

finalreport

Supply Chain Management

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Capacity of the Sheepmeats Industry to achieve its Goals - sheep meat industry resources

Lamb and Sheepmeat R&D Review and Strategic Foresight Workshop 19 – 20 July 2004

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Executive Summary

The prime lamb industry has enjoyed a period of rapid growth in value at the farm and industry levels during the past decade. There are many externalities that affected the industry performance but there has also been careful planning and widespread industry cooperation.

<u>Each year</u> since 1990 the gross value of production has increased by \$63m, lamb prices by 12.3c/kg cwt, lamb exports by 6660 t with an export value of \$41m and livesheep exports by 147,000. Lamb carcasses have increased in weight by 213g/annum to meet market requirements and anecdotally these carcasses are much leaner; lambing percentages seem to be on the increase. Producer groups interested in lamb have formed, direct marketing accounts for about 4.4m lambs (cf 800,000 in 1990) and many supply chain alliances have developed as producers target long term customers, an estimated 1.6m lambs entering these alliances in 2003.

These results follow many years of developing a "new" lamb industry, in contrast to the opportunistic traditional industry it would be focussed on individual market requirements the greater farm production efficiencies possible with a targeted product. Market research began in the late 1970's and coordinated efforts between scientists, producers, processors and other industry stakeholders can be traced back to the early 1980's. A series of meetings and cooperative working programs ultimately led to a Workshop in 1994 where representatives from all sectors of the industry created a vision of a lamb industry worth "\$2 billion by 2000" at the retail level.

There is a strong widely held view, particularly amongst people closely involved with the lamb industry, that a widely accepted sense of purpose and direction enabled people to work together towards the industry vision with everybody's energy harnessed toward a common outcome. The aspirational goal of \$2b by the year 2000 rallied and motivated the lamb industry ~ incidentally the goal was achieved despite some initial concern that it was far too ambitious.

Where is the sheep meat industry now heading?

The brief for this project was to examine what the sheep meat industry (lamb, mutton and livesheep) was hoping to achieve over the next decade and the resources available to achieve the vision.

The report encapsulates widespread discussions with industry organisations representing all sectors of the industry, many sections of the CSIRO, extension, policy and research personnel in all state government agencies, every university with an agricultural faculty, breed societies, private companies and many individuals with a view.

It emerged that there is no well-known aspirational goal for the sheep meat industry, although several plans espouse abstract goals that relate to prosperity whilst retaining a strong interest in sustainability, the environment and social issues. There was concern expressed by many people during the study that the industry had forgotten the advantages of a widely accepted vision, unified strategy development and a cooperative effort to achieve a targeted outcome.

Further, there was strong support for planning to extend to a coordinated sheep industry plan rather than to separate sheep meat and wool; it was also important for "stretch" goals to be set.

The industry development has encouraged a big increase in the number of specialist lamb producers. The traditional producer is price focussed (saleyard focussed) with little real knowledge of the carcass attributes of their product nor any inclination to producing even lines for a particular market; by contrast the specialists are interested in meeting consumer requirements and certainly more attuned to meeting marketing needs more efficiently.

The specialist lamb producer is not clearly or easily defined and so it is difficult to know how many producers fit the specialist category and how to interact specifically with them.

ABARE defines specialist lamb producers as those with more than 200 sheep and receiving more than 20% gross sales from lamb, the number fitting this definition is increasing although as lamb prices have increased relative to other industries there are more sheep producers who meet this criteria. Overall the specialists (under the ABARE definition) produce about twice the number of lambs that non-specialists produce, those who receive <20% of gross sales from lamb; they are probably people rotating crops and livestock.

The has been a perception that the average age of lamb producers is increasing; certainly it increased from 52 in 1995/96 for specialist producers to 53.3 yo on average in 1998/99; but it is possible this trend may have changed with the average being 51 yo in 2002/03.

In addition new data from ABARE compare the top and bottom 25% of specialist lamb producers (based on gross margins) and these show the average age of the bottom 25% of specialist producers was 58.1 yo in 1998/99 and the top 25% was 51.5 yo. The top 25% also had farming operations of 3 times the size of the bottom 25% from a similar area of lamb. Further analysis shows that 38% of lamb producers selling >3000 lambs are between the ages of 25 and 40 yo.

Over time the various parts of the lamb production cycle have been separated into the components of breeding, backgrounding and finishing. New producers have entered the lamb industry as their farming enterprises included greater emphasis on cropping that required a pasture phase and hence livestock. Lamb finishing is very complimentary to irrigated and dryland cropping systems and ABARE data show this group tends to have higher income and greater productivity growth than the specialists. There is a trend to fewer lamb producers with higher lamb sales.

The strong industry performance over the past 25 years is a result of many actions. The following milestones were identified in hindsight as key cooperative activities, new directions in thinking and new technologies that changed the way things could be done.

- 1978 First Australian study of consumer preferences for lamb (British studies were conducted in the early 1970's)
- 1983 First national conference of scientists and extension officers to examine requirements of the lamb industry, from production to market
- 1984 Studies in Vic and SA on boneless cutting techniques (supported by ALMC)

Capacity of the Sheepmeats Industry to Achieve its Goals

- 1986 Two study tours to USA and Canada supported by NSW and Victorian Governments
- 1990 AMLRDC initiated the Prime Lamb Program ~ a national portfolio of lamb related research projects.
- 1990 First flocks tested in LAMBPLAN, following preliminary research and development by the NSW Sheep Meat testing Service
- 1990 Fresh Australian Range Lamb Program (AMLC), the first promotion of specified product, to North America
- 1991 Lamb Identification and Description Scheme (LIDS) ticketing equipment introduced into meat plants to ticket and provide objective description of the carcasses
- 1991 Trim Lamb promotional campaign promoting new boneless, fat free lamb cuts
- 1994 Lamb Industry Strategic Plan (LISP) developed after the first Workshop of people from all industry sectors; the Lamb Strategy Team (LST) subsequently managed the plan
- 1995 New Trim Lamb (AMLC) campaign that attracted major supermarkets into the lamb programs
- 1996 Meat Industry Strategic Plan (MISP) was developed
- 1997 First National Sheep Convention in Melbourne attended by 300 producers as well as scientists, extension and agency people
- 1998 Sheep Industry Strategic Plan (SISP) developed by Sheepmeats Council of Australia
- 1998 Meat and Livestock Australia takes over from MRC and AMLC

The lamb product has changed dramatically as markets for heavy lean versatile lamb products are serviced in Australia and overseas. Strong demand has been created, a demand that remains strong despite very high prices caused by increased demand and shortage of supply.

Now the sheep meat industry is facing new challenges and this begs the question would a new industry vision with targets re-invigorate stakeholders and provide a focus for RD&E so participants can work together with new enthusiasm? Would it encourage new strategic thinking and highlight the best use of industry resources to achieve its goals? There is no doubt that the industry has lost the sense of excitement that pervaded during the 1990's.

Currently many industry agencies have operating plans, these are broken down into subprograms, but there is no overview and little industry involvement. There are several agencies expressing the opinion that they would like an industry plan so they could then plan and carry out their part of it. Interestingly private companies also agree with the concept of setting industry goals and working together to best use available resources.

The sheep meat industry *gross value of livestock slaughtering* was worth in the order of \$2.18 b in 2003. The data provided (not all the data was made available) show that in 2003/04 there was in the order of \$52m being expended on RD&E that had strong relevance to the sheep meat industry; this represents about 3.5% of industry value.

This expenditure on R, D & E is at the low end of the real figure because:

- only the expenditure data provided was included,
- the data collection only related directly to project areas within the ambit of Livestock Production Innovation (MLA); it therefore excluded Genomics, research directly on wool characteristics, new pasture varieties, development/extension programs relating directly to wool industry, etc
- routine veterinary activity from State Government Departments have not been included have not been included because it is not possible to separate beef, wool and sheep expenditure, it also provided difficult to obtain this data
- national programs related to exotic disease have not been included eg R&D on foot and mouth disease because they do not relate to LPI programs, these data are also difficult to access
- Funds provided for environmental projects often relate to a particular issue and are not aligned to any particular industry.

The omissions highlight some of the difficulties of the study, these generally related to the boundaries of data to be included. Such difficulties relate to apportioning R&D to sheep meat, wool and beef and in some cases crops. This can particularly be related to feed base R&D such as new spp and rotations, but also health programs and routine veterinary activities.

Another feature of the data collection was a suspicion as to why MLA wanted to know the information and in some parts of organisations there was no leverage, ie the group did not need/use MLA funds.

Another area of difficulty worthy of mention is trying to ensure inputs are not double counted. R&D expenditure as described by most organisations includes all monies, it does not separate out the particular organisation and other inputs. Thus a considerable effort was needed to avoid double counting of finds from RIRC's.

Nonetheless the data provide a useful insight into R&D in the sheep meat industry. Clearly a minimum of 3.5% of the gross industry value (as measured at farm gate) is spent on R D & E. This compares favourably to many Australian companies in tertiary industry sectors.

The largest proportions of the money was provided by MLA, State Government Agencies, the Sheep CRC and Dryland Salinity CRC, most of this has a \$ for \$ input from the Federal Government.

Funding in LPI in MLA is in 5 areas and the breakdown of funds in each area is as follows:

-	Feedbase and natural resource management	\$13.5m
-	Animal production and meat quality	\$22.9m
-	Producer innovation, adoption and capacity	\$ 8.4m
-	Communication and monitoring (essentially by MLA)	\$ 5.2m
-	Supply chain management	\$ 1.4m
	TOTAL	\$51.3m

The state breakdown of where funds are either spent or where spending is controlled when the data were not divided into states (where there are multi-sites).

_	Victoria	\$	8.7m
_	NSW	\$	13.0m
-	South Australia	\$	3.8m
-	Western Australia	\$	9.1m
-	Queensland	\$	3.8m
-	Tasmania	\$	0.6m
-	Australia (mostly national projects related to salinity in pasture	es)	
		\$	12.3

In order to conduct R&D activities the sheep meat industry has a wide network of research centres available for research into sheep meats and many farmers are quite willing to allow programs to take place on their farm. Some centres are well funded and resourced others are simply research stations with little infrastructure.

Initially a list of people working in the sheep meat industry was attempted but there was considerable flexibility of where people worked and movements to new projects in other industries are common (as indeed was the reverse) when new funding becomes available. The number of experienced scientists working with sheep appears to have declined but Universities think that increasing numbers of graduates will go into agriculture (a view that is not universal) and this should not be a problem.

Regardless of the numbers of graduates available for sheep meat R&D many managers consider agriculture is not competitive in the remuneration offered and new appointees are increasingly willing to move on to other opportunities outside agriculture.

There are several critical issues that affect the need for a national plan with a strong sheep industry vision and outlining more coordinated actions:

- Markets for lamb remain strong at historically high prices.
- The national flock numbers are in a strong declining trend and this trend is mirrored by the loss of breeding ewe numbers.
- The declining number of sheep and lambs for slaughter is having an impact on processors as plants close or have enforced holidays.
- Funding for sheepmeat production RD&E from state agencies is declining as money is being aligned towards social and environmental issues. The Sheep CRC and the Dryland Salinity CRC have emerged as major entities.

- The average age of producers is increasing and whilst many remain very dedicated they are of an age when their peers are retiring, or at least slowing down. However there may be a trend emerging for younger producers to be managing larger prime lamb operations.
- Profits from lamb production are at high levels, but still top producers are able to multiply the profits of the bottom producers by two and three times
- Some education and research agencies are having difficulty finding staff, especially experienced staff. However whilst there is some conjecture about the future, several universities were encouraged by the numbers of graduates seeking employment in agriculture.
- The connection between people working on sheep meats in different states and agencies has declined and whilst CRC's now provides this for scientists, the people involved in industry development do not have the continuous interaction with interstate peers.

and

There is a widespread view that there should be national plan that enables stakeholders to see a viable future and identify how best they can contribute to the ultimate outcome.

There is an unusual challenge to the sheep meat industries and their stakeholders, they must ensure a strong and viable future from a position of quite strong markets but with diminishing supplies. Perhaps the critical question is can a Sheep Meat Industry Plan with good strategies and appropriate national exposure create the environment to increase the value of the sheep meat industry using the existing (but probably diminishing) funding levels?

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1 Overview of Recent Past

- The traditional "fat" lamb industry provided a cash flow option for wool growers to sell surplus lambs. There was no market specifications (the UK was generally the market focus despite taking a much lower proportion of lambs than the domestic market), farm sales were predominantly at auction for pens of lambs that varied markedly. Distribution for retail and export markets took place at processing plants which had a very wide range of market specifications to fulfil, further these were less rigorous than currently requested.
- Specialist lamb producers have emerged who produce targeted lamb products and implement production methods to meet the consumer requirements; the number of specialists is not known.
- Lamb processors now deal in more specialised markets. They tend to have requirements within certain weight and fat ranges that suit their market.
- The lamb industry tends to be regarded as a mature industry (with the implications of market saturation, low innovation, commodity production and low use of new technology). This gives no acknowledgement of the underlying changes that have taken place, particularly the segmenting of markets and producers to those with a strong market focus. Undoubtedly a large number of traditional opportunistic producers still exist.
- The first efforts to define the lamb consumer's needs came in the 1970's in Britain and Australia. These studies clearly identified that the product was too fat, had insufficient lean and lacked versatility for innovative butchering. Market research has since has continually moved to define the needs of consumers and segment the market, this provides a range of market targets for producers attempting to grow lambs, often in very different environments.
- The AMLRDC and MRC R&D programs of the early to mid-nineties initially focussed on production systems but found the market was not ready for the new products from larger leaner lambs. Marketing and domestic retail development programs (through AMLC and MRC) were undertaken to stimulate demand, this was a new approach in agricultural research at that time.
- The market focus resulted in increased average lamb carcass weights and the use of improved genetics meant that fatness declined despite the increase in weight. Initially entire males as rams or cryptorchids were used to meet the need for heavier but leaner carcasses but this was quickly made unnecessary as wether and ewe lambs could meet the requirements following rapid genetic improvement.
- The implementation of descriptive systems for lamb carcasses enabled an objective message (through a Livestock Identification and Description System – LIDS) about market requirements to be transmitted to producers, processors and exporters. Objective marketing systems were developed and whilst they appear to have had a setback in recent times they are still the preferred marketing system for targeted product.

• Lamb has become a very desirable meat, it is widely promoted in Australia as the basis of a family meal. This appears to have been successful as real lamb prices have strengthened over a period when chicken prices have stagnated and beef and pork have risen to a lesser extent.



Retail Prices for Red Meats

Source: Ben Russell, Rabobank presentation (June 2004)

• Nearly 3 decades of research and development has strengthened the marketing position of lamb. A range of market requirements have been identified and lamb can have a wider range of specifications towards niche markets, as such the emerging "prime lamb" industry more accountable to the market. The Figure on the next page retrospectively identifies some milestones as the prime lamb industry has emerged from the "fat" lamb industry. In particular the events leading to industry-wide coordination are shown because they have flagged industry change and provided direction to the specialist lamb industry.



GVP (ABARE data)

Prices (MLA data) combines several data sets resulting from various changes in the specifications quoted

Key Milestones

- A First Australian study of consumer preferences for lamb (British studies were conducted in the early seventies)
- B First national conference of scientists and extension officers to examine requirements of the lamb industry, production to market
- C Studies in Victoria and SA on boneless cutting techniques (supported by ALMC)
- D Two study tours to USA and Canada supported by NSW and Victorian Governments
- E AMLRDC initiates the first Key Program where all of their funding into the lamb industry was coordinated Prime Lamb Program (1990)
- F LAMBPLAN begins (1991) after initial R&D conducted in NSW Sheep Meat Testing Service

- G FARL Program (AMLC) the first promotion of specified product, to North America (1990)
- H Lamb Identification and Description Scheme (LIDS) introduced to provide objective description of the carcasses and allow feedback of carcass information along supply chain (1991)
- Trim Lamb promotional campaign to promote new boneless, fat free lamb cuts (1991)
- J Lamb Industry Strategic Plan (LISP) (1994) developed after the first Workshop of people from all industry sectors; the plan was subsequently managed by the Lamb Strategy Team (LST)
- K New Trim Lamb program (1995) run by AMLC and brings major supermarkets to lamb programs.
- L Meat Industry Strategic Plan (MISP) (1996)
- M First National Sheep Convention in Melbourne (1997) attended by 300 producers as well as scientists, extension, agency people
- N Sheep Industry Strategic Plan (SISP) developed by Sheepmeats Council of Australia (1998)
- O Meat and Livestock Australia takes over from MRC and AMLC

2 Sheep Meat Industry Vision – is there a light on the hill?

Since the prime lamb industry has made strong growth in the past 15 years it is relevant to ask will that continue and what does the industry perceive as its future?

Forecasts for future of lamb are bright. Export markets are strong with North America continuing to grow and new markets emerging in Asia. The domestic market remains strong and with diminished lamb supply it is likely that prices will remain well over \$3/kg carcass, a price that is attractive to most producers.

This then begs the question \sim can the industry ensure a long term future in a strongly competitive uncoordinated way or is there a need to meet the challenges with a plan developed by all sectors that coordinates the response to the existing market and supply situation to maximise long term outcomes?

The Lamb Industry Strategic Plan (1994)

- During the early part of the 1990's people from all sectors of an industry worked together to develop their vision of an industry worth \$2 billion by 2000 ~ \$2b retail value including skins and livesheep; the Lamb Industry Strategic Plan (LISP) outlined the actions needed to achieve this vision.
- The vision was well known and often quoted, even by people not directly involved in developing the plan or making it happen. Often the proponents were from industry, people who had invested capital in retail, processing and production.
- Various national and state agencies worked closely together on the common target and identified their strengths in terms of delivery. Funding bodies provided funding to undertake the appropriate tasks with a minimum of duplication. Some of these people were part of the national Lamb Strategy Team and met regularly to examine progress and identify obstructions.
- The review showed that many people considered the LISP had provided strong direction to the industry and that it had contributed to the rapid industry growth.

BUT does the industry still have a light on the hill?

- In the course of the review it became clear that even within states there is no longer an industry focus as disciplines are strengthened and environmental and social issues gain government attention. The public verses private good arguments about the reasons for government funding were often raised, not only for funding extension but also for some applied research.
- National coordination and focus is deferring to the CRC's whilst the contact between states about the sheep meat industry are declining. This is unlikely to provide the

national perspective because Victoria, the major lamb producing and marketing state, is only marginally involved.

2.1 Current Vision

- The most recent vision statements are couched in broad terms that identify abstract social, economic, sustainability and environmental outcomes.
- Aspirational goals are not common in most industry future statements. Thus there can be no breakdown of the goal into components so the outputs needed to achieve the goal can be identified with the associated definition of the inputs that might have the greatest impact.
- Many people expressed a desire to set "stretch" goals and define the paths to those goals.
- The latest document to define a national vision for the sheep industry does set aspirational goals was written in 1998. Strategically Positioning the Australian Sheepmeat Industry for the Year 2005 (SMC 1998) set the objective that the sheep meat industry would become ~

"The leading global food market provider of sheepmeat products, with an industry value of \$4.0 billion by the year 2005" - \$2.8b for lamb and \$1.2b for mutton

- A review of the Meat Industry Strategic Plan by RMAC resulted in the plan "More from Less" which focuses upon the industry participants and aims to achieve "sustainable growth, international competitiveness and profits" which presumably delivers a positive industry outcome.
- A similar vision is encapsulated by the Sheep CRC where the triple bottom line is identified by targeting "a profitable and sustainable sheep industry contributing to a prosperous, environmentally sustainable and socially viable rural Australia".
- More recent state plans also include the triple bottom line (NSW, SA, WA, Queensland) whilst not surprisingly Livecorp addresses best practice and community perceptions.
- Commercial operators have targets about overall performance and market share. They are in-house targets that are not publicly available.
- AMIC has no specific plan and follows the RMAC plan.
- The Universities had research related directions based on disciplinary strengths in the institution.

• There are no breed societies with a vision statement, most have market share for their breed as the aim. In WA there is some suggestion a statement may be developed but probably again focussed on market share.

2.1.1 "Public" Plans Available

- There is currently no plan for widespread distribution indicating vision and strategies in the sheep meat industry.
- "More from Less" strategic direction for the red meat industry 2004-09 (RMAC) is a Review of the Meat Industry Strategic Plan undertaken in 2003 and indicates general directions without being specific (it does address why specific targets have not been developed).
- South Australia and Tasmania have documented plans developed in this millennium with stakeholder input. Victoria also followed this process in 1998 and has a new plan underway.¹

Tasmania – *Red Meat RD&E Business Plan 2003-2008* (September 2003). This has resulted in a comprehensive project entitled "Red Meat Targets for MLA funding.

South Australia – South Australian Sheep Industry 10 Year Strategic Plan launched in June 2004. This includes a strong background of industry trends and provides directions, actual activities that are yet to be developed.

Victoria – *Meat* (1998). Outlines large projects and abstract targets.

2.1.2 Agency Operational Plans

• Other organisations have planning documents that are not made public.

Western Australia – Sheep Investment Plan 2004/05. Internal Operating Plan defining projects and costs.

Queensland – Program Portfolio 2003-2004. Internal Operating Plan defining projects, staff, costs, funding sources and personnel profiles.

New South Wales – Wool and Meat Services Strategic Plan 2003/04 – 2005/06. Outlines objectives, strategies and activities.

¹ Victoria has now taken a disciplinary focus and industry plans will work across projects.

2.1.3 Private Companies

- No private company contacted had an operating plan that included a visionary statement that they make public. Their objectives (as opposed to a vision) were commercially oriented as income, profits and profit growth, and market share drove them.
- There was not any perspective to help "grow" the sheep industry and hence opportunities, their focus is short term whereby they ride the markets cashing in during affluent periods and tightening their belts in tough periods. In tough times they attempt to grow market share to offset lower margins.

2.2 National Planning

- There was strong support for developing a national plan for sheep meat; many considered this ought to include wool. All State Agencies were in favour of developing a national statement of aspirations and priorities with the view to identifying promoting and achieving their share.
- The approach of having a vision with a target that can be broken down into components and then identifying strategies and actions was widely supported.
- Interestingly private companies were interested in seeing an industry vision as it could help them with their planning.
- There was a minority view questioning the value of a target (eg as per the Lamb Industry Strategic Plan (LISP) with a target of \$2bx2000) querying how a widely known vision (and goal) would result in achieving it.
- Some state agencies at executive level have now combined programs for sheep meats, beef and wool with dairy being considered for inclusion into an extensive grazing industries plan. The scope of such planning was questioned as it requires competitors to work together; for example even the sheep meats plan combined mutton and lamb creating conflicts because mutton and lamb are competitors on both supply side and demand side.
- It is confusing to try and determine what the ultimate hope is for some of the plans reviewed. Some goals are related to outcomes of actions rather than identifying the contribution to a long term industry vision. For example one goal was to increase the level of direct marketing (over the hooks) but what that would achieve in an industry sense is not stated ~ if as expected it is to achieve a more prosperous and sustainable industry is there a demonstrated link between direct marketing and industry prosperity?
- The wool and sheep meat industries gain their income from the same animal. The feature of this study has been the fragmented nature of sheep industry planning and

identifying projects supported by various bodies and their contribution to the wool or the meat industry. There was a regular suggestion that there should be much stronger coordination between AWI and MLA in their services to the SHEEP industry.

Comment

- As a broad comment the sheep industry seems to lack the excitement it exhibited in the nineties, more business as usual.
- It was very difficult to discover the latest plans for the sheep meat industry. This shows that existing plans are not a "call to arms" with a widely accepted vision of the future.
- The lack of a plan creates a difficulty in communication and inspiration as highlighted by "More from Less" (RMAC 2003) which identified that "an important if secondary function of an industry plan is to advance the industry and its interests to a wide audience".

Issue for National Planning and MLA Funding

- The has been a decision by some state agencies to pursue their own programs and seek funding as required, they are increasingly reluctant to compromise their plans simply to obtain industry funding. Some reasons for this decision appear to be
 - the lack of a clear national path at present,
 - difficulties in obtaining projects, particularly since long periods of time were spent on development of projects that ultimately provide unsuccessful,
 - there is a strong feeling that their ideas have been taken by MLA and either given totally over to someone else to undertake or to be included in other projects,
 - Departments are now less worried (are more experienced) about reducing staff and thus less fearful of this as an outcome of reduced external funding,
 - the overall reduction of staff and projects has led to strong focus on outcomes they consider are important in their state rather than maintaining staffing levels.

2.3 Goals and Targets

The specific goals set by various agencies generally relate to their business or their state and these are included in the following Table.

Target	Date	Organisation	Title and	Comment
	written		Development	
Sheepmeats worth \$4b x 2005 ~ \$2.8b for lamb and \$1.6b for mutton. WA sheep meat	2004	Sheepmeats Council of Australia WA Agriculture	"Strategically Positioning the Australian Sheepmeat Industry for the Year 2005". People from all sectors invited to facilitated Workshop. The draft plan was to be further refined. "Sheep Investment	Draft had no further public cooperative development. It does not appear the draft was updated.
value >\$1b and wool >\$1b.			<i>Plan 2004/05"</i> Input from several industry/gov't committees including all stakeholders.	internally and has no strong view that such a document needs all of industry input and acceptance.
SA \$1.5b by 2014 – includes 85mkg wool and 160mkg meat Currently meat is 31% of value, thus in these terms meat target is \$600m in 2014	2004	SA Wool and Fibre and Meat Industry Development Boards	"10 Year strategic Plan" Joint wool and meat plan developed under jurisdiction of 19 member Steering Committee. Collated and written by a consultant.	Includes a careful examination of trends and what needs to be done to achieve the target. Inputs from industry organisations.
Vic export target of \$12b for food and agriculture. Lamb exports from Vic of \$500m through Value Based Marketing increased by 20% by 2004.	1999	Department of Primary Industries Victoria	<i>"Meat"</i> Annual review of plan developed by invited stakeholders in 1998. Usually not a strong attendance.	Keen to see national plan with view to achieving Victorian share.
Abstract vision without expressed target.	2004	NSW Agriculture	"Wool and Sheepmeat Services Strategic Plan 2003/4- 2005/06" In-house operating plan.	Keen to see national plan with view to achieving NSW share.
Increase	2004	Dep't of Primary	"Red Meat RD&E	Industry participants

enterprise gross		Industries	Business Plan	with TFGA and ARAC
margin by 10% by		Water and	2003-2008"	(Ag Research and
2008 and produce		Environment	Industry Business	Advisory C'ee).
1000 kg meat/ha		and Tas	Plan compiled and	Resulted in Project
(leads to \$70m		Institute of Ag	written by consultant	"Red Meat Targets"
contribution to Tas		Research	supervised by a	coordinating resources
economy)			Steering Committee.	to achieve big picture.
Abstract vision	2004	DPI	"Program Portfolio	Keen to see national
without expressed		Queensland	2003-4"	plan with view to
target.			In-house Operating	achieving
-			Plan.	Queensland's share.

2.4 Broad Outcomes Identified – Short Term

Sections 2.3 and 2.4 encapsulate discussions that try to pinpoint current and long term R&D actions. It is noteworthy that none of these outcomes address environmental, social or sustainability issues, these were accepted as given rather than "big hit" issues by most respondents from government agencies.

There were several (albeit well-known) issues that were raised in most discussions.

2.4.1 Rapid Increase in National Flock

- The critical level of the sheep population in terms of meeting existing meat market needs whilst also rebuilding the flock was the most pressing need. The additional slaughter lamb supplies must come from increased reproductive performance, whilst efforts are underway to increase outputs from the Merino woolgrowing flock.
- The potential to expand the flock into new regions is at risk. For example, in Victoria it is likely that prime lamb production should replace Merino woolgrowing which is not considered the most profitable or even the "easiest" sheep enterprise for the greatly improved pastures of the Western District plains.
- Increased reproductive performance is an essential requirement and significant underperformance was widely recognised. It was also thought there was a lot of information available from the halcyon days of R&D in this area in the 1970's and early 1980's.

Comments

Some thoughts on increasing flock numbers and efforts to increase the national flock were expressed.

- Any analysis to try and determine where efforts can be best placed to maximise flock increase are frustrated by lack of statistics. What level of increased lambing performance is needed to meet a specific number of lambs and sheep for slaughter? What is the impact on overall flock numbers of changing the proportion of ewes slaughtered or the age of slaughter? What mix of ewe and ewe lamb slaughter can be sustained for particular level of national flock size? A comprehensive population model is required to help answer the questions.
- Significant reproductive underperformance amongst the Merino flock was widely recognised as a problem; a problem with fairly simple solutions initially.
- The effort to obtain more lambs from the Merino flock may simply exchange first cross lambs for the Merino lambs currently slaughtered and may not have a major impact on overall flock numbers or lambs available for slaughter.
- Interviews with processors suggested current programs to encourage Merino woolgrowers to increase lamb production might be engendering a false sense of security amongst them. They did not consider there would be a supply problem beyond the spring of 2004 once the mid-year shortage of lambs passed because they expect more lambs to come from Merino growers.
- This expectation also ignores the fact the Merino flock is also down and a greater proportion of lambs are already needed to maintain and then expand Merino numbers.

2.4.2 Heavier Carcass Weight for Lambs and Sheep

• It is a truism to say that increasing carcass weights can make more meat available but for completeness it needs mention as a strategy. There is some evidence that the increase in carcass weight is levelling out arguably due to the drought, nonetheless the increase has been stuttering over the past 4 years.



- Several export plants have placed limits on the carcass weight they will accept, this varies but usually the limit is between 26 and 28 kg. This clearly limits the rate of increase possible by removing the very heavy weighted lambs.
- The rate of increase in carcass weight varies between states and Victoria has lagged in this respect. This may be a statistical glitch since heavy lambs from Victoria are purchased for slaughter interstate (particularly in SA), but it may be an opportunity particularly in conjunction with the rapid improvement of Victorian pastures.

Table 1: Percentage Increase In Carcass Weight On A State By StateBasis Since 1990							
National	Victoria	Queens	Western Australia	South Australia	Tasmania	NSW	
10.7	5.9	10.1	27.1	17.8	21.2	6.8	

• The carcass weight of sheep slaughtered has declined due to slaughter of drought affected sheep. But increasing sheep carcass weights represents an opportunity.



2.4.3 Benchmarking

- There is a strong desire that all producers benchmark their performance in both economic and physical terms. This would show where improvement can be made as well as measure the change over time. The hope is that this would focus efforts towards major areas of poorer performance.
- Economic benchmarking is likely to be undertaken by consultants, of which many companies offer a service, at a cost to producers. This is a worthwhile and justifiable cost but probably an impediment to benchmarking happening.
- It is also worth adding environmental and sustainability benchmarks to the wish list. Is it time for a universally accepted benchmarks to be developed (no more than 10 or 12) along with some simple measurements tools thereby making choices easier for producers?
- At the individual flock level there is a need for an optimising tool to ensure the near maximum profit can be derived from the flock. At any time there are multiple choices of market and the tool should have the long term perspective to enable comparisons to be made between the options for a particular lamb or flock of lambs (eg. between slaughter now or later at heavier weight(s), keep for breeding or wool production, etc). Whilst optimising tools would have an immediately useful function for the whole flock, the approach also has greater opportunities for individual animal management.
- If greater market opportunities are to be examined over the lifetime of a sheep it
 may require a "yearling" meat cypher to provide an intermediary market opportunity
 at that age, ie as the lamb is transitioning from a premium meat producing to a wool
 producing animal. There would also be a need to develop a way to value ewes and
 wethers at various ages to complete the spectrum of market opportunities.

Comment

- At a time when economic benchmarking is becoming more important state agencies have nearly reduced the availability of economic services to zero.
- There is practically no public information available on the profitability of various sheep meat producing enterprises. Producers find it difficult to make a decision either to change to sheep or deciding what sheep enterprise might be the most profitable for them. The point was often made that there is a lot of information for crops providing details about profits which seemed attractive, this may be seducing potential lamb producers to other enterprises.
- There are few details on producer's expectations about costs and prices for lambs or sheep and how to determine what is worthwhile or outrageous. For example in the authors experience in Focus Groups early in 2004 unsubstantiated statements were made:
- "You (a finisher) can't make a profit from lambs costing more than \$50" ie no reference to purchase cost, sale price or feeding and health costs.
- "Some first cross ewes were sold with lambs at foot for (the ridiculous price of) \$155 in NSW" ie no consideration of future industry performance, the likely prices for ewes and lambs, the profit required from the flock etc.
- A way of helping producers to do basic calculations is an important need.
- Only NSW Ag provides any help to examine profitability of various lamb enterprises, these budgets are placed on their website.

2.4.4 Greater Use of Existing Technology

There was a widely held view that there is a lot of information available that is not widely used.

- LAMBPLAN estimates that 70% of terminal sires, 25% of maternal sires and <10% Merino have EBVs, this indicates the potential for increased genetic performance of the national flock.
- There is an overwhelming amount of information about sheep nutrition available. Scientists continue to seek out best bet rations and characterise feeds for their optimal use. The conversion of feed into meat is pursued relentlessly (and appropriately).

But it seems that many producers think nutritional management is very complicated. The search for minimum cost rations, which means as price changes so does the recommended ration, adds to the confusion. Furthermore sheep in different physiological conditions have different needs. No simple "all purpose" ration is widely promulgated that whilst more expensive over time may simplify decisions about what to feed. Many producers express simplicity as a reason for using pellets, this is an alternative most nutritionists consider to be wasteful and offer exhaustive counter-arguments to their use.

• The Eating Quality Standards program has provided a set of guidelines that provide greater guarantees of excellent eating quality. The next decade will determine if this approach will simplify or complicate purchases for consumers. But it is technology that gives lamb a great opportunity to connect with a new generation of consumers.

2.5 Broad Outcomes Identified– Long Term

2.5.1 Individual Animal Management

- The concept of moving away from flock management to individual animal management has great potential to reduce costs, increase productivity and profits. Automatic measuring and sensing equipment (to measure weight, odour, body temperature, etc) can assist identify the needs of each sheep and lamb, then automatic drafting to treatment areas for "individualised" feeding and health management can reduce.
- By also developing decision support tools that seek to optimise the lifetime value of a sheep at any time during its life can be used to optimise lifetime returns of the individual animal.

Comment

• Another appeal of some of the technology is that overall labour inputs can be reduced. It is rare for any new recommendation to lamb producers to reduce the amount of work required. Since many lamb producers are over 55 yo they are approaching the age when their peers are approaching retirement.

2.5.2 Build Relationships amongst Producers

- The relationship building as part of the supply chain management is included as part of long term aspirations because of the difficulty already experienced in achieving it. The outcomes from such relationships could be substantial ~
 - o more lambs meeting consumer requirements
 - o greater efficiencies in the supply chain
 - o better quality sheep meat
 - o better information flow up and down the supply chain
 - increased ability for producers to specialise, as breeders can find a market for their lambs and finishers a reliable source of supply
 - processors will have a reliable source of sheep and lambs meeting their needs
 - greater knowledge of requirements focuses the needs for R&D and implementation of new ideas

- The concept of improving management of the supply chain is widely practiced in many industries and some companies have evolved as supply chain managers, even in the agricultural sector there are positive examples with the advantages and profits being well documented. However the profits and the relative benefits from improved supply chain management are not well documented in the sheep meat industry.
- There appears to be a need for some radical thinking in the sheep industry if supply chains with any longevity are to develop. The antagonism and inability to retain relationships is widespread, only a few alliance programs remain.
- Private companies have built up strong alliances with overseas companies and their producer clients, this appears to be strongest amongst the stock agencies for their wool businesses.

Comment

- The discussions revealed definitions of a supply chain varied from the saleyard approach through to a chain that is carefully orchestrated, market focussed, targeted product, information rich and equitable for participants.
- Many producers do not consider the well managed supply chain from production to retail as reasonable or possible in the meat industry. They considered it is culturally not suited to traditional producers or processors.
- Processors consider producers lack loyalty (ie by moving to another plant if price is better), producers consider processors lack loyalty (by paying lower prices than in the saleyards for a carefully prepared product developed in consultation).
- No attention has been paid to examining the potential profitability of managed supply chains to the sheep industry. It appears to be considered as a given because of the improved information transfer and increased number of lambs meeting specification.

2.6 Measuring Performance

- A number of Key Performance Indicators (KPI's) for the sheep meat industries has been prepared every 6 months for MLA. The summary for the financial year 2002/03 is attached in Appendix 1 and its main use was to identify the direction and strength of trends.
- There has been no regular public presentation of KPI's on industry performance either nationally or in any state except in SA where a half yearly bulletin from the SA Lamb Development Team indicates that state's performance. This appears to have a good response from producers and other stakeholders.
- In some industry plans developed by state agencies there was some attention to identifying KPI's but there was no attention to actually making the measurement to track progress. NSW reports on specific KPI's required by Treasury but these are

not necessarily industry performance measures. Tasmania has a goal to increase gross margins by 10% but no way to measure it.

- Perhaps the most common KPI's was to increase the value of the lamb industry. But it is not stated at what level of product this would be. If measured at saleyard prices (the Gross Value of Production from ABARE) or at retail would result in a vastly different magnitude of the indicator.
- Some private businesses have defined KPI's related to performance and share of business but they are privy to the company management.

2.6.1 Gross Value of Sheep and Lamb Slaughterings

- A measure that might come closer to a value added outcome is the "Gross Value of Sheep and Lamb Slaughterings" (ABS and ABARE), this is the total value of sheep and lambs slaughtered at local wholesale prices with the value of livesheep exports added on.
- The Gross Value of Sheep and Lamb Slaughterings was \$2.184 billion (Table 2). Note this does not include sheep skins and other products such as offal and pharmaceuticals.

Table 2: Gross Value of Sheep and Lamb Slaughterings						
Sheep Lambs Livesheep						
1998	298.5	547.4	193.3			
1999	226.6	645.2	181.7			
2000	204.6	668.6	180.3			
2001	367.6	776.5	257.7			
2002	545.2	1180.7	391.7			
2003	486.9	1289.7	408.2			



• The Gross Value of Sheep and Lamb Slaughterings has more than doubled in the past 5 years.

3 The Capacity to Achieve a Strong Future

3.1 National Flock and Trends







- Comparing the numbers "lost" to size of population provides no easy analysis of the trends. The composition of the losses requires greater understanding.
- During the nineties there has been a sustained loss of numbers whilst the indicator has varied between 0.55 and 0.93.
- Modelling is needed because of the lack of data about the composition of slaughter (age and sex) and it is difficult to predict the percentages necessary to rebuild the flock.

• Encouragingly there has been a trend to increased marking percentages since 1993.

- The increase is of the order of 3% per annum from a low in 1993.
- The retail prices for lamb are rising more rapidly than beef, pork and chicken (see Chapter 1); whilst this creates a feeling of pride in the lamb industry it means that lamb is becoming less competitive. More product is needed to make lamb more competitive.

3.2 Lamb Producers

3.2.1 Number

• Table 3 shows that in 2001/02 there were about 19,000 prime lamb producers in Australia (using the ABARE definition of those people with farms running more than 200 sheep), specialists receive >20% returns from prime lamb sales, non-specialists receive <20% from prime lamb sales); preliminary data for 2002/03 show it remains at about 19,000. Whilst recent data suggest an increase in lamb producer numbers in 2002 this is probably because high lamb prices result in more wool producers being defined as lamb producers (ie their returns from lamb now achieve the

definition of a lamb producer).² Despite these data it seems likely that the number of lamb producers is still in decline – see Table 3.

- A decline in producer numbers is anecdotally supported in discussions with producers who all have stories of neighbours who went out of sheep during the drought. Many had already said they will not return to sheep and the cost of replacements in mid-2004 will reinforce this outcome, particularly with an increase in interest rates being increasingly likely.
- Numbers of specialist lamb producers are increasing and whilst anecdotal evidence supports the view that there are more producers specialising in lamb, the ABARE definition also causes in this outcome since lamb prices have nearly doubled during the period 1996 to 2002 thereby increasing the importance of lamb returns compared to other enterprises.
- The number of "other" lamb producers is in decline, again this is likely because the strong price rises have lifted the importance of lamb in the overall farm enterprise portfolio and pushed the "other" producers into the specialist group.
- The proportion of lamb producers in with Victoria and South Australia is increasing, whilst the proportion in NSW, Tasmania and Western Australia has declined.
- The data in Table 3 support the view that the number of lamb producers is declining. At a time when total numbers of lambs slaughtered declined the numbers raised per producer were increasing. This can only happen if total producer numbers of lamb are falling ie the high prices for lamb have brought more wool growers in under the definition.

² This assumption is supported by the jump in lamb producers in 2000/01, the year when lamb prices "jumped".

Table 3: NUMBER OF PRIME LAMB PRODUCERS							
Prime Lamb Specialists ¹	Australia	NSW	Victoria	Queensland	South Australia	Western Australia	Tasmania
1996/97	3818	1086	1857	-	368	309	198
1997/98	6215	3161	1809	9	988	63	187
1998/99	5432	2684	1886	-	597	155	146
1999/00	4208	2129	1548	-	433	-	99
2000/01	5269	2145	1892	-	839	302	91
2001/02	7926	3766	2681	-	842	543	95
Other Prime Lamb Producers ²	Australia	NSW	Victoria	Queensland	South Australia	Western Australia	Tasmania
1996/97	13117	5259	3197	198	1617	2192	653
1997/98	14968	6339	3442	304	2243	2210	431
1998/99	14791	5351	3741	206	2309	2593	590
1999/00	12812	4018	4039	267	2618	1422	448
2000/01	17020	6146	5587	267	3051	1422	547
2001/02	11015	3210	3517	104	2133	1663	389
All Prime Lamb	Australia	NSW	Victoria	Queensland	South	Western	Tasmania
Producers					Australia	Australia	
1996/97	16934	6345 (37.5)	5054 (29.8)	198(1)	1985(11.7)	2501(14.8)	850(5)
1997/98	21183	9500(44.8)	5251(24.7)	312(1.5)	3231(15.6)	2273(10.7)	617(2.9)
1998/99	20222	8000(39.6)	5672(28)	206(1)	2906(14.4)	2748(13.6)	736(3.6)
1999/00	17020	6146(36.1)	5587(32.8)	267(1.6)	3051(17.9)	1422(8.3)	547(3.2)
2000/01	20295	7305(36)	6611(32.6)	106(0.05)	3275(16.14)	2447(12.05)	552(2.7)
2001/02	18942	6975(36.8)	6198(32.7)	104(0.05)	2975(15.7)	2206(11.5)	484(2.6)

Table 2. NUMPER OF DRIME LAMP DRODUCERS

¹ Farms with more than 200 sheep that received more than 20% farm cash receipts from prime lamb sales

² Farms with more than 200 sheep that received less than 20% farm cash receipts from prime lamb sales Source – Prime Lamb Industry Reports ABARE

 Table 4 shows producers are selling more lambs. There was a trend for lamb numbers sold by each of the producer groups ~ specialists, "other" and all producers ~ to increasing lamb numbers between 1999/00 and 2000/01. In 2001/02 the number of lambs from specialists and "other" producers declined, but inexplicably they increased for "all" producers. Nonetheless it appears specialist's produce about twice the number of lambs as "other" lamb producers who are most likely crop/sheep operations.

Table 4: Average Numbers of Lambs Sold by Various Producer Groups						
	1999/00	2000/01	2001/02			
Total slaughter (m)	18.94	17.43	16.88			
Lamb Sales-	1161	1228	1199			
specialists						
Lamb Sales – other	533	581	530			
Lamb sales – all producers	692	777	814			
Total Number of Producers	16657	18797	19161			

3.2.2 Producer Age

- After some years of increase the average age of lamb producers fell in 2002/03. This is despite an increase in the proportion of producers over 50 yo, possibly since older farmers tend to retain an interest in sheep production.
- The age profile (Table 5) for lamb producers suggests that younger producers are beginning to move into lamb production. More data are needed to confirm this trend but it is a hopeful sign for the lamb industry. On the other hand the decline in 40-50 yo farmers makes little sense in relation to movements in older and younger age groups.

Table 5: LAMB PRODUCER AGE PROFILE						
	1995/6	1998/9	2002/03			
Average Age (yrs)	52	53.3	51			
25 - 40 yrs (%)	10	9.5	12			
40 -50 yrs (%)	35	32.1	26.9			
50 - 60 yrs (%) 33 29.7 29.1						
60 - 75 yrs (%) 20 24.1 26.7						
> 75 yrs (%) 2 4.6 5.4						
The data relate to all lamb producers under the ABARE definition						

• In 1998/99 the average age of specialist lamb producers (ABARE definition) was 56.6 yrs and "other" lamb producers was 52.1 yrs; it is difficult to decide if this is

significant or an outcome of the definition – it could be due to older people retaining an interest in farming by running a flock of sheep.

• Younger producers are running the larger prime lamb operations. Table 6 shows that for farms selling more than 3000 prime lambs the majority of producers (36.9%) were younger than 40 years.

Table 6: DISTRIBUTION OF FARMS SELLING PRIMELAMBS BY AGE OF OPERATOR OR MANAGER

	All farms	Farms selling	Farms selling more			
	selling prime	more than 1500	than 3000 prime			
	lambs	prime lambs	lambs			
		Percent of farms				
Less than 25 years	0	0	0			
25 and less than 40 years	9.4	20.2	36.9			
40 and less than 50 years	26.9	28.5	9.8			
50 and less than 60 years	32.7	23.8	14.7			
60 and less than 75 years	23.2	23.2	27.7			
75 years and over	7.7	4.3	11			
Total	99.8	100	100			
Average age of operator	54	52	51			
or manager						
Source: ABARE Australian Agricultural and Grazing Industries Survey 2001-02						

3.2.3 Specialist and Other Lamb Producers

- As previously noted there is widespread acknowledgement that there has been an emergence of "specialist" lamb producers. There is no clear definition of these people but their characteristics include some or all of the following:
 - they are focussed on the product and meeting consumer needs efficiently hence they have a strong interest in improving genetics and feeding systems,
 - since they have a target product they continually improve their production system to meet changing customer needs,
 - they market to their customer base through regular channels, they usually market over the hooks and often seek a price on a forward contract basis,
 - they are in the industry for the long term and recognise its cyclical nature.
- Lamb production is rarely the priority enterprise and often other enterprises provide greater earnings and have greater priority for scarce resources.
- Certainly the traditional "fat" lamb producer still exists and their product usually has broader weight and fat ranges than the specialists.

- These issues all mean it is very difficult to identify and isolate the prime lamb specialist producer, measure their performance and compare it to other lamb producers and other enterprises.
- A study of productivity in the lamb industry to examine long term trends (Andrews, N et al., Dec 2003, *Productivity in Australian Livestock Industries*, ABARE) concluded that "Productivity growth on sheep farms with significant prime lamb production was found to be superior to that on sheep farms which rely predominantly on wool for their incomes".
- Specialist lamb producers with large properties have higher annual productivity growth than small operations (Table 7), however multi-enterprise properties with sheep appear to have made good use of any complementarity that exists between the enterprises they run.

Table 7: AUSTRALIAN SPECIALIST AND MULTI ENTERPRISE SHEEP FARMS ANNUAL PRODUCTIVITY GROWTH RATE, 1977-78 to 2001-02

	Specialist s	Multi enterprise sheep farms	
	Lamb sales >175	Lamb sales <175	Lamb sales >175
	%	%	%
Changing total factor	productivity growth ov	ver time	
1977-78 to 1989-90	1.2	0.9	2.3
1988-89 to 2001-02	1.9	0.4	1.7
1977-78 to 2001-02	1.4	0.8	2.0
Source: Andrews, N., ABARE	et al, (2003) "Produc	tivity in Australian Li	vestock Industries"

3.2.4 Performance of Top 25% vs Bottom 25% for Specialist Producers

Selected data from the ABARE studies of specialist lamb producers provide some interesting directions for the future.

Table 7: SELECTED CHARACTERISTICS OF TOP 25% AND BOTTOM 25%OF SPECIALIST LAMB PRODUCERS

	Pottom 25%	Top 25%		
Salastad Dhysis	DULIUIII 20%	100 25%		
Selected Physica		4000		
Area operated (na)	1309	1222		
Sheep Number	969	3766		
Lamb Marking %	92	98		
Wool Production (kg/hd)	3.8	4.0		
Cattle Sales	24	83		
Area of Crops (ha)	54	159		
Hours Worked	86	101		
Selected	Receipts			
Prime Lamb	30820 (37%)	129725 (36.3%)		
Lamb Price	50	61		
Wool	13212 (16%)	56969 (16%)		
Beef	12038 (14.5%)	53010 (14%)		
Crops	14555 (18%)	85134 (24%)		
TOTAL	83134	3555919		
Receipts \$/ha	63	292		
Selected C	ash Costs			
Wages	3692	7567		
Interest	4919	16354		
TOTAL	82517	219976		
Costs \$/ha	63	180		
Financial	Indicators			
Net Cash Income	616	135942		
Net Income \$/ha	0.50	111		
Rate of Return	-7%	+7%		
Average Age	59 52			
Marketing Metho	ods for Lamb (%)			
Over the Hooks	25 49			
Saleyard	50	37		
Paddock	22	14		

- The property operated by top and bottom 25% of specialist lamb producers is about the same, in fact the top have a slightly smaller farm.
- The operations run by the top producers is about 3 times that of the bottom group.
- The receipts from each enterprise in each group are about the same proportion of the total eg lambs provide about 36% of receipts, wool 16%, cattle 14% and only crops differs 18% for bottom and 24% for top. Crops are not defined but probably includes crops complimentary to livestock production (eg lucerne).

- In support of other information, the top producers are average aged 52 yo as compared to 59 yo for bottom 25%. It is important not to interpret this as a skills issue, although it may be, but it could be due to cutting back the operation for better lifestyle (the hours worked by the bottom group is less).³
- The top 25% market more lambs direct to the processor.

Comment

 Since there is considerable attention on the specialist lamb producer and faith that they aspire to better production and marketing principles it would seem that some effort to identify and characterise them and their performance might provide data for focussing R&D towards a group thought to be innovative.

3.2.5 Financial Performance

The ABARE data provides an insight into financial performance of lamb producers despite reservations about the definition of specialist vs other causing movement of individuals from one group to the other.

Table 8: FINANCIAL PERFORMANCE OF LAMB PRODUCERS OVER PAST 6 YEARS						
Specialist Lam	b Producers					
	Farm Receipts	Cash Costs	Net Income	Rate of return		
1998/99	107885	92756	15129	-1.3		
1999/00	136725	110109	26616	0		
2000/01	158027	121693	36334	1.3		
2001/02	236010	159890	76120	3.1		
2002/03	263900	184500	79400	1.7		
2003/04	297000	206000	91000	2.4		
Non-Specialist	Lamb Produce	rs				
	Farm Receipts	Cash Costs	Net Income	Rate of Return		
1998/99	239019	190542	48477	0.7		
1999/00	297774	219606	78168	1.5		
2000/01	352232	245298	106934	3.7		
2001/02	483410	303260	180150	6.5		
2002/03	416300	291100	125200	2.9		
2003/04	441000	295000	146000	4.7		

³ Many older producers have told the author they are no longer interested in pushing their operation to its limits as they are more interested in lifestyle. Furthermore high lamb prices have enabled this outcome.

- The income of "other" lamb producers is considerably greater than specialist producers and is due to much higher levels of cropping income.
- Whilst the net farm income of both groups has trended sharply upwards, the income of specialist lamb producers has increased every year over the past 6 years, despite the drought year (the year following a drought year is often when income is reduced most as sales are down and many costs have been carried over).



 The ABARE data always creates some concern because the definition affects the producers included or excluded each year because of relative movements in the price of products. The definition of the Monitor Farm Project in Victoria (DPI Vic) is more consistent because it describes operations. It also shows significant gains in profitability of lamb producers (in SW Victoria).

Table 9: PRIME LAMB PROFIT PER KG MEAT SOLD					
	Average	Average	Top 20%		
	2001/02	2002/03	2002/03		
Enterprise Costs (\$)	1.25	1.58	1.22		
Owner operator allowance (\$)	1.00	0.94	0.56		
Interest and lease payments (\$)	0.28	0.29	0.38		
TOTAL COST	3.08	3.37	2.45		
Wool income (\$)	1.44	2.02	1.31		
Other sheep trading income (\$)	-0.05	-0.27	-0.12		
Lamb Income (\$)	3.34	3.35	3.75		
Prime lamb profit excluding interest (\$)	1.94	2.02	2.87		
Prime lamb profit including interest (\$) 1.66 1.72 2.49					
Source: Farm Monitor Project 2002/03 (2004) Department of Primary Industries					

• The profits were similar both years and the top 20% showed the potential to increase profits significantly above average.

3.2.6 Education and Training

• Nearly 75% of producers have an education level of high schooling or less, 12% have tertiary training and 10% have trade or technical training (Table 8). Their spouses have 25% of whom are tertiary trained (anecdotally teachers and nurses).

Table 8: PRODUCER EDUCATION LEVELS1998/99					
OPERATOR	Percentage				
Primary School	4				
1-4 yrs High School	46				
5-6 yrs High School	27				
Trade/Technical Course	10				
Tertiary Studies	12				
SPOUSE					
Primary School	3				
1-4 yrs High School	34				
5-6 yrs High School	27				
Trade/Technical Course	10				
Tertiary Studies 25					
¹ Prime Lamb Industry ABARE (2000)					

- There has been strong direction in the past decade to "empower" producers to make their own decisions. Training programs for various aspects of farm management are taught at many TAFE's, furthermore EDGENetwork programs are being delivered in most states. The aim is for producers to make their own decisions with a greater level of knowledge and confidence.
- There is an alternative view that producers do not want to be empowered, they want to obtain information to solve a problem and apply it. State Agencies have been under continuous pressure to reduce costs and this has mostly been exercised in reducing extension programs as one on one extension is no longer available.
- There is some suggestion that the producers requiring a recipe approach are in cropping areas and run several enterprises. This would seem possible since cropping can be approached as a routine set of decisions.

3.2.7 Decision Tools

- Some agencies are also responding to the shortage of extension staff and the producer need for a recipe approach by developing products/tools that can assist decision-making and provide quick answers to what are sometimes complex questions. Table 9 includes some tools identified in the course of this review (Information sheets are not included in the list nor are more complex technologies such as Grazfeed).
- The tools listed do not include training courses, which fit into the education and training approach. This table is not exhaustive but provides examples of an alternative approach that appears to have limited support from the RIRC's.

Table 9: LAMB PRO	Table 9: LAMB PRODUCER TOOLS						
Tool	Format	Producers					
Green Feed Budget	CD to maximise use of pastures through	WA Agriculture					
Paddock Calculator	manipulating stocking rate.						
Lambing Planner	Poly-coated resilient hard copy. Uses	WA Agriculture					
	rotating wheel within a calendar to identify						
	key management times in relation to a						
	selected date of lambing.						
Pasture species	Series of poly-coated resilient hard copy	WA Agriculture					
selection	cards that cross-tabulate pasture spp with						
	various livestock operations, soil types,						
	farming systems, etc.						
Food on offer	Shows ways to measure pasture depth	Many agencies,					
	and relate to availability and stock	Prograze, etc.					
	numbers – rulers, heel size, etc.						
Phosphorus Ready	"Wheel of fortune" – integrates soil,	DPI Vic					
Reckoner	rainfall and dse to give P needs.						

• Other tools related to feed requirements, feed and genetic success in achieving performance required to meet targets and animal health were suggested.

Comment

- Focus groups and discussions reinforce the view that sons of farmers are turning to cropping rather than running sheep, which are regarded as hard and relentless work. This trend is perhaps most prevalent in traditional wheat/sheep areas but as high rainfall cropping becomes more common it may also be an influence there.
- There was also comment that producing simple tools for producers provided information that was too simplistic, however this ignores the rigour of obtaining the appropriate information and developing a simple approach to providing complex information.
- Furthermore there is difficulty in obtaining funds to support the development of these tools because they are seen as simplistic.
- It is worth reviewing the use of such tools in relation to the educational levels and

age of producers and reconsider simple training programs to teach them to use the tools. Do they really want to be empowered?

• There has been a long term action (dream) to train stock agents to provide information to producers. This often receives good interest at head office and breaks down in the country agency. There was a candid admission that they thought their priority was to obtain income for their organisation, they have targets to meet. It was thought that in the short term their priority would suffer although they agreed that greater returns may result from better informed staff in the long run.

3.3 Prime Lamb Producer Groups

- Prime lamb producers groups evolved during the mid-nineties as a vehicle for producers to work together and also to provide a focus for state government agencies as they moved away from one on one extension.
- In December 2002 there were a total of 81 groups with an estimated membership of 2156 lamb producers.

Table 10: PRIME LAMB PRODUCER GROUPS DECEMBER 2002							
State	Australia	NSW	Victoria	Tas	SA	WA	Q'land
Number of producer groups	81	25	22	1	20	9	4
Number of producer group members	2156	410	771	9	472	467	27
Estimated lamb supply from producer groups	1.95 m	303,31 6	630,000	0	462,70 0	532,00 0	25,000
These data were collected by MLA and provided KPI Report (May 2003). They are as at December 2002 and are the latest data available.							

- The lamb producer groups had 3 broad interests:
 - need for production system information and discussion
 - to form a marketing group, this may have been for group marketing but often also with the aim of developing a brand for the group
 - social interaction and contacts who may help in the future.
- Many groups had individuals with different needs amongst the members and this caused a problem if there was no planning to ensure everyone understood the group's main purpose. NSW data showed those groups that remained active at the end of 2002 had done some strategic thinking about their purpose and generally the plan was documented.
- Many of the lamb producer groups have not met in the past 12 months and some lamb producers expressed that they were "grouped out". Agencies became reluctant

to provide secretarial support and provide full stimulation for the group. Now in some states agencies seek other ways to provide producers with information.

- Groups need to spontaneously form and it appears the AWI/MLA model in the program Best Wool and Best Prac are achieving this aim. These are training programs for production practices for wool producers, the latter in rangeland areas.
- There are 26 Best Prac groups (mostly SA and NSW with WA developing) including 146 businesses; they have 488,500 grown sheep of which are Merinos and most are ewes. They sell 112,000 lambs for slaughter a figure that demonstrates the importance of Merino meat production but also demonstrates a considerable potential for upside in lambing performance.
- In Victoria there are 60 Best Wool groups, these include 1700 producers. The same focus on production exists and the groups can either form spontaneously or are encouraged by the producer-run Board of Management. Plans are in place to form 5 Best Wool Prime Lamb groups.
- Victoria has reduced its emphasis on prime lamb *Marksman* groups as a way to deliver information. They no longer encourage staff to act as group facilitators but will provide technical content.

3.4 **Processing and Service Availability**

- The decline in sheep and lamb numbers for slaughter is putting pressure on processing capacity. Some plants are already shut, some rumoured to be unlikely to reopen.
- If processing capacity was limiting it could be overcome by running more shifts.
- Shearers and classers are increasingly difficult to find, contractors are increasingly working locally and there is less shearing from teams travelling nationwide.
- Country communities have aging populations and labour for local meatworks, sheep and lamb producers may become more limiting. High levels of employment mean employees who leave will be more difficult to replace and with plants operating at relatively low levels this may be an issue in two or three years.

3.5 Funding to the Sheep Meat Industry 2003/04

3.5.1 Data Collection and Assumptions

- The task of identifying funding in the sheep meat industry is difficult. The funding for most projects comes from two or more sources, often each source reports on total funding rather than component parts. If a break down is possible it is often in the form of Agency and "Other", the additional funding source is not identified.
- A base year of 2003/04 was used, as such it to some extent covers budgeted expenses as real expenditures were still being finalised. This may result in spending being overstated, the Sheep CRC may spend as much as \$2m less than budgeted for.
- There was reluctance from some people to provide the information.
- Determining funding for the sheep meat industry involves the difficulty of whether or not to apportion the funds spent on say pasture research amongst all livestock industries. Some funds needed to be defined as wool or meat spending. In general the funds have been allocated to sheep meats if the project provides value to the product - meat.
- Projects directly related to wool were excluded despite having some value to the sheep meat producer.
- No funding from DRDC, GRDC and related agency funds have been included even if the research was on the pasture base. The exception is when MLA is co-funding projects, then the DRDC and GRDC funds are included in the total industry funding calculation.
- Routine funds such as animal health spending by state governments are not included in the total figure (some of these figures have been provided but most states have another spending centre for this money).
- The accuracy of some figures is questionable and so the overall task has to some extent changed from determining an accurate figure of spending to "an order of magnitude".

3.5.2 Funding for Sheep Meat Industry

- The total amount of funding currently being spent in the sheep meats industry is about \$52m. See Appendix for summary.
- The funding is mostly spent in NSW followed by WA and Victoria. Some of the funding identified includes some national funding spent elsewhere but managed

within the state where the project/program manager is resident because the level of funds could not be identified.



- The information provided is likely to be at the lower end of actual expenditure because
 - only the expenditure data provided was included,
 - the data collection only related directly to project areas within the ambit of Livestock Production Innovation (MLA); it therefore excluded Genomics, research directly on wool characteristics, new pasture varieties, development/extension programs relating directly to wool industry, etc
 - routine veterinary activity from State Government Departments have not been included have not been included because it is not possible to separate beef, wool and sheep expenditure, it also provided difficult to obtain this data
 - national programs related to exotic disease have not been included eg R&D on foot and mouth disease, because they do not relate to LPI programs, these data are also difficult to access.
- There are 5 subprograms defined in the Livestock Production Innovation Program in MLA (see Appendix 5 for complete definition) in general these are:
- Feedbase and natural resource management
- Animal production and meat quality
- Producer innovation, adoption and capacity
- Communication and monitoring (essentially by MLA)
- Supply chain management
- There are clearly problems in allocating funding to particular subprograms because most projects have aspects that fit into several subprograms. The project titles have largely been used to allocate total funding of a project to the LPI subprogram.

- The major expenditure takes place in the animal production program (subprogram 2), research and development for sheep production and eating quality. The total amount spent on subprogram 2 was \$22.9 million in 2003/04.
- Spending of \$13.5m on subprogram 1 reflects the concern with environmental issues and an attempt to increase profits from more sustainable farming systems. The total funding in this area relating to sheep is likely to be substantially more than identified as the funds are often allocated to an environmental problem or issue and the related industry is not at issue.



 The source of funding for the sheep meat industry comes almost equally from MLA, state Government agencies and the CRC's (Sheep and Dryland Salinity). Not all CSIRO funding has not been provided as the Chiswick centre has been unable to provide the data. The dollars from the RIRC's include a \$ for \$ component from the Federal Government.



• The actual figures related to the level of funding are shown in Table 11.

	MLA	State	CRC	Uni	CSIRO	AWI	Other	Total
		Agency						
1. Feedbase and N	atural Resource	e Base		I	I	I		I
Victoria	20184	740047	845630	0	0	112486	347296	206564
NSW	0	914192	2068089	0	0	229000	20000	323128
South Australia	0	295000	646000	0	0	894850	0	183585
Western Australia	0	865000	297805	0	0	0	499000	166180
Queensland	50000	588000	0	0	0	0	266000	90400
Tasmania	0	24921	0	10000	0	0	0	3492
Australia	1535191	0	43000	0	567666	721874	854000	372173
	1605375	3427160	3900524	10000	567666	1958210	1986296	1345523
2. Animal Producti	ion and Meat Qu	ality		·	•	·	•	·
Victoria	1232871	1662500	415773	60000	0	71721	0	344286
NSW	339010	1617660	2731984	90000	0	0	639890	541854
South Australia	810500	191000	154000	0	0	251000	90000	149650
Western Australia	114271	2280000	1286971	0	1100000	0	1843628	662487
Queensland	199000	1341000	231384	0	0	312057	40000	212344
Tasmania	0	230180	0	40000	0	0	0	27018
Australia	3344019	0	0	0	0	162085	0	350610
	6039671	7322340	4820112	190000	1100000	796863	2613518	2288250
3. Producer Innova	ation and Buildi	ng Human Capa	acity		•	•		•
Victoria	0	0	309152	0	0	2671894	0	298104
NSW	0	344610	885445	0	0	485366	24000	173942
South Australia	0	0	177000	0	0	70000	100000	34700
Western Australia	0	352000	98678	0	0	55699	102000	60837
Queensland	0	260000	0	0	0	85000	10000	35500
Tasmania	0	0	0	0	0	13500	203769	1350

Australia	1528266	0	0	0	0	601189	203769	2333224
	1528266	956610	1470275	0	0	3982648	439769	8377568
4. Communication	and Monitoring							
Victoria	0	0	0	0	0	0	0	0
NSW	0	0	1472271	150000	0	0	0	1622271
South Australia	10000	40000	0	0	0	0	0	50000
Western Australia	0	0	104850	0	0	0	0	104850
Queensland	0	0	392564	0	0	0	0	392564
Tasmania	0	253500	0	0	0	0	0	253500
Australia	2677399	0	0	0	0	100000	0	2777399
	2687399	293500	1969685	150000	0	100000	0	5200584
5. Supply Chain Ma	nagement							
Victoria	156278	91018	0	0	0	0	0	247296
NSW	0	574903	0	0	0	0	360500	935403
South Australia	40000	40000	0	0	0	0	0	80000
Western Australia	35000	35000	0	0	0	0	0	70000
Queensland	35000	0	0	0	0	0	0	35000
Tasmania	35000	0	0	0	0	0	0	35000
Australia	0	0	0	0	0	0	0	0
	301278	740921	0	0	0	0	360500	1402699
GRAND	12161989	12740531	12160596	350000	1667666	6837721	5400083	51318586
TOTAL								

Comment

There was some ambivalence towards MLA which constrained easy access to information to openness. This was due to:

- Some people thought MLA canvassed ideas and then handed them on to preferred researchers
- A lot of time was taken to develop comprehensive multi-funded programs and then ultimately they were broken down again to individual projects or the project eventually did not begin.
- Some projects were terminated and this had created ill-feeling towards MLA.
- Difficulty in understanding where MLA is heading or wanting researchers to head.
- There was concern that MLA had not pulled their weight in supporting R&D into some issues.

3.6 Scientists and Extension Staff

- During the past decade there has been a run down in animal science, plant science and agronomy throughout research and extension organisations. Many middle managers took packages to either retire or move to other jobs often not related to agriculture.
- There has been a shortage of experienced scientists to train new staff in sheep and lamb-related scientific disciplines.
- There has been a trend towards closer relationships between some organisations, for instance many scientists also hold university positions.
- Numbers of scientists working directly on sheep and lambs have declined although it is likely that scientists working on pasture/environmental/land management disciplines have increased.
- Salaries are better outside government organisations and this is reducing the ability to attract staff into the government agencies servicing agriculture and hence into research positions.
- An incomplete list of scientists and extension officers working in the sheep industry
 has been developed in the course of the study. It was difficult to clearly identify
 sheep industry related staff when most work in disciplines that can be carried to
 other industries. But the point was made that in most agencies everyone is now fully
 employed and it is difficult to redirect staff to other projects.
- Several organisations currently had vacancies for scientists and lecturing staff and were having difficulty filling them. Others expressed concern about past difficulties and future prospects.

• There was some optimism at some Universities that agriculture was beginning to be a preferred employment option as more students were starting to go through the courses, and other new courses were starting (eg at Universities of Melbourne and Sydney).

Comment

- Professor Graeme Martin (UWA) highlighted the shortage of trained people in agriculture by saying he is happy if he gets one graduate out of a class to go into agricultural production. Graduates are more interested in the financial sector where high monetary returns are available.
- Several times it was commented that fewer new graduates had a strong ethic to work in agriculture, they were open to opportunities. Some agencies thought young graduates were often just trying out the research environment and were willing to move to something else, probably in the private sector.
- By contrast there was optimism expressed by Brian Leury at University of Melbourne and John Wynn at University of Sydney who thought a greater number of students appear to be seeking a career in agriculture.

3.7 Research Centres

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There are research centres in all states that provide opportunity for extensive R&D on sheep meat.

Establishments Projects ¹	Currently Working on Sheep Meat and Wool
Victoria	Primary Industry Research Victoria – Werribee
	Primary Industry Research Victoria – Rutherglen
	Primary Industry Research Victoria – Hamilton
	Institute of Land and Food Sciences – Dookie Campus
	Institute of Land and Food Sciences – Longeranong Campus
	Institute of Land and Food Sciences – Glen Ormiston Campus
New South Wales	Elizabeth MacArthur Research Institute
	Orange Agricultural Institute
	Wagga Wagga Agricultural Institute
	Trangie Agricultural Institute (no sheep meat currently)
	Cowra Agricultural and Advisory Research Centre
	Gininderra Experiment Station Canberra
	FD McMaster Research Laboratory Armidale
	Arthursleigh Property, University of Sydney
	Kirby Research Station, UNE
South Australia	Struan/Kybybolite Research Centre
	Roseworthy Campus, University of Adelaide
	Minnipa Agricultural Centre
Western Australia	Meridan Research Station
	Narrogin Agricultural College
	Kattaning Research Station
	Medina Research Station
	Wongan Hills Research Station
	Badgangarra Research Station
	Newdegate Research Station
	Murdoch Uni Research Farm
	Muresk Farm Curtain University of Technology
	Yalanbee, Bakers Hill, CSIRO
Queensland	Rosebank Research Station Longreach
	Croxdale Research Station Charleville
	University of Queensland Gatten Campus
Tasmania	Cressy Agricultural Research Station
	Cambridge University Farm
	Elliott Research Station (could include a sheep program)
¹ This includes supplem	entary feeding programs using sheep as experimental animals. Pasture
research alone is not inc	luded.

4 Special Issues for Each State

• A SWOT analysis for the sheep and lamb industries contains issues fairly common to all states. The respondents were simply asked to identify key SWOT items on the assumption they had conducted the exercise sometime recently.

	Strengths	Weakpesses
Western	Potentia for "revolution in	
Australia	stocking rates. In cropping areas there is an increasing need for sheep to be part of the rotation as improved pastures are added to cropping country needing a pasture phase. Producers are looking to increase sheep numbers to utilise this pasture. They could provide breeding areas as could not carry lambs over summer.	Producers in the cropping areas are not knowledgeable about sheep management and need information, yet they have little time for training.
Queensland		Sheep numbers have declined dramatically and cattle have moved in and replaced them. There is a Government imperative to get sheep back into these areas because social infrastructure is affected since sheep require more services – shearers, classers, etc.
Victoria	 Pastures have improved dramatically in southern (high rainfall) Victoria and are very productive. Merino woolgrowing has been traditional but this is not suitable under the high quality pastures and lamb is likely to be more profitable. A strong research presence. Strong processor presence together with Coles Myer. Relatively better retention of the lamb industry following 	Low input to Sheep CRC.

Capacity of the Sheepmeats Industry to Achieve its Goals

	the drought than other	
New South Wales	 Strong R&D presence and ability for interaction. Strong extension team. 	Ag NSW resources about to fall dramatically.
	 A strong processor presence and close relationships with them. 	
	 Good interaction with Universities, CSIRO and Sheep CRC. 	
Tasmania	The clean green image of Tasmania may have marketing advantages, especially in the long term as degradation continues throughout the world.	An island state with limited processing resources and consequentially limited export potential. The isolation leads to lower prices than the rest of the country.
South Australia	 Presence of Elders and major wool brokers in Adelaide. 	Small numbers of scientists within State Agencies.
	 Close relationships with processors. 	
	 Prime Lamb Develpoment Team. an industry group 	
	including all sectors developing programs	
These are not	the only localised strengths and wea	knesses, respondents were asked to think

about major deviations from national issues. The strengths and a weaknesses were identified through a question rather than a rigorous SWOT analysis because it was considered the interviewees would have by en large recently undertaken the process within their Organisation.

5 Other Programs

In the course of discussions the following project was identified that may have implications for the sheep industry and is included for the sake of inclusion.

 Premium Grain for Livestock – coordinated by Dr John Black – is characterising cereal grains on the basis of energy. The aim is to develop rapid testing procedures using NIR technology to measure cereal grain feeding value and provide a basis for objective trading.

There has been no contribution to the program for sheep related feeding programs but since sheep have been used in the research programs there is new knowledge available that has potential for lamb feed lotting. The program will be reviewed during the next year in terms of a further period of R&D.

6 Appendices

KEY PERFORMANCE INDICATOR	VALUE (year to)	CHANGE OVER 12 MONTHS	TREND AND STRENGTH OF TREND SINCE 1990 ⁴
Sheep and Lamb	98.4 million	-7.77.m	- 4.94 m/annum
Numbers (ABS)	(June 2003)	(-7.3%)	(r ² =0.89)
Breeding Ewe Numbers	43.68 m.	-2.13 m	-2.02m/annum
	(June 2003)	(-1%)	(r ² =0.97)
Gross Value of	\$1.284 bill.	+\$103m	+\$63m/annum
Production (ABARE)	(June 2003)	(8%)	(r ² =0.80)
Total Lambs Slaughtered	16.879m	-0.559m	+133,800/annum
	(June 2003)	(-3.2%)	(r ² =0.18)
Total Sheep Slaughtered (fiscal year)	13.657m	-755,000m	-263,000/annum
	(June 2003)	(-5.2%)	(r ² =0.49)
Livesheep Exports	5.856m	-677,000	+147,000/annum
	(June 2003)	(-10.4%)	(r ² =0.53)
Sheep and lamb slaughter plus livesheep exports per breeding ewe	0.833 (June 2003)	-0.004 (-0.56%)	+0.0244/annum (r ² =0.81)
Consistency of monthly slaughter ⁵	0.08	-0.01	-0.0018
	(June 2003)	(-11%)	(r ² =0.23)
Lamb Production	329,407 t	-19,173 t	+6042 t/annum
	(June 2003)	(5.5%)	(r ² =0.52)
Mutton Production	296,870	29,142 t	-5688t/annum
	(June 2003)	(-8.9%)	(r ² =0.49)
Average Lamb Carcass	19.52 kg	-473 g	+213 g/annum
Weight	(June 2003)	(-2.7%)	(r ² =0.86)
Average Sheep Carcass	19.64kg	-980 g	-2 g/annum
Weight	(June 2003)	(-4.7%)	(r ² =0.03)
Average saleyard price of	378.8 c/kg	+45.3 c/kg	+12.06c/annum
"supermarket" lamb	(Jun 2003)	(11.9%)	(r ² =0.63)
Price Variation (shown by peak to trough ratio of monthly average prices)	1.3 (June 2003)	+0.11 (+8.4%)	Not applicable
Wool Price - EMI	1049 c/kg	+208 c/kg	+30.9 c/kg
	(June 2003)	(+25%)	(r ² =0.39)

6.1 Appendix 1 Industry Key Performance Indicators

⁴ This is an annual change since 1990; the r² is shown as a measure of strength of the trend,

⁵ The standard deviation of a standardised monthly index of slaughter (for explanation see above Table in Section 1.3.1).

Capacity of the Sheepmeats Industry to Achieve its Goals

Lamb Exports (aggregate of frozen and chilled)	106,798 t (June 2003)	-6,391 t (-5.6%)	+6660 t/annum (r ² =0.87)
Value of Lamb Exports	\$A553.4 m	-\$A12.1m	+\$41m/annum
	(June 2003)	(-2.1%)	(r ² =0.90)
Mutton Exports (aggregate of frozen and chilled)	167,00 t (June 2003)	-5,600 t (-3.2%)	+1,600 t/annum (r ² =0.19)
Value of Mutton Exports	\$A469.9 m	-\$A49.8m	+\$20.2m/annum
	(June 2003)	(-9.6%)	(r ² =0.74)
Domestic Consumption of	10.4 kg	-1.0 kg	-184g/annum
lamb	(June 2003)	(-8.8%)	(r ² =0.49)
Domestic Consumption of	3.2 kg	-0.8 kg	-352 g/annum
Mutton	(June 2003)	(-20 %)	(r ² =0.77)
Lambs Marketed OTH	4.354 m	+514,000	Total of about
	(June 2003)	(+13.4%)	800,000 in 1990
Number of Lamb Marketing Alliances	25 (June 2003)	0	No alliances in 1990
Lambs Sold Through All	1.563 m	-1.13 m	No known formal alliances in 1990.
Alliances	(June 2003)	(-41.9%)	
Number of Producer Groups	81 (June 2002)	No change known for 2003	No groups in 1990
Producer Group Members	2156 (June 2002)	No change known in 2003	No groups in 1990

6.2 Appendix 2 Ausmeat Accredited Abattoirs

The abattoirs accredited by Ausmeat to slaughter sheep in Australia and listed in the following Table.

DOMESTIC

GOODCHILDS ABATTOIR	AUSTRALIND, (08) 9797 1122	WA
D & K HAGAN BROS PTY LTD	GREENOUGH, (08) 9923 1545	WA
KELTUD NOMINEES PTY LTD	SHARK LAKE SIDING, (08) 9076 1245	WA
DARDANUP BUTCHERING COMPANY	PICTON, (08) 9725 4244	WA
EASTERN DISTRICT ABATTOIR PTY LTD	MERRIDEN, (08) 9041 1643	WA
HERD M.C PTY LTD	CORIO, (03) 5275 0555	Vic
R & D VODUSEK PTY LTD T/A VODUSEK MEATS	COBRAM, (03) 5872 2177	Vic
RADFORD R & SON PTY LTD	WARRAGUL, (03) 5623 5546	Vic
WAGSTAFF CRANBOURNE PTY LTD	CRANBOURNE, (03) 5996 0488	Vic
ASHTON PTY LTD	SWAN HILL, (03) 5032 2171	Vic
HARDWICKS MEAT WORKS P/L	KYNETON, (03) 5422 6633	Vic
FREWSTAL PTY LTD	STAWELL, (03) 5358 2844	Vic
DEVONPORT CITY ABATTOIRS	QUOIBA, (03) 6424 7899	Tas
TASMANIAN QUALITY MEATS PTY LTD	LAUNCESTON, (03) 6336 4517	Tas
LOBETHAL FOOD PROCESSORS PTY LTD	LOBETHAL, (08) 8389 6368	SA
NORMANVILLE MEATWORKS PTY LTD	NORMANVILLE SA, (08) 8558 2279	SA
DALRIADA MEAT PTY LTD	KEITH, (08) 8755 1516	SA
DON ALLEN & CO ABATTOIRS	STANTHORPE, (07) 4681 2813	Queens
KILLARNEY ABATTOIR PTY LTD	KILLARNEY, (07) 4664 1244	Queens
HIGHCHESTER PTY LTD	GLENEAGLE, (07) 5543 1350	Queens
PITTSWORTH ABATTOIRS PTY LTD	PITTSWORTH, (07) 4693 1866	Queens
PLANTS MEATS PTY LTD	CHARTERS TOWERS, (07) 4787 2590	Queens
ROCKY CREEK ABATTOIR PTY LTD	TOLGA, (07) 4095 4358	Queens
BURRANGONG MEAT PROCESSORS P/L	YOUNG, (02) 6384 1900	NSW
SCOTT G.M PTY LTD	COOTAMUNDRA, (02) 6942 2200	NSW
F C NICHOLS (WHOLESALE) PTY LTD	WOY WOY SOUTH, (02) 4341 1855	NSW
GRIFFITH ABATTOIR PTY LTD	GRIFFITH, (02) 6962 3044	NSW
GUNDAGAI MEAT PROCESSORS	SOUTH GUNDAGAI, (02) 6944 1001	NSW
HILLSIDE ABATTOIRS PTY LTD	NARROGIN, (08) 9881 1016	WA
EXPORT		
V & V WALSH	BUNBURY, (08) 9725 4488	WA
		14/4

MARGARET RIVER EXOTIC MEAT	COWARAMUP, (08) 9755 5943	WA
PROCESSORS P/L		
BEAUFORT RIVER MEATS W/SALERS P/L	BEAUFORT RIVER, (08) 9862 5055	WA
FLETCHER INTERNATIONAL EXPORTS	NARRAKUP, (08) 8892 4001	WA
ELDERSTONE NOMINEES PTY LTD	NARROGIN, (08) 9881 1016	WA

GERALDTON MEAT EXPORTS PTY LTD	MOONYOONOOKA, (08) 9923 3591	WA
HADDLETON HOLDINGS PTY LTD	GINGIN, (08) 9575 7719	WA
WEST AUSTRALIAN MEAT MARKETING CO- OP LTD (KT)	KATANNING, (08) 9821 2000	WA
CASTRICUM BROTHERS PTY LTD	DANDENONG, (03) 8791 2222	Vic
CRF (COLAC-OTWAY)	COLAC, (03) 5231 9700	Vic
LARBERG PTY LTD	BROOKLYN, (03) 9392 6155	Vic
LARBERG PTY LTD	ALTONA NORTH, (03) 9392 6155	Vic
MIDFIELD MEAT INTERNATIONAL P/L	WARRNAMBOOL, (03) 5562 1644	Vic
MIDFIELD MEAT INTERNATIONAL PTY LTD	WARRNAMBOOL, (03) 5561 3150	Vic
NORVIC FOOD PROCESSING PTY LTD	WODONGA, (02) 6024 1077	Vic
ARARAT MEAT EXPORTS PTY LTD	ARARAT, (03) 5352 3224	Vic
R & D VODUSEK PTY LTD T/A VODUSEK MEATS	COBRAM, (03) 5872 2177	Vic
TASMAN GROUP SERVICES PTY I TO	LONGEORD (03) 6391 1509	Tas
T&R (MURRAY BRIDGE) PTY I TD	MURRAY BRIDGE (08) 8532 1955	SA
TATIARA MEAT COMPANY PTY I TD	BORDERTOWN (08) 8752 1233	SA
CONROYS PORT PIRIE ABATTOIR	PORT PIRIE (08) 8632 3500	SA
KILCOY PASTORAL COMPANY PTY LTD	KII COY, (07) 5497 1277	Queens
SOUTHERN QUEENSLAND EXPORTERS	WALLANGARRA, (07) 4684 3455	Queens
CHERBOURG FOOD PROCESSING CO P/L	CHERBOURG, (07) 4168 1056	Queens
WESTERN EXPORTERS PTY LTD	CHARLEVILLE. (07) 4654 3311	Queens
PRIMO AUSTRALIA SCONE ABATTOIR	SCONE, (02) 6545 2288	NSW
FLETCHER INTERNATIONAL EXPORTS P/L	DUBBO, (02) 6884 5833	NSW
HARDEN ABATTOIR	HARDEN, (02) 6386 2326	NSW
PEEL VALLEY EXPORTERS P/L	TAMWORTH, (02) 6764 9900	NSW
SOUTHERN MEATS PTY LTD	GOULBURN, (02) 4822 1066	NSW
FAMICORP PTY LTD	DENILIQUIN, (03) 5881 3799	NSW
GHANAM-EL-KHAS (T/A BROKEN HILL EXPORTS)	BROKEN HILL, (08) 8088 6600	NSW
Source: Ausmeat Website		

6.3 Appendix 3 Ausmeat Accredited Boning Rooms

The following establishments are boning rooms accredited by Ausmeat.

DOMESTIC

HAMILTON HILL, (08) 9433 2000	WA
FLEMINGTON, (03) 9372 2233	Vic
BRAESIDE, (03) 9580 2211	Vic
DANDENONG, (03) 9706 5777	Vic
HOBART, (03) 6234 8266	Tas
GEPPS CROSS, (08) 8349 6788	SA
CAVAN, (08) 8349 5455	SA
GEPPS CROSS, (08) 8359 5522	SA
	HAMILTON HILL, (08) 9433 2000 FLEMINGTON, (03) 9372 2233 BRAESIDE, (03) 9580 2211 DANDENONG, (03) 9706 5777 HOBART, (03) 6234 8266 GEPPS CROSS, (08) 8349 6788 CAVAN, (08) 8349 5455 GEPPS CROSS, (08) 8359 5522

MORNINGSIDE, (07) 3399 4800

MORNINGSIDE, (07) 3899 1166

DULWICH HILL, (02) 9560 9855

STH STRATHFIELD, (02) 9642 3633

RUSHCUTTERS BAY, (02) 9360 4018

CHURCHILL, (07) 3812 0624

YAMANTO, (07) 3288 8000

AUBURN, (02) 9748 2633

GLEBE, (02) 9660 3522

BOTANY, (02) 9316 8900

REVESBY, (02) 9771 1222

MARRICKVILLE, (02) 9550 4311

STUART PARK, (08) 8941 3413

MARRICKVILLE, (02) 9557 5760

LONG JETTY, (02) 4384 3138

WINNELLIE, (08) 8947 3550

GOSFORD, (02) 4322 0711

STH STRATHFIELD, (02) 9642 2500

CHEF'S PARTNER PTY LTD GATEWAY PROVIDORES PTY LTD SCHULZ WHOLESALE MEATS PEARCE BROS MEATS P/L ANDREWS MEAT INDUSTRIES PTY LTD AUSTRALIAN CARTON MEATS PTY LTD DICK STONE PTY LTD (MELRINA) GLENMORE MEAT CO PTY LTD HANDLER RUSHCUTTERS BAY HAVERICK WHOLESALE MEATS LAHOOD CORPORATION PTY LTD MASTERCUT MEATS MELRINA PTY LTD QUALITY MEATS PTY LTD WESTRALIA MEAT PTY LTD G B HART (AUSTRALIA) PTY LTD TOP CUT SYDNEY PTY LTD LUKANA PTY LTD

EXPORT

EVERETT & STEELE P/L T/A PERTH MEAT EXPORT (WA)	OSBORNE PARK, (08) 9244 7277	WA
AUSTRALIAN LAMB CO. P/L	SUNSHINE, (03) 9310 2726	Vic
CROWN MEATS PTY LTD	DANDENONG, (03) 9706 5222	Vic
EAST WEST EXPORTERS PTY LTD	PRESTON, (03) 9480 2633	Vic
PACIFIC FOODS (AUSTRALIA) PTY LTD	FLEMINGTON, (03) 9335 5944	Vic
WESTMEATS (EXPORT) PTY LTD	THOMASTOWN, (03) 9465 3222	Vic
WALTELL PTY LTD	NORTHCOTE, (03) 9489 8944	Vic
PACIFIC MEAT PACKERS PTY LTD	THOMASTOWN, (03) 9469 4409	Vic
TOP CUT FOOD INDUSTRIES PTY LTD	FLEMINGTON, (03) 9372 2222	Vic
CEDAR MEATS	WEST FOOTSCRAY, (03) 9325 1711	Vic
HILLS OF DARLING PTY LTD	HARRISFIELD, (03) 9795 9722	Vic
JOHN M. CANNON PTY LTD	AIRPORT WEST, (03) 9338 8544	Vic
MIDFIELD MEAT WHOLESALERS	KIDMAN PARK, (08) 8356 5066	SA
LAMBSGREEN PTY LTD	KEITH, (08) 8755 1033	SA
PACE TRADING PTY LTD	ROYAL PARK, (08) 8447 8599	SA
I M T PROCESSING PTY LTD	CANNON HILL, (07) 3899 0368	Queens
TENDER PLUS PTY LTD	BURLEIGH WEST, (07) 5568 8888	Queens
BEAK & JOHNSTON PTY LTD	GREENACRE, (02) 9742 3011	NSW
GLENGOR INTERNATIONAL PTY LTD	WEST GOSFORD, (02) 4323 2811	NSW
SEAPOWER RESOURCES GOSFORD P/L	WEST GOSFORD, (02) 4323 1166	NSW
Source: Ausmeat Website		

Queens

Queens

Queens

Queens

NSW

6.4 Appendix 4 Classification of RD&E Program

- 1 Organisational Planning
 - a. Strategic plan
 - b. Operational plan
 - c. Vision/goals/targets/KPI's
 - d. Communication strategy
- 2. Feedbase and Natural Resource Management
 - a. Natural resources management
 - EMS
 - Biodiversity indicator spp
 - b. Sustainability of sheep enterprise (not people, not financials or profits)
 - Pasture/crop rotations \leftarrow
 - productivity/efficiency/drainage
 - c. Pastures
- Establishment
- Weed control
- Acid and drought resistant cultivars
- 3 Animal Production and Meat Quality
 - Productivity a. Nutrition
- Extensive
- Intensive (includes irrigated pastures)
- Strategic
- b. Genetics
- Quantitative
- Genomics
- c. Grazing Management
- d. Health outcomes (excludes genetic solutions)
- e. Animal growth and development (ie more meat)
 - Merino meat
- f. More profitable lamb production systems, integration of enterprises
- g. Animal Welfare
 - i) Transport
 - ii) Behaviour
 - iii) Flockcare
 - iv) Management at slaughter (eg curfew)
 - v) Mismanagement of productivity issues
- h. Eating quality

4 Producer Innovation/Adoption and Capacity

- a. Farm Business Analysis
 - Whole farm profit analysis
 - Decision support models
 - Lamb industry cf other alternatives
 - EdgeNetwork, other tools
- b. Training
- c. Extension and delivery
 - Producer information
 - Testimonials re value of sheepmeat production
- d. New Farm Management Technology
 - a. Stock handling equipment
 - b. E Sheep
- 5 Supply Chain Management
 - a. Meeting consumer/customer needs
 - b. Linkages and making them work
 - c. Information warehousing and exchange
 - d. Quality Assurance
 - e. Whole of chain efficiency

6.5 Appendix 5 Total Industry Funding 2003/04

Due to the amount of detail available a complete break down of projects and funding, together with Project Leaders will be provided as a file called Project Inventory.

6.6 Appendix 6 People Interviewed

In the conduct of this project a large number of people were interviewed either personally or by telephone and email.

The author is grateful to the following people for the information they provided.

Ackerman	Piers	MLA
Allen	Cameron	MLA
Apps	Richard	LAMBPLAN
Athas	Sylvia	MLA
Avery	Angela	DPI Vic
Ball	Alex	LAMBPLAN
Banks	Rob	MLA
Baud	Stuart	DPI Vic
Black	John	Consultant GRDC
Brydon	Wayne	Uni Queensland
Butler	Loche	DAWA
Byard	David	TGFA
Carmichael	lan	SARDI
Curtis	Andrew	PIRSA
Dear	Brian	DPI NSW
Dolling	Mark	DAWA
Donnelly	John	CPINSW
Dove	Hugh	CPINSW
Dunstan	Martin	DPI Vic
Evans	Noel	Landmark
Friend	Michael	Charles Sturt Uni
Hansen	Scott	MLA
Heinjus	David	Consultant AWI
Hill	Mark	SA Lamb Development Team
Hinch	Geoff	UNE
Hutchison	Patrick	MLA
Kaiser	Alan	DPI NSW
Kelly	Rob	CLI - WA
Kroker	Geoff	DPI Vic
Leury	Brian	Inst of Land and Food Resources (Uni Melb)
Madigan	Andy	Stock and station Agents of Australia
Manners	Ashley	Consultant DAWA
Martin	Graeme	UWA
Martin	Peter	ABARE
Martin	Gerald	MLA
Martin	Steve	AMIC
Masters	Dave	CLI WA
Maxwell	Deb	Sheep CRC
McAllister	Wild	AWI
McCallister	Gary	MLA

McDonald	Gary	DPI Vic
McKenzie	Trent	CSIRO
McRae	Tim	MLA
O'Halloran	Bill	DPI NSW
O'Sullivan	Bernie	SCA
Pethick	Dave	Uni Murdoch
Рорру	Denis	Uni Queensland
Prendergast	Mick	MLA
Purvis	lan	CLI -NSW
Revell	Dean	Uni Adelaide
Rodda	Mark	Elders
Rolfe	Peter	MLA
Ross	lan	MLA
Rowe	James	Sheep CRC
Sale	Peter	Latrobe University
Saul	Geoff	DPI Vic
Shands	Chris	DPI NSW
Shiels	Kevin	Livecorp
Skerritt	James	DAWA
Sparrow	Leigh	TIAR
Stephens	Len	AWI
Stickells	Mark	Salinity CRC
Thompson	Robin	DPIWE
Toohey	Justin	RMAC
Twyford Jones	Peter	QDPI
Weston	Peter	Studbreeders Associations
Williams	Peter	DPIWE
Wynn	Peter	Uni Sydney