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Consumer Attitudes to Kangaroo Meat Products

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Foreword

This report provides a comprehensive account of domestic consumers' current beliefs and attitudes towards kangaroo meat in a context of the broader retail environment. It analyses and evaluates the likelihood of increasing the demand for and consumption of, existing and potential kangaroo meat products. It then discusses the prospects for these and other products in light of the issues facing meat manufacturers, retailers and the kangaroo meat industry.

It is ten years since the last serious consumer research on the kangaroo industry, and since then there has been considerable change such as the widespread availability of kangaroo in domestic supermarkets. Despite this, the industry remains reliant on fluctuating export markets and stands to benefit from stronger domestic demand for kangaroo meat, especially manufacturing meat. In addition, innovations funded by other RIRDC programs are developing models for landholder involvement in the kangaroo industry and it is not clear what impact these models may have on consumers, retailers and manufacturers.

This research addresses these key issues and applies sophisticated and innovative marketing research strategies in the form of discrete choice experiments (DCEs) to kangaroo meat for the first time. It provides a snapshot of existing and potential kangaroo meat consumers and explores possible markets for what were perceived to be the most promising products in which kangaroo manufacturing meat could be used: mince, deli meats and pies.

The report is targeted to the Kangaroo Industry Association of Australia (KIAA), kangaroo processors, meat products manufacturers, retailers, landholders, and kangaroo harvesters. Key findings include:

- Consumption is increasing steadily, especially in variety seeking consumers, but it is held back in the general community by a number of factors including, for example, a perceived lack of availability and lack of normality as a meat for regular human consumption.
- Consumers are largely unaware that kangaroos are wild harvested, but knowledge that they are is not a significant barrier to acceptance.
- The status of kangaroo as a national icon is no longer a significant barrier to general consumer acceptance of kangaroo meat.
- Mince and deli meats are the most promising targets for increasing domestic consumption of kangaroo manufacturing meat.
- Meat manufacturers and retailers are open to the use of kangaroo meat but are unlikely to do so until they perceive that there is greater consumer demand.

The report makes a number of recommendations for action by the kangaroo industry and by the marketing and research communities.

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This report, an addition to RIRDC's diverse range of over 1700 research publications, forms part of our New Animal Products R&D program, which aims to accelerate the development of viable new animal industries

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Abbreviations

DCEs	Discrete choice experiments
KIAA	Kangaroo Industry Association of Australia
RIRDC	Rural Industries Research and Development Corporation
NRM	Natural resource management

Contents

Foreword ..... **iii**
Acknowledgements ..... **iv**
Abbreviations ..... **iv**
Contents ..... **v**
List of Tables vii
List of Figures vii
Executive Summary ..... **viii**
What is the report about? viii
Who is the report targeted at? viii
Background viii
Aims/Objectives ix
Methods used ix
Results/key findings ix
a. Consumption of and attitudes towards kangaroo meat ix
b. Kangaroo manufactured meat products x
c. Manufacturer and retailer attitudes to kangaroo xi
Implications for relevant stakeholders xii
Recommendations xiii
1. Introduction **1**
1.1 Industry Background 1
1.2 Previous Research Projects 2
2. Objectives **3**
3. Method **4**
3.1 Stage 1: Interviews - Retailers/Manufacturers of Manufacturing Meat Products 4
3.1.1 Completed interviews 4
3.1.2 Extended conversations 4
3.1.3 Refusal to participate 4
3.1.4 Contribution to the research project 5
3.2 Stage 2: Focus Groups - Consumer Meat and Kangaroo Meat Consumption 5
3.2.1 Focus group participation 5
3.3 Stage 3: Survey - Consumer Demand for Kangaroo Products 6
3.3.1 Respondent quotas 6
3.3.2 Survey structure and flow 6
3.3.3 Publication of negative media article 13
3.4 Stage 4: Return Interviews: Retailers/Manufacturers of Manufacturing Meat Products 13
3.4.1 Completed interviews 13
3.4.2 Respondent recruitment 14
3.4.3 Planned workshop 14
4. Consumer Perspectives on Meat and Kangaroo Meat Consumption **15**
4.1 Current purchase behaviour and attitudes towards eating kangaroo meat 15
4.1.1 The consumer segments 15
4.1.2 Meat purchase behaviour 16
4.1.2 Where does kangaroo meat come from? 19
4.1.3 Cooked meat preferences 20
4.1.4 Price perceptions 21
4.2 Consumer segments and their attitudes to consuming kangaroo 21
4.2.1 Perceptions of the healthiness and quality of kangaroo 22
4.2.2 Preparation and aesthetics of kangaroo meat 23
4.2.3 Kangaroo as a resource 25
4.2.4 Values and acceptance of kangaroo 26

4.3 Potential demand for selected products containing kangaroo manufacturing meat 28
4.3.1 Mince meat 28
4.3.2 Pies 30
4.3.3 Deli meats 36
5. Retailers' and Manufacturers' Perspectives on the Use of Kangaroo Manufacturing Meat 40
5.1 Retailing and manufacturing environment for manufactured meat 40
5.2 Perceptions of kangaroo meat from potential retailers and manufacturers 41
5.3 Retailer and manufacturer perspectives on likely consumer reactions to kangaroo meat... 42
5.4 Kangaroo meat potential in retail and manufacturing environment........ 43
5.5 Retailers/manufacturers recommended actions to make kangaroo meat more acceptable . 44
6. Discussion 46
6.1 Comparison with 1997 data 46
6.2 Consumption and availability 46
6.3 Consumer attitudes and Issues 47
6.4 Consumer response to kangaroo mince, pies and deli meats 47
6.5 Manufacturer and retailer attitudes to kangaroo 48
7. Implications........ 49
8. Recommendations 51
Appendices 53
Appendix A: Interview Protocols........ 53
Semi-structured interview guide: Retailers 53
Semi-structured interview guide: Manufacturers 54
Appendix B: Focus Group Moderator Guides........ 55
Base Guide for Moderator........ 55
Guide for Moderator: Participants consuming kangaroo previously (Focus Group 2, 3 and 4).... 57
Appendix C: Summary of Focus Group Findings........ 59
Appendix D: Extract of Focus Group Quotes: Product and Promotions Suggestions 60
Suggestions for promoting kangaroo........ 60
Suggestions for kangaroo products or preparation of kangaroo:........ 61
Appendix E: Information Conditions 62
Information Condition 1: Kangaroo Harvesting and Management 62
Information Condition 2: Health Assurance and Quality Control for Kangaroo Meat 62
Information Condition 3: Cooking Kangaroo Meat 63
Appendix F: Design and Attributes for Mince Scenarios........ 64
Appendix G: Value Statements and Variety Seeking Scale 65
Value Statements........ 65
Variety Seeking Behaviour (Van Trijp and Steenkamp 1992)........ 65
Appendix I: Availability of Kangaroo........ 66
Appendix J: Sample Used for the Kangaroo Product Scenarios 66
Appendix K: Complete Sample Results for Choice of Deli Meats 67
References 68

List of Tables

Table 1: Consumer segments for which quotas were established 6
Table 2: Current position on eating kangaroo by gender (n=1599) 15
Table 3: Per cent of Consumer Segment in State, Household, Age group 16
Table 4: Beliefs on kangaroo meat source by consumer segment (per cent holding a belief) 19
Table 5: Red meat cooking preference by current position on eating kangaroo* 20
Table 6: Market shares for mince type by segments (percentage of all first preferences) 28
Table 7: Mince by percentage chosen of each volume 29
Table 8: Purchase of pies by consumer segment (per cent of segment) 31
Table 9: Percentage of total pie preferences by preference type. 32
Table 10: Percent of respondents choosing a kangaroo pie and number of instances 34
Table 11: Second preferences given first preference by segment (per cent) 35
Table 12: Percentage who chose at least one product from a deli meat category 36
Table 13: Interview quotes coding 40
Table 14: Comparison of 1997 (Purtell and Associates) and 2007 research projects 46
Table 15: Orthogonal main effects design used for mince scenarios 64
Table 16: Perceptions of availability of kangaroo by consuming segments and state* (per cent) 66
Table 17: Distribution of segments and gender across information conditions for the quota sample... 66
Table 18: Choice of deli meats including kangaroo 67

List of Figures

Figure 1: Structure and flow of the internet survey 7
Figure 2: Example of a mince meat scenario used to illicit preferences and purchase behaviour 9
Figure 3: Example of one pie scenario used to illicit preferences 11
Figure 4: Example of one of the deli meats scenario for normal occasions 12
Figure 5: Purchase frequency of meats 17
Figure 6: Perceptions of availability of kangaroo (per cent) 18
Figure 7: Purchasing organic red meats by consumer segment* (per cent of segment) 19
Figure 8: Responses on quality and healthiness of kangaroo meat 22
Figure 9: Kangaroo meat and its attributes 24
Figure 10: Attitudes to the status of kangaroo: medium to high consumers and objectors 25
Figure 11: Variety seeking behaviour and using kangaroo as a source of variation 27
Figure 12: Probability of buying kangaroo mince given its price (by consumer segment) 30
Figure 13: Probability of choosing kangaroo mince given price and information condition 30
Figure 14: Spatial representation of pie preferences 33
Figure 15: Pattern of preferences for kangaroo based pies (per cent of all pies) 33
Figure 16: Most preferred pies by gender 34
Figure 17: Most preferred pies by gender 35
Figure 18: Percent of respondents choosing salami by occasion 37
Figure 19: Percent of respondents choosing a sliced meat by occasion 37
Figure 20: Percent of respondents choosing a cured meat by occasion 38
Figure 21: Attitude to kangaroo deli meats by gender 38

Executive Summary

What is the report about?

This report provides a comprehensive account of domestic consumers' current beliefs and attitudes towards kangaroo meat in a context of the broader retail environment. It evaluates the likelihood of increasing demand and consumption of products made from kangaroo manufacturing meat such as mince meat, meat pies and deli meats. It then discusses the prospects for these and other products in light of the issues facing smallgoods and other meat manufacturers and retailers. Finally the report makes recommendations on how the industry might meet its strategic targets.

It is ten years since the last serious consumer research on the kangaroo industry, and since then there has been considerable change such as the widespread availability of kangaroo in domestic supermarkets. Despite this the industry remains reliant on fluctuating export markets and stands to benefit from stronger domestic demand for kangaroo meat, especially manufacturing meat. In addition, innovations funded by other RIRDC programs are developing models for landholder involvement in the kangaroo industry and it is not clear what impact these models may have on consumers, retailers and manufacturers.

This research addresses these key issues and applies sophisticated and innovative marketing research strategies known as Discrete Choice Experiments (DCEs) to kangaroo meat for the first time. It provides a snapshot of existing and potential kangaroo meat consumers and explores possible markets for what were perceived to be the most promising products in which kangaroo manufacturing meat could be used: mince, deli meats and pies.

Who is the report targeted at?

The report is targeted to the Kangaroo Industry Association of Australia (KIAA), kangaroo processors, meat products manufacturers, retailers, landholders, and kangaroo harvesters.

Background

The kangaroo industry is in an ideal position. It has been growing steadily and kangaroo meat is now present on most domestic supermarket shelves. Harvest quotas are being met in most states with demand exceeding supply especially for the prime cuts. It retains a role as a pet meat and a low cost high protein export for smallgoods but could emerge as a high quality meat to discerning consumers both domestically and for export. The Kangaroo Industry Strategic Plan has set a target of 80% of kangaroo meat being sold within Australia at prices 10% higher (in real terms) than present.

A RIRDC funded study (Purtell and Associates 1997) looked at consumer perceptions of Kangaroo products and recommended improved range, availability and distribution of kangaroo products and targeted promotional programs. Since then, domestic consumption of prime cuts of kangaroo meat has grown, but the lesser cuts or manufacturing meat often end up in pet food at a much lower price. Kangaroo is still in demand in Europe as a high protein, low fat component of smallgoods, yet domestic smallgoods and other meat manufacturers remain reluctant to use it. Overcoming this is a key priority for the industry but there has not been a focused study on the opportunities for the use of kangaroo by smallgoods and other meat manufacturing or on the market sectors. There has also been very little research on people that currently consume kangaroo in Australia and what marketing interventions would be most effective in boosting consumption.

Aims/Objectives

The major beneficiary of this research is the kangaroo industry including processors (as represented by KIAA), harvesters and distributors who may utilise research outputs to strengthen the industry. Indirectly, the research will benefit remote and rural communities that provide much of the labour force for the industry and the landholders from whose land the kangaroos are harvested.

The specific objectives of the proposed research were to:

1) Identify key attitudes and issues concerning the use of kangaroo meat by smallgoods and other meat manufacturers and retailers.
2) Ascertain which attributes of meat and smallgoods in general are important for consumer choice and determine how kangaroo is perceived on these attributes.
3) Investigate choice behaviour and potential demand among meat consumer segments to identify the triggers for increased consumption of kangaroo based on the attributes identified in objective 2.
4) Determine the potential for change in the choice behaviour of smallgoods manufacturers based on the findings from objectives 1 and 3.

Methods used

A steering committee was established representing KIAA, Australian Smallgoods Council and RIRDC as an appropriate sample of stakeholders and to help guide the project. Face-to-face meetings, teleconferences and email dialogue took place before, during and after the project.

The research was conducted in four stages commencing with interviews with two retailers/manufacturers to identify key attitudes and issues concerning their use of kangaroo meat. These were followed by three consumer focus groups comprising 32 people and an online consumer survey of 1590 meat consumers which examined consumers' meat and smallgoods consumption behaviour and the role kangaroo might play in their choices, as well as their attitudes to eating kangaroo. The consumer survey utilised discrete choice experiments and shopping scenarios to determine likely demand for three products: mince meat, meat pies, and deli meats. Also examined in the consumer survey was the effect on choices of information on kangaroo harvesting, quality control and preparation. In the final stage, we returned to discussions with retailers/manufacturers of the results of the consumer studies.

Results/key findings

a. Consumption of and attitudes towards kangaroo meat

Consumption of kangaroo was marginally higher than in the 1997 survey but general patterns of consumption remained similar. In the current study, 58.5% of respondents had at least tried kangaroo at some time, with 14.5% having eaten kangaroo at least 4 times per year (classed as "medium to high" consumers) and 44% having eaten it at least once but not regularly (classed as "one-off and low" consumers). Of 41.5% who had not eaten kangaroo, just over half were willing to try kangaroo but as yet have not given it much thought (classed as "non-consumers") and the remainder either objected to eating kangaroo ("objectors") or thought kangaroo was unhealthy (only 0.7% of the total sample).

Consumption varies considerably across the states. The percentage of medium to high consumers ranged from 21% in South Australia and 19% in Western Australia to only 9.2% in Queensland (where the number of non-consumers reached a high of 28.5%). New South Wales had the highest number of objectors (22.4%).

Men were marginally more likely to consume kangaroo than women with 16.8% indicating they eat kangaroo at least four times per year compared to 12.3% for women. A higher proportion of women were objectors (27.8%), but of those that had tried kangaroo, 65% indicated they would try it again.

In 1997, 35% of past users indicated their reason for current non-use was that kangaroo meat was unavailable. In the current survey, only 13% kangaroo consumers indicated that kangaroo was not available when they had looked for it. This was mostly the case in New South Wales & the Australian Capital Territory (19.5%) and Victoria & Tasmania (14%). A further 52% of respondents indicated that kangaroo was available but not on every occasion they wished to buy.

For the most part, consumers are aware that kangaroo is a healthy meat that is lower in cholesterol than beef or lamb and this is a definite plus. However, uncertainty about how to prepare kangaroo meat remains an issue for all but the medium to high consumers, and even most consumers in that category perceive limited scope for preparing kangaroo. Also, a potential barrier is the level to which kangaroo steak or fillets are cooked, as, while half the consumers surveyed prefer their red meat cooked medium to well-done, the general recommendation is that kangaroo meat should be served rare or medium-rare, due to the very low fat content.

The consumer segments which present the most growth potential for kangaroo meat are the one-off to low consumers and non consumers that are interested. These segments exhibit little concern that kangaroos are part of our national emblem and there is general agreement in that kangaroos should be used as a resource for food and leather. What they are concerned about - and this is a sentiment across all segments except objectors - is that kangaroos are killed humanely. They also expressed some uncertainty around the integrity of the meat. One-off to low consumers were concerned that kangaroo meat might be tough (48%) and were concerned about how to cook it (53%). However, few (30%) were concerned with the appearance of the meat. Non-consumers' responses indicated a high level of uncertainty in these areas, as would be expected given they hadn't given kangaroo meat much consideration.

Despite the increasing acceptance of kangaroo meat, there remain issues around the harvesting of animals. Across the sample there was a widespread (and incorrect) belief that kangaroo populations are managed in fenced farms (36.4%) or 'free-ranged' on properties like cattle stations (35.8%). Only 27.8% believed they were harvested as wild animals. Knowing the animals were harvested did not change attitudes to eating kangaroo amongst focus groups participants but there was an indication of increased sensitivity to hygiene factors and the welfare of the animal in the harvest.

b. Kangaroo manufactured meat products

In the consumer survey, respondents were presented with three kangaroo-based products - mince, pies and deli meats - in the form of shopping scenarios. In the mince scenario, prices of each mince available were manipulated as was the source of the meat (for kangaroo and premium beef only). In the case of pies, the pies that were available were manipulated so that only 10 of a possible 16 appeared in any one scenario. In both cases an underlying experimental design (explained in the methods section) was used to develop the scenarios. The final product, deli meats, was presented in two scenarios; a normal shopping trip and shopping for a special occasion.

The most preferred minces were all beef varieties (extra trim, regular and premium), however, kangaroo mince attracted 10% of respondents' first preferences on average, a higher figure than for lamb, veal and the organic lamb and beef minces. At current supermarket prices of $6.99 - $8.99 per kg, kangaroo mince attracted between 15-20% of first preferences, with this proportion decreasing as price was increased. Adding a source for the kangaroo mince, such as "Blue Ridge", produced a marginally higher likelihood of choosing kangaroo but this was not significant in overall choices. In terms of the quantities that respondents bought, one-off and non consumers were more likely to choose smaller sizes which aid experimentation (51-61% chose 250-500g packages compared to 41% of medium to high non consumers).

It was evident from the consumer survey that a significant number of consumers are willing to at least try kangaroo pies (31%) and that most would see it as a gourmet novelty. Overall, there was a clear preference for the Chunky Beef & Roo pie (rather than just Kangaroo), which also appeared to be seen as a substitute for Chunky Beef. One factor that we did not include in this research is price. The responses in the survey were based on kangaroo pies being sold at the same price as others. Clearly, this will not always be the case but what would seem important is that they are priced closely to other pies bought by that consumer segment (for example gourmet, everyday).

With regards to deli meats, the number of respondents choosing products containing kangaroo was small relative to non-kangaroo, however, close to 65% of respondents indicated a willingness to try a kangaroo product and 32% of these were willing to buy to try. Most consumers chose a variety of deli meats (between 2 and 6) when asked to indicate which meats they would buy from a selection of 28. Ham, followed by sliced meats (beef, turkey etcetera), were the categories from which items were most often chosen. The kangaroo deli items, which were available in three of the five categories: salami, sliced meat, and cured meat, attracted between 20-44% of consumers in the high to medium segment and between 8-16% of one-off consumers, depending on the occasion. Special occasions were central to non-consumers choosing kangaroo, where kangaroo options attracted 4-6% of respondents.

The fact that most consumers seek variety in choosing deli meats, combined with a strong willingness to try kangaroo deli meats and increased interest for special occasions, suggests a potential for increased demand in the future. Two caveats are: that half of those willing to buy will need to sample products first because they will not buy them to experiment; and most interest is likely to come through gourmet delis which are less readily accessed than supermarkets.

The information conditions given to respondents (on either harvesting, quality control or preparation) had no apparent impact on choice of mince meat or deli meats and only a marginal effect on choices of pies. For pies it only had a minor impact in their second preferences not their primary pie preference. We had expected to see some effect from providing preparation information on one-off to low and non-consumers who are interested but this was not the case.

c. Manufacturer and retailer attitudes to kangaroo

A limitation of this study is the small number of interviews undertaken; however this was unavoidable given the reluctance of prospective respondents to agree to be interviewed. Despite the small number of interviews, a range of industry perspectives was received and discussed in some detail through the semi-structured interview format. As a result, the findings create a well-informed view of the environment into which the kangaroo industry is hoping kangaroo manufacturing meat can become established.

The manufacturers interviewed were aware of kangaroo and open to using it in their products, but are very unlikely to do so unless they perceive it to be more normal in the eyes of consumers. A significant and innovative information campaign to raise the profile of kangaroo is necessary before this can happen. In addition, they need to be confident of the transparency and openness of the process of kangaroo harvest if they are to make the significant investment needed to bring kangaroo-containing products to market.

Major retailers will need to see kangaroo products being successful in the gourmet and niche markets before they become regularly available on supermarket shelves. While niche manufacturers and retailers are able to develop and make available innovative kangaroo products to their variety-seeking customers, they recognise that consumer awareness and curiosity is not sufficient to sustain even small volumes at present. They would have to remarkably (even obsessively) persistent in trying to develop the loyal clientele needed to make a stable and regular production of any benefit to the kangaroo industry.

Implications for relevant stakeholders

Although the proportion of Australian meat consumers who have tried kangaroo has not changed significantly since the 1997 RIRDC study, there has been significant growth in the proportion that are eating kangaroo more frequently. Further increasing consumption amongst current and one off consumers holds considerable potential for market growth, especially given the finding that consumers remain unable to buy kangaroo on every occasion they wish to.

An encouraging finding is that in most instances consumers who try kangaroo meat like it and would eat it again. Also encouraging is that most consumers perceive kangaroo to be a healthy meat. Given these findings, and the considerable publicity and emphasis on healthy eating today, there would seem to be ample scope for growing this segment of the market.

Preparation remains an issue, as does the level of cooking. Uncertainty over cooking will discourage some consumers who will choose to eat kangaroo only when prepared elsewhere and so limit their consumption level. People who prefer meat cooked rare (the recommended way of cooking kangaroo) are more likely to be higher consumers of kangaroo, however, there are still many medium to high kangaroo consumers who generally prefer their meat medium or well-done, indicating that there may be a significant market segment who like kangaroo cooked this way.

Of the three products examined in the consumer survey, mince meat has the greatest potential for using kangaroo manufacturing meat. If this market alone was to expand to, say, 2% of the beef mince market, it would increase the domestic human consumption of kangaroo manufacturing meat to 80t per week. Factors that may currently deter consumers from trying out kangaroo mince as a substitute for their regular purchase are the current packaging in 1kg packs and its shelf location. It is likely that they would be more aware of it as a substitute if it was next to the other minces and be more willing to experiment with smaller quantities.

Although kangaroo pies attracted interest, their potential is hampered by three issues. Firstly, the key group that regularly choose kangaroo are gourmet food lovers, a relatively small group that is unlikely to regularly eat pies. Secondly, kangaroo pies are a niche market within another niche market (gourmet pies) making it very small. Finally, even well-constructed, taste-tested kangaroo pies have had very limited appeal when tried.

There is clear potential for an innovative smallgoods manufacturer to develop kangaroo products to target variety-seeking consumers. This research looked at several possibilities (kangaroo salami, kangaroo pastrami, kangaroo proscuitto and rare roast roo). From a manufacturers' perspective, most deli meats can be made using kangaroo. The difficulty would be to produce the product at a low enough cost to allow the mark-ups required by distributors to deliver it to gourmet retailers at a realistic retail price.

What is evident from the results of the focus groups and consumer survey is that, while increased consumption has followed increased availability of kangaroo meat, this is occurring slowly. We believe that consumption will continue to grow slowly or to stagnate unless pro-active steps are taken to make the product more visible. This should be achieved with a consistent message that emphasises that there is no risk of harm to the kangaroo population as a whole, that the harvest process is humane and hygienic, and that the harvest results in benefits to source communities and environments.

At present the industry suffers from mixed messages, which create doubt in the minds of tentative consumers. This is picked up by manufacturers and retailers, perpetuating the fringe status of kangaroo meat. On one hand, the industry promotes kangaroo meat to consumers as being clean, green and compatible with sustainable land management, but at the same time justifies the harvest to landholders on the basis of kangaroos being a pest and also allows the perpetuation of the widespread myth that kangaroo meat comes from kangaroos that are managed on farms or free-ranged on large stations. Transparent and consistent rhetoric that is open to scrutiny is vital for manufacturers and retailers to gain confidence to develop products containing kangaroo and to market them positively.

Recommendations

1. To make kangaroo meat consumption more normal rather than a curiosity, the industry needs to take a proactive approach to promoting kangaroo as a gourmet alternative that carries health benefits and has a wide variety of uses.
2. To make kangaroo meat and meat products more visible to consumers as an easy to prepare, inviting alternative to mainstream meats, the industry should work with manufacturers and retailers to develop and test sample products. The biggest impact is likely to be education about its use in a wide range of meals that reflect Australia's ethnic diversity and the growing interest in gourmet foods.
3. Kangaroo mince presents the greatest potential increase in volume of kangaroo manufactured meat as a substitute for mainstream products (for example trim beef mince). The industry should work with retailers to further experiment with the key factors emerging from this study in relation to mince:
   - price differential (that is how much lower than substitutes it needs to cost),
   - location in store (that is near to substitute to allow direct choice comparison) and
   - package size (that is potential demand for smaller 500g packages allowing experimentation).
4. The gourmet smallgoods market is the obvious first market for developing interest in kangaroo deli meats. The industry should work with individual gourmet manufacturers/retailers to develop and test sample products, particularly through measures designed to capitalise on the variety-seeking behaviour of deli meat consumers' such as:
   - on-site tastings,
   - serving suggestions,
   - promotion of kangaroo deli meats for special occasions and
   - use of specialty items by the restaurant/hospitality trade.
5. At present pies containing kangaroo are unlikely to achieve significant market share beyond specialist pie shops. A chunky beef and kangaroo pie has scope for a broader market, subject to meeting taste requirements.
6. Research is needed to gain a better understanding of consumers with a preference for well cooked red meat. This segment is large and at present it is assumed that kangaroo is simply unpalatable if cooked to this level. This may not be the case.
7. In terms of its profile, the industry needs to generate consistent messages to all stakeholders of a uniquely Australian resource that is managed through careful harvesting, is humane and sustainable, and is good for the environment. It needs to separate itself from the culling for pest management that often attracts strong emotional responses from the community and creates images of poor quality control. We recommend the industry:
   - Investigate chain of custody management to improve consistency of industry practice.
   - Investigate the impact of stronger involvement by landholders in harvest management on quality and stakeholder perceptions of kangaroo meat.
   - Develop and test different approaches to achieving consistent industry messages and branding.
8. In a wider context, we recommend targeted research into the beliefs, attitudes and behaviour on human connections to different animals—wild native, wild feral, domesticated native, domesticated introduced, and how that is impacted on by how the animal is husbanded, harvested, transported and slaughtered.

1. Introduction

The broad aim of this project was to help the kangaroo industry to increase domestic human consumption of kangaroo meat by collecting and analysing critical information about the choice behaviour of consumers and linking it to the marketplace in which kangaroo meat products must compete. The research was based on the hypothesis that manufacturers of smallgoods and other meat products will be more likely to incorporate kangaroo meat into their products and retailers will be more likely to stock kangaroo products when they:

- have greater knowledge of consumer acceptance of eating kangaroo,
- greater knowledge of potential products and their desirable attributes and
- clear strategies on which to base the marketing of kangaroo meat products.

1.1 Industry Background

The kangaroo industry has existed in Australia for more than three decades and utilises kangaroos culled as part of each state's kangaroo management program. Industry players have faced significant challenges in gaining domestic market acceptance whilst energetically pursuing export opportunities. Many of these efforts have been severely damaged by episodes of negative publicity. Despite this, in recent years domestic consumption of kangaroo has grown steadily. The industry is keen to see this continue, and is aiming for an industry with 80% of the annual harvest sold for domestic consumption and a 10% increase in price (Kelly 2005).

A major barrier to the realisation of this vision is the reluctance of mainstream Australian meat manufacturers to use kangaroo in their products. Domestic consumption of prime cuts of kangaroo meat is growing, but the lesser cuts (or manufacturing meat) often end up in pet food. Kangaroo is in demand in Europe as a high protein, low fat component of smallgoods, yet domestic manufacturers remain reluctant to use kangaroo meat in such products. Overcoming this is a key priority for the industry.

New value-added kangaroo only and kangaroo containing products such as salamis, pies and ready-made meals would increase the market diversity for manufacturing meat. A critical issue is the potential impact of negative publicity putting at risk investment in new products that contain kangaroo. Fear of these episodes underpins the industry's reluctance to market and promote kangaroo to both consumers and meat manufacturers. Despite this, supermarket chains are now stocking kangaroo meat products and whilst they remain low volume products compared to other meats products, they have retained shelf space over a number of years (Kelly 2004). However, little is known about the smallgoods and manufacturing meat market sectors that currently consume kangaroo in Australia and what marketing interventions would be most effective in boosting consumption.

Aside from the obstacles presented by trying to encourage Australians to consume a cute national icon and the animal welfare claims disseminated by animal liberationists, the low consumption of kangaroo meat amongst Australians has largely been attributed to factors such as the inherited English idea of kangaroo as a low-quality meat, poor butchering and the unfamiliarity with cooking a very lean meat that becomes tough when overcooked (Hercock 2004; Hercock and Tonts 2004). Hercock (2004) also hypothesises that the relatively strong acceptance of kangaroo meat in continental Europe (particularly in France, Belgium and Germany) may be due to an established culture of game meat consumption which is less present in Australia. Supporting this is the assertion that Australians have a bias against darker coloured meats that is not evident amongst German consumers (Wynn et al. 2004).

1.2 Previous Research Projects

A sensible way forward is through detailed studies of consumer choice behaviour in kangaroo consumption to inform marketing approaches tailored towards specific market sectors. A previous RIRDC funded study (Purtell and Associates 1997) examined consumer perceptions of kangaroo products and recommended improved range, availability and distribution of kangaroo products and targeted promotional programs. The former has largely occurred through the availability of a range of kangaroo products in mainstream supermarkets and has achieved significant sales despite very little promotion. The report contains sufficient information on the market segments that eat or are likely to eat kangaroo and about what attributes would influence their decision to suggest that discrete choice experiments (DCEs) are a sensible next step in the process. A more recent RIRDC study (Wynn, Beaton et al. 2004) looked at the influence of factors such as species, age and handling on taste, tenderness and variability of meat quality. Implementation of these findings by processors and harvesters could lead to increased human consumption of kangaroo meat through improved product consistency and consumer satisfaction. These two studies have strongly informed the FATE program's strategy analysis for the kangaroo industry (Ampt and Baumber 2006).

2. Objectives

This research project was conducted to:

1. Identify key attitudes and issues concerning the use of kangaroo meat by smallgoods and other meat manufacturers and retailers.

2. Ascertain which attributes of meat and smallgoods in general are important for consumer choice and determine how kangaroo is perceived on these attributes.

3. Investigate choice behaviour and potential demand among meat consumer segments to identify the triggers for increased consumption of kangaroo based on the attributes identified in objective 2.

4. Determine the potential for change in the choice behaviour of smallgoods and other meat manufacturers and retailers based on the findings from objectives 1, 2 and 3.

3. Method

The research involved four stages:
Stage 1: In-depth interviews with retailers/manufacturers
Stage 2: Focus groups with consumers
Stage 3: Internet-based consumer survey
Stage 4: Return interview discussions with retailers/manufacturers about Stages 2 and 3

Detailed discussion of each stage is presented in the following sections.

3.1 Stage 1: Interviews - Retailers/Manufacturers of Manufacturing Meat Products

Identify key attitudes and issues concerning the use of kangaroo meat by smallgoods and other meat manufacturers and retailers.

The intention was to conduct 5-10 in-depth interviews with manufacturers and retailers of products that contain manufacturing meat to understand the market into which kangaroo manufacturing meat could expand. In practice it was extremely difficult to convince respondents to agree to a formal interview, largely because they had little interest in kangaroo products. After considerable persistence and many conversations attempting to influence them, only two in-depth interviews (a buyer for a retail chain and pie company marketing executive) were completed.

3.1.1 Completed interviews

The interviews were semi-structured and based on prepared protocols (see Appendix A). Each interview began with open-ended questions to illicit a basic description of their business and more specific questions focussing on their key products. The interview then moved to questions about past, present and future use of kangaroo meat. Following this specific aspects of the use of kangaroo meat were explored. Finally, issues around respondents' perceptions of market demand for and consumer attitudes to kangaroo meat were canvassed before exploring their personal attitudes to kangaroo meat. The interviewer took notes during the interviews as well as recording them. The interviews were transcribed and analysed for key themes emerging from the data.

3.1.2 Extended conversations

During the process of organising interviews, eight extended conversations (two pie companies, three smallgoods manufacturers supplying major retail chains, two frozen meal manufacturers and a major retail chain) were conducted. The general ideas of these conversations were recorded both during and after by the interviewer

3.1.3 Refusal to participate

Five companies refused to grant an interview (two pie makers, two frozen meal makers, and a fast food company). A further eight companies failed to commit to an interview after repeated attempts (four smallgoods makers, a major retail chain, a frozen meal maker, a pie maker and a fast food chain).

Reasons given for refusing an interview included:

- They did not view kangaroo meat as relevant to their current business and did not expect that to change so were unwilling to give up the time required for the interview.
- All smallgoods manufacturers approached were supplying major retail chains who they perceived to be unwilling to experiment.
- Some pie makers specifically advertised their product as beef only.

3.1.4 Contribution to the research project

Understandings gained as a result of the interviews, conversations and refusals informed the subsequent stages of this research project. It was decided, in consultation with the Steering Committee, that some companies should be approached again with results from the consumer study (Stages 2 and 3). It was also decided that pursuing key gourmet food manufacturers and distributors would greatly assist in understanding the potential for kangaroo manufacturing meat in that market which is a key precursor to its acceptance in the mainstream supermarkets.

3.2 Stage 2: Focus Groups - Consumer Meat and Kangaroo Meat Consumption

Ascertain which attributes of meat and manufactured meat products in general are important for consumer choice and determine how kangaroo is perceived on these attributes.

The focus group research was based on two primary objectives:

1. To provide a clearer understanding purchase behaviour for meat in general and kangaroo meat in particular.

   This was to assist in the development of the choice scenarios for the consumer survey (Stage 3). As a result discussion centred on how participants determined what meats and smallgoods to buy and from where, the particular preferences they have for established attributes and how kangaroo fits into their meat consumption.

2. To identify attitudes and issues related to the consumption of kangaroo meat.

   This was explored in the contexts of kangaroo as an Australian icon, the harvesting of kangaroos, the benefits of kangaroo management, and their views on how kangaroo might be marketed to promote consumption of kangaroo meats. The guides used to direct the focus groups are provided in Appendix B.

3.2.1 Focus group participation

All focus group participants were meat consumers who also consume smallgoods. Each participant was the primary or joint decision-maker in the consumption of these foods for their household. Within the focus groups there was an approximately equal distribution of men and women and age categories. As South Australian consumers have had a significantly longer exposure to kangaroo meat, a quota of South Australian consumers was included, as this state can be seen to have a more developed market, which in turn might reveal some prevailing attitudes and distinctive patterns of use.

The focus groups were conducted during late September to early October 2006. Originally four focus groups of 8-10 participants were planned. Following Group 1, which comprised different levels of consumers, the decision was made to drop the original Group 2 (which was to comprise one-off and low consumers) as it was felt there was little additional insight to be gained from a group of these consumers on their own. In its place an "overtime internet discussion forum" (Group 3) was run for 3 days. This enabled the participation of a larger number of consumers which spurred the debate and generated greater depth in the discussion.

The focus groups comprised:

Group 1:	Mix of medium and no to very low consumers (7 participants, face-to-face drawn from Sydney residents)
Group 2:	Medium to high consumers (8 participants chat-room style online forum)
Group 3:	No to low and medium to high consumers (17 participants online forum over 3 days)

Stage 2 of the research project informed the development of Stage 3. Key elements from the focus group discussions, including illustrative quotes, are incorporated in the discussion of the results of the consumer survey (Section 4). Further summary points and quotes from discussion are included in Appendix C and D.

3.3 Stage 3: Survey - Consumer Demand for Kangaroo Products

Investigate choice behaviour and potential demand among meat consumer segments to identify the triggers for increased consumption of kangaroo based on the attributes identified in Stage 2.

An internet-based survey of meat and smallgoods consumers was conducted over April to May 2007 using a paid panel of respondents provided by Pure Profile. The survey period extended over two weeks in order to achieve the required quotas and as a consequence of server overload experienced during the first invitation to respondents.

Respondents were emailed by Pure Profile to indicate that a survey looking at meat consumption and purchase behaviour was available for completion for consumers of meat and smallgoods. Once a respondent opened the survey they were further screened for suitability. The survey included sets of purchase scenarios to assess potential demand for three products, closed-structured questions on usage behaviour and attitudes towards kangaroo, and manipulation of three kangaroo information pieces to assess the effect of these on consumers' demand and attitudes to kangaroo.

3.3.1 Respondent quotas

Four broad consumer segments were defined and quotas were established to ensure sufficient data were collected (see Table 1).

Table 1: Consumer segments for which quotas were established

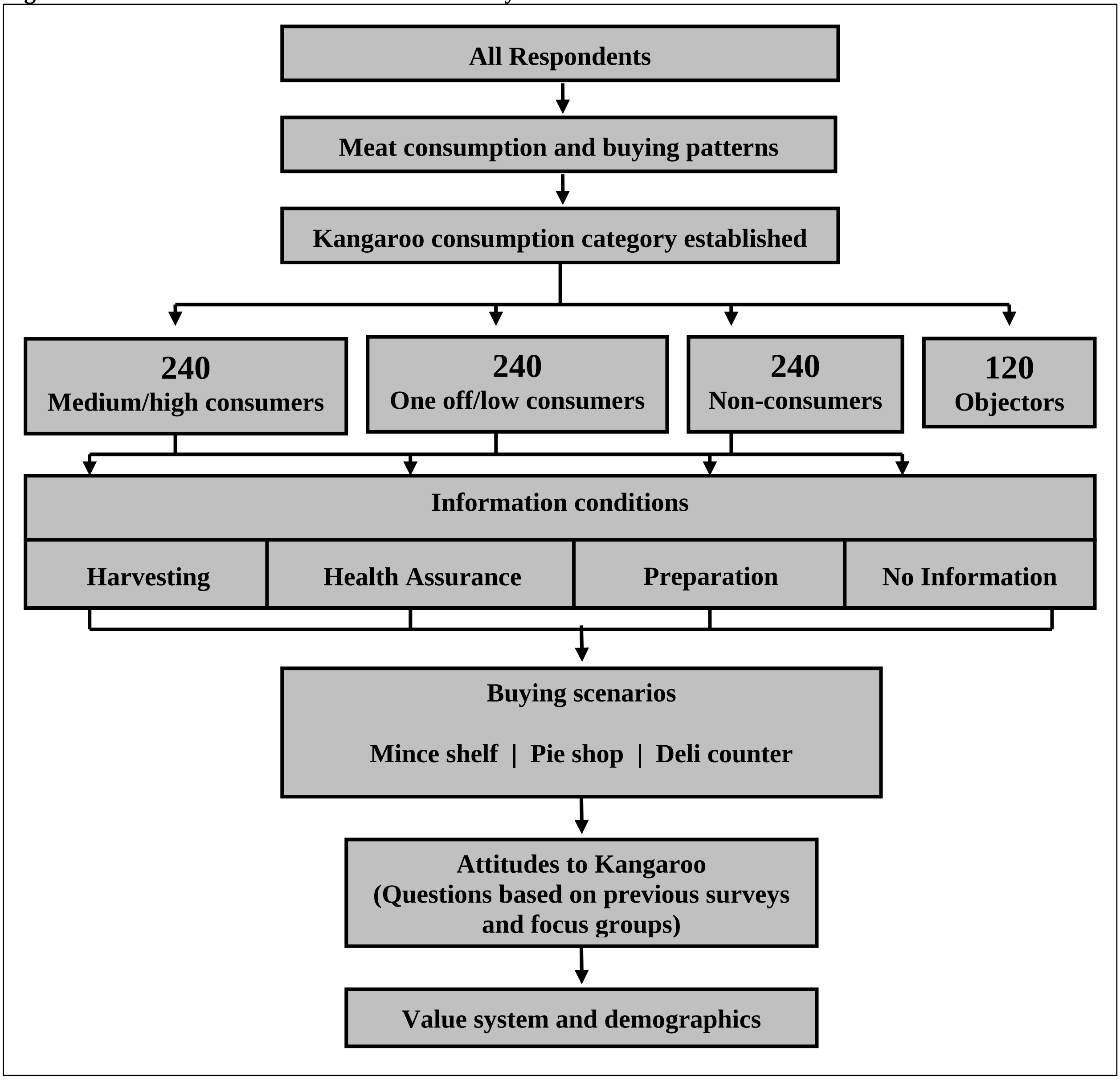
Consumer Segment	Quota	Description
Medium to high consumers	240	have eaten kangaroo at least FOUR times per year
One-off and low consumers	240	have eaten kangaroo at least ONCE
Non-consumers	240	have not given much thought to eating kangaroo or consider it unhealthy
Objectors	120	consumers who disagree with eating kangaroo

The 'objectors' segment was included because in the focus groups there was some indication that current consumers had previously objected to eating kangaroo. The lower quota set for 'objectors' reflected the expectation that these consumers would avoid kangaroo and be unresponsive to the information pieces.

3.3.2 Survey structure and flow

The content of the survey questions was informed by key findings from the RIRDC 97/36 research (Purtell and Associates 1997)and the earlier stages of this research project. The structure and flow of the questionnaire is presented in Figure 1 and then explained in more detail in the following sections.

Figure 1: Structure and flow of the internet survey



Meat consumption and buying patterns

The survey began with a series of questions on current meat consumption and purchases. Kangaroo was included as one of many meats at this stage, so as to avoid response bias and enable us to determine actual consumption and buying levels of kangaroo vis-à-vis other meats. On completing this section respondents were asked to indicate their attitudes towards eating kangaroo and from their responses were allocated to one of the four consumer segments.

Information conditions

Next, respondents were randomly assigned to one of four information conditions, which were sourced mainly from KIAA and Macro Meats. These information conditions were designed to examine the effect on attitudes and demand responses of information on:

1. **Harvesting**
   This information piece was designed to place kangaroo among common game meats and as a meat that is becoming familiar in the Australian diet. It also emphasises that harvesting is closely monitored to ensure sustainability, and is as humane as possible. It was developed in response to concerns expressed in the focus groups among non users and some one-off users over killing

kangaroo or their becoming endangered. Non-users concerns extended to the fact that eating kangaroo was something “unusual” which meant not widely accepted.

2. **Health Assurance**
   This information piece focused on quality control and the cleanness of kangaroo meat.

3. **Preparation**
   This information piece preparation piece provides information on kangaroo in general but focused on uses for kangaroo mince in particular since this is a key product for manufactured meat. This was developed in response to focus group concerns over how to prepare kangaroo meat, which where prevalent across all but high users.

4. **No information.**
   This information condition was the base from which to assess the other three conditions. Respondents assigned to no information piece, continued directly to the next section of the questionnaire.

The first three information pieces are included in Appendix E.

Buying Scenarios

Survey respondents next moved to sets of buying scenarios that enabled the determination of the demand or likelihood of buying a kangaroo product. These scenarios were designed to simulate the context in which consumers would normally make choices among a set of products that are potential substitutes for each other. The survey included buying scenarios for three sets of products: mince meat, meat pies and deli meats. These products present feasible uses for kangaroo manufacturing meat and received favourable responses in the qualitative research (Stage 2). The buying scenarios also provided various contexts in which kangaroo might be considered and included both pre-prepared and self-prepared purchases.

The mince meat and pies scenarios were developed using discrete choice experiments (DCEs). This involved designing experiments for a set of related products in which the attributes of each alternative (for example price, fat content, meat content, availability of the alternative) are systematically and independently varied to produce multiple choice scenarios. Consumers were surveyed with sets of these scenarios and asked to state their preferred alternative in each.

Choice data collected through DCEs have been increasingly used across a number of disciplines where the good or service is new or there is insufficient variability in observed choices to obtain reliable estimates of the effect of product characteristics on choices. The methods underpinning DCEs are based on Lancaster’s theory of value (Lancaster 1966) in which utility is derived from the underlying characteristics of a good; and on the random utility model (RUM) in which observed choices are the result of both a systematic and random component of utility (McFadden 1974). In Australia, DCEs have been used by companies such as NAB, Qantas, NRMA and McDonalds and its validity is supported by a large body of published studies (Adamowicz et al. 1998; Louviere et al. 2000; Hall et al. 2004) for a comprehensive discussion.

Mince meat scenarios

Respondents completed eight choice scenarios presented in the form of an online shopping website interface similar to that used by Coles or Woolworths. The mince meat scenarios were introduced in the following way:

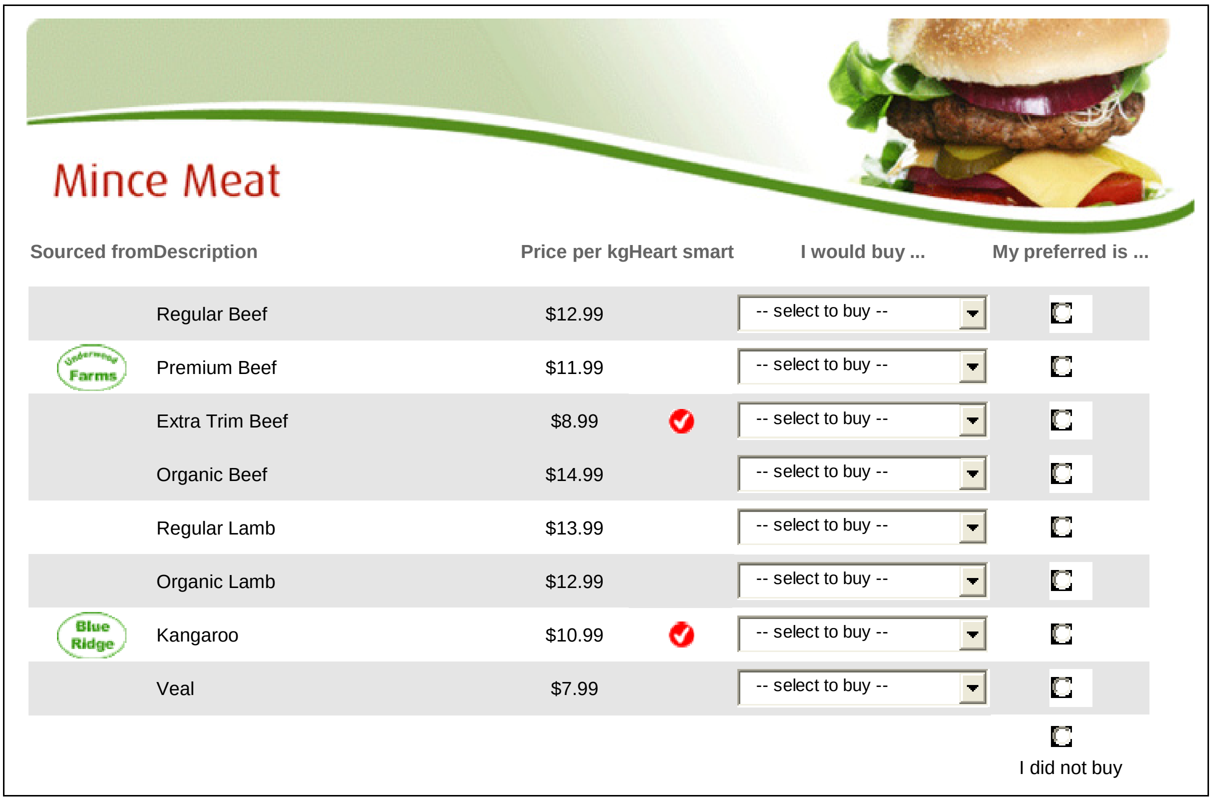
> *In this set of scenarios you are going to buy mince meat. We would like you to think back to the last time you shopped for meats and the process you go though to choose your meats, and mince meat in particular. Do you buy mince at every shop? How much do you normally buy? Do you buy different minces?*
>
> *Over the following pages we are going to present you with eight (8) hypothetical lists of minces (much as you would see if you were shopping online). Each mince that is listed is at a price per kilogram and other information such as heart ticks and sourcing of the meat is given where it applies. Please assume that the minces in the list are freshly ground and can be bought pre-packaged or from your butcher.*
>
> *You are now on your next shop for meat. Each hypothetical list represents a different possible assortment of minces that you might encounter on this shopping expedition.*
>
> *In each scenario you can respond by buying one mince, or more than one mince, or no mince at all if you do not like what is on offer. Just make your choices as you would normally.*

An example of one mince meat scenario is presented in Figure 2. The mince meat scenarios were designed to determine the base demand for kangaroo mince vis-à-vis other minces and whether demand varies with changes in the price of kangaroo or other minces or the source of the kangaroo meat (that is, an identifiable source in which the animals are managed or generic).

In each scenario respondents were provided with a list of mince meats along with their prices, National Heart Foundation ticks for extra lean and kangaroo, and source information for premium beef and kangaroo. The list of mince meats and National Heart Foundation ticks remained the same in all scenarios but the prices and the source attribute were manipulated using an underlying experimental design based on an orthogonal main effects plan $8\ 4^8$ in 32 runs. Where the mince meat was from an identifiable source a button appeared on screen and produced a pop-up displaying the sourcing information when the cursor was placed over it. The experimental design, price levels, and source information are provided in Appendix F.

Figure 2: Example of a mince meat scenario used to illicit preferences and purchase behaviour

> *Here is the first scenario. Please indicate which mince or minces you would buy by using the "select to buy" menus. Once you have made your selection(s), indicate which of these is your preferred one by clicking on the button under "My preferred is.." (If you have chosen only one mince then your preferred will be that mince. If you have chosen no minces this time then it will be "I did not buy").*
>
> *Hint: slide your cursor over the tags under "sourced" for more information on the source.*



Mince Meat

Sourced from	Description	Price per kg	Heart smart	I would buy ...	My preferred is ...
	Regular Beef	$12.99		-- select to buy --	
Underwood Farms	Premium Beef	$11.99		-- select to buy --	
	Extra Trim Beef	$8.99	✓	-- select to buy --	
	Organic Beef	$14.99		-- select to buy --	
	Regular Lamb	$13.99		-- select to buy --	
	Organic Lamb	$12.99		-- select to buy --	
Blue Ridge	Kangaroo	$10.99	✓	-- select to buy --	
	Veal	$7.99		-- select to buy --	
					I did not buy

Pies scenarios

The scenarios for pies were limited to eliciting likelihood of buying only. This is because pies are inherently more complex than mince in terms of taste and composition and sheer variety and a kangaroo option(s) is highly novel. The pies scenarios were designed to ascertain respondents' level of interest in these products ignoring price effects.

In each scenario all pies were listed at the same price, which is considered about the average for pies purchased at non-gourmet outlets. Two kangaroo pies ("Chunky Beef and Roo" and "Kangaroo") were included among the alternatives. The pies scenarios each present a mock blackboard of 10 available pies (see Figure 3). Respondents were asked to indicate their most and least preferred and 2nd most and least preferred pies among the listed pies. The 10 pies were drawn from an experimental design (BIBD 16 16 10 10 6) that allowed for16 pies. This meant a respondent was not able to choose the same pie as most their preferred in every scenario (eight per respondent). Manipulating the availability of pies in this manner not only ensured more information on preferences, it also reflected a situation often encountered in buying pies and a potential source of preference change where consumers experiment with unfamiliar alternatives.

The pies scenarios were introduced to respondents with the following:

> *We are now going to show you eight (8) scenarios of a pie shop that holds a range of pies, from the traditional to gourmet. Each day the shop has a slightly different selection of pies on offer.*
>
> *Think back to when you buy pies. Are you someone who likes to buy the same pie(s) each time or do you like to try different pie(s)?*
>
> *Imagine now you have walked into the pie shop. In each scenario we would like you to first choose the pie you MOST prefer then the pie you LEAST prefer. Next we would like you to consider the remaining pies and again choose the one you MOST prefer and LEAST prefer.*

Figure 3: Example of one pie scenario used to illicit preferences

Deli meats scenarios

The deli meats scenarios were also limited to obtaining the likelihood of buying only. Again, this is due to a complexity of the product (in terms of taste and composition and sheer variety) and because a kangaroo option(s) is highly novel. The deli meats scenarios were designed to ascertain respondents' level of interest in these products ignoring price effects.

Two deli meats scenarios were presented to respondents on a mock blackboard with the same 28 meats. In the first scenario, respondents were asked to indicate the meats they would buy/consider on a normal shop for deli meats (see Figure 4) and in the second scenario, the deli meats they would choose for a special occasion. Deli meats, more than the other products, is a category in which respondents make multiple purchases with some purchases being staples and others variety-seeking or experimental. It was expected that the four kangaroo products: pastrami, rare roast, salami and smoked were more likely to be chosen for a special occasion than in the normal cycle. While the deli meat scenarios ensure that respondents make their choices in the context of the multiple meats available, a shortcoming is that they present only two shopping occasions and so are likely to under-report an intention to try/repurchase a kangaroo deli meat at some time in the future. To assess this possibility a question asking about prior/intended purchases was included. Note, however, that this is a weaker representation than the choice scenarios of respondents' likely behaviour since there is no specific commitment.

The deli meats scenarios were introduced to respondents with the following:

> *Over the next two pages we are going to present you with two final scenarios of a delicatessen. As previously, think back to when you buy deli meat and other deli goods.*
>
> *Now, think forward to your next typical shop for deli meats and click next.*

Figure 4: Example of one of the deli meats scenario for normal occasions

Look through the deli meats available and indicate which meats you would buy for your next typical shop if the price were acceptable.

Salami	Pressed Meat	Hams	Cured Meat	Sliced Meat
☐ Hungarian	☐ Devon	☐ Leg Ham	☐ Cabanossi	☐ Chicken
☐ Spanish / Hot	☐ Berlina	☐ Double Smoked	☐ Smoked Roo	☐ Rare Roast Roo
☐ Pepperoni	☐ Fritz	☐ Honey Ham	☐ Pastrami	☐ Turkey
☐ Csabai	☐ Smoked Turkey	☐ Soccer Ball	☐ Pancetta	☐ Rare Roast Beef
☐ Danish	☐ Boloni	☐ 97% Fat Free	☐ Kangaroo Pastrami	☐ Roast Beef
☐ Kangaroo salami	☐ Mortadella		☐ Proscuitto	

Attitudes to kangaroo, value system and demographics

The final section of the survey presented respondents with sets of questions to elicit attitudes towards kangaroo as well as aspect of their personal value systems that may influence these. The expression of their values on consumption of kangaroo was captured through the following two statements:

- I would be concerned about what my friends and family would think if I ate kangaroo.
- I would feel more comfortable about eating kangaroo if it were more mainstream.

Values were elicited using a subset of five statements from the set of value scales developed by Bilsky and Schwartz (1994):

1. Humble, devout, accepting my portion in life
2. Politeness, obedient, honouring parents and elders
3. Daring, a varied life, an exciting life
4. Pleasure, enjoying life, self-indulgent
5. Creativity, curious, freedom

These statements have been found to capture the guiding principles that inform individual's belief systems (See Appendix G for an explanation of each statement).

Of particular interest in the current context was whether consumers who place greater emphasis on values 1 and 2 and less on 3 and 5 (as outlined above) would be more likely to indicate greater concern with what family and friends thought and be more comfortable with eating kangaroo when it becomes more mainstream.

'Pleasure and enjoyment' (value 4) is associated with hedonism and is included to see whether this is associated with a gourmet focus and viewing kangaroo as a source of variety. A second scale of 8 items "variety-seeking" was included to capture this facet more specifically. The scale was developed by Van Trijp and Steenkamp (1992) for the context of food and has proven a good indicator of consumers who have exploratory tendencies. Two further measures were included to determine whether variety-seeking is a good predictor of consumers who would seek kangaroo as a source of variation:

- I prefer to stick to old favourites like beef and lamb.
- I like variety in my family's diet and kangaroo would be (is) a welcome change.

3.3.3 Publication of negative media article

During the survey period a leading broadsheet in Sydney published an article on a campaign against kangaroo consumption by an animal activist group that was planned for Europe. To control for the possible effects of this, a new question was included following the section on current attitudes towards kangaroos. The question enquired whether respondents had seen or heard of a campaign in the past two weeks. Of the 396 respondents who completed the survey following the article's publication, only 37 respondents (mostly from New South Wales and Victoria) indicated they had heard or seen reports on opposition to the kangaroo industry in the past two weeks. There was no indication that the publication of the article resulted in more "objectors" or increased negative consumer attitudes to consuming kangaroo.

3.4 Stage 4: Return Interviews: Retailers/Manufacturers of Manufacturing Meat Products

Determine the potential for change in the choice behaviour of smallgoods and other meat manufacturers and retailers in response to the findings from Stages 1, 2 and 3.

This stage of the research project was completed during June 2007. As with the initial interviews (Stage 1), considerable efforts were made to convince people to agree to be interviewed. The following results summarised from the Stages 2 and 3 were presented to prospective interviewees:

- There is a large group of meat consumers (65.8%) who are willing to eat kangaroo but as yet are one-off consumers or have never eaten it. By far the biggest barrier to choosing kangaroo in this group is that they haven't even looked for it (61.9%).
- Eating kangaroo is still considered unusual, and were it to become considered more normal, many more people would try it, especially current one-off and non-consumers.
- Kangaroo mince is preferable to other non-beef minces. It is generally a substitute for regular mince especially if there is a big difference in price. First time purchasers are more likely to choose smaller packs (500g).
- Very few kangaroo deli meats are available, with only about 11% of the sample having ever eaten them. There is a strong willingness to try them (68%), with 34% willing to buy them and a further 25% willing to try them if they were offered to them, especially for special occasions. Kangaroo salami, smoked roo and rare roast roo would appear to be the most likely to succeed.
- Consumer response to kangaroo pies was less positive. Even some high kangaroo users disliked the thought of a kangaroo pie. Overall, the results indicate some scope for a chunky beef & roo pie but little for a purely kangaroo pie; at least at this stage. A possible explanation is that pie eaters are less likely to be adventurous with food.

3.4.1 Completed interviews

Three interviews were completed and included a major smallgoods manufacturer, a small-scale premium hand-made pie manufacturer and a gourmet meat retailer from a wealthy inner city suburb.

The interviews followed the same protocol used in Stage 1 with the addition of questions about responses to the findings of from the consumer focus groups and survey, that is, Stages 2 and 3 (see Appendix A). As with Stage 1, the interviews were recorded, transcribed and analysed for key emerging themes from the data.

3.4.2 Respondent recruitment

Four companies refused to grant an interview (two pie makers, a small goods maker and a fast food company). A further eight companies failed to commit to an interview despite repeated attempts (two frozen meal makers, two gourmet butchers, a smallgoods maker, a pie maker, a gourmet prepared meal service and a fast food chain). Reasons given for refusing an interview included:

- They were unable to give up the time required for the interview.
- They had not previously given consideration to kangaroo meat in their current product range and were unwilling to experiment.
- They would be against having kangaroo meat in the processing plant.
- They were committed to their beef only product.

3.4.3 Planned workshop

The intended workshop based on the findings of Stages 2 and 3 was abandoned due to respondents' lack of engagement with kangaroo issues even after hearing the consumer survey findings. Instead attempts were made to contact previous interviewees with key messages from the research and their responses were documented.

4. Consumer Perspectives on Meat and Kangaroo Meat Consumption

In this section we present results from the consumer survey and elaborate on findings using the discussions from the focus groups. The survey included 1599 respondents who provided information on their buying and consumption patterns and on their overall attitude towards eating kangaroo. Of these, 814 also completed the product scenarios and attitude questions, 433 were dropped due to over-quota, 323 timed out (server interruption) and 29 were ambiguously classified.

In Section 4.1 we have drawn from the full sample of 1599 since they represent a large cross-section of Australians that were not restricted by the quotas placed on the consumer segments. In the remaining sections the results are from the quotered sample.

4.1 Current purchase behaviour and attitudes towards eating kangaroo meat

Kangaroo meat was tried by 58% of respondents, which is marginally higher than for the earlier RIRDC study (see section 6.1) by Purtell and Associates (1997). Across the sample 14.5% had eaten kangaroo at least four times a year and a further 33.3% had tried kangaroo at least once and would try it again. This compares with only 10.7% who had eaten kangaroo but would not try it again and indicates that close to 75% of consumers who try kangaroo are future consumers at some level (see Table 2).

Women were slightly less likely to be medium/high consumers and more likely to be objectors than men. Women were also more likely to avoid kangaroo having tried it once and less likely to indicate they would try kangaroo again.

A concern often expressed in the kangaroo industry is the potential for kangaroo meat to be seen as unhealthy. Only 0.7% of the sample gave this as a reason for not eating kangaroo, although this does not rule it out as a secondary factor and certainly it is a latent problem. Issues around health are discussed later within this section of the report.

Table 2: Current position on eating kangaroo by gender (n=1599)

Current position on eating kangaroo	Gender		Total
	Male	Female	
I eat kangaroo often: monthly or more	4.4	5.0	**4.7**
I eat kangaroo regularly: roughly 4-6 times a year	12.4	7.3	**9.8**
I have eaten kangaroo at least once and would try it again	41.9	25.2	**33.3**
I have eaten kangaroo once but would not try it again	7.9	13.3	**10.7**
I haven't given much thought to eating kangaroo but would probably try it	21.4	20.8	**21.1**
I don't agree with eating kangaroo	11.2	27.8	**19.8**
I don't eat kangaroo because it is unhealthy	0.8	0.6	**0.7**
Total	**100.0**	**100.0**	**100.0**

4.1.1 The consumer segments

Prior to further analysis respondents were categorised into the four consumer segments outlined in Section 3.3.2). These are:

Medium to high consumers: have eaten kangaroo at least FOUR times per year
One-off and low consumers: have eaten kangaroo at least ONCE
Non-consumers: have not given much thought or consider it unhealthy
Objectors: consumers who disagree with eating kangaroo

The four segments were then compared against key demographic data (see Table 3). South Australia (21.2%) and Western Australia (19%) have the highest proportion of medium to high consumers, while New South Wales and Australian Capital Territory had a higher number of objectors (22.4%). Queensland had the fewest in the medium to high consumers' category and more non-consumers. This seems to be primarily due to a lack of exposure and/or interest rather than perceptions of kangaroo as only fit for pet food. Queenslanders did have slightly higher agreement with the statement that kangaroo were pests but this was marginal.

Household type was included to determine whether families with younger children might be less inclined to consume kangaroo meat. This was not supported with no difference being found between households once gender was taken into account. Household type also had no effect on responses to the question "I would not let children eat Kangaroo as I would worry about their health", which is consistent with the 1997 study and suggests that the presence of small children is not, of itself, a significant deterrent to consuming kangaroo meat.

Age did not influence consumption type but there were fewer 18-25 year olds in the medium to high consumer category.

Table 3: Per cent of Consumer Segment in State, Household, Age group

Demographic Data	Consumer Segment: Medium to high	Non-consumer	Objector	One-off or low	Total Respondents
State					
NSW and ACT	14.2	19.5	22.4	43.9	**549**
Vic and Tas	14.0	23.3	19.9	42.9	**443**
Qld	9.2	28.5	17.6	44.7	**284**
WA	19.0	22.2	17.1	41.8	**158**
SA and NT	21.2	13.3	17.0	48.5	**165**
Household					
Single	14.0	21.7	18.8	45.4	**207**
Shared household	14.1	23.0	19.3	43.7	**135**
Couple married or defacto	17.1	21.2	17.1	44.7	**486**
Family with children < 12	13.2	21.0	18.4	47.5	**463**
Family with children 12+	12.7	23.4	26.9	37.0	**308**
Age group					
18-25	10.0	21.7	21.7	46.7	**60**
26-35	16.0	21.3	17.9	44.8	**531**
36-45	12.7	19.6	20.2	47.4	**504**
46-55	14.5	25.2	20.6	39.7	**310**
55-64	16.0	23.2	21.6	39.2	**194**
Total Sample	**231**	**348**	**316**	**704**	**1599**

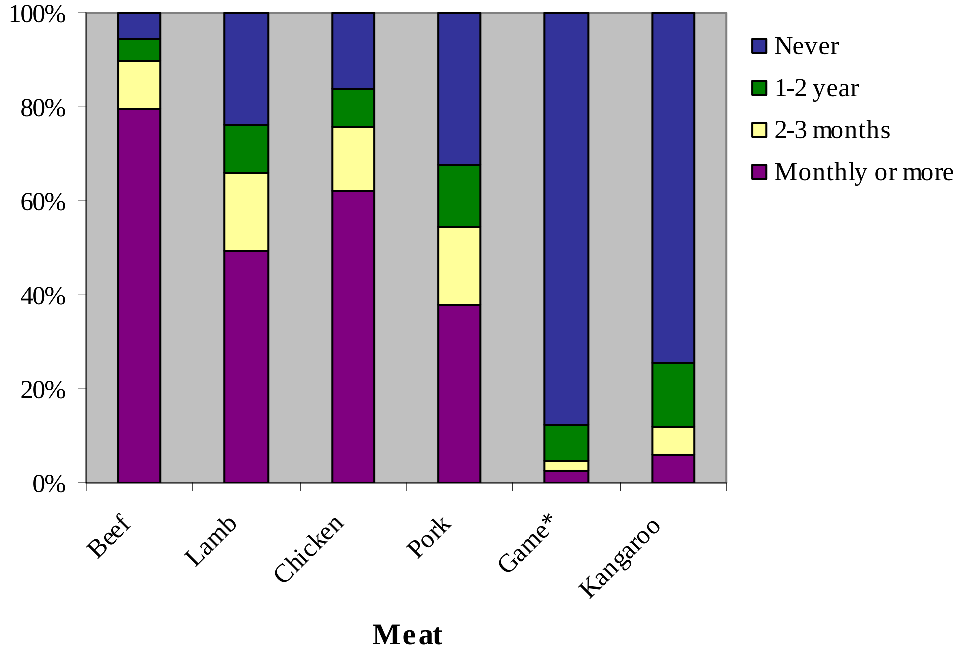
State difference significant at $p = .002$; Gender differences significant at $p < .001$

4.1.2 Meat purchase behaviour

The majority of households (78%) prepare at least 5-6 meals a week at home and this was consistent across Australia. Most households shop at a combination of butcher and supermarket (48%) or the supermarket (32%). About 12% of households only shop for meat at the butcher. Medium to high consumers are less likely to shop only at supermarkets (26.4%) and more likely to shop at only markets or butchers or all three outlets (25.5%). This compares to 37.9% of non consumers who shop only at supermarkets and 18.1% who shop only at markets or butchers or all three outlets.

Figure 5 provides a breakdown of purchase frequency by major meat types (N=1591). Household purchase of kangaroo meat is slightly higher than for other game with 6.1% buying kangaroo monthly or more. There were moderate positive correlations (0.38-0.45) between kangaroo and game indicating that more frequent consumers of kangaroo also consume other game more frequently.

Figure 5: Purchase frequency of meats

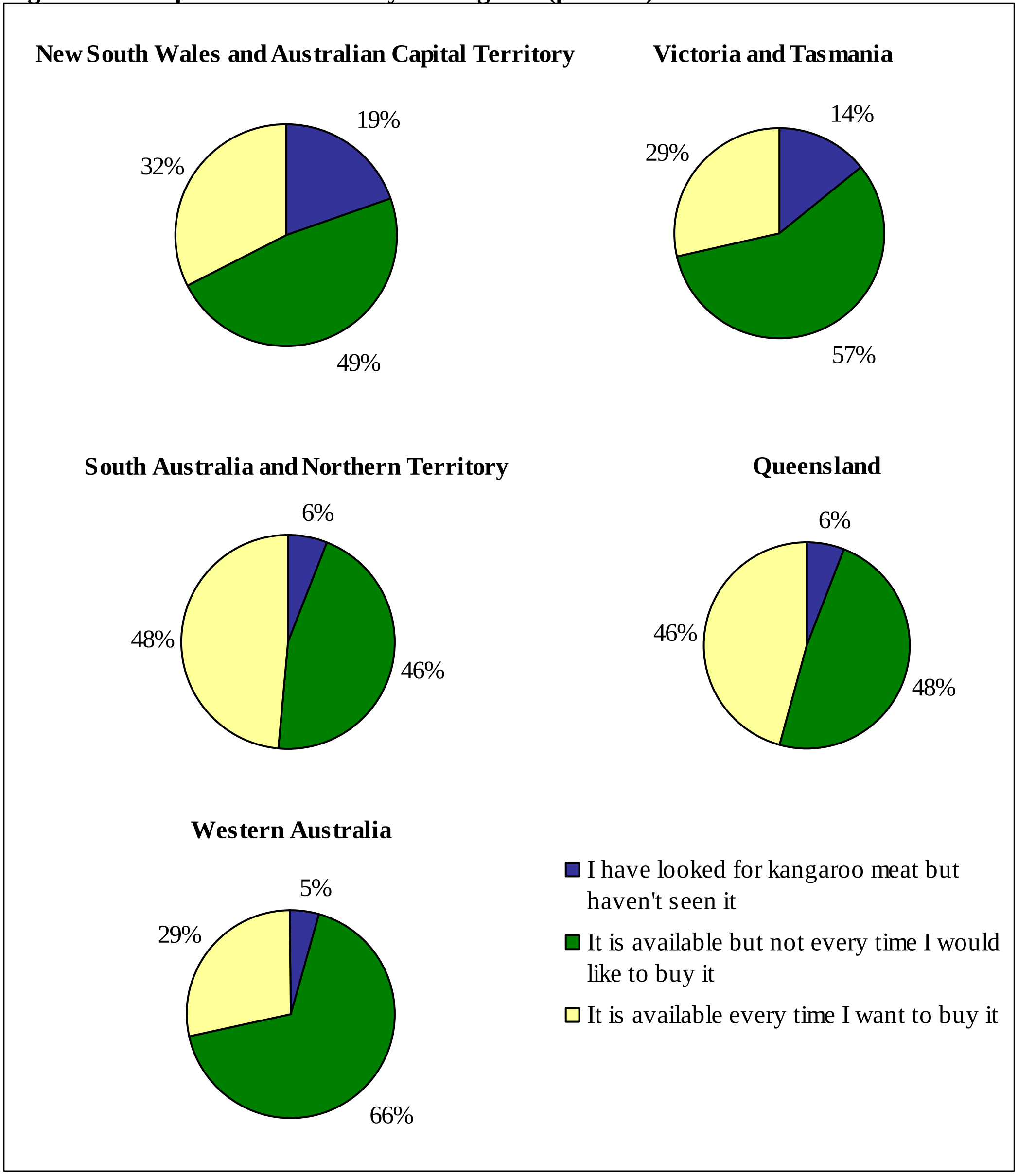


*includes: spatchcock/quail, venison, rabbit, goat

Availability of kangaroo meat for purchase

Among medium to high and one-off to low consumers the most common response was that kangaroo meat was available but not every time they wished to purchase (Figure 6). However, only a small proportion could not find kangaroo meat even though they had sought it (13%). As expected, South Australia has the highest availability followed closely by Queensland. In New South Wales and Victoria, 15-20% of consumers who had looked for kangaroo had not seen it. It appears from these results that kangaroo is now perceived to be more widely available than in 1997, although not always when consumers wish to buy (see a full table in Appendix I).

Figure 6: Perceptions of availability of kangaroo (per cent)

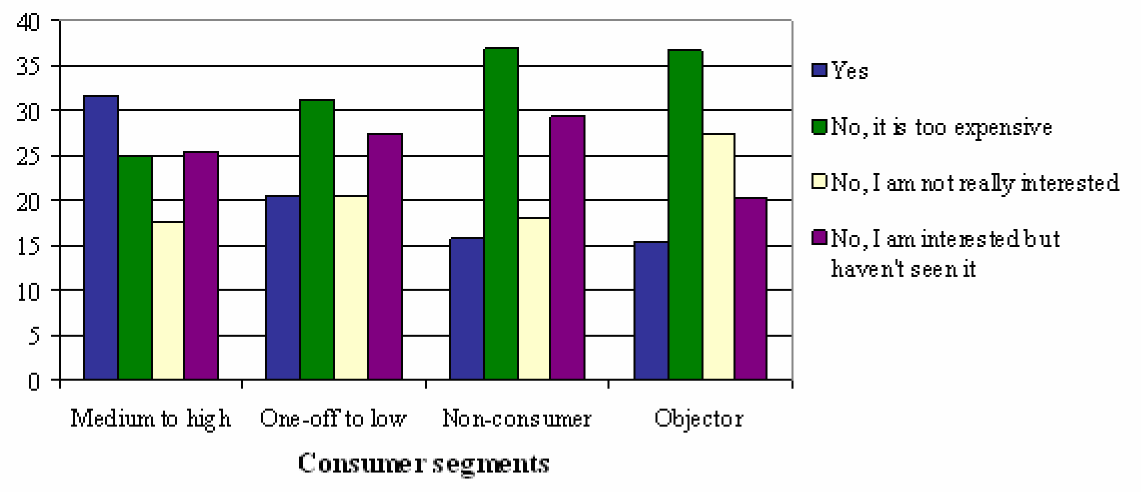


Kangaroo as a 'naturally' produced meat

As a meat sourced from the wild, kangaroo may be perceived to have elements in common with organically produced meat. Kangaroos live a largely unencumbered life in the wild, are less subject to the diseases of more intensively farmed animals, and arguably are chemical free (apart chemicals that may be used on domestic animals and on vegetation they consume). Consumers who purchase organic meat are willing to pay a premium price for meats from healthy animals that have not been exposed to chemicals and have been humanely managed.

Approximately 20% of respondents buy organic red meat and 29% purchase organic white meat (mostly chicken). Figure 7 provides a breakdown of the consumer segments by their purchase of organic red meat. Medium to high consumers are more likely than other segments to be buyers of organic meat and less likely to perceive it as too expensive. Objectors indicate a lower interest in organic red meat than other segments. These same patterns were evident when the consumer segments were compared with buyers of white organic meat, which is a more common purchase. Although managers, professionals and community service workers tended to display slightly higher proportions of buying organic meats it was not possible to establish an association between occupation and organic purchases.

Figure 7: Purchasing organic red meats by consumer segment* (per cent of segment)



*there is a significant association between buying organic red meat and consumer segments p<.001.

4.1.2 Where does kangaroo meat come from?

Despite the fact that all kangaroos in Australia are wild (except those on some reserves that are habituated and fed), there are no kangaroo farms in Australia and landholders generally exercise no management over kangaroos on their properties, over 70% of consumers believe that kangaroo is either fenced in on farms or free ranging in a similar way to sheep and cattle on large stations. In other words, they believe that kangaroos are actively managed rather than wild. This result is consistent with the views of key people in the kangaroo industry (Kelly 2007).

Medium to high consumers demonstrate a slightly higher awareness of the source of kangaroo, yet 65% still believe that the animals are managed in some way. Interestingly, objectors were the most likely consumer segment to believe kangaroos are fenced on farms.

Table 4: Beliefs on kangaroo meat source by consumer segment (per cent holding a belief)

	Consumer Segments				
Beliefs	**Medium to high**	**Non-consumer**	**Objector**	**One-off to low**	**Total**
Fenced farms much like those for emus or deer	34.2	37.9	41.1	34.1	**36.4**
Free ranging farms, like the cattle stations	30.7	35.3	32.3	39.3	**35.8**
Wild from the bush	35.1	26.7	26.6	26.6	**27.8**
Total (N)	**231**	**348**	**316**	**703**	**1598**

The issue of kangaroo harvesting and management was a topic explored in some depth during focus group discussions and produced a range of consumer views which are illustrated in the quotes below.

> *I think the whole process is totally disgusting and I would not like to think that anything anyone says or does will influence me or other people to eat kangaroo.* **SA**

> *I don't really have any thoughts about the process and it doesn't affect my willingness to try kangaroo. Even cows, sheep, pigs and chickens go through a process and we still eat them. So really what is the difference?* **M**

> *I think it would be better if they were harvested like cattle, but as long as the kill is quick and clean, and the animal has no disease and everything is well controlled then I think that is ok.* **AM**

Ah well I thought they were farmed….. But since there are loads, fine by me, and they do taste really nice…… Well I would not like to be grazing in the bush and someone comes and shoots me cause I am a pest would I… But well, since there are lots of them .... [knowing how they are harvested] does not affect me at this stage, but if I do think about it I do not agree. Let me explain. I try not to think of the meats I eat as living animals, I try not to think of the chicken in the cage, before I eat, same with kangaroo, otherwise I cannot eat it.[Its important to me] that it is necessary to keep population of kangaroos down, it is not done just for profits, and there is no chance that they will become extinct because of us eating it. To know they are killed in a quick way not tortured…I somehow fee that if they are farmed, at least they are not taken away from they moms, dads, families and friends. I did not mean farm them in cages, but on big stretches of land, but that will be the purpose for them just for my dinners. **D**

It does make it a positive purchasing decision for me. Knowing that kangaroos are a feral problem and it is part of a sustainable environmental plan that we need to cull them. I think that I would feel better about harvesting if I knew the source of the animal, if in some way we could be sure that the above statement was being regulated. Because they are not farmed (and I didn't know that!) that does give me some caution. Also, I believe (?) that they are shot from helicopters. So how then, are they able to ascertain which kangaroos died instantly and which suffered a painful demise? **A**

While there were strong emotional responses from participants who objected to kangaroos being used for food (as in the first quote), the majority of views were of a more reflective nature. Of most relevance are the concerns that arise as a result of discovering kangaroos are harvested rather than ‘bred’ or ‘managed’. This experience may create sufficient doubt to impact on whether they choose kangaroo.

4.1.3 Cooked meat preferences

A general recommendation when cooking kangaroo steak or fillets is that the meat should be served at least medium rare. For this reason, the uptake of kangaroo meat, at least as steak or fillets, is expected to be limited to consumers who prefer their meat cooked in this manner. Table 5 outlines the cooking preferences for red meat against respondents’ current position on eating kangaroo.

Table 5: Red meat cooking preference by current position on eating kangaroo*

	Consumer Segments				Table Total
Red meat cooking preferences	**Medium to high**	**Non-consumer**	**Objector**	**One-off to low**	
Rare	15.6	5.2	1.9	7.5	**7.1**
Medium-rare	32.9	21.8	18.7	28.4	**25.7**
Medium	33.3	42.5	30.7	39.2	**37.4**
Well-done	18.2	30.5	48.7	24.9	**29.8**
Table Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*association between cooking preference and current position significant at p<.001.

Just over 67% of the sample prefers their meat medium to well-done. This applies to medium to high and one-off consumers as well as objectors and non-consumers of kangaroo meat. The implication is that it is important to many kangaroo consumers that the meat is cooked their preferred way and that, for them, cooking kangaroo to the level of medium to well-done doesn’t diminish their enjoyment of the meat.

Objectors had a particularly high percentage in the ‘well done’ category which could reflect a ‘disgust’ element among these consumers. Well done meat has no blood and so therefore may assist these consumers to distance themselves from the animal.

4.1.4 Price perceptions

Perceptions of the price of kangaroo meat were explored in the focus groups and in the response to mince meat in the consumer survey. Responses to the latter are discussed later but below is a range of comments made by focus group participants on the price of kangaroo meat. Most of these are from medium to high users of kangaroo.

> *Roo is pricey…., usually, 3 fillets cost $7-8, and they can be small… just enough to make it a bit of a luxury* **N (Victoria)**

> *In Adelaide it's reasonable about $6 a kilo prepacked, but small pieces need to buy a couple of packs* **J (South Australia)**

> *Well with the same price of beef, you get half the amount, you buy two fillets, that costs like two fillets of beef, but half the grams* **D (Victoria)**

> *Can't remember the price of roo but it was more expensive than most other meats, although not by much, it just looked delicious* **C (New South Wales)**

> *Kangaroo round these parts tends to sell well and it is slightly more expensive but they do have a large range of cuts* **L (New South Wales)**

> *Definitely based on price! But if I feel like treating myself and the family and there's a request for it then roo it is if the price isn't too high….At my local it's like $9 for roo and $5-$6 for other meats over kilo* **J2**

> *….kangaroo I can't always get it from my butcher so I get my dad to get it when he works around town the cheapest I've paid would of been around $10 kg but can depends on the time of the year I reckon, for around $18 a kg I get some very yummy and tender peppered roo steaks.* **S (South Australia)**

> *:...from memory kanga is between 15 and 20 dollars a kilo* **C2(Queensland)**

> *I have generally found that roo appears to be more expensive than other meats available. For instance, I would really only pay up to $9/kg for beef regular cuts, $7/kg for mince and $12/kg for good lean chicken breasts. However I do think that with all the previously stated benefits of roo (lean, no skin, easy to cook, tasty) that there is VALUE for your $ in roos where it may not be found in other products.* **A (New South Wales)**

4.2 Consumer segments and their attitudes to consuming kangaroo

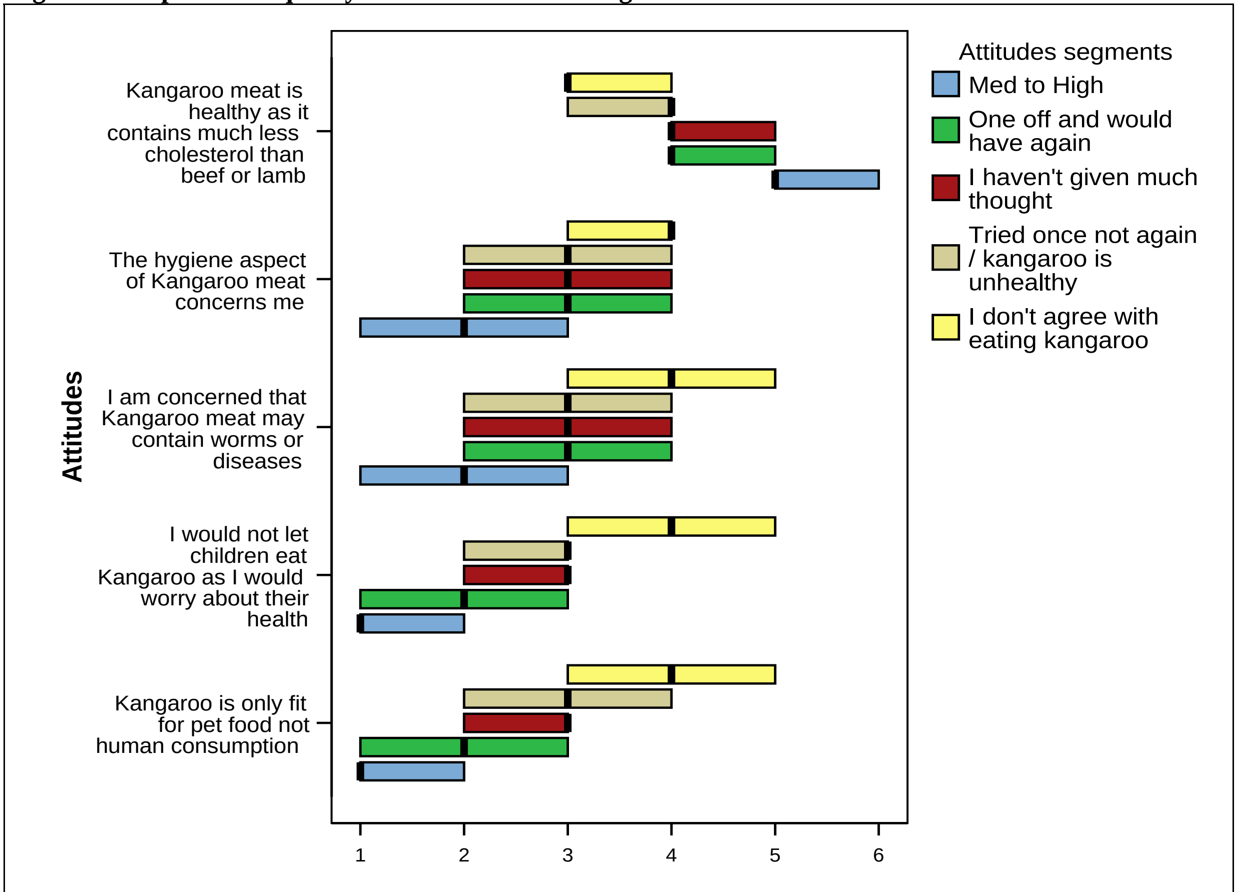
The results presented from this section onwards are from respondents who fell within the sampling quotas for the consumer market segments outlined in Section 3.3.1. The imposition of quotas for each consumer segment ensured that there were sufficient respondents for comparison in the kangaroo product scenarios. The distribution of the 814 respondents is provided in Appendix J.

As outlined in Section 3.3.2, respondents were asked to indicate their agreement with a series of statements on a 6-point scale from 1 (disagree strongly) to 6 (agree strongly). These statements covered beliefs about the healthiness and quality, morality and humaneness, and attributes and preparation, of kangaroo meat. The scale forced respondents to take a position, with neutral or uninformed attitudes expressed by disagree or agree 'somewhat'.

4.2.1 Perceptions of the healthiness and quality of kangaroo

Perceived health benefits from consuming kangaroo meat sit beside expressed concerns as to the hygiene of the meat. Figure 8 presents the range of responses to four questions on these issues across the five attitude segments. The blocks of colour indicate the range over which the central 50% of responses fell and the heavy black line is the central response (median) for the group. The longer the block of colour the wider the variation in responses.

Figure 8: Responses on quality and healthiness of kangaroo meat



NOTE: 1-*Disagree strongly*, **2**-*Disagree*, **3**-*Disagree somewhat*, **4**-*Agree somewhat*, **5**-*Agree*, **6**-*Agree strongly*

The majority of respondents in all segments were either neutral or agreed at some level that kangaroo is a healthy meat. This was strongest amongst medium to high consumers (with an average score of 5.2) and one-off consumers (4.5) which were both significantly higher than other groups ('haven't thought' = 4.1). This suggests that kangaroo is generally perceived to be a meat with healthy attributes.

> *That heart tick was the thing that made me try it the first time….. Well I try to eat healthily, I'm not getting any younger and the Doc tells me my Triglicerides are a bit high (years of booze). So anything that won't exasperate the Cholesterol issues is on the top of my list. Heart Ticks attract my attention coz Dad had a dicky ticker.* ***C1***

> *I love [kangaroo] just lightly seasoned and grilled and really appreciate the flavour and the fact that it is such a lean cut of meat.* ***A***

With the exception of the medium to high and objectors segments, there is some uncertainty around the hygiene[1] of kangaroo meat, with responses to kangaroo meat containing worms or disease ranging around the middle of scale, albeit towards 'disagree'. There was mostly disagreement with the claims

[1] Hygiene from the consumers' perspective which refers to factors such as handling, freshness, cleanliness.

that ‘kangaroo is only good for pet food’ and ‘not letting children eat kangaroo’ which is consistent with prior research. The exception was objectors who maintained a negative stance across the statements (with some exceptions).

Some respondents were exposed to quality assurance information on kangaroo harvesting and processing that was designed to inform consumers of the system of quality control in place. There is no apparent impact of this information on responses to the statement in Figure 8. This suggests that the quality assurance information was either in line with respondents existing perceptions and/or that the assurances still left a degree of uncertainty over the quality of kangaroo meat.

Concerns over quality and handling were raised in the focus groups following an outline of the harvesting process:

> *We know that they are pests and that they certainly have to be culled. I still don't trust authorities who say that these animals are disease free etc. [They should]farm them as a business and cull the ones that are destroying the farming industry.* **N2**
>
> *I don’t like the harvest method suggested, as I am against shooting, but realistically know that cows are not euthanised either. My main worry would be the risk of disease, which was a problem in the 60s.* **AC**

4.2.2 Preparation and aesthetics of kangaroo meat

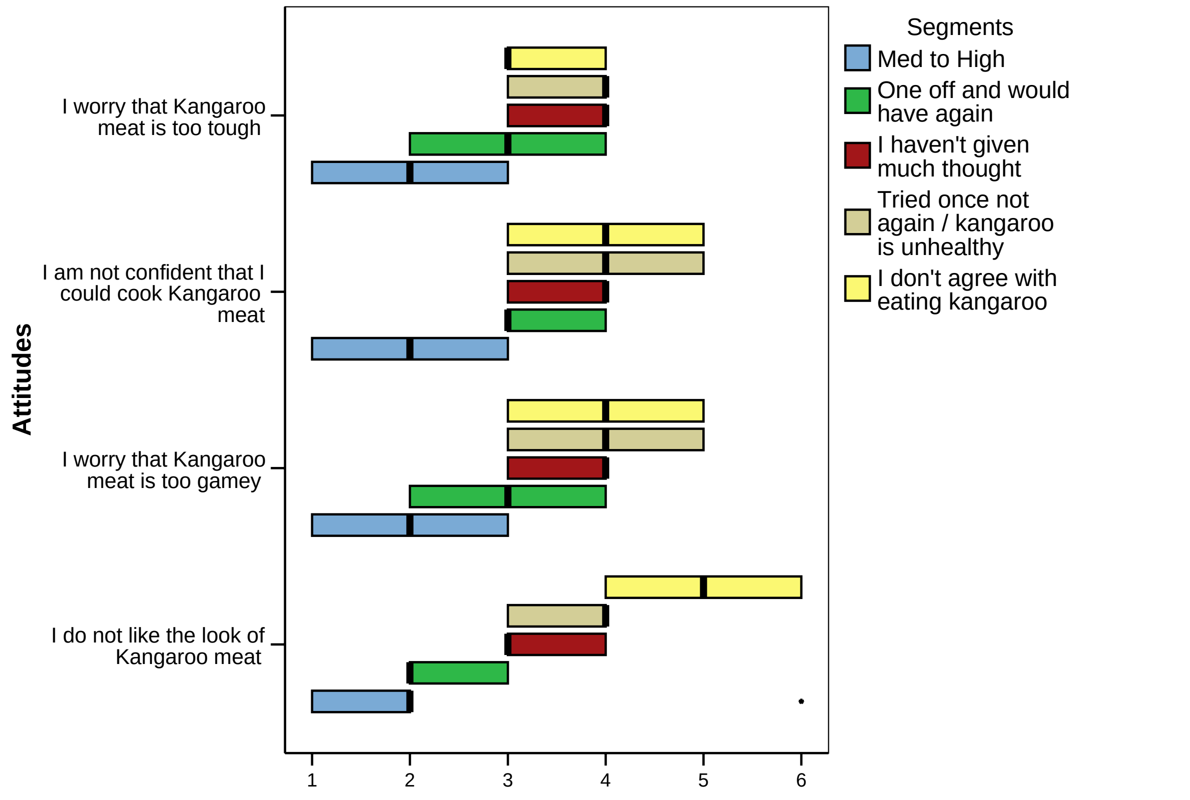
Close to 50% of the sample of respondents had eaten kangaroo at least once, yet very few of these have bought and prepared kangaroo meat. Reasons for not eating kangaroo more frequently (In the 1997 consumer study and in the focus groups), included:

- uncertainty about how to prepare kangaroo,
- that kangaroo meat can be tough if not prepared well, and
- that its physical appearance is off-putting. For example, one participant in the focus groups commented that “kangaroo looks like a heart in a bag’.

These and other perceptions are indicative of the potential obstacles to consumers purchasing kangaroo meat.

The survey included four statements relating to attributes of kangaroo meat and confidence in cooking it. Figure 9 outlines the responses on a scale of 1-6. Objectors were not included because these questions have little relevance for them.

Figure 9: Kangaroo meat and its attributes



NOTE: 1-*Disagree strongly*, **2**-*Disagree*, **3**-*Disagree somewhat*, **4**-*Agree somewhat*, **5**-*Agree*, **6**-*Agree strongly*

The responses from those who haven't given much thought to kangaroo reflect the absence of formed positions and the likelihood that these issues have not been considered. Concern over the gaminess and their ability to cook kangaroo is greatest for those who have tried kangaroo but would not do so again. It is also a distinction between these and the other one-off consumers who would try kangaroo again. The latter are less concerned with gaminess or the appearance of the meat and less worried that it might be tough (significant at $p<.05$). While some concerns over cooking kangaroo remain for all but the medium to high consumers, the level of concern appears to have declined since 1997 when close to 65% of respondents expressed some concern.

The general thrust of these findings is reflected in comments from the focus groups. A recurring theme is the importance of knowing how to prepare kangaroo:

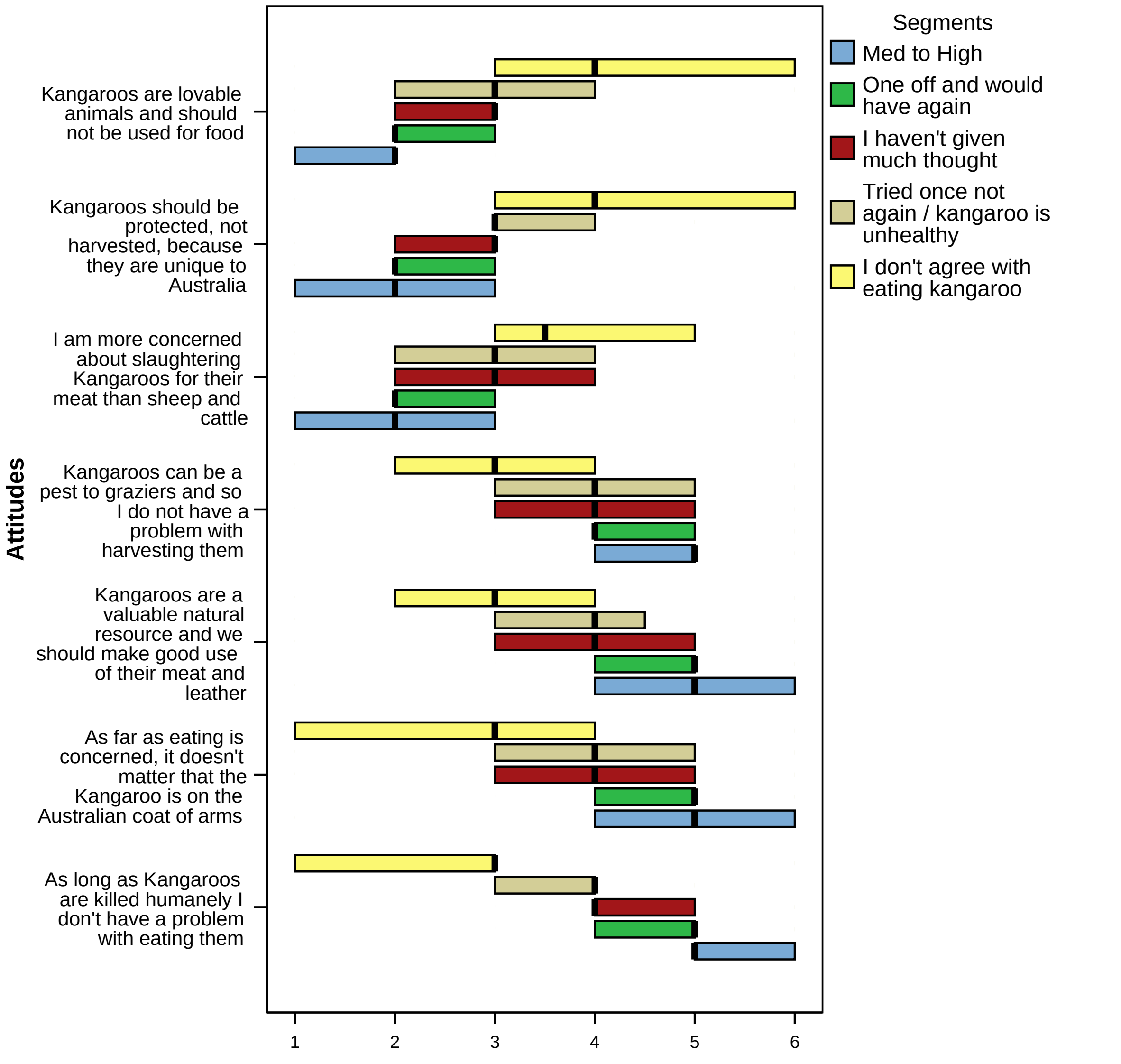
> *We haven't tried kangaroo meat, but the family said the other night that they would give it a try if we had some good recipes on how to cook the meat well.* ***AC***
>
> *I would need a good recipe or marinade for it to try first time. Nothing like trying something new that isn't cooked/prepared to its full potential of taste and quality.* ***E***
>
> *I have tried kangaroo meat once and I found it to have a very pungent taste. I don't think that I would go out of my way to purchase it again, although I wouldn't object to eating it if some one had a really good recipe.* ***N***
>
> *….if I feel like treating myself and the family and there's a request for it then roo it is if the price isn't too high….Plus there's only one way to cook it (that I know of anyway)* ***J***
>
> *I've eaten kangaroo meat for the last 10 years, maybe more. Usually as a steak and even then maybe only once per month. It has been ages since I have had some although have been looking at it more lately. Might be time to try some newer version as well like mince!* ***A***

In Appendix D is a complete list of suggestions on how to prepare kangaroo and suggestions for promoting kangaroo products.

4.2.3 Kangaroo as a resource

In prior research (Purtell and Associates 1997) and in the focus group discussions, strong positions on whether or not kangaroo should be used for consumption have been expressed. In particular, the issues around kangaroos as pests vs the iconic nature of kangaroo as an Australian symbol, its cuteness and concerns around the harvesting of kangaroos have been highlighted. These issues were reflected in eight statements presented to respondents in the survey. Figure 10 presents the responses to these statements.

Figure 10: Attitudes to the status of kangaroo: medium to high consumers and objectors



NOTE: 1-*Disagree strongly*, **2**-*Disagree*, **3**-*Disagree somewhat*, **4**-*Agree somewhat*, **5**-*Agree*, **6**-*Agree strongly*

The most important element cross all segments is that the animal is killed humanely.

There was a high degree of similarity in the responses of the medium to high consumers. Their position is nicely captured in some of the quotes from their counterparts in the focus groups when they were asked what they would say to someone who asked them '*how could you eat an Australian icon?*':

I guess that anyone of us who has eaten kangaroo has come up against this before as well. It is a perception issue in my mind; however, I have always said that it is not like you are eating an endangered animal. We think nothing of eating beef here but you would certainly get a different reaction from Indian friends of yours if you decided to spit roast one in front of them! I say that it is no different to any other game and so long as the animals are mass produced and slaughtered under ethical regulations I don't have a problem. **A**

We have eaten other animals since we were born and never thought too much about it. I would say that it is not like eating a pet (dog or cat) and I very rarely see them anyway. Besides, aren't there too many of them at certain areas and they are culled anyway? Why not eat the meat? **B**

The first quote (from Respondent A) also serves to again highlight the underlying perception of many consumers that kangaroos are farmed or managed (mass produced). The second quote displays a hint of justification for eating kangaroo in the reference to there being ‘too many’ and needing culling anyway.

Among objectors, the general pattern is one of disagreeing with using kangaroo for consumption. Uniqueness and cuteness draw strong responses and hark back to the sentiments expressed during the focus groups of the value placed on rareness, associations with soft toys and the immorality of endangering a species. Concern over endangering kangaroos was a sentiment expressed by all consumers. However, these respondents exhibit some ambivalence in their responses to kangaroo as a pest and as a resource which suggests these are underlying factors that may lead respondents to reflect on their stance:

Most other native animals are protected because they are at risk or endangered, including some kangaroo species; therefore I wouldn't eat those as killing them would be wrong. Certain kangaroo species are in some areas feral (ie too many) and can be culled for consumption. **R**

I would say “eating an icon” is exactly right. Although they are pests they are still human nature and even then I only feed it to my animals… No That's just as bad as saying would you eat giraffe or hippopotamus - these are native animals, people and I believe that is a form of cannibalism! **S**

The responses of the non-consumer and one-off consumer segments are less definite than those for the medium to high consumers and objectors as would be expected where attitudes have not fully formed. The pattern of responses for ‘one-off and would try again’ is relatively uniform across the segment as well as very similar to the medium to high consumer segment. Non-consumers who are interested are similarly inclined to agree with kangaroo being used as a resource and to disagree with their being protected and not used for food.

The responses from consumers who have tried kangaroo but will not try again or who perceive health problems exhibit greater variation suggesting that there are different sentiments across respondents. However, they are more likely to agree that kangaroos should be protected than their counterparts who are willing to have kangaroo again.

4.2.4 Values and acceptance of kangaroo

A theme that emerged during the focus group discussions was that some consumers would be more comfortable with eating kangaroo if it were more common. Common provides two advantages: it indicates that the activity is probably socially acceptable and that the increased exposure to people eating or buying kangaroo meat assists consumers to shift their association from kangaroo as “Skippy” to kangaroo as meat. The following quote is illustrative:

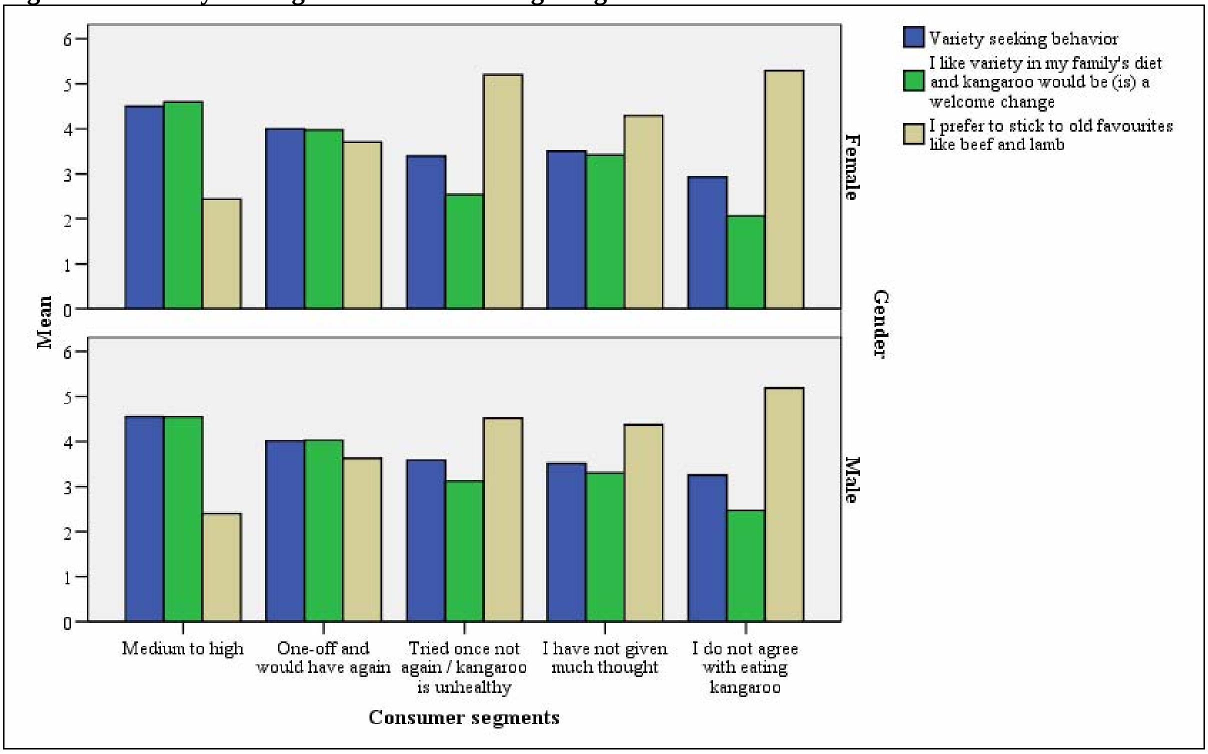
I think the main reason I haven't tried kanga meat is because I think kangaroos are beautiful animals and they are an Australian icon(I keep thinking of Skippy!) but with saying that I was like that with all meat, until I disconnected that the meat I eat and the animals on farms as different things. If I go to Easter show I have to stay away from the animals, because if I see them I don't eat meat for a few months, even though I love it. So when kanga meat starts to become more mainstream, more normal in homes, I will probably start to feel a bit more comfortable about eating it and not thinking of Skippy.

The concern that eating kangaroo might not be socially acceptable was evident but not substantially so in the survey results. Approximately 40% of respondents agreed at least somewhat that they 'would feel more comfortable if eating kangaroo were more mainstream'. Among one-off consumers the level agreement was generally stronger with 12% either agreeing or agreeing strongly. However, only 10% of all respondents indicated they would worry about what family and friends thought of them eating kangaroo.

Respondents were asked to rank five value statements that have been found to be associated with attitudes to a wide variety of beliefs and behaviours. There was some indication that medium to high consumers rank 'daring, a varied, exciting life' over values such as 'humble and acceptance of my portion in life' and 'politeness and obedience' but this result was only significant for women.

A better indicator of the differences between the consumer segments is general variety-seeking behaviour (see Figure 11). Both the medium to high consumer and one off consumer segments scored significantly higher score on variety-seeking than non-consumers (p<.001). In general variety-seeking behaviour was strongly associated with using kangaroo as a source of variation in the diet (r=0.71) and negatively associated with preferring to stay with old favourites (r=-0.51).

Figure 11: Variety seeking behaviour and using kangaroo as a source of variation



4.3 Potential demand for selected products containing kangaroo manufacturing meat

In this section we move to the results of the three product scenarios, mince meat, pies and deli products. These scenarios were presented to sub-samples of the respondents that are consumers of each product.

4.3.1 Mince meat

To assess the demand for mince respondents were asked to indicate which mince or minces they would buy in eight different scenarios. If they bought more than one mince they also indicated which was their most preferred. The relative price of minces and the sourcing for kangaroo (either generic or from a specific location with claims about how it was produced that imply management) and premium mince were varied to assess their effect on the demand for kangaroo.

Of the 814 respondents who completed the mince scenarios, 72% purchased mince at least weekly and another 22% purchased mince monthly or fortnightly.

Table 6 presents the market share for each mince option by consumer segment, ignoring the effect of prices and source. The shares are for the minces that respondents bought as their first preference. Extra trim is the most likely mince to be purchased followed by regular and premium beef. Kangaroo mince attracts around 10% of first preferences which is higher than for lamb, veal, and the organic mince options.

In terms of the consumer segments, kangaroo mince held around 9% of first preferences in the one-off to low segment and up to 24% in the medium to high segment. As expected, objectors are the least interested in kangaroo mince and most likely of the groups to not to buy any form of mince.

The shares for one-off to low consumers and non-consumers are small but still higher than for non beef and organic options. Almost 40% of non-consumers chose kangaroo at least once as a preferred option which indicates a high willingness to experiment.

Table 6: Market shares for mince type by segments (percentage of all first preferences)

Mince	All	Consumer Segments: Medium to high	One-off to low	Non-consumer	Objector
Regular Beef	**16.27**	12.33	16.12	17.76	19.01
Premium Beef	**15.81**	11.09	17.96	16.10	16.35
Extra Trim Beef	**36.14**	29.00	38.76	41.02	36.46
Organic Beef	**3.42**	4.28	3.18	2.36	2.59
Regular Lamb	**4.06**	5.12	3.81	4.55	3.33
Organic Lamb	**1.50**	2.59	0.86	1.24	1.04
Kangaroo	**10.33**	23.99	9.28	5.09	3.48
Veal	**4.04**	4.84	3.89	3.77	3.77
I would not buy on this occasion	**8.43**	6.76	6.13	8.11	13.98

The quantities of mince bought by respondents were most often 500gms or 1-2 kilograms. When purchases of multiple minces are taken into account 22% were for quantities of 250g and a further 41% for 500 g. While some of these purchases may reflect a response to price, they are also likely to reflect a response to the uncertainty of an unfamiliar product. This is important since kangaroo mince is almost exclusively offered in kilogram packs and this may discourage new consumers from sampling and possibly adopting the product.

Table 7: Mince by percentage chosen of each volume

	Quantities purchased			
	250gm	**500gm**	**750gm**	**1 to 2 kgs**
First preference				
Regular Beef	7.0	35.6	6.3	51.1
Premium Beef	7.4	43.3	6.8	42.5
Extra Trim Beef	6.4	37.9	8.5	47.3
Organic Beef	10.5	32.5	5.3	51.7
Regular Lamb	3.9	45.7	6.0	44.3
Organic Lamb	20.0	40.0	7.8	32.2
Kangaroo	7.6	38.9	7.7	45.9
Veal	10.9	26.6	7.5	55.1
All	**7.2**	**38.2**	**7.4**	**47.1**
Multiple purchases				
Regular Beef	10.2	42.1	4.9	42.8
Premium Beef	11.6	45.4	6.2	36.8
Extra Trim Beef	9.5	40.0	7.9	42.7
Organic Beef	22.5	42.5	7.5	27.4
Regular Lamb	16.9	46.4	5.9	30.8
Organic Lamb	36.7	36.7	5.1	21.4
Kangaroo	22.0	40.7	5.8	31.4
Veal	18.8	41.9	7.8	31.6
All	**14.7**	**42.2**	**6.5**	**36.6**

Figure 12 presents the effect of a change in the price of kangaroo mince on the likelihood that a consumer from each of the segments would choose kangaroo mince. As indicated earlier, on average kangaroo mince attracted 10% of first preferences. At its lowest price this increases to 50% for farm sourced and 40% for non-sourced kangaroo mince among medium to high consumers. However, this drops to 20% when the price of kangaroo mince increases to $10.99. One-off to low consumers appear to have a slight preference for the farm sourced kangaroo but this is not significant in the overall model.

Figure 13 presents the average likelihoods of choosing kangaroo given price and source and the information respondents received. Evident from the graph is that the information conditions had minimal impact on the likelihood of choosing kangaroo from either source.

Figure 12: Probability of buying kangaroo mince given its price (by consumer segment)

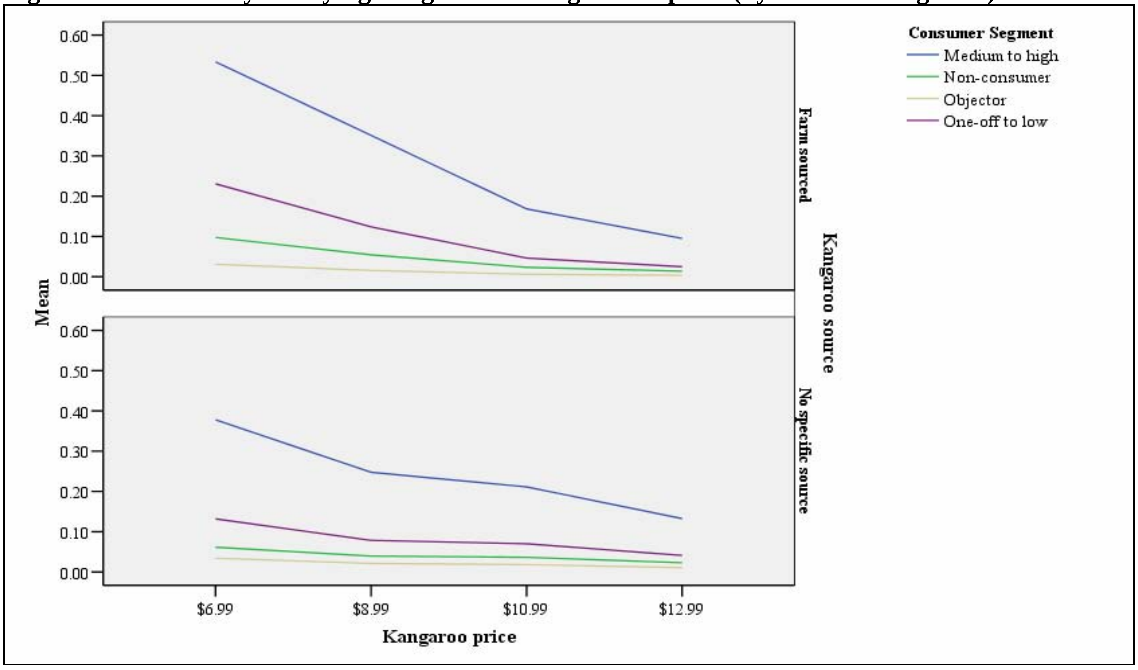
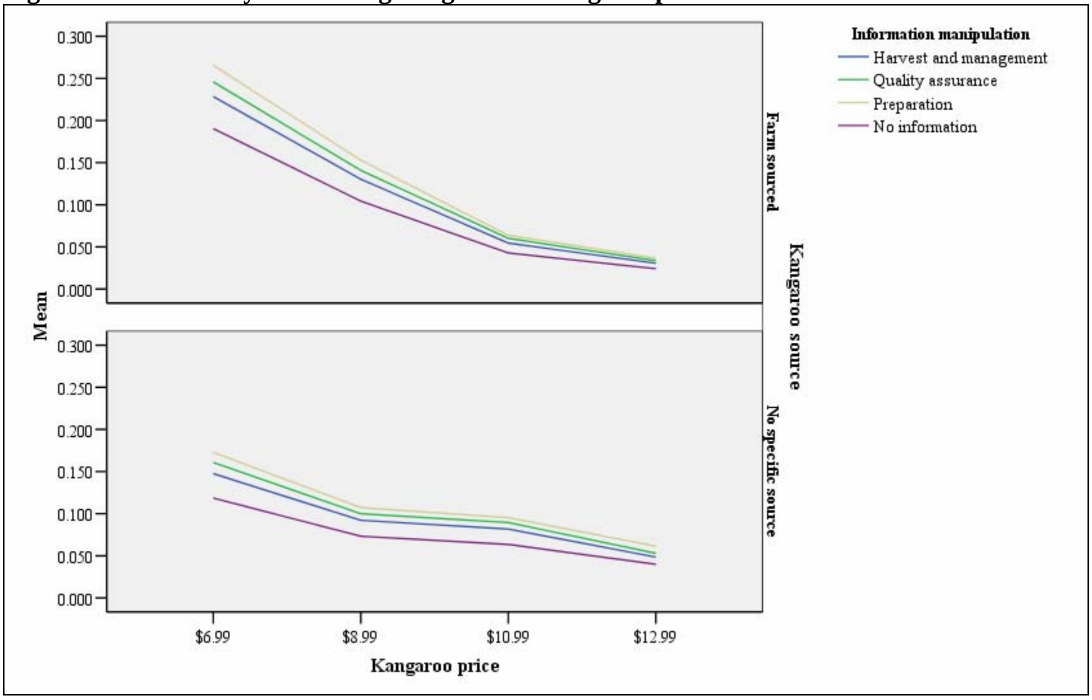


Figure 13: Probability of choosing kangaroo mince given price and information condition



4.3.2 Pies

Consumers' responses to kangaroo-based pies were explored initially through the focus groups and then through the sets of 'pie shop' scenarios in which survey respondents repeatedly chose their most and least preferred pies (see Section 3.3.2 for details).

Pie choice behaviour

Pie purchase behaviour in this survey is based on a 688 respondents who eat either hot or cold pies at least every 2-3 months. Of these, approximately 60% buy hot and/or cold pies monthly or more, although this is slightly lower for the objectors and medium to high users in the hot pie category.

Around 40% of men bought hot pies fortnightly or more which was higher than for women (30%). There was no difference across gender in the purchase frequency of cold pies.

Hot pies are most often bought as a single pie or two regular pies (74%) but a further 20% will buy three or more regular pies at a time. Among cold pies the most common purchases are for 4-6 packs of frozen pies (76%).

Table 8: Purchase of pies by consumer segment (per cent of segment)

Purchase frequency		Gender		Consumer Segment				Total
		Male	Female	Medium to high	Non-consumer	Objector	One-off to low	
Hot	Daily to weekly	26.5	15.0	25.4	23.0	14.0	19.3	20.9
	Fortnight	13.4	15.0	9.2	16.0	17.0	15.6	14.6
	Monthly	29.4	20.9	22.3	26.5	19.0	27.8	24.9
	2-3 months	30.7	49.2	43.1	34.5	50.0	37.3	39.6
Total	**(N)**	306	301	130	200	100	212	642
Cold	Daily	13.5	13.2	12.7	9.7	18.3	14.5	13.3
	Fortnight	17.0	16.0	16.9	18.9	19.4	14.5	17.1
	Monthly	35.5	30.7	30.5	33.5	28.0	33.3	32.0
	2-3 months	34.0	40.1	39.8	37.8	34.4	37.7	37.6
Total	**(N)**	282	287	118	185	93	207	603

Kangaroo pies

The response to kangaroo pies was explored in the focus groups by asking participants whether they had eaten a kangaroo or combination kangaroo and beef pie and what they thought of such products. Much of the initial discussion revolved around perceptions of pies in general and scepticism over their contents, which was given as the reason why quite a few were not interested in bought pies of any form. Response to the two products were mixed with some preferring a kangaroo only pie while others felt that the combination might assist those who were not used to game. However, what most stood out among those willing to try kangaroo pies was that they are food curious consumers who like variety and new foods and that kangaroo pies were seen as a gourmet alternative.

We have had kangaroo pies before and enjoyed them. The specialty pie shops near us sell a lot of game pies and gourmet pies, kangaroo and crocodile and buffalo etc… **C1**

I have a heard of Kangaroo pies and salamis, but was not with my hubby when he bought them, but would have eaten one if it had been offered to me. He was in Coffs Harbour when he tried them. They got good reviews….. I reckon a kangaroo pie, made like a raised suet crust pork pie, in the English style would be delightful. Hate the pork ones, but they are great in other flavours and (company name) make all kinds of different flavoured raised suet crust pies. **A**

I've never had a kangaroo pie before bout would love to try one - mixed or not, sounds fine to me. I had a buffalo pie once in Canada which was awful! :) **R**

I have never had kangaroo meat in pies but am always wiling to give something new a try. Mixed or full it wouldn't bother me. Mind you for what is in Pies these days we could already be eating kangaroo in them. **P**

I have never even heard of mixed kanga and beef pies but I would certainly give them a go if they were available. Don't know of any other mixed products either. **C1**

It wouldn't bother me having kangaroo meat in pies as I eat them all the time anyway. my dad gets me kangaroo salami from the other side of town at least once a month it tastes great. **S1**

I've never tried kanga pies or small goods it sounds too strange for me. I don't think I would ever be interested in trying them either. **A2**

I've never heard of kanga pies to be honest. When I read the question, I really wasn't all that taken by the idea. I'd probably give one a go if I didn't know what was in it (and no doubt find it pretty tasty!), but I think I'd always go for the "beef" pie over kanga. …..[if I tried it would be] a straight kangaroo pie - would prefer this to a mix. Not due [to] a worry of eating kangaroo, but simple because I don't like the idea of mixing meats in a pie. **S2**

Kangaroo pies and likelihood of buying

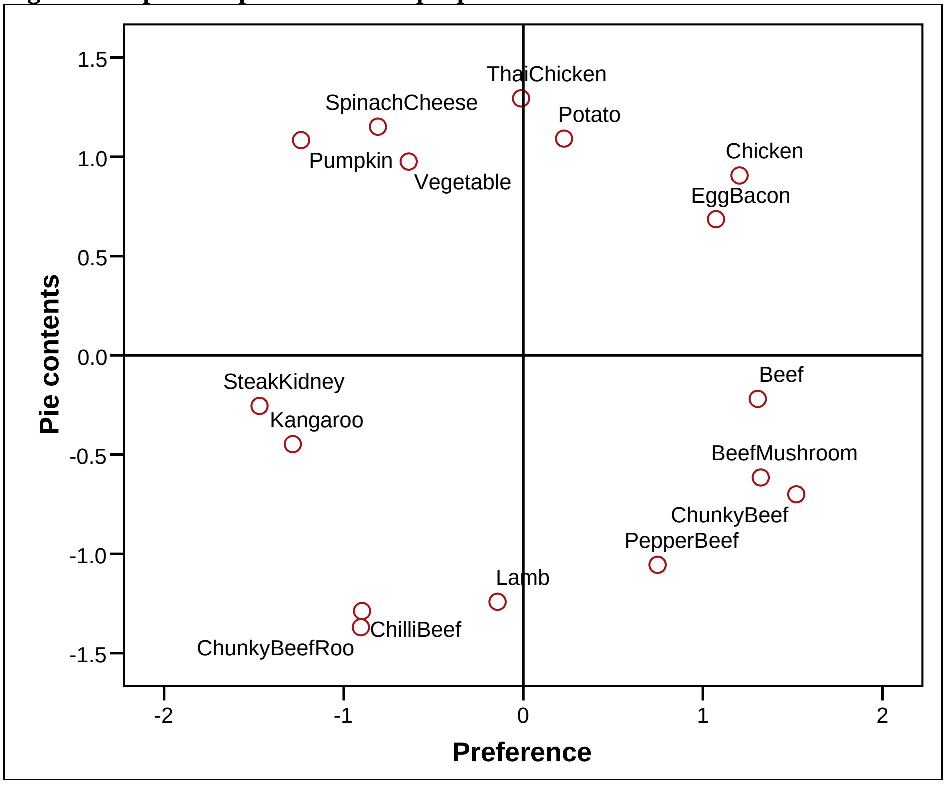
The response to the two kangaroo-based pies from the survey was relatively modest in terms of the frequency with which they were chosen relative to other pies. Together the kangaroo pies attracted 6.4% of most preferred pie and 7.9% of 2nd most preferred (see Table 9). The majority of these preferences were for the Chunky Beef & Roo combination. There were also a significant number of consumers who found kangaroo pies unappealing. Approximately 25% of responses to "least liked" were for the kangaroo based pies.

Table 9: Percentage of total pie preferences by preference type.

Pies	Liked most	Liked 2nd most	Liked least	Liked 2nd least
Beef & Mushroom	14.8	11.8	3.3	3.5
Chunky Beef	14.5	11.7	1.0	1.0
Beef	11.7	7.9	0.8	0.7
Pepper Beef	9.5	8.1	2.8	4.0
Chicken	6.5	9.1	2.0	2.8
Thai Chicken	6.2	5.9	5.7	7.2
Egg, Bacon	6.2	7.1	5.3	6.1
Steak & Kidney	6.2	5.8	13.8	9.2
Potato	4.9	5.7	5.0	6.4
Chilli Beef	4.7	5.2	7.5	8.9
Chunky Beef & Roo	4.6	5.2	10.0	9.9
Spinach & Cheese	4.1	5.3	7.9	8.3
Lamb	2.1	4.4	2.6	4.0
Kangaroo	1.8	2.7	14.7	7.4
Vegetable	1.3	2.4	6.1	8.9
Pumpkin	0.9	1.7	11.8	11.6
Total preferences (N)	5501	5501	5501	5501

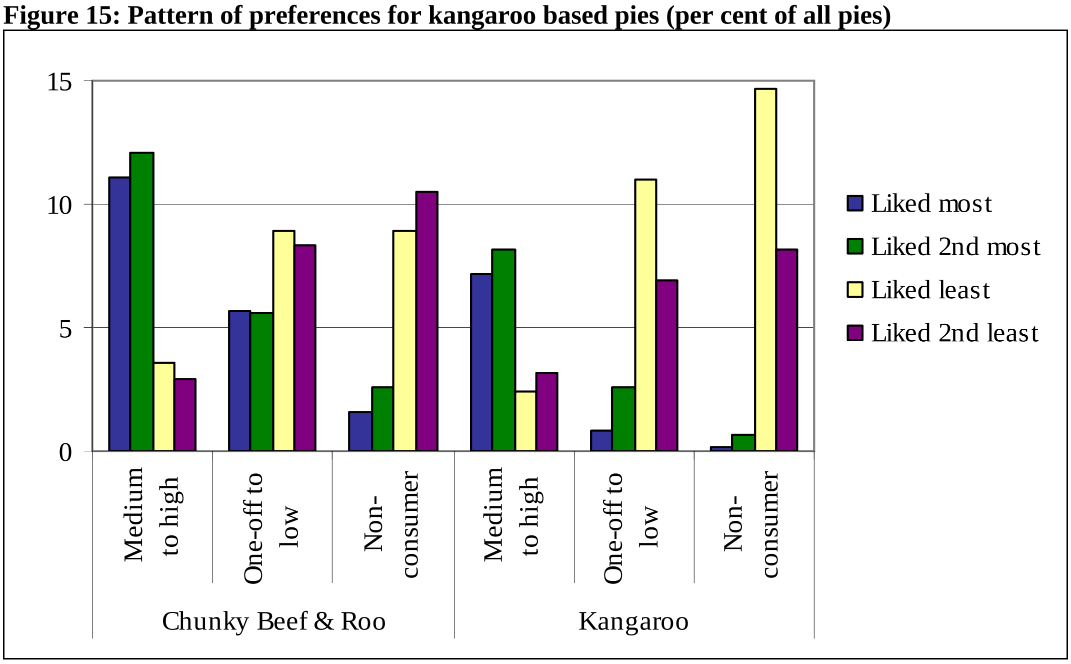
The pattern of preferences among pies is presented in the spatial map in Figure 14. The pattern is based on the juxtaposition of all most and 2nd liked pies with all least and 2nd least liked pies. The horizontal axis separates the pies on overall preference with those on the right being most preferred and those on the left least preferred. The vertical axis distinguishes between what could be called the red – heavy meat categories from the lighter pies.

Figure 14: Spatial representation of pie preferences



A breakdown of the preferences by segment indicates that medium to high and one-off to low consumers were the primary groups choosing kangaroo and that the Chunky Beef & Roo pie attracted most preferences with 11% and 5.7% of "most liked" preferences respectively (see Figure 15).

Figure 15: Pattern of preferences for kangaroo based pies (per cent of all pies)



Although the frequency with which kangaroo pies were chosen is low relative to most other meat-based pies there is evidence of experimentation with the kangaroo pies. Table 10 gives the proportion of respondents who nominated a kangaroo pie at least once in the four preference categories. Of most interest are the nominations for most or 2nd most preferred. Approximately, 69.5% of medium to high consumers chose a kangaroo pie at least once as most or 2nd most preferred and, among non-consumers, this was 17.8%. The likelihood that the latter, and one-off consumers, are experimenting is evident in the high proportion choosing kangaroo pies only once or twice (62.2% and 42.7 respectively). This pattern is in contrast to the proportions for least or 2nd least preferred where respondents are more inclined to repeatedly choose kangaroo.

Table 10: Percent of respondents choosing a kangaroo pie and number of instances

Preference type	All respondents	Percent of total instances choosing kangaroo		
		1 to 2	1 to 3	1 to 4
Most or 2nd most preferred				
Medium to high	69.5	29.2	39.6	56.3
Non-consumer	17.8	62.2	75.7	91.9
One-off to low	35.7	42.7	60.0	70.7
All	30.7	43.5	56.5	69.9
Least or 2nd least preferred				
Medium to high	23.9	36.4	42.4	63.6
Non-consumer	64.9	25.2	35.6	45.2
One-off to low	53.9	29.8	36.3	44.4
All	56.4	23.0	31.2	41.0

Kangaroo pies and consumers

Figure 16 provides an indication of how first and second preferences for pies vary by males (50.2%) and females (49.8%). The vegetable and lighter meats pies were mostly preferred by women while kangaroo pies were mostly chosen by men.

There were no substantial differences in preference for kangaroo pies across age groups. The 46-55 group indicated more first preferences for kangaroo than other age groups and the 18-25 were the least likely to choose kangaroo pies as preferred (see Figure 17).

Figure 16: Most preferred pies by gender

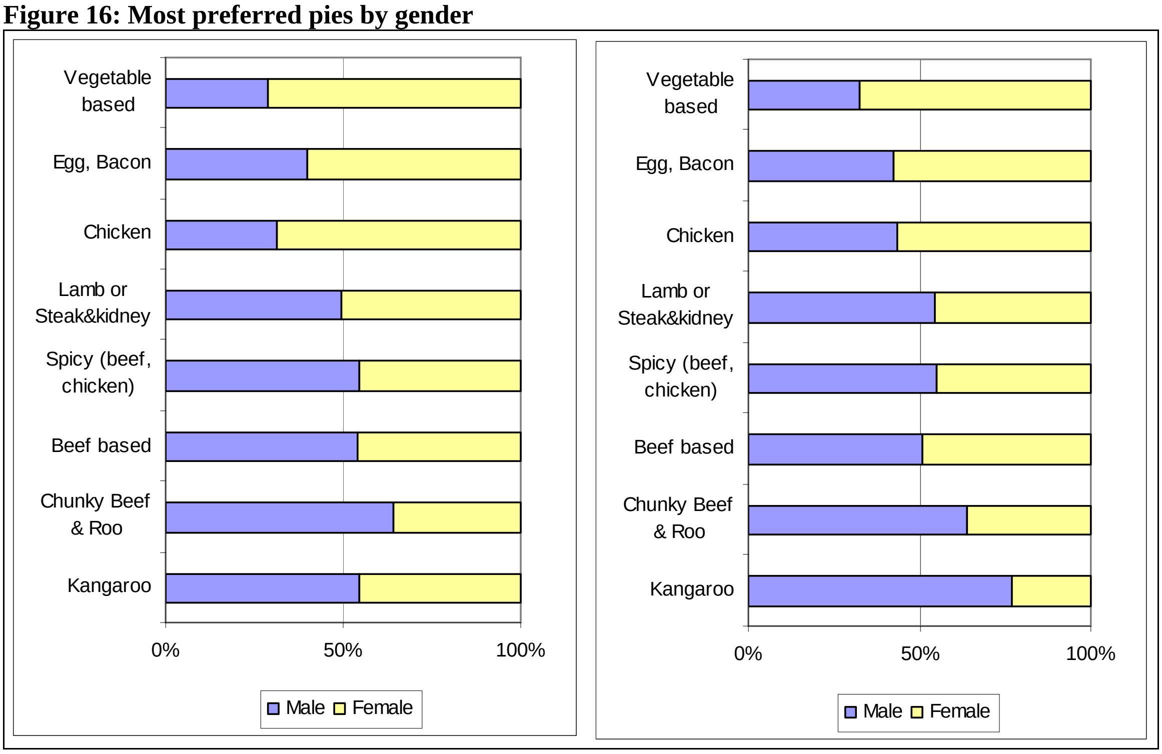
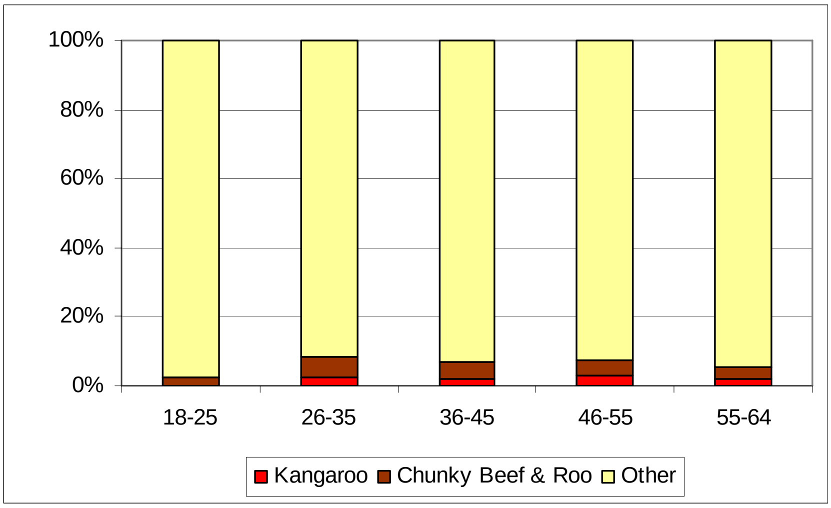


Figure 17: Most preferred pies by gender



Turning to the potential substitution pattern for kangaroo pies, Table 11 provides an indication of the likelihood of one of the kangaroo pies being chosen as second preference given a pie that was most preferred. This gives a clearer indication as to how the kangaroo pies might be positioned as potential substitutes when a consumer seeks variety or where the most preferred pie is unavailable.

Chunky Beef & Roo attracted 19.5% of second preferences when medium to high consumers had chosen the Chunky Beef pie as their first preference. This percentage was higher than other second preferences for Chunky Beef which suggests that there is an element of favouring the chunkiness of the pie in this pattern. Apart from the “chunkiness” factor, there is no clearly discernable pie-type substitution; except a slight indication that the heavier meat pies result in higher kangaroo second preferences.

Table 11: Second preferences given first preference by segment (per cent)

	Medium to high			One-off to low			Non-consumer		
First preference	**Chunky Beef & Roo**	**Roo only**	**Total (N)**	**Chunky Beef & Roo**	**Roo only**	**Total (N)**	**Chunky Beef & Roo**	**Roo only**	**Total (N)**
Chicken	17.5	2.5	40	0.9	0.9	114		2.5	118
Vegetable-based	9.4	6.3	96	3.1	0.6	159	0.5	0.9	214
Spicy (Beef, Chicken)	10.1	11.6	138	5.3	3.3	243	3.7	1.9	161
Lamb Steak & Kidney	14.9	6.9	101	6.8	2.5	161	5.0	0.7	139
Chunky Beef	19.5	8.8	113	10.6	3.4	292	5.4	0.8	259
Chunky Beef & Roo		11.5	122		3.8	104			27
Egg, Bacon	15.5	7.0	71	4.0	1.6	125	2.6		77
Other Beef-based	11.7	9.0	343	5.1	2.7	626	2.1	0.2	663
Kangaroo	20.0		80	33.3		15			4
All	12.1	8.2	1104	5.6	2.6	1839	2.6	0.7	1662

The final aspect examined for pies was the effect of the four information conditions. The information conditions had some effect on kangaroo being categorised as 2nd most or 2nd least preferred but not on most or least preferred. Information on preparation marginally increased the percentage of 2nd preferences given to Chunky Beef & Roo ($p<0.05$) but had no significant impact on the kangaroo-only pie. There was a modest negative effect from the quality assurance information which increased the likelihood of kangaroo being categorised as one of the less preferred pies ($p<0.01$). Further examination indicated that this effect was associated with those who had believed kangaroo was farmed or free ranged.

4.3.3 Deli meats

A total of 28 deli meats were available in each of the two shopping scenarios. The meats were listed under five categories: salamis, hams, pressed meat (for example devon), cured meat (for example pastrami), and sliced meats (for example roast beef). Most respondents (64%) chose between 2-6 for a normal shop and 3-8 for special occasions (60%). Approximately 6.5% of respondents bought 10 or more deli meats for a normal shop and this increased to 15% for a special occasion. These results may indicate that a small proportion of respondents viewed the exercise as one of indicating which meats they would consider rather than actually buy. There were also a number of respondents who completed only the normal shop (10%) which either suggests questionnaire fatigue or no difference in the meats they would select between a normal and special occasion.

Table 12 gives the pattern of choices by deli meat category for normal and special occasions for 774 respondents. Choice of kangaroo can be thought of as contingent on a consumer liking a general category. Ham is the most popular on both occasions and pressed meat the least likely to be chosen, with less than half the sample choosing this category. Cured meat choice is clearly influenced by occasion with around 20% of consumers choosing an item only for special occasions.

Table 12: Percentage who chose at least one product from a deli meat category

	Medium to high	**One-off to low**	**Non-consumer**	**Objector**	**All**
Normal occasion					
Salami	67.4	64.0	62.6	49.2	62.0
Hams	71.5	79.1	81.1	83.3	78.7
Cured meat	57.6	45.6	44.9	40.8	47.3
Pressed meat	54.7	42.7	49.4	46.7	48.1
Sliced meat	71.5	72.0	75.7	70.0	72.7
Special occasion					
Salami	72.7	68.3	59.2	68.2	67.8
Hams	71.5	81.1	83.3	79.1	78.7
Cured meat	79.7	64.6	61.7	66.9	68.2
Pressed meat	50.0	48.6	50.0	43.1	47.4
Sliced meat	62.8	67.5	69.2	68.6	67.1
Total N	**172**	**239**	**243**	**120**	**774**

Kangaroo choices within the three categories ranged from 8-10% of respondents on a normal occasion and rose to 12-16% on special occasions. Most of these respondents came from medium to high consumers with 20% to 44% of this group choosing a kangaroo item on normal and special occasions respectively. Salamis were slightly preferred by these consumers (4-6% over the other categories of kangaroo). Among One-off consumers kangaroo options were chosen by 8-10% rising to 13-16% for special occasions. There was a slight preference for smoked roo over the other products. With the exception of smoked roo (4%) non-consumers avoided kangaroo meats unless it was for a special occasion in which case 4-6% of respondents chose a kangaroo option from each category. A final point worth noting in relation to sliced meats is that roast beef is preferred to rare roast beef; significantly so for most segments. Our sliced meat product is rare roast roo and so it is possible that a more cooked version would have attracted a higher proportion of respondents.

Kangaroo options were available in three of the five categories: salami, sliced meat, and cured meat [2]. Figures 18, 19, and 20 give the percentage of respondents in the category who chose a meat on the two different occasions. A complete list of deli meats and their share of deli meat choices is provided in Appendix K.

[2] A kangaroo "ham" was discussed in the focus groups but not included in the survey because ham is a pork-based product.

Figure 18: Percent of respondents choosing salami by occasion

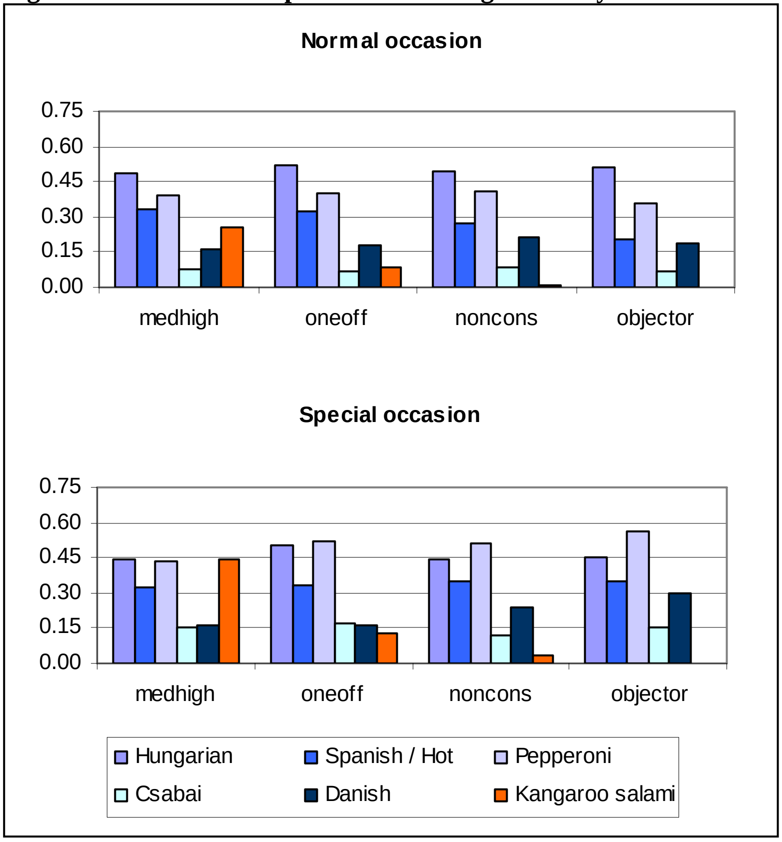


Figure 19: Percent of respondents choosing a sliced meat by occasion

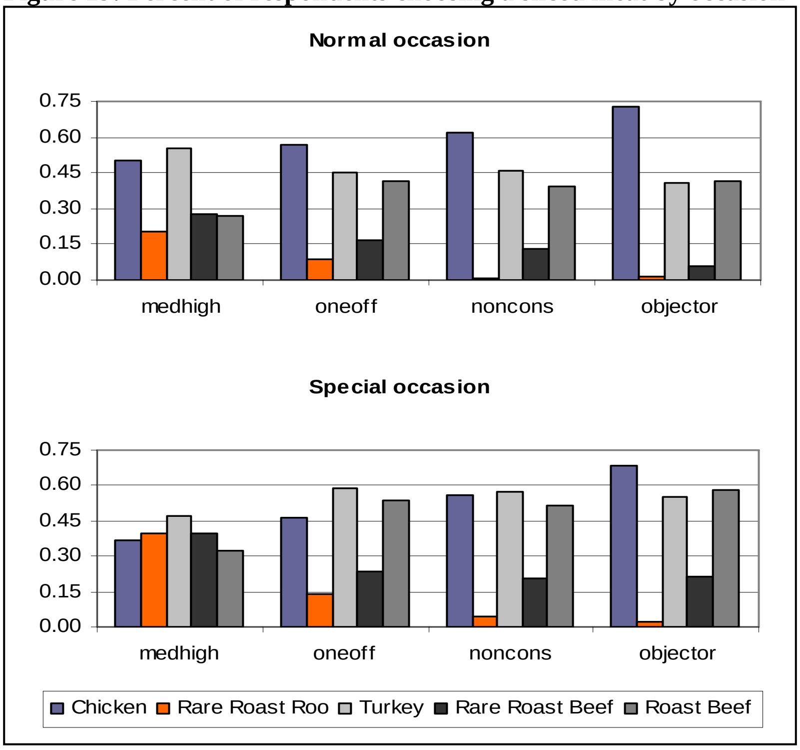
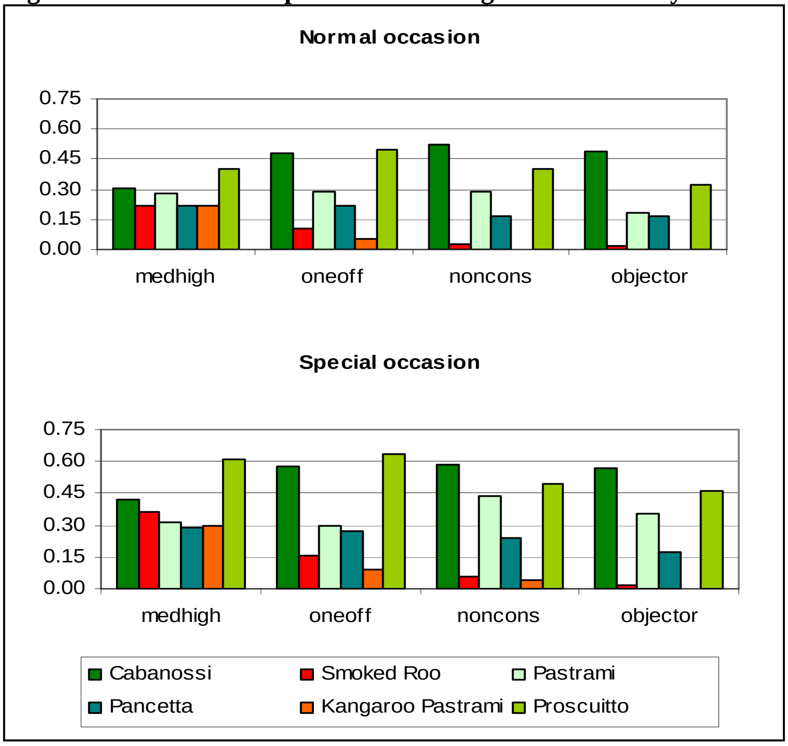


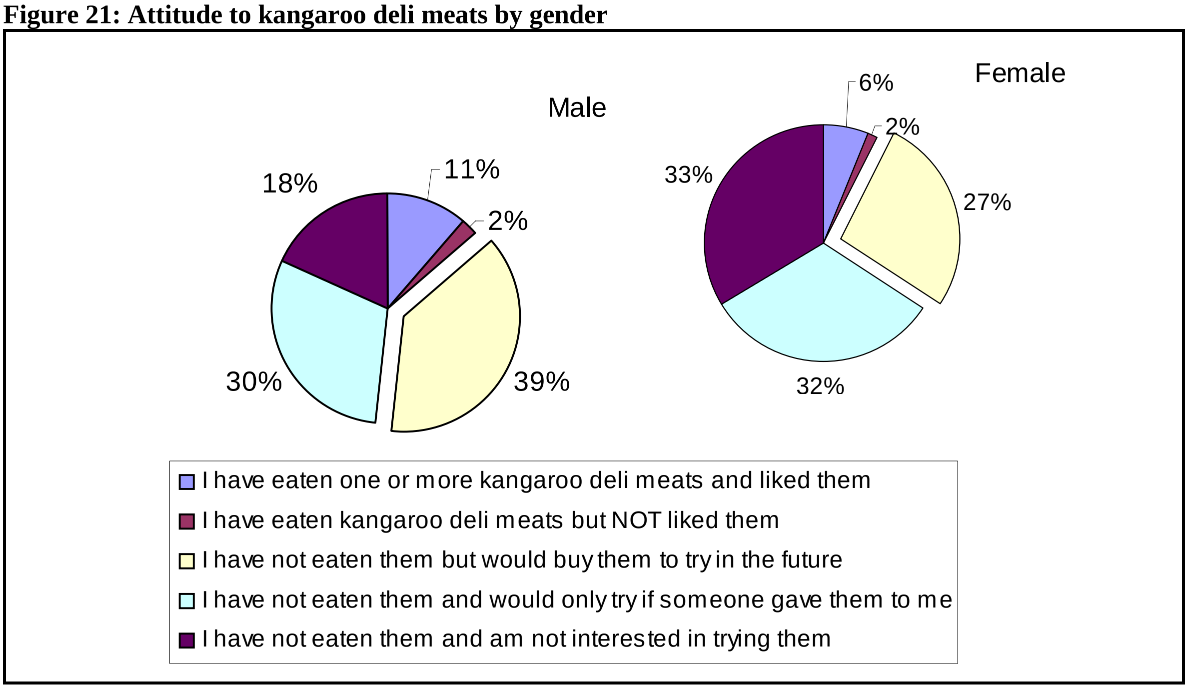
Figure 20: Percent of respondents choosing a cured meat by occasion



While the current demand for kangaroo deli meats implied by these responses is relatively low, the scenarios do not fully capture the potential for people to experiment and perhaps adopt one of the kangaroo options in the future. Figure 21 presents responses to a question that sort general attitudes to kangaroo deli products by gender.

On the whole, women were less interested in kangaroo deli meats than men, although this may reflect a generally lower interest in the product category. Around 32% cent of the sample showed a willingness to buy kangaroo deli meats in order to try them. These were more likely to be men and those scoring high on variety-seeking. A further 31% would try but only if they were given the product.

Figure 21: Attitude to kangaroo deli meats by gender



Discussion in the focus groups on kangaroo deli items also pointed to their novelty for consumers. As with the survey sample only a few participants had tried kangaroo deli products and only one (a South Australian) ate deli items regularly. Responses to kangaroo deli meats ranged from keen curiosity and product suggestions to a definite no. The following quotes are typical of the range.

> *I have never heard of smallgoods made from kangaroo meat and I am not sure if I would try them or not.* **W**

> *No and don't want to!* **N**

> *I think smallgoods made from roo would be a great alternative choice for those looking for something a bit leaner (female respondent).* **C1**

> *I've never had any roo smallgoods or pies that I know of. I would be quite keen to try them though and wouldn't have any issues. Being from South Africa too I'd really like a roo biltong/jerky version as well.* **A1**

> *Kangaroo pies........no, I don't think I could do that, on the topic of kangaroo meat in the deli sections like hams salamis etc, maybe a smoked style would be interesting.* **E**

> *Small goods with kangaroo in them, they probably have kangaroo meat in them already. if it was advertised as being in the product I would probably give it a go. I have not knowingly had any small goods/ pies with kangaroo in them.* **T**

> *I would not mind [the concept of kangaroo smallgoods]; 2. would be a bit reluctant [to think of buying kangaroo ham]; and 3. no [would not buy since I would not be completely comfortable with the taste/meat.* **M**

5. Retailers' and Manufacturers' Perspectives on the Use of Kangaroo Manufacturing Meat

It was clear from the negotiation undertaken to schedule interviews that while the potential respondents contacted were aware of kangaroo meat and some of its qualities, they viewed it as largely irrelevant to their businesses. This was true of both mainstream retailers/manufacturers and those involved in small volume, high value gourmet and niche products. The conversations and the scheduled interviews that took place both before and after the consumer survey provided insights into the nature of the respondents businesses, their perceptions of kangaroo meat, their perspectives on consumers' perceptions of kangaroo meat and the potential place of kangaroo meat in their businesses.

Throughout this section, where interviewee quotes are presented the following coding has been used:

Table 13: Interview quotes coding

Type of respondent	Code
Large general retailer	LR
Large pie manufacturer	LPM
Small manufacturer/retailer	SMR
Small pie manufacturer	SPM
Large smallgoods manufacturer	LSM

5.1 Retailing and manufacturing environment for manufactured meat

There is a marked contrast between major supermarket retailers and their large-scale suppliers and companies involved in the manufacture and retail of niche and / or gourmet foods.

Manufacturers and retailers involved in the higher value, lower volume gourmet or niche market generally have a number of products that sell consistently well, but they also invest significantly in innovation in response to their clientele:

> *Keep researching the market, do various trials on new flavours/styles. We will produce them if response is favourable, and will also do specialist flavours to order.* **SPM**

> *We are constantly innovating, always putting new stuff out there using our own chefs. We have an adventurous clientele (who are) always looking for something new.* **SMR**

Once a company has a established a name in the market, consumers are willing to pay more for mainstream products that they perceive to be of high and consistent quality, so price becomes a side issue.

In contrast, there is intense competition for shelf space in large retailer stores with new products having to prove themselves in other markets before they gain a place. To retain that place each product has to sell, and price points become very important:

> *New products get trialled (eg honey maple bacon) and have to prove themselves through sales. Less than 10% of what we try works, but categories generally don't change much.* **LR**

Changes largely occur between brands supplying similar products rather than seeing entirely new products. However trends are occurring largely due to shifts in consumer preferences. All companies involved in the mass market stressed the 'big 3':

'health, convenience and pleasure' **LR, LPM, LSM**

as key ingredients for a successful product. In supermarket meat products this has resulted in a shift to:

> *Choosing pre-packaged items rather going to the deli to get it freshly sliced, for convenience, freshness and information on the packaging such as use by date. There is less customer traffic at (the) deli. (People are) just (buying) higher value items at the deli rather than cheaper bulk items. Sales are still there but customer needs are changing* **LR**

> *There has been a lot of change - more health conscious, tastes becoming more mature, expecting more information on the products, lower fat and salt content, higher meat content, less processed, less manufactured, more natural.* **LR**

Some of the traditional smallgoods such as devon (fritz or boloney) and salami are giving way to products that are clearly recognisable as meat without other bulk ingredients. The obesity epidemic is a major issue for smallgoods manufacturers and particularly for pie manufacturers. Both are exploring lower fat options but:

> *With health, people say one thing but do it differently – they say they want healthy but if it is offered they don't necessarily act. The challenge to get a product that does everything but it must taste great otherwise it is out of (the) market.* **LPM**

> *Low in fat is important in good eating and premium ranges - we see that as a growing market for us but haven't seen a drop in those traditional markets. Certainly people will move to a lower fat option if it meets all of the other requirements.* **LPM**

In response to these trends at least one smallgoods manufacturer is transforming into:

> *'a food business, getting out of some traditional smallgoods and into new lines - this is a major internal re organisation.'* **LSM**

5.2 Perceptions of kangaroo meat from potential retailers and manufacturers

All respondents were aware that kangaroo is a lean and healthy red meat and many agreed that its other attributes (low in fat, National Heart Foundation tick [that is, good for those with high cholesterol], free range, nearly organic) were all positives. However, none of the respondents were fully aware that it was wild harvested:

> *'I assume that… obviously it is farmed (although you would need a pretty high fence to stop the buggers jumping over it!) and transported to a slaughter house, then vacuum packed.'* **SMR**

> *'Not aware of how it is harvested, have images of people shooting them and hanging them in trees etc but I guess it must be done in an abattoir.'* **LPM**

> *'…not sure if it is farmed or shot wild. I presume there is a small amount of kangaroo farming'.* **SPM**

Respondents had different reactions when told the reality of the harvest:

> *'Wild harvest is negative'* **LR**

> *Good to be seen as cottagey, we would need to know that food safety had a tick, important for us to know where our meat comes from because that is critical for us, need to have confidence*

that slaughter and transport and everything is done properly, to regular standards.
LPM

I think it is fantastic myself, I'm all for it, but I don't know how you are going to sell it to the public. Now you've tapped in there for me, I think you could really promote it as chemical free organic — we are all trying to do it no hormones, no preservative. Don't start me on the sustainability of farming, I mean when they pump rivers backwards… **SMR**

When asked about the relative merits of kangaroo as a product ingredient along with other meats or kangaroo-only products, all respondents believed that positively marketed, kangaroo-only products had the greatest potential:

Our policy is very strictly beef only, the issue of blending it gets back to that species thing. The boss is still quite raw on this so we wouldn't look at blending it in as a cheaper cut. To blend wouldn't be a proposition currently or in the foreseeable future. Possibly as a stand alone product there may be an application there, **LPM**

'(A blended product) wouldn't work. You need a premium product with strong point of difference and high quality. People are suspicion of processed foods, it must look natural'
LR

'Much better to have kangaroo 'heroing' rather than just an ingredient, additive or filler then consumer interest drops, if we felt we were exposed in any way to animal welfare issues then we wouldn't be keen.' **LSM**

There was some potential for a product containing kangaroo and other meats in the gourmet/ niche market.

'If we stocked and promoted it and had new value-added versions (maybe put it with lamb it might work) we could develop a clique that started using it.' **SMR**

5.3 Retailer and manufacturer perspectives on likely consumer reactions to kangaroo meat

Broadly, the respondents held the view consumers don't generally see kangaroo meat as an everyday option:

Similar to rabbit – if we buy it in need to freeze it or it will go off because too few people ask for it and only occasionally, not a staple. As a special occasion purchase, for something different, not as a staple, mostly tourists, not many Australians ask for it. **SMR**

There is not enough awareness of it, a lot of people turn their nose up, for whatever reason I am not quite sure, there is not really an acceptance of it as a meat source **SPM**

Some believed that acceptance was possible:

Just interest and acceptance – people rarely ask for it but then they might if it was visible and/or pushed, still have to overcome icon/national symbol barrier. **SMR**

While others perceived that significant barriers still exist:

Animal welfare, emotion, unfamiliarity, don't know how to cook it, need for recipes, tricky to cook, needs to be rarer, education, my mum didn't cook it, needs to be more normal.
LSM

Symbolic barrier, impression that it is not a premium product. **LPM**

This is borne out by the following case study:

A gourmet pie case study

In January 2007, a small gourmet pie manufacturer received an order from major airline for Australiana pie. They developed a kangaroo, bush tomato and alpine pepper pie. The flavour of the final version was extremely well balanced and tested favourably with executive chefs in 5 star hotels. They produced the requested quantity but the airline pulled out at last minute, leaving the company with a large amount of the product. They tried to generate interest around Australia Day – did a promotion of kangaroo pies into the general market place which was very disappointing – just small but sporadic sales through some hotels and one little deli buying 6 per week for backpacker market. They could generate no interest from the retail market. **SPM**

There was also a belief that if consumers were fully aware of the reality of the harvest it would be a deterrent to sales:

'I think it is fantastic myself, I'm all for it, but I don't know how you are going to sell it to the public'. **SMR**

'Wild harvest is negative' **LR**

5.4 Kangaroo meat potential in retail and manufacturing environment

For large manufacturers serving the major retail chains there was a strong reluctance to develop products containing kangaroo meat. This was evident despite their awareness that potential products could be marketed to emphasise 'the big 3' attributes of health, convenience and taste. This appears to be in response to the competitive reality of retailing in major supermarkets and the perception that kangaroo meat is just not considered mainstream as yet.

Even though the market is segmenting and people are demanding different products we still need products that are going to have wide appeal - probably kangaroo isn't quite there yet in Australia. I can see application in an Aussie kind of product for export as is being done by (a competitor), but it may be a little premature at this stage. **LPM**

Some could see the potential for kangaroo products:

Lots of potential for growth, its an Australian thing, people are getting a bit more parochial maybe as the world gets less safe, buying Australian and protecting the Australian environment is still high profile. (Is environment a good selling point?) *Yes I think so.* **LPM**

But the reality of trying to get a product off the ground was daunting:

For all those environmental and nutritional issues it is a feel good product but it still has to have mass appeal to a certain point before we will look at it. Even for me to convince management that vegetarian is a viable option [it was] still a really big struggle to get it out there because it is just not quite mainstream - you can't be too far ahead of the market. **LPM**

Apart from perception, manufacturers had specific requirements that would have to be met before they would consider a kangaroo meat-based product:

We would need a through-put of at least 25t/yr, must have consistent ongoing supply (quantity and quality), needs to be healthy, convenient and tasty, need to do consumer research, need to be completely open about production process, need to be satisfied that farming/harvesting practice is ethical especially re animal welfare. We would commission our own research. **LSM**

Whether we use it or not would be determined by consumer research, can't state it strongly enough, if people said they have a problem with the way it is produced we would have a commercial decision to make – we wouldn't try to hide it. Quality and consistency of supply, must be produced to specification, can't have varying batch sizes, sounds as though kangaroo might be pretty inconsistent due to mode of production. **LSM**

Before taking on this kind of commitment, management would have to be convinced that the investment on research is likely to arrive at a successful product, and judging by the general reluctance to even discuss kangaroo as an ingredient, this is likely to be some time into the future unless there is a significant shift in perception both from consumers and manufacturers/retailers.

Barriers for small manufacturers and retailers in the niche/ gourmet foods sector were considerably less. When asked about whether they would do a kangaroo product the response was generally positive.

We wouldn't shy away from it but wouldn't go out and promote it. We could take advantage of a general kangaroo promotion quickly, doing batches down to 5 kg. We could do a plain Roo pie but personally I think we need to jazz it up in the name but I am not confident it would go well. **SPM**

We do promote ourselves as providers of good meat and there is no reason why we shouldn't add this to the list. You don't put it up because you don't think you are going to sell it. Having this conversation is giving me some impetus to try and do something with the stuff because we are always looking for different ways, whatever we bring in that's the stuff we try to value, you've given me the encouragement to try and do something like that (value-added kangaroo products) **SMR**

5.5 Retailers/manufacturers recommended actions to make kangaroo meat more acceptable

All respondents could see the potential of kangaroo products and had a possible or already developed product in mind.

New product that has proven itself in niche market, reputable supplier, strong product attributes **LR**

I reckon kangaroo pancetta or prosciutto would be good, something that has long shelf life and is in gourmet category. **SMR**

Our premium range - more gourmet using international authentic flavours - that would be the brand where you could bring in different meats. The market is white collar and mix of male and female – a demographic you can do a lot more with. **LPM**

Yes, if we receive order we already have a tested, costed and reliable recipe ready to go and could supply 80 pies within 48 hrs of receiving an order. **SPM**

The key barrier was that consumer awareness, acceptance and demand were too low to justify the decision to develop, produce and promote a kangaroo-based product:

Would need a steady demand of 200/week to produce regularly but awareness just isn't there, it is generally not accepted. Might work at the premium end in small delis but would need to be generally promoted. **SPM**

There was also some support for the idea of kangaroo that was regionally badged to generate a positive image and generate premium prices (SMR). The theme of presenting kangaroo as premium and targeted at adventurous consumers was strongly endorsed. Its use and perception as a pet food or cheap meat is considered a problem and needs to be countered.

> *Australians think that kangaroo is more pet food whereas overseas people don't have that barrier. We are trying to improve pies positioning in people's minds, so people don't think of them as a cheap and nasty food, with the association between pet food and kangaroo meat it may work against that, at least there needs to be a big push to remove that association which is not an easy thing to do. If you could have that positioning as a quality product then I don't see any problem.* **LPM**

> *It is a symbolic barrier, the impression that it is not a premium product. We don't want to be seen as using cheap cuts of meat. If you are trying to build the image of a product as a viable alternative meat it ([‘sneaking' it into products] is no good for anybody.* **LPM**

The respondents strongly expressed the need to counter negative impressions and generate positive impressions of kangaroo meat if its retail potential was to be realised.

> *They need to overcome the icon/national symbol hurdle – it is all about perception – use not slaughter. Innovation put it in front of people, cook books, celebrity chefs.* **SMR**

> *You've got to get over that furry creature on the coat of arms and get into the fact that it is a viable meat option, there is a bit of broad education needed.* **LPM**

> *An education (campaign?) I guess building the image like lamb has, especially in that demographic that are looking for information and are more adventurous types, the trendsetters, get them into it, switch them on to it.* **LPM**

In terms of industry structure, major manufacturers would need to see a transparent, clean and ethical chain of custody from the field to the shelf. They would not be prepared to risk, for example, brushing the potentially negative reality of kangaroos as a wild harvested product under the carpet. While they were unsure of the impact on consumers of bringing this into the open, it would be a pre-condition of them investing in kangaroo-based products.

> *(I would be) concerned about consumer reaction to knowledge of nature of harvest.* **LSM**

> *If we felt we were exposed in any way to animal welfare issues then we wouldn't be keen.* **LSM**

> *(We) need to be completely open about production process, need to be satisfied that farming/harvesting practice is ethical especially re animal welfare. We would commission our own research.* **LSM**

> *Important for us to know where our meat comes from because that is critical for us, need to have confidence that slaughter and transport and everything is done properly, to regular standards.* **LPM**

6. Discussion

The series of studies reported here had the objective of providing to the industry and indication of the prospects for products made with manufactured kangaroo meat. These prospects are contingent on manufacturers and retailers willingness to develop and distribute kangaroo products and the processing constraints they face in using kangaroo meat. They are also contingent on consumers' acceptance of such products and consumers' general predisposition towards eating kangaroo.

In the following sections we outline the key findings from this research and their implications. We also make recommendations as to how the industry might proceed in some key areas.

6.1 Comparison with 1997 data

Consumption of kangaroo was marginally higher than in the 1997 RIRDC study (Purtell and Associates 1997) with more first time users and greater frequency of use by medium to high users. Otherwise general patterns of consumption remained similar (see Table 14).

Table 14: Comparison of 1997 (Purtell and Associates) and 2007 research projects

Aspect	1997	2007
Sample size	503	1599
Methodology	Telephone interviews	On-line survey
Current users	25% in past year	Not specified
Past users	26%	Not specified
Medium to high users	4 few heavy users, others less than 3 times per year, 12% twice per year	14.5% at least 4 times per year
One-off users	20%	44%
Total users	**51%**	**58.5%**
Non-users willing to try it	Not specified	21.1%
Objectors	Not specified	20.5% (19.8% don't agree with eating it, 0.7% consider it unhealthy)
Total non-users	**49%**	**40.9%**

6.2 Consumption and availability

The Kangaroo meat industry is at a cross roads. It has matured beyond the pragmatic utilisation of an abundant 'pest' animal in the eyes of consumers and the meat industry. There is now a wide recognition that kangaroo meat is a distinctive product with positive attributes. Relatively few consumers object to the use of kangaroo meat and there is a growing group of regular kangaroo consumers who are eating it more frequently. There is also a demonstrated willingness for niche/gourmet manufacturers to make kangaroo meat products utilising kangaroo manufacturing meat.

For the most part consumers are aware that kangaroo is a healthy meat that is lower in cholesterol than beef or lamb and this is a definite plus. However, how to prepare kangaroo meat remains an issue for all but the medium to high consumers and even here most perceive limited scope for preparing kangaroo. Also a potential barrier is the level to which kangaroo steak or fillets are cooked. The general recommendation is that the meat should be rare or medium-rare but 50% of consumers surveyed prefer their red meat cooked medium to well-done which, by implication, would include kangaroo. If this is the case, emphasising that kangaroo should be cooked rare to medium-rare may unnecessarily discourage consumers who prefer their meat well cooked.

There is also recognition that kangaroo meat lacks visibility on shelves and in products. This lack of visibility not only misses opportunities from consumers that are curious about kangaroo meat products, it also keeps kangaroo in the domain of the unusual or exotic. Increased visibility would assist to lessen the 'Skippy' factor and strengthen kangaroo meat's association with consumption.

A key issue then is how can kangaroo be made more visible? Perceived availability has improved but a significant proportion of current consumers are unable to find kangaroo meat when they would like to buy it. One possible explanation is that they are looking in the wrong place. For example:
- People browsing the mince meat shelves of supermarkets may be unaware of kangaroo mince which is almost always located in a separate section with other kangaroo products.
- Many consumers, particularly variety-seekers, use a variety of outlets to buy meat or prefer to use butchers or markets and it is possible that they are not looking for kangaroo in supermarkets.
- Kangaroo has little exposure in butchers or in gourmet stores hence people can't always find it when they want it and it is not visible when shopping for variety/ something unusual or special.

This research suggests that gourmet outlets are not displaying or stocking kangaroo meat due to a perception that their customers are not interested and are not demanding it. This is at odds with the data showing that medium to high kangaroo users are predominantly variety seeking and by implication are likely to try it if they see it in the right place and in the right format.

6.3 Consumer attitudes and Issues

In the survey, respondents were asked to choose whether they believed kangaroos came from:
- fenced farms much like those for emus or deer;
- free ranging farms, like the cattle stations or
- being harvested wild from the bush.

There are a number of ways respondents could have interpreted these alternatives. The first is relatively unambiguous but people may be unfamiliar with deer and emu farms. Our intention was that they would create an image of kangaroos behind fences significantly bigger than conventional sheep or cattle fences. The second creates an image of animals that are relatively free to move around in larger areas but still subject to some management by 'farmers'. The third alternative was intended to emphasise an image of wild kangaroos outside of any management by farmers being harvested.

Despite the increasing acceptance of kangaroo meat, there remain issues around the harvesting of animals. Across the sample there was a widespread (and incorrect) belief that kangaroo populations are managed in 'fenced farms' or 'free-ranging farms like cattle stations with only a small number (28%) correctly believing they were harvested as wild animals from the bush. In the focus groups most consumers in the low to medium-high categories were either reconciled to the fact that kangaroos are like any other animal and killed for meat or justified the harvest on the grounds that kangaroos can be a pest and so a culling is necessary. However, harvesting also created mental images of culls from helicopters and raised concerns over the integrity of the meat for some consumers. For most, knowing the animals were harvested did not change their attitude to eating kangaroo but there was an indication of increased sensitivity to meat quality factors and the welfare of the animal in the harvest.

6.4 Consumer response to kangaroo mince, pies and deli meats

Respondents were presented with three kangaroo-based products in the form of shopping scenarios. In the mince scenario prices of each mince available were manipulated as were the sourcing for kangaroo and premium beef. In the case of pies the pies that were available were manipulated so that only 10 of a possible 16 appeared in any one scenario. In both cases an underlying experimental design was used to develop the scenarios. The final product, deli meats, was presented as two scenarios. In the first respondents were asked to consider a normal shopping trip and, in the second, that they were shopping for a special occasion.

Mince is a high volume market. In 2005 Australians ate 35.6kg of beef (Meat and Livestock Australia 2007a) of which 29% was beef mince (Meat and Livestock Australia 2007b). Based on these figures, about 10.3kg of beef mince is consumed per person per year which is approximately 4,000t per week across the nation. From the current research it is clear that kangaroo mince is a potential substitute for beef mince, and that far more people are interested in and willing to experiment with buying kangaroo mince than are actually buying it. As far as we are aware, there are no other significant sales of kangaroo mince other than through the one company supplying supermarkets. Industry sources suggest that less than 10 tonnes of kangaroo mince are purchased from supermarkets across Australia per week, which is only 0.25% of beef mince purchased per week. As a result would appear likely that research aimed specifically at increasing the purchase of kangaroo mince is necessary and likely to generate positive outcomes. Key research areas would be the best location of the kangaroo mince in the supermarket (either with other minces or with other kangaroo meat products), the optimum range of package sizes and the role of promotion either in-store or generally.

It is evident from the consumer survey that a significant number of consumers are willing to at least try kangaroo pies (31%) and that most would see it as a gourmet novelty. Overall there was a clear preference for the Chunky Beef & Roo pie which also appeared to be seen as a substitute for Chunky Beef. One factor that we did not include in this research is price. The responses in the survey were based on kangaroo pies being sold at the same price as others. Clearly, this will not always be the case but what would seem important is that they are priced closely to other pies bought by that consumer segment (for example gourmet, everyday).

While the number of respondents choosing kangaroo deli meats is small relative to non-kangaroo over 72% of the 1590 screened for this survey buy deli meats weekly or more and close to 65% of the deli meat sample indicated a willingness to try kangaroo product; with 32% of these willing to buy to try. The presence of a significant number of consumers willing to try kangaroo deli meats, coupled with the fact that most consumers like the kangaroo deli meats they try, suggests that there is the potential for increased demand in the future. Two caveats are that:

- About half of those who indicated they would be willing to buy will need to sample products first. They are unlikely to buy them to experiment.
- Most interest is likely to come initially through gourmet delis which are less readily accessed than supermarkets. As they are generally independent and dispersed, distribution is likely to generate higher transaction costs.

6.5 Manufacturer and retailer attitudes to kangaroo

Attitudes of manufacturers and retailers were not canvassed in the 1997 RIRDC study, although it should be noted that no kangaroo meat was available through supermarkets at that time due to deliberate policy decisions by the retailers. Since then kangaroo meat has become available in most supermarkets including the two major retail chains and the smaller independent retailer groups.

A limitation of this study is the small number of interviews undertaken; however this was unavoidable given the reluctance of prospective respondents to agree to be interviewed. Despite the small number of interviews, a range of industry perspectives was received and discussed in some detail through the semi-structured interview format. As a result the findings create a well-informed view of the environment into which the kangaroo industry is hoping kangaroo manufacturing meat can become established.

The manufacturers interviewed were aware of kangaroo and open to using it in their products, but are very unlikely to do so unless they perceive it to be more normal in the eyes of consumers. A significant and innovative information campaign to raise the profile of kangaroo is necessary before this can happen. In addition, they need to be confident of the transparency and openness of the process of bringing kangaroo to the consumer if they are to make the significant investment needed to bring kangaroo-containing products to market.

Major retailers will need to see kangaroo products being successful in the gourmet and niche markets before they become regularly available on supermarket shelves. While niche manufacturers and retailers are able to develop and make available innovative kangaroo products to their variety-seeking customers, they recognise that consumer awareness and curiosity is not sufficient to sustain even small volumes at present. They would have to remarkably (even obsessively) persistent in trying to develop the loyal clientele needed to make a stable and regular production of any benefit to the kangaroo industry.

7. Implications

Although the proportion of Australian meat consumers who have tried kangaroo has not changed significantly since the 1997 RIRDC study, the higher proportion that are eating kangaroo more frequently suggests there is still considerable potential for market growth just among current and one off consumers alone. This is reinforced by the finding that consumers remain unable to buy kangaroo on every occasion they wish to.

An encouraging finding is that in most instances consumers who try kangaroo meat like it and would eat it again. Also encouraging is that most consumers perceive kangaroo to be a healthy meat. Given these findings, and the considerable publicity and emphasis on healthy eating today, there would seem to be ample scope for growing this segment of the market.

Preparation remains an issue as does the level of cooking. Uncertainty over cooking will discourage some consumers who will choose to eat kangaroo only when prepared elsewhere and so limit their consumption level. The industry recommends that kangaroo is best cooked rare to medium rare yet there are many consumers who are eating kangaroo medium to well done which suggests it can be palatable at these cooking levels and that emphasising lower levels may exclude potential consumers.

Of the three products examined in the consumer survey, mince meat has the greatest potential for using kangaroo manufacturing meat. If this market alone was to expand to, say, 2% of the beef mince market, it would increase the domestic human consumption of kangaroo manufacturing meat to 80t per week. Factors that may currently deter consumers from trying out kangaroo mince as a substitute for their regular purchase are the current packaging in 1kg packs and its shelf location. It is likely that they would be more aware of it as a substitute if it was next to the other minces and be more willing to experiment with smaller quantities.

Although kangaroo pies attracted interest their potential is hampered by the following issues:

- Meat pies consumers are predominantly a blue-collar males between 18 and 35 and this group is unlikely to be interested in changing from their normal choice of typical beef mince pie.
- While gourmet pies have a market, gourmet kangaroo pies would be a niche market within a niche market making it very small.
- Variety seeking consumers, the key group that regularly choose kangaroo, are unlikely to be regular pie eaters and unlikely, therefore, to try kangaroo through a pie.
- Even well constructed, taste tested kangaroo pies have very limited appeal when tried.
- Mainstream pie makers are keen to be seen as beef only as this a marker of quality in the pie marketplace.

For deli meats the outlook is brighter. There is clear potential for an innovative smallgoods manufacturer to develop kangaroo products to target variety seeking consumers. This research looked at several possibilities including kangaroo salami, kangaroo pastrami, kangaroo proscuitto and rare roast kangaroo and these were selected frequently enough in the survey to suggest that they all had potential. Prior to the survey, the idea of a moist kangaroo product similar to ham was discussed by the steering committee but this was omitted due to the difficulty of giving a name that would accurately describe it. If a high quality product could be developed from kangaroo manufacturing meat with an appropriate name and at a competitive price it would have significant potential.

From a manufacturers' perspective, most deli meats can be made using kangaroo. The difficulty would be to produce the product at a low enough cost to allow the mark-ups required by distributors to deliver it to gourmet retailers at a realistic retail price. Such a new product would need to be supported by extensive sampling and free tastings, as well as some more widespread promotion before it could realistically gain a consumer following. It would need to succeed strongly in the gourmet market to make it into supermarkets. However, there may be further opportunities in the service sector given that kangaroo products more often chosen for special occasions.

The manufacturers interviewed were aware of kangaroo and open to using it in their products, but are very unlikely to do so unless they perceive it to be more normal in the eyes of consumers. They believe a significant and innovative information campaign to raise the profile of kangaroo is necessary before this can happen. In addition, they need to be confident of the transparency and openness of the process of bringing kangaroo to the consumer if they are to make the significant investment needed to bring kangaroo-containing products to market.

Major retailers will need to see kangaroo products being successful in the gourmet and niche markets before they become regularly available on supermarket shelves. While niche manufacturers and retailers are able to develop and make available innovative kangaroo products to their variety-seeking customers, they recognise that consumer awareness and curiosity is not sufficient to sustain even small volumes at present. They would have to be remarkably (even obsessively) persistent in trying to develop the loyal clientele needed to make a stable and regular production of any benefit to the kangaroo industry.

What is evident from the results of the focus groups and consumer survey is that, while increased consumption has followed increased availability of kangaroo meat, this is occurring slowly. We believe that consumption will continue to grow slowly or to stagnate unless pro-active steps are taken to make the product more visible. Variety seeking behaviour is higher in kangaroo consumers. They are choosing kangaroo because they are interested in trying something new and like variety in their diet. These consumers may well consider it as a substitute for more regular purchases but it needs to be seen to prompt them to action. Although variety seekers use supermarkets, and therefore could see kangaroo in the supermarket, they may not be expecting something new and therefore not notice it.

At the same time the industry would benefit from concentrating on sending consistent messages that emphasise that there is no risk of harm to the kangaroo population as a whole, that the harvest process is humane and hygienic, and that the harvest results in benefits to source communities and environments. At present the industry promotes kangaroo meat to consumers as being clean, green and compatible with sustainable land management at the same time as justifying the harvest to landholders on the basis of kangaroos being a pest. While mixed messages like this exist, doubt will remain in the minds of tentative consumers and this will be picked up by manufacturers and retailers, perpetuating the fringe status of kangaroo meat. The industry cannot afford to allow the perpetuation of the widespread myth that kangaroo meat comes from kangaroos that are managed on farms or free-ranged on large stations. Transparent and consistent rhetoric that open to scrutiny is vital for manufacturers and retailers to gain confidence to develop products containing kangaroo and to market them positively.

8. Recommendations

1. Despite being more available, kangaroo meat remains a curiosity. To make kangaroo meat consumption more normal, the industry needs to take a proactive approach to promoting kangaroo as a gourmet alternative that carries health benefits and has a wide variety of uses. It also needs to generate consistent messages to all stakeholders of a uniquely Australian resource that is managed through careful harvesting, is humane and sustainable, and is good for the environment.
2. Kangaroo meat and meat products need to become more visible to consumers as an easy to prepare, inviting option to mainstream meats. The biggest impact is likely to be education about its use in a wide range of meals that reflect Australia's ethnic diversity and the growing interest in gourmet foods. Kangaroo mince, deli meats and pies have appeal to this segment in particular. To achieve greater awareness and demand for such products the industry needs to:
   - Work with individual gourmet manufacturers/retailers to develop sample products and test them with their regular clientele to determine the impact of industry messages, the achievement of quality and consistency, reactions to new products and, messages from retailer/manufacturer.
   - Work with a sample of supermarkets to test different locations and packaging to increase prominence of kangaroo meat products.
3. Mince is likely to have the most impact in terms of volume of manufactured meat that could be sold. However, choice of kangaroo mince drops off as its price approaches the price of its potential substitutes, so its price point may need to be significantly lower than that of minces such as extra trim beef mince. Actions that are likely to enhance uptake of mince include:
   - Work with a sample of supermarkets to test different locations and packages to increase prominence of kangaroo mince that might substitute for mainstream products for example trim beef mince.
   - Introduce smaller 500gm packages of mince meat as well as the current 1kg packages to facilitate experimentation and possible adoption of kangaroo mince.
   - Market smaller packs in high profile gourmet and organic shops to appeal to a different audience.
   - Promote kangaroo mince as a versatile, economic, low fat alternative with information on how to use it.
4. Research is needed to gain a better understanding of consumers with a preference for well cooked red meat. This segment is large and at present it is assumed that kangaroo is simply unpalatable if cooked to this level. This may not be the case.
5. Innovation in kangaroo deli meat products is likely to be received positively by the more adventurous consumers, especially for special occasions. A range of products including salami, smoked roo and rare roast roo could achieve market share on the gourmet market. Other possibilities are ham steaks, which could also be cut thinly for use as a pizza topping. It is important to expose consumers to such products. To achieve this:
   - Onsite tastings and serving suggestions would assist to capture the interest of consumers and are likely to be essential to attract more conservative consumers (that is, will not buy to try). The first step would be to generate interest in the gourmet smallgoods market; although this would need considerable time and an active network.
   - Promote kangaroo deli meats for special occasions. Testing responses to descriptions of kangaroo alternatives that have a gourmet feel e.g. Maple kangaroo Bacon.
   - Investigate the restaurant/hospitality trade who could use kangaroo as specialty items and would introduce kangaroo to consumers who might not otherwise try it.
6. An alternative but complementary avenue for expansion of kangaroo deli meats is through the restaurant/hospitality trade who could use kangaroo as specialty items and would introduce kangaroo to consumers who might not otherwise try it.

7. At present pies containing kangaroo are unlikely to achieve significant market share beyond specialist pie shops. A chunky beef and kangaroo pie has scope for a broader market, subject to meeting taste requirements.

8. In terms of its profile, the industry needs to separate itself from the culling for pest management that often attracts strong emotional responses from the community. To do this it needs to communicate a consistent message that will satisfy consumers, manufacturers and retailers as to the controls in place to ensure that kangaroos are harvested in a sustainable, humane way under strict quality control. We recommend the industry:

    - Undertake investigations into the chain of custody to ensure consistent applications of regulations, identify weak links, and to suggest improvements to make kangaroo meat more acceptable to mainstream manufacturers and retailers.
    - Investigate the impact of encouraging stronger local control of harvest management on quality and perceptions of processors, distributors, retailers and consumers. Such schemes might also assist to move the industry away from associations with other culling activities.
    - Undertake further research to develop and test different approaches to consistent industry messages that might form the basis for ongoing industry branding.

9. In a wider context, we recommend targeted research into the beliefs, attitudes and behaviour on human connections to different animals – wild native, wild feral, domesticated native, domesticated introduced, and how that is impacted on by how animal is husbanded, harvested, transported slaughtered.

Appendices

Appendix A: Interview Protocols

Semi-structured interview guide: Retailers

Greeting, introduction, explain purpose of the project in general and this interview in particular, obtain signature of consent.

Explain that interview is being audio-taped and will be transcribed and analysed but that no specific information will be identifiable as having come from this particular interview and as a result respondent will not be able to be identified as having said any specific thing.

1. Open-ended questions to illicit basic description of their business.
- **1.1** Could you please describe the nature of your retailing work and how you got to be in your present position?
- **1.2** What aspects of your work are going well at present?
- **1.3** What are the issues confronting your work at present that are causing you concern?
- **1.4** No. of employees, scale of production

2. More specific questions focussing on key products.
- **2.1** What are the key products that you retail? What is the relative popularity of the different products? Do you have a stable range or do you have plans for changes to lines of products?
- **2.2** What range of meat-containing products do you retail?

3. Questions about past, present of future use of kangaroo meat.
- **3.1** Have you sold kangaroo meat containing products in the past? How successful was it?
- **3.2** Do you sell kangaroo meat containing products now? What are your main reasons?
- **3.3** Do you plan to sell kangaroo meat containing in future? What are your main reasons?

4. Specific aspects of use of kangaroo meat.
- **4.1** Are you aware of these aspects of kangaroo meat? low in fat, heart foundation tick, free range, wild harvest, organic. How important are they to your customers?
- **4.2** What are the issues around including kangaroo meat in your meat products? Consumer reaction? Labelling? Image? Marketing? Cost supply? Quality?
- **4.3** What are the issues around kangaroo-only products? Consumer reaction? Labelling? Image? Marketing? Processing run issues
- **4.4** What would have to change for you to consider kangaroo containing or kangaroo only products? (marketing campaign, better supply, improved image, price, form in which it is supplied, nature of industry)
- **4.5** Any other issues or concerns with the use of kangaroo meat in your products? (Supply, quality, processing…)

5. Issues around market demand and consumers.
- **5.1** Where do you see kangaroo fitting into consumers' meat consumption in general, in processed meat specifically?
- **5.2** What are your experiences / expectations of consumer responses to kangaroo?
- **5.3** What do you see as the main issues in consumption of kangaroo? (preparation, symbolic barrier, health, consumption experience e.g. taste, texture etc)
- **5.4** What actions do you consider necessary to improve consumer acceptance of kangaroo (would make them more confident in incorporating kangaroo in their products)

6. Issues they personally have with kangaroo

Semi-structured interview guide: Manufacturers

Greeting, introduction, explain purpose of the project in general and this interview in particular, obtain signature of consent.

Explain that interview is being audio-taped and will be transcribed and analysed but that no specific information will be identifiable as having come from this particular interview and as a result respondent will not be able to be identified as having said any specific thing.

1. Open-ended questions to illicit basic description of their business.
- **1.1** Could you please describe the nature of your business and how you got to be in your present business?
- **1.2** What aspects of your business are going well at present?
- **1.3** What are the issues confronting your business at present that are causing you concern?
- **1.4** No. of employees, scale of production

2. More specific questions focussing on key products.
- **2.1** What are your key products? What is the relative popularity of your different products? Do you have a stable range or do you have plans for changes to lines of products?
- **2.2** What types and sources of meat do you use? How reliable is supply? How important is quality and is quality consistent?
- **2.3** Which outlets do you supply? Do you aim at particular markets? What use do you make of research on your target markets?

3. Questions about past, present of future use of kangaroo meat.
- **3.1** Have you used kangaroo meat in the past? How successful was it?
- **3.2** Do you use kangaroo meat now? What are your main reasons?
- **3.3** Do you plan to use kangaroo meat in future? What are your main reasons?

4. Specific aspects of use of kangaroo meat.
- **4.1** Are you aware of these aspects of kangaroo meat? low in fat, heart foundation tick, free range, wild harvest, organic. How important are they to your customers?
- **4.2** What are the issues around including kangaroo meat in your meat products? Consumer reaction? Labelling? Image? Marketing? Cost supply? Quality?
- **4.3** What are the issues around kangaroo-only products? Consumer reaction? Labelling? Image? Marketing? Processing run issues
- **4.4** What would have to change for you to consider kangaroo containing or kangaroo only products? (marketing campaign, better supply, improved image, price, form in which it is supplied, nature of industry)
- **4.5** Any other issues or concerns with the use of kangaroo meat in your products? (Supply, quality, processing…)

5. Issues around market demand and consumers.
- **5.1** Where do you see kangaroo fitting into consumers' meat consumption in general, in processed meat specifically?
- **5.2** What are your experiences / expectations of consumer responses to kangaroo?
- **5.3** What do you see as the main issues in consumption of kangaroo? (preparation, symbolic barrier, health, consumption experience eg taste, texture etc)
- **5.4** What actions do you consider necessary to improve consumer acceptance of kangaroo (would make them more confident in incorporating kangaroo in their products)

6. Issues they personally have with kangaroo

Appendix B: Focus Group Moderator Guides

Base Guide for Moderator

Warm-up and basic consumption information

I'd like to start by asking you to tell us your name, and your main reason for eating *[not having eaten]* kangaroo meat.

Move onto shopping behaviour and criteria for choosing meats

Before we talk more about kangaroo, I would like to first consider meat in general and in particular buying meat.

- How often do you buy meat and where do you usually buy it? *[Probe: why]*
- When you think about choosing the meats you buy, what is the process you go through, what factors do you think about?
- What is most important when you buy meat? *[attribute importance]*
- What is unimportant?

Produce a list of meats that they could commonly buy [ie. – chicken, beef steak, lamb chops etc]

- Which of these meats do you usually buy when you go to the supermarket/butcher?
- Do you always buy these? *[probe for groupings and their basis eg. sausages and chicken to feed family, cutlets and veal a treat, something different etc]*
- Are there meats you buy that we haven't included?
- If you were to buy kangaroo, where would it fit into the meats you buy? *[objective: which meats are substitutes and what is the basis for this substitution]*
- If you were to buy kangaroo, where would it fit into the meats you buy? *[non-consumers]* You have indicated that you consider Kangaroo to be associated with these meats but you wouldn't eat Kangaroo. Why isn't kangaroo a substitute for these meats? *[will come back to this theme later]*

Move to smallgoods and processed meats and the attributes for purchase and response to kangaroo [the products of focus need finalising once we have talked to processors]

All of you eat some form of smallgoods or processed meat *[list: salami, meat pies…..]*. Where do you buy these items?

- Please list the items that you buy for home regularly [daily, weekly, monthly. Focus in on items mentioned most often by informers, eg smallgoods, meat pies]
- What do you look for when buying smallgoods - good and bad around smallgoods *[What is most important What is unimportant? Explore basis of brand preferences, and price perceptions]*
- What about meat pies? What do you look for in meat pies? *[probe as above]*
- Now I would like you to think of small-goods and pies that contain Kangaroo meat. How do you feel about kangaroo meat in these? *[probe: problems or benefits]*
- What about small-goods/pies made completely from Kangaroo meat?

Wider issues and values attached to kangaroo and their potential impact on attitudes

In this discussion we would like to move away from talking about kangaroo meat In the final section of this discussion we would like to move away from talking about kangaroo meat specifically and to think more generally about kangaroos.

- Thinking about kangaroos generally, write down on the pad provided six (6) words that come to mind when you think about kangaroos

Explore themes that emerge, particularly health issues and animal welfare [eg. You have mentioned wild/natural – does this affect your attitude to consuming kangaroo – explain; same for pests/disease or other synonyms]. Follow icon-related words using following guide.

- For most Australians Kangaroo is seen as an icon of Australia. Some of these people would say how could you eat an icon? What would you say to them?
- You eat Kangaroo, would you eat Koala/Wombat? Why, why not, what is different about Kangaroo? *[probe along the lines: You mentioned Koalas are cuddly? Lambs are cuddly also but we eat them]*

Kangaroos are not farmed, but are harvested (shot) in the wild by licensed professional shooters. The harvest is controlled by a quota system which aims to prevent over-harvest. The quality of the kangaroos that are processed is closely and strictly monitored and only roos that have died instantly and are clean and free of disease and parasites are accepted for processing.

- How do you feel about this process?
- Does it affect your willingness to eat Kangaroo?
- What would make you/people feel better about harvesting? [*needs, assurances in connection with culling]*.

Finally, I would like to talk about Kangaroo management as part of using the land sustainably:

NSW, Qld, SA and WA all have a program of culling kangaroos and a commercial industry exists to use these kangaroos. It is rare for farmers to get any commercial return for the roos shot on their properties and most farmers view roos as a pest, rather than as a resource. This is despite roos being superbly adapted to our land. A stronger kangaroo industry and greater consumer demand for kangaroo could help drive change towards more sustainable farming systems that use kangaroos and manage land for survival of roos and other native species.

- What are your thoughts on this?
- Does this change your mind about Kangaroo as a meat alternative? *[explore]*
- If you were to try to promote kangaroo as a meat for eating, and thinking back over the issues around kangaroo and the buying behaviour we have discussed in relation to meat, what messages do you think would be most persuasive?

Debrief.

Guide for Moderator: Participants consuming kangaroo previously (Focus Group 2, 3 and 4)

Warm-up and basic consumption information

Start by asking to tell us your name, when you last ate kangaroo and how it was prepared.

Move onto shopping behaviour and criteria for choosing meats

Before we talk more about kangaroo, I would like to first consider meat in general and in particular buying meat.

- How often do you buy meat and where do you usually buy it? *[Probe: why]*
- When you think about choosing the meats you buy, what is the process you go through, what factors do you think about? This is an important topic for us could you focus more on this discussion. Eg. ask them to walk you through their decision process. I assume one person might do this and then others either agree and add or provide alternatives.
- What are the most important considerations when you buy meat? *[attribute importance]Please pick up price and explore what a low price is and high price for meat and possibly kangaroo*
- What is unimportant?

Produce a list of meats that they could commonly buy [ie. – chicken, beef steak, lamb chops etc]

- Which of these meats do you usually buy when you go to the supermarket/butcher?
- Do you always buy these? *[probe for groupings and their basis eg. sausages and chicken to feed family, cutlets and veal a treat, something different etc]*
- Are there meats you buy that we haven't included?
- If you were to buy kangaroo, where would it fit into the meats you buy? please explore this in more detail. Ie beef and kangaroo because they are both red is one, but kangaroo could also be a substitute for special meats and so it fits with venison, crocodile etc
  - *[objective: which meats are substitutes and what is the basis for this substitution]*

Move to smallgoods and processed meats and the attributes for purchase and response to kangaroo [the products of focus need finalising once we have talked to processors]

- All of you eat some form of smallgoods or processed meat *[list: salami, meat pies…..]*. would like to get what they buy and when and whether they have standard items or vary each purchase. Particularly, want info on ham and pies
- Where do you buy these items?
- Please list the items that you buy for home regularly *[daily, weekly, monthly. Focus in on items mentioned most often by informers, eg smallgoods, meat pies]*
- What do you look for when buying smallgoods - good and bad around smallgoods *[What is most important What is unimportant? Explore basis of brand preferences, and price perceptions]*
- What about meat pies? What do you look for in meat pies? *[probe as above]*
- Now I would like you to think of small-goods and pies that contain Kangaroo meat. How do you feel about kangaroo meat in these? *[probe: problems or benefits]*
- What about small-goods/pies made completely from Kangaroo meat?

Wider issues and values attached to kangaroo and their potential impact on attitudes

In the final section of this discussion we would like to move away from talking about kangaroo meat specifically and to think more generally about kangaroos.

- Thinking about kangaroos generally, write down on the pad provided six (6) words that come to mind when you think about kangaroos

Face-to-face write these on the board and explore themes that emerge [eg. wild/natural, pests/disease, icon]then follow-thru on themes used in online focus-groups.

Online groups and face-to face

- For most Australians Kangaroo is seen as an icon of Australia. Some of these people would say how could you eat an icon? What would you say to them?
- You eat Kangaroo, would you eat Koala/Wombat? Why, why not, what is different about Kangaroo? [*probe along the lines: You mentioned Koalas are cuddly? Lambs are cuddly also but we eat them]*

Kangaroos are not farmed, but are harvested (shot) in the wild by licensed professional shooters. The harvest is controlled by a quota system which aims to prevent over-harvest. The quality of the kangaroos that are processed is closely and strictly monitored and only roos that have died instantly and are clean and free of disease and parasites are accepted for processing.

- How do you feel about this process?
- Does it affect your willingness to eat Kangaroo?
- What would make you/people feel better about harvesting? *[needs, assurances in connection with culling]*.

Kangaroo management is part of ***using the land sustainably****:*

NSW, Qld, SA and WA all have a program of culling kangaroos and a commercial industry exists to use these kangaroos. It is rare for farmers to get any commercial return for the roos shot on their properties and most farmers view roos as a pest, rather than as a resource. This is despite roos being superbly adapted to our land. A stronger kangaroo industry and greater consumer demand for kangaroo could help drive change towards more sustainable farming systems that use kangaroos and manage land for survival of roos and other native species.

- Do you have any questions about this?
- How do you think people would respond to this as a reason for eating kangaroo?
- If you were to try to promote kangaroo as a meat for eating, and thinking back over the issues around kangaroo and the buying behaviour we have discussed in relation to meat, what messages do you think would be most persuasive?

Debrief.

Appendix C: Summary of Focus Group Findings

The following key findings across all three focus groups were used to inform the next stages (Stages 3 and 4) of this research project:

- There was strong awareness of kangaroo meat amongst participants but limited cooking knowledge among all but the high users. Lower users had only eaten kangaroo at restaurants or with friends. Higher users described a range of culinary uses for kangaroo, with a high level of acceptance for it to be used in ethnic as well as more traditional Australian cuisine. A general consensus was the need for simple and successful recipes and wider availability of meat. Particularly appealing was mince meat which suggests an opportunity for kangaroo manufacturing meat.
- Most participants had not encountered processed kangaroo meat but were positively predisposed to kangaroo pies and kangaroo smallgoods. The response to a preserved cold meat product that could be substituted for ham was more mixed with colour raised as an issue.
- Kangaroo is generally viewed as an alternative to conventional red meats with a diversity of views about value for money, especially with the range of retail prices reported (from $9 to $20/kg for fillets). This mostly reflected differences in prices between SA and other states.
- There was a generally high level of acceptance of kangaroo as a commercial species with the main conditions being that kangaroos are abundant (not endangered), that they are harvested without cruelty and with minimal suffering, and that there are adequate safeguards to ensure that they are clean and free of disease.
- Kangaroos were seen as an icon by most but that didn't prevent them also being seen as a legitimate food. Whilst many mentioned Skippy, they didn't view roos on the same basis as toys or pets –the case with koalas – which would have resulted in kangaroo meat being a taboo.
- There was some misconception that roos are or could be "farmed", and the knowledge that they are wild-harvested caused concern to a number of participants – mostly women. It seemed to create negative images since there were doubts about quality control and shooters ability for a "clean" kill. The proposition of populations being managed by landholders, even if not fully confined as with normal livestock, seemed to create a more positive image than the reality of shooters operating under the present arrangements. This might suggest opportunities for marketing kangaroo using sourced labelling much as is done for goats, wine etc.
- A sleeping issue is Joeys. None of the participants mentioned the potential for suckling females to be shot. However, given other comments this could present problems.

Appendix D: Extract of Focus Group Quotes: Product and Promotions Suggestions

Suggestions for promoting kangaroo

Make it fun and easy not gourmet…Bring it back to the family kitchen. **J1**

It is part of Australia so why not eat the meat that is part of the country's culture, something along those lines,…. Perfect meat for the Aussie barbeque I would say forget Australia day lamb or whatever they promote, kangaroo should be there. **D**

Healthy, and support the product with basic recipes (nothing too flash). **C**

When I think of roo I think of wine tasting, the Adelaide hills and the Barossa n a nice Sunday arvo…. Ummm keep it up market and healthy, fat/calorie conscious people that are posh and into the arts and wineries etc... Diet -fat content, being good for the environment - like not having them caged and the trendiness and sophistication of the meat…. [following claims that it should be aimed at simple family cooking] In between family and gourmet... So enough family orientated to be able to put on the barbeque …..I like the fact the roo is dark - it's more rich and tender - nice quality. **J2**

There would be more focus on showing cooked food etc, such as with pork or lamb TV adverts. None of them mention harvesting pigs or sheep. **T**

I think telling people its healthy lean and good for you which it is and not many people know that. a fact sheet on nutrients and health benefits to compare to other meats. **S**

I'd be focussing on the health benefits of the meat (low in fat etc), the sustainability of the meat as a resource, and the fact that kangaroos are much kinder the environment to other grazing animals like sheep or cattle. I'd also want to price point the meat below that of other similar meats to attract buyers, and also pump some profit back into Landcare schemes to preserve and reclaim environment for kangaroos and other native animals. **R**

The nutritional (?) and health values could be the main promotional factors, as well as quality and freshness. Price, if it were to be comparatively cheaper, could be another factor. The major concern would be that the national icon would be endangered. Hence the fact that the harvesting is controlled should have to be publicised. **M**

Well I think if you really want to promote and sell kangaroo meat then you should let people know things like its good for you, taste great, low in fat, and also you wouldn't put a really high price on it. **M1**

Promote the taste the flavour how it can be cooked and if there are any healthy benefit. **P**

Now days everyone is concerned about their health. It appears that kanga is a very rich source of iron, so I would begin with this marketing ploy. Give a long list of the health benefits of kanga meat. Secondly you would want to promote the 'Australian Owned' motto. Made in Australia, giving work to Australians etc. Thirdly come at it from the angle of the Australian Aboriginal People, who ate Kanga on a regular basis and who did not have the diseases that we seem to have now. **N**

I think that we need to focus on 2 key messages: One about environmental sustainability and second about the health advantages of roo (low fit, low GI etc). As a secondary message I would suggest ease of cooking and versatility in dishes. It's going to be a hard slog selling roo to those who are quite simply against it. However both the Pork industry and (dare I say it) McDonald's have faced similar types of resistance in recent years. Focusing on the positives of each product, re-packaging it and promoting it has led to greater acceptance, wider uptake and new customer followings. I think that if there was also some greater elasticity in pricing it may just be enough of a lure for people to at least try it. **A**

My main focus would be on the values of roo meat and how to cook it, after the reassurances of the humane nature of the culling, farming has been improved. **AC**

Primarily, that it is no different to any other meat. Eating roo isn't damaging the naturally occurring populations, but if anything is leading to greater sustainability of the population. Strict quality control is in place to ensure no dodgy meat (e.g. animals with flea and/or tick infestations) gets passed on to consumers. **S2**

The healthier choice of kangaroo meat as very lean meat would be a good point to push…. use of images for cooking with healthy people cooking and perhaps also others of average background trying and enjoying kangaroo meat fro the first time, families enjoying may give positive emotive response. I wouldn't show any kangaroos in the ad, I would focus on it being a healthy choice of meat, how it tastes, maybe do a bit of a family spin on it(you normal family dinner, them being happy and enjoying the meat,) maybe show ads with fast recipes and make it upbeat. **C**

Suggestions for kangaroo products or preparation of kangaroo:

- If people wanted to give it a go. I suggest if cooking on the BBQ place some tomatoes on the top when half cooked. The juices drip down and enhance the meat out of this world
- I reckon a kangaroo pie, made like a raised suet crust pork pie, in the English style would be delightful
- Taco's, stir fry, BBQ
- Roo sausages!! Do they exist?? What about roo ham?
- Can't anything that can be done with Venison be done with Roo?
- I love the idea of roo ham - would be so good in like a subway roll!!!
- Roo carpaccio
- Well I once used the rood fillets, cut them really fine, then fried them with bunch of other things, and did spring rolls with them and yummmmmooo

Appendix E: Information Conditions

Information Condition 1: Kangaroo Harvesting and Management

Please read the following information on kangaroo harvesting and management

While Europe, North America and Africa have deer and antelope as their main game animals, Australia has kangaroos. Similar to deer and antelope kangaroos are wild range animals that graze our grasslands. Kangaroo meat is becoming increasing popular in Australian and overseas because of its health attributes and good flavour. It is now seen on the menu of some of the world's best restaurants. Kangaroo meat is also available from many butchers and in some supermarkets.

The number of kangaroos that can be harvested is strictly controlled to ensure kangaroo herds are maintained at sustainable levels. Each year National Parks authorities survey kangaroo populations and assess the seasonal conditions they face. They then issue a fixed number of tags that must be attached to each kangaroo that is taken. Only tagged kangaroos are accepted by processing plants and the system is strictly monitored by the Government. This system of harvesting ensures that the health of kangaroo populations is maintained and reduces environmental damage that presents problems for conservation and farming.

All kangaroo harvesters are licensed by the Government and pass a Government approved course which instructs them on the laws controlling kangaroo harvesting, meat hygiene and animal welfare. In addition, their harvest equipment must be approved by a Government inspector to ensure it is of the right standards. The Australian Veterinary Association has played an active role in the education and accreditation of kangaroo harvesters and endorses the harvest of kangaroos.

Information Condition 2: Health Assurance and Quality Control for Kangaroo Meat

Please read the following information on kangaroo meat quality

Because kangaroo meat is sourced from the wild, some consumers have questions about the quality of the meat. Is it free from disease? Is it kept in hygienic conditions?

Kangaroos are a remarkably healthy animals and research has shown that kangaroos have lower infection rates for diseases and parasites than sheep and cattle. Rejection rates for diseased animals identified by inspectors when animals are processed are only 0.7%. This is about half to one-third of what is usually rejected for cattle and sheep.

The quality and hygiene of kangaroo meat is monitored throughout harvesting and processing and must comply with strict food safety standards in each state. Kangaroo processing plants are inspected by State food safety authorities and AQIS (Australian Quarantine and Inspection Service).

The standards for the production of kangaroo meat were codified under "Game Meat for Human Consumption" in 1996 by the Agriculture and Resource Management Council of Australian and New Zealand (ARMCANZ) which comprises the Australian Federal, State and Territory and New Zealand Ministers. This Code applies across Australia and New Zealand and deals with the production, processing, handling and transportation of game meat for human consumption and for products derived from game meat.

In practice, the code means that all kangaroos have to be put in a chiller soon after they are harvested to make sure their temperature is brought down quickly. Any kangaroo that arrives at the chiller too late, or that has not been properly harvested and processed in the field, is rejected.

Information Condition 3: Cooking Kangaroo Meat

Please read the following information on kangaroo preparation.

Some people avoid buying kangaroo because they are uncertain about how to cook it and worry that it might be tough or too gamey for them. However, kangaroo can be quite simple and versatile to prepare. If you don't like the gamey flavour choose the freshest meat you can find (most kangaroo is now sealed and so is kept fresh). For those of you who prefer their meat well done, there are many easy alternatives to a medium-rare Roo steak. We have given you some hints and recipes below.

Cooking steaks and fillets to perfection
Lightly coat kangaroo fillets or steaks with olive oil, then seal the outside on a hot pan, plate or griddle for about a minute each side then turn down the heat. Take them off when they are still a bit rarer than you like and rest them in a warm place for a few minutes. They are best eaten rare or medium-rare because they are low in fat and get tough if cooked for too long.

Cooking kangaroo strips and diced meat
Kangaroo straps (strips) are excellent in stir fries. Just use them instead of beef in your favourite stir fry. Stir-fry the kangaroo strips quickly in hot oil. Cook them in small batches so they brown quickly – it should only take a minute or two for each batch. Set them aside while cooking the rest of the ingredients in the rich pan juices. Add the strips back into the stir fry and toss just before serving.

Cooking with Kangaroo mince
Any recipe that calls for beef, lamb or veal mince will work just as well with kangaroo mince. Kangaroo mince makes a great Bolognese-style sauce and delicious mince patties and is prepared just as you would if you were using beef. Below is an easy recipe. Substitute your favourite flavourings for those listed.

Kangaroo Bolognese

500g kangaroo mince
2 medium onions
400g can of tomatoes
tablespoon of tomato paste
tablespoon of olive oil
1/2 teaspoon of dry oregano
1/2 teaspoon of dry thyme
1-2 cloves of garlic (as you like it)
salt and pepper to taste

Method:
Chop and lightly fry the onion and garlic in the oil until glassy. Add mince and stir through until the meat is all light brown. Turn the heat down to low and add tomatoes, tomato paste, herbs and salt and pepper to taste. Cook on low heat (just bubbling softly) until cooked through. Add some liquid (water, stock or wine) if it is getting too dry. Serve on spaghetti with light sprinkle of parmesan.

Appendix F: Design and Attributes for Mince Scenarios

Table 15: Orthogonal main effects design used for mince scenarios

KangS	BeefPS	VealP	KangP	BeefR	BeefPP	BeefEtrim	BeefOrg	LambR	LambOrg	BLOCKS
0	0	0	0	0	0	0	0	0	0	4
0	0	0	1	1	1	1	1	1	1	4
0	0	0	2	2	2	2	2	2	2	2
0	0	0	3	3	3	3	3	3	3	1
0	0	1	0	1	2	3	0	1	2	2
0	0	1	1	0	3	2	1	0	3	1
0	0	1	2	3	0	1	2	3	0	2
0	0	1	3	2	1	0	3	2	1	3
0	1	0	0	2	0	2	1	3	1	1
0	1	0	1	3	1	3	0	2	0	4
0	1	0	2	0	2	0	3	1	3	3
0	1	0	3	1	3	1	2	0	2	1
0	1	1	0	3	2	1	1	2	3	1
0	1	1	1	2	3	0	0	3	2	2
0	1	1	2	1	0	3	3	0	1	3
0	1	1	3	0	1	2	2	1	0	4
1	0	0	0	0	1	1	3	3	2	3
1	0	0	1	1	0	0	2	2	3	4
1	0	0	2	2	3	3	1	1	0	3
1	0	0	3	3	2	2	0	0	1	4
1	0	1	0	1	3	2	3	2	0	4
1	0	1	1	0	2	3	2	3	1	2
1	0	1	2	3	1	0	1	0	2	2
1	0	1	3	2	0	1	0	1	3	1
1	1	0	0	2	1	3	2	0	3	3
1	1	0	1	3	0	2	3	1	2	2
1	1	0	2	0	3	1	0	2	1	1
1	1	0	3	1	2	0	1	3	0	2
1	1	1	0	3	3	0	2	1	1	3
1	1	1	1	2	2	1	3	0	0	1
1	1	1	2	1	1	2	0	3	3	3
1	1	1	3	0	0	3	1	2	2	4

Attribute Levels

LambR, VealP	**BeefR, KangP**	**BeefPP, BeefEtrim**	**Beeforg; Lamborg**
7.99	6.99	9.99	10.99
9.99	8.99	11.99	12.99
11.99	10.99	13.99	14.99
13.99	12.99	15.99	16.99

BeefPS

Premium Topside

Premium Beef from Underwood Farm — Quality meat produced from the pristine, sweet pastures of Underwood Farm in the rich Mudgee Valley. We aim to provide the finest beef and game for the gourmet palette.

KangS

Kangaroo

Blue Ridge Kangaroo — Blue Ridge catchment is in the heart of North West NSW and is the location of a co-operative of local producers who share a philosophy of sustainable land management. Members of the Blue Ridge co-operative are keen conservationists that manage their land carefully to support domestic stock and free ranging kangaroos and produce meat of the highest quality. The money they make from kangaroos is invested in their conservation efforts

Appendix G: Value Statements and Variety Seeking Scale

Value Statements

The question was presented as follows:

For this question we would like you to consider what is important to you in guiding your life.

Following are five guiding values. Please read the definitions given for each value and then rank them from one (1) to five (5) with (1) being the value that is most important in guiding your life.

Daring, a varied life, an exciting life: **Excitement, novelty, and challenge in life.**

Creativity, curious, freedom: **Independent thought and action - choosing, creating, exploring.**

Humble, devout, accepting my portion in life: **Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide.**

Politeness, obedient, honouring parents and elders: **Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms**

Pleasure, enjoying life, self-indulgent: **Pleasure and sensuous gratification for oneself.**

Variety Seeking Behaviour (Van Trijp and Steenkamp 1992)

1. When I eat out, I like to try the most unusual items, even if I am not sure I would like them.
2. While preparing food or snacks, I like to try out new recipes.
3. I think it is fun to try out food items one is not familiar with.
4. I am eager to know what kind of foods people from other countries eat.
5. I like to eat exotic foods.
6. Items on the menu that I am unfamiliar with make me curious.
7. I prefer to eat food products I am used to.
8. I am curious about food products I am not familiar with.

Appendix I: Availability of Kangaroo

Table 16: Perceptions of availability of kangaroo by consuming segments and state* (per cent)

	Consumer Segment		State					Table Total
	Medium to high	One-off to low	NSW and ACT	Vic and Tas	Qld	WA	SA and NT	
Availability of kangaroo meat	*Col %*	*Col %*	*Col %*	*Col %*	*Col %*	*Col %*	*Col %*	*Col %*
I have looked for kangaroo meat but haven't seen it	9.7%	18.2%	19.5%	14.3%	5.7%	4.8%	5.7%	12.6%
It is available but not every time I would like to buy it	51.3%	53.2%	48.1%	57.1%	48.6%	66.7%	45.7%	51.9%
It is available every time I want to buy it	39.0%	28.6%	32.5%	28.6%	45.7%	28.6%	48.6%	35.5%
Table Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note that this sample is based on only those who completed the questionnaire. NT n=3, Tas n=6

Appendix J: Sample Used for the Kangaroo Product Scenarios

Table 17: Distribution of segments and gender across information conditions for the quota sample

Information manipulation	Consumer Segment				Gender		Table Total	
	Medium to high	Non-consumer	Objector	One-off to low	Male	Female		N
Harvest and management	25.7	22.5	27.8	23.8	22.7	26.1	24.4	199
Quality assurance	25.1	26.5	22.2	26.6	24.4	26.6	25.6	208
Preparation	24.6	24.9	25.4	25.4	28.0	22.3	25.1	204
No information	24.6	26.1	24.6	24.2	24.9	24.9	24.9	203
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Total (N)	187	249	126	252	397	417		814

Appendix K: Complete Sample Results for Choice of Deli Meats

Table 18: Choice of deli meats including kangaroo

	Normal Occasion			Special Occasion		
	Responses	Percent responses	Percent of Cases	Responses	Percent responses	Percent of Cases
Leg Ham	445	11.0	57.8	352	7.6	51.0
Chicken	335	8.3	43.5	265	5.8	38.4
Honey Ham	334	8.3	43.4	286	6.2	41.4
Turkey	265	6.6	34.4	287	6.2	41.6
Double Smoked	245	6.1	31.8	269	5.8	39.0
Hungarian	241	6.0	31.3	242	5.3	35.1
Ham 97% Fat Free	225	5.6	29.2	115	2.5	16.7
Roast Beef	213	5.3	27.7	256	5.6	37.1
Devon/Fritz	194	4.8	25.2	89	1.9	12.9
Pepperoni	189	4.7	24.5	264	5.7	38.3
Cabanossi	163	4.0	21.2	284	6.2	41.2
Smoked Turkey	154	3.8	20.0	258	5.6	37.4
Proscuitto	154	3.8	20.0	296	6.4	42.9
Spanish / Hot	143	3.5	18.6	178	3.9	25.8
Devon	135	3.3	17.5	55	1.2	8.0
Pastrami	99	2.4	12.9	185	4.0	26.8
Rare Roast Beef	92	2.3	11.9	133	2.9	19.3
Danish	90	2.2	11.7	107	2.3	15.5
Mortadella	89	2.2	11.6	117	2.5	17.0
Soccer Ball	77	1.9	10.0	62	1.3	9.0
Pancetta	72	1.8	9.4	132	2.9	19.1
Fritz	59	1.5	7.7	34	0.7	4.9
Kangaroo salami	44	1.1	5.7	82	1.8	11.9
Rare Roast Roo	43	1.1	5.6	75	1.6	10.9
Smoked Roo	37	0.9	4.8	85	1.8	12.3
Csabai	36	0.9	4.7	78	1.7	11.3
Berlina	28	0.7	3.6	31	0.7	4.5
Kangaroo Pastrami	28	0.7	3.6	62	1.3	9.0
Boloni	10	0.2	1.3	16	0.3	2.3
Total (N)	4045	100.0	525.3	4606	100.0	667.5

*‘**Percent of responses**’ respondents could choose multiple products. This indicates the share of all choices made
** ‘**Percent of cases**’ is the proportion of respondents that selected that deli meat.

References

Adamowicz, W, M Boxall & J Louviere 1998, 'Stated Preference Approaches for Measuring Passive Use Values: Choice Experiments and Contingent Valuation', *American Journal of Agricultural Economics*, vol. 80, no. 1, pp. 64-75.

Ampt, P & A Baumber 2006, 'Building Connections between Kangaroos, Commerce and Conservation in the Rangelands', *Australian Zoologist*, vol. 33, no. 3, pp. 398-409.

Bilsky, W & S Schwartz 1994, 'Value and Personality', *European Journal of Personality*, vol. 18, pp. 19.

Hall, J, R Viney, M Haas & J Louviere 2004, 'Using Stated Preference Discrete Choice Modeling to Evaluate Health Care Programs', *Journal of Business Research*, vol. 57, no. 9, pp. 1026-32.

Hercock, M 2004, 'The Wild Kangaroo Industry: Developing the Potential for Sustainability', *The Environmentalist*, vol. 24, no. 2, pp. 73-86.

Hercock, M & M Tonts 2004, 'From the Rangelands to the Ritz: Geographies of Kangaroo Management and Trade', *Geography* Retrieved: March, 1989.

Kelly, J 2004, *Selling the Kangaroo Industry to the World: Assisting Ongoing Kangaroo Market Growth by Facilitating Public Industry Acceptance*, Rural Industries Research and Development Corporation (RIRDC).

Kelly, J 2005, *Kangaroo Industry Strategic Plan 2005-2010*, Rural Industries Research and Development Corporation (RIRDC).

Kelly, J 2007, Executive Officer, Kangaroo Industry Association of Australia (KIAA).

Lancaster, K 1966, 'A New Approach to Consumer Theory', *Journal of Political Economy*, vol. 74, pp. 132-157.

Louviere, J J, D A Hensher & J Swait 2000, *Stated Choice Methods: Analysis and Applications in Marketing, Transportation and Environmental Valuation*, Cambridge University Press.

McFadden, D 1974, 'Conditional Logit Analysis of Qualitative Choice Behaviour', in *Frontiers in Econometrics*. P. Zarembka. Academic Press, New York pp. 105-42.

Meat and Livestock Australia 2007a, 'MLA Market Information - Domestic Markets - Retail and Foodservice', *www.mla.com.au/TopicHierarchy/MarketInformation/DomesticMarkets/Consumption/default.htm*.

Meat and Livestock Australia 2007b, 'MLA Market Information - Domestic Markets - Retail and Food Service - Retail', *http://www.mla.com.au/TopicHierarchy/MarketInformation/DomesticMarkets/Consumption/Retail.htm*

Purtell and Associates 1997, *Improving consumer perception of kangaroo products*, Rural Industries Research and Development Corporation.

Van Trijp, H C M & J E M Steenkamp 1992, 'Consumers' Variety Seeking Tendency with Respect to Foods: Measurement and Managerial Implications', *European Review of Agricultural Economics*, vol. 19, pp. 181-195.

Wynn, P, A Beaton & N Spiegel 2004, October 2004, 'Meat Quality in Kangaroos', *A report for the Rural Industries Research and Development Corporation*, from http://www.rirdc.gov.au/reports/NAP/04-151.pdf.