Sheepmeat eating quality

Research report

Eating Quality

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EXECUTIVE SUMMARY

SURVEY OBJECTIVES

This report was prepared for Meat & Livestock Australia (MLA) as part of the Commercial Communication and Consultation sub-program within the Sheepmeat Eating Quality Program. One aim of the sub-program is to ensure that industry is both aware of and actively involved in the scope of the research and its eventual outcomes. The report contains the results of an extensive industry survey on lamb and sheepmeat eating quality and industry's views on the segregation of lamb from other sheepmeat products.

The survey was undertaken between May and October 2000.

A survey of producers, processors, retailers, food service operators and wholesalers was conducted to determine:

1. Their perceptions regarding product quality and eating quality of lamb and sheepmeat.
2. The key management factors, including on-farm, processing and retail which they believe hinder improved eating quality.
3. The key factors in their own businesses which they believe hinder improved eating quality.
4. The issues relating to eating quality for which they believe research is necessary.
5. How they would like information on eating quality to be distributed and utilised.

In addition to the above objectives, the survey also investigated the need for an industry driven lamb branding system.

THE MAIN FINDINGS

PERCEPTIONS OF EATING QUALITY

Sector	Survey Finding	Report x-reference

Producer	• The majority consider that consumers perceive:
	  – lamb to be of good to excellent eating quality; and
	  – mutton to be of fair or poor eating quality.
	• Regard quality variation as being a main cause of eating quality problems.
		Section 5.1.1
		
		Section 5.1.2

Processor	• Recorded higher customer satisfaction ratings for lamb than they did for mutton. • Recorded a high level of confidence in being able to supply customers with the quality of lamb required.	Section 5.1.3
Retail	• Rated customer satisfaction with lamb fourth behind chicken, beef and pork. • Rated tenderness, consistency, visual appeal and fat content as the most important lamb product attributes to their customers.	Section 5.1.4
Food Service	• The majority of food service respondents felt that lamb quality was better today than compared to the quality 5 years ago. • Satisfaction with lamb tenderness rated below beef, pork and chicken. • Taste/flavour, tenderness and consistency were the highest rating lamb quality attributes.	Section 5.2.3.3 Section 5.2.3.4 Section 5.2.3.6
Wholesale	• The majority of wholesalers rated lamb to be of better quality than 5 years ago. • Lamb rated above pork, chicken and beef with regard to purchasing confidence. • Fat content was rated as the most important lamb quality attribute.	Section 5.2.4.1 Section 5.2.4.2 Section 2.4.5

KEY MANAGEMENT FACTORS

On-farm and animal characteristics

Sector	Survey Finding	Report x-reference
Producer	• Producers rated animal age as having the highest impact on lamb and sheepmeat eating quality.	Section 5.3.1.1
Processor	• Processors rated animal age and season to season variation as having the highest impacts on lamb and sheepmeat eating quality.	Section 5.3.1.1
Retail	N/A	
Food Service	N/A	
Wholesale	N/A	

Processing practices

Sector	Survey Finding	Report x-reference
Producer	• Rated length of time spent in yards, stress caused by transportation and livestock handling in yards as having the highest impacts on lamb and sheepmeat eating quality.	Section 5.3.2
Processor	• Rated stress caused by transportation, ageing of product in chillers and cold shortening as having the highest impacts on lamb and sheepmeat eating quality.	Section 5.3.2
Retail	• Rated stress caused by transportation, ageing of product in chillers and livestock handling in yards as having the highest impacts on lamb and sheepmeat eating quality.	Section 5.3.2
Food Service	• Rated chiller limitations, ageing of product in chillers and nutrition in yards as having the highest impacts on lamb and sheepmeat eating quality.	Section 5.3.2
Wholesale	• Rated ageing in chillers and stress caused by transportation as having the highest impact on eating quality.	Section 5.3.2

Post processing practices

Sector	Survey Finding	Report x-reference
Producer	• Rated retail preparation as having the highest impact on eating quality.	Section 5.3.3
Processor	• Rated the difference between muscles and cuts and further ageing of primal cuts as having the highest impacts on eating quality.	Section 5.3.3
Retail	• Rated preparation as having the highest impact on eating quality.	Section 5.3.3
Food Service	• Rated storage/freezing and suitability of cooking methods to certain cuts as having the highest impacts on eating quality, closely followed by cooking degree of doneness, further ageing of primal cuts and product not cooked to customer's requirements.	Section 5.3.3
Wholesale	• Rated suitability of cooking methods to certain cuts and cooking - degree of doneness as the two factors which have the highest impact on eating quality.	Section 5.3.3

Carcase and meat quality

Sector	Survey Finding	Report x-reference
Producer	• Rated tenderness as having the highest impact on lamb and sheepmeat eating quality.	Section 5.3.4
Processor	• Rated tenderness as having the highest impact on lamb and sheepmeat eating quality.	Section 5.3.4
Retail	• Rated tenderness as having the highest impact on lamb and sheepmeat eating quality. Meat colour and texture/firmness also rated highly.	Section 5.3.4
Food Service	• Rated tenderness as having the highest impact on lamb and sheepmeat eating quality, closely followed by fat colour, meat colour and texture/firmness.	Section 5.3.4
Wholesale	• Rated tenderness and texture/firmness as having the highest impact on eating quality.	Section 5.3.4

Factors in their own business which may impact on eating quality

Sector	Survey Finding	Report x-reference
Producer	• Reported that feeding and livestock stress management were the two areas on-farm that had the most impact on eating quality.	Section 5.4
Processor	• Reported that ageing, pre-slaughter management and chiller management and electrical stimulation were the on-plant factors that had the most impact on eating quality.	Section 5.4
Retail	• Reported that ageing and product preparation were the two in-store factors that had the most impact on eating quality.	Section 5.4
Food Service	• Reported that cooking style and technique (resting, retaining juices) and marinating and seasoning were the two in-house factors that had the most impact on eating quality.	Section 5.4
Wholesale	• Nominated ageing product as the most common practice that may improve eating quality.	Section 5.4

Research Priorities

Sector	Survey Finding	Report x-reference
Producer	• Identified feed, eating quality, meat tenderness and the effect of breed/genetics on eating quality as being their most preferred lamb research topics. • Marketing, age of animal vs. eating quality and cooking methods were the three main hogget and mutton research topics.	Section 5.5
Processor	• Processors identified breed, electrical stimulation and feed/nutrition as being their most preferred lamb research topics. • Ageing of meat was the main hogget/mutton research topic.	Section 5.5
Retail	• Preferred lamb research topics were associated with lamb production and were identified as the effects of breed and feed on eating quality and how to achieve a consistent supply of quality lamb all year round.	Section 5.5

Sector	Survey Finding	Report x-reference
	• For older sheep (hogget/mutton) research into feed and nutrition was identified as the most preferred research topic.	
Food Service	• Identified cooking smell as their most preferred research topic. • For hogget/mutton, breed, marketing names and restaurant grade meat were the three research issues.	Section 5.5
Wholesale	• Nominated lamb production as their top ranking research topic. • Hogget promotion and development was the main research topic for that category.	Section 5.5

Tools for industry communication

Sector	Survey Finding	Report x-reference
Producer	• Identified working directly with individual supply chains to help improve eating quality as their most preferred method of communicating research results to industry. Paddock to plate quality assurance programs was their next most preferred method.	Section 5.6
Processor	• Identified working directly with individual supply chains and paddock to plate quality assurance programs as their most preferred methods of communicating research results to industry.	Section 5.6
Retail	• Identified working directly with individual supply chains and paddock to plate quality assurance programs as their most preferred methods of communicating research results to industry.	Section 5.6
Food Service	• Identified working directly with individual supply chains and paddock to plate quality assurance programs as their most preferred methods of communicating research results to industry.	Section 5.6
Wholesale	• Identified structured short course training programs and working directly with individual supply chains to help improve eating quality as their most preferred methods of communicating research results to industry.	Section 5.6

SEGREGATING LAMB FROM OTHER SHEEPMEATS

The Importance of Segregation

Sector	Survey Finding	Report x-reference
Producer	• 70% of respondents rated segregation as very important to the future of their business.	Section 6.1
Processor	• 80% of respondents rated segregation as very important to the future of their business.	Section 6.1
Retail	• 86% of respondents rated segregation as very important to the future of their business.	Section 6.1
Food Service	• 71% of respondents rated segregation as very important to the future of their business.	Section 6.1
Wholesale	• 75% of respondents rated segregation as very important to the future of their business.	Section 6.1
All Respondents	• Combining the results, 74% of all respondents rated segregation as very important to the future of their business.	Section 6.1

The Adequacy of the Current System

Sector	Survey Finding	Report x-reference
Producer	• 12% rated the current system of strip branding in achieving lamb segregation as totally adequate.	Section 6.2
Processor	• 31% rated the current system of strip branding in achieving lamb segregation as totally adequate.	Section 6.2
Retail	• 45% rated the current system of strip branding in achieving lamb segregation as totally adequate.	Section 6.2
Food Service	• 13% rated the current system of strip branding in achieving lamb segregation as totally adequate.	Section 6.2
Wholesale	• 35% rated the current system of strip branding in achieving lamb segregation as totally adequate.	Section 6.2
All Respondents	• Combining the results, 21% of all respondents rated the current system of strip branding in achieving lamb segregation as totally adequate.	Section 6.2

The Importance of Truth in Lamb Product Labeling

Sector	Survey Finding	Report x-reference
Producer	• 85% of respondents rated truth in lamb product labeling as very important to the lamb and sheepmeats industry. • Consumer confidence was reported to be the biggest issue associated with truth in labeling.	Section 6.3
Processor	• 91% of respondents rated truth in lamb product labeling as very important to the lamb and sheepmeats industry. • Substitution and consumer confidence issues were reported to be the main issues associated with truth in labeling.	Section 6.3
Retail	• 89% of respondents rated truth in lamb product labeling as very important to the lamb and sheepmeats industry. • Product integrity was reported to be the biggest issue associated with truth in labeling.	Section 6.3
Food Service	• 83% of respondents rated truth in lamb product labeling as very important to the lamb and sheepmeats industry. • Substituting mutton for lamb was reported to be the biggest issue associated with truth in labeling.	Section 6.3
Wholesale	• 88% of respondents rated truth in lamb product labeling as very important to the lamb and sheepmeats industry. • Product integrity was reported to be the biggest issue associated with truth in labeling.	Section 6.3
All respondents	• Combining the results, 86% of all respondents rated truth in lamb product labeling as being very important to the lamb and sheepmeats industry. • Consumer confidence, product integrity and substitution were the issues commonly raised with regard to truth in lamb product labeling.	Section 6.3

Consumer Guarantee of Segregated Lamb

Sector	Survey Finding	Report x-reference
Producer	• Branding and product labelling underpinned by a quality assurance system was identified as being the preferred method for providing the consumer with a guaranteed method of lamb identification.	Section 6.4
Processor	• Carcase branding and a traceback system were identified as being the preferred methods for providing the consumer with a guaranteed method of lamb identification.	Section 6.4
Retail	• Branding and a product assurance scheme were identified as being the preferred methods for providing the consumer with a guaranteed method of lamb identification.	Section 6.4
Food Service	• Labelling in conjunction with a quality system were identified as being the preferred methods for providing the consumer with a guaranteed method of lamb identification. • The quality system would require some form of industry regulation to ensure truth in lamb product labelling.	Section 6.4
Wholesale	• Branding was the preferred method for providing the consumer with a guaranteed method of lamb identification.	Section 6.4
All respondents	• The common view is that the consumer can be provided with a guaranteed lamb category through the implementation of a branding program and an associated quality system which is supported by industry regulation.	Section 6.4

A Lamb Classification System - the positive and negative aspects

Sector	Survey Finding	Report x-reference
Producer	• Producers reported that a lamb classification system would increase consumer confidence and the reputation of lamb. • Cost was the main concern with regard to the implementation of a lamb classification system.	Section 6.5
Processor	• Processors reported that a lamb classification system would increase consumer confidence and provide more integrity. • Cost was the main concern with regard to the implementation of a lamb classification system.	Section 6.5
Retail	• Retailers reported that a lamb classification system would increase both retailer and consumer confidence. • Cost was the main concern with regard to the implementation of a lamb classification system.	Section 6.5
Food Service	• Food service operators reported that a lamb classification system would increase quality and consumer confidence. • Cost and the impact on price were the main concerns with regard to the implementation of a lamb classification system.	Section 6.5
Wholesale	• Wholesalers reported that a lamb classification system would make identification easier. • Loss of identity when the product is further processed was the main concern.	Section 6.5
All respondents	• The common view is that a lamb classification system would increase consumer confidence and benefit the lamb industry. • The main concern with lamb classification was the cost of the system.	Section 6.5

Specifications for Defining Lamb

Sector	Survey Finding	Report x-reference
Producer	• Age, fat depth and weight were the most frequently referred to points of specification. • The next most frequently referred to points of specification were conformation and breed/genetics.	Section 6.6
Processor	• Age and fat depth were the most frequently referred to points of specification. • The next most frequently referred to points of specification were conformation, breed/genetics and pH.	Section 6.6
Retail	• Age and fat depth were the most frequently referred to points of specification. • The next most frequently referred to points of specification were weight, meat colour and breed/genetics.	Section 6.6
Food Service	• Age, fat depth and origin were the most frequently referred to points of specification. • The next most frequently referred to points of specification were weight, breed/genetics, slaughter date and finishing method.	Section 6.6
Wholesale	• Age, conformation and meat colour were the three most commonly referred to points of specification.	Section 6.6
All respondents	• The common view is that a lamb specification should be primarily based on age and fat depth. Supplementary points of specification would include weight, conformation and breed/genetics. • Further research may be required to determine the most effective method of determining age with regard to lamb eating quality.	Section 6.6

1 INTRODUCTION

This report was prepared for Meat & Livestock Australia (MLA) and contains the results of an extensive industry survey on the subject of lamb and sheepmeat eating quality. In addition, the report contains information on industry's views on the segregation of lamb from other sheepmeat products.

The Commercial Communication and Consultation sub-program within the Sheepmeat Eating Quality Program includes five components, namely:

2.1 Face to face consultations with major players in supply chains;
2.2 Face to face consultations with retailers and end users;
2.3 Extensive survey of producers, processors, retailers and food service;
2.4 Consumer research; and
2.5 Communication materials to convey sheepmeat eating quality issues to the various industry sectors.

One aim of the sub-program is to ensure that industry is both aware of and actively involved in the scope of the research and its eventual outcomes.

Alliance has conducted components (2.2) face to face consultations with retailers and (2.3) the extensive surveys of producers, processors, retailers and food service. This report also includes the results of face to face consultations with 13 companies in the processing sector, 20 companies in the retail sector and 17 wholesalers (part of 2.1). The surveys were undertaken between May and October 2000.

2 SURVEY OBJECTIVES

The surveys of producers, processors, retailers and food service operators were undertaken to determine:

1. Their perceptions regarding product quality and eating quality of lamb and sheepmeat;

2. The key management factors, including on-farm, processing and retail which they believe hinder improved eating quality;

3. The key factors in their own businesses which they believe hinder improved eating quality;

4. The issues relating to eating quality for which they believe research is necessary; and

5. How they would like information on eating quality to be distributed and utilised.

In addition to the above objectives, the survey also investigated the need for an industry driven lamb branding system.

1

3   APPROACH AND METHODOLOGY

3.1   REVIEW PLANS AND CONSULT WITH INDUSTRY

Industry plans and draft surveys relevant to the project were reviewed to ensure the proposed activities linked in with the Commercial Communication and Consultation sub-program. Consultations were held with MLA, sheepmeat research team members; interviewers from the face to face interview panel; Australian Meat Council; and National Meat Association.

3.2   COMPILE DATABASES

The project team consulted with key industry organisations and referenced other sources to obtain lists of lamb producers, sheep processors, retailers and foodservice operators. MLA provided a list of its 'sheep and prime lamb' members and the names of the top 20 lamb producers was obtained from the Feedback magazine, August 1999 edition. The AUS-MEAT accredited establishment list was used to identify many of the lamb and sheepmeat processors.

Databases were compiled for each of the sectors. A check was conducted to ensure that those selected for the processor face to face interviews were not also on the mail out list.

Alliance also had databases of processors, producers and meat retailers which were included and sorted to ensure there was no duplication. The food service database was compiled by randomly selecting companies (hotels, restaurants and caterers) from the yellow pages for each of the capital cities.

3.3   DEVELOP SURVEY FORMS

The forms used for the survey were developed in consultation with the MLA and the Steering Committee. The forms were pilot-trialled with sector representatives to ensure that the instructions were clear and the questions were correctly worded. Based on feedback from the pilot trial, amendments were made with some questions modified and others deleted. The survey forms were approved by the MLA and the Steering Committee prior to their distribution. A copy of each survey form is included in Annex 2.

During this stage, a data entry coding system was developed to enable responses to be collated and analysed efficiently. Raw data was initially entered into MS Excel for ease of sorting.

3.4 SAMPLING PLAN

To ensure the statistical validity of the survey, Alliance engaged the assistance of the Surveys and Mathematical Statistics Team at the Office of Economic and Statistical Research. This team conducts surveys for the Treasury Department within the Queensland State Government.

The team was briefed on the survey and provided tables of confidence intervals for a range of population sizes and were consulted to discuss surveying generally and to comment on strategies for improving response rates.

3.5 CONDUCT SURVEYS

The surveys were conducted in two phases, initially by mail and then with follow-up phone calls in low response sectors. A number of respondents who returned their forms by fax also had to be contacted because of transmission problems, including missing survey pages. Reply paid envelopes were sent out with the survey forms to assist the respondents and encourage their participation.

Data were entered using a coding system which meant that each respondent could be uniquely identified. This provided a mechanism for monitoring the accuracy of data entry and rechecking results that appeared to be spurious.

3.6 ANALYSE SURVEYS

The survey results were analysed using a software package, SPSS®. Validations of data outputs were undertaken to ensure the accuracy of the results. Following a meeting with the MLA in August to discuss the preliminary results some survey data were re-analysed in accordance with MLA's instructions.

The level of analysis undertaken varied between questions. For most questions reporting by the mean score or ranking by a certain response type (e.g. 'very important' or 'high impact') was considered adequate. A Friedman Test was conducted on a number of questions to determine if there were any significant differences between the ranked mean scores within a data set. This is a non-parametric test for related samples which only analyses complete sets of data and therefore excludes those respondents who did not answer a question completely. Any significant differences are referred to in the body of the repor

4 PROFILE OF SURVEY RESPONSES

Note: In this report percentage figures have been rounded and totals may not therefore equal 100%.

4.1 OVERALL RESPONSE RATE

Table 1 shows the mail out and response rates for the sectors surveyed. Figure 1 illustrates the response rate for each sector.

TABLE 1: MAIL OUT AND RESPONSE RATES

Sector	Initial Mail Out*	Responses	Response Rate
Producer	1250	416	33%
Processor	95 (includes face to face surveys)	37 (includes face to face surveys)	39%
Retail	1100 (includes face to face surveys)	139 (includes face to face surveys)	13%
Food Service	800	46	6%
Wholesale	0	17 face to face surveys	

* This figure excludes the survey forms that were returned to sender.

FIGURE 1: SURVEY RESPONSE RATE BY SECTOR
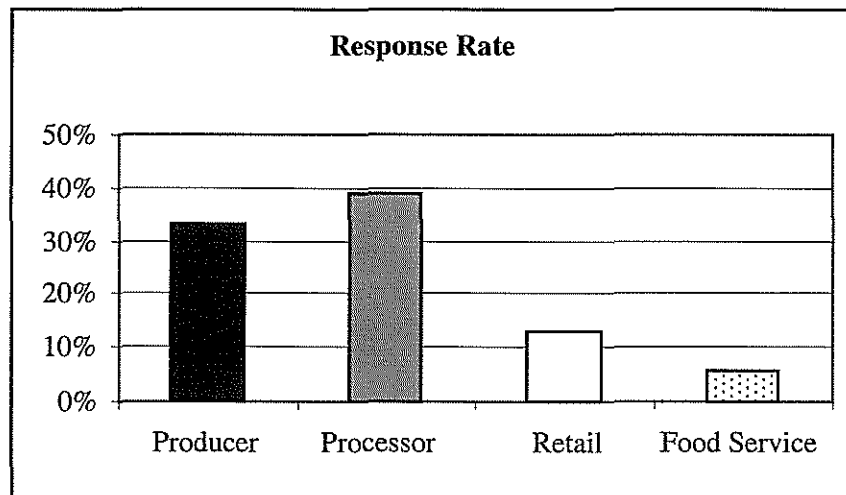
The fact that the survey contained a relatively high number of questions, some of which required multiple responses, may have contributed to the generally low response rates in the retail and food service sector.

Follow-up efforts were directed at the retail and food service sectors because of the initially low response rates. Unfortunately, the response rate did not change greatly despite the effort that was put in. Comments often made during the follow up related to the length of the survey form and the time needed to complete it.

4.2   PRODUCER RESPONDENTS

This section of the report provides demographic information and other characteristics of the survey respondents.

4.2.1 Producer Response by Location

Figure 2 shows the percentage of producer respondents by state for the 317 respondents who nominated a state. Although 99 respondents did not nominate a state, their responses have been included in subsequent analysis.

FIGURE 2: PRODUCER RESPONSES BY STATE
(n = 317)
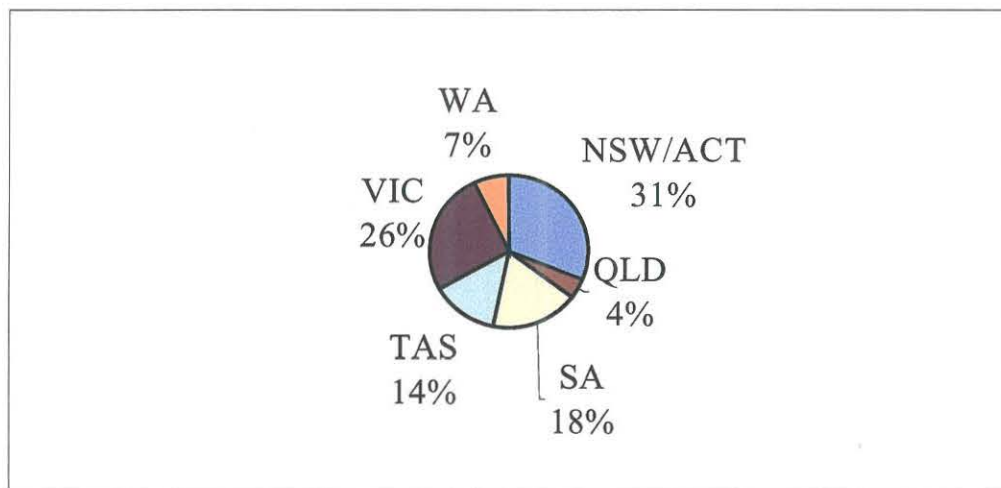
The majority (87%) of producer respondents were from NSW, VIC, SA and TAS which is consistent with the location of specialist lamb producers.

4.2.2 Producer Response by Breed Type

Table 2 provides a summary of the breeds of sheep nominated by respondents for producing lamb. Respondents were not required to record actual numbers for each breed type. Many recorded more than one breed type for both ewes and rams without nominating which was the predominate breed type. Nevertheless Table 2 shows that Merino and crossbred ewes were being used by 84% of producers that nominated a breed. These were being mated to primarily Dorset/Poll Dorset (34%) and Merino (24%) rams. It would appear from the high proportion of Merinos nominated by respondents in the survey that many are not specialist prime lamb producers.

TABLE 2: BREED PROFILE OF PRODUCER RESPONDENTS

Ewes	1st Nominated Breed	2nd Nominated Breed	Rams	1st Nominated Breed	2nd Nominated Breed
Merino	188	22	Dorset/Poll Dorset	126	55
Border Leicester/ Merino 1st cross	137	34	Merino	89	9
Corriedale and corriedale 1st cross	18	6	White Suffolk	44	27
B/Leicester	5	1	B/Lester	25	22
Other	39	17	Texel	17	15
No breed recorded	29	336	Other	70	50
			No breed recorded	45	238
Total	416	416	Total	416	416

4.2.3 Producer Response by Flock Size

Over two thirds of respondents (69%) had a flock size in excess of 1,000 head with 63% recording a flock size between 1,001 and 9,999 head (Figure 3). The largest flock size recorded was 42,000 head.

FIGURE 3: PRODUCER FLOCK SIZE
(n = 347)
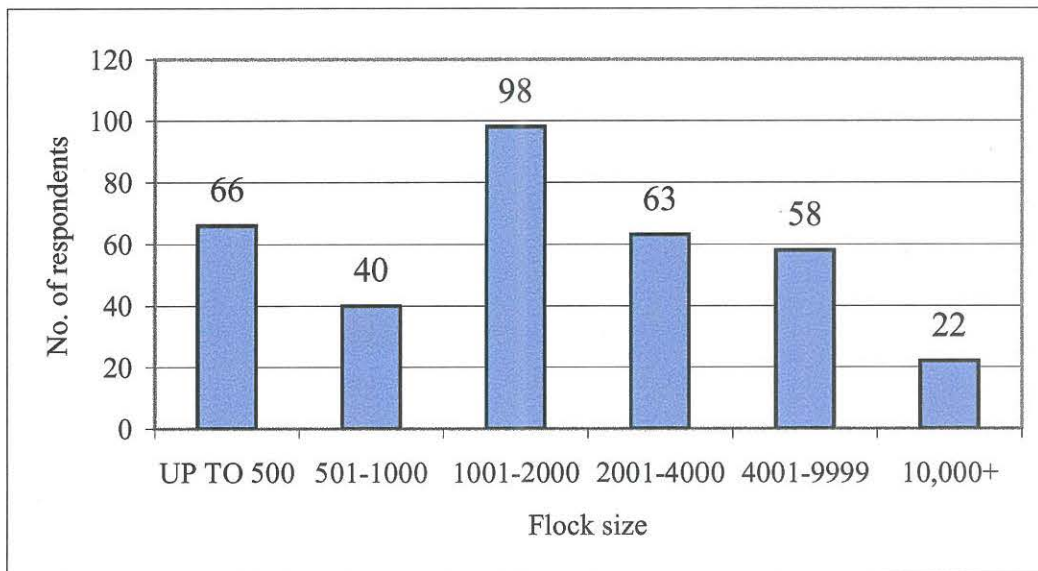
4.2.4 Producer Response by Method of Sale

Tables 3 and 4 show how respondents sold their lambs and sheep.

TABLE 3: PRODUCER METHOD OF SALE - LAMB
(n = 386)

	Method of Sale	Percentage of lambs sold				
		0%	1 – 25%	26 – 50%	51 –75%	76 – 100%
i)	Direct to processors - Over the Hooks	165	29	43	25	124
ii)	Direct to processors - paddock	246	48	39	16	37
iii)	Through saleyards	109	105	34	24	114
iv)	Through CALM	373	4	6	1	2

Lamb

The majority of respondents (53%) sold 51% or more of their lambs direct to processors either over the hooks (39%) or in the paddock (14%), while 36% used saleyards as their primary method of sale.

TABLE 4: PRODUCER METHOD OF SALE - HOGGET/MUTTON
(n = 311)

	Method of Sale	Percentage of sheep sold				
		0	1 - 25	26 - 50	51 -75	76 - 100
i)	Direct to processors - Over the Hooks	224	18	22	6	41
Ii)	Direct to processors - paddock	189	14	34	15	59
Iii)	Through saleyards	95	39	37	6	134
Iv)	Through CALM	288	8	7	2	6

Mutton

Over-the-hooks sales of hogget/mutton were less predominant than for lamb sales with only 15% of producers selling 51% or more of their hogget/mutton.

One hundred and thirty four respondents reported selling 76% or more of their hogget/mutton through the saleyards. Saleyard selling was the primary method of sale with 45% of producers selling 51% or more of their lambs by that method.

4.2.5 Producers Involved in Supply Chain Alliances

Of a total of 382 respondents, 18% (67) were involved in a supply chain alliance.

4.2.6 Carcase Feedback

Table 5 shows the feedback producers receive when their lambs and sheep are sold 'over the hooks'.

TABLE 5: FEEDBACK RECEIVED BY PRODUCERS FOR 'OVER THE HOOKS' SALES

		Number of producers	
	Carcase information	**Lamb**	**Hogget/Mutton**
i)	AUS-MEAT standard feedback	88	18
ii)	Non-standard feedback – Weight	36	35
iii)	Non-standard feedback - Weight plus fat score	109	28
iv)	Non-standard feedback - Weight plus fat depth(mm)	35	6
v)	Other (please specify)	7	4

Note: Producers could select one or more of the feedback types and did not have to record the frequency with which they received that feedback. Some respondents selected only one type of feedback, while others nominated two or three options.

Lamb

Of those producers selling over the hooks or via CALM, 39% received AUS-MEAT standard feedback. The most common form of feedback (109) was 'weight plus fat score'.

Mutton

Only 83 respondents (20%) entered a response to this part of the question. This may imply that producers do not regard feedback on hogget/mutton as a high priority. Of those responding, 42% recorded receiving non-standard feedback - weight.

4.3 PROCESSOR RESPONDENTS

4.3.1 PROCESSOR RESPONSE BY LOCATION

Figure 4 shows the relative locations of 34 processor respondents that nominated a State.

FIGURE 4: PROCESSOR RESPONSE BY STATE
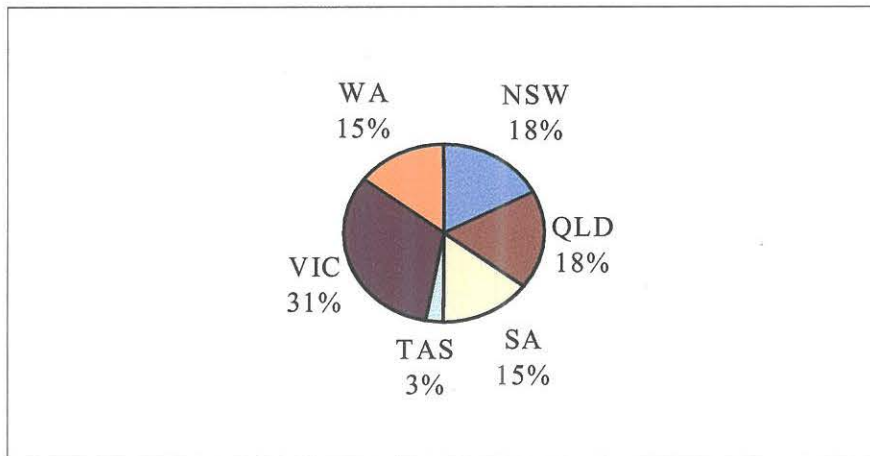
Most respondents (32%) were located in Victoria with similar representations from all other States with the exception of Tasmania (3%).

4.3.2 Processor Response by Establishment Type

Table 6 shows the breakdown of both mail and interview respondents by establishment type.

TABLE 6: PROCESSOR BY ESTABLISHMENT TYPE

Type	Mail	Interview	Total	%
Export	**11**	**6**	**17**	
Export slaughter	2	0	2	5
Export Boning	7	2	9	24
Export Slaughter and boning	2	4	6	16
Domestic	**11**	**6**	**17**	
Domestic slaughter	8	1	9	24
Domestic boning	2	1	3	8
Domestic slaughter and boning	1	4	5	14
Value adding	**1**	**0**	**1**	3
No response	**1**	**1**	**2**	5
Total	**24**	**13**	**37**	

The majority of respondents (49%) were operating either export boning or domestic slaughtering establishments.

4.3.3 Processor Response by Throughput

Average Weekly Lamb/Sheep Kill

Table 7 shows the average weekly lamb/sheep kill by processor respondents undertaking slaughtering activities. Most mail surveys (75%) were received from processors slaughtering less than 5,000 head per week. Most face to face interviews (80%) were conducted with processors slaughtering in excess of 5,000 head per week.

TABLE 7: AVERAGE WEEKLY LAMB/SHEEP KILL BY PROCESSOR RESPONDENTS

Kill number	Mail	Interview	Total
0 – 1,000	2	0	2
1,001 - 5,000	10	2	12
Over 5,000	4	8	12
Total	16	10	26

Average Number of Lamb/Sheep Carcases Boned Per Week

Table 8 shows the average number of lamb/sheep carcases boned per week by processor respondents undertaking boning activities. Most interviews (62%) were conducted with processors boning in excess of 5,000 carcases per week, while most mail surveys (58%) were received from processors boning less than 1,000 carcasses per week.

TABLE 8: AVERAGE NUMBER OF LAMB/SHEEP CARCASES BONED PER WEEK

No. of carcases	Mail	Interview	Total
0 - 1,000	7	1	8
1,001 - 5,000	3	4	7
Over 5,000	2	8	10
Total	12	13	25

11

4.3.4 Processor Response by Method of Purchase

Tables 9 and 10 show the method of purchasing lambs and sheep.

TABLE 9: PROCESSOR METHOD OF PURCHASING LAMBS
(n=33)

	Method of Purchase	Percentage of kill				
		0%	1 - 25%	26 - 50%	51 - 75%	76% +
i)	Direct from producers-over-the-hooks	7	8	8	5	5
ii)	Direct from producers-paddock	10	15	7	1	0
iii)	Through saleyards	4	12	12	4	1
iv)	Through CALM	30	3	0	0	0
v)	Service kill	20	3	6	1	3

Over-the-hooks and saleyard purchases were the primary method used for purchasing lamb. Thirty percent (30%) of processors purchased over 50% of their lambs over-the-hooks while 15% purchased over 50% of their lambs through the saleyard.

TABLE 10: PROCESSOR METHOD OF PURCHASING HOGGET/MUTTON
(n=26)

	Method of Purchase	Percentage of kill				
		0%	1 - 25%	26 - 50%	51 - 75%	76% +
i)	Direct from producers-Over-the-Hooks	11	8	4	1	2
ii)	Direct from producers-paddock	4	14	5	3	0
iii)	Through saleyards	1	5	7	8	5
iv)	Through CALM	22	3	1	0	0
v)	Service kill	22	2	2	0	0

Saleyards were the primary method for hogget/mutton purchases with 50% of processors purchasing over 50% of their requirements through the saleyard.

4.3.5 Processors Involved in Supply Chain Alliances

Table 11 shows the number of respondents who are involved in supply chain alliances although 10 processors (27%) did not indicate a response. Of those responding the majority (56%) were not involved in supply chain alliances with producers or producer groups. However, 67% of those interviewed face-to-face were involved in supply chain alliances.

TABLE 11: PROCESSOR INVOLVEMENT IN SUPPLY CHAIN ALLIANCES

Response	Mail	Interview	Total
Yes, in an alliance	4	8	12 (44%)
Not in an alliance	11	4	15 (56%)
Total	15	12	27

4.3.6 Processor Provision of Feedback Data

Table 12 shows the type of feedback provided to the vendor on carcase quality for lambs
and sheep purchased over the hooks.

TABLE 12: FEEDBACK SUPPLIED BY PROCESSORS FOR OVER THE HOOKS PURCHASES

	Carcase information	Lamb			Hogget/Mutton		
		Mail	Interview	Total	Mail	Interview	Total
i)	AUS-MEAT standard feedback	12	8	20	10	5	15
ii)	Non-standard feedback - Weight	2	1	3	2	1	3
iii)	Non-standard feedback - Weight plus fat score	4	2	6	2	2	4
iv)	Non-standard feedback - Weight plus fat depth (mm)	3	2	5	0	0	0
v)	Other (please specify) Abattoir cost summary sheet.	0	1	1	0	1	1

For both lamb and mutton 'AUS-MEAT standard feedback' was the most common
feedback provided to vendors on carcase quality for stock purchased over the
hooks.

4   RETAIL RESPONDENTS

4.4.1 Retail response by location

The location of retail respondents by state is shown in Figure 5.

FIGURE 5: RETAIL RESPONSE BY STATE
(n=126)
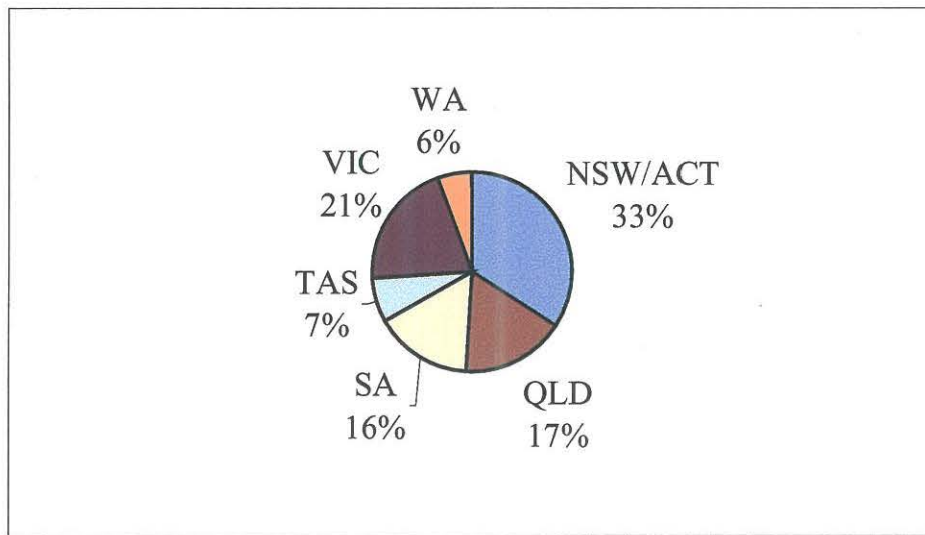
The majority of responses (55%) were received from NSW and VIC in line with the relative proportion of consumers being in those States.

4.4.2 Retail Response by Throughput

LAMB

Table 13 shows the number of lamb carcases purchased per week by retailers.

TABLE 13: LAMB CARCASES PURCHASED BY RETAILERS PER WEEK

No. of carcases	Mail	Interview	Total
Up to 25	60	6	66
26 - 100	18	4	22
Over 100	2	3	5
Total	**80**	**13**	**93**

Of the 93 retailers who provided lamb carcase purchasing details, 71% reported purchasing up to 25 lamb carcases per week.

MUTTON

Table 14 shows the number of mutton carcases purchased per week.

TABLE 14: MUTTON CARCASES PURCHASED BY RETAILERS PER WEEK

No. of carcases	Mail	Interview	Total
Up to 25	28	0	28
26 - 100	4	0	4
Over 100	0	1	1
Total	**32**	**1**	**33**

Of the 33 retailers who provided mutton carcase purchasing details, 85% reported purchasing up to 25 mutton carcases per week.

4.5 FOOD SERVICE RESPONDENTS

4.5.1 Food Service Response by Location

Figure 6 shows the location of food service respondents for the 40 that nominated a state. Most respondents (70%) were located in WA (10), VIC (10) and NSW (8).

FIGURE 6: FOOD SERVICE RESPONSE BY STATE
(n=40)
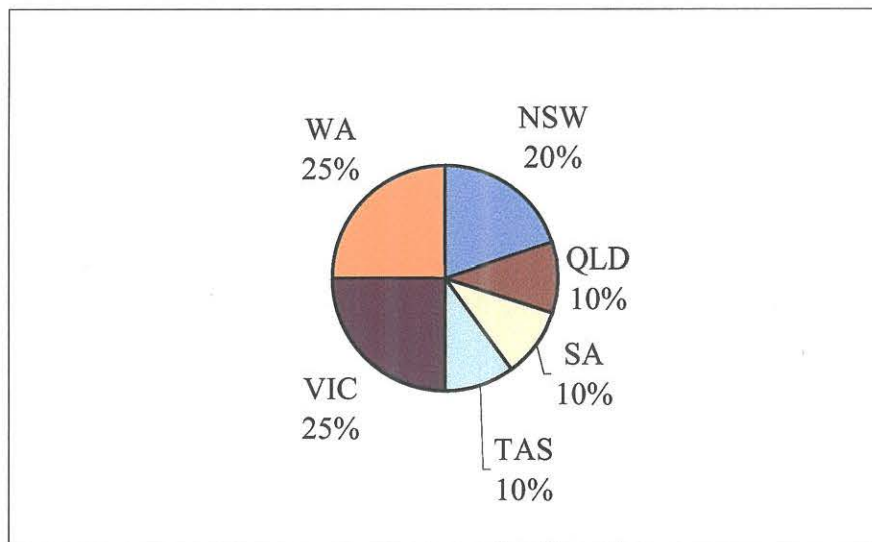
4.5.2 Food Service Response by Type

Table 15 shows the food service response by business type.

TABLE 15: BUSINESS TYPE BY NUMBER AND PERCENTAGE

Type	No. of respondents	%
Five star restaurant	14	30
Mid level bistro/restaurant	21	46
Hotel/club	6	13
Professional catering firm	3	7
Café/restaurant	1	2
Motel	1	2
Total	**46**	

Most respondents (76%) were in the 'mid-level bistro/restaurant' sector (46%) or operated five star restaurants (30%).

4.5.3 Food Service Response by Throughput

Of the 38 respondents (83%) who provided information, 79% recorded a lamb/mutton usage of up to 80 kg/wk; 11% recorded usage of 100 kg/wk; and 5% recorded 200 kg/wk.
Two large catering firms (15%) recorded usage of 3,300 and 8,000 kg/wk of lamb/mutton.

4.5.4 Food Service Response by Average Weekly Menu Sales

Table 16 shows the food service response by average weekly menu sales.

TABLE 16: FOOD SERVICE RESPONSES BY MEAT TYPE AND PERCENTAGE

| Meal Type | Percentage of average weekly menu sales | | | |
	1 - 25	26 - 50	51 - 75	n
Beef	19	25	1	45
Lamb	37	4	0	41
Mutton	7	0	1	8
Chicken	34	11	0	45
Pork	27	1	0	28
Fish/seafood	24	21	1	46
Other*	22	4	1	27

* Those who recorded a percentage for 'Other' did not nominate the type of menu sale but vegetarian meals would be included under this heading.

Beef and seafood make up the majority of menu sales, followed by chicken and then lamb. The relatively low number of lamb menu sales (4) in the 26-50% range compared with those in the 1-25% range (37), may indicate that lamb is a suitable menu item but lacks the diversity or consumer appeal of beef, seafood or chicken to attract a higher percentage of menu sales.

4.5.5 Food Service Response by Supply Source

Table 17 shows where food service respondents sourced their lamb and mutton supplies.

TABLE 17: FOOD SERVICE SUPPLY SOURCE

Supply source	Lamb	Mutton
Processor (e.g. Abattoir, boning room)	1	0
Wholesaler	30	4
Butcher	23	3
Meat caterers/value added products	2	1
Other (please specify)	0	0

Note: Some respondents selected two or more supply sources.

The majority of respondents purchase their lamb and mutton from a butcher or wholesaler.

4.5.6 Food Service Response by Method of Purchase

Table 18 shows the method used for purchasing lamb and mutton products.

TABLE 18: FOOD SERVICE METHOD OF PURCHASING

Purchase Method	Lamb	Mutton
No formal specifications	3	1
Total reliance on processor/wholesaler	27	3
Use processor/wholesaler language	8	3
Own specifications based on AUS-MEAT	11	2
Own specifications but not on AUS-MEAT based	4	0
Other - Agreement with butcher.	1	0

Note: Some respondents nominated two or more methods of purchasing.

17

Of the 44 who provided a response to this question, 27 recorded that for lamb purchases their 'processor/wholesaler knows what I want'. Ordering by specification was used by 52% and 56% of Food Service operators for lamb and mutton purchases respectively. However, the AUS-MEAT language was only used by 25% of Food Service operators for lamb purchases.

4.6 WHOLESALE RESPONDENTS

4.6.1 Wholesaler Interviews by State

Three wholesalers were interviewed in each state other than Victoria where two were interviewed.

4.6.2 Wholesale Client Base

Table 19 shows the client base by percentage of sales.

TABLE 19: WHOLESALE CLIENT BASE BY SALES PERCENTAGE

Sector	0%	1 - 25%	26 - 50%	51 - 75%	75 - 100%
Hotels/pubs/clubs	4	7	5	1	0
Catering firms	5	6	4	1	1
Hospitals/institutions	6	11	0	0	0
Butchers/supermarkets	5	3	1	4	4
Restaurant	7	10	0	0	0
Further processor	11	5	1	0	0

4.6.3 Percentage of Weekly Sales by Meat Type

Table 20 shows the approximate percentage of weekly sales by meat type. Not every respondent supplied the information requested.

TABLE 20: WHOLESALE WEEKLY SALES PERCENTAGES BY MEAT TYPE

	0%	1 - 25%	26 - 50%	51 - 75%	75 - 100%
Beef	4	2	7	3	1
Lamb	0	9	3	2	3
Mutton	4	11	2	0	0
Chicken	8	9	0	0	0
Pork	5	12	0	0	0
Fish/seafood	16	1	0	0	0
Smallgoods	9	8	0	0	0

All wholesale respondents supplied lamb and the majority also supplied beef and/or mutton and/or pork.

4.7 INTEREST IN RECEIVING SURVEY RESULTS

Seventy percent (70%) of all respondents expressed interest in receiving a copy of the survey results.

4.8 INTEREST IN RESEARCH PARTICIPATION

There was a high level of interest from respondents in participating in research programs related to the eating quality of lamb and sheepmeat with greater than 40% of all respondents in each sector indicating their interest. Most interest came form wholesalers (88%), processors (57%), and the retail sector (47%).

5 RESULTS AND DISCUSSION - EATING QUALITY

This section contains a summary of the results. Supporting tables are located in Annex 1.

5.1 Perception of Customer and Consumer Satisfaction

5.1.1 Producers View of Consumers' Eating Quality Perceptions

Figure 7 shows that producers believe that consumers perceptions of eating quality is good to very good for lamb. Producers ranked consumer perceptions of the eating quality of lamb significantly higher ($p<0.01$) than hogget and mutton.

FIGURE 7: PRODUCER VIEW OF CONSUMERS' PERCEPTIONS OF THE EATING QUALITY OF SHEEPMEATS

Mean rating (1= poor, 5 = excellent)		
★	Lamb	3.7
●	Hogget	2.8
⩝	Mutton	1.6

```
1                                                              5
|        ⩝           |           ●      |      ★      |         |
|_____|
Poor              Fair              Good         Very Good
Excellent
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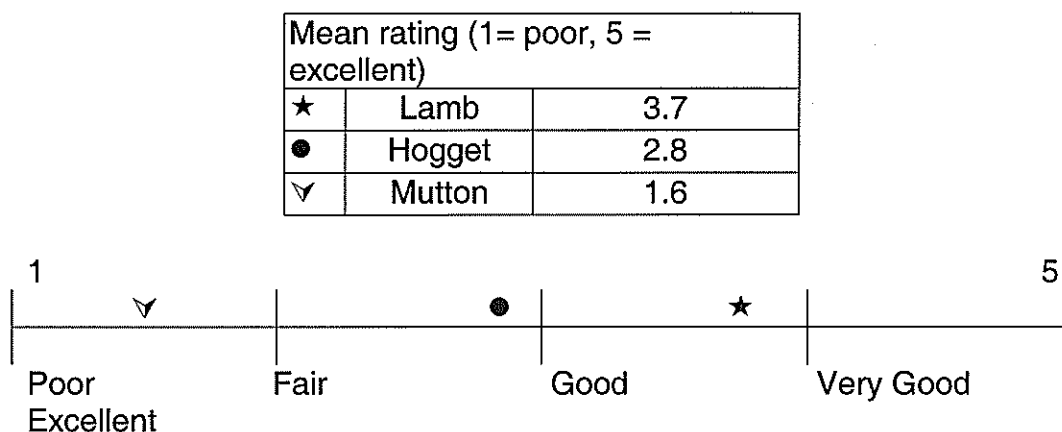
5.1.2 Producer perception of eating quality problems

Table 21 ranks the eating quality problems identified by producers for lamb, hogget and mutton.

The main trends that emerge are that eating quality problems are perceived to relate to quality variation, lamb fat content and the toughness of mutton.

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TABLE 21: PRODUCER PERCEPTIONS OF SHEEPMEAT EATING QUALITY PROBLEMS

Eating quality issue	Number of comments received	%
Mutton tough	49	16
Variation in quality	45	15
Lamb too fat	33	11
Mutton cooking smell	18	6
Retail preparation	9	3
Other*	156	50
Total	310	

* There were a large number of different issues recorded under 'Other', many not related to eating quality problems, hence the relatively high percentage. Some recorded comments relating to price and consumer education, while others recorded statements such as 'lamb must be tender' and 'hogget is the tastiest'.

5.1.3 Processors

As shown in Figure 8, overall processors believed their customers were reasonably satisfied with the eating quality of lamb and hogget/mutton products. However there was plenty of room for improvement to ensure customers were very satisfied (Figure 9).

FIGURE 8: PROCESSOR VIEW OF CUSTOMER SATISFACTION WITH THEIR LAMB AND HOGGET/MUTTON PRODUCTS

Mean rating* (2 = not satisfied, 5 = very satisfied):				
		Mail	Interview	Total
★	Lamb	3.50	4.30	3.80
●	Hogget/mutton	3.67	3.60	3.60

* Rating 1 ('Unsure/Don't know') was excluded from analysis

2   ● ★   5

Not satisfied   satisfied   Very

FIGURE 9: PROCESSOR RATING OF CUSTOMER SATISFACTION BY SHEEPMEAT PRODUCT
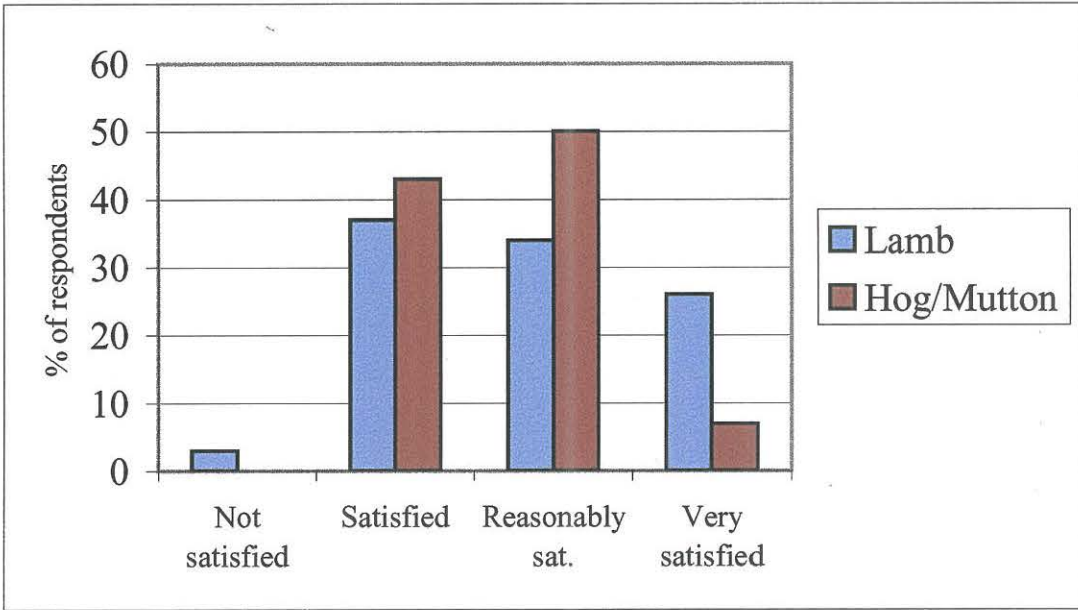
Lamb

Ranked by frequency of response, comments regarding customer satisfaction of the eating quality of lambs included:

- Ensure customers needs are linked to specifications (19%)
- Have systems in place (QA and specifications) to ensure quality outcomes are regularly achieved (15%)
- No complaints ever received (15%)
- Price is considered more of an issue than quality by customers (11%)
- Able to maintain consistent supply and quality (11%)
- Employ 'Good' livestock buyers (7%)
- Inconsistent quality - weight and fat depth (7%)
- Product quality improved through trimming and value adding (4%)
- Industry needs regulation to improve eating quality (4%)
- Retailers understand seasonal quality variation and accept poorer quality at certain times of the year (4%)
- Other - "retailers order lambs that I consider too lean for maximum quality. When we send them we cop complaints." (4%).

The use of quality systems and specifications figures prominently in the responses.

Hogget/Mutton

Twenty (20) reasons were recorded for the level of customer satisfaction related to the eating quality of hogget/mutton. Ranked in terms of frequency, comments included:

- Ensure customers needs are linked to specifications (30%)
- Inconsistent quality - weight and fat depth (20%)
- No complaints ever received (20%)
- Price is considered more of an issue than quality by customers (15%)
- Systems in place (QA and specifications) to ensure quality outcomes are regularly achieved (10%)
- Employ 'Good' livestock buyers (5%)
- Product quality improved through trimming and value adding (5%)
- Able to maintain consistent supply and quality (5%).

Linking customer needs to specifications is the most frequent reason given.

Customer supply confidence

Overall processors are confident that they can consistently supply their customers with the quality of lamb, hogget and mutton required by their customers. Figure 10 shows that the level of confidence was greatest for lamb followed by mutton and then hogget.

FIGURE 10: PROCESSOR LEVEL OF PRODUCT CONFIDENCE

Mean rating (2= not confident, 5=very confident)				
		Mail	Interview	Total
★	Lamb	3.77	4.53	4.05
●	Hogget	3.07	3.50	3.22
⅄	Mutton	3.44	3.63	3.52

```
2                                                          5
|-----------------|-------------------|-----------------|
                     ●      ⅄         ★
Not confident                         Very
confident
```
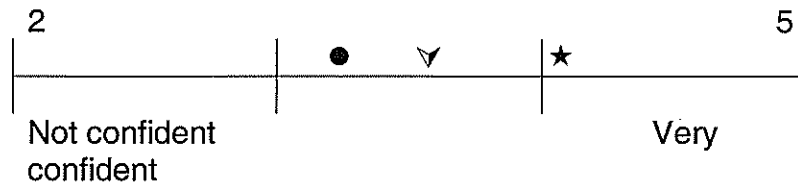
5.1.4 Retailers

Customer Satisfaction

On average retailers consider their customers are reasonably satisfied with the eating quality of the meat products supplied (Figure 11). They considered customer satisfaction was highest for chicken, beef and pork and lowest for lamb, hogget and mutton.

**FIGURE 11: RETAILER VIEW OF THEIR CUSTOMERS' SATISFACTION WITH
THE EATING QUALITY OF THEIR MEAT PRODUCTS**
Mean Rating (2 = not satisfied, 5 = very satisfied)
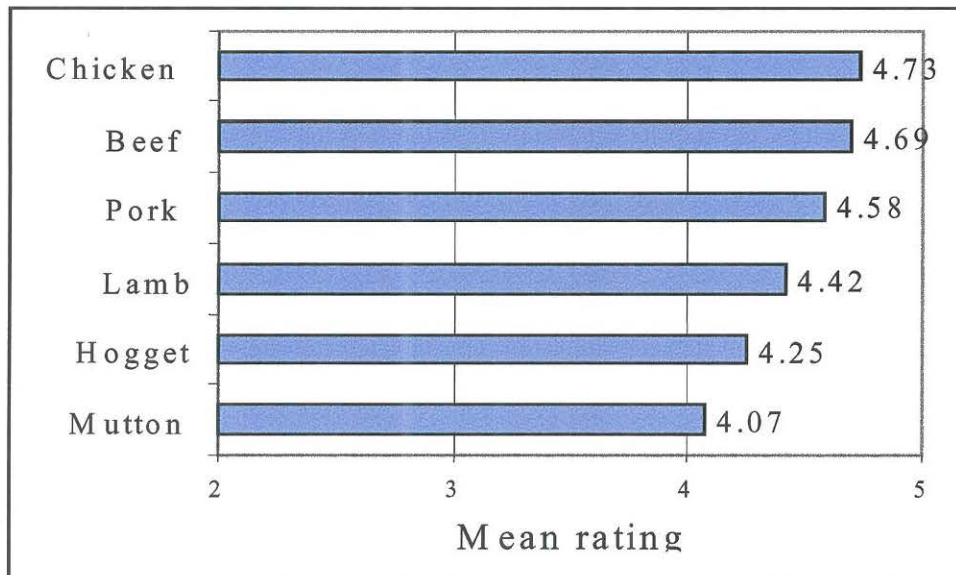
Customers view on eating quality

Figure 12 shows how retailers rated customer perceptions to lamb and
hogget/mutton for a range of product attributes. On average, all product attributes
were rated as being of 'some importance'. Tenderness, consistency, visual appeal
and fat content were the highest rating lamb product attributes. Fat content,
consistency, tenderness, taste/flavour and visual appeal were the highest rating
hogget/mutton product attributes.

Product attributes were rated lower for hogget/mutton than lamb (Figure 12). This
may be indicative of mutton being used more for further processing than being
sold as a 'fresh' product.

FIGURE 12: RETAILER VIEW OF HOW THEIR CUSTOMERS RATE LAMB AND HOGGET/MUTTON PRODUCT ATTRIBUTES
Mean Rating (2= no importance, 5 = very important)
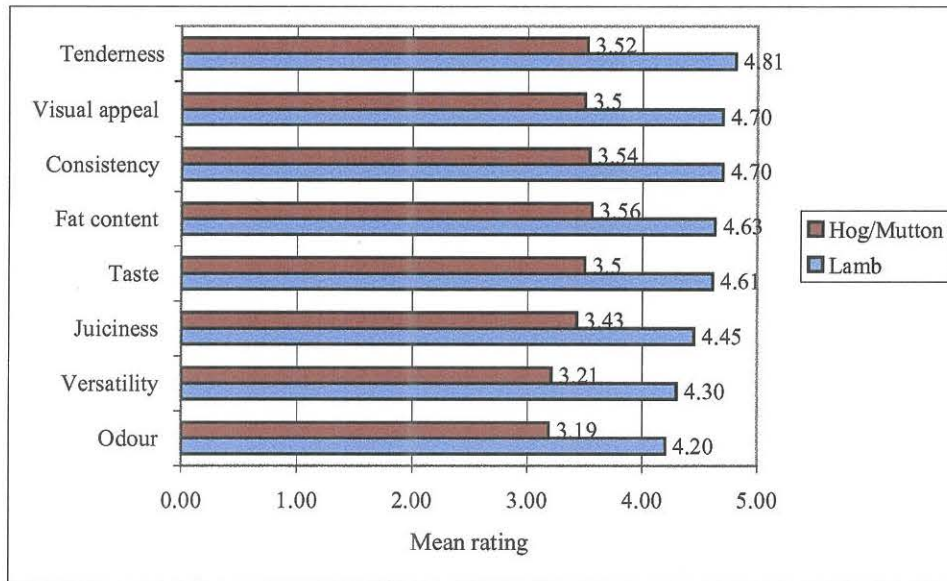
5.2 OWN SATISFACTION WITH THE PRODUCT

5.2.1 Processors

5.2.1.1 Livestock quality

On average processors were most satisfied with the quality of pigs available for processing and least satisfied with the quality of sheep that were available (Figure 13).

While pigs recorded the highest level of satisfaction, overall beef was rated highest by those processors that were interviewed. When pigs were excluded from the data, there was a significant difference (p< 0.01) in the satisfaction expressed, cattle>lamb>hogget>sheep.

FIGURE 13: PROCESSOR OPINION OF LIVESTOCK QUALITY
Mean rating (2= not satisfied, 5=very satisfied)
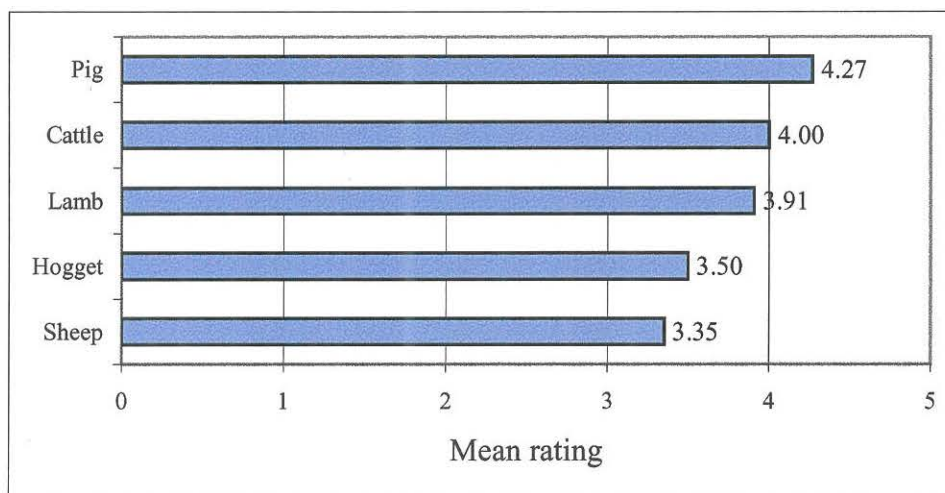
Although not all processors provided reasons for their level of livestock satisfaction, the list below ranks the comments that were received.

Cattle

- Generally good (36%)
- Buy to specification (29%)
- Quality variable (14%)
- Carcase problems (7%)
- Member of an Alliance (7%)
- Good communication with producers (7%)

Twenty-nine percent (29%) of processors attribute their satisfaction with cattle quality to the use of specifications.

Lamb

- Generally good (35%)
- Buy to specification (30%)
- Quality variable (20%)
- Member of an Alliance (10%)
- Supply problems (5%)

Thirty percent of processors attribute their satisfaction with lamb quality to the use of specifications.

Hogget

- Supply problems (36%)
- Quality variable (35%)
- Buy to specification (14%)
- Generally good (7%)
- Carcase problems - e.g. grass seed (7%)
- Not much demand for hogget (7%)

The primary issues with hogget are supply and product quality. This may be indicative of hoggets being the carry over of the lamb crop.

Sheep

- Generally good (22%)
- Quality variable (22%)
- Supply problems (22%)
- Buy to specification (17%)
- Carcase problems - e.g. grass seed (11%)
- Mainly cast for age (6%)

While 39% of the responses considered quality satisfactory, 61% of the comments relate to quality and supply problems.

Pigs

- Generally good (60%)
- QA system in place (20%)
- Buy to specification (20%)

The comments received support the high ranking for pig livestock quality.

5.2.1.2 Quality Variation - Lamb

Most processors (83%) stated that the quality of lambs, carcases or cartoned product did vary throughout the year (Table 22).

TABLE 22: PROCESSOR RESPONSE REGARDING LAMB QUALITY VARIATION

Response	Mail	Interview	Total
Yes, it does vary	19	11	30
No, it does not vary	4	2	6
Total	23	13	36

Variation - months and effect

Table 23 shows the months in which the quality varied and the effects of the variation.

TABLE 23: PROCESSOR OPINION OF THE MONTHS IN WHICH LAMB QUALITY VARIES AND THE EFFECT OF THE VARIATION

Time of Year	Number of responses received			Comments received as to the effect of the variation (no. of comments*)
	Mail	Interview	Total	
Autumn/Winter	10	5	15	Poor quality of feed available effects eating quality (4) Supply problems (3) Quality variation (3) Seasonal influences (1)
Summer months	0	2	2	Poor quality of feed available effects eating quality (1) Quality variation (1)
All year	2	1	3	Quality variation (1) Customer dissatisfaction (1)

* Not every processor provided information regarding the effect of the variation.

Variation in quality was considered to be greatest during the autumn/winter period. This period is considered to be associated with poor quality feed, quality variation and livestock supply problems.

5.2.1.3 Quality Variation - Hogget/mutton

Most processors (79% of respondents) considered the quality of hogget/mutton they purchased as livestock, carcase or cartoned product varied throughout the year (Table 24).

TABLE 24: PROCESSOR RESPONSE REGARDING HOGGET/MUTTON QUALITY VARIATION

Response	Mail	Inter-view	Total
Yes	12	10	22
No	5	1	6
Total	17	11	28

Variation - months and effect

Table 25 shows the months in which the quality varied and the effects of the variation.

TABLE 25: PROCESSOR VIEW OF THE MONTHS IN WHICH HOGGET/MUTTON QUALITY VARIES AND THE EFFECT OF THE VARIATION

Time of Year	Number of responses received			Comments received as to the effect of the variation (no. of comments*)
	Mail	Interview	Total	
Autumn/Winter	7	3	10	Supply problems (5) Poor quality of feed available effects eating quality (2)
Summer months	1	0	1	Quality variation (1)
All year	0	1	1	Quality variation (1)

* Not every processor provided information regarding the effect of the variation.

The autumn/winter period is considered to be associated with livestock supply and eating quality problems. The effect of poor quality feed on eating quality did not show up as strongly as it did for lamb (Table 23).

5.2.1.4 Quality comparison over time

Processors rated the quality of sheepmeats available today as similar or slightly better than that available five years ago (Figure 14). They rated lamb as having made more improvement than either hogget or mutton.

FIGURE 14: PROCESSOR PERCEPTION OF LAMB, HOGGET AND MUTTON QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

Mean rating (1= worse, 3 = better)

		Mail	Interview	Total
★	Lamb	2.48	2.62	2.53
●	Hogget	1.93	2.42	2.10
∀	Mutton	1.94	2.00	1.96

```
1
2                                    3
|------------------------∀-|--●------★-----------|
|                          |
Worse                     Same
Better
```
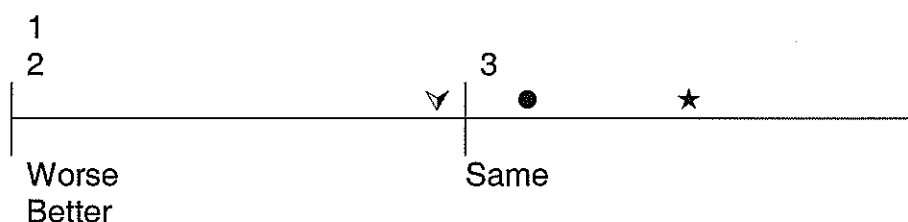
5.2.1.5 Carcase Quality

Figures 15 and 16 show the frequency with which carcase quality problems are experienced with lamb and hogget/mutton carcases.

FIGURE 15: PROCESSOR VIEW OF LAMB CARCASE QUALITY PROBLEMS

Mean rating (1 = never, 5 = all of the time)
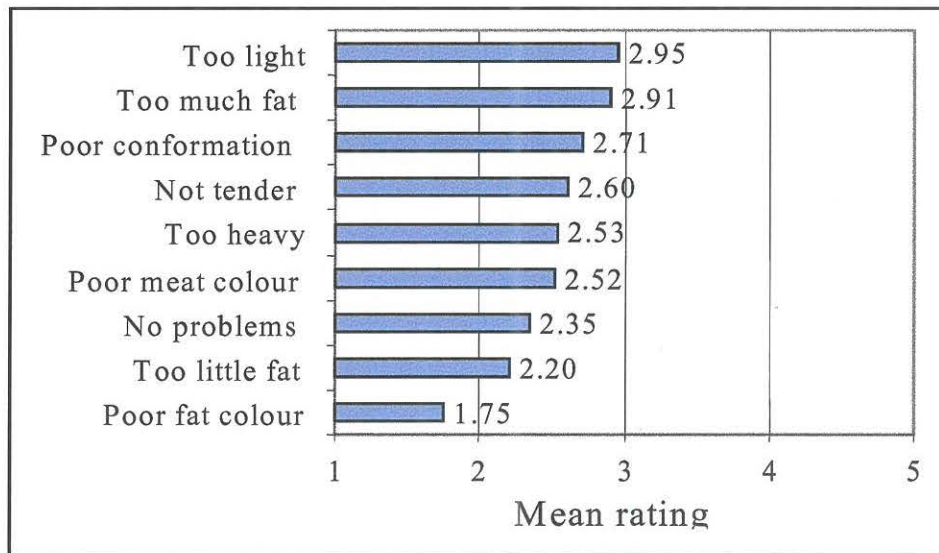
The primary cause of quality problems for lamb was weight and fatness. Most processors (86%) rated lamb as 'too light' either some or most of the time. This was supported by 37% of processors who considered lamb was rarely or never 'too heavy'. For fatness, 79% of processors rated lamb as 'too fat' some or most of the time. This was supported by 67% of processors who considered lamb as never or rarely 'too lean'. Poor carcase conformation was rated by 68% of processors as occurring some or all of the time. Processors were split over the occurrence of tenderness problems in lamb with 60% considering it an issue some or most of the time. While fat colour problems were considered never or rarely a problem by 92% of processors, meat colour problems were considered by 52% of processors to occur some or most of the time.

FIGURE 16: PROCESSOR VIEW OF HOGGET/ MUTTON CARCASE QUALITY PROBLEMS
Mean rating (1 = never, 5 = all of the time)
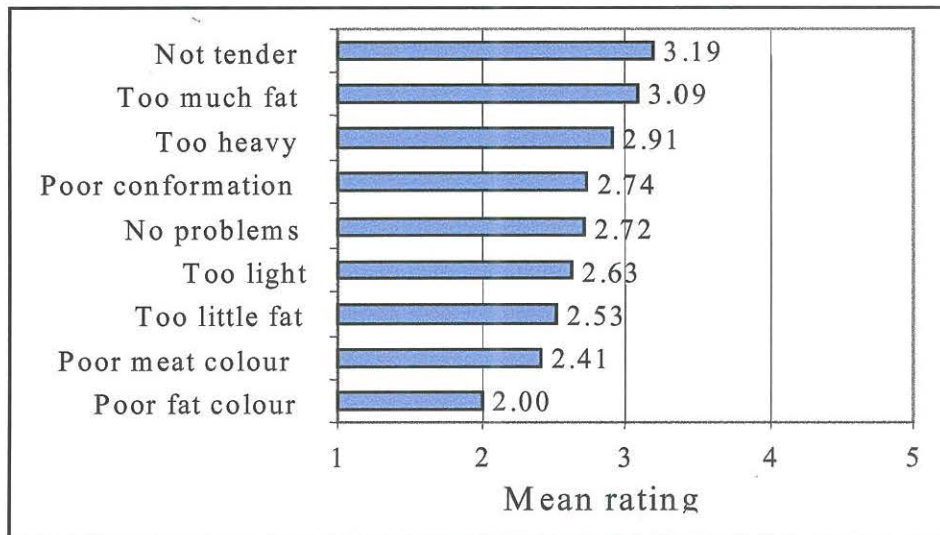
The primary cause of quality problems for hogget/mutton carcases was tenderness, fat and weight. Most processors (73%) rated hogget/mutton as 'not tender' some of the time or most of the time. The majority of processors (78%) reported that carcases had 'too much fat' some of the time.

With regard to weight, opinion is somewhat divided. 42% of processors reported that carcases were rarely 'too light, whereas 18% reported that they were rarely 'too heavy'. 52% reported that carcases were 'too light' some of the time, and 77% reported that they were 'too heavy' some of the time. The weight problem could be related to the relatively high percentage of kill that is purchased through the saleyards.

5.2.2 Retailers

5.2.2.1 Quality comparison over time

On average, retailers ranked lamb, hogget and mutton as being similar or slightly better quality than it was five years ago (Figure 17). Lamb, hogget and mutton was rated by retailers as having improved over the last five years by 38%, 28% and 17% respectively.

FIGURE 17: RETAIL VIEW OF QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

Mean ranking (1= worse, 3 = better)		Mail	Interview	Total
★	Lamb	2.25	2.19	2.24
●	Hogget	2.15	2.25	2.16
⋎	Mutton	2.00	2.00	2.00
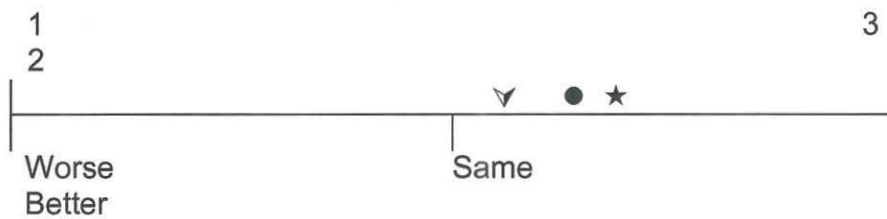
5.2.2.2   Product confidence

Figure 18 shows how confident retailers were of being able to supply their customers with the quality of meat they require. Retailers were less confident supplying their customers with satisfactory sheepmeat than beef, chicken and pork.

FIGURE 18: RETAILER LEVEL OF PRODUCT CONFIDENCE
Mean Rating (2 = not confident, 5= very confident)
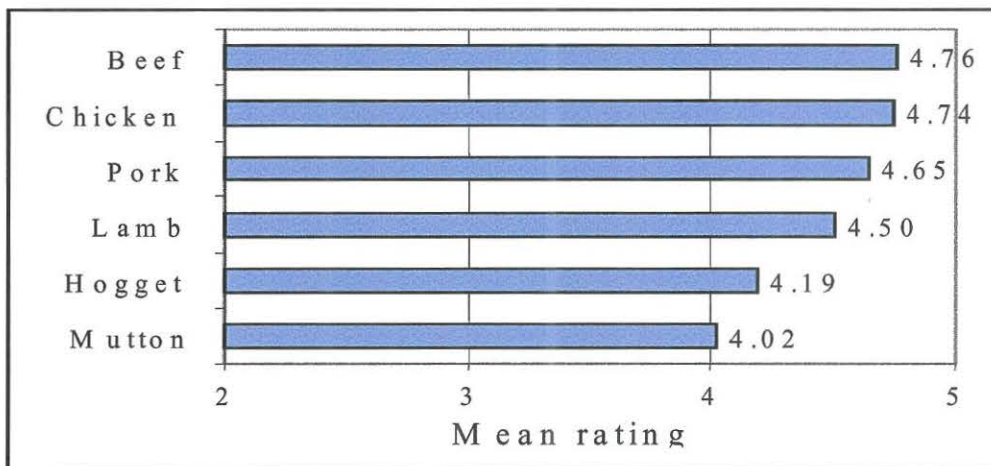
5.2.3 Food Service

5.2.3.1 Product purchasing confidence

Figure 19 shows the extent to which food service operators were confident they could purchase the quality of meat that they expect. Beef recorded the highest confidence rating followed by pork and then lamb.

FIGURE 19: FOOD SERVICE PRODUCT CONFIDENCE
Mean ranking (2=not confident, 5=very confident)
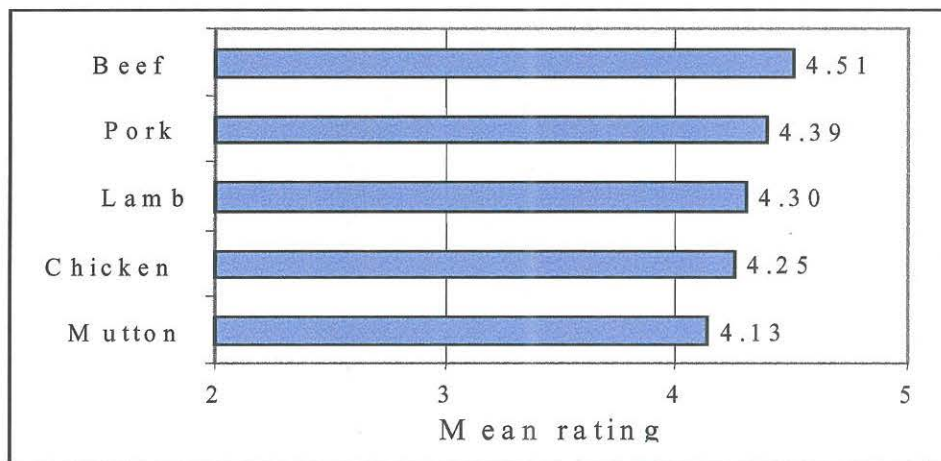
5.2.3.2 Product Consistency

Figure 20 shows the extent to which food service operators were satisfied with the consistency of five meat products.

FIGURE 20: FOOD SERVICE PRODUCT CONSISTENCY
Mean ranking (1=not satisfied, 5=very satisfied)

Beef recorded the highest rating for satisfaction, followed by pork, lamb, chicken and mutton. Food service operators were less than satisfied for 7%, 1%, 7%, 11% and 18% of their beef, pork, lamb, chicken and mutton purchases respectively.

Explanation for product consistency rating

Table 26 summarises the explanations given by food service operators for the product consistency rating referred to in Figure 20. The importance of a good supplier was indicative of the responses received from food service operators. The high proportion of food service operators that suggested variability between price and consistency of quality together with the low proportion that used specifications suggests that improvement might be made if more product was ordered by specification.

TABLE 26: FOOD SERVICE REASONS FOR THE PRODUCT CONSISTENCY RATING FOR THE FIVE MEAT PRODUCTS

Explanation Given	Number of comments received				
	Beef	Lamb	Mutton	Chicken	Pork
Good supplier	7 (21%)	5 (17%)	1 (14%)	4 (17%)	3 (17%)
Quality inconsistent, price variable	9 (27%)	9 (30%)	3 (43%)	8 (33%)	6 (33%)
Supply problems	1 (3%)	1 (3%)	1 (14%)	1 (4%)	0 (0%)
QA system in place	1 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Specifications used	3 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Few or no problems	9 (27%)	10 (33%)	1 (14%)	9 (38%)	6 (33%)
Seasonal product	1 (3%)	4 (13%)	0 (0%)	0 (0%)	0 (0%)
Meat Tender	1 (3%)	1 (3%)	1 (14%)	1 (4%)	2 (11%)
Other	1 (3%)	0 (0%)	0 (0%)	1 (4%)	1 (6%)
Total	**33**	**30**	**7**	**24**	**18**

5.2.3.3 Quality comparison over time

No food service operators rated the quality of lamb or mutton as worse today than it was five years ago (Figure 21). Lamb and mutton were rated by 65% and 36% respectively as being of better quality.

FIGURE 21: FOOD SERVICE VIEW OF LAMB AND MUTTON QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

Mean ranking (1= worse, 3=better)

★	Lamb	2.65
⅄	Mutton	2.36

1
2   3

Worse   Same
Better
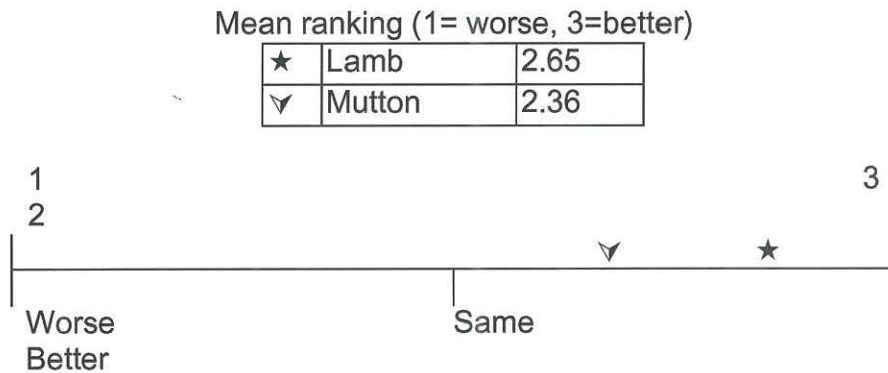
5.2.3.4 Product Attributes

Figure 22 shows the food service sector's satisfaction with a range of product attributes for lamb, mutton, beef, chicken and pork.

Beef clearly recorded the highest satisfaction levels for all product attributes. While lamb scored highly for taste/flavour it ranked behind beef and chicken for overall quality and juiciness and behind beef, chicken and pork for tenderness. Figure 22 suggests substantial work is required to improve the satisfaction rating of mutton among food service operators.

FIGURE 22: FOOD SERVICE RATING OF PRODUCT ATTRIBUTES FOR FIVE MEAT TYPES

Mean ranking (2=not satisfied, 5 = very satisfied)
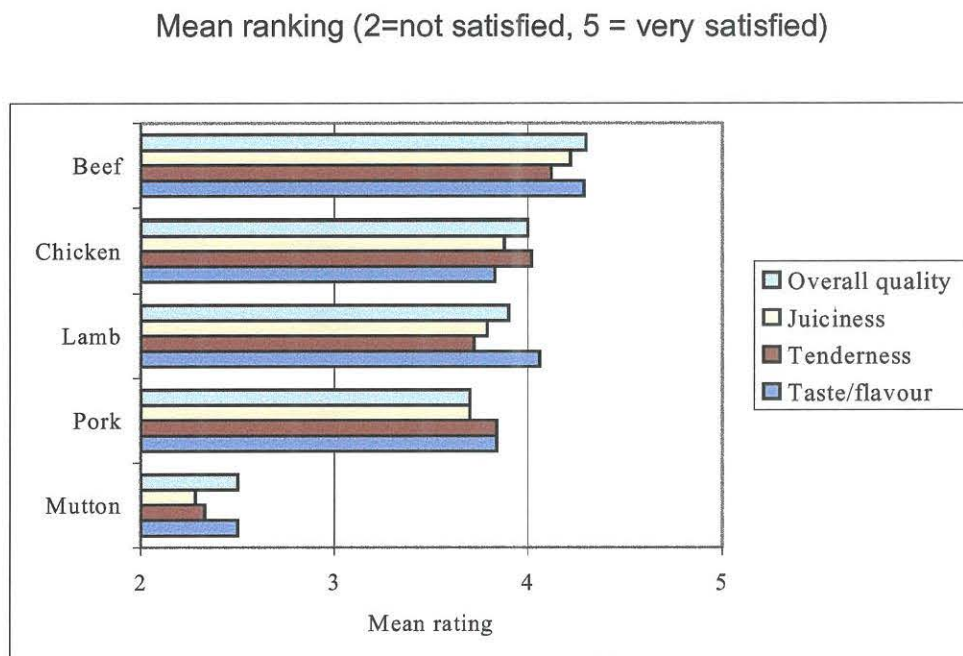
5.2.3.5   Seasonal Variation in Quality - Lamb/mutton

Of 40 respondents, 73% suggested the quality of the lamb and mutton they purchased varied throughout the year although they were evenly split over whether the autumn/winter or summer periods were worse (Table 27). Variability was considered to be quality related or supply related in 63% or 25% of responses respectively.

TABLE 27: FOOD SERVICE VIEW OF THE MONTHS IN WHICH QUALITY VARIES AND THE EFFECT OF THE VARIATION

Time of Year	Number of responses received	Comments received as to the effect of the variation (no. of comments*)
Autumn/Winter	9	Supply problems (1) Quality variation (1) Dry meat (1)
Summer months	7	Quality variation (1)

* Not every food service respondent provided information regarding the effect of the variation.

5.2.3.6 Product Quality Attributes

Food service respondents rated taste/flavour as being the most important lamb attribute, followed by consistency, tenderness and overall quality. Mutton rated lower than lamb for all attributes with value for money and odour rating highest (Figure 23).

FIGURE 23: FOOD SERVICE RATING OF PRODUCT QUALITY ATTRIBUTES FOR LAMB AND MUTTON
Mean ranking (2=not important, 5 = very important)
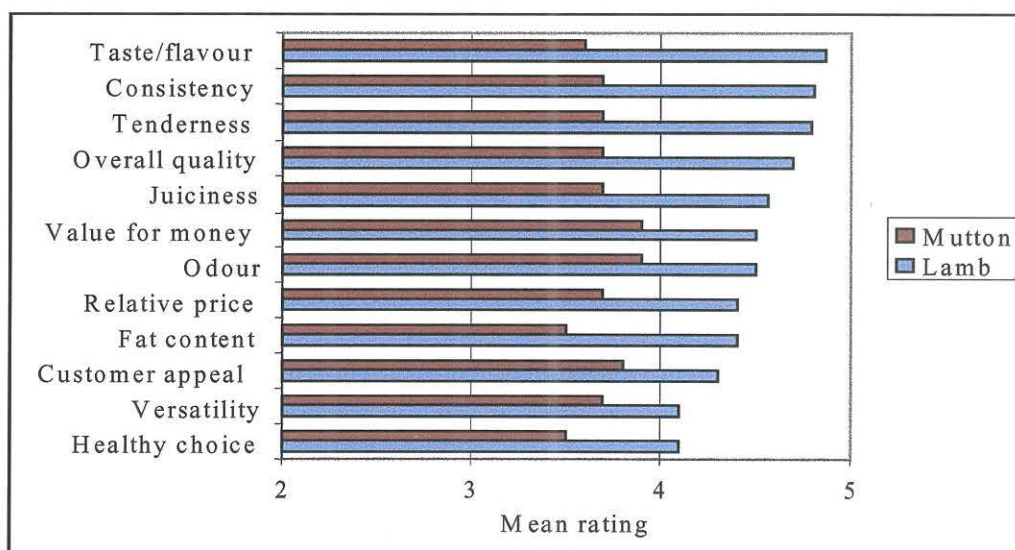
5.2.4 Wholesalers

5.2.4.1 Quality comparison over time

Wholesalers considered the quality of lamb today has improved from five years ago while there has been a slight improvement in the quality of mutton and hogget (Figure 24).

FIGURE 24: WHOLESALE VIEW OF LAMB, HOGGET AND MUTTON QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

Mean ranking (1= worse, 3=better)

★	Lamb	2.82
●	Hogget	2.25
⩓	Mutton	2.31

1
2
3

Worse   Same
Better
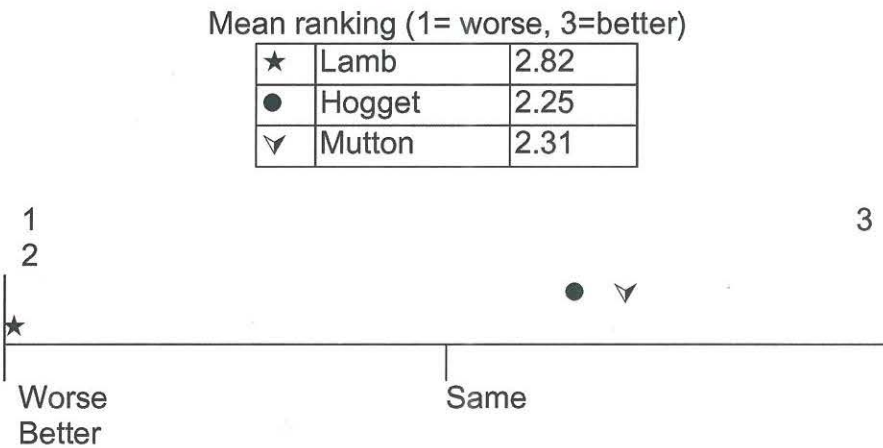
5.2.4.2 Product confidence

Figure 25 shows how confident wholesalers were of being able to purchase the quality of meat they expect. They rated lamb the highest and mutton the lowest.

FIGURE 25: WHOLESALE LEVEL OF PRODUCT CONFIDENCE
(Mean rating 2 = not confident, 5 = very confident)
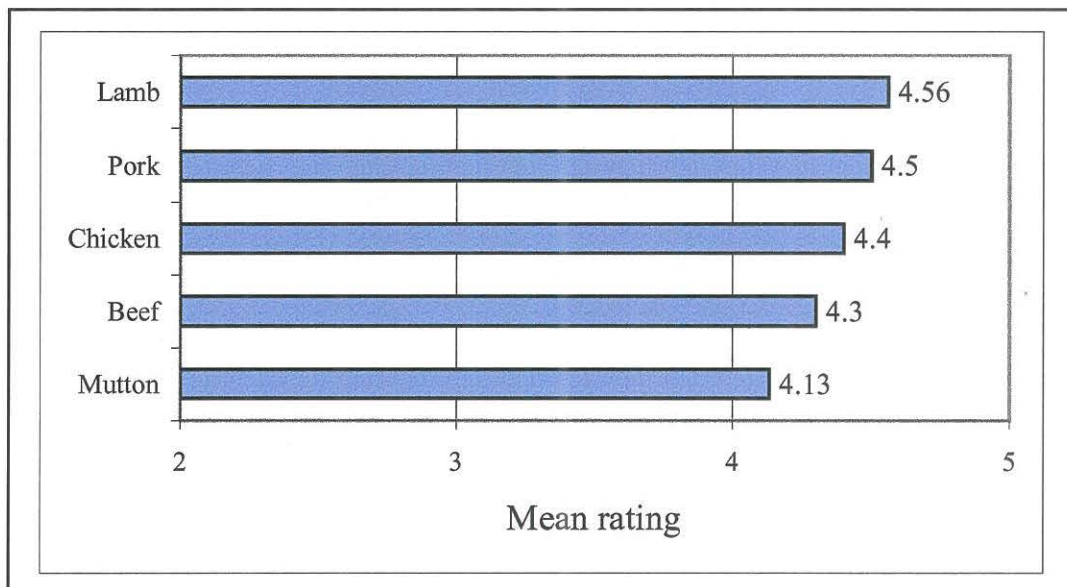
5.2.4.3 Quality Variation - Lamb

Sixteen of the seventeen wholesale respondents reported that the quality of lamb product varied throughout the year. The months in which the quality varied and the effects of the variation are summarised in Table 28. The comments are evenly divided between autumn/winter and spring/summer. Major issues were age of lambs, variation in quality and supply problems.

TABLE 28: WHOLESALER OPINION OF THE MONTHS IN WHICH LAMB QUALITY VARIES AN THE EFFECT OF THE VARIATION

Time of Year	Number of responses received	Comments received as to the effect of the variation (no. of comments*)
Autumn/Winter	6	Quality variation (3) Supply problems (1) Older lambs poor eating quality (1)
Spring	3	Supply problems (1) Older lambs poor eating quality (1) New lambs too fat (1)
Summer months	3	Supply problems (1)
Summer and winter	1	Supply problems (1)

* Not every food service respondent provided information regarding the effect of the variation.

5.2.4.4 Quality Variation - Hogget/Mutton

Five respondents reported that the quality of hogget/mutton product varied during winter and spring, while 3 reported that there was variation all year round.

5.2.4.5 Product Quality Attributes

Overall lamb quality, fat content, consistency, tenderness and taste/flavour were rated as important (4) or very important (5) by all wholesalers. Relative price was considered less important than any other quality attribute.

By comparison to the mean scores for lamb, both healthy choice and value for money are rated more important for hogget/mutton. Whereas versatility and taste/flavour were rated less important for hogget/mutton than for lamb (Figure 26).

**FIGURE 26: WHOLESALER RATING OF PRODUCT QUALITY ATTRIBUTES
FOR LAMB AND MUTTON**
(Mean rating: 2 = not important; 5 = very important)
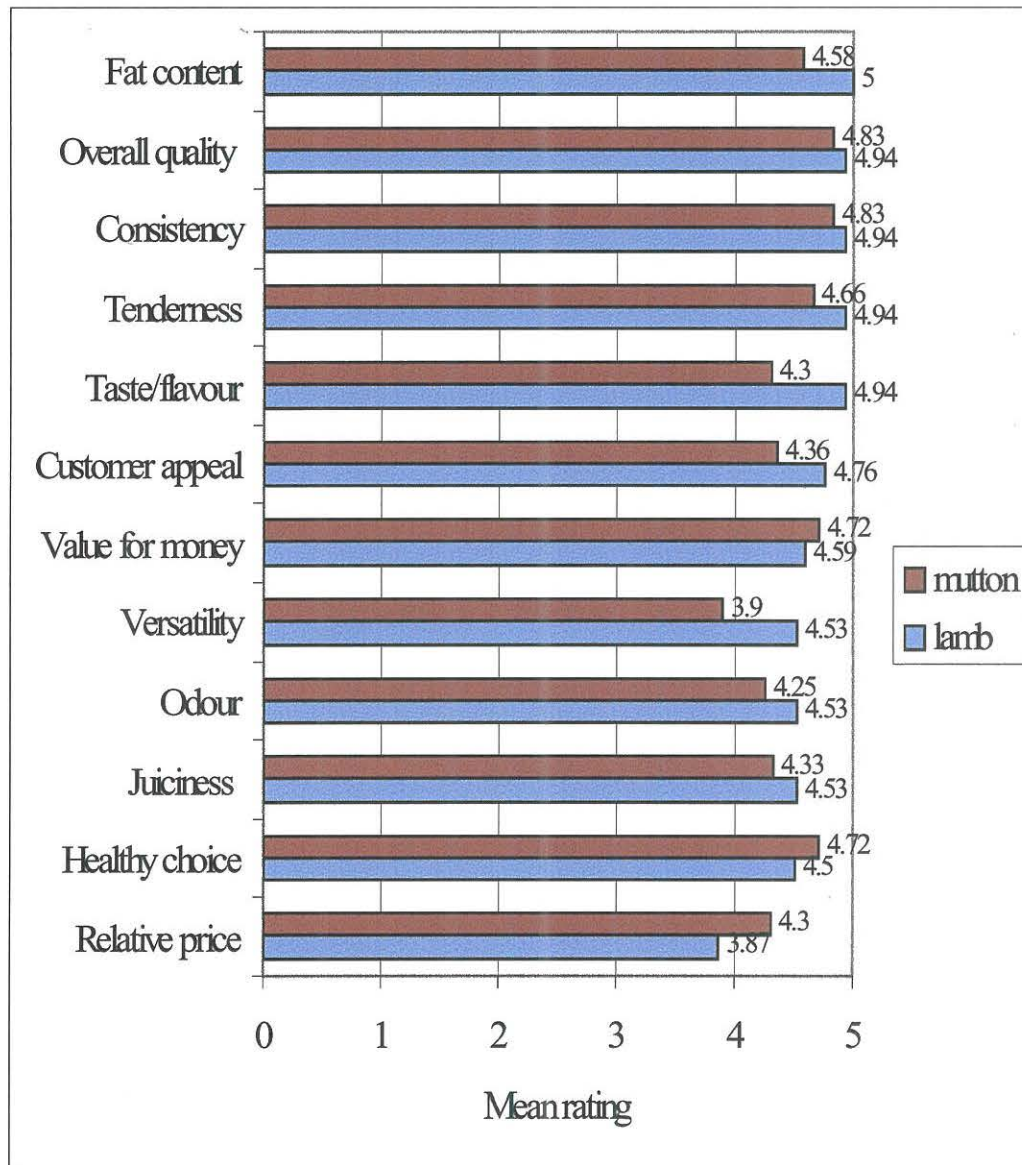
5.2.5 All Respondents

Quality comparison over time

Table 29 shows the combined ratings of processing, retail, food service and wholesale sectors regarding the quality of lamb and mutton available today compared with the quality available 5 years ago.

Nearly half (47%) of all respondents rated lamb today as being of better quality than it was 5 years ago. The majority of respondents rated hogget (65%) and mutton (69%) as being of the same quality. Lamb, hogget and mutton were rated as poorer quality by 9, 10 and 12% of respondents respectively.

TABLE 29: ALL RESPONDENTS VIEW OF QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

	Better	Same	Worse
Lamb	105 (47%)	99 (44%)	19 (9%)
Hogget	24 (25%)	61 (65%)	9 (10%)
Mutton	22 (19%)	79 (69%)	14 (12%)

5.3   MANAGEMENT FACTORS AFFECTING EATING QUALITY

Figures in this section show the rankings of nominated eating quality factors according to the percentage of 'high impact' responses each attracted. Additional information is contained in Annex 1. Further data analysis was conducted and the ranking by percentage of 'high impact' responses provides a result consistent with a mean ranking approach.

5.3.1   On-Farm and Animal Characteristics

5.3.1.1Producers and Processors

Both producers and processors rated animal age as having the highest impact on eating quality (Figure 27). Finishing systems, production systems and season variation were also rated highly. Producers rated fat score highly but processors rated it less important to overall eating quality.

The season to season variation may in part explain the perceived eating quality problem identified as 'variation in quality' in 5.1.2.

FIGURE 27: PRODUCER & PROCESSOR RANKING OF ON-FARM AND ANIMAL CHARACTERISTICS ACCORDING TO THEIR IMPACT ON EATING QUALITY
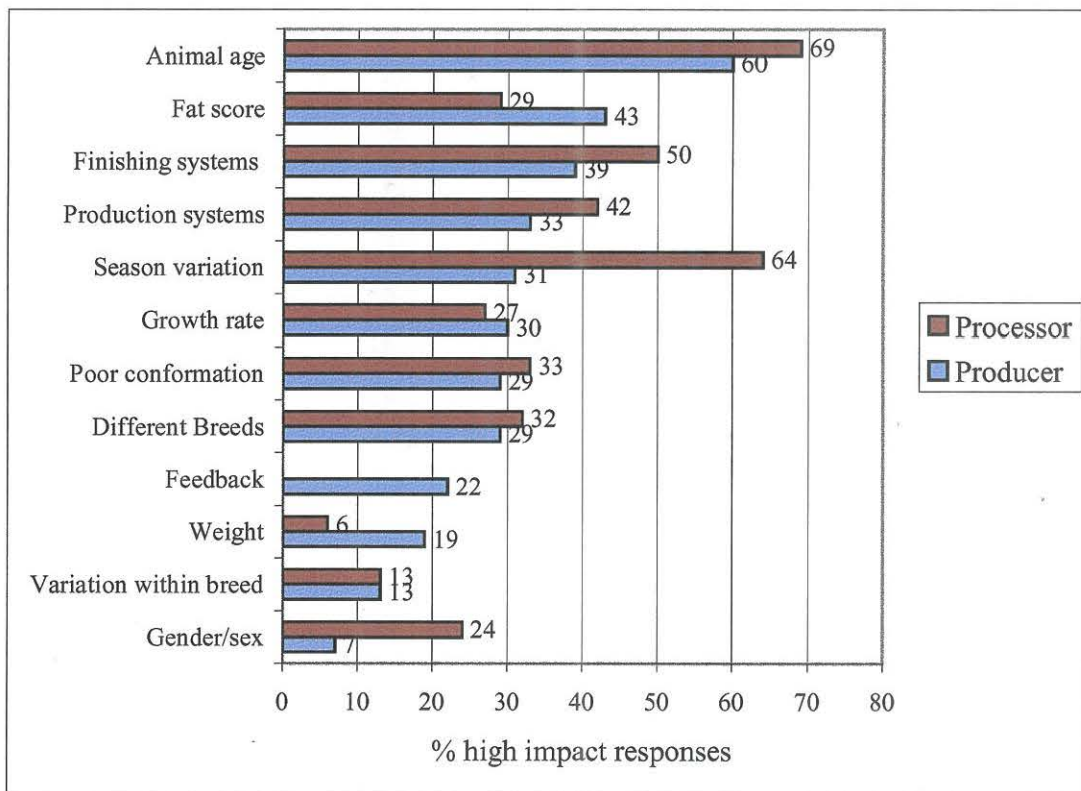
5.3.2 Processing Practices

Figures 28 to 32 clearly show different perceptions among the different sectors of the supply chain as to what impacts on lamb and sheepmeat eating quality. Transport stress figured prominently across all sectors. Product ageing was considered highly important by all sectors except producers who rated it less important than livestock handling and time in yards. Cold shortening featured prominently among the processors but not among the other sectors.

Many retail, food service and wholesale respondents did not know what impact tenderstretch, cold shortening and electrical stimulation had on eating quality which may indicate that information on these practices is required.

FIGURE 28: PRODUCER RANKING OF HIGH IMPACT PROCESSING PRACTICES ON EATING QUALITY
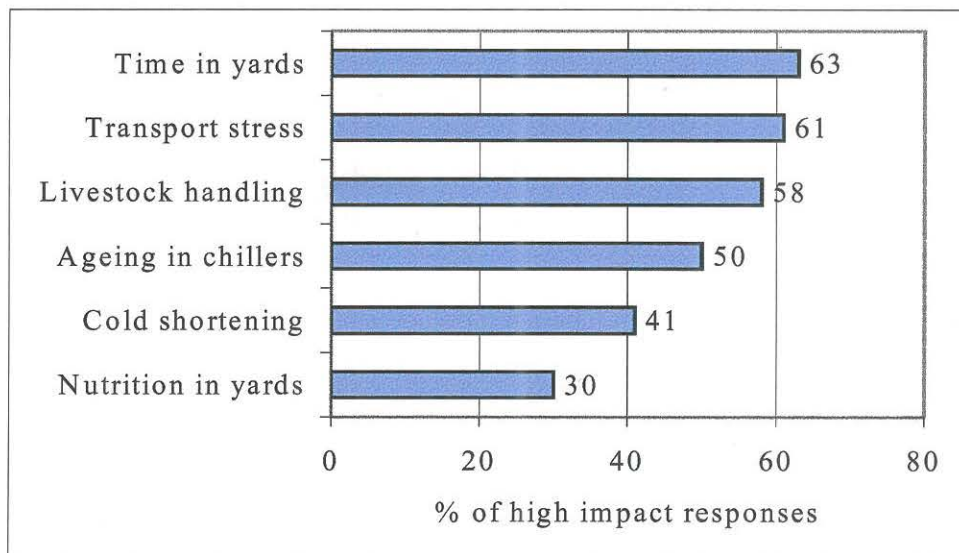
FIGURE 29: PROCESSOR RANKING OF HIGH IMPACT PROCESSING PRACTICES ON EATING QUALITY
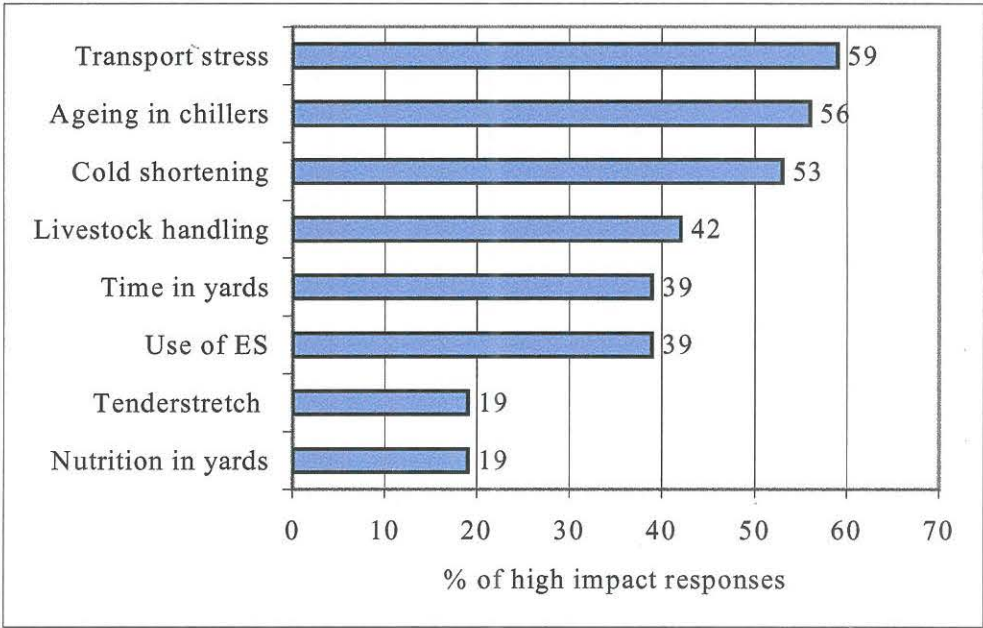
FIGURE 30: RETAILER RANKING OF HIGH IMPACT PROCESSING PRACTICES ON EATING QUALITY
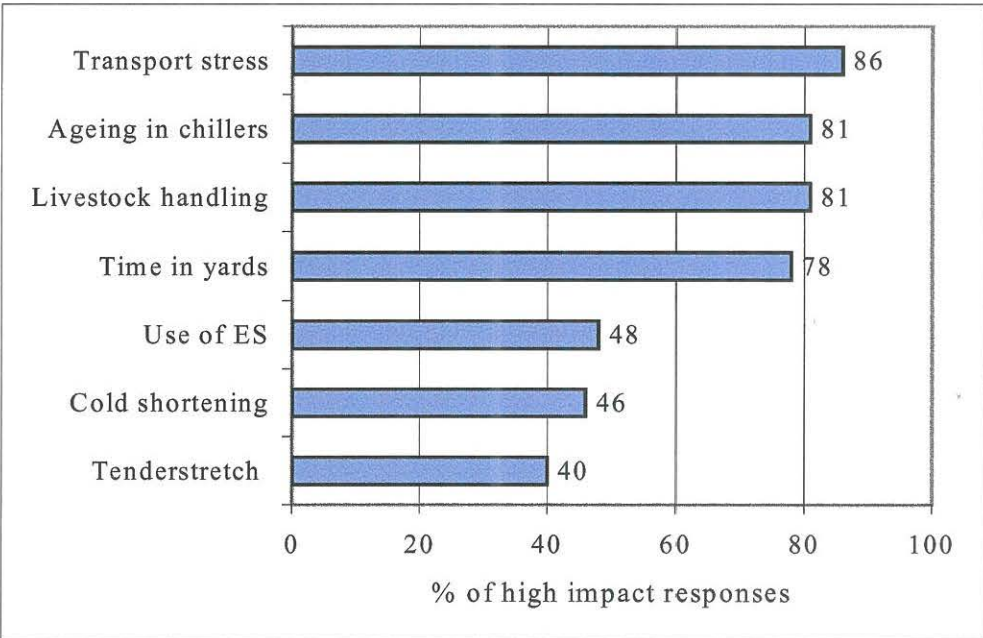
FIGURE 31: FOOD SERVICE RANKING OF HIGH IMPACT PROCESSING PRACTICES ON EATING QUALITY
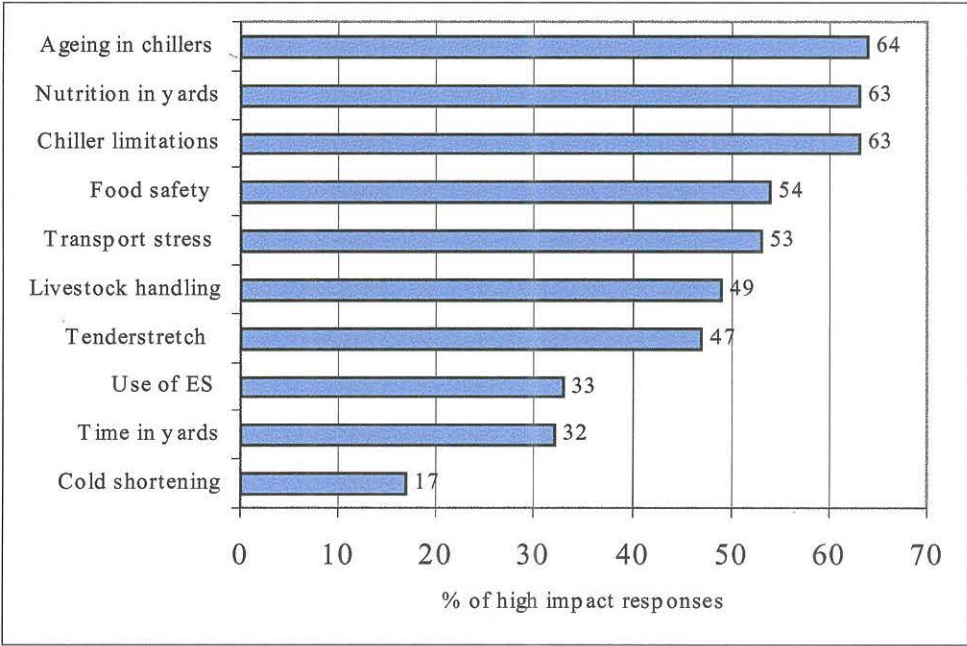
FIGURE 32: WHOLESALE RANKING OF HIGH IMPACT PROCESSING PRACTICES ON EATING QUALITY
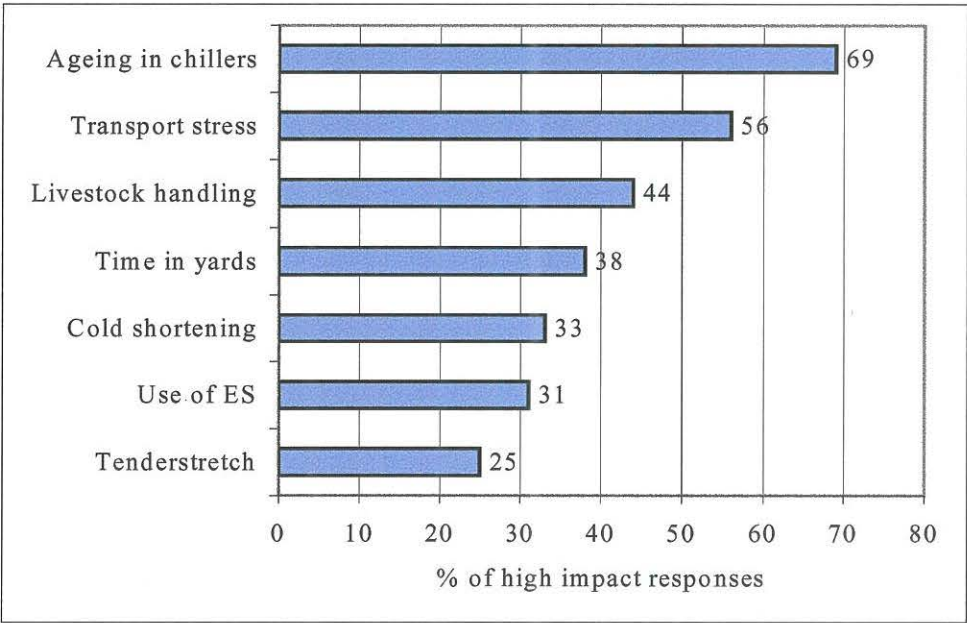
5.3.3 Post Processing Practices

Figures 33 to 37 show that the different sectors of the supply chain have different perceptions as to the impact that post-processing activities have on eating quality. For producers and retailers 'retail preparation' was ranked first, whereas for processors it ranked last and for wholesalers it ranked second last.

'Suitability of cooking methods to certain cuts' and 'cooking - degree of doneness' featured prominently in the retail, food service and wholesale rankings. While 'suitability of cuts to certain dishes' was ranked higher by retail and wholesale respondents than it was by food service respondents.

'Storage/freezing of meat' was ranked first by food service respondents but in all other sectors it was ranked last or second last.

FIGURE 33: PRODUCER RANKING OF HIGH IMPACT POST PROCESSING PRACTICES ON EATING QUALITY
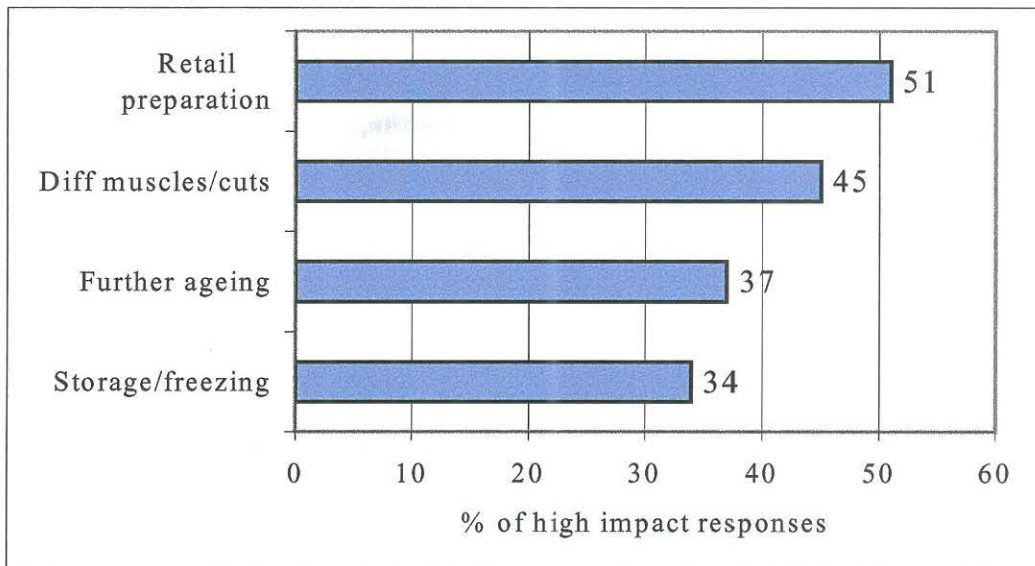
FIGURE 34: PROCESSOR RANKING OF HIGH IMPACT POST PROCESSING PRACTICES ON EATING QUALITY
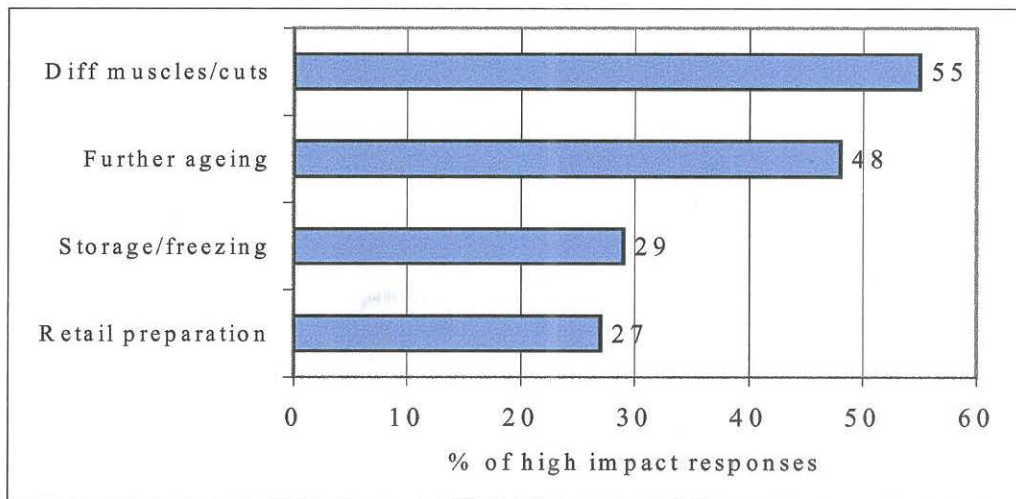
FIGURE 35: RETAIL RANKING OF HIGH IMPACT POST PROCESSING PRACTICES ON EATING QUALITY
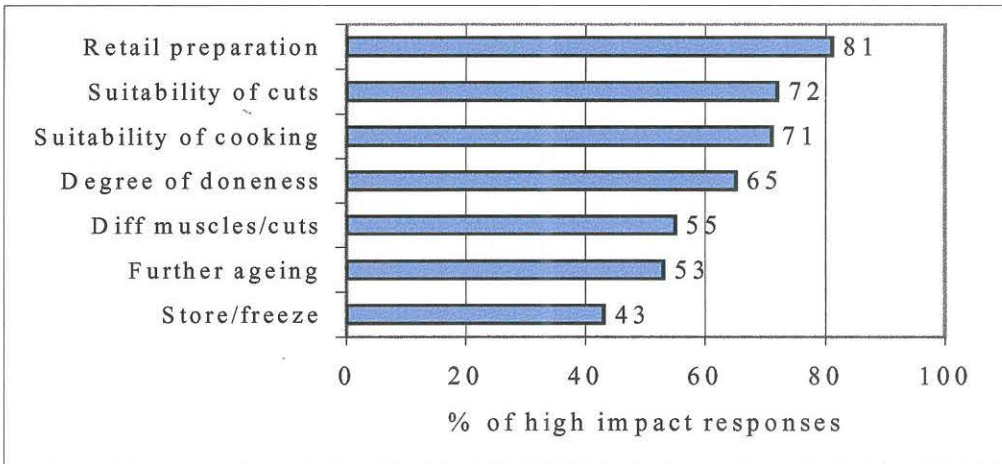
FIGURE 36: FOOD SERVICE RANKING OF HIGH IMPACT POST PROCESSING PRACTICES ON EATING QUALITY
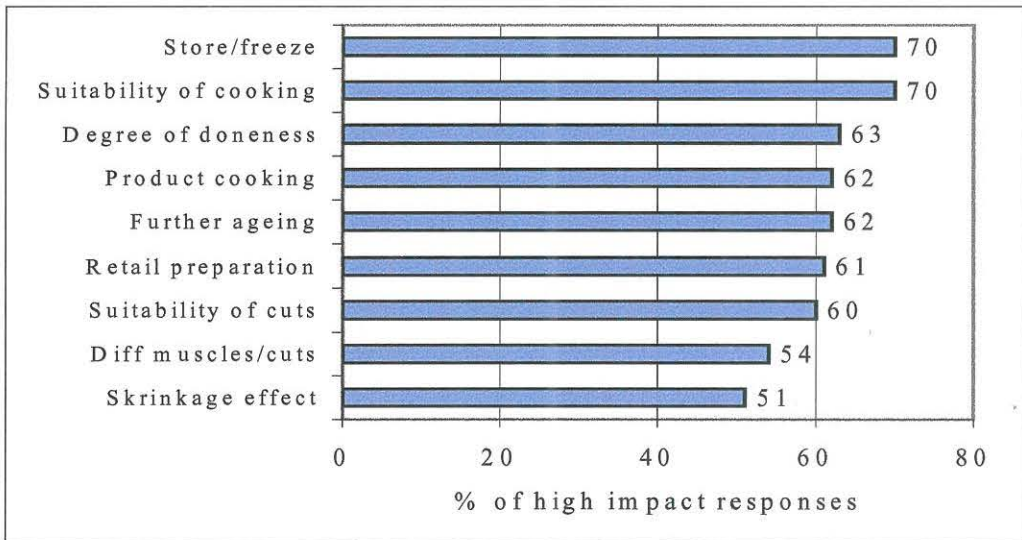
**FIGURE 37: WHOLESALE RANKING OF HIGH IMPACT POST PROCESSING
PRACTICES ON EATING QUALITY**
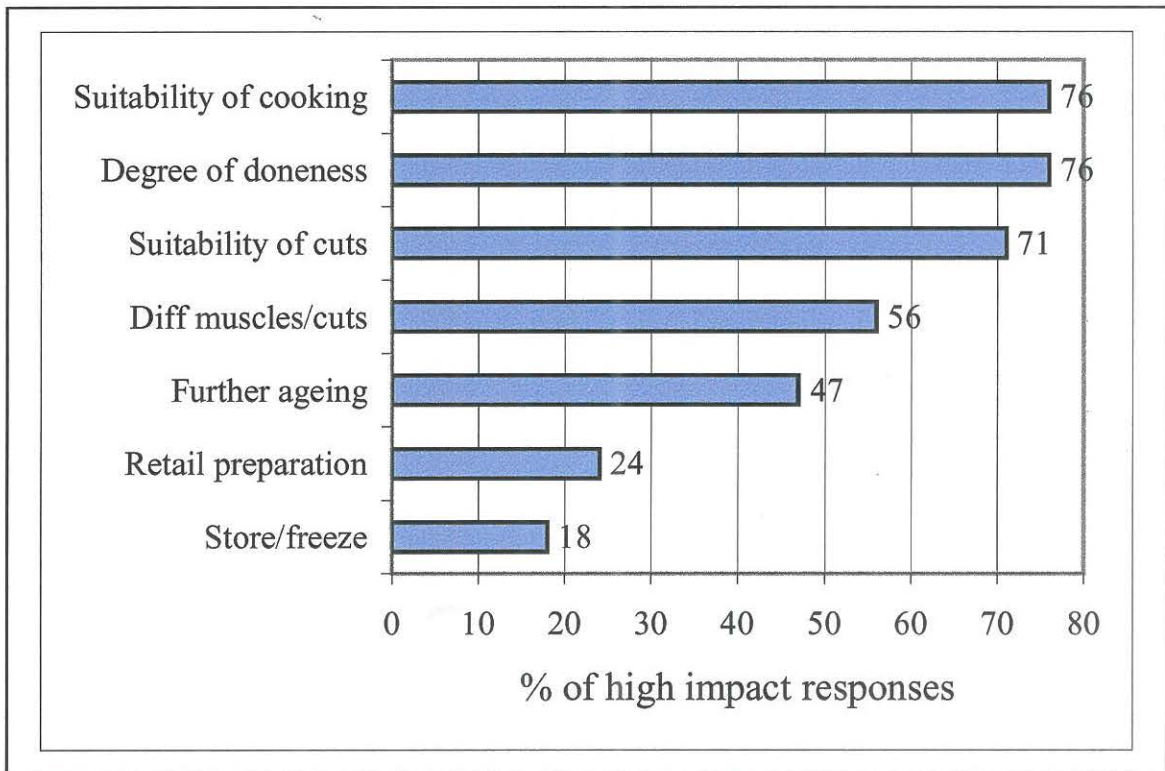
5.3.4 Carcase and Meat Quality

Figure 38 shows the high impact rankings for carcase and meat quality across all sectors.

While tenderness rated highly across all sectors there were different perceptions as the impact all other carcase and meat quality attributes had on eating quality.

Ninety-four percent of wholesalers reported that Texture/Firmness had a high impact on eating quality, whereas only 29% of processors shared the same opinion.

The majority of retailers and wholesalers regarded eye muscle area as having a high impact on eating quality. The impact was rated less by food service operators and producers and lowest of all by processors.

The impact of meat colour on eating quality was rated higher by wholesalers, retailers and food service than it was by processors and producers.

Carcase yield was considered to have more of an impact on eating quality by wholesalers and retailers than it was by food service and producer respondents, and only 7% of processors thought it had a high impact on eating quality.

Fat colour was rated higher by food service and retail respondents than it was by wholesalers, producers and processors.

FIGURE 38: ALL SECTORS RANKING OF CARCASE AND MEAT QUALITY FACTORS
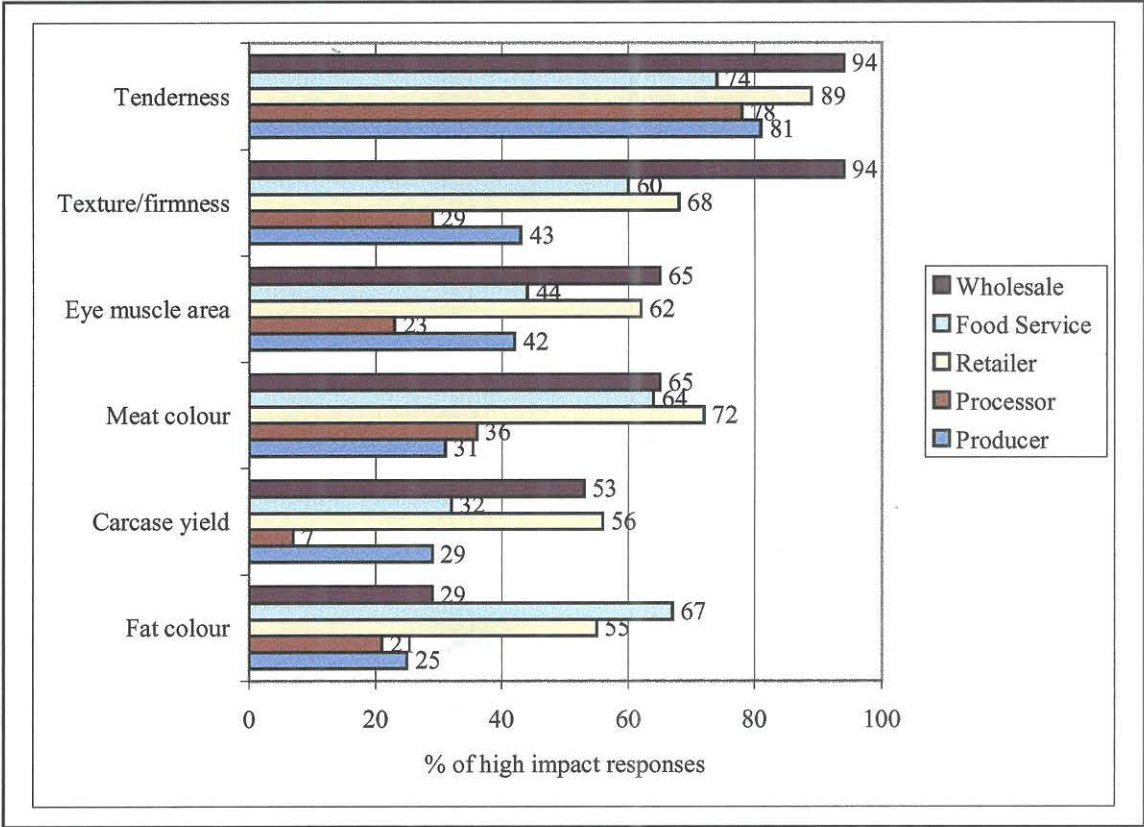
5.4 FACTORS IN THEIR OWN BUSINESS 52

Respondents were asked to list the practices in their own business that they thought could have a positive or negative impact on eating quality.

5.4.1 Practices that may improve eating quality

Table 30 shows the practices that respondents thought may improve eating quality.

Pre-slaughter

The majority (60%) of on-farm practices that were reported by producers related to feeding and stress management.

Processors reported pre-slaughter management, livestock specification and breed as their main pre-slaughter practices that can improve eating quality.

Post slaughter

Ageing was the main practice that could improve eating quality according to processors (29%), retailers (37%) and wholesalers (50%).

Processors also nominated electrical stimulation and chiller management as having a positive impact on eating quality. Chiller management (temperature and stock rotation) was also referred to by retailers (10%) and wholesalers (13%).

Twenty-five percent of retail comments related to product preparation.

The use of marinades and seasoning was a technique employed by retailers (10%) and food service operators (24%) to improve eating quality.

The main practice in the food service sector that can improve eating quality was cooking style and technique (43%).

TABLE 30: PRACTICES THAT CAN IMPROVE EATING QUALITY

Producer		Processor		Retailer		Food Service		Wholesaler	
Description of Practice	%	Description of Practice	%	Description of Practice	%	Description of Practice	%	Description of Practice	%
Feeding (strip grazing, rotation, and feeding related to an acceptable growth rate.)	32	Ageing (including vacuum packaging)	29	Ageing (vac. Packaging, hanging carcases in chiller)	37	Cooking style (stir fry, slow cooking) and technique (resting, retaining juices)	43	Ageing (including vac. Packaging hanging carcases in chiller)	50
Stress management (e.g. careful handling, no dogs, etc.)	16	Pre-slaughter management (rest, handling, water, feed)	29	Product preparation (e.g. boning, trimming, ticketing, display)	25	Marinating/seasoning	24	Ordering by specification, good supplier communication	13
Supplementary feeding (including finishing rations, grains, rape, lucerne, saltbush)	12	Electrical stimulation	11	Supplier communication - ordering by specification, good communication	12	Correct storage and storage temperature	15	Temperature management - chiller and carcase transport	13
Good animal health (e.g. worming, lice)	8	Chiller management (including, temperature)	11	Use of marinades, spices, sprinkles, etc.	10	Meat preparation, including handling.	11	Grade carcases in house to suit customers	6
Lambplan, genetics	8	Livestock specifications	7	Good chiller management, including stock rotation	10	Ageing meat	2	Buy feedlot lambs	6
Good management practices	5	Breed (British, no merinos) v eating quality	4	Providing cooking information to the customer	4	Accompaniments /preserves, e.g. sauces	2	Value adding, product preparation	6
Shade and water	2	Value adding	4	Cutting joints for customers as they require it.	1	Inventory Mngt. - Don't over order, keep supplies down	2		
Other	17	Food safety	1	Tagging all carcases for weight, fat score, date of kill.	1				

		Transport	1	Quick turnover	1				
				Reject poor quality	1				

Note: The percentage figures represent the percentage of the total number of comments received for that sector.

5.4.2 Practices that may cause a decline in eating quality

Table 31 shows the practices that respondents thought may cause a decline in eating quality.

Pre-slaughter

Stress and poor feed make up the majority (57%) of on-farm practices that producers felt could cause a decline in eating quality.

Processors recorded pre-slaughter stress (15%) as having a detrimental effect.

Post slaughter

Failing to age product was reported by processors (27%), retailers (35%) and wholesalers (50%) as a likely cause of a decline in eating quality.

Poor chiller management and related issues (refrigeration, temperature control, product drying out) were also seen as being detrimental to eating quality.

The main practice in the food service sector to be avoided was overcooking product or not resting meat (39%).

TABLE 31: PRACTICES THAT CAN CAUSE A DECLINE IN EATING QUALITY

Producer		Processor		Retailer		Food Service		Wholesaler	
Description of Practice	%	Description of Practice	%	Description of Practice	%	Description of Practice	%	Description of Practice	%
Stress (including grass seed, heat, dogs, handling)	29	Poor chiller management (temp issues, temp abuse, chilling too quickly)	35	Not ageing product (selling product too fresh)	35	Overcooking product or not resting meat	39	Not ageing product (selling product too fresh)	50
Poor feed (including seasonal pasture variation)	28	Not ageing product	27	Poor butchering skills	19	Storage/packaging - poor storage, temp control, handling, broken vacuum seals, blood in bags,	16	Refrigeration/poor temperature control.	50
Poor management	7	Stress - livestock handling, dogs	15	Poor refrigeration (product drying out in chillers or window display.	17	Poor preparation	13		
Slow growth rate (including checks)	6	No electrical stimulation	12	Trimming of cuts- under and over	10	Poor stock rotation	6		
Lack of a good water supply	3	Merino mixing	8	Poor customer cooking knowledge	8	No seasoning or marinating	6		
Wrong breed type	3	Over fat carcases	4	Low turnover	2	Cooking - reheating and pre-cooking	3		
Other	24			Stress from farm to retail outlet.	2	Masking the flavour	3		
				Buying too lean a carcase.	2	Wrong method of cooking	3		
				Rotten meat	2	Rapid thawing	3		
						Other. Exposure to air, cross contamination	3		

Note: The percentage figures represent the percentage of the total number of comments received for that sector.

5.5   Issues for Further Research

Tables 32 and 33 list the lamb and hogget/mutton eating quality issues that respondents thought required further research.

5.5.1 Lamb Eating Quality Research Issues

Producer Lamb Research Issues

A high proportion (40%) of the producers surveyed did not nominate any issues for lamb eating quality research. The five most popular research topics were: Most suitable pasture type or finishing ration; Meat tenderness post slaughter; Eating quality including taste and flavour; Genetics/breed effect; and Cooking methods.

Processor Lamb Research Issues

Breed v eating quality, electrical stimulation and feed/nutrition made up the majority (60%) of topics for lamb research.

Retailer Lamb Research Issues

The main issues were lamb production (18%) and the effects that feed (15%) and breed (15%) have on eating quality.

Food Service Lamb Research Issues

Thirty seven percent of the comments related to research into smell after cooking and 16% related to the effect feed has on eating quality and flavour. Thirteen respondents (28%) listed lamb factors or issues that in their view required further research.

Wholesale Lamb Research Issues

The three most popular research issues related to lamb production (33%), lamb consistency (22%) and feed and nutrition (22%).

TABLE 32: LAMB EATING QUALITY RESEARCH ISSUES

Producer		Processor		Retailer		Food Service		Wholesaler	
Research Issue	%	Research Issue	%	Research Issue	%	Research Issue	%	Research Issue	%
Most suitable pasture type or finishing ration	17	Breed (British, merino) v. eating quality	21	Lamb production (incl. carcase fat and year round supply	18	Smell after cooking	37	Lamb production (incl. carcase fat and year round supply	33
Tenderness post slaughter (incl. time in chillers, cold shortening, t/stretch)	16	Electrical stimulation	21	Breed v. eating quality	15	Feed v eating quality and flavour	16	Feed and nutrition (lot feeding, grain feeding) v. eating quality	22
Eating quality including smell, taste and flavour	14	Feed/nutrition	18	Feed and nutrition (lot feeding, grain feeding) v. eating quality	15	Processing practices	11	Lamb consistency	22
Genetics/ Breed effect	14	Transport	12	Lamb consistency	12	Apprentice chef training in cut v cooking method.	5	Stress (incl pre-slaughter handling) v. eating quality	6
Cooking methods	12	Livestock handling	9	Conformation, eye muscle area	10	Year round consistent supply	5	Breed v. eating quality	6
Stress effects on eating quality	7	Dentition as an age determinant	9	Tenderness (including Electrical Stimulation and cold shortening.)	10	Ageing of meat	5	Tenderness including ES, aging practices and Cold shortening	6
Fat depth v. eating quality	6	Holding time before kill	6	Consumer education	4	Breed	5	Mechanical boning equipment	6
Processing practices (including ES, gas flushing, lairage)	4	Ageing (including vac packaging)	6	Stress (incl pre-slaughter handling) v. eating quality	4	Quality of the chef	5		
Age v. eating quality	3	Tenderness v. rate of carcase temperature reduction	3	Retail preparation	3	Quality control from grower	5		

Producer		Processor		Retailer		Food Service		Wholesaler	
Research Issue	%	Research Issue	%	Research Issue	%	Research Issue	%	Research Issue	%
Cuts (including selection for cooking, value adding, presentation)	3	Education of butchers	3	Food safety (temp.) v product ageing	3	Pest control leaking through wool into meat.	5		
Branding/Grading	2	Technological determinant of carcase category	3	MSA type system.	1			'	
Marketing	2			Difference between Victorian lamb and Queensland lamb.	1				
Growth rate v eating quality	1			Develop systems to help educate butchers how to order product.	1				

Note: The percentage figures represent the percentage of the total number of research issues nominated by each sector.

5.5.2 Hogget/Mutton Eating Quality Research Issues

Producer Hogget/Mutton Research Issues

A high proportion (64%) of the producers surveyed did not nominate any issues for hogget and mutton research. Of those responding, the main focus for research was marketing (32%). Some respondents noted that from their experience hogget meat was of good eating quality and the product was being unnecessarily discounted at retail. These comments link in with the next highest ranking research topic 'age of animal vs. eating quality' (29%).

The third most popular topic was research into the most suitable cooking methods for hogget and mutton meat (26%).

Processor Hogget/Mutton Research Issues

Hogget/Mutton research is spread across 9 topics and no one topic clearly stands out. A relatively low number of respondents (6) provided research suggestions.

Retailer Hogget/Mutton Research Issues

Feed and nutrition (27%) was the most popular research issue, followed by supply and product consistency (14%).

Food Service Hogget/Mutton Research Issues

Two respondents provided reed, restaurant grade meat and marketing names as issues requiring research.

Wholesale Hogget/Mutton Research Issues

Two of the eight comments received regarding hogget/mutton research related to hogget promotion and development.

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TABLE 33: HOGGET/MUTTON EATING QUALITY RESEARCH ISSUES

Producer		Processor		Retailer		Food Service		Wholesaler	
Research Issue	%	Research Issue	%	Research Issue	%	Research Issue	%	Research Issue	%
Marketing	32	Ageing of meat, tenderness	20	Feed and nutrition	27	Breed	33	Hogget promotion and development	25
Age of animal vs. eating quality	29	Age of animal vs. eating quality	10	Supply and product consistency	14	Marketing names	33	Feed and nutrition	13
Cooking methods	26	Grass seeds	10	Ageing of meat	9	Restaurant grade meat	33	Reduce fat content	13
Ageing of meat	9	Breeding	10	New products or other uses for this meat	9			Age of animal vs. eating quality	13
Finishing ration	4	Transport	10	Hogget eating quality	9			Supply and product consistency	13
		Holding time before kill	10	Consumer education	9			Stress v. eating quality	13
		Meat colour	10	Age of animal vs. eating quality	5			Mechanical boning equipment	13
		Electrical Stimulation	10	Quality Assurance.	5				
		How to process	10	Develop systems to help educate butchers how to order product.	5				
				Substitution.	5				
				How to differentiate from lamb when the brand comes off.	5				

5.6   Tools for Improving lamb and sheepmeat eating quality

Respondents were given eleven tools/methods for communicating research results to industry and were asked to rate each according to how useful each method would be. Figures 39 and 40 provide the results by mean and percentage respectively.

Overall the two most useful methods of communicating research to industry are 'working directly with individual supply chains' and 'paddock to plate QA programs with accreditation/audit etc.'

The provision of detailed project reports was rated more useful by producers and processors than it was by the other three sectors.

'Structured short course training programs' and 'build into formalised industry training (e.g. MINTRAC) were two methods highly rated by wholesalers.

The use of industry specific web sites attracted most support from the wholesale sector but overall this tool/method did not rate highly.

Generally the least preferred methods across the sectors were 'computer software for supply chain management', 'regular e-mail sent to subscribers' and 'publish results and leave to industry to adopt' (Figure 39).

FIGURE 39: ALL RESPONDENTS RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY
Mean Ranking (2 = no use, 5 = very useful)
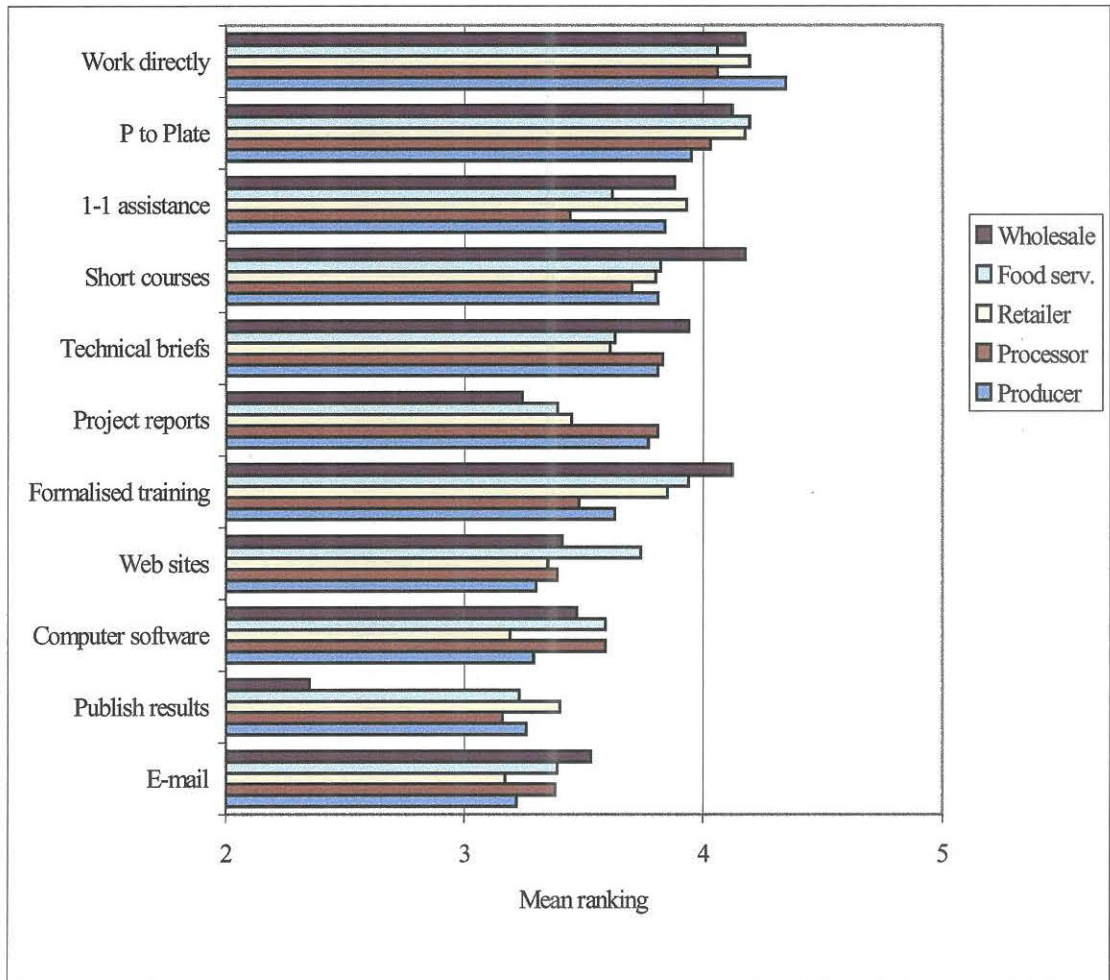
FIGURE 40: SECTOR RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY BY PERCENTAGE OF 'VERY USEFUL' RESPONSES
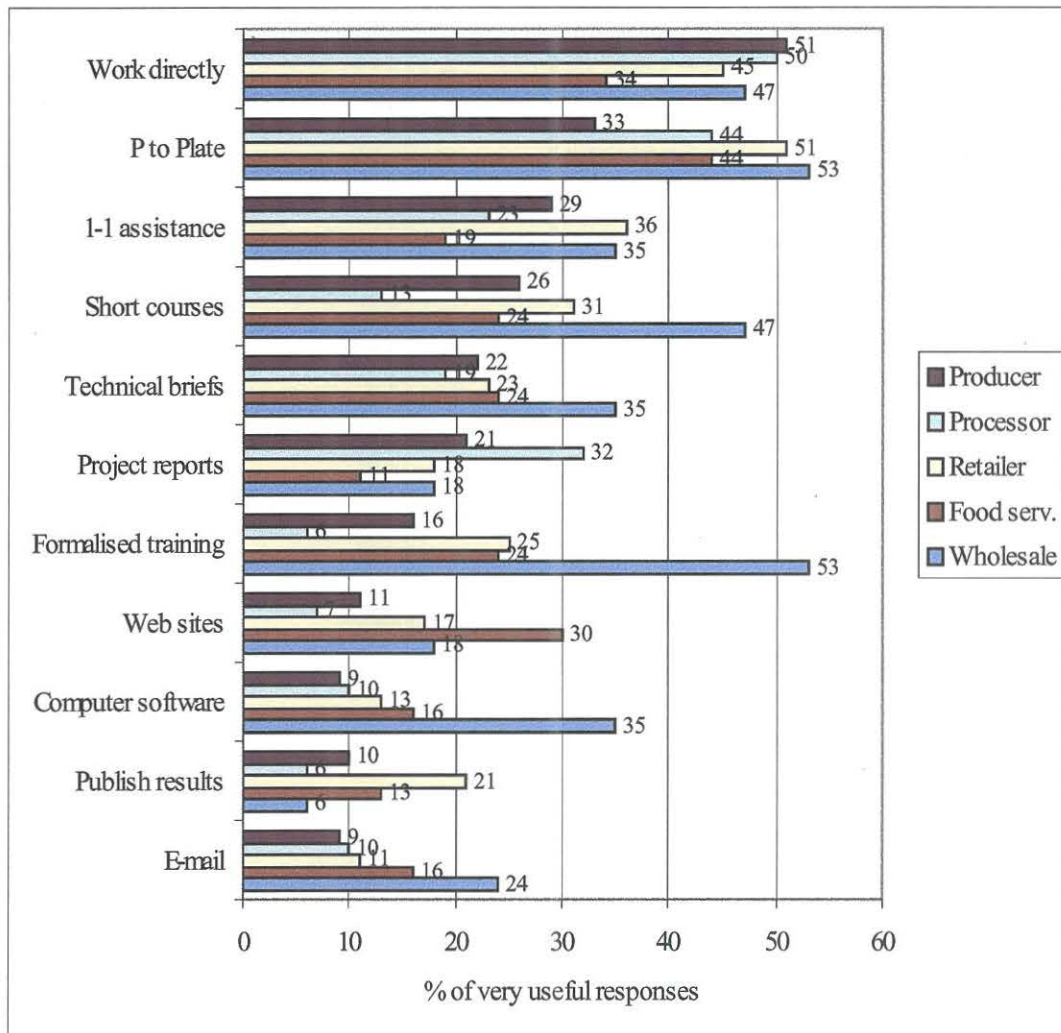
Overall the majority of respondents in each sector selected 'Working directly with individual supply chains to help improve eating quality' and 'Paddock to plate quality assurance programs with accreditation/audit' as the most useful tools and methods for communicating research result to industry.

Generally the tools/methods that attracted the lowest percentage of 'very useful' responses were 'industry specific web sites', 'publishing results and leave to industry to adopt', 'computer software for supply chain management' and 'regular e-mail sent to subscribers'. (Figure 40)

6. RESULTS AND DISCUSSION - SEGREGATING LAMB FROM OTHER SHEEPMEATS

Survey participants were asked to provide their views on the issue of segregating lamb from other sheepmeats. The following tables and figures summarise the respondents' views on this issue.

6.1 THE IMPORTANCE OF SEGREGATION

Figure 41 shows how respondents in each sector rated the importance of segregating lamb from hogget and mutton to the future of their businesses.

FIGURE 41: ALL SECTOR RATING OF THE IMPORTANCE OF SEGREGATING LAMB FROM HOGGET AND MUTTON

Mean rating (2 = not important, 5 = very important)		
★	Producer	4.47
●	Processor	4.54
∀	Retailer	4.73
♦	Food Service	4.41
♣	Wholesale	4.41
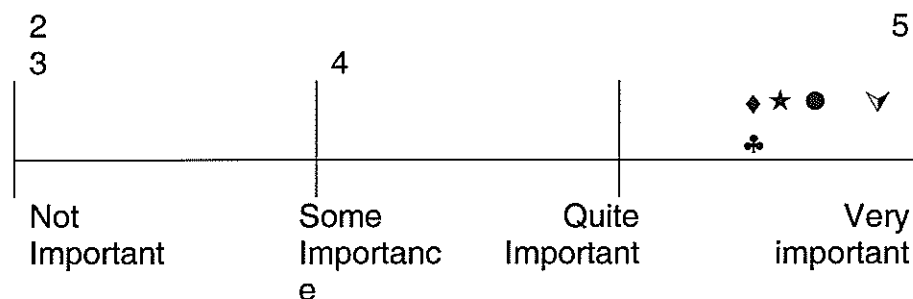
The segregation of lamb from hogget and mutton was considered 'very important' to:

- 70% of producers
- 80% of processors
- 86% of retailers
- 71% of food service
- 75% of wholesalers.

6.2 ADEQUACY OF CURRENT SYSTEM OF LAMB STRIP BRANDING

Figure 42 shows how respondents in each sector rated the adequacy of the current system of lamb strip branding in achieving segregation.

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FIGURE 42: ALL SECTOR RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET & MUTTON

Mean rating (2 = not adequate at all, 5 = totally adequate)		
★	Producer	3.74
●	Processor	3.76
∀	Retailer	4.19
♦	Food Service	3.66
♣	Wholesale	3.70

```
2                                                           5
3                         4
|                         |              ♦♣★●    ∀        |
|                         |                               |
Not                    Partially       Reasonabl         Totally
Adequate               Adequate            y             Adequate
                                       Adequate
```
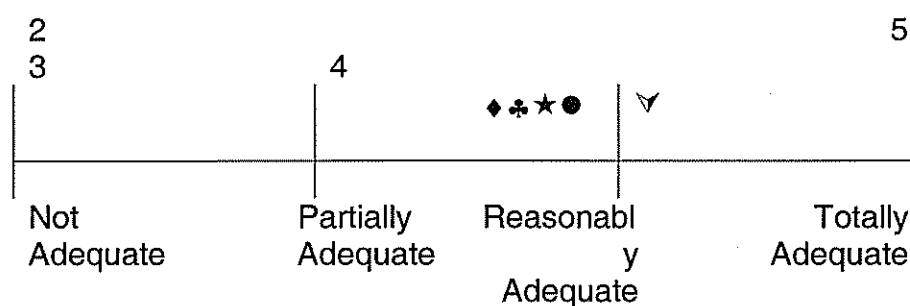
The current system of strip branding lamb was rated 'totally adequate' by:

- 12% of producers
- 31% of processors
- 45% of retailers
- 13% of food service
- 35% of wholesalers.

A high proportion of producers (23%) and food service operators (20%) did not have an opinion on whether the lamb strip banding system was adequate or not.

Table 34 combines the responses of the four sectors regarding the adequacy of the current lamb strip branding in achieving segregation from hogget and mutton.

TABLE 34: ALL RESPONDENTS RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET & MUTTON

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't know	Total
130 (21%)	240 (38%)	98 (16%)	53 (8%)	106 (17%)	627

Twenty one percent (21%) of all respondents rated the current system of strip branding lamb as being 'totally adequate' in achieving lamb segregation. The majority of respondents (38%) rated the system as 'reasonably adequate'.

A high proportion of respondents (24%) considered the lamb strip branding system as only partially adequate or not adequate at all, which suggests that a review of the present system may be required.

6.3 IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING

Figure 43 shows how respondents in each sector rated the adequacy of the current system of strip branding lamb in achieving segregation.

FIGURE 43: ALL SECTOR RATING OF THE RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Mean rating (2 = not important, 5 = very important)		
★	Producer	4.84
●	Processor	4.83
∀	Retailer	4.85
♦	Food Service	4.80
♣	Wholesale	4.76
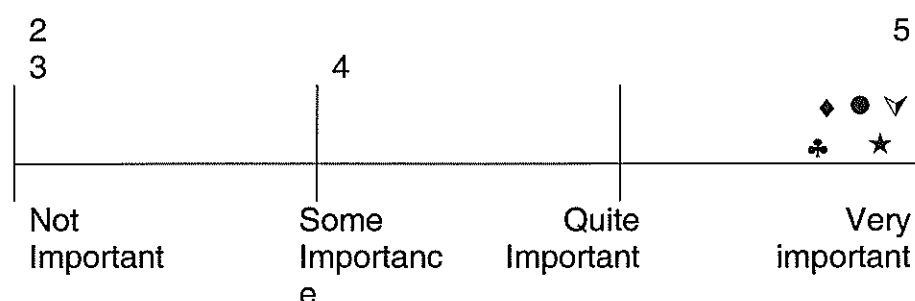
Truth in lamb product labelling was rated 'very important' by:

- 85% of producers
- 89% of processors (100% of those interviewed)
- 89% of retailers (95% of those interviewed)
- 83% of food service
- 88% of wholesalers.

Table 35 combines the responses of the five sectors with regard to truth in lamb product labelling.

TABLE 35: ALL RESPONDENTS RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Very important	Quite important	Some importance	Not important	Don't know	Total
549 (86%)	64 (10%)	12 (2%)	3 (1%)	1 (1%)	638

Eighty six percent (86%) of all respondents rated truth in lamb product labelling as being 'very important' to the lamb and sheepmeats industry.

Comments received regarding the issue of truth in lamb product labelling to the lamb and sheepmeats industry are shown in Table 36.

Of the truth in labelling comments received the common issues across the sectors relate to consumer confidence, product integrity and the view that mutton is being substituted for lamb.

TABLE 36: TRUTH IN LAMB PRODUCT LABELLING COMMENTS

Producer (n=165)	%	Processor (n=21)	%	Retailer (n=41)	%	Food Service (n=7)	%	Wholesaler (n=8)	%
Consumer confidence issues	32	Substitution is an issue	43	Product integrity important (identify lamb from hogget and mutton	66	Substitution (mutton sold as lamb)	43	Product integrity important (identify lamb from hogget and mutton, prevent substitution	63
Penalties for grading system abusers	19	Consumer confidence issues	19	Consumer awareness and recognition of lamb brand (label) important	15	Consumer information important	14	Current system okay	12
Identification at abattoir important	8	Branding important	19	Current system okay	10	Supplier confidence important	14	Truth in labeling not being monitored	12
Categories too broad	7	QA systems work well	10	Too easy for large companies to substitute inferior products into the different age groups for sheepmeat.	2	Age essential	14	Branding makes things restricted	12
Other	34	Check other states labelling.	5	Lamb category is too broad based.	2	Label should show age and feed	14		
		Lamb shank tougher than mutton fillet.	5	Needs regulatory police.	2				
				Should be 3 grades and correctly branded - prime young lamb (spring), prime lamb and lamb (summer or old lamb).	2				

Note: The percentage figures represent the percentage of the total number of comments received from each sector.

6.4 CONSUMER GUARANTEE OF SEGREGATED LAMB

Table 37 lists what respondents considered were the best methods for providing a guaranteed lamb category to the consumer.

TABLE 37: BEST METHODS FOR PROVIDING A GUARANTEED LAMB CATEGORY TO THE CONSUMER

Suggested Methods	Number of Comments Received				
	Producer (n=316)	Processor (n=30)	Retailer (n=86)	Food Service (n=23)	Wholesaler (n=13)
Branding/labelling	41	37	53	31	62
QA System (product assurance)	22	3	21	44	7
Grading system (eating quality based)	4	0	0	0	0
Product segregation	4	0	5	4	7
Existing system okay	0	20	1	0	0
Honesty through chain	0	0	13	0	7
Consumer education	0	3	2	17	0

The common view running through the sectors is that a branding system, linked to a quality management program that is supported by industry regulation, is the best method for providing the consumer with a guaranteed lamb category.

6.5 POSITIVE AND NEGATIVE ASPECTS OF LAMB CLASSIFICATION

Tables 38 and 39 show what respondents regarded as the positive and negative aspects associated with a lamb classification system.

The common view running through the sectors was that a classification system would increase consumer confidence, provide more integrity and generally benefit the lamb industry. The main concern from the negative aspect was the cost of the system.

TABLE 38: POSITIVE ASPECTS OF A LAMB CLASSIFICATION SYSTEM

Producer (n=284)	%	Processor (n=21)	%	Retailer (n=59)	%	Food Service (n=21)	%	Wholesaler (n=9)	%
Increase consumer confidence	39	Increase consumer confidence	33	Increase consumer confidence	39	Product confidence (know what you're getting)	33	Easy identification	55
Increase reputation of lamb	15	Provide more integrity	19	Increased retailer confidence (you know what you are getting)	32	Increased quality, value and consistency	29	Provide more integrity	22
Improve product identification	7	Industry confidence	10	Consumers able to identify a consistent quality product by its brand	20	Increase consumer confidence	14	Consumers identifies with it	11
Industry confidence	5	Price paid relates to product quality	10	Provide more integrity	3	Guaranteed product (incl. tenderness)	14	Increased wholesaler confidence (you know what you are getting)	11
Buyer acceptance	4	Product consistency	10	Consistency	2	Better marketing tool	5		
Improved feedback	3	Increase consumer satisfaction	5	Lamb growers can sell a branded product and get the right price for it.	2	Increased consumer awareness	5		
Other	26	Able to downgrade lambs to hogget/mutton	5	Raising standards, identifying traits that effect eating quality.	2				
		Holds the value of lamb.	5						
		Improving the value of lamb to industry and producers.	5						

Note: The percentage figures represent the percentage of the total number of comments received for that sector.

TABLE 39: NEGATIVE ASPECTS OF A LAMB CLASSIFICATION SYSTEM

Producer (n=176)	%	Processor (n=16)	%	Retailer (n=16)	%	Food Service (n=10)	%	Wholesaler (n=11)	%
Administration costs	23	Cost	38	Cost	31	Cost of system/ impact on price	40	Loss of identity when further processed	55
Hogget and other suitable meat kept out	12	Plant administration	12	Regulations and red tape, paperwork.	12	Lack of consumer education	20	Regulations and red tape	18
Poor lambs still get branded as lambs	7	Plant labour issues	6	Difficulty promoting the attributes of hogget.	6	Unable to sell mutton as lamb, decrease in mutton sales	20	Have to grade carcases anyway	9
Complexity	5	Marketing product that does not make the grade	6	Brand must not look overpowering.	6	Cost of consumer education	10	No guarantee of eating quality	9
Devalues any product branded as not lamb.	4	Appearance of poorly branded carcases (legibility, smudging)	6	Too many people doing the wrong thing.	6	Too much jargon	10	Export lamb not strip branded	9
Other	48	Brands can be cut off.	6	Colour of brand too hard to distinguish and read.	6				
		Where do you draw the line for criteria?	6	Hard to control.	6				
		If you put a system in place then you denigrate the whole system.	6	Does not guarantee Eating quality.	6				
		People exploiting the situation.	6	You can't get rid of your suppliers	6				
		Downgrading the value of lamb to industry and producers.	6	Profit takers will act as they have in the past and bugger it up.	6				
				Ink not good for customers	6				

Note: The percentage figures represent the percentage of the total number of comments received for that sector.

6.6   SUGGESTED ATTRIBUTES/CRITERIA FOR DEFINING LAMB

Table 40 lists the carcase criteria and/or quality attributes that respondents would include in a specification for defining lamb.

TABLE 40: CARCASE CRITERIA AND/OR QUALITY ATTRIBUTES FOR DEFINING LAMB

	Producer (n=190)	Processor (n=63)	Retailer (n=184)	Food Service (n=37)	Wholesaler (n=32)
Carcase criteria/ quality attribute	%	%	%	%	%
Age by teeth (including milk teeth, permanent incisors)	32	14	11	3	31
Age by months or years.	15	5	14	14	0
Age - method not defined	6	11	10	16	6
Fat depth (fat score or mm.)	22	13	18	11	3
Weight	11	5	10	8	3
Conformation - muscle development, eye muscle	9	8	9	3	12
Breed/genetics	9	8	9	8	6
Tenderness	5	2	2	3	0
Feed regime/finishing method, incl. ration or feedlot.	3	6	1	8	0
Meat colour	7	5	10	5	12
Fat colour	0	3	0	3	0
Leave the system as it is	2	5	1	0	0
pH		8	0	0	6
Ageing for specified number of days	0	5	0	0	0
Slaughter date	0	0	2	8	3
Texture/firmness	0	0	0	0	6
Origin (producer, region)	0	0	1	11	0
Break joint consideration	0	2	0	0	0
Confirmed vendor statements	0	2	0	0	0
Yield	0	0	3	0	0
Bone colour	0	0	1	0	9

Note: The percentage figures represent the percentage of the total number of criteria/ attributes
        received for that sector.

Table 40 indicates that age and fat depth are the most commonly referred to criteria for inclusion in specifications for defining lamb. Supplementary points of specification would include weight, conformation and breed/genetics.

7 IMPLICATIONS OF THE RESEARCH FINDINGS TO INDUSTRY

[Note: The information in this section is the view of the survey organisation and is based on the survey findings. The views expressed may not reflect the views or opinions held by Meat & Livestock Australia, the Sheepmeat Council of Australia or the National Meat Association.]

7.1 PERCEPTIONS OF EATING QUALITY

7.1.1 Consumer Perception

a) Further research into the consumer's perception of mutton eating quality should be undertaken given that the majority of producers considered that consumers perceive mutton to be of fair or poor eating quality. Research will determine if this is correct and any reasons why.

b) Processors should continually review their specifications to ensure that they accurately reflect customer needs as high levels of customer satisfaction were attributed to the use of specifications.

c) According to the retailers surveyed, lamb ranked fourth behind chicken, beef and pork when assessing the extent to which they believed their customers were satisfied with the eating quality of their meat products. Further research may be undertaken to establish what eating quality attributes chicken, beef and pork have over lamb.

d) While tenderness is important (86% of retailers consider that their customers perceive tenderness as 'very important'), attention should also be paid to texture/firmness and meat colour as these attributes were consistently identified by other sectors as having a high impact on eating quality.

7.1.2 Own satisfaction with the product

a) The industry needs to investigate ways of supplying a consistent quality product all year round as processors, food service operators and wholesalers reported that lamb quality varied throughout the year. Food service operators rated consistency third behind taste/flavour and tenderness.

b) Average weekly menu sales (Table 16) indicates that while a lamb dish is on most menus beef, chicken and seafood can achieve a higher proportion of average weekly menu sales. Given the relatively low response rate, further food service sector research may be required to verify this and, if it is correct, determine what is preventing lamb achieving higher average weekly menu sales.

7.2 MANAGEMENT FACTORS AFFECTING EATING QUALITY

The management factors affecting eating quality can be divided into pre-slaughter and post-slaughter factors.

7.2.1 Pre-slaughter

a) To reduce the perceived variation in quality throughout the year research could be conducted into the most cost effective feed and finishing systems in the winter months and other periods when feed quality may not be adequate.

b) Information on how to minimise pre-slaughter stress (stress caused by transportation, livestock handling and length of time spent in yards) could be disseminated to producers and processors to encourage the adoption of best practices focused on maximising eating quality.

7.2.2 Post-slaughter

a) An assessment/review could be conducted at each lamb and sheep processing plant to determine whether facilities and practices are designed to maximise lamb and sheepmeat eating quality. Establishments that have appropriate facilities and practices could be certified under a national lamb and sheepmeat eating quality program.

b) A refresher course on meat preparation, ageing and storage of meat could be initiated in the retail, food service and wholesale sectors because of the high impact these areas were identified as having on eating quality.

c) A relatively high percentage of retailers, food service operators and wholesalers did not know what impact electrical stimulation and cold shortening had on eating quality. Information leaflets on these topics, and meat science generally, could be distributed to these sectors to raise the level of understanding.

7.3 FACTORS IN THEIR OWN BUSINESS

a) Using the information provided by respondents, plus other research data, a lamb and sheepmeat 'best practice for eating quality' document could be published.

b) Ageing of product was frequently nominated as a practice that is used to improve eating quality. Guidelines on product ageing (for example: temperature, time and packaging) could be made available to ensure that meat is aged under conditions which will maximise its eating quality.

7.4 ISSUES FOR FURTHER RESEARCH

The number of respondents nominating research issues indicates that each sector is seeking more information on how to improve lamb and sheepmeat eating quality. The research issues for each sector are reported in section 5.5 and are mainly focused on meat tenderness and consistency.

7.5 TOOLS/METHODS FOR COMMUNICATING RESEARCH FINDINGS

Research indicates that industry resources will have to be directed towards: a) establishing a paddock to plate quality assurance program; and b) working with individual supply chains to help improve eating quality.

7.6 SEGREGATING LAMB FROM OTHER SHEEPMEATS

a) The current AUS-MEAT language definition for a lamb (0 permanent incisors) is not, on its own, adequate for defining eating quality.

b) Research indicates that industry resources will have to be directed towards establishing a system that is able to provide end users and consumers with confidence that lamb is segregated from other sheepmeats and that the product is of suitable eating quality. A main component of the system will be the establishment of specifications for defining the eating quality of lamb.

ANNEX 1
SURVEY DATA

Table A1: PRODUCER VIEW OF CONSUMERS' EATING QUALITY PERCEPTIONS

		Excellent	Very Good	Good	Fair	Poor	Unsure/ Don't know
Lamb	N = 402	79 (20%)	160 (40%)	115 (29%)	35 (9%)	2 (0.5%)	11 (3%)
Hogget	N = 370	12 (3%)	59 (16%)	125 (34%)	100 (27%)	38 (10%)	35 (9%)
Mutton	N = 370	2 (.5%)	6 (2%)	37 (10%)	103 (28%)	175 (47%)	47 (13%)

Table A2: PROCESSOR VIEW OF CUSTOMER SATISFACTION WITH THEIR LAMB PRODUCTS

Very satisfied			Reasonably satisfied			Satisfied			Not satisfied			Unsure/ Don't know/ N.A.		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
3	6	**9**	8	4	**12**	11	2	**13**	1	0	**1**	1	1	**2**

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A3: PROCESSOR REASONS FOR THE LEVEL OF CUSTOMER SATISFACTION WITH THEIR LAMB PRODUCTS

Reason	Number of comments received		
	M	I	T
Link customers needs to specifications	3	2	**5**
Price more of an issue than quality	3	0	**3**
Inconsistent quality - weight and fat depth	2	0	**2**
Systems in place (QA and specifications)	3	1	**4**
No complaints	2	2	**4**
Good livestock buyers	2	0	**2**
Product improved through trimming and value adding	1	0	**1**
Industry needs regulation	1	0	**1**
Consistent supply and quality	2	1	**3**
Retailers understand seasonal quality variation	0	1	**1**
Other - retailers order lambs that I consider too lean for maximum quality. When we send them we cop complaints.	0	1	**1**
Total	19	8	**27**

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A4: PROCESSOR VIEW OF CUSTOMER SATISFACTION WITH THEIR HOGGET/MUTTON PRODUCTS

Very satisfied			Reasonably satisfied			Satisfied			Not satisfied			Unsure/ Don't know/ N.A.		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
2	0	**2**	8	6	**14**	8	4	**12**	0	0	**0**	0	0	**0**

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A5: PROCESSOR REASONS FOR THE LEVEL OF CUSTOMER SATISFACTION WITH THEIR HOGGET/MUTTON PRODUCTS

Reason	Number of comments received		
	M	I	T
Link customers needs to specifications	4	2	6
Price more of an issue than quality	1	0	1
Inconsistent quality - weight and fat depth	3	1	4
Systems in place (QA and specifications)	2	0	2
No complaints	2	2	4
˅ Good livestock buyers	1	0	1
Product improved through trimming and value adding	1	0	1
Industry needs regulation			
Consistent supply and quality	1	0	1
Retailers understand seasonal quality variation			
Other - retailers order lambs that I consider too lean for maximum quality. When we send them we cop complaints.			
Total	15	5	20

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A6: PROCESSOR LEVEL OF CONFIDENCE IN ABILITY TO SUPPLY CUSTOMERS WITH QUALITY LAMB, HOGGET AND MUTTON PRODUCTS

		Very confident			Reasonably confident			Confident			Not confident			Not applicable		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
	Lamb n=36	3	7	10	13	6	19	4	0	4	2	0	2	1	0	1
	Hogget n=25	0	1	1	5	3	8	5	3	8	4	1	5	2	1	3
	Mutton n=27	1	2	3	8	4	12	4	4	8	3	1	4	0	0	0

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A7: RETAILER PERCEPTION OF THEIR CUSTOMERS SATISFACTION WITH THE EATING QUALITY OF THEIR MEAT PRODUCTS

	Very satisfied			Reasonably satisfied			Satisfied			Not satisfied			N/A		
	M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
Lamb N=138	56	14	70	52	6	58	8	1	9	1	0	1	0	0	0
Hogget N=96	22	5	27	26	1	27	6	2	8	1	1	2	21	11	32
Mutton N=92	17	4	21	24	1	25	9	2	11	2	1	3	20	12	32
Beef N=124	72	17	89	28	3	31	3	1	4	0	0	0	0	0	0
Chicken N=122	73	17	90	24	3	27	2	1	3	0	0	0	2	0	2
Pork N=126	60	16	76	41	4	45	3	1	4	0	0	0	1	0	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A7(a): RETAIL VIEW OF THEIR CUSTOMERS' SATISFACTION WITH THE EATING QUALITY OF THEIR MEAT PRODUCTS (MEAN RATINGS)

Mean rating (2= not satisfied, 5 = very satisfied)

	Mail	Interview	Total
Lamb	4.39	4.62	4.42
Hogget	4.25	4.11	4.25
Mutton	4.07	4.00	4.07
Beef	4.67	4.76	4.69
Chicken	4.72	4.76	4.73
Pork	4.54	4.71	4.58

Table A8: RETAILER PERCEPTION OF CONSUMER RATING OF LAMB PRODUCT ATTRIBUTES

	Attribute	Lamb														
		Very important			Some importance			Little importance			No importance			N/A		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Taste/flavour n=137	78	14	92	32	5	37	7	1	8	0	0	0	0	0	0
ii)	Tenderness n=135	96	18	114	17	0	17	2	1	3	1	0	1	0	0	0
Iii)	Juiciness n=129	67	10	77	32	4	36	8	3	11	4	0	4	0	1	1
iv)	Fat content n=137	79	17	96	27	3	30	8	1	9	1	0	1	0	0	0
v)	Odour n=127	63	3	66	24	3	27	13	6	19	8	3	11	2	2	4
vi)	Consistency n=127	83	16	99	17	0	17	6	2	8	2	0	2	1	0	1
vii)	Versatility n=126	47	11	58	39	4	43	19	1	20	2	1	3	1	1	2
viii)	Visual appeal n=133	86	15	101	16	4	20	7	1	8	2	1	3	1	0	1
ix)	Other (please specify) Price	1	2	3												
	Consistency	1	0	1												
	Value for Money	1	0	1												
	Freshness	1	0	1												
	Branding	0	1	1												
	Meat colour	0	1	1												

(M = mail respondent; I = interview respondent; T = total number of respondents)

e A8(a): RETAILER VIEW OF HOW THEIR CUSTOMERS RATE LAMB PRODUCT ATTRIBUTES (MEAN RATINGS)

Mean Rating (2= no importance, 5 = very important)

	Mail	I'view	Total
Taste	4.60	4.65	4.61
Tenderness	4.79	4.89	4.81
Juiciness	4.41	4.46	4.45
Fat content	4.60	4.76	4.63
Odour	4.30	3.40	4.20
Consistency	4.70	4.80	4.70
Versatility	4.20	4.50	4.30
Visual appeal	4.70	4.60	4.70

Table A9: RETAILER PERCEPTION OF CONSUMER RATING OF HOGGET/MUTTON PRODUCT ATTRIBUTES

	Attribute	Hogget/Mutton														
		Very important			Some importance			Little importance			No importance			N/A		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Taste/flavour n=64	26	4	30	11	1	12	1	0	1	2	0	2	13	6	19
ii)	Tenderness n=61	22	5	27	12	0	12	5	0	5	0	0	0	12	5	17
Iii)	Juiciness n=60	21	4	25	11	1	12	4	0	4	2	0	2	12	5	17
iv)	Fat content n=60	24	4	28	11	1	12	3	0	3	0	0	0	12	5	17
v)	Odour n=61	20	3	23	8	0	8	7	0	7	2	2	4	14	5	19
vi)	Consistency n=59	25	4	29	9	0	9	3	0	3	1	0	1	12	5	17
vii)	Versatility n=60	17	3	20	11	2	12	8	0	8	1	0	1	13	6	19
viii)	Visual appeal n=59	24	3	27	8	2	10	5	0	5	0	0	0	12	5	17

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A9(a): RETAILER VIEW OF HOW THEIR CUSTOMERS RATE HOGGET/MUTTON PRODUCT ATTRIBUTES (MEAN RATING)

Mean rating (2=no importance, 5 = very important)

	Mail	I'view	Total
Taste	3.66	2.73	3.50
Tenderness	3.62	3.0	3.52
Juiciness	3.54	2.90	3.43
Fat content	3.70	2.90	3.56
Odour	3.35	2.4	3.19
Consistency	3.64	2.77	3.54
Versatility	3.36	2.63	3.21
Visual appeal	3.65	2.8	3.50

Table A10: PROCESSOR LEVEL OF SATISFACTION WITH LIVESTOCK QUALITY

		Very satisfied			Reasonably satisfied			Satisfied			Not particularly satisfied			Unsure/ Not applicable		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Beef n= 23	2	5	7	6	1	7	6	1	7	0	0	0	2	0	2
ii)	Lamb n= 32	4	4	8	7	8	15	6	1	7	2	0	2	0	0	0
iii)	Hogget n= 23	2	2	4	2	4	6	6	3	9	3	0	3	1	0	1
iv)	Mutton n= 26	2	2	4	4	2	6	6	5	11	3	2	5	0	0	0
v)	Pork n= 14	4	1	5	2	2	4	1	1	2	0	0	0	2	0	2

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A10(a): PROCESSOR OPINION OF LIVESTOCK QUALITY (MEAN RATINGS)

Mean rating (2= not satisfied, 5=very satisfied)

	Mail	Interview	Total
Beef	3.71	4.57	4.00
Lamb	3.68	4.23	3.91
Hogget	3.23	3.89	3.50
Mutton	3.33	3.36	3.35
Pork	4.00	4.28	4.27

Table A11: REASONS GIVEN BY PROCESSORS FOR THE LEVEL OF SATISFACTION WITH THE QUALITY OF CATTLE AVAILABLE FOR PROCESSING

Response	Number of comments received		
	M	I	T
Generally good	4	1	5
Quality inconsistent, quality variable	2	0	2
Supply problems	0	0	0
QA system in place	0	0	0
Buy to specification	2	2	4
Carcase problems	1	0	1
Member of an Alliance	0	1	1
Good communication with producers	0	1	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A12: REASONS GIVEN BY PROCESSORS FOR THE LEVEL OF SATISFACTION WITH THE QUALITY OF LAMBS AVAILABLE FOR PROCESSING

Response	Number of comments received		
	M	I	T
Generally good	5	2	7
Quality inconsistent, quality variable	3	1	4
Supply problems	0	1	1
QA system in place			
Buy to specification	4	2	6
Carcase problems - e.g. grass seed			
Member of an Alliance	0	2	2
Good communication with producers			
Other			

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A13: REASONS GIVEN BY PROCESSORS FOR THE LEVEL OF SATISFACTION WITH THE QUALITY OF HOGGETS AVAILABLE FOR PROCESSING

Response	Number of comments received		
	M	I	T
Generally good	1	0	1
Quality inconsistent, quality variable	3	1	4
Supply problems	3	2	5
QA system in place			
Buy to specification	1	1	2
Carcase problems - e.g. grass seed	1	0	1
Member of an Alliance			
Good communication with producers			
Other - not much demand for hogget	0	1	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A14: REASONS GIVEN BY PROCESSORS FOR THE LEVEL OF SATISFACTION WITH THE QUALITY OF MUTTON AVAILABLE FOR PROCESSING

Response	Number of comments received		
	M	I	T
Generally good	3	1	4
Quality inconsistent, quality variable	3	1	4
Supply problems	2	2	4
QA system in place			
Buy to specification	2	1	3
Carcase problems - e.g. grass seed	1	1	2
Member of an Alliance			
Good communication with producers			
Other - mainly cast for age	0	1	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A15: REASONS GIVEN BY PROCESSORS FOR THE LEVEL OF SATISFACTION WITH THE QUALITY OF PIGS AVAILABLE FOR PROCESSING

Response	Number of comments received		
	M	I	T
Generally good	2	1	3
Quality inconsistent, quality variable			
Supply problems			
QA system in place	1	0	1
Buy to specification	1	0	1
·Carcase problems - e.g. grass seed			
Member of an Alliance			
Good communication with producers			
Other			

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A16: PROCESSORS PERCEPTION OF LAMB, HOGGET AND MUTTON QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

	Better			Same			Worse			Don't know			N/A		
	M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
Lamb n=35	10	9	19	11	3	14	0	1	1	0	0	0	1	0	1
Hogget n=23	1	3	4	11	4	15	2	0	2	1	0	1	1	0	1
Mutton n=28	1	2	3	14	7	21	2	2	4	0	0	0	0	0	0

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A17: THE FREQUENCY WITH WHICH PROCESSORS EXPERIENCE LAMB CARCASE QUALITY PROBLEMS

	Carcase problem	All the time			Most of the time			Some of the time			Rarely			Never		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Too heavy x 30	0	0	0	1	0	1	11	7	18	3	4	7	2	2	4
ii)	Too light x 21	0	0	0	1	1	2	12	4	16	5	8	3	0	0	0
iii)	Too much fat x 33	0	0	0	3	1	4	14	8	22	3	4	7	0	0	0
iv)	Too little fat x 30	0	0	0	0	0	0	9	1	10	5	11	16	3	1	4
v)	Poor fat colour x 28	0	0	0	0	0	0	1	1	2	10	7	17	4	5	9
vi)	Poor meat colour x 31	0	0	0	2	0	2	8	6	14	6	7	13	2	0	2
Vii)	Not tender x 20	0	0	0	1	0	1	6	5	11	4	3	7	0	1	1
Viii)	Poor carcase conformation x 31	0	0	0	1	1	2	11	8	19	6	3	9	0	1	1
ix)	No problems x 23	0	0	0	2	2	4	4	3	7	3	2	5	3	4	7
x)	Others (please specify) - Seed x 2	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A17(a) : PROCESSOR VIEW OF LAMB CARCASE QUALITY PROBLEMS (MEAN RATING)

Mean rating (1 = never, 5 = all of the time)

	Mail	Interview	Total
Too heavy	2.64	2.38	2.53
Too light	2.77	2.46	2.95
Too much fat	3.00	2.76	2.91
Too little fat	2.35	2.00	2.20
Poor fat.colour	1.80	1.70	1.75
Poor meat colour	2.56	2.46	2.52
Not tender	2.72	2.44	2.60
Poor conformation	2.72	2.69	2.71
No problems	2.42	2.27	2.35

Table A18: THE FREQUENCY WITH WHICH PROCESSORS EXPERIENCE HOGGET/MUTTON CARCASE QUALITY PROBLEMS

	Carcase problem	All the time			Most of the time			Some of the time			Rarely			Never		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Too heavy x 22	1	0	1	0	0	0	10	7	17	2	2	4	0	0	0
ii)	Too light x 19	0	0	0	0	1	1	6	4	10	4	4	8	0	0	0
iii)	Too much fat x 23	1	0	1	2	0	2	10	8	18	1	1	2	0	0	0
iv)	Too little fat x 19	0	0	0	1	0	1	5	4	9	3	5	8	1	0	1
v)	Poor fat colour x 17	0	0	0	0	1	1	1	2	3	6	2	8	2	3	5
vi)	Poor meat colour x 17	0	0	0	0	1	1	4	4	8	4	1	5	2	1	3
Vii)	Not tender x 11	0	1	1	3	0	3	2	3	5	1	0	1	0	1	1
Viii)	Poor carcase conformation x 19	0	0	0	1	1	2	7	5	12	3	0	3	0	2	2
ix)	No problems x 11	0	0	0	1	0	1	3	2	5	1	0	1	2	2	4
x)	Others (please specify)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A18(a): PROCESSOR VIEW OF HOGGET/ MUTTON CARCASE QUALITY PROBLEMS (MEAN RATING)

Mean rating (1 = never, 5 = all of the time)

	Mail	Interview	Total
Too heavy	3.00	2.78	2.91
Too light	2.60	2.67	2.63
Too much fat	3.21	2.89	3.09
Too little fat	2.60	2.44	2.53
Poor fat colour	1.89	2.12	2.00
Poor meat colour	2.20	2.71	2.41
Not tender	3.30	3.00	3.19
Poor conformation	2.82	2.62	2.74
No problems	2.43	2.00	2.72

Table A19: RETAILER PERCEPTION OF LAMB, HOGGET AND MUTTON QUALITY TODAY COMPARED TO THE QUALITY AVAILABLE FIVE YEARS AGO

	Better			Same			Worse			Don't know			N/A		
	M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
Lamb N = 137	43	8	51	57	9	66	14	4	18	2	0	2	0	0	0
Hogget N = 96	13	4	17	35	2	37	5	2	7	8	1	9	14	12	26
Mutton N = 92	7	3	10	39	1	40	7	3	10	6	1	7	13	12	25

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A20: RETAIL LEVEL OF CONFIDENCE IN ABILITY TO SUPPLY CUSTOMERS WITH QUALITY MEAT PRODUCTS

	Very confident			Some confidence			Little confidence			No confidence			N/A		
	M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
Lamb N=137	65	16	81	44	5	49	7	0	7	2	0	2	0	0	0
Hogget N=96	25	5	30	26	1	27	2	1	3	6	1	7	17	12	29
Mutton N=92	18	4	22	24	1	25	7	0	7	5	2	7	21	13	34
Beef N=125	79	18	97	23	3	26	2	0	2	0	0	0	0	0	0
Chicken N=120	71	20	91	22	1	23	2	0	2	1	0	1	3	0	3
Pork N=125	64	19	83	37	2	39	2	0	2	0	0	0	1	0	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A38: RETAIL RANKING OF POST PROCESSING PRACTICES ACCORDING TO THEIR IMPACT ON EATING QUALITY

No.	Factor Description	Impact																Rank
		High			Medium			Low			No			Don't know			
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T	
14	Retail preparation	92	16	108	13	4	17	5	0	5	2	1	3	0	0	0	1
15	Further ageing of primal cuts	60	9	69	26	3	29	13	2	15	3	4	7	7	2	9	6
16	Storage/freezing of meat	42	13	55	32	1	33	15	4	19	8	2	10	10	1	11	7
17	Differences between muscles/cuts	57	14	71	29	5	34	10	1	11	3	1	4	9	0	9	5
18	Cooking - degree of doneness	67	17	84	26	4	30	11	0	11	1	0	1	3	0	3	4
19	Suitability of cuts to certain dishes	77	15	92	20	6	26	7	0	7	1	0	1	2	0	2	2
20	Suitability of cooking methods to certain cuts	74	15	89	18	5	23	9	0	9	1	0	1	3	0	3	3

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A39: FOOD SERVICE RANKING OF POST PROCESSING PRACTICES ACCORDING TO THEIR IMPACT ON EATING QUALITY

No.	Factor Description	Impact					Ranking
		High	Med	Low	No	D/k	
17	Retail preparation	23 (61%)	9 (24%)	3 (8%)	2 (5%)	1 (3%)	6
18	Further ageing of primal cuts	24 (62%)	9 (23%)	2 (5%)	0 (0%)	4 (10%)	3=
19	Storage/freezing of meat	28 (70%)	8 (20%)	2 (5%)	0 (0%)	2 (5%)	1
20	Differences between muscles/cuts	20 (54%)	13 (35%)	2 (5%)	1 (3%)	1 (3%)	8
21	Cooking - degree of doneness	24 (63%)	9 (24%)	4 (11%)	0 (0%)	1 (3%)	3=
22	Product not cooked to consumer's requirements	24 (62%)	9 (23%)	4 (10%)	0 (0%)	2 (5%)	3=
23	Effect of shrinkage in cooking on single muscle cuts	19 (51%)	11 (30%)	6 (16%)	0 (0%)	1 (3%)	9
24	Suitability of cuts to certain dishes	22 (60%)	9 (24%)	5 (14%)	0 (0%)	1 (3%)	7
25	Suitability of cooking methods to certain cuts	25 (70%)	7 (19%)	3 (8%)	0 (0%)	1 (3%)	2

Table A40: WHOLESALER RANKING OF POST PROCESSING PRACTICES ACCORDING TO THEIR IMPACT ON EATING QUALITY

No.	Factor Description	High	Med.	Low D/know	No	Ranking by high impact
14	Retail preparation	4	2	2	7	2	6
15	Further ageing of primal cuts	8	7	1	0	1	5
16	Storage/freezing of meat	3	5	2	7	0	7
17	Differences between muscles/cuts	9	4	1	2	0	4
18	Cooking - degree of doneness	13	1	0	0	3	1=
19	Suitability of cuts to certain dishes	12	3	0	1	1	3
20	Suitability of cooking methods to certain cuts	13	3	0	0	1	1=

Table A41: PRODUCER RANKING OF CARCASE AND MEAT QUALITY ACCORDING TO THEIR IMPACT ON EATING QUALITY

	Factor Description	High	Med.	Low D/know	No	Ranking by high impact
19	Meat Colour	121 (31%)	172 (44%)	64 (16%)	19 (5%)	17 (4%)	4
20	Fat Colour	100 (25%)	156 (40%)	79 (20%)	33 (9%)	25 (6%)	6
21	Tenderness	323 (81%)	62 (16%)	7 (2%)	2 (.5%)	4 (1%)	1
22	Texture/firmness	168 (43%)	168 (43%)	36 (9%)	3 (1%)	18 (5%)	2
23	Eye muscle area	163 (42%)	136 (35%)	56 (14%)	24 (6%)	15 (4%)	3
24	Carcase yield	115 (29%)	126 (32%)	86 (22%)	40 (10%)	25 (6%)	5

Table A42: PROCESSOR RANKING OF CARCASE AND MEAT QUALITY ACCORDING TO THEIR IMPACT ON EATING QUALITY

No.	Factor Description	Impact															
		High			Medium			Low			No			D/know			
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T	Rank
20	Meat Colour N=33	5	7	12	7	3	10	5	1	6	2	1	3	1	1	2	2
21	Fat Colour N=33	5	2	7	4	2	6	5	6	11	5	1	6	1	2	3	4=
22	Tenderness N=32	16	9	25	1	3	4	1	0	1	1	0	1	1	0	1	1
23	Texture/firmness N=31	4	5	9	8	5	13	7	2	9	0	0	0	0	0	0	3
24	Eye muscle area N=31	4	3	7	7	2	9	6	3	9	1	2	3	1	2	3	4=
25	Carcase yield N=30	2	0	2	4	4	8	6	3	9	3	4	7	2	2	4	6

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A43: RETAILER RANKING OF CARCASE AND MEAT QUALITY ACCORDING TO THEIR IMPACT ON EATING QUALITY

No.	Factor Description	Impact															
	Carcase and Meat Quality	High			Medium			Low			No			Don't know			Rank
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T	
8	Meat Colour	86	12	98	22	5	27	5	1	6	2	3	5	0	0	0	2
9	Fat Colour	63	10	73	32	2	34	11	3	14	6	5	11	0	1	1	6
10	Tenderness	98	19	117	10	2	12	2	0	2	0	0	0	0	0	0	1
11	Texture/firmness	73	16	89	31	1	32	6	3	9	0	0	0	0	0	0	3
12	Eye muscle area	69	12	81	28	4	32	9	1	10	4	3	7	0	1	1	4
13	Carcase yield	66	8	74	28	5	33	10	1	11	4	7	11	4	0	4	5

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A44: FOOD SERVICE RANKING OF CARCASE AND MEAT QUALITY ACCORDING TO THEIR IMPACT ON EATING QUALITY

No.	Factor Description	Impact					
		High	Med	Low	No	D/k	Ranking
11	Meat Colour	25 (64%)	11 (28%)	2 (5%)	0 (0%)	1 (3%)	3
12	Fat Colour	26 (67%)	10 (26%)	2 (5%)	0 (0%)	1 (3%)	2
13	Tenderness	28 (74%)	9 (20%)	1 (3%)	0 (0%)	0 (0%)	1
14	Texture/firmness	24 (60%)	12 (30%)	2 (5%)	1 (3%)	1 (3%)	4
15	Eye muscle area	17 (44%)	13 (33%)	3 (8%)	0 (0%)	6 (15%)	5
16	Carcase yield	12 (32%)	14 (37%)	4 (11%)	3 (8%)	5 (13%)	6

Table A45: WHOLESALER RANKING OF CARCASE AND MEAT QUALITY ACCORDING TO THEIR IMPACT ON EATING QUALITY

	Factor Description						Ranking by high impact
		High	Med.	Low	No	D/know	
8	Meat Colour	11	3	1	2	0	3=
9	Fat Colour	5	7	1	3	1	6
10	Tenderness	16	0	0	1	0	1=
11	Texture/firmness	16	1	0	0	0	1=
12	Eye muscle area	11	2	0	3	1	3=
13	Carcase yield	9	2	0	6	0	5

TABLE A46: LIVESTOCK PRODUCTION PRACTICES THAT CAN IMPACT ON EATING QUALITY

Improve eating quality	Number of comments received	%	Cause a decline in eating quality	Number of comments received	%
Feeding (including strip grazing, rotation, and feeding related to an acceptable growth rate.)	214	32	Stress (including grass seed, heat, dogs, handling)	137	29
Stress management (e.g. careful handling, no dogs, etc.)	112	16	Poor feed (including seasonal pasture variation)	131	28
Supplementary feeding (including finishing rations, grains, rape, lucerne, saltbush)	80	12	Poor management	33	7
Good animal health (e.g. worming, lice)	52	8	Slow growth rate (including checks)	28	6
Lambplan, genetics	56	8	Wrong breed type	17	3
Good management practices	34	5	Lack of a good water supply	15	3
Shade and water	14	2			
Other	117	17	Other	112	24
Total	679		Total	473	

The percentage figure is expressed as a percentage of the total number of comments received. The label 'Other' has been omitted from the table in the body of the report.

TABLE A47: PROCESSING PRACTICES THAT CAN IMPACT ON EATING QUALITY

Improve eating quality	Number of comments received			Cause a decline in eating quality	Number of comments received		
	Mail	I'vie w	Total		Mail	I'view	Total
Ageing (including vacuum packaging)	7	6	13	Poor chiller management (temp issues, temp abuse, chilling too quickly)	5	4	9
Pre-slaughter management (rest, handling, water, feed)	9	4	13	Not ageing product	4	3	7
Electrical stimulation	2	3	5	Stress - livestock handling, dogs	1	3	4
Chiller management (including, temperature)	2	3	5	No electrical stimulation	1	2	3
Livestock specifications	0	3	3	Merino mixing	2	0	2
Breed (British, no merinos) v eating quality	2	0	2	Over fat carcases	1	0	1
Value adding	1	1	2				
Food safety	0	1	1				
Transport	1	0	1				
Total			45				26

The number of comments received is tabled by mail respondent (M), interview respondents (I) and total (T).

TABLE A48: RETAIL PRACTICES THAT CAN IMPACT ON EATING QUALITY

Improve eating quality	Number of comments received			Cause a decline in eating quality	Number of comments received		
	Mail	I'view	Total		Mail	I'view	Total
Ageing (vac. Packaging, hanging carcases in chiller)	45	7	**52**	Not ageing product (selling product too fresh)	17	0	**17**
Product preparation (e.g. boning, trimming, ticketing, display)	25	10	**35**	Poor butchering skills	8	1	**9**
Supplier communication - ordering by specification, good communication	12	5	**17**	Poor refrigeration (product drying out in chillers or window display.	7	1	**8**
Use of marinades, spices, sprinkles, etc.	8	6	**14**	Trimming of cuts- under and over	5	0	**5**
Good chiller management, including stock rotation	12	2	**14**	Poor customer cooking knowledge	4	0	**4**
Providing cooking information to the customer	5	0	**5**	Other. Low turnover Stress from farm to retail outlet.	1 1	0 0	**1** **1**
Other. Cutting joints for customers as they require it. Tagging all carcases for weight, fat score, date of kill. Quick turnover Reject poor quality	1 1 1 0	0 0 0 1	**1** **1** **1** **1**	Buying too lean a carcase. Rotten meat	2 1	0 0	**2** **1**
Total			**141**				**48**

TABLE A49: FOOD SERVICE PRACTICES THAT CAN IMPACT ON EATING QUALITY

Improve eating quality	%	Number of comments received	Cause a decline in eating quality	%	Number of comments received
Cooking style (stir fry, slow cooking) and technique (resting, retaining juices)	43	20	Overcooking product or not resting meat	39	12
Marinating/seasoning	24	11	Storage/packaging - poor storage, temp control, handling, broken vacuum seals, blood in bags,	16	5
Correct storage and storage temperature	15	7	Poor preparation	13	4
Meat preparation, including handling.	11	5	No seasoning or marinating	6	2
Accompaniments /preserves, e.g. sauces	2	1	Poor stock rotation	6	2
Inventory Mngt. -Don't over order, keep supplies down	2	1	Wrong method of cooking	3	1
Ageing meat	2	1	Cooking - reheating and pre-cooking	3	1
			Masking the flavour	3	1
			Rapid thawing	3	1
			Other. Exposure to air, cross contamination	3	1
Total		**46**	**Total**		**31**

The percentage is expressed as a percentage of the number of comments.

TABLE A50: WHOLESALE PRACTICES THAT CAN IMPACT ON EATING QUALITY

Improve	Number of comments received	Decline	Number of comments received
Ageing (including vac. Packaging hanging carcases in chiller)	8	Not ageing product (selling product too fresh)	2
Ordering by specification, good supplier communication	2	Refrigeration/poor temperature control.	2
Temperature management - chiller and carcase transport	2		
Grade carcases in house to suit customers	1		
Buy feedlot lambs	1		
Value adding, product preparation	1		

TABLE A51: PRODUCER EATING QUALITY RESEARCH ISSUES

Lamb Research Issues	Number of comments received	%*	Hogget & Mutton Research Issues	Number of comments received	%*
Most suitable pasture type or finishing ration	53	12	Marketing	43	19
Meat tenderness post slaughter (including time in chillers, cold shortening, tender stretch)	49	11	Age of animal vs. eating quality	40	18
Eating quality including smell, taste and flavour	44	10	Cooking methods	35	16
Genetics/ Breed effect	44	10	Ageing of meat	12	5
Cooking methods	37	9	Finishing ration	6	3
Stress effects on eating quality	22	5			
Fat depth v. eating quality	18	4			
Processing practices (including ES, gas flushing, lairage)	12	3			
Age v. eating quality	10	2			
Cuts (including selection for cooking, value adding, presentation)	8	2			
Branding/Grading	6	1			
Growth rate v eating quality	4	1			
Marketing	6	1			
Other**	119	27	Other**	89	39
Total	432		Total	225	

Notes: * The figure is expressed as a percentage of the total number of comments received.
** Many of the responses classified as 'Other' were not related to eating quality research and/or were general industry comments. The percentage figures in the body of the report have been calculated excluding the number of 'Other' comments received.

TABLE A52: PROCESSOR EATING QUALITY RESEARCH ISSUES

Lamb Research Issues	Number of comments received			Hogget/Mutton Research Issues	Number of comments received		
	Mail	I'view	Total		Mail	I'view	Total
Breed (British, merino) v. eating quality	3	4	7	Ageing of meat, tenderness	1	1	2
Electrical stimulation	4	3	7	Grass seeds	1	0	1
Feed/nutrition	3	3	6	Breeding	1	0	1
Livestock handling	0	3	3	Electrical Stimulation	0	1	1
Dentition as an age determinant	0	3	3	How to process	0	1	1
Ageing (including vac packaging)	1	1	2	Age of animal vs. eating quality	1	0	1
Transport	3	1	4	Transport	1	0	1
Holding time before kill	1	1	2	Holding time before kill	1	0	1
Tenderness v. rate of carcase temperature reduction	1	0	1	Meat colour	0	1	1
Other - education of butchers	0	1	1				
Technological determinant of carcase category	0	1	1				
Total			34				10

TABLE A53: RETAILER EATING QUALITY RESEARCH ISSUES

Lamb Research Issues	Number of comments received			Hogget & Mutton Research Issues	Number of comments received		
	Mail	I'view	Total		Mail	I'view	Total
Lamb production (incl. carcase fat and year round supply	13	3	**16**	Feed and nutrition	6	0	**6**
Breed v. eating quality	10	3	**13**	Supply and product consistency	3	0	**3**
Feed and nutrition (lot feeding, grain feeding) v. eating quality	12	1	**13**	Ageing of meat	2	0	**2**
Lamb consistency	8	3	**11**	Consumer education	2	0	**2**
Tenderness (including Electrical Stimulation and cold shortening.)	6	3	**9**	New products or other uses for this meat	1	1	**2**
Conformation, eye muscle area	8	1	**9**	Hogget eating quality	2	0	**2**
Consumer education	2	2	**4**	Age of animal vs. eating quality	1	0	**1**
Stress (incl pre-slaughter handling) v. eating quality	3	1	**4**				
Retail preparation	2	1	**3**				
Food safety (temp.) v product ageing	3	0	**3**				
Other. MSA type system. Difference between Victorian lamb and Qld. lamb. Develop systems to help educate butchers how to order product.	1 0 0	1 1 1	**2** **1** **1**	Other. Quality Assurance. Develop systems to help educate butchers how to order product. How to differentiate from lamb when the brand comes off. Substitution.	1 0 0 0	0 1 1 1	**1** **1** **1** **1**
Total			**89**				**22**

TABLE A54: FOOD SERVICE EATING QUALITY RESEARCH ISSUES

Lamb Research Issues	Number of comments received	Hogget & Mutton Research Issues	Number of comments received
Smell after cooking	7	Breed	1
Feed v eating quality and flavour	3	Marketing names	1
Processing practices	2	Restaurant grade meat	1
Apprentice chef training in cut v cooking method.	1		
Year round consistent supply	1		
Ageing of meat	1		
Breed	1		
Other. Quality of the chef Pest control leaking through wool into meat. Quality control from grower	3		
Total	**19**		**3**

TABLE A55: WHOLESALER EATING QUALITY RESEARCH ISSUES

Lamb	Number of Comments	Mutton	Number of Comments
Lamb production (incl. carcase fat and year round supply	6	Hogget promotion and development	2
Feed and nutrition (lot feeding, grain feeding) v. eating quality	4	Feed and nutrition	1
Lamb consistency	4	Reduce fat content	1
Stress (incl pre-slaughter handling) v. eating quality	1	Age of animal vs. eating quality	1
Breed v. eating quality	1	Supply and product consistency	1
Tenderness including ES, aging practices and Cold shortening	1	Stress v. eating quality	1
Mechanical boning equipment	1	Mechanical boning equipment	1
Total	18		8

Table A56: PRODUCER RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

	Tools/methods of receiving information	Very Useful	Quite Useful	Some Use	No Use	Don't Know	Total
i)	Provision of detailed project reports	80 (21%)	144 (38%)	120 (32%)	23 (6%)	11 (3%)	378
ii)	Regular mail out of technical briefs	82 (22%)	152 (40%)	118 (31%)	18 (5%)	8 (2%)	378
iii)	Publish results and leave to industry to adopt	38 (10%)	83 (22%)	168 (21%)	67 (18%)	20 (5%)	376
iv)	Build into formalised industry training (e.g. Edge Network)	59 (16%)	106 (29%)	96 (26%)	36 (10%)	73 (20%)	370
v)	Structured short course training programs	99 (26%)	130 (34%)	103 (27%)	32 (8%)	16 (4%)	380
vi)	One-to-one assistance from industry consultants	110 (29%)	105 (28%)	108 (29%)	27 (7%)	27 (7%)	377
vii)	Work directly with individual supply chains to help improve eating quality	197 (51%)	117 (30%)	54 (14%)	7 (2%)	11 (3%)	386
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	128 (33%)	133 (34%)	71 (18%)	36 (9%)	19 (5%)	387
ix)	Computer software for supply chain management	33 (9%)	84 (23%)	132 (35%)	58 (16%)	67 (18%)	374
x)	Regular e-mail sent to subscribers	33 (9%)	82 (22%)	134 (36%)	76 (20%)	49 (13%)	374
xi)	Industry specific web sites	42 (11%)	76 (21%)	142 (39%)	63 (17%)	45 (12%)	368
xii)	Other* (please specify) Communicating with prime lamb groups. Publicize through media. Lamb newsletters. Additional module in Flockcare for eating quality. Summaries only- keep the mass of mail to a readable volume. Feedback from buyers and customers.	15 (43%)	1 (3%)	5 (14%)	4 (11%)	10 (29%)	35

* The majority of the 35 respondents did not specify a communication tool. It appears as though many continued on and circled a response for row xii, instead of stopping at row xi. Of those who did provide information, most choose to make a general comment rather than specify a communication tool.

Table A56(a): PRODUCER RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

Mean Ranking (2=no use, 5= very useful)

Tool/Method	Mean
Project reports	3.77
Technical briefs	3.81
Publish	3.26
Formalised training	3.63
Short courses	3.81
1-1 assistance	3.84
Work directly	4.34
P to P	3.95
Computer	3.29
e-mail	3.22
Web sites	3.30

Table A57: PROCESSOR RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

	Tools/methods of receiving information	Very useful			Quite useful			Some Use			No Use			Don't Know		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Provision of detailed project reports n=31	2	8	10	6	1	7	9	3	12	1	1	2	0	0	0
ii)	Regular mail out of technical briefs n=31	2	4	6	11	4	15	2	5	7	3	0	3	0	0	0
Iii)	Publish results and leave to industry to adopt n=31	1	1	2	4	6	10	7	3	10	6	3	9	0	0	0
iv)	Build into formalised industry training (e.g. MINTRAC) n=31	2	4	6	5	2	7	8	4	12	3	2	5	0	1	1
v)	Structured short course training programs n=30	1	3	4	7	7	14	6	3	9	3	0	3	0	0	0
vi)	One-to-one assistance from industry consultants n=31	1	6	7	7	4	11	3	0	3	7	3	10	0	0	0
vii)	Work directly with individual supply chains to help improve eating quality n=32	8	8	16	4	1	5	4	3	7	3	1	4	0	0	0
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc n=32	7	7	14	6	2	8	2	2	4	3	2	5	1	0	1
ix)	Computer software for supply chain management n=31	1	2	3	6	7	13	8	1	9	2	1	3	1	2	3
x)	Regular e-mail sent to subscribers n=30	0	3	3	5	5	10	7	4	11	4	1	5	1	0	1
xi)	Industry specific web sites n=30	0	2	2	6	6	12	4	5	9	5	0	5	2	0	2
xii)	Other (please specify) - people servicing - sales reps. Consumer education (cut selection, storage, cooking) Rural press	1	1						1							

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A57(a): PROCESSOR RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

Mean Ranking (2=no use, 5= very useful)

Tool/Method	Mean		
	Mail	Interview	Total
Project reports	3.50	4.23	3.81
Technical briefs	3.67	4.09	3.83
Publish·	3.00	3.36	3.16
Formalised training	3.33	3.73	3.48
Short courses	3.35	4.30	3.70
1-1 assistance	3.11	3.81	3.44
Work directly	3.89	4.33	4.06
P to P	3.94	4.17	4.03
Computer	3.35	4.00	3.59
e-mail	3.06	3.77	3.38
Web sites	3.07	3.77	3.39

Table A58: RETAIL RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

	Tools/methods of receiving information	Very Useful			Quite Useful			Some Use			No Use			Don't Know		
		M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
i)	Provision of detailed project reports n=117	18	3	21	24	3	27	31	6	37	13	8	21	10	1	11
ii)	Regular mail out of technical briefs n=120	19	8	27	27	4	31	35	4	39	12	4	16	6	1	7
Iii)	Publish results and leave to industry to adopt n=114	18	6	24	20	0	20	32	4	36	15	11	26	8	0	8
iv)	Build into formalised industry training (e.g. MINTRAC) n=112	18	10	28	26	6	32	24	2	26	6	2	8	18	0	18
v)	Structured short course training programs n=118	25	12	37	25	4	29	29	2	31	12	2	14	7	0	7
Vi)	One-to-one assistance from industry consultants n=115	33	8	41	23	5	28	24	4	28	7	3	10	8	0	8
Vii)	Work directly with individual supply chains to help improve eating quality n=121	45	10	55	27	4	31	15	1	16	6	3	9	7	3	10
Viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc n=115	50	9	59	20	0	20	5	2	7	11	6	17	10	2	12
ix)	Computer software for supply chain management n=12	12	2	14	17	2	19	28	3	31	23	6	29	13	6	19
x)	Regular e-mail sent to subscribers n=110	9	3	12	18	2	20	25	3	28	25	4	29	14	7	21
Xi)	Industry specific web sites n=111	14	5	19	19	1	20	23	4	27	23	3	26	12	7	19
Xii)	Other (please specify) Fat score ticketing so ordering can be more specific. Come to my shop and talk to my shoppers. Something direct to customers	1 1 0	0 0 1	1 1 1												

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A58(a): RETAILER RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

Mean Ranking (2=no use, 5= very useful)

Tools/Methods	Mean		
	Mail	Interview	Total
Project reports	3.55	3.05	3.45
Technical briefs	3.57	3.80	3.61
Publish	3.48	3.05	3.40
Formalised training	3.76	4.20	3.85
Short courses	3.69	4.30	3.80
1-1 assistance	3.94	3.90	3.93
Work directly	4.19	4.17	4.19
P to P	4.27	3.71	4.17
Computer	3.23	3.00	3.19
e-mail	3.14	3.33	3.17
Web sites	3.30	3.62	3.35

Table A59: FOOD SERVICE RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

	Tools/methods of receiving information	Very useful	Quite useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	4 11%	12 32%	10 26%	7 18%	5 13%
ii)	Regular mail out of technical briefs	9 24%	8 21%	14 37%	4 11%	2 5%
iii)	Publish results and leave to industry to adopt	5 13%	7 18%	9 24%	10 26%	7 18%
iv)	Build into formalised industry training (e.g. MINTRAC)	9 24%	13 34%	7 18%	2 5%	7 18%
v)	Structured short course training programs	9 24%	12 32%	11 29%	2 5%	4 11%
vi)	One-to-one assistance from industry consultants	7 19%	13 36%	10 28%	2 6%	4 11%
vii)	Work directly with individual supply chains to help improve eating quality	13 34%	15 40%	6 16%	1 3%	3 8%
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	17 44%	11 28%	7 18%	0 0%	4 10%
ix)	Computer software for supply chain management	6 16%	13 35%	11 30%	3 8%	4 11%
x)	Regular e-mail sent to subscribers	6 16%	9 24%	10 26%	8 21%	5 13%
xi)	Industry specific web sites	11 30%	9 24%	8 22%	6 16%	3 8%
xii)	Other (please specify) To have someone who understands the restaurant business and overall picture. Regular communication between paddock to plate.	1 1	0	0	0	0

Table A59(a): FOOD SERVICE RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

Mean Ranking (2=no use, 5= very useful)

Tools/Methods	Mean
Project reports	3.39
Technical briefs	3.63
Publish	3.23
Formalised training	3.94
Short courses	3.82
1-1 assistance	3.62
Work directly	4.06
P to P	4.19
Computer	3.59
e-mail	3.39
Web sites	3.74

Table A60: WHOLESALER RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

	Tools/methods of receiving information	Very useful	Quite useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	3	3	6	5	0
ii)	Regular mail out of technical briefs	6	6	3	2	0
Iii)	Publish results and leave to industry to adopt	1	1	2	12	1
iv)	Build into formalised industry training (e.g. MINTRAC)	9	4	3	0	1
v)	Structured short course training programs	8	5	3	1	0
vi)	One-to-one assistance from industry consultants	6	6	2	3	0
vii)	Work directly with individual supply chains to help improve eating quality	8	6	2	0	1
Viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	9	4	2	1	1
ix)	Computer software for supply chain management	6	4	2	2	3
x)	Regular e-mail sent to subscribers	4	6	3	3	1
xi)	Industry specific web sites	3	6	4	3	1

TABLE A61: ALL RESPONDENTS RATING OF THE TOOLS/METHODS FOR COMMUNICATING RESEARCH RESULTS TO INDUSTRY

	Tools/methods of receiving information	Very useful	Quite useful	Some Use	No Use	Don't Know	Rank by 'very useful'
i)	Provision of detailed project reports	118	193	185	58	27	6
ii)	Regular mail out of technical briefs	130	212	181	43	17	5
iii)	Publish results and leave to industry to adopt	70	121	225	124	36	9
iv)	Build into formalised industry training (e.g. MINTRAC)	111	162	144	51	100	7
v)	Structured short course training programs	157	190	157	52	27	4
vi)	One-to-one assistance from industry consultants	171	163	151	52	39	3
vii)	Work directly with individual supply chains to help improve eating quality	289	174	85	21	25	1
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	227	176	91	59	37	2
ix)	Computer software for supply chain management	62	133	185	95	96	10
x)	Regular e-mail sent to subscribers	58	127	186	121	77	11
xi)	Industry specific web sites	77	123	190	103	70	8

Table A62: PRODUCER RATING OF THE IMPORTANCE OF SEGREGATING LAMB FROM HOGGET AND MUTTON

Very important	Quite important	Some importance	Not important	Don't know
289 (70%)	64 (16%)	27 (7%)	23 (6%)	7 (2%)

Table A63: PROCESSOR RATING OF THE IMPORTANCE OF SEGREGATING LAMB FROM HOGGET AND MUTTON

Very important			Quite important			Some importance			Not important			Don't know		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
16	12	28	1	0	1	3	0	3	2	1	3	0	0	0

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A64: RETAILER RATING OF THE IMPORTANCE OF SEGREGATING LAMB FROM HOGGET AND MUTTON

Very important			Quite important			Some importance			Not important			Don't know		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
98	16	114	7	4	11	2	0	2	3	1	4	2	0	2

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A65: FOOD SERVICE RATING OF THE IMPORTANCE OF SEGREGATING LAMB FROM HOGGET AND MUTTON

Very important	Quite important	Some importance	Not important	Don't know
29	6	2	2	2
71%	15%	5%	5%	5%

Table A66: WHOLESALE RATING OF THE IMPORTANCE OF SEGREGATING LAMB FROM HOGGET AND MUTTON

Very important	Quite important	Some importance	Not important	Don't Know
13	1	0	3	0

Table A67: PRODUCER RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET & MUTTON

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't know
49	168	56	37	93
(12%)	(42%)	(14%)	(9%)	(23%)

Table A68: PROCESSOR RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET & MUTTON

Totally adequate			Reasonably adequate			Only partially adequate			Not adequate at all			Don't know		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
9	2	11	5	4	9	4	5	9	3	2	5	1	0	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A69: RETAILER RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET & MUTTON

Totally adequate			Reasonably adequate			Only partially adequate			Not adequate at all			Don't know		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
51	8	59	37	8	45	14	4	18	7	1	8	2	0	2

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A70: FOOD SERVICE RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET & MUTTON

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't know
5	13	12	2	8
13%	33%	30%	5%	20%

Table A71: WHOLESALE RATING OF THE ADEQUACY OF LAMB STRIP BRANDING IN ACHIEVING SEGREGATION FROM HOGGET AND MUTTON

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't Know
6	5	3	1	2
35%	29%	18%	6%	11%

Table A72: PRODUCER RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Very important	Quite important	Some importance	Not important	Don't know
349	46	8	1	6
(85%)	(11%)	(2%)	(.2%)	(2%)

Table A73: PROCESSOR RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Very important			Quite important			Some importance			Not important			Don't know		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
19	13	32	3	0	3	0	0	0	1	0	1	0	0	0

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A74: RETAIL RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Very important			Quite important			Some importance			Not important			Don't know		
M	I	T	M	I	T	M	I	T	M	I	T	M	I	T
99	20	119	10	0	10	1	1	2	2	0	2	1	0	1

(M = mail respondent; I = interview respondent; T = total number of respondents)

Table A75: FOOD SERVICE RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Very important	Quite important	Some importance	Not important	Don't know
34	4	2	0	1
83%	10%	5%	0%	2%

Table A76: WHOLESALER RATING OF THE IMPORTANCE OF TRUTH IN LAMB PRODUCT LABELLING TO THE LAMB AND SHEEPMEATS INDUSTRY

Very important	Quite important	Some importance	Not important	Don't Know
15	1	0	1	0
88%	6%		6%	

TABLE A77: PRODUCER CRITERIA/ATTRIBUTES FOR DEFINING LAMB

Specification Criteria/Attributes	Number of comments received	%
Age as determined by teeth (including milk teeth, permanent incisors)	173	60
Fat depth (fat score or mm.)	118	41
Age – as determined by months or years (e.g. ossification).	80	28
Weight	60	21
Conformation – muscle development, eye muscle	52	18
Breed/genetics	52	18
Meat colour	38	13
Age - method not defined	32	11
Tenderness	30	10
Finishing method (incl. ration or feedlot)	13	5
Leave the system as it is	11	4

Note: Respondents provided 98 other comments, including: region, flavour, juiciness, no bruising, not shorn and flockcare accredited but the numbers for these criteria were low. Some comments were more of a general nature and not directly related to the question.

TABLE A78: PROCESSOR CRITERIA/ATTRIBUTES FOR DEFINING LAMB

Specification Criteria/Attributes	Number of comments received		
	Mail	I'view	Total
Age as determined by teeth (including milk teeth, permanent incisors)	4	5	9
Fat depth (fat score or mm.)	5	3	8
Age - method not defined	2	5	7
Conformation	4	1	5
Breed/genetics	2	3	5
pH	1	4	5
Feed regime/finishing method (incl. ration or feedlot)	1	3	4
Age – as determined by months or years.	2	1	3
Weight	3	0	3
Meat colour	3	0	3
Leave the system as it is	2	1	3
Ageing for specified number of days	1	2	3
Fat colour	2	0	2
Tenderness	0	1	1
Other. Break joint consideration.	0	1	1
Confirmed vendor statements	1	0	1

TABLE A79: RETAIL CRITERIA/ATTRIBUTES FOR DEFINING LAMB

Specification Criteria/Attributes	Number of comments received		
	Mail	I'view	Total
Fat (including fat cover, fat score or mm.)	27	6	33
Age – as determined by months or years.	13	13	26
Age as determined by teeth (including milk teeth (suckers), permanent incisors)	13	7	20
Age - method not defined	14	5	19
Weight	17	2	19
Meat colour	11	7	18
Breed/genetics	13	4	17
Conformation, eye muscle	12	4	16
Yield	4	1	5
Date of slaughter	3	1	4
Tenderness	1	2	3
Leave the system as it is	2	0	2
Feed/nutrition (incl. finishing ration)	1	0	1
Point of origin	0	1	1

TABLE A80: FOOD SERVICE CRITERIA/ATTRIBUTES FOR DEFINING LAMB

Specification Criteria/Attributes	Number of comments received	%
Age - method not defined	6	16
Age – as determined by months or years.	5	14
Fat depth (fat score or mm.)	4	11
Origin (producer, region)	4	11
Weight	3	8
Breed/genetics	3	8
Finishing method (incl. ration or feedlot)	3	8
Slaughter date	3	8
Meat colour	2	5
Age as determined by teeth (including milk teeth, permanent incisors)	1	3
Conformation – muscle	1	3
Tenderness	1	3
Fat colour	1	3
Total	37	

Table A81: WHOLESALER CRITERIA/ATTRIBUTES FOR DEFINING LAMB

Specification Criteria/Attributes	Number of comments received
Age as determined by teeth (including milk teeth (suckers, permanent incisors, molars)	10
Meat colour	4
Conformation	4
Bone colour	3
Age - method not defined	2
Breed/genetics	2
Texture/firmness	2
PH	2
Fat (including fat cover, fat score or mm.)	1
Weight	1
Date of slaughter	1

ANNEX 2
SURVEY FORMS

PRODUCER SURVEY

PROCESSOR SURVEY

FOOD SERVICE SURVEY

RETAIL SURVEY

WHOLESALE SURVEY

PRODUCER SURVEY

Lamb and Sheepmeat Eating Quality

Please supply the following details:

Required information – *the following information is required for survey validation purposes*

Post code for the property:	Flock size:
Breed type: Ewes:	Rams:

Optional information

Name:		
Address:		
Phone:	Fax:	E-mail:

1. Livestock Marketing.

1a. Are you involved in a supply chain alliance with a processor(s)?

<div align="center">Yes ☐   No ☐</div>

1b. Please indicate your method of selling lambs and sheep.

	Method of Sale	Lamb (%)	Hogget/Mutton (%)
i)	Direct to processors - Over the Hooks		
ii)	Direct to processors - paddock		
iii)	Through saleyards		
iv)	Through CALM		
	Total	**100%**	**100%**

1c. If your lamb, hogget/mutton is sold Over the Hooks, what feedback do you receive from the purchaser on carcase quality? *(please tick or specify)*

	Carcase information	Lamb	Hogget/Mutton
i)	AUS-MEAT standard feedback		
ii)	Non-standard feedback - Weight		
iii)	Non-standard feedback - Weight plus fat score		
iv)	Non-standard feedback - Weight plus fat depth (mm)		
v)	Other (please specify)		

2. Eating quality

2a In your opinion what is the consumer's perception of lamb, hogget and mutton eating quality? *Please circle your response.*

	Excellent	Very Good	Good	Fair	Poor	Unsure/ Don't know
Lamb	5	4	3	2	1	
Hogget	5	4	3	2	1	
Mutton	5	4	3	2	1	

2b Please record what eating quality problems, if any, you perceive lamb, hogget or mutton to have.

3. Eating quality factors.

Listed below are factors that may affect lamb and sheepmeat eating quality. Please identify factors you think have a high (5), medium (4), low (3), no impact (2) on eating quality or (1) if you don't know.
Circle your response to each factor. Indicate with a tick (✓) if you would like further information on any single factor.

No.	Factor Description	Eating Quality Impact					Comment (if any)	Yes (✓) further information required
		H	M	L	N	D/k		
	On Farm and Animal Characteristics							
1	Different Breeds	5	4	3	2	1		
2	Variations within a breed	5	4	3	2	1		
3	Gender/ Sex	5	4	3	2	1		
4	Animal Age	5	4	3	2	1		
5	Fat score	5	4	3	2	1		
6	Poor conformation	5	4	3	2	1		
7	Growth rate	5	4	3	2	1		
8	Weight	5	4	3	2	1		
9	Season to season variation	5	4	3	2	1		
10	Production systems (e.g. grass or grain)	5	4	3	2	1		
11	Finishing systems (e.g. grass or grain)	5	4	3	2	1		
12	Provision of carcase feedback	5	4	3	2	1		
	Processing practices							
13	Stress caused by transportation	5	4	3	2	1		
14	Length of time spent in yards	5	4	3	2	1		
15	Livestock handling in yards	5	4	3	2	1		
16	Nutrition in yards	5	4	3	2	1		
17	Cold shortening (chilling carcasses too quickly)	5	4	3	2	1		
18	Ageing of product in chillers	5	4	3	2	1		
	Carcase and Meat quality							
19	Meat Colour	5	4	3	2	1		
20	Fat Colour	5	4	3	2	1		
21	Tenderness	5	4	3	2	1		
22	Texture/firmness	5	4	3	2	1		
23	Eye muscle area	5	4	3	2	1		
24	Carcase yield	5	4	3	2	1		
	Post Processing Practices							
25	Retail preparation	5	4	3	2	1		
26	Further ageing of primal cuts	5	4	3	2	1		
27	Storage/freezing of meat	5	4	3	2	1		
28	Differences between muscles/cuts	5	4	3	2	1		
	OTHERS (please specify):							
		5	4	3	2	1		
		5	4	3	2	1		
		5	4	3	2	1		

4. Eating quality factors specific to your property.

Please list the livestock production practices carried out on your property that you think affect lamb and sheepmeat eating quality.

Practices that may **improve** eating quality.	Practices that may cause a **decline** in eating quality.

5. Lamb and sheepmeat research
What eating quality issues, if any, in your opinion need to be researched?

Lamb	Hogget & Mutton

6. Tools for improving lamb and sheepmeat eating quality.
How useful are the following tools/methods for communicating research results to industry? *Please circle your response for each.*

	Tools/methods of receiving information	Very Useful	Quite Useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	5	4	3	2	1
ii)	Regular mail out of technical briefs	5	4	3	2	1
iii)	Publish results and leave to industry to adopt	5	4	3	2	1
iv)	Build into formalised industry training (e.g. Edge Network)	5	4	3	2	1
v)	Structured short course training programs	5	4	3	2	1
vi)	One-to-one assistance from industry consultants	5	4	3	2	1
vii)	Work directly with individual supply chains to help improve eating quality	5	4	3	2	1
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	5	4	3	2	1
ix)	Computer software for supply chain management	5	4	3	2	1
x)	Regular e-mail sent to subscribers	5	4	3	2	1
xi)	Industry specific web sites	5	4	3	2	1
xii)	Other (please specify)	5	4	3	2	1

7. Segregating Lamb from other Sheepmeats

As you may be aware, the current statutory lamb brand will cease being regulated by Government from August 2003. The Sheepmeat Council of Australia (SCA) and National Meat Association of Australia (NMA) are currently investigating options, for implementation prior to 2003, to improve the way in which lamb is segregated from other sheepmeat products (e.g. hogget and mutton). Your responses to the following questions will help SCA and NMA plan their approach to the issue.

7.1 Segregation

a) How important is the segregation of lamb from hogget and mutton to the future of your business?
    Please circle your response.

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

b) How adequate is the current system of strip branding lamb in achieving this segregation? *Please circle your response.*

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't know
5	4	3	2	1

7.2 Truth-in-labelling

Please rate the importance of truth in lamb product labelling to the lamb and sheepmeats industry? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

Please record any comments you may have regarding this issue.

_____
_____
_____
_____
_____
_____

7.3 Consumer confidence in Lamb segregation

In your opinion what is the best method/s for providing a guaranteed "lamb" category to the consumer?

_____
_____
_____
_____
_____

7.4 Lamb classification- the upside and the downside

Please list what you consider to be the positive and/or negative aspects, if any, associated with the implementation of a lamb classification system.

Positive Aspects	Negative aspects

7.5 Specifications

If you were establishing specifications for defining lamb, what age requirements, carcase criteria and/or quality attributes would you include in the specifications?

	Criteria/Attributes
1.	
2.	
3.	
4.	
5.	
Others.	

8. Please record any comments you have regarding this survey, lamb or sheepmeat eating quality or lamb branding.

9. Would you like to receive a summary of the results from this survey?

Yes ☐ No ☐

If yes, please ensure that you have provided your contact details on the first page.

10. Would you be interested in participating in either a research program or any future commercial trials relating to factors affecting eating quality of lamb and sheepmeats?

Yes ☐ No ☐

If yes, please ensure that you have provided your contact details on the first page.

Thank you very much for your input.
Would you please either return the form using the reply paid envelope – or –
fax the survey form (5 pages) back to (07) 3367 1150.

PROCESSOR SURVEY

Lamb and Sheepmeat Eating Quality

Please supply the following details:

Required information – *the following information is required for survey validation purposes*

Post code for the premises:	
Type: Export ☐ Slaughtering ☐	Average weekly lamb/sheep kill: _____
Domestic ☐ Boning ☐	Average no. of lamb/sheep carcases boned per week: _____
Value adding ☐ ·	Average kgs. of lamb/sheep processed per week: _____

Optional information

Company:	Est. No.
Address:	
Contact name:	
Phone: Fax:	E-mail:

1. Livestock Purchase and Vendor Feedback (Questions 1.1, 1.2, 1.3 for <u>abattoirs only</u>)

1.1 Are you involved in a supply chain alliance (either formal or informal) with producers or producer groups?
Yes ☐   No ☐.

1.2 Please indicate the method of purchasing lambs and sheep.

	Method of Purchase	Lamb (%)	Hogget/Mutton (%)
i)	Direct from producers- Over the Hooks		
ii)	Direct from producers- paddock		
iii)	Through saleyards		
iv)	Through CALM		
v)	Service kill		
	Total	100%	100%

1.3 If stock are purchased Over the Hooks, what feedback do you provide to the vendor on carcase quality?
(please tick or specify)

	Carcase information	Lamb	Hogget/Mutton
i)	AUS-MEAT standard feedback		
ii)	Non-standard feedback - Weight		
iii)	Non-standard feedback - Weight plus fat score		
iv)	Non-standard feedback - Weight plus fat depth (mm)		
v)	Other (please specify)		

2. Livestock Quality (for abattoirs only)
To what extent are you satisfied with the *quality* of the livestock available for processing?
(please circle your response for each livestock type)

		Very satisfied	Reasonably satisfied	Satisfied	Not particularly satisfied	Unsure/ Not applicable
i)	Beef	5	4	3	2	1
ii)	Lamb	5	4	3	2	1
iii)	Hogget	5	4	3	2	1
iv)	Mutton	5	4	3	2	1
v)	Pork	5	4	3	2	1

Please explain your responses:

Beef _____

Lamb _____

Hogget _____

Mutton _____

Pork _____

3. Quality Variation.

3.1 Does the quality of the _lambs_ (i.e. livestock, carcase or cartoned product) you buy vary throughout the year?
Yes ☐ No ☐. *If yes, which months are a problem and what is the effect of the variation?*

_____

_____

3.2 Does the quality of the _hogget/mutton_ (i.e. livestock, carcase or cartoned product) you buy vary throughout the
year? Yes ☐ No ☐. *If yes, which months are a problem and what is the effect of the variation?*

_____

_____

3.3 How do you rate the quality of lamb, hogget and mutton available to you today compared with the quality available
5 years ago? *Please circle your response.*

	Better	Same	Worse	Don't know	N/A
Lamb	5	4	3	2	1
Hogget	5	4	3	2	1
Mutton	5	4	3	2	1

4. Carcase Quality

How often do the following carcase quality problems occur in your experience with lamb and hogget/mutton carcases?
Please circle your response for each carcase type. Leave blank if not applicable.

		Lamb					Hogget/Mutton				
	Issue	All the time	Most of the time	Some of the time	Rarely	Never	All the time	Most of the time	Some of the time	Rarely	Never
i)	Too heavy	5	4	3	2	1	5	4	3	2	1
ii)	Too light	5	4	3	2	1	5	4	3	2	1
iii)	Too much fat	5	4	3	2	1	5	4	3	2	1
iv)	Too little fat	5	4	3	2	1	5	4	3	2	1
v)	Poor fat colour	5	4	3	2	1	5	4	3	2	1
vi)	Poor meat colour	5	4	3	2	1	5	4	3	2	1
vii)	Not tender	5	4	3	2	1	5	4	3	2	1
viii)	Poor carcase conformation	5	4	3	2	1	5	4	3	2	1
ix)	No problems	5	4	3	2	1	5	4	3	2	1
x)	Others (please specify)	5	4	3	2	1	5	4	3	2	1

5. Customer Satisfaction

5.1a To what extent are your customers satisfied with the quality of your lamb products?

Very satisfied	Reasonably satisfied	Satisfied	Not satisfied	Unsure/ Don't know/ N.A.
5	4	3	2	1

5.1b Please explain the reason for your answer.

_____

_____

_____

_____

5.2a To what extent are your customers *satisfied* with the quality of your *hogget/mutton* products?

Very satisfied	Reasonably satisfied	Satisfied	Not satisfied	Unsure/ don't know/NA
5	4	3	2	1

5.2b Please explain the reason for your answer.

_____

_____

_____

6. Product confidence

How confident are you of being able to consistently supply your customers with the quality of lamb, hogget and mutton they require? *Please circle you response.*

	Very confident	Reasonably confident	Confident	Not confident	N/A
Lamb	5	4	3	2	1
Hogget	5	4	3	2	1
Mutton	5	4	3	2	1

7. Eating quality factors

Listed below are factors that may affect lamb and sheepmeat eating quality. Please identify factors you think have a high (5), medium (4), low (3), no impact (2) on eating quality or (1) if you don't know. *Please circle your response to each factor. Indicate with a tick (✓) if you would like further information on any single factor.*

No.	Factor Description	Eating Quality Impact H M L N D/K					Comment (if any)	Yes (✓) further information required
	On Farm and Animal Characteristics							
1	Different Breeds	5	4	3	2	1		
2	Variations within a breed	5	4	3	2	1		
3	Gender/ Sex	5	4	3	2	1		
4	Animal age/dentition	5	4	3	2	1		
5	Fat score	5	4	3	2	1		
6	Poor conformation	5	4	3	2	1		
7	Growth rate	5	4	3	2	1		
8	Weight	5	4	3	2	1		
9	Season to season variation	5	4	3	2	1		
10	Production systems (e.g. grass or grain)	5	4	3	2	1		
11	Finishing systems (e.g. grass or grain)	5	4	3	2	1		
	Processing practices							
12	Stress caused by transportation	5	4	3	2	1		
13	Length of time spent in yards	5	4	3	2	1		

No.	Factor Description	Eating Quality Impact					Comment (if any)	Yes (✓) further information required
		H	M	L	N	D/K		
14	Livestock handling in yards	5	4	3	2	1		
15	Nutrition in yards	5	4	3	2	1		
16	Cold shortening	5	4	3	2	1		
17	Use of electrical stimulation	5	4	3	2	1		
18	Tenderstretch hanging	5	4	3	2	1		
19	Ageing of product in chillers	5	4	3	2	1		
	Carcase and Meat quality							
20	Meat Colour	5	4	3	2	1		
21	Fat Colour	5	4	3	2	1		
22	Tenderness	5	4	3	2	1		
23	Texture/firmness	5	4	3	2	1		
24	Eye muscle area	5	4	3	2	1		
25	Carcase yield	5	4	3	2	1		
	Post Processing Practices							
26	Retail preparation	5	4	3	2	1		
27	Further ageing of primal cuts	5	4	3	2	1		
28	Storage/freezing of meat	5	4	3	2	1		
29	Differences between muscles/cuts	5	4	3	2	1		
	OTHERS (please specify):							
		5	4	3	2	1		
		5	4	3	2	1		
		5	4	3	2	1		

8. Eating quality factors specific to your company.

Please list the processing practices carried out at your company that you think affect lamb and sheepmeat eating quality.

Practices that may **improve** eating quality.	Practices that may cause a **decline** in eating quality.

9. Eating Quality Research.

In your opinion, what eating quality factors or issues, if any, require further research?

Lamb	Hogget/Mutton

10. Tools for improving lamb and sheepmeat eating quality

How useful are the following tools/methods for communicating research results to industry? *Please circle your response for each.*

	Tools/methods of receiving information	Very useful	Quite useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	5	4	3	2	1
ii)	Regular mail out of technical briefs	5	4	3	2	1
Iii)	Publish results and leave to industry to adopt	5	4	3	2	1
iv)	Build into formalised industry training (e.g. MINTRAC)	5	4	3	2	1
v)	Structured short course training programs	5	4	3	2	1
vi)	One-to-one assistance from industry consultants	5	4	3	2	1
vii)	Work directly with individual supply chains to help improve eating quality	5	4	3	2	1
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	5	4	3	2	1
ix)	Computer software for supply chain management	5	4	3	2	1
x)	Regular e-mail sent to subscribers	5	4	3	2	1
xi)	Industry specific web sites	5	4	3	2	1
xii)	Other (please specify)	5	4	3	2	1

11. Segregating Lamb from other Sheepmeats

As you may be aware, the current statutory lamb brand will cease being regulated by Government from August 2003. The Sheepmeat Council of Australia (SCA) and National Meat Association (NMA) are currently investigating options, for implementation prior to 2003, to improve the way in which lamb is segregated from other sheepmeat products (e.g. hogget and mutton). Your responses to the following questions will help SCA and NMA plan their approach to the issue.

11.1 Segregation

a) How important is the segregation of lamb from hogget and mutton to the future of your business? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

b) How adequate is the current system of strip branding lamb in achieving this segregation? *Please circle your response.*

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't know
5	4	3	2	1

11.2 Truth-in-labelling

Please rate the importance of truth in lamb product labelling to the lamb and sheepmeats industry? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

Please record any comments you may have regarding this issue.

_____

_____

_____

_____

11.3 Consumer confidence in Lamb segregation

In your opinion what is the best method/s for providing a guaranteed "lamb" category to the consumer?

_____

_____

_____

_____

11.4 Lamb classification- the upside and the downside

Please list what you consider to be the positive and/or negative aspects, if any, associated with the implementation of a lamb classification system.

Positive Aspects	Negative aspects

11.5 Specifications

If you were establishing specifications for defining lamb, what age requirements, carcase criteria and/or quality attributes would you include in the specifications?

	Criteria/Attributes
1.	
2.	
3.	
4.	
5.	
Others.	

12. Please record any comments you have regarding this survey, lamb or sheepmeat eating quality or lamb branding.

_____

_____

_____

_____

_____

_____

13. Would your company like to receive a summary of the results from this survey?

<div align="center">Yes ☐   No ☐</div>

if yes, please ensure that you have provided your contact details on the first page.

14. Would your company be interested in participating in either a research program or any future commercial trials relating to factors affecting eating quality of lamb and sheepmeats?

<div align="center">Yes ☐   No ☐</div>

if yes, please ensure that you have provided your contact details on the first page.

Thank you very much for your input.
Would you please either return the form using the reply paid envelope
– or –
fax the survey form (6 pages) back to (07) 3367 1150.

Food Service Survey

Lamb and Sheepmeat Eating Quality

Please supply the following details:
Required information – *the following information is required for survey validation purposes*

Post code for the business:
Food Service Type: *Please tick (✓) one or more as applicable* Five Star Restaurant ☐ Mid-level Bistro/Restaurant ☐ Hotel/Club ☐ Professional catering firm ☐ Airline caterer ☐ Fast food operator ☐ Other (specify) ☐ _____ Kgs of lamb/mutton used per week: _____ Number of outlets: _____

Optional information
a. Company details

Company:
Address:
Contact name:
Phone: Fax: E-mail:

b. Average weekly menu sales.

		Approx. proportion of menu sales (%)
i)	Beef	
ii)	Lamb	
iii)	Mutton	
iv)	Chicken	
v)	Pork	
vi)	Fish/Seafood	
vii)	Other	
	TOTAL	**100%**

1. Supply and purchasing
1.1 From where do you source your lamb and mutton products? *Tick (✓) one or more as applicable.*

	Supply source	Lamb	Mutton
i)	Processor (e.g. Abattoir, boning room)		
ii)	Wholesaler		
iii)	Butcher		
iv)	Meat caterers/value added products		
v)	Other (please specify)		

1.2 Purchasing
1.2.a When you order lamb and mutton, how do you specify your requirements? *Tick (✓) one or more as applicable.*

	Method	Lamb	Mutton
i)	No formal specifications		
ii)	My processor/wholesaler knows what I want		
iii)	Order by processor or wholesaler language		
iv)	Have own specifications based on AUS-MEAT		
v)	Have own specifications not based on AUS-MEAT		
vi)	Other (please specify)		

1.2.b Product Confidence
How confident are you of being able to purchase the quality of meat you expect? *Please circle your response.*

	Very confident	Some confidence	Little confidence	No confidence	N/A
Beef	5	4	3	2	1
Lamb	5	4	3	2	1
Mutton	5	4	3	2	1
Chicken	5	4	3	2	1
Pork	5	4	3	2	1

2. Product Consistency
2.1a To what extent are you satisfied with the *consistency* of the following meat products? *Please circle your response.*

		Very satisfied	Reasonably satisfied	Satisfied	Not particularly satisfied	Not satisfied	Unsure/don't know/NA
i)	Beef	5	4	3	2	1	0
ii)	Lamb	5	4	3	2	1	0
Iii)	Mutton	5	4	3	2	1	0
iv)	Chicken	5	4	3	2	1	0
v)	Pork	5	4	3	2	1	0

2.1b Briefly explain the responses given.

Beef	
Lamb	
Mutton	
Chicken	
Pork	

2.2 How do you rate the quality of lamb and mutton available to you today compared with the quality available 5 years ago? *Please circle your response.*

	Better	Same	Worse	Don't know	N/A
Lamb	5	4	3	2	1
Mutton	5	4	3	2	1

3. Product satisfaction
Please rate your satisfaction with the following meat product attributes for each meat type.
5 - very satisfied; 4 - reasonably satisfied; 3 – satisfied; 2- not satisfied; 1 – not applicable.

	Attribute	Lamb					Mutton					Beef					Chicken					Pork				
i)	Taste/flavour	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
ii)	Tenderness	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
iii)	Juiciness	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
iv)	Overall quality	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
v)	Other (please specify)	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1

4. Seasonal variation in quality
Does the quality of the lamb or mutton you buy vary throughout the year?

Yes ☐ No ☐

If yes, which months are a problem and what is the effect of the variation?

_____

_____

_____

_____

5. Product Attributes
Please rate the following product quality attributes in order of importance. *Please circle your response.*
5 - very important; 4 - some importance; 3 - little importance; 2 - not important; 1 – don't know/unsure.

	Attributes	Lamb					Mutton				
i)	Taste/flavour	5	4	3	2	1	5	4	3	2	1
ii)	Tenderness	5	4	3	2	1	5	4	3	2	1
iii)	Juiciness	5	4	3	2	1	5	4	3	2	1
iv)	Fat content	5	4	3	2	1	5	4	3	2	1
v)	Odour	5	4	3	2	1	5	4	3	2	1
vi)	Consistency	5	4	3	2	1	5	4	3	2	1
vii)	Overall quality	5	4	3	2	1	5	4	3	2	1
viii)	Versatility	5	4	3	2	1	5	4	3	2	1
ix)	Customer appeal	5	4	3	2	1	5	4	3	2	1
x)	Healthy choice	5	4	3	2	1	5	4	3	2	1
xi)	Relative price	5	4	3	2	1	5	4	3	2	1
xii)	Value for money	5	4	3	2	1	5	4	3	2	1

6. Eating quality factors specific to your company.
Please list the meal preparation practices carried out at your company that you think affect lamb and sheepmeat eating quality.

Practices that may **improve** eating quality.	Practices that may cause a **decline** in eating quality.

7. Eating quality factors.

Listed below are factors that may affect lamb and sheepmeat eating quality. Please identify factors you think have a high (5), medium (4), low (3), no impact (2) on eating quality or (1) if you don't know. *Circle your response to each factor. Also indicate with a tick (✓) where you would like further information on any single factor.*

No.	Factor Description	Eating Quality Impact					Comment (if any)	Yes (✓) further information required
		H	M	L	N	D/k		
	Processing practices							
1	Stress caused by transportation	5	4	3	2	1		
2	Length of time spent in yards	5	4	3	2	1		
3	Livestock handling in yards	5	4	3	2	1		
4	Nutrition in yards	5	4	3	2	1		
5	Cold shortening	5	4	3	2	1		
6	Use of electrical stimulation	5	4	3	2	1		
7	Tenderstretch hanging	5	4	3	2	1		
8	Chiller limitations (e.g. not being able to hold carcases for the optimum time)	5	4	3	2	1		
9	Food safety requirements to chill carcases quickly	5	4	3	2	1		
10	Ageing of product in chillers	5	4	3	2	1		
	Carcase and Meat quality							
11	Meat Colour	5	4	3	2	1		
12	Fat Colour	5	4	3	2	1		
13	Tenderness	5	4	3	2	1		
14	Texture/firmness	5	4	3	2	1		
15	Eye muscle area	5	4	3	2	1		
16	Carcase yield	5	4	3	2	1		
	Post Processing Practices							
17	Retail preparation	5	4	3	2	1		
18	Further ageing of primal cuts	5	4	3	2	1		
19	Storage/freezing of meat	5	4	3	2	1		
20	Differences between muscles/cuts	5	4	3	2	1		
21	Cooking - degree of doneness	5	4	3	2	1		
22	Product not cooked to consumer's requirements	5	4	3	2	1		
23	Effect of shrinkage in cooking on single muscle cuts	5	4	3	2	1		
24	Suitability of cuts to certain dishes	5	4	3	2	1		
25	Suitability of cooking methods to certain cuts	5	4	3	2	1		
	OTHERS (please specify):							
		5	4	3	2	1		
		5	4	3	2	1		
		5	4	3	2	1		

8. Eating Quality Research

In your opinion, what eating quality factors or issues, if any, require further research?

Lamb	Hogget/Mutton

9. Tools for improving lamb and sheepmeat eating quality

How useful are the following tools/methods for communicating research results to industry? *Please circle your response for each.*

	Tools/methods of receiving information	Very Useful	Quite Useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	5	4	3	2	1
ii)	Regular mail out of technical briefs	5	4	3	2	1
iii)	Publish results and leave to industry to adopt	5	4	3	2	1
iv)	Build into formalised industry training (e.g. MINTRAC)	5	4	3	2	1
v)	Structured short course training programs	5	4	3	2	1
vi)	One-to-one assistance from industry consultants	5	4	3	2	1
vii)	Work directly with individual supply chains to help improve eating quality	5	4	3	2	1
viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	5	4	3	2	1
ix)	Computer software for supply chain management	5	4	3	2	1
x)	Regular e-mail sent to subscribers	5	4	3	2	1
xi)	Industry specific web sites	5	4	3	2	1
xii)	Other (please specify)	5	4	3	2	1

10. Segregating Lamb from other Sheepmeats

As you may be aware, the current statutory lamb brand will cease being regulated by Government from August 2003. The Sheepmeat Council of Australia (SCA) and National Meat Association of Australia (NMA) are currently investigating options, for implementation prior to 2003, to improve the way in which lamb is segregated from other sheepmeat products (e.g. hogget and mutton). Your responses to the following questions will help SCA and NMA plan their approach to the issue.

10.1 Segregation

a) How important is the segregation of lamb from hogget and mutton to the future of your business? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't Know
5	4	3	2	1

b) How adequate is the current system of strip branding lamb in achieving this segregation? *Please circle your response.*

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't Know
5	4	3	2	1

10.2 Truth-in-labelling

Please rate the importance of truth in lamb product labelling to the lamb and sheepmeats industry? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

Please record any comments you may have regarding this issue.

_____

_____

_____

_____

_____

10.3 Consumer confidence in Lamb segregation
In your opinion what is the best method/s for providing a guaranteed "lamb" category to the consumer?

_____

_____

_____

_____

_____

10.4 Lamb classification- the upside and the downside
Please list what you consider to be the positive and/or negative aspects, if any, associated with the implementation of a lamb classification system.

Positive Aspects	Negative aspects

10.5 Specifications
If you were establishing specifications for defining lamb, what age requirements, carcase criteria and/or quality attributes would you include in the specifications?

	Criteria/Attributes
1.	
2.	
3.	
4.	
5.	
Others.	

11. Please record any comments you have regarding this survey, lamb or sheepmeat eating quality or lamb branding.

_____

_____

_____

_____

12. Would your company like to receive a summary of the results from this survey? Yes ☐ No ☐
If yes, please ensure that you have provided your contact details on the first page.

13. Would your company be interested in participating in either a research program or any future commercial trials relating to factors affecting eating quality of lamb and sheepmeats?

Yes ☐   No ☐

If yes, please ensure that you have provided your contact details on the first page.

Thank you very much for your input.
Would you please either return the form using the reply paid envelope – or –
fax the survey form (6 pages) back to (07) 3367 1150.

RETAIL SURVEY

Lamb and Sheepmeat Eating Quality

Please supply the following details:
Required information – *the following information is required for survey validation purposes*

Post code for the business:
Approximate no. of lamb carcases (or kgs.) purchased per week:
Approximate no. of mutton carcases (or kgs.)purchased per week:

Optional information

Company:
Address:
Contact name:
Phone: Fax: E-mail:

1. Eating Quality
How do you rate the eating quality of lamb, hogget and mutton available to you today compared with that available 5 years ago? *Please circle your response*

	Better	Same	Worse	Don't know	N/A
Lamb	5	4	3	2	1 ·
Hogget	5	4	3	2	1
Mutton	5	4	3	2	1

2. Product confidence
How confident are you of being able to supply your customers with the quality of meat they require? *Please circle your response.*

	Very confident	Some confidence	Little confidence	No confidence	N/A
Lamb	5	4	3	2	1
Hogget	5	4	3	2	1
Mutton	5	4	3	2	1
Beef	5	4	3	2	1
Chicken	5	4	3	2	1
Pork	5	4	3	2	1

3. Customer Satisfaction
To what extent do you believe your customers are *satisfied* with the eating quality of your meat products? *Please circle your response.*

	Very satisfied	Reasonably satisfied	Satisfied	Not satisfied	Unsure/don't know/NA
Lamb	5	4	3	2	1
Hogget	5	4	3	2	1
Mutton	5	4	3	2	1
Beef	5	4	3	2	1
Chicken	5	4	3	2	1
Pork	5	4	3	2	1

4. Your customers' views on eating quality
With regard to your customers, please rate each of the product attributes:
very important - 5; some importance - 4; little importance - 3; no importance - 2; N/A - 1.

	Attribute	Lamb					Hogget/Mutton				
i)	Taste/flavour	5	4	3	2	1	5	4	3	2	1
ii)	Tenderness	5	4	3	2	1	5	4	3	2	1
Iii)	Juiciness	5	4	3	2	1	5	4	3	2	1
iv)	Fat content	5	4	3	2	1	5	4	3	2	1
v)	Odour	5	4	3	2	1	5	4	3	2	1
vi)	Consistency	5	4	3	2	1	5	4	3	2	1

	Attribute	Lamb					Hogget/Mutton				
vii)	Versatility	5	4	3	2	1	5	4	3	2	1
viii)	Visual appeal	5	4	3	2	1	5	4	3	2	1
ix)	Other (please specify)	5	4	3	2	1	5	4	3	2	1

5. Eating quality factors

Listed below are factors that may affect lamb and sheepmeat eating quality. Please identify factors you think have a high (5), medium (4), low (3), no impact (2) on eating quality or (1) if you don't know. *Please circle your response to each factor.*

No.	Factor Description	Eating Quality Impact					Comment (if any)
		H	M	L	N	D/k	
	Processing practices						
1	Stress caused by transportation	5	4	3	2	1	
2	Length of time spent in yards	5	4	3	2	1	
3	Livestock handling in yards	5	4	3	2	1	
4	Use of electrical stimulation	5	4	3	2	1	
5	Tenderstretch hanging	5	4	3	2	1	
6	Cold shortening	5	4	3	2	1	
7	Ageing of product in chillers	5	4	3	2	1	
	Carcase and Meat quality						
8	Meat Colour	5	4	3	2	1	
9	Fat Colour	5	4	3	2	1	
10	Tenderness	5	4	3	2	1	
11	Texture/firmness	5	4	3	2	1	
12	Eye muscle area	5	4	3	2	1	
13	Carcase yield	5	4	3	2	1	
	Post Processing Practices						
14	Retail preparation	5	4	3	2	1	
15	Further ageing of primal cuts	5	4	3	2	1	
16	Storage/freezing of meat	5	4	3	2	1	
17	Differences between muscles/cuts	5	4	3	2	1	
18	Cooking - degree of doneness	5	4	3	2	1	
19	Suitability of cuts to certain dishes	5	4	3	2	1	
20	Suitability of cooking methods to certain cuts	5	4	3	2	1	
	OTHERS (please specify):						
		5	4	3	2	1	
		5	4	3	2	1	

6. Eating quality factors specific to your business

Please list the retail practices carried out in your business that you think affect lamb and sheepmeat eating quality.

Practices that may **improve** eating quality.	Practices that may cause a **decline** in eating quality.

7. Eating Quality Research.

In your opinion, what eating quality factors or issues, if any, require further research?

Lamb	Hogget/Mutton

8. Tools for improving lamb and sheepmeat eating quality

How useful are the following tools/methods for communicating research results to industry? *Please circle your response for each.*

	Tools/methods of receiving information	Very Useful	Quite Useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	5	4	3	2	1
ii)	Regular mail out of technical briefs	5	4	3	2	1
Iii)	Publish results and leave to industry to adopt	5	4	3	2	1
iv)	Build into formalised industry training (e.g. MINTRAC)	5	4	3	2	1
v)	Structured short course training programs	5	4	3	2	1
Vi)	One-to-one assistance from industry consultants	5	4	3	2	1
Vii)	Work directly with individual supply chains to help improve eating quality	5	4	3	2	1
Viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	5	4	3	2	1
ix)	Computer software for supply chain management	5	4	3	2	1
x)	Regular e-mail sent to subscribers	5	4	3	2	1
Xi)	Industry specific web sites	5	4	3	2	1
Xii)	Other (please specify)	5	4	3	2	1

9. Segregating Lamb from other Sheepmeats

As you may be aware, the current statutory lamb brand will cease being regulated by Government from August 2003. The Sheepmeat Council of Australia (SCA) and National Meat Association of Australia (NMA) are currently investigating options, for implementation prior to 2003, to improve the way in which lamb is segregated from other sheepmeat products (e.g. hogget and mutton). Your responses to the following questions will help SCA and NMA plan their approach to the issue.

9.1 Segregation

a) How important is the segregation of lamb from hogget and mutton to the future of your business? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

b) How adequate is the current system of strip branding lamb in achieving this segregation? *Please circle your response.*

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't Know
5	4	3	2	1

9.2 Truth-in-labelling

Please rate the importance of truth in lamb product labelling to the lamb and sheepmeats industry? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't know
5	4	3	2	1

Please record any comments you may have regarding this issue.

_____

_____

_____

9.3 Consumer confidence in Lamb segregation

In your opinion what is the best method/s for providing a guaranteed "lamb" category to the consumer?

_____

_____

_____

_____

9.4 Lamb classification- the upside and the downside

Please list what you consider to be the positive and/or negative aspects, if any, associated with the implementation of a lamb classification system.

Positive Aspects	Negative aspects

9.5 Specifications

If you were establishing specifications for defining lamb, what age requirements, carcase criteria and/or quality attributes would you include in the specifications?

	Criteria/Attributes
1.	
2.	
3.	
4.	
5.	
Others.	

10. Please record any comments you have regarding this survey, lamb or sheepmeat eating quality or lamb branding.

_____

_____

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_____

11. Would your company like to receive a summary of the results from this survey?

Yes ☐   No ☐

If yes, please ensure that you have provided your contact details on the first page.

12. Would your company be interested in participating in either a research program or any future commercial trials relating to factors affecting eating quality of lamb and sheepmeats?

Yes ☐   No ☐

If yes, please ensure that you have provided your contact details on the first page.

Thank you very much for your input.
Would you please either return the form using the reply paid envelope
– or –
fax the survey form (4 pages) back to (07) 3367 1150.

WHOLESALE SURVEY

Lamb and Sheepmeat Eating Quality

Please supply the following details:

Required information – *the following information is required for survey validation purposes*

Post code for the business:
Client base: *Please identify the sectors you wholesale to and the approximate percentage that sector makes up of your overall business.*

Hotels/pubs/clubs ☐   % Catering firms ☐   %

Hospitals/institutions ☐   % Butchers/supermarkets ☐   %

Restaurant ☐   % Further processor ☐   %

Other (specify) ☐   %

Approximate kilograms of lamb sold per week: _____

Approximate kilograms of mutton sold per week: _____

Company details

Company:	
Address:	
Contact name:	
Phone:	Fax: E-mail:

Average weekly sales.

		Approx. percentage (%) of weekly sales
i)	Beef	
ii)	Lamb	
iii)	Mutton	
iv)	Chicken	
v)	Pork	
vi)	Fish/Seafood	
vii)	Smallgoods	
viii)	Other (specify)	
	TOTAL	**100%**

1. Quality comparison over time

How do you rate the quality of lamb, hogget and mutton available to you today compared with the quality available 5 years ago? (circle your response)

	Better	Same	Worse	Don't know	N/A
Lamb	5	4	3	2	1
Hogget	5	4	3	2	1
Mutton	5	4	3	2	1

2. Product confidence
How confident are you of being able to purchase the quality of meat you expect?

	Very confident	Some confidence	Little confidence	No confidence	N/A
Beef	5	4	3	2	1
Lamb	5	4	3	2	1
Mutton	5	4	3	2	1
Chicken	5	4	3	2	1
Pork	5	4	3	2	1

3. Quality variation
a)   Does the quality of the *lamb (i.e carcase, primals, portions)* you buy vary throughout the year?

<div align="center">Yes ☐   No ☐</div>

If yes, which months are a problem and what is the effect of the variation.

_____

_____

_____

b)   Does the quality of the *hogget/mutton (i.e carcase, primals, portions)* you buy vary throughout the year?

<div align="center">Yes ☐   No ☐</div>

If yes, which months are a problem and what is the effect of the variation.

_____

_____

4. Eating quality factors.
Listed below are factors that may affect lamb and sheepmeat eating quality. Please identify factors you think have a high (5), medium (4), low (3), no impact (2) on eating quality or (1) if you don't know. *Circle your response to each factor. Indicate with a tick (✓) where you would like further information on any single factor.*

No.	Factor Description	Eating Quality Impact H M L N D/k					Comment (if any)	Yes (✓) further information required
	Processing practices							
1	Stress caused by transportation	5	4	3	2	1		
2	Length of time spent in lairage	5	4	3	2	1		
3	Livestock handling in lairage	5	4	3	2	1		
4	Use of electrical stimulation	5	4	3	2	1		
5	Tenderstretch hanging	5	4	3	2	1		
6	Cold shortening	5	4	3	2	1		
7	Ageing of product in chillers	5	4	3	2	1		
	Carcase and Meat quality							
8	Meat Colour	5	4	3	2	1		
9	Fat Colour	5	4	3	2	1		
10	Tenderness	5	4	3	2	1		
11	Texture/firmness	5	4	3	2	1		
12	Eye muscle area	5	4	3	2	1		
13	Carcase yield	5	4	3	2	1		

No.	Factor Description	Eating Quality Impact					Comment (if any)	Yes (✓) further information required
		H	M	L	N	D/k		
	Post Processing Practices							
14	Retail preparation	5	4	3	2	1		
15	Further ageing of primal cuts	5	4	3	2	1		
16	Storage/freezing of meat	5	4	3	2	1		
17	Differences between muscles/cuts	5	4	3	2	1		
18	Cooking - degree of doneness	5	4	3	2	1		
19	Suitability of cuts to certain dishes	5	4	3	2	1		
20	Suitability of cooking methods to certain cuts	5	4	3	2	1		
	OTHERS (please specify):							
		5	4	3	2	1		
		5	4	3	2	1		
		5	4	3	2	1		

5. Product Attributes

Please rate the following product quality attributes in order of importance. *Please circle your response.* 5 = very important; 4 = some importance; 3 = little importance; 2 = not important; 1 = don't know/unsure.

	Attributes	**Lamb**					**Hogget/Mutton**				
i)	Taste/flavour	5	4	3	2	1	5	4	3	2	1
ii)	Tenderness	5	4	3	2	1	5	4	3	2	1
iii)	Juiciness	5	4	3	2	1	5	4	3	2	1
iv)	Fat content	5	4	3	2	1	5	4	3	2	1
v)	Odour	5	4	3	2	1	5	4	3	2	1
vi)	Consistency	5	4	3	2	1	5	4	3	2	1
vii)	Overall quality	5	4	3	2	1	5	4	3	2	1
Viii)	Versatility	5	4	3	2	1	5	4	3	2	1
ix)	Customer appeal	5	4	3	2	1	5	4	3	2	1
x)	Healthy choice	5	4	3	2	1	5	4	3	2	1
xi)	Relative price	5	4	3	2	1	5	4	3	2	1
xii)	Value for money	5	4	3	2	1	5	4	3	2	1

6. Eating quality factors specific to your business

Please list the practices carried out in your business that you think affect lamb and sheepmeat eating quality.

Practices that **improve** eating quality	Practices that may cause a **decline** in eating quality

7. Eating Quality Research

In your opinion, what eating quality factors or issues, if any, require further research?

Lamb	Hogget/Mutton

8. Tools for improving lamb and sheepmeat eating quality

How useful are the following tools/methods in providing to industry research results which can be used for improving lamb and sheepmeat eating quality. Circle your response for each.

	Tools/methods of receiving information	Very useful	Quite useful	Some Use	No Use	Don't Know
i)	Provision of detailed project reports	5	4	3	2	1
ii)	Regular mail out of technical briefs	5	4	3	2	1
Iii)	Publish results and leave to industry to adopt	5	4	3	2	1
iv)	Build into formalised industry training (e.g. MINTRAC)	5	4	3	2	1
v)	Structured short course training programs	5	4	3	2	1
vi)	One-to-one assistance from industry consultants	5	4	3	2	1
vii)	Work directly with individual supply chains to help improve eating quality	5	4	3	2	1
Viii)	Paddock to plate quality assurance program(s) with accreditation/audit etc	5	4	3	2	1
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9. Segregating Lamb from other Sheepmeats

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Your responses to the following questions will help SCA and NMAA plan their approach to the issue.

9.1 Segregation

a) How important is the segregation of lamb from hogget and mutton to the future of your business? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't Know
5	4	3	2	1

b) How adequate is the current system of strip branding lamb in achieving this segregation? *Please circle your response.*

Totally adequate	Reasonably adequate	Only partially adequate	Not adequate at all	Don't Know
5	4	3	2	1

9.2 Truth-in-labelling

Please rate the importance of truth in lamb product labelling to the lamb and sheepmeats industry? *Please circle your response.*

Very important	Quite important	Some importance	Not important	Don't Know
5	4	3	2	1

Please record any comments you may have regarding this issue.

_____

_____

_____

_____

_____

9.3 Consumer confidence in Lamb segregation
In your opinion what is the best method/s for providing a guaranteed "lamb" category to the consumer?

_____
_____
_____
_____
_____

9.4 Lamb classification- the upside and the downside
Please list what you consider to be the positive and/or negative aspects, if any, associated with the implementation of a lamb classification system.

Positive Aspects	Negative aspects

9.5 Specifications
If you were establishing specifications for defining lamb, what age requirements, carcase criteria and/or quality attributes would you include in the specifications?

	Criteria/Attributes
1.	
2.	
3.	
4.	
5.	
Others.	

10.   Other comments

_____
_____
_____
_____
_____
_____

11. Would your company like to receive a summary of the results from this survey?

<div align="center">Yes ☐   No ☐</div>

If yes, please ensure that you have provided your contact details on the first page.

12. Would your company be interested in participating in either a research program or any future commercial trials relating to factors affecting eating quality of lamb and sheepmeats?

<div align="center">Yes ☐   No ☐</div>

If yes, please ensure that you have provided your contact details on the first page.

Thank you very much for your input. Now please return the form by fax on (07) 3367 1150 or by post: Alliance Consulting & Management, PO Box 1764, Milton, 4064, QLD.