seed stock suppliers, NZ lamb industry participants and pork and poultry industry representatives.

Table 1: Interview List

1x terminal sire breeders
4 x maternal sire breeders
10 x 1st x ewe breeders
6 x prime lamb breeders
3 x specialist finishers
2 x New Zealand Finishers
1 x Livestock Agent
3 x Industry Consultants
4 x Dept. Extension Officers
Chicken Meat Federation Incorporated
Australian Pork Industry Association

Interviewees were chosen based on having had experience (either success or failure) in trying to unlock the productivity opportunities described in the background to the industry. This sample was not random and was designed to draw out industry experience. A sample of 6 Holmes Sackett and Associates benchmarking clients who were not known to have been involved in structured attempts to capture these opportunities were included in the interviews.

For all methods of transfer the key issues surrounding their success or failure were identified and the role that the pricing system and information flow plays is discussed.

3. STRENGTHS AND WEAKNESSES OF ECONOMIC TRANSFER MECHANISMS

The interviews conducted showed that most 1st X ewes were purchased at public auction or privately or alternatively producers were breeding their own. There are some examples of contract breeding that have been successful and there are as many that have failed.

The majority of finisher lambs (store lambs) were bought out of the public auction system or by private sale where possible. The vast majority of prime lamb breeders finish their own lambs however some have experience with either selling to, or contracting specialist finishers. No prime lamb producers bred specifically for finishing operations, however some 1st X ewe producers supply all of their wether lambs to finisher operations.

Profit share arrangements have been proposed for finishing lambs however none were found to have been implemented.

3.1 Public Auction

3.1.1 Key Features

- Stock are bought and sold on a \$/head basis

- Large amounts of price data available making aggregate prices transparent.
- Generally little information flow

3.1.2 1st X Ewes

Pricing System

Despite the publicised disadvantages of an auction system this was still the preferred mechanism of sale by 1st X ewe breeders. The main advantage identified was the transparency and ease of price setting. This was typified by one quote from a 1st X ewe breeder that it was “easier to set the price, no-one feels robbed at the end because that was the market price on the day”. In this particular case there was a history of private sales to a repeat buyer, but the complexity of trying to arrange a fair price outside the auction system convinced the 1st X breeder that it would be simpler to go to auction.

Prime lamb breeders buying at auction perceive the main disadvantage is that they are not guaranteed the ewes will perform to expectation and it is hard to compare the relative genetic merit of all ewes available other than through past performance due to a lack of reliable information. This means when they go to a sale if they can't buy the equivalent (same vendor) pen of ewes to those purchased in the past then they are immediately dealing in unknown genetic quality.

Under this scenario they can only revert back to physical appearance and therefore ewe size.

Information Flow

It is perceived that there is little opportunity for information flow between seller and buyer at public auction however this is not entirely true.

- **Product Information Flow**

At special 1st X Ewe sales it is common for the vendor name, the bloodline of the merino ewes and even some information about the genetics of the sire to be presented This tells the buyer something about what they are purchasing.

Clients of the Superborders breeding group hang a Superborders sign on the front of their pens to indicate to buyers that they are using tested, superior, Border Leicester genetics.

- **Performance Information Flow**

Repeat buying is a common practice at public auction where the same buyer will purchase the equivalent pen of ewes from a vendor in subsequent years. This is a form of information flow where the repeat buying decision is based on how ewes purchased the previous year performed under their management. Repeat buying signifies a satisfaction with past performance but does not necessarily give a clear indication of comparative performance or drive future performance.

Key Issues

- 1st X ewe breeders want a pricing system that is simple and transparent. They do not want to be caught up in complex negotiations where comparative pricing is difficult.
- Prime lamb breeders want to be able to secure ewes of predictable genetic merit.

3.1.3 Feeder Lambs

Pricing System

Auction has traditionally provided a major selling method for lambs that were destined for finishers because traditionally they are the 'tail' of that years lamb drop and the prime lamb breeder's main concern is to sell them to make space in preparation for the next production year. The auction system provides an easy mechanism by which this can be achieved.

A critical issues is that the prime lamb breeder receives a \$/head value for the lambs which appears as quite a substantial discount to the \$/head value that they received for their finished lambs. The relative price per kilogram is not readily transparent.

A large specialist finisher explained that the market for feeder lambs on a \$/kg basis can be better than the equivalent market for a finished lamb of near that weight however, "a lot of producers aren't even aware that their lambs are bought by finishers".

Information Flow

The key information flow concerns for the prime lamb breeder are that they are not aware that some lambs sold go to finishers and that they are unable to compare easily the relative value of lambs that go to the finishers against the finished lamb prices because pricing is on a \$/hd basis on a group of lambs of unknown weight rather than a \$/kg.

From the specialist finishers perspective lambs of unknown genetic merit represent a risk because of the number that never reach market specification, but still they have as much chance of getting good genetic quality as bad in the auction system and it is all relative to the price they have to pay for them. For the larger specialist finisher it is usually the numbers that they need to purchase rather than the quality that drives their sourcing decision.

Key Issues

- Prime lamb breeders need a transparent market to which they can compare the feeder and finished lambs. This requires an easy means of comparing pricing for animals of substantially different weight classes which can only be achieved on a \$/kg basis.
- Specialist finishers desire consistent quality of genetics but the ability to obtain them depends on pasture availability of breeders and whether they can finish lambs themselves.

3.1.4 Other Industries

The pork and poultry industries are largely vertically integrated so auctions have become almost irrelevant to these industries as a system for transfer of livestock.

In the New Zealand prime lamb industry a large percentage of producers supply specifically for the specialist finishing market. Pricing is on a \$/kg live weight and is readily compared to processor schedules. The industry has traditionally believed that it was more profitable to specialise in breeding or finishing rather than trying to do both. Producers have had a rational basis for making that decision because they could easily compare feeder lamb prices to slaughter lamb prices and work out whether it was cost effective to breed and finish.

3.2 Arms-length Private Sale

3.1.5 Key Features

- Usually spot pricing is based on public market facilitated by selling agent.
- Usually pricing is done on a \$/head basis.
- Opportunity for negotiation on price and detailed information transfer.

Private sale provides more flexibility on the transaction than an auction sale; however it commonly reflects the auction system in terms of pricing because the auction system provides the price transparency.

3.1.6 1st X Ewes

Pricing System

Purchasing 1st X ewes by private sale is common in the industry. Typically the pricing negotiations are based off current auction prices and other sales that the parties and agents have recently been involved in. Price negotiation is on a \$/head basis which allows quick and rough comparison to other 1st X ewe sales.

The advantage to the 1st X ewe breeder is the saving on selling costs, but it requires greater negotiating skills in order to secure the best price for the ewes. The prime lamb breeder also has a specific opportunity to secure the ewes they want as long as they can agree on a price.

Selling via an arms length private sale works where both parties are able to easily negotiate a sale price. Two factors aid this process:

- An agent that is trusted by both parties to nominate a fair price
- Price is not seen as the most critical determinant issue in the transaction as it is overshadowed by a known productivity advantage.

Information Flow

Repeat purchasing is common in arms length private sales and provides the 1st X ewe breeder with a chance to discuss the performance of ewes sold previously. The breeder is

also, as part of the negotiations, able to give as much information as they think is relevant to the buyer in order to 'market' the ewes.

From the prime lamb breeders perspective the advantage lies in being able to obtain more information regarding the genetic quality of the sheep if desired. In some cases the prime lamb breeder is helping in the decision on sire selection.

As part of the negotiations the reasons for more or less money are discussed and can be addressed in subsequent years.

Examples of using grid based pricing or performance based pricing were not found in the purchase of 1st X ewes although performance based pricing had been considered by one advisor. The system proposed was based on a bonus per lamb born over the lifetime of the ewes. There was little enthusiasm when this was presented to producers. The reason proffered was that it was "too complex and the industry is not ready for that level of complexity yet". This reflects the exposure to environmental influences, the lack of breeder control and the amount of trust that would be required in the relationship.

Key Issues

- Private sale is a success where the pricing system is kept simple, and both parties are comfortable with the additional marketing and negotiation effort that is required. Additional complexity requires additional strength in the business relationship.
- There is an increased assurance of the prime lamb breeder getting a predictable supply of ewes based not only on historical performance but also genetic information obtained by the 1st X ewe breeder, with less risk that they will be out bid on the day.

3.1.7 Feeder Lambs

Pricing System

Private sales by prime lamb breeders to specialist finishers are predominantly done on a \$/hd basis. Typically these lambs would be those that they considered not adequate to meet slaughter markets because feed availability is restricting the ability to finish the lambs.

Examples were found of 1st X lamb breeders, whether they be Border Leicester cross wether lambs or another terminal sire cross lambs, that sell via private sale to specialist finishers on a \$/kg basis. In some of these cases the specialist finisher is offering a price based on the available finished price for those lambs so that it is transparent. There appears to be very few of these arrangements in the industry.

The \$/kg live weight pricing mechanism is seen as a critical success factor of these relationships because it provides transparency and a method by which the lamb breeder can compare the product to the alternative slaughter market and make a rational decision on which market they are better to supply.

Finishers who buy by private sale see the key advantage in security of supply. Whether they buy on a \$/hd basis or a \$/kg basis is of no concern if their profit is related to ability to generate weight gain.

Information Flow

Attempts at marketing 'feeder' lambs or repeat buying are almost non-existent in the prime lamb industry because the presence of the market for the best genetics isn't recognised and for the 'tail' there isn't a product worth marketing.

There are prime lamb breeders who have delivered a portion of their lambs to various finishers in an effort to identify those who they think have the necessary skills to do a satisfactory job. After they have identified those finishers who they believe can do a good job there have been attempts at introducing a performance based pricing mechanism whereby they were given a bonus based on the number of lambs that made the necessary weights at sale. This issue is discussed under contracts in section 4.3.

The actual pricing mechanism was not the critical success factor; rather it is the ability to maintain a business relationship through proven performance and information flow. The proven performance allowed both parties to trust the others ability to deliver a product of predictable merit.

Key Issues

- Prime lamb breeders need a \$/kg (live weight or carcass weight) to be able to accurately compare alternative market options.
- Specialist finishers need to create awareness that the finisher market is a viable alternative to the slaughter market for prime lamb breeders.

3.1.8 Other Industries

The pork and poultry industries are largely vertically integrated and do not rely on the private selling system other than when pigs are marketed to processors in a similar fashion to over the hooks trading of lamb.

In the New Zealand 'feeder' lamb prices fluctuate according to the influence not only of processor schedules but also the availability of pastures according to season. Where finishers have a lot of pasture demand for feeder lambs is high causing prices rise to squeeze finisher margins and the reverse applies where pasture availability is low. Margins can be further squeezed when large numbers of finished lambs come onto the market and processors lower their schedule prices.

3.3 Contracts

3.3.1 Key Features

- Offered to secure quality and/or quantity of supply or service
- Information flow is a critical part of the pricing
- Information flow is relationship dependent

3.3.2 1st X Breeders – Prime Lamb Breeders

Pricing System

As the MCPT trials began to show the variation in performance of maternal sires within breeds some prime lamb breeders recognised the opportunity provided by securing a source of 1st X ewes of known genetic merit. Contract breeding was seen as a possible mechanism by which this could occur.

Attempts at contract breeding have had varied success. Of the interviews with those that were unsuccessful it mostly came down to the price setting mechanism that brought the contracts unstuck. Either the 1st X breeder or the prime lamb breeder reverted back to the auction system in order to set the price because negotiations could not be completed satisfactorily or other opportunities were considered to good to miss out on.

In interviews where contract pricing was successful the pricing mechanisms were simple, transparent and also facilitated by a third party that was considered independent. Pricing was based off previous auction prices.

The pricing system was not seen as the key success factor for these contracts that were working, rather it was seen as one of the details that had to be addressed.

In failed attempts at contract breeding typical comments regarding pricing were:

- “We cannot afford to pay too high a premium, they must understand we are in business ourselves” – specialist prime lamb producer
- “What they don’t understand is that we have to sell our wethers as well and they can be hard to sell” – 1st X ewe producer.

The key point of these quotes is that the pricing mechanism chosen is not really going to change the fundamental problem in this scenario because neither party in the transaction believes they can afford to yield on price. Prices are not going to significantly different to ruling market prices for long before one party brings them back into line or the relationship falls over. Therefore the agreed pricing mechanism would just be another way of arriving back at about the same price.

Other proposed contract pricing systems developed by the South West Prime Lamb group are shown in Table 2. In the context of the previously mentioned quotes the sticking point for all of these options is deciding what the premium should be and whether it will result in a price that accurately reflects the market price in the long term.

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Table 2: Proposed options for contract pricing from the South West Prime Lamb Group

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
Base Price	Av. Price of all ewes from Naracoorte and Strathalbyn + Premium	Av. Meat Price (c/kg) attained by wether portion + Premium	Av. Liveweight Price (c/kg) + Premium	Match ewes to similar group at Naracoorte sale + Premium
Premium	Genetic Value (\$/sire EBV)	Index Value (\$/sire index point)	Quality Assurance Premium	
Cost Sharing	Part ownership of sires			

Putting a value on an additional EBV or index point is difficult when you could return to the market and buy unspecified above average genetics for much less based on historical performance and market prices.

The price of the superior genetics is based on the demand not their contribution (or value) to the bottom line of the next stage in production. This is because buyers of genetics are in competition with all other producers and therefore will only pay the necessary amount to secure the product. To change the value of genetics you must build demand.

Information Flow

The key benefit to a prime lamb producer of a contract breeding arrangement is to secure a known quality of genetics, avoiding the risks associated with paying for unknown quality. There may also be management related issues such as live weights and maturity, timing (for joining), wool length for shearing, and disease issues.

From the 1st X ewe breeder's perspective the benefit of a contract is only that it secures a market for those genetics. This may or may not be attractive depending on the availability of other markets.

The South West Prime Lamb group examples (Table 2) have proposed a grid based pricing system where the grid is a market price by EBV or Sire Index value as a means of informing the breeders about the traits they want. Whilst this system has not been implemented it may be a valid way of sending signals to 1st X ewe breeders.

The major limitations are that each individual buyer (or buyer group) would need to maintain their own grid and adjust it according to market prices. This is obviously very difficult in a fragmented industry.

A performance based pricing system would be very difficult to implement for the purchase of 1st X ewes because of the characteristics of the desired traits, in this case fertility and fecundity.

Broadacre grazing systems provide a relatively uncontrolled environment for prime lamb breeding. Where ewe fertility is dependent on body weight, nutrition and time of joining, and lamb survival is dependent also on body weight, nutrition and climate at lambing, the actual performance of the ewe is very exposed to seasonal conditions in a given year. This variation is further compounded by management i.e. stocking rate and parasite control.

The variation occurs between years but also between mobs in a flock as they are run in different paddocks each with its own micro environment. To measure actual performance or comparative performance and reward fairly under these circumstances would be very difficult.

The key issue that needs addressing is what sort price impact is needed to ensure that it will have sufficient impact on the 1st X ewe breeder's profitability to be successful in driving change. To answer this requires a detailed look at the profit drivers for that industry.

Key Issues

- In interviews where contract breeding has been successful there are some common features:
 - The production systems of the two parties complimented each other and produced productivity improvements for both parties.
 - The two parties were able to form a strong business relationship, part of which is being able to get on personally.
 - The pricing mechanism was simple and transparent.
- A grid based pricing mechanism based on ewe live weight and sire EBV's has merit as a means of information flow about the desired traits but it does not answer the fundamental questions of what can the buyer afford to or needs to pay.
 - How large a reward is necessary to significantly affect the profit drivers of the 1st X ewe breeders and encourage compliance.

3.1.9 Feeder Lambs

Pricing System

Pricing mechanisms utilised have been:

- \$/kg of liveweight gain
- \$/hd/week agistment fee

Success or failure was based more on the ability of the finisher to deliver the promised weight gains rather than the pricing mechanism; however the agistment is typically biased towards the breeder. It is evident that there are specialist skills required that allow some finishers to achieve weight gains more efficiently than others.

Information Systems

From a marketing perspective information on finishing performance of lambs is important to the breeder because it provides marketing material which can be utilised to promote the product.

Paying for weight gain alone should provide incentive for specialist finishers to achieve the desired weight gain, however a performance based system for lambs that meet

specifications may also be utilised where the prime lamb breeder knows they have the genetics to perform. This will be dependent on historical information.

In the scenario where the breeder contracts a finisher to finish lambs on a \$/kilogram of weight gain basis the issue of who should take on the production risk associated with the genetics has to be resolved. The prime lamb breeder believes that a superior genetic product is being supplied but the specialist finisher is unwilling or unable to pay for those genetics unless it is proven (finisher does not want to take on additional risk). Success of the agreement is principally based on whether the specialist finisher could be trusted to provide the right environment for the lambs to express their genetic potential that is supposed to exist.

This is an individual business relationship issue where the performance mechanism is implemented to satisfy both parties that the promised genetic superiority was available and was worth more to both.

Once off performance based systems had been implemented for a fixed amount once lambs met target weights, however none were ongoing. The actual payment was decided based on the market conditions when the contract was issued. There were no examples of grid based information systems identified in interviews.

Key Issues

- Performance of specialist finishers in kilograms of weight gain using the same genetics has been found to be varied due to management by prime lamb breeders interviewed. Therefore the breeder is taking on production risk which may not be a desired outcome of the arrangement.
- A \$/hd/week payment system exposes the prime lamb breeder to substantial production risk and is therefore usually biased in the prime lamb breeders favour.

3.1.10 Other Industries

In the pork and poultry industry contract growing is widely used. Weaner pigs or hatchling birds are contracted out to grower farms/sheds until they reach slaughter weights. In both cases the owner of the pigs/birds supplies the feed and has some influence on the management system (minimum standards required).

In the pork industry the contract grower is paid a fee based on dollars per head per week that the weaners are in the sheds. In the poultry industry growers are paid a dollar per head fee and in some cases are later rewarded based on their efficiency by measuring the kilograms of chicken produced per kilogram of feed utilised. This is the incentive for the contractors to do a better job in terms of mortalities and providing the optimal growing conditions for the birds.

A key difference between the prime lamb industry and the pork and poultry industries is that the finishing systems are not as systemised, controlled and therefore as predictable. This means there is less likelihood of a fee per head per week type system being successful because the owner is taking on too much of the contract finisher's production risk.

The pork industry is trying to grapple with these same problems utilising constant monitoring and non-renewal of contracts as the only incentive for more efficient production.

3.4 Vertical Integration

3.4.1 Key Features

- All genetic value is captured because the product is owned where the desired trait is expressed and ultimately paid for.
- No pricing system necessary
- Information flow is not restricted

3.4.2 Other Industries

The poultry industry provides the best example of vertical integration. The major players in the industry own the genetics, breeding flocks, hatcheries and then finally the processing facilities. The only part of the whole supply chain that is contracted out is the growing stage where the operation is systemised and the companies have good control over the processes.

3.4.3 1st X Ewes

Interviews with Border Leicester breeders using LAMBPLAN EBV's revealed an interesting insight into vertical integration as a tool for capturing the value of genetic gains. It was repeated amongst a couple of individuals that "our best clients retain their 1st X ewes". Best clients were defined as those who buy and utilise the best genetics (obviously at the higher prices).

These producers are aware of the value of superior genetics to their prime lamb enterprise and therefore are prepared to invest in them in the 1st X ewe enterprise. The implication is that any potentially negative impacts on profitability that may be incurred by selection for the maternal traits in sire EBV's (i.e. reduced growth performance of wethers) are outweighed by the positive impacts from the prime lamb enterprise.

3.4.4 Finisher Lambs

When you consider that the majority of breeders are also finishers, only knowingly selling the 'tail' of their annual lamb drop as stores to specialist finishers then it is apparent that vertical integration is seen as an important part of capturing the genetic value in lambs born.

Comments such as 'when you have got them this far why would you sell them and let someone else make money out of them' are typical from prime lamb breeders. This makes sense if it does not compromise the efficiency of your production system. These potential compromises in productivity need to be quantified.

Key Issues

- For both 1st X ewe breeders and prime lamb breeders, owning the subsequent production stage would allow them to capture all of the genetic value created from superior genetics.

- Vertical integration does not necessarily lift production efficiency and may even compromise production efficiency. Therefore gains made from capturing genetic value through vertical integration need to be weighed against net gain/loss in production efficiency. This concept needs to be examined and highlighted for the industry.

3.5 Profit Sharing

3.4.5 Key Features

- Requires detailed knowledge of annual costs to work out profits.
- Information flow is not restricted
- Pricing systems are not required.

3.4.6 Other Industries

Profit share arrangements are common in broad acre cropping where one party will supply the land and a portion of the input costs and another party will supply the machinery labour and the remaining portion of the input costs. The actual cost and profit sharing arrangements vary between individual relationships and are structured specifically to meet the individual parties' needs. These are often short term arrangements whilst one or the other party gathers the required capital or skills to do conduct the whole production system.

The aim is to create interdependence and share risks in order to guarantee maximum productivity from all participants. Profit sharing is not utilised extensively in the pork or poultry industries

3.4.7 1st X Ewes

No implemented profit sharing arrangements were revealed during the interviews.

3.4.8 Finisher Lambs

No implemented profit sharing arrangements were revealed during the interviews, however examples of proposed systems were:

- Producer retains value of lamb at entry to finishing stage, costs and profit shared in finishing. This system was not eventually adopted due to the complexity of coming up with a 'fair' arrangement.

Key Issues

- Inherent difficulties in profit share arrangements are:
 - Attaining accurate estimations of relative contributions based on costs incurred
 - Finding a fair system leaving each party with a similar upside and downside each year

- Finding two parties with compatible attitude to risk.

The complexity of arranging profit share mechanisms means that it requires either a strong business relationship to start with, or one party has a particular constraint that a profit share arrangement may alleviate. An example of this may be that they are unable to attain capital to purchase lambs to finish and profit sharing is more appealing than an agistment option. These types of constraints are often temporary and therefore make the system opportunistic.

The complexity of arranging profit sharing mechanisms means they are unlikely to play a significant role in the industry.

4. SUMMARY OF KEY ISSUES

The review of current transfer mechanisms in the Australian and New Zealand prime lamb industries and the Australian pork and poultry industries revealed two key messages on the requirements for transfer mechanisms:

- **The pricing mechanism must be simple and transparent**

This was the primary reason why auctions and arms length private sales were the most popular selling mechanisms. A \$/head value or a \$/kg value encompasses all the characteristics that you are buying and there is a substantial amount of industry data available on where the market is situated for comparison. Where business relationships are fragile this is an easy way to preserve the relationship rather than risking it through complex price negotiation.

- **Information flow is the real constraint to lifting productivity**

The producers must know what the benefit will be, how much of that benefit they are able to capture without marketing effort, and what proportion of the benefit they must be prepared to give up in order to acquire the necessary genetics.

A lack of awareness by prime lamb breeders that a specialist lamb finishing industry exists and the price that is willing to pay for feeder lambs is a constraint to breeders supplying that market. In the producers mind the store price is a discount to the finished price therefore they would be better to finish lambs themselves. Transparency would be aided by a price per kilogram pricing system rather than a dollar per head pricing system.

The benefit of selling to a specialist finisher only applies if there is a production efficiency compromise in a breeding/finishing operation.

Sourcing known genetic merit is the foremost issues in purchasing 1st X ewes. Past performance and repeat buying offers one mechanism for identifying a satisfactory source but it is a cumbersome way of comparison between sources. Development of maternal EBV's offers a predictor of performance which could be used to signal to the market what buyers would like.

5. DISCUSSION IN RELATION TO PROFIT DRIVERS

Having reviewed the existing pricing mechanisms the industry is still left with the task of convincing 1st X ewe breeders to breed for maternal traits and to convince prime lamb breeders to produce lambs for specialist finishers. This section aims to clarify what impact an alternate pricing mechanism may have in encouraging change.

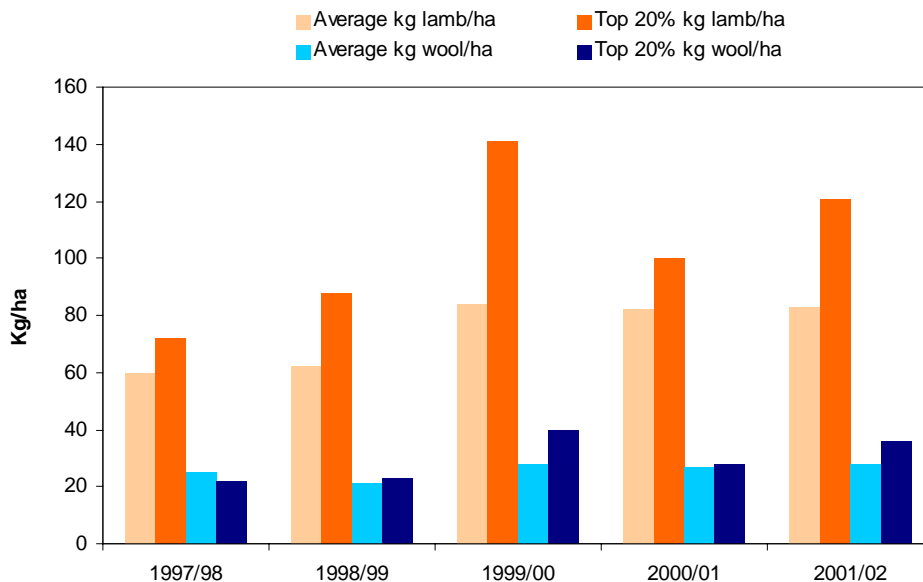
5.1 Purchase of 1st X Ewes

Typically replacement ewe producers join Merino ewes to a maternal sire, predominantly the Border Leicester, selling the ewes to specialist prime lamb enterprises and the wethers and cull ewe lambs for slaughter. In terms of enterprise structure there is essentially no difference between a 1st X ewe producer and a 1st X slaughter lamb producer where all lambs go to slaughter.

The key profit drivers for 1st X enterprises are the kilograms of wool and lamb produced per hectare, the cost of producing each kilogram and the price received for each kilogram produced.

Graph 6 & Graph 7 shows the differences between the top 20% and the average for all of these traits over the last five years.

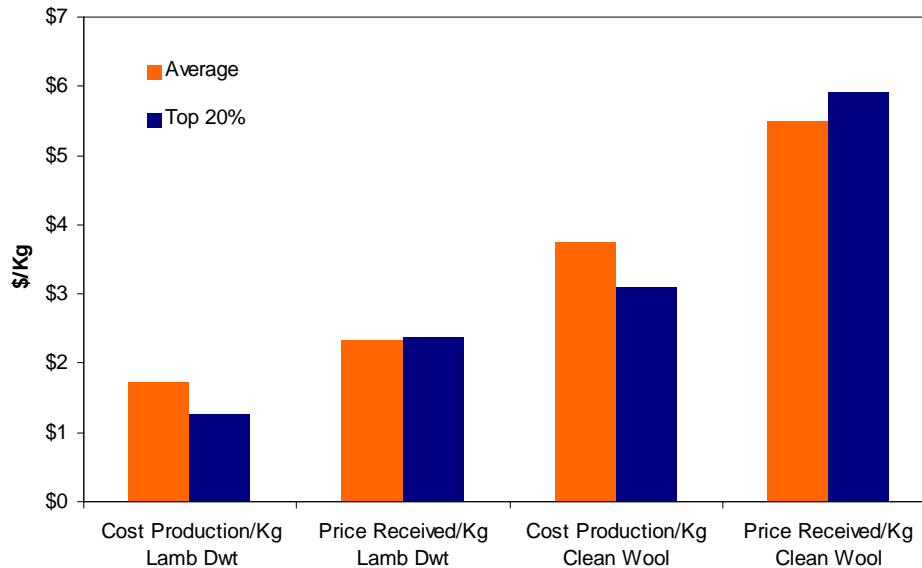
Graph 6: Kilograms of lamb and wool from benchmarked 1st Cross Lamb Breeders.



Source: Holmes Sackett & Associates Pty Ltd

A review of economic transfer models suitable for lamb breeder-finisher systems and 1st cross ewe supply

Graph 7: Cost of production and price received for benchmarked 1st cross prime lamb breeders.



Source: Holmes Sackett & Associates Pty Ltd

The top 20% have averaged:

- 40% more kilograms of lamb per hectare
- 15% higher kilograms of wool per hectare
- 27% lower cost of production for each kilogram of lamb
- 17% lower cost of production for wool
- 8% higher price received for wool.

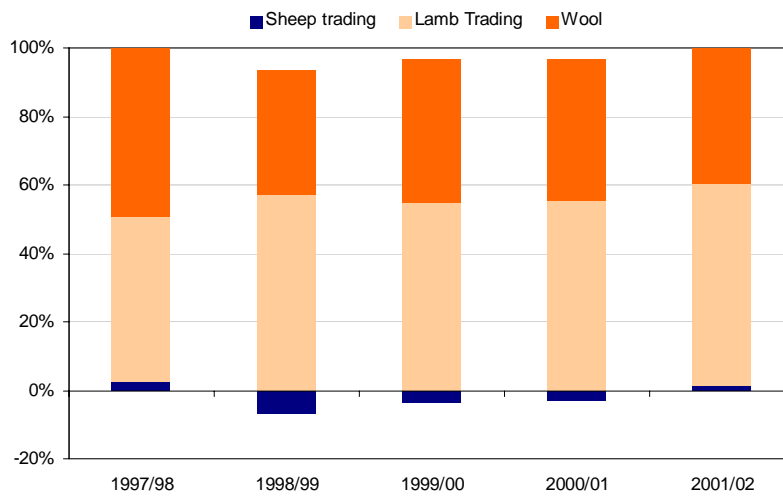
The advantage in cost of production comes from the productivity advantage the top 20% is able to capture via increased kilograms of lamb and wool per hectare. Improving profitability of these enterprises requires a focus on increasing the kilograms of lamb and wool per hectare which will come from stocking rate and genetics.

There is no real incentive to produce genetically superior progeny in any traits other than growth as they do not contribute to the productivity of the enterprise and historically price received has not been a substantial differentiator of profit performance.

To encourage change in sire selection practices a price is needed that will have a significant impact to encourage selection for traits that don't impact on the productivity of the enterprise. Lamb trading income contributes 50% to 60% of all income received from the enterprise Graph 8. Analysis of NLRs historical restocker ewe prices which are not breed specific show an 8% premium for restocker ewes over slaughter ewe prices.

From 1st cross ewe producers surveyed it was not uncommon to hear that their major concern was the average price across all lambs produced (inclusive of wethers) that was the issue rather than just the price received for the 1st cross ewes. One producer explained that last year he averaged \$75 for his ewes and \$35 for the wether lambs.

Graph 8: Income split for benchmarked 1st cross lamb breeders



Source: Holmes Sackett & Associates Pty Ltd

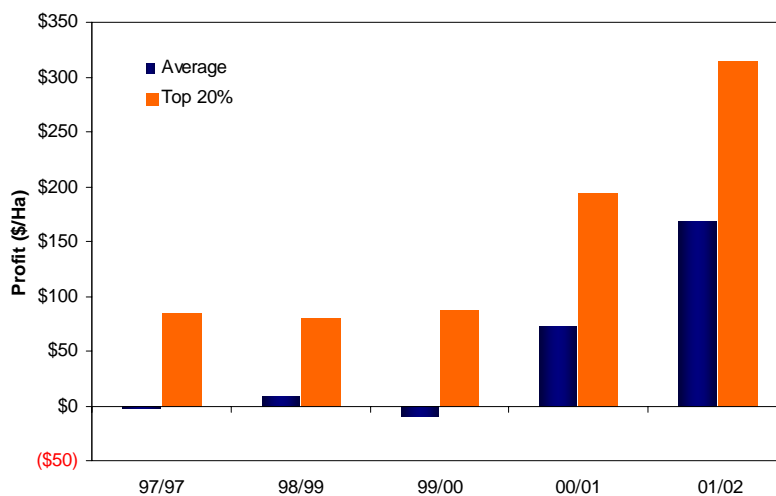
The impact of price received for ewe lambs on average price received will need to be determined in order to know the necessary impact required to encourage change.

5.2 Production of 'Feeder' Lambs

Specialist prime lamb production refers to those producers who's primary source of income from the flock is lamb. The specialist prime lamb industry is historically dominated by 1st X ewes joined to terminal sires.

Holmes Sackett and Associates benchmarking data show that the top 20% prime lamb producers have averaged \$100 per hectare more profit than the average over the last five years (Graph 9).

Graph 9: Benchmarked profit for prime lamb producers

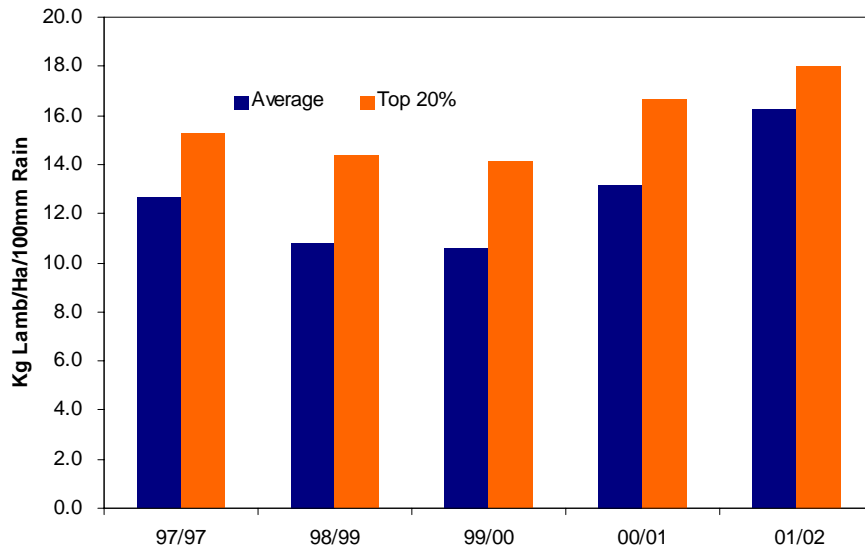


Source: Holmes Sackett & Associates Pty Ltd

A review of economic transfer models suitable for lamb breeder-finisher systems and 1st cross ewe supply

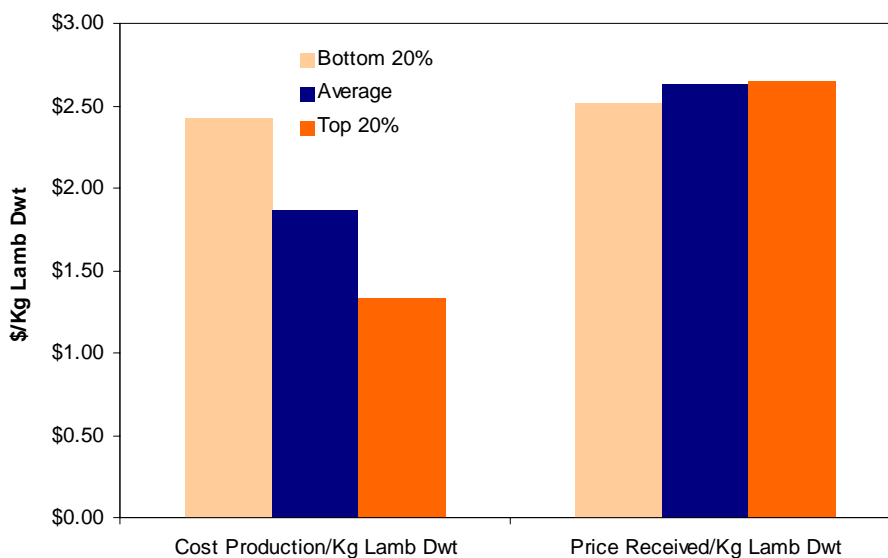
This additional profit has largely come from 25% higher kilograms of lamb produced per hectare and a 28% lower cost of production per kilogram of lamb produced. The top 20% only averaged 1% higher price received over the last five years but the bottom 20% were 4% lower than the average (Graph 11).

Graph 10: Kilograms of lamb/hectare/100mm of rainfall for benchmarked prime lamb producers



Source: Holmes Sackett & Associates Pty Ltd

Graph 11: Cost of production and price received for benchmarked prime lamb producers



Source: Holmes Sackett & Associates Pty Ltd

Whilst price received is obviously not a key differentiator of profit it still remains a key profit driver. If producers perceive they will be getting a discounted price for a lamb sold to a specialist finisher by comparison to a finished lamb sold for slaughter they will have to be

confident that they have more than made up the difference in a lower cost of production through productivity improvements. Effort spent in avoiding discounts should be kept distinct from effort spent acquiring premiums as it usually has a larger impact on the bottom line.

To achieve higher kilograms of lamb per hectare in a given production system the specialist prime lamb producer needs to focus on:

- Stocking rate
- Weaning %
- Sale weight of lambs

A price per kilogram would allow easier comparison between markets for 'feeder' lambs and slaughter lambs. Any productivity advantages that could be gained from redesigning the production systems to produce 'feeder' lambs could be weighed potential additional costs.

6. ALTERNATE RECOMMENDATIONS

The pork and poultry industries are generally considered to be more mature and developed in their supply chain relationships than the broad acre grazing industries. They also have a lot more environmental control over their production systems which would give an advantage when introducing complexity into pricing mechanisms. Yet in these industries pricing mechanisms remain very simple.

Complex pricing requires additional marketing and negotiation effort as they are mechanisms for redistribution of a fixed amount of profit. For the parties involved this is a win-lose negotiation and puts additional strain on often fragile business relationships.

The overriding theme in the interviews was that the pricing mechanism was often the 'hurdle' over which fledgling business relationships stumbled and fell. Simple pricing mechanisms were a characteristic of business relationships that had a prolonged life.

Given new pricing models are not considered the solution to adoption of improved genetics or development of a specialist feeder lamb production it is suggested that extension material be developed to drive change through education of the market.

6.1 Purchasing 1st X Ewes in Private Sales

The limitations on adoption of specified genetics are:

- The ability to create demand to achieve a superior price and reward additional effort.
- The ability of the individual prime lamb producer to recognise the performance of the genetics currently used and therefore know the net benefit.

To address these limitations investigation is needed into:

- The minimum price that can be expected to influence the selection traits of 1st X ewe breeders. This then allows the prime lamb breeder to quantify the risk associated with heading down this path.

- Marketing methods that 1st X ewe breeders could use to build demand for specified genetics.

6.2 Supply of 'Feeder' Lambs

The limitations to adoption and subsequent change are:

- Cultural characteristics of the industry where vertical integration is perceived as the only method of capturing maximum value.
- Development of a suitable reporting service to bring transparency between markets.
- Awareness of potential productivity benefits and the productivity impact of those benefits.

Market transparency and an awareness of potential productivity gains are needed to strengthen the link between prime lamb breeders and specialist finishers. Prime lamb breeders need to be convinced of productivity gains and potential profit gains that could be made by adjusting their production system to target a 'feeder' lamb market.

In conjunction the work needs to be done in the finishing industry to determine what price relative to the finished price a specialist finisher can afford to pay for feeder lambs.

Quick adoption of splitting the finishing system from the production of feeder lambs requires the price required by the feeder lamb producer and the price afforded by the specialist finisher to have considerable overlap.