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Edible offal market study M.256

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Introduction.

Meyers Strategy Group have pleasure in presenting this study on the edible offal market and its opportunities for the Meat Research Corporation.

In effect this report is a situational analysis of the industry examining:-

- the structure of the market
- profile of industry participants
- industry strengths and weaknesses
- the opportunities and threats presented.

The final recommendations are directed towards the implications this presents for research and development in relation to the edible offal industry.

The focus of this report is edible offal- defined as offal consumed directly by humans and includes organs, meat trimmings from the carcass, head, neck and viscera, tails and feet.

A common term used throughout the industry is 'variety meats' used to describe certain traditional edible offals. These variety meats include livers, brains, tongues, kidneys, tripe, stomachs, sweetbreads, oxtails, cheek meat, head meat, snouts, lips, hearts, pig's tails and pig's feet.

The word "offal" has broader connotations, it originates from "off fall" used to describe the fall off products from the processing operation. As such 'offal meats' have come to include a wider category of sometimes edible by-products including lungs, pancreas, spleen, intestines, weasands, glands, giblets, and pork skins and udders.

A further classification for offals used in the industry is red and green, depending on their source of origin, As a rule of thumb, green offals are derived from the digestive tract, and red are those which do not come into contact with the digestive tract.

The scope of this study is principally red meat edible offal, although we have included reference to porcine product where applicable. The study is specific to edible offal and only includes reference to pet food distributed to the retail chain as edible offal. Inedible offals and those rendered for use as industrial products or fertilizer are not included in this analysis.

Section One: Internal Analysis

Not all edible offal is recovered, a proportion is condemned, or operators simply choose not to recover product and divert the products to pet food or rendering.

Lungs and trachea are usually diverted to petfood manufacture. Major pet food manufacturers in Australia include Uncle Bens and Friskies.

In Australia, there are approximately 385 red meat processing abattoirs. Of these, 75 are licensed for export with 45 boning rooms also licensed for export.

Rationalisation of the industry has been a factor in the last few years however, given the vagaries of the market, several operations are still unprofitable and slaughter margins have been squeezed as a result. Many operators state that the production of edible offal products enables them to maintain a level of profitability or at least cover costs.

Although all States in Australia produce and process meat, the industry tends to be concentrated in eastern seaboard areas allowing for maximum ease of distribution to heavy population centres and access to export and industrial processing markets.

According to 1990 AMLC data estimated abattoir production by state is distributed as follows:-

Table 1.2: Estimated Abattoir Production

	Cattle		Calves		Sheep		Lambs	
(kt) *	(D)	(E)	(D)	(E)	(D)	(E)	(D)	(E)
NSW	**550**	**1418**	47	**247**	**2410**	**5045**	200	114
VIC	**833**	**664**	**292**	**335**	**1937**	**2312**	**5190**	**832**
QLD	**266**	**2094**	**105**	35	1001	254	-	270
SA	43	343	6	0.2	260	**2509**	**743**	**1021**
WA	187	284	-	5	**1938**	**2315**	**5190**	**1127**
TAS	38	136	6	21	189	181	306	157
NT	14	111	2	-	.008	-	-	-
ACT	34	-	-	-	648	-	-	-

* Domestic (D) Export (E), figures have been rounded

Given this distribution spread, it would be feasible to state that Victoria would be a significant Australian supplier in both the export and domestic markets for both ovine and bovine edible offals. Queensland is the largest supplier of cattle offals while New South Wales is dominant in sheep and calves. From these statistics South Australia and West Australia can be assumed to be leading suppliers in the domestic and export ovine edible offal market.

The following demonstrates the product removal points within the abattoir facility:-

Dressing Floor	Liver, Tripes, Brains, Tail, Tail end, Feet, Kidney, Testicles, Heart, Spleens, Head meat, Fat, Tongues, Glands, Casings, Blood, Tallow, Lungs, Gullets, Gelatin bone, Casings, Horns/hoof, Hides, Meat and bone meal
Boning Room	Tallow, Gelatin bone, Meat and Bone meal
Killing area	Blood

On the slaughter floor edible offal are subject to inspection to ensure products are of a satisfactory standard for both local and export markets. AQIS inspectors perform this task in all states except WA, where local health inspectors are used in domestic plants. In QLD, edible offals bound for the domestic market are inspected by the Queensland Department of Primary Industry.

In the smaller abattoirs, collection of edible offal is often a manual and labour intensive operation. In such establishments more attention is devoted to the collection of easier to handle offals such as livers, kidneys and skirt.

Local abattoirs often do not have the necessary chiller or freezer space to accommodate storage of edible offals and some either freeze the offal to await collection for human consumption or petfood. Others simply include edible offal with their mixed abattoir material and sell it on a daily basis to renderers and pet food manufacturers.

Larger export oriented abattoirs often have dedicated rooms for green and red offal processing and packaging. In general operators need to be able to identify product to the point of separation and inspection of the parts.

1.2.1 Cost Structures

Many abattoirs comment that the production of edible offal is often their survival point in terms of establishment profitability.

Estimates developed by Booz.Allen & Hamilton Benchmark Study 1993 on the value of carcase (finished weight 178 kg) are proportioned as follows:-

Table 1.3: Carcase Value

Product	Value	% of total Value	% of By product Value
Meat value	$640.80	87%	
hides	$37.47	5%	37%
edible offals	$15.58	2%	16%
tallow	$12.54	2%	13%
meal/other *	$34.45	5%	34%
Total	$740.84		

(* other includes petfood products and foetal blood)

1.3 Industry yields, volumes and values

1.3.1 Yields

The issue of edible offal yield and production is one of considerable debate both in Australia and overseas. The situation is somewhat more critical in Australia due to the absence of collected data and the reluctance of processors to supply this information.

The underlying assumption is that given the many factors influencing edible offal extraction there is a large proportion of potentially edible offal lost to the industry as it is processed into pet food, rendered or condemned.

For example, edible offal estimates developed by the AMLIPC suggest the following:

Table1.5: AMLIPC Edible Offal Estimates

Table 3	1985	1988
Exports	36,000	47,000(1)
Domestic consumption	68,000	61,200(2)
Total	104,000	108,000
Implied Production	184,000	248,000(3)

Source: 1. AMLC export data, 2 ABS Apparent consumption figures and 3 ABARE data

Note: ABS statistics on apparent consumption are devised based on available production plus imports less exports, processed food usage, non food usage and waste.

Theoretically the breakup of the liveweight of a 400kg (220 carcase weight) steer will produce the following:-

Table 1.6: 400kg Steer Liveweight Breakup

Products	kg	% of liveweight	est cost per kilo*
hide	42kg	10.5%	106c
edible offal	16kg	4%	89c
pet food	8kg	2%	28c includes inedibles
tallow	30kg	7.5%	35c
meat meal	32kg	8%	35c

*indicative prices based on BAH Benchmark, (these prices may be low due to carcase weight difference between the BAH and the above AMLIPC data)

AMLC data suggests in 1991 exports of edible offal were estimated at 58, 800 tonnes and domestic consumption (including spleen and lung for pet food) was estimated at 71, 000 tonnes, totalling 129,800 tonnes. Given the ABARE data and estimates for pork production totalling 275 kt (261 + assumed 14 for pork), there is an excess of around 130,000 tonnes in potential production as opposed to actual consumption.

To gather more precise data on potential production we have used various data available on estimated yields. The following scales based on CSIRO, AMLC and AMLIPC data to develop an estimate of potential industry supply.

Table 1.8: Estimate of Potential Industry Supply

Edible Offal production (kg) - 250 kg carcase weight

	CSIRO	AMLC	AMLIPC	Potential**
Cheeks	1.74	1.1	1.7	9307 tonnes
Full Tongue	3.38	-	1.5	24820
Short Cut -	1.48	-		
Liver	5.65	5.89	4.1	30528
Lungs	2.46	2.2	2.2	13287
Heart	1.3	1.43	1.0	6949
Skirt	0.89	0.75	0.8	4715
Spleen	0.67	(0.67)*	0.7	3723
Lips	(0.62)*	0.62	(0.62)*	3720
Head Meat	(0.07)*	0.07	(0.07)*	372
Kidney	(1.0)*	1.0	0.7	5336
Tripe	(4.15)*	4.15	7.0	22338
Tail	(1.0)*	1.0	0.7	4964
Total	22.93	20.36	21.09	
% Carcase Wt	9.17%	8.14%	8.44%	

* statistics not supplied by original source, ** based on 85% recovery and total potential yield of 146,001 tonnes

Using these statistics against AMLC 1991 livestock slaughterings carcase weight figures, the potential production of bovine edible offal assuming 100% recovery and based on a % kg of offal per kg carcase was as follows:-

AMLIPC .08436 x 1,730,700 tonnes = 146 001 tonnes

CSIRO .09172 x 1,730,700 tonnes = 158 739 tonnes

AMLC .08144 x 1,730,700 tonnes = 140 948 tonnes

Table 1.10: Edible Offal Production Variations

Source	Bovine	Ovine	Total recovery		
	(tonnes)		100%	85%	60%
CSIRO	158 739	136 225	294 964	250 770	177 000
AMLC	140 948	136 225	277 173	235 600	166 300
AMLIPC	146 001	136 225	282 226	239 900	169 300

Table 1.11: Source and utilisation of Edible Offal in 1991 (kt)

	Bovine	Ovine	Total	Estimated Value
Export	50.6	7.128	58.7	$117,400,000*
Domestic	-	-	47.0	$35,300,000
Petfood**	-	-	70.0	$17,500,000
Total			**175.7**	**$170,200,000**

Source; AMLC Statistical Review, July 1991/June 1992

* export average $2.00 per kg, domestic wholesale75cper kg, pet food 25c per kg

** pet food tonnage does not include spleen and lung as they are deemed not suitable for human consumption in the Australian market.(Data - MRC Pet Food Study)

Hayward and Spence (AMLC) estimate that up to 15% of maximum possible yield of edible offal is assumed to be unsuitable for consumption or uneconomic to process and handle. In 1991, 36.9 million head of cattle and sheep were slaughtered. Using the most conservative potential production figure, at an 85% recovery rate 235,600 tonnes of edible offal could have been produced for the market. Given that the market consumed approximately 45% of this volume, and pet food manufacturing used 30% of the volume. This indicates that some 25% of edible offal is rendered by the industry.

Should the 25% be upgraded to pet food value this would represent an increase of $15 million per annum. If rendered and pet food material was upgraded to edible offal, at domestic values, this would represent an increase of $18 million per annum. Upgraded to export value would represent a revenue increase of $300 million per annum.

The volatility of prices received for some by-products will influence production decisions of processors as expected returns must be sufficient to justify the cost of handling and processing particular by-products for the edible offal consumption market.

Value Adding

Value adding in the plant is generally restricted to trimming of recovered items as per the Ausmeat requirements and packaging.

Packaging variations depend on the level of interest of the individual processor in edible offal sales. Those who recognise the opportunities are responding to market demands and modifying packages to meet specific needs. This is particularly the case with export abattoirs. They have responded with individual packs and some level of portion control.

Processors recognise that packaging is a vital consideration. However comments from traders inferred that there is further potential for improvement. They stated that "Australia is behind third world suppliers in offal packaging and presentation". While product quality is high, the carton size and presentation of packaged product is considered inadequate particularly for specific high value market segments.

Distinct markets require different packaging such as:-

- individually wrapped brains for the French market
- smaller packs than the "standard Australian Meat Pack" of 27.2 kgs is desired as an outer for the Asian market in particular.

Market Potential

Export prices are generally a positive enticement to extend offal production to the maximum, however when prices deteriorate production is largely diverted to pet food as the domestic consumer market is seen as static and limited.

Local markets are seen as being very dull, influenced by growing affluence, the need for convenience and a general dislike for offal products by younger people. They noted that the influence of ethnic purchasers does not flow on to the second generation.

Distribution

In some cases operators are part of larger corporations which directly market their export products through their subsidiaries. Others achieve market access through relationships with brokers either located in Australia or brokers in export destinations. These operators believe that direct contact with offshore brokers allows immediate feed back of consumer needs and gives the operators the opportunity to respond.

1.4 Products produced

1.4.1 Products

The following provides a summary of edible offal products produced by Australian processors.

Table 1.13: Australian Produced Edible Offal Products

Organ/gland	Species	Market Name
Brain	Porcine/Ovine/bovine	Brain
Heart	" "	Heart
Kidney	" "	Kidney
Liver	" "	Lambs fry/liver
Lung*	" "	Lites
Pancreas*	Bovine	Gutbread
Spleen*	" "	Melt
Stomach	Porcine	Maw
Tripe:-		
Rumen	Bovine/ovine	Blanket
Reticulum	" "	Honeycomb
Omasum	" "	Bible
Abomasum	" "	Reed
Testes*	Ovine/porcine	Fries
Thymus	Ovine/porcine	Sweet/heart/neck bread
Tongue	Ovine/porcine/bovine	Tongue
Tail	Bovine	Ox Tail
Cheeks	Bovine/porcine	
Udder*	Bovine	-
Uterus*	Porcine	-

* not sold as edible offal domestically

Tails

Beef tails are mostly consumed directly as an ingredient in soup or roasted. They are particularly popular in Western Europe.

Cheeks

Similar to head meat, both pork and beef cheek meat is generally used as a sausage ingredient.

Skirts

Skirts, from beef, are generally not regarded as offal products and are mostly sold domestically in a similar fashion to muscle meat.

Spleen

Spleen is not used in the domestic market apart from pet food. Overseas its application relates to stuffing and use in manufactured meats, particularly for the Latin American countries.

Brain

Beef brain from animals stunned by mechanical bolts are often unsuitable for edible offal production because of bone and hair fragments.

Brains are generally prepared for the table. Preparation requires that they be peeled and blanched prior to cooking due to their soft texture.

Europe and Israel are the prime market for beef brains, while France is a major market for sheeps brains.

Tripe

The rumen and reticulum are the most commonly used part of the stomach. Processing involves washing, scalding and bleaching. They are used domestically and in manufactured meats and sausages.

The Mountain chain, originating from cow tripe, is in large demand in the Far East. Washed tripe is also in great demand in Europe.

Thymus

Thymus glands are collected from young animals. Lamb and calf thymus glands are blanched and pealed prior to slicing and cooking.

Europe provides the best market price for thymus and a proportion enters the foodservice sector.

Testes

Young animal testes are preferred for consumption, processing trim involves the removal of the epidermis. Fibrous tissue is removed prior to sauteing or frying.

Udder

Udders a re-sliced and washed to remove milk and used by some countries in the manufacture of meat products.

Uterus

Pig uteri are generally used and poached, boiled, dried or smoked. They are mostly used in Asia as an ingredient to Asian cooking.

Weasand

Weasands are generally used in processed meat products. Asia has high demands for this product.

1.4.2 Further Processing

Further processing is an integral part of the edible offal production chain. The following table outlines the further processing required of various meat products and their potential uses.

Table 1.14: Further Processing Required for Various Meat Products

By-Products That Require Further Processing to Produce Edible Meat By-Products and Their Potential Uses.			
By-Product	**Edible Meat By-Product**	**Further Processing Required**	**Potential Uses**
Large Intestines	Chitterlings	Flushed, cleaned, trimmed	Direct consumption, canned
Small intestines, large intestines, caecums and weasands	Casings	Slimed, cleaned, flushed, graded, trimmed, salted & maybe sewed	Containers for sausages, luncheon meats and meat specialities
Pork carcasses, trimmings (internal & external fatty tissues)	Lard	Low-temperature, wet or dry rendered, may be filtered, refined, bleached deodorized hydrogenated, plasticized	Direct consumption or food ingredient for margarines and shortenings
Beef, lamb and mutton carcasses, trimmings (internal and external fatty tissues)	Tallow	Low-temperature or dry rendered, may be separated into oleo oil and oleostearine, may be refined, bleached and deodorized	Direct consumption, food & shortening ingredients
Beef and Pork fatty tissues	Partially defatted beef or pork tissue	Separated from lard or dry rendered by centrifugation after low-temperature rendering	Sausages or processed meat ingredients
Beef and pork carcass trimmings	Partially defatted chopped beef or pork	Separated from lard or tallow by centrifugation after low-temperature rendering	Sausages or processed meat ingredients
Pork or beef fatty tissues	Cracklings	Residue after separation of fat from dry rendered tissue	Direct consumption, food ingredients
Liquid recovered from cooking meat	Meat extract	Fat is separated from the liquid which is concentrated into meat extract	Bouillon, soup base, meat flavorings
Beef, pork lamb or veal bones	Mechanically separated beef, pork, lamb or veal	Meat separated from bone by pressing or continuous extruding through a filter, then chilled or frozen	Sausage or processed meat ingredients
	Beef, pork lamb or veal stocks	High-temperature cooking of crushed bones in water, stock is separated from bone and fat, and concentrated by evaporation	Soup base, flavoring, processed food ingredient
	Bonemeal	Residual bone recovered from meat stock, processed, ground and dried	Mineral supplement
Defatted beef pork or lamb bones	Ossein	Ash removed from bone by acid leaching	Raw material for gelatin manufacture
	Edible bone collagen	Ash removed from bone by acid leaching	Processed food ingredient
	Soluble bone protein	Bones cooked to extract proteins	Soup base, processed food ingredient
Blood	Whole	Collected, anticoagulant added, inspected, chilled	Sausage ingredient, meat specialities
	Plasma	Separated from whole blood to which an anticoagulant has been added by centrifugation, chilled, frozen or spray dried	Sausage and processed meats
Blood	Red cells	Fraction separated from plasma, heme may be removed, chilled, frozen or dried	Sausage and processed meat ingredient
Beef hide splits	Collagen	Ground, swelled in acid, emulsified	casings, edible films, food ingredient
	Gelatin	Washed, limed, neutralized, cooked, filtered, deionized concentrated, dry	Meat and food product ingredient
Pork skins	Gelatin	Defatted, ground, acidified, cooked, filtered, deionized, evaporated, dried	Meat and food product ingredient
	Puffed pork skin snackfood	Defatted, cooked, fried	Direct consumption
Pig's feet	Pickled pig's feets	Cured, cooked, split, partially deboned, pickled, packed in glass	Direct consumption
Beef feet	Edible beef feet	Skinned, steamed and hoofs removed	Direct consumption

1.5.2 Availability of Supply

An important factor in edible offal supply is relative export parity pricing.

As such supply in the local market may suffer if export prices are high.

However, if export prices are low local markets are saturated and higher volumes of product are diverted to the pet food market.

Price is also a dominant factor in determining supply of livestock for slaughter. For the most part if carcass prices are low, producers will retain stock while they await price changes, although this is not specifically related to edible offal price. Edible offal as a by-product does not dictate processing schedules.

Breed of animal and feeding regime will impact on the yield achieved as there is a close correlation between feeding, size of the animal and subsequent weight of organs.

1.5.3 Quality Control

Many operators have adopted quality assessment systems resulting in the substantial reduction of in house production problems. Skill levels are also improved due to concerted training efforts in trimming, preparing and collecting edible offal products.

Although, there are still some "sloppy operators" which give rise to contamination and damage, most agree that training and supervision reduce production problems. None of the operators commented about the issue of operator inefficiency as a result of greater quality control for edible offal production.

Inspection problems seem to be a common concern with inconsistency of the inspection service nominated as the major issue.

Many were adopting closer consultation and cooperative measures with inspection providers to reduce wastage at the inspection phase.

Losses occurring during processing are of three types.

- condemnations during slaughtering and dressing
- losses during slaughtering, ie. blood and fat tissues losses on the floor
- losses from spoilage or deterioration during packaging, transportation and distribution including shrinkage.

The domestic market in turn offers no real attraction to suppliers as demand is static or in decline.

Indeed the argument is relatively circular as retailers and commercial end users are generally reluctant to promote offal consumption due to unreliable supply and problems with product freshness and without secure or growing demand processors are reluctant to guarantee supply.

1.6.1 Promotion

Promotion is virtually non existent for edible offals.

Retailers rarely advertise and consumers, especially younger people, are unaware of offal qualities and preparation techniques.

In addition product appeal is low in terms of presentation, market perception and even the connotation of the classification of the products as "offal".

1.6.2 Pricing

Although abattoirs are very guarded about their revenues from edible offal production, industry sentiment is that non-EC registered establishments enable gross offal returns of around $25 per carcase.

EC registered establishments expect a higher revenue for some offal items, averaging an additional $5 per carcase, although higher production costs are involved with compliance to EC regulations.

Offal earnings at non export registered establishments are much lower, at around $9-10 head.

The price of edible offal is usually determined by the export market.

As a guide, approximate prices achieved are estimated to be:-

- Rendered 10 - 15c per kilo
- Pet food 40 - 50c per kilo
- Edible offal $1 + per kilo

Scope exists with marketing and repositioning strategies to increase premiums from the market, particularly from domestic consumption.

Within the retail market itself the price of offal products is low relative to other sources of protein. This positions products as "low grade and cheap", thus many of the purchases are for pet food usage. In addition, given the current recessionary environment a shift towards consumption of offals as a "cheaper" alternative has not been widely evident.

2.0 External Analysis

2.1 Consumer Segment

2.1.1 Market Size

According to ABS data per capita demand for edible offal has been as follows:-

Table 2.1 Per Capita Apparent Edible Offal Consumption

1981/2	1982/3	1983/4	1984/5	1985/6	1986/7	1988/9	1989/90
4.4kg	4.4kg	3.4kg	2.8kg	2.7kg	3.4kg	3.6kg	3.2kg
65.7t	66.8t	52.3	43.6	42.6	54.4	59.5	53.8

Source: ABS Apparent Consumption of Foodstuffs 1989/90

As can be seen from these fundamental statistics, there is notable fluctuation in demand. This may be a function of edible offal availability on the local market. However, these statistics are developed on the basis of available supply divisible by the population estimate, thus no significant conclusions can be drawn from this data.

Table 2.2 compares ABS data on edible offal consumption against total meat consumption.

Table 2.2 Total Meat Consumption

	1987	1988	1989	1990	1991
beef (kg)	39.4.	39.3	41.1	40.9	38.9
pork (kg)	16.8	17.6	18.1	18.4	17.8
lamb (kg)	15	14.9	14.9	14.8	14.3
mutton (kg)	7.4	8	6.8	8.2	7.8
offal* (kg)	3.4	3.6	3.0	3.2.	4.0

(* includes other reconstituted meats not included in the above)

From the table it can be seen that offal consumption is only a fraction, between 3% and 5%, of total meat consumption. Interestingly, there has been a notable increase in offal as opposed to other types of meat consumption in 1991 pushing the offal figure to nearly 5% of total meat consumption.

In general, there has been a decline in per capita consumption of meat by some 3kg per head, this has largely translated to white meat consumption. It appears that this increase in edible offal consumption has been the result of "recessionary" measures.

As a proportion of total meat consumption this figure is comparable to other Western countries.

This is obviously a very broad guide. Nevertheless, in the absence of quantitative research, it provides some indication of the extent of actual edible offal consumption as a meal component. Thus the purchase of edible offal for pet food purposes could be as high as 60% of all purchase occasions.

Obviously consumers will have varying volume purchases and ethnic consumers may purchase double the quantity of Australian born consumers. However, if we assume all purchase equal quantities then the redirection of edible offal for pet food through the retail trade could extend to 28,200 tonnes (using ABS 1991 domestic consumption figures of 47,000 tonnes). Therefore the fresh pet food market is a potentially large market segment in itself.

2.1.3 Trends

No interviews with household consumers were conducted within this study however, retailers provide a market guide to trends in domestic consumption. In summary, retailers indicated that within the current environment there is no evidence of sustainable growth in demand for edible offal.

Influencing factors include:-

- **an increase in demand for convenience food including fast food, frozen meals and pre-prepared items**

Within this fresh edible offal is not perceived as a convenience item as it requires some preparation prior to cooking, particularly tripe and liver.

- **instability of supply**

Retailers noted that the regular supply of fresh chilled offal was a problem. As shoppers tend to rely on retailers having product as they need it if it is not available consumers will not return the next day but rather substitute for an alternative product and then probably permanently delete offal from the regular menus used by them.

- **second generation ethnicity reducing demand**
- **lack of product knowledge**

The ethnicity issue was discussed above, however related to this is the broader problem of consumer awareness. Many retailers commented that often younger consumers are unaware of how to handle edible offal and prepare edible offal meals. Coupled with this is a general reluctance to try these products and connotations about quality, "poor mans food" and the thought of eating animal organs and off cuts.

Pricing

Although edible offal is profitable for retailers, the volume is relatively insignificant in terms of total retail turnover for both butchers and retailers.

Discount pricing tends to have little impact on sales of edible offal and some retailers mentioned a negative correlation between price discounting and sales. Furthermore there is a general belief that prices could be pushed higher providing the products with a "premium" and "upmarket" image.

At present export trade exceeds domestic trade by about 5:1 in value terms in addition there is a much higher opportunity for price premiums, so the processor has little incentive to concentrate on the needs of the domestic consumer.

Consumer needs

Although no domestic consumer research was undertaken we surveyed user specific product requirements from the basis of foodservice operators. Their needs can be prioritised as:-

- fresh product; no discolouring, no frozen product, longer printed use by dates
- attractive; no blood or obvious veins and fat
- value pricing
- convenient availability

Retailers added that there was also a requirement for greater user education of the nutritional benefits of edible offal products, recipe formulations and product handling and preparation.

On a broader basis, a need was also identified for branding, image development and re-labelling of the category itself.

2.2 The Food Service Sector

The foodservice market is segmented into four principal groups as follows:-

- **caterers**; including industrial and local caterers
- **travel and leisure**; incorporating airlines, hotels, motels, ships providores and clubs
- **fast food and restaurants**; including fast food chains, independents and independent restaurants
- **institutions**; including hospitals, educational institutions, welfare centres and military establishments

iii) Supplier Issues:

Caterers reported that they had experienced problems with suppliers in particular the regular and supply of fresh products including brains and sweetbread.

In addition, special requests such as calves or beefheads, considered a delicacy by Germans, is unable to be supplied in the local market.

iv) Value Adding:

Caterers expressed reservations about the prospect of purchasing pre-prepared offal dishes. Their concerns related mostly to the flexibility of supply, potential for double handling and quality. Cost was also raised as a contentious issue, many stating that they were not prepared to pay a significant premium for particular slicing, sauce preparations and the like.

However they perceived some scope for value adding at the retail level to the domestic consumer, in which case heightened demand at the consumer level would have flow through implications for their operations. These opportunities included:

- package the edible offal with recipe suggestions
- develop a complete frozen meal with edible offal that just needs to be reheated
- develop a "finish and eat" meal package to appeal to the need for convenience while combating market ignorance of product preparation techniques

v) Promotion:

Caterers believe that edible offal consumption can be increased by targeting consumers, in particular mothers and the homemaker, with a promotional program aimed at educating consumers on nutritional aspects and product preparation techniques.

It was believed that families with young children should be specifically targeted to encourage younger consumers to "grow up with offal" and reduce the stigma attached to these products by younger generations.

2.2.2 Travel and Leisure segment

The travel and leisure segment includes the "pub lunch" sector and motels as well as hotel chains including larger 5 star hotels such as the Renaissance and Ramada.

Airlines, ships providores and the rail segment were not included in the survey sample.

ii) Trends:

Offal for consumption at both ends of the budget was noted by this segment as experiencing increased demand.

Hotels noted that the demand for edible offal is increasing slightly, especially for veal offal, sweetbreads and liver.

In the Motel industry, operators noted a significant increase in the consumption of edible offal as an inexpensive menu item. Kidneys had become very popular especially as a late night snack. Steak and kidney pie was also reported to be very popular in winter.

iii) Supplier Issues:

Several of the Hotels nominated that edible offal was distributed through a wholesaler and fresh delivery was required six days a week as a minimum.

Most Motels were supplied by local retail butchers and none of those surveyed reported any problems in obtaining supply.

iv) Value adding:

In general, Hotel operators had little interest in any pre-prepared offal products due to the requirement for chefs to place their "individual signature" on dishes prepared for the restaurants' customers.

Quality and price were also critical and only a small premium for any preparation would be borne by this segment.

Motels were more receptive to new ideas and would be interested in some form of value adding, however their propensity to pay a premium is low.

v) Promotion:

Hotels generally agreed that there was a need to educate the public on the qualities and attributes of edible offal.

The majority of their offal customers tended to be ethnic groups that had experienced greater exposure to edible offal in their country of origin.

Motels were supportive of the potential to increase consumer awareness and suggested tactics such as:

- in-store product trials to encourage exposure amongst the younger generations and,
- promotion and education on the taste, flavour and health benefits

Overall a slight increase in edible offal consumption was noted by this segment in the last few years. This was attributed to customers increasing their awareness of edible offal products.

Restaurants also noted that their most consistent patrons of offal were older consumers.

iii) Supplier Issues:

None surveyed reported any problems with their current suppliers.

iv) Value Adding:

Restaurants had a tendency to reject any suggestion of purchasing convenient or pre-prepared product.

This notion tended to confront their need for personally developed products, recipes and menus.

v) Promotion:

In terms of promotion, they recognised a need to increase consumer awareness of the health and nutrition content of edible offal.

2.2.4 Institutional Sector

This sector includes school canteens, boarding schools, tertiary institutions, military forces, prisons and hospitals.

The key concerns of this sector are price, nutrition and product quality.

Our survey of this sector was limited to the hospital segment. Estimates of total hospital numbers is around 1,000 establishments.

i) Product usage:

Product usage varied considerably between hospitals and was largely subject to the individual hospital's nutritionist's and dietician's perceptions of edible offal.

Products commonly used included:

Beef kidney - Used as an ingredient in steak and kidney pies. The usage ratio was reported by one hospital as 20kgs for 2,000 meals.

Lambs brains, kidneys, tongue, tripe and liver - used as an entree or main course. One hospital reported 60 servings per week.

At the RNS the menu policy was to place edible offal on the menu twice weekly with the menu rotating on a four weekly basis.

Delivery is either fresh or frozen depending on the quantities required.

ii) Trends:

There has been no significant change in course content in response to market trends regarding edible offal over the last five years. Indeed comments were made that as Australians have a very poor perception of edible offal, it is very difficult to promote these products to the food service sector.

iii) Supply issues:

Trainers commented that the quality of edible offal available was extremely inconsistent in Australia. Specifically they mentioned the poor appearance, preparation and handling emphasising that they believed that no care was taken during the production process.

iv) Promotion:

Types of promotion suggested as in demand by this sector included:-

- discussions with Catering Institutions and end users to ensure their co-operation and support of initiatives in regard to edible offal promotion
- education of consumers in the range of edible offal products available, characteristics and preparation styles.

2.3 Retailers

In 1989/90 Retail World reported the total retail value of the food sector approached $80.8 billion of which $2,058m or 2.6% was allocated to retail meat.

In 1991, AMLC data stated that the value of the retail meat sector was estimated at $4.9 billion of which $3.4 billion passed through butcher shops. Edible offal sales were estimated at $4.8 million or 1,908 tonnes.

On a per butcher shop basis edible offal sales are in the vicinity of $15.90 per week in retail outlets out of total sales of $10,290 of beef and sheepmeat (less that 0.2% of store turnover of meat products).

The following analysis incorporates the findings from interviews with retail butchers and supermarket operators in Brisbane, Melbourne and Sydney.

i) Trends:

In terms of retail meat trends retail butchers continue to lose market share to larger retail chain operations.

In general, total meat sales appear static, and in terms of volume, beef is declining in favour of pork sales. Nevertheless beef still accounts for 53% of all meat sales.

More exotic products such as pluck, head and cheek were more infrequently offered and not stocked by larger supermarket chains.

Where figures were provided store sales were as high as 500kgs per week down to "about 30 kgs".

iii) Supply Issues

Retailers appear generally satisfied with the product quality available from processors. However, problems arise with the following:-

- reliable regular delivery of large quantities of fresh offal
- poor quality control in the gathering of beef brain, with bone fragments mentioned as a common problem
- inadequate washing of beef tongues and cheeks
- out of stocks
- poor attention to detail in filling orders

Other products mentioned as hard to get were sheep paunch and gut and testicles.

Every contact said fresh is an absolute must if offal is to be displayed for domestic purchasers. They stressed that frozen or thawed product, although used, is just not acceptable to the consumer. Colour and other cosmetic factors influence the presentation and acceptance of edible offal by the potential consumer.

The Arabic and particularly the Lebanese consumer is very discerning as far as freshness is concerned and will reject product that is not absolutely fresh.

Product is supplied in single units or in cartons depending on the volume required with individual lots being most common.

Supplies come from the regular meat distribution chain which in some cases is direct from the meat processor.

Frozen Ox tails and some tripe is supplied in carton lots that are too large for most retailers. In one case, where weekly turnover was 3-400kgs, the retailer found that the 25kg ox tail carton was too large.

Whilst the respondent stated that the products are layer packed and frozen, separation was a problem and spoilage from the freezer blast always resulted in the last of the cartons being a total waste.

Frozen tripe was considered to hold too much moisture and the price paid versus return for thawed product is not seen as much of an encouragement to retailers.

Table 3.1 Edible Offal Exports and Destinations

	1989		1990		1991		
Country	*Beef*	*Sheep*	*Beef*	*Sheep*	*Beef*	*Sheep*	*% total exports*
EC	**10440**	**1996**	**11049**	**2369**	**8430**	**2380**	19%
Belgium	1132	-	-	-	-	-	-
Denmark	--	-	11	-	-	-	-
France	-	-	4141	477	2332	493	5%
Germany	-	-	-	-	144	-	0.2%
Greece	-	-	-	-	50	40	-
Netherlands	-	-	-	-	1109	280	2%
Portugal	-	-	-	-	1014		1.7%
UK	-	-	5022	1706	3382	1206	7.9%
W Europe	**605**	**17**	**274**	--	**139**	-	0.2%
E Europe	**148**	-	**1174**	-	**2163**	**15**	3.7%
USA (E)	**776**	-	**2212**	-	**1211**	**36**	2.2%
USA (W)	**908**	**2**	**2507**	**27**	**2114**	**229**	4%
Canada (E)	**233**	—	**481**	—	**412**	**3**	0.7%
Canada (W)	**13**	—	**157**	—	**163**	**1**	0.2%
Japan	**10064**	**17**	**11548**	**36**	**13306**	**34**	23%
Sth Korea	**238**	—	**350**	—	**724**	—	1.3%
Taiwan	**13**	—	**(10)**	—	—	—	-
Other Asia	**9325**	**237**	**11059**	**155**	**10697**	**210**	18.8%
Hong Kong			2621	77	3257	128	5.8%
Malaysia			31	40	3772	113	6.7%
Indonesia			2180	—	2927	2	5%
Mid East	**896**	**737**	**853**	**1720**	**1220**	**2239**	5.9%
Saudi Arabia					1141	2221	5.8%
Other	**9755**	**1827**	**9288**	**2014**	**10247**	**1977**	21%
Mexico			984	—	2544	20	4%
South Africa			1245	80	1866	386	3%
Total	**43414**	**5833**	**50952**	**6321**	**50826**	**7124**	

Australian markets with greater that 1 000 tonnes shipped in 1991 included:

- UK, Yugoslavia, Benelux, Portugal, US, Mexico, Japan, Hong Kong, Malaysia, Singapore, Other Asia, Saudi Arabia, South Africa, Mauritius and PNG

Our key markets for bovine product by volume include Japan, EC, Other Asia including Malaysia and Indonesia and others (including Papua New Guinea and the Pacific Islands). For ovine products the principal markets include the Middle East, other and the EC.

1991 - Beef											
	Tongue	Heart	Liver	Kidney	Tripe	Cheek	Skirt	Tail	Lung	Lips	Total
EC	2669	2578	902	848	714	602	-	-	13	-	8326
Other W Eur	-	-	137	2	-	-	-	-	-	-	139
E Europe	-	-	75	-	2073	-	-	-	-	-	2148
USA EC	24	-	362	-	-	178	34	282	-	311	1191
USA WC	403	-	70	-	-	960	7	83	-	317	1840
Canada EC	-	322	14	-	-	-	-	76	-	-	412
Canada WC	-	163	-	-	-	-	-	-	-	-	163
Japan	3035	5	145	4	1779	-	7393	857	1	-	13219
Korea	2.5	-	-	-	63	-	-	657	-	-	722.5
Other Asia	211	169	4058	8	3164	23	-	1055	1355	36	10078
Mid East	3	-	224	50	705	-	-	36	24	-	1042
Other	928	2048	3386	379	451	59	8	973	-	1796	10028
Total	7275.5	5285	9373	1291	8949	2084	7442	4019	1393	2459	49308.

In terms of beef offals, the dominant product exports are tongue, liver, tripe and skirt. The major markets being the EC, Japan, Other Asia, Eastern Europe and Other (including South Pacific Islands).

Table 3.3 Australian Exports of Ovine Offal for 1990 and 1991

1991 - Mutton / Lamb																								
	Tongue		Liver		Kidney		Heart		Thymus		Brain		Lung		Tripe		Tail		Pluck		Spleen		Total	
	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L
EC	99	-	259	262	91	42	783	72	-	5	442	149	179	-	-	-	-	-	-	-	-	-	1453	530
E Europe	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	Nil
USA EC	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	Nil
USA WC	1	-	-	-	-	-	166	51	-	-	2	9	-	-	-	-	-	-	-	-	-	-	169	60
Canada	5	5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	6
Japan	3	-	4	3	10	2	-	-	-	-	9	2	-	-	1	-	-	-	-	-	-	-	26	7
Other Asia	7	-	6	1	2	2	17	-	-	-	1	3	-	-	158	-	1	-	8	-	-	-	200	6
Mid East	136	22	1013	129	433	66	2	2	-	-	220	31	-	-	128	31	-	-	-	-	52	4	1984	285
Other	1140	9	281	75	22	1	380	12	-	1	1	-	-	-	52	-	-	-	3	-	-	-	1879	98
Total	1425	36	1596	470	558	114	1348	139	-	6	675	194	179	-	338	31	1	-	11	-	52	4	6138	994

Intra European trade is a key feature of the edible offal market.

In 1991, fresh offal supply from intra EC trade represented 50,000 tonnes. Key suppliers to other EC members were the Netherlands with 14,200 tonnes, Germany 14,100, Ireland 5,600, the UK 3,200 and France and Denmark with 1,800 each. Spain was the major trader in sheep offals with 1,430 tonnes to Greece. The table following, although dated, demonstrates the inflows and outflows within the EC.

Table 3.4 European Trade in Edible Offals

Edible Offal Foreign Trade (Imports / Exports) by EC Country 1981 - 1985 (000 M Tons)					
	1981	1982	1983	1984	1985
Import Country					
Belgium/ Luxembourg	47	53	34	88	86
Denmark	0	0	0	0	0
Germany	72	88	87	81	80
Greece	3	7	8	9	10
Spain	4	3	2	6	8
France	193	191	190	177	180
Ireland	8	6	6	6	6
Italy	41	43	40	86	43
Netherlands	42	40	41	43	44
Portugal	2	1	1	1	0
United Kingdom	133	134	127	119	125
Total EC 10	539	562	533	509	524
Total EC 12	545	566	536	516	532
Export Country					
Belgium/ Luxembourg	62	61	50	43	42
Denmark	26	23	25	27	28
Germany	38	37	38	42	44
Greece	0	0	0	0	0
Spain	8	10	7	9	12
France	48	48	45	48	50
Ireland	43	34	40	41	41
Italy	12	13	8	9	8
Netherlands	91	101	108	124	134
Portugal	0	0	0	0	0
United Kingdom	16	15	17	16	17
Total EC 10	336	332	331	350	354
Total EC 12	344	342	338	359	366
Imports Minus Exports	201	224	198	157	166

While the UK is the dominant market in terms of the volume of ovine imports, at 60% of the total trade and 73% of product supplied from outside the EC, the relative value of this trade is low.

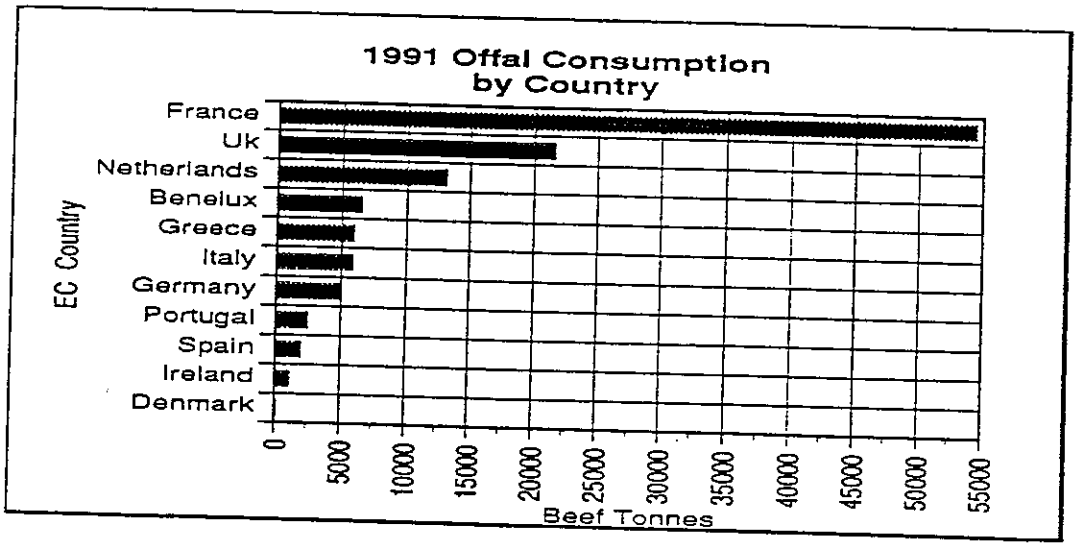
In the UK import values average 0.71 ECUs per kg while France averages 3.00 ECU. As such the total value of the UK market is the same as that of France even though France represents only 14% of the trade.

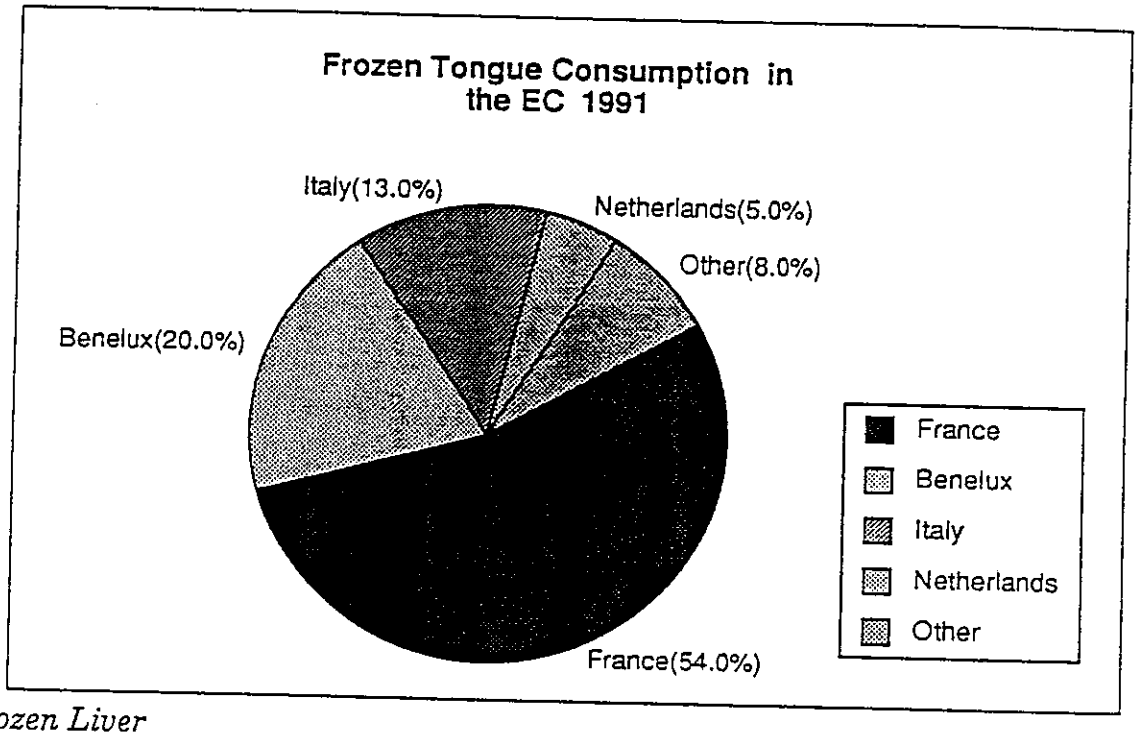
The variation in value between the UK and France is a reflection of the high proportion of brains imported by France from Australia and NZ.

Fresh edible offal is supplied from within the EC except for a total of approximately 800 tonnes which is sourced from other European neighbours.

The following table 3.7 charts total beef edible offal consumption within the EC. As can be clearly seen, France dominates the market for consumption, outstripping the U.K. by 2:1.

Table 3.7 Beef Offal Consumption by Country 1991



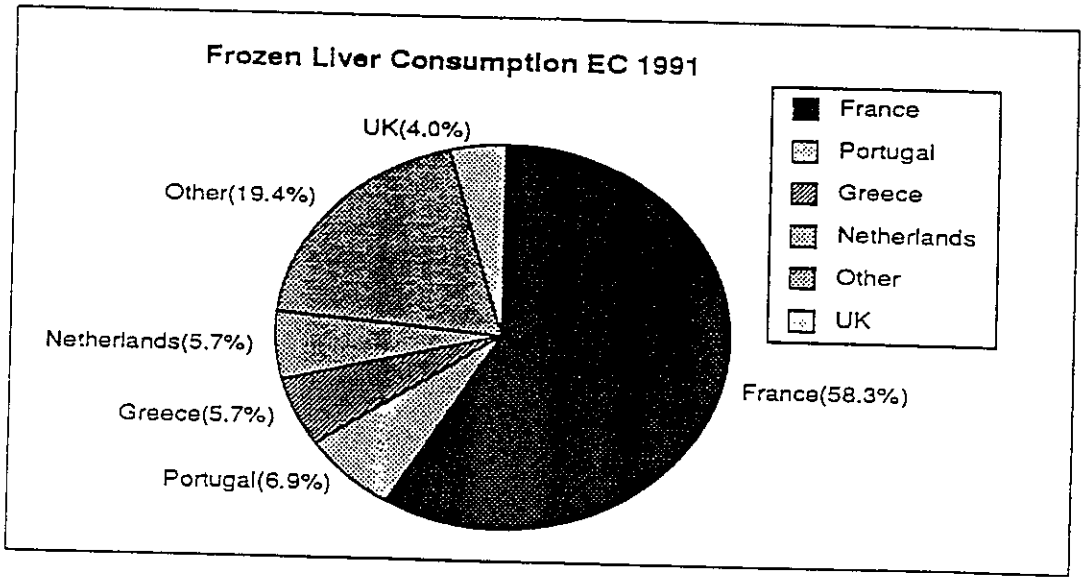


Frozen Liver

In 1991, frozen liver imports to the EC totalled 7.9 kt, of this 78% was supplied through European countries including Germany, Ireland, the Netherlands and the UK.

The remainder was mainly supplied by Australia (60%) and New Zealand.

Major importing countries included France, Benelux, Netherlands and Italy (see chart following).



The impact of restrictions has resulted in increased prices for selected products and increased imports from alternative suppliers to the US.

UK imports of Beef and Sheep Offal for the 5 months to May 1992 were 17,307 tonnes valued at £12.67 million. Of this 8,024 were from other EC countries, with the Irish Republic supplying 3,894 tonnes, New Zealand was the next largest supplier to UK with 6100 tonnes, then Australia with 2093 tonnes.

Imports of edible offal products from NZ comprise 92% sheep and 8% beef, while Australian imports comprise 66% beef and 33% sheep offal.

For the year to date May 1992 edible offal imports to the UK are shown in Table 3.8:

Table 3.8 Edible Offal Imports to the UK, YTD May 1992

Qty	Value	£000s	£/Kg
bovine fresh/chilled	1841	2488	1.35
bovine frozen	8738	6115	0.699
sheep/goats/horses/ asses fresh/chill	158	300	1.89
sheep etc frozen	6570	3767	0.573
Total	17307	12670	£0.723

70% of fresh offal imports are sourced from the Irish Republic with some high premium product coming chilled from New Zealand.

Other EC countries supply approximately 36% of the total, but the major supplier is the US with 48% of the UK's import market in 1991. Overall, imports account for 38% of the offal market.

Consumption Patterns

Consumption of fresh offal such as liver and kidneys has fallen steadily since 1980. Increased use in processed products and catering has not offset the drop in household consumption which has almost halved in the last 10 years. Total supplies of offal have however also fallen over this time.

As is the case in the Australian market, edible offal which is not used for human consumption or other more specific uses enters the pet food market.

Portugal

Portugal is not prominent in the edible offal trade, although it is a relatively high consumer of frozen beef livers..

Generally food retailing is underdeveloped and the local butcher is highly evident. It is estimated that there are approximately 5,500 butchers in Portugal, thus the market is highly fragmented and difficult to quantify.

Most meat is sold to the retailer in carcase form, even to supermarkets and hypermarkets. It is then cut to the customers' requirements.

Netherlands

The Netherlands exports greater quantities than it imports of beef edible offal products.

Production is at around 1% of the world's total production and the scale is similar to Australia's, however exports are in the range of 10% of the total export market. Much of the trade is to the EC.

In terms of consumption the Netherlands is a significant user of frozen beef livers and tongues.

Belgium

Belgium and Luxembourg are considered high consumers of edible offal, although exports are high imports outstrip exports 2 to 1.

Denmark

Per capita consumption of meat in Denmark is one of the highest in the EC. Very little is purchased from butcher shops, most preferring supply by the supermarket sector. Currently there are 900 butchers shops with 6% share of the retail meat trade.

Denmark is a relatively small importer of edible offals. Local production is around 2/3 of Australian production and the majority of this is exported, mainly within the EC.

Ireland

Ireland is a key player in the export market of Europe with exports at 7 times the import rate.

Key markets include UK, Continental EC, Germany, Netherlands, Italy. Processed meats comprise 4% of sales.

In terms of premiums therefore, chilled tongue commands a premium over frozen tongue and liver is of minor value.

Table 3.11 Prices paid for US imports in ¥/Kg 1988-1992

	88	89	90	91	92
Chilled Tongue	—	971	764	658	786
Frozen Tongue	527	523	488	708	803
Frozen Liver	123	123	150	141	131

Interesting to note the premium of frozen tongue over chilled in this instance.

Table 3.12 Prices paid for Australian imports in ¥/Kg

	88	89	90	91
Chilled Tongue	838	763	794	840
Frozen Tongue	396	401	541	513
Frozen Liver	141	131	149	141

By contrast, Australian chilled tongue commands a premium over the average market price as does Frozen liver. From these statistics it appears that frozen tongue from Australia is of less value than the US product.

The following summary of Japanese imports of edible beef offal from Australia are based on statistics provided by the AMLC.

Table 3.13 Japanese Imports of Edible Offal 1989-1991

Products	1989	1990	1991
All tongue	1198	1481	3035
Heart	26		5
Liver	69	100	145
Tripe	1498	1861	1779
Tail	399	539	857
Lung	1		1
Tendon	289		
Skirt	6564	7393	7393
Other	15	98	99
Total from Aust	**10,064**	**11,548**	**13,306**
Total*	104,113	101,710	109,221

* total of all edible offal imports excluding skirt

Diaphragm meats are treated differently. Diaphragm beef (frozen) has traditionally been an odd case due to the ability to classify this product outside the import quotas. The quota system was removed on 1 April 1991.

In total beef exports, the US has secured 43% of the Japanese market and Australia has 53%.

Diaphragm is known in the US hanging tender and outside skirt, in Australia it is referred to thick skirt or thin skirt.

Preference on the food service market for the range of edible offal products offered is for product from domestic producers first, then US then Australia.

The US has preference over Australia as there is a definite preference for grain fed beef edible offal.

Product Usage

Most offal enters the Foodservice industry particularly skirt for BBQ style meat. Tongue is generally further processed to smallgoods (yakiniku) although in the last year Japanese demand for beef tongue and offal has increased due to a surge in popularity of Korean barbecue dishes such as Bulgoki and Kalbi.

During the mid 1980s the importation of diaphragm beef was slanted towards outside skirts. However, equal quantities of hanging tenders and outside skirts were imported.

Diaphragm beef has suffered from a stigma associated with using an offal based product in restaurants or eating establishments, particularly in the major cities of Japan.

Outside skirts and hanging tenders sourced from the US were popular in country areas due to price and taste. The product is extensively retailed as a marinated product, either in bulk or pack form, due to the poor shelf life of diaphragm beef, and discoloration problems.

Bulk imported diaphragm products competes with all meat items, including domestic beef, at the middle to low end of the market.

Thick and thin skirts are also utilized in the manufacturing sector particularly in the production of hamburgers . The US is a major supplier of skirt meat as grain fed product is preferred to grassfed due to poor colour and marbling of grass fed. Chilled air freighted US product is currently experiencing some market demand from the manufacturing sector for use in hamburgers and foodservice pre-prepared products.

Beef feet and tails are restricted "tender" items with tails bringing as much as A$50 a piece.

Product demanded by consumers includes Mountain chain tripe and small intestines both of which enter the market through the restaurant trade.

Imports are accepted in 28 kg cartons, frozen with small intestines bulk packed. A special consideration for small intestines is that they must retain residue of "milk gut." This is flushed out in normal preparation but evidence of "milk gut" must be apparent to meet market demands in Korea. To satisfy this requirement AQIS approval must be obtained.

It is expected that as imports are liberalised domestic consumption will increase for there appears to be demand beyond the production capacity of local producers.

Middle East

Exports of edible beef offal to this sector of the market are relatively small at 1000 tonnes. It is most likely that these products are destined for Egypt and Yemen.

The rest of this region is a market exclusively for sheep meat, with double the volume of beef offal exports.

As yet the markets in the Middle East and Turkey are rudimentary and local abattoirs comprise the key supply avenues. Local processing is highly fragmented with municipal abattoirs used as service works for the retail butcher trade. In recent times greater emphasis has been placed on centralising the process and increasing the resultant hygiene and quality control procedures. Longer term efforts to increase the sophistication of local production may result in competition on the global market.

New Zealand is Australia's major competitor in this region. New Zealand exporters tend to focus on edible lamb offal whereas most Australian product is hogget and mutton.

As yet there is little perception of the difference between lamb and mutton in this market, they are offered at almost the same price but lamb quality is superior.

Opportunities therefore exist to classify ovine edible offal as sheepmeat rather than lamb or mutton to assist Australia compete in this market with mutton product.

Table 4.1 World Edible Offal Production and Distribution

Country	Production	%	Imports	%	Exports	%
World	**7091**		**673.4**		**710.4**	
Africa	**270**	**4%**	**39.7**	**6%**	**1.8**	**.**
Nth America	**1457**	**20%**	**92.8**	**14%**	**290.9**	**41%**
Canada	125		7.7		73.2	
Mexico	87		63.7	9%	0.2	
USA	1198	17%	5.7		217.2	30%
Other	47		15.7		0.3	
South America	**578**	**8%**	**17.7**	**2%**	**57.8**	**8%**
Argentina	193		-		38.1	
Brazil	214		1.5		13.7	
Other	171		16.2		6.0	
Asia	**1551**	**22%**	**113.0**	**17%**	**6.6**	**1%**
China	1045	15%			5.21%	
Japan	132	2%	71.5	10.6%		
Other	274		41.5		1.4	
Europe	**2124**	**30%**	**404.1**	**60%**	**271.2**	**38%**
Belgium/Lux	76		31.5		24.1	
Czech	82		13.0		5.0	
Denmark	87				56.0	8%
France	263	4%	108.6	16.0%	15.5	
E Germany	110	2%	12.0	2%	4.0	
W Germany	322	4%	68.5	10%	31.8	
Hungary	64		0.2		3.6	
Ireland	38		2.0		22.2	
Italy	163		9.7		7.7	
Netherlands	123		24.5		75.8	11%
Poland	86				0.5	
Spain	110		2.0		3.0	
Sweden	32		0.5		4.4	
UK	145		109.4	16%	9.8	
Yugo	85		5.0		1.0	
Other	**338**	**5%**	**17.2**	**2%**	**6.8**	**1%**
Oceania	**196**	**3%**	**5.3**		**82.1**	**12%**
Australia	126	2%	-		34.7	5%
NZ	68	1%	3.3		47.4	6%
Other	2		2.0			
USSR	915	13%	0.7			

On the world market, the major exporting countries include Australia, New Zealand, Argentina, Brazil, Canada and the US.

This decline in returns may be the result of the impact of the BSE legislation and subsequent decline in demand.

Table 4.3 shows production figures for offal in the UK.

Table 4.3 Edible Offal Production/ Imports/Exports

	1987	1988	1989	1990	1991	1992	1993
			000 tonnes			(Estimated)	
Prod'n	164	157	162	165	173	164	165
Imports	95	93	76	64	54	60	60
Exports	11	8	12	11	13	13	12
Total	248	242	226	218	214	211	213

In the UK around 240,000 tonnes of edible offal is marketed annually. Only 6% of UK edible offal production is exported, mainly to other EC countries, such as France and Eire.

UK statistics indicated that edible offal production is collected as follows:-

Cattle	55%
Sheep	27%
Pigs	18%

As is the case with Australia, specific production figures are not collected from abattoirs. Estimate of production are therefore derived by applying technical co-efficients to the number of animals slaughtered, based on average weights for the edible offal products.

4.2.2 North America

North America exports 20% of their total production, which accounts for over 40% of world exports. This position has changed somewhat since the imposition of non tariff barriers in Europe in 1989.

75% of US exports are bovine edible offals with the balance in porcine product.

Production

The US industry consists of large operators that process and pack product in 60lb cartons. Products are then generally frozen and transported by road container to domestic markets or exported.

For the year to June 92, Japan represented 55% of US exports with a total of 56,700 tonnes. Fall off in exports to Europe followed the EC ban on imports of foodstuffs that contain residue of growth promoting hormones. This affected US entry to the EC and saw exports to that region drop to a low of 1,200 tonnes or 1.3% of total beef offal exports ex US. In the first half of 92 there was a recovery to 4,300 tonnes or 4% of total production.

The following table highlights the trade flows to Japan and the EC.

Table 4.5 US Exports of Beef edible offal 1988-92*

	Total		Japan	EC		
	Vol Tonnes		$000	Vol	$000	Vol $000
1988	182249	304245	53962	139989	72620	99231
1990	160401	297529	79564	211306	5212	8461
1991	189338	387105	98737	289614	2610	2522
half/92	102692	230205	56759	133572	4342	4452

* no figures were available for 1989

Source: US Department of Agriculture

In 1988, Japan represented 30% of US export volume and 46% of the value. By 1991, this increased to 52.1% by volume and 74.8% by value.

Exported Product

livers Beef liver is consumed through the domestic foodservice market and exported to the Middle East, Japan, France and Latin America. Calves livers are also exported to Europe.

tongue Tongue is exported to Europe and Japan.

cheek meat Cheek meat is sold separately from the remaining head meat and is used in sausage production or exported to Mexico for use in snack food and burritos.

head meat Head meat is principally sold to EC countries for meat product manufacture. Head and cheek meat is consumed in hot dogs and added to lean ground beef for hamburger production.

4.2.4 South America

Argentina, Brazil, Kenya, Zimbabwe and Botswana are involved with high volume meat processing operations with particular focus on producing for export markets. Offals are not processed for the local market but rather local market product goes direct to a chiller unwrapped and is generally held as offals sets complete with the head in tact with liver, tail, heart and spleen. Delivery to the local market is generally by the local butcher trade taking direct delivery of chilled product from the abattoir.

Brazil and Argentina are currently large suppliers of bovine product to Europe.

4.2.5 Asia

Within the Asian market, the Republic of China is a major producer of edible offal products principally for distribution in the domestic market.

Although Japan's production of offal is on a similar scale to Australia's much of the product is consumed domestically.

5.0 Strengths and Weaknesses

5.1 Marketing

Retail Pricing;

Retail pricing is both a strength and a weakness for the industry. At current domestic market price points, edible offal is a cost effective protein source and attractive in recessionary times.

At present, the market's moves away from red meat prime cuts have largely been assumed by increased consumption of white meat rather than edible offal.

The lower cost advantage of edible offal is particularly attractive to the food service trade, hospitals and institutions in particular. However this reinforces the "cheap meat" substitute positioning of edible offals.

Positioning;

The institution and restaurant segment have adopted a two pronged strategy, positioning offal as either:-

- a cheap wholesome traditional meal or breakfast alternative
- a gourmet entree or main plate item

In addition, export markets and local ethnic consumes prize offal as a gourmet item.

This, combined with the relatively low cost pricing, has led to mixed signals being sent to the market on the value and credibility of offal foods. This has impacts in particular on younger or inexperienced consumers, as such they perceive that:-

- retail offal is sourced or processed differently than that available in restaurants
- restaurants undertake special preparation techniques to "sanitise" or "value add" offal which can not be duplicated at home
- retail offal is pet food grade product

Such segmentation could be on the following basis:

Segment	Needs	Price Sensitivity
Fresh Pet Food	Wide Availability	Med/High
Ethnic Groups	Freshness	Low
Older Users	Healthy Offal	Med
Younger Users	Education/Preparation	Med/low
Non Consumers	Exposure	Low

Demand

Local demand is stable with some potential for growth through conversion of non users and increased penetration of current user markets.

Indications are that in the domestic market there are currently some unfulfilled demands from the consumer.

Major retail chains have not fully exploited the potential for edible offal due to problems in supply, thus if a promotion and price positioning strategy were developed domestic consumption may increase substantially as a result.

In terms of offal product, demand is uneven, such that demand for liver could be twice the demand for say heart. In this situation the demand for liver may be higher than the number of beasts processed and there is surplus stock of heart available.

Although this is a weakness, there is the potential to downgrade surplus product to the pet food market.

Distribution

Availability of fresh product is a key requirement of the domestic market, and an emerging demand of export markets.

Currently shelf life problems are the major issue with fresh offal perishable within one or two days of delivery while frozen product has a shelf life of around 3 weeks.

Problems in regular supply were reported by both the retail and foodservice sector.

5.3 Production

Profitability

Edible offal is a profitable line for producers.

In exports, Asian markets often value organ and offal products on a par with carcass meat. For example in 1992 prices for Mountain chain tripe in Japan were listed at ¥1200-1400 per kg against wholesale prices for rib eye frozen beef at ¥1700-1800.

The local market while lower in value also provides a base profit for producers and retailers alike.

Processing and extraction

Although offal processing can be time consuming, procedures are perceived by the industry as relatively simple.

Several options exist in the Australian industry:-

- self processing
- central pick up and collection for pet food
- rendering

Training and quality assurance procedures permit processors to produce quality according to the Ausmeat Standards at little cost burden.

However suppliers are still criticised by retail buyers for their care in filling orders, handling edible offal and cleaning, cutting and trimming offal product.

Production yields emerged as a key issue throughout the research, currently it appears that large volumes of potentially edible offal is either poorly retrieved, downgraded to petfood and rendering or condemned unnecessarily. Retailer comments on the delivery of damaged product suggests that greater care during processing and inspection is required.

Infrastructure

At the processor level the only added value is trimming to Ausmeat standards and packaging.

There are opportunities to lift packaging in both domestic and export markets.

In terms of packaging and stock control technologies include product identification and automatic sorting by bar codes, vacuum packaging of meat cuts (particularly to prevent freezer burn).

Equipment suppliers observe that processors concentrate on prime cuts and almost without exception by products are seen a secondary and of nuisance value. No operator is considered to have responded adequately to the need for variations in packaging. Distinct markets require different packaging such as individually wrapped brains for the French market.

Packaging suppliers and consumer representatives say less than the "standard Australian Meat Pack" of 27.2 kgs is desired as an outer for the Asian market in particular.

Modified atmosphere packaging has the ability to present fresh product for a longer period than standard non-frozen packs; such would be an advantage in some markets such as Middle East countries where freshness is paramount . A range of thermoforming vacuum packaging gear which has the capacity to pack individual product ready for retail presentation is also available.

Our previous research on the adoption of technologies in the meat processing sector highlighted several points that are valid for the edible offal sector. These are:-

- new technologies are often prohibitively costly thus operators need information similar to a cost benefit analysis of adoption to provide a basis for investment decisions in this regard
- knowledge of the range of available technologies is limited. Of particular concern are processing and packaging technologies that extend fresh product shelf life and reduce costs.
- problems in relation to technology information transfer fall with both the producers, who perceive edible offal as a "nuisance", and equipment suppliers that perceive the market as small and concentrated

- ***quality issues***

Information on the health and conditions of the offal of animals put to slaughter combined with forecasts of expected organ and offal weights would be valuable to producers. This combined with regular feedback on the implications any variation of actual to forecast have for the producer in terms of animal care, feeding or veterinary concerns would assist in reducing the condemned rate and increasing yields.

- ***domestic consumers***
- price sensitivity
- product perceptions; image, nutrition etc.
- product and usage awareness
- segmentation analysis

Such information and research would assist in developing education and promotion campaigns and assist local producers in predicting demand and scheduling production to accommodate this.

6.0 Opportunities and Threats

The following analysis details the pressures and challenges external to the domestic industry which may impact or create opportunities for operators.

6.1 Economic

Global

The major influence impacting on future demand for primary commodities and edible offal will be the status of the world economy.

Economists suggest that the world economy is to recover moderately by the end of 1992 with growth rates at around 2%.

In regional terms, North America and Western Europe are likely to lead the recovery whereas economies in Eastern Europe, Latin America and the former Soviet States are expected to suffer further decline before recovering. In Asia newly industrialised countries such as Taiwan, Korea and China are predicted to continue strong growth with a slow down in the Japanese economy.

Production growth in these economies is expected to be led by Asian and Middle Eastern/North African regions.

Inflation is anticipated to decline in most major industrialised countries in the next 5 years, averaging for OECD countries at around 3-4%.

GATT agreements, increased protection and the threat of regional trading blocs pose problems for the Australian economy and export sector.

The EC is potentially the largest trading bloc, posing a threat not only in terms of access to export markets but also for imports where increased competitiveness and protectionism could deplete local markets.

In the future Europe is likely to move towards greater environmental protection and focus on Eastern Europe. The impact may result in lower production levels (Sweden is reported to have reduced pig production due to acid rain issues) and heightened consumer awareness and therefore demand for "clean" products. Australia is well positioned in this regard.

Asia is anticipated to continue its growth, resulting in associated increases in per capita incomes and increased westernisation of the domestic populations. Within this market, Korea, Taiwan and Indonesia are likely

products as "clean and green". For the edible offal industry this is particularly important as animal organs are more likely to store toxins evident in the atmosphere and therefore consumers may be all the more careful in identifying the source of supply of such products.

Domestic

On the domestic market concern about environmental issues generally impact on the packaging of products and the production technique.

As yet, few concerns have been raised specifically to edible offal supply, however there is a small market resistance to feed-lotting, and this may have implications as it develops in terms of consumer preference and demand.

6.3 Political

Global

One of the most critical factors impacting the global political environment is the establishment of trading blocs. Those mooted have tended to exclude Australia and thus pose a significant threat to market access.

Currently, the EC and Australia operate under the Kerin Andriessen Agreement preventing subsidised EC product into Asian markets. Potentially this will be dwindled as Foot and Mouth Disease free status is given to EC and the EC becomes more cost competitive.

On a broader basis, upheavals in the Middle East and Eastern Europe pose threats to continued trade or market entry to these regions.

Domestic

The current political environment is volatile with rapid changes in leadership at both the State and Federal levels. Increased economic pressures may see the withdrawal of financial assistance to industry as the government pushes for increased efficiency and rationalisation of production.

This may impact the research sector in particular.

In terms of legislation and its potential influence on edible offals, there are several areas that may require attention. These include the regulation of retail meat trading, including:-

- the exclusion of pet food grade products from sale in retail outlets

6.5 Socio/ Community Attitudes

Domestic

Demographically, two key factors are influencing demand for edible offal products in the community:

i) Australia's population is aging as a result of medical technologies, improved lifestyles and an emphasis on health.

Older people are one of the key sources of demand for edible offal products. As they age and reduce their food intake, focus on more healthy cooking processes and less cholesterol in their diet, demand for edible offal will decline. In addition, new generations are less exposed to edible offals and are generally more concerned with convenience products, microwavable applications and reducing fat and red meat intake.

ii) Australia is becoming increasingly multicultural with a large proportion of immigrants from the Asian region.

Many Asian immigrants have an established regimen of including edible offal product in their diets.

In the future we may anticipate increased immigration from other traditional offal eating regions including Eastern Europe which may impact on domestic consumption.

In terms of other issues, concern about nutrition and cholesterol, demand for convenience foods, higher incidence of eating outside the home, diversity of food tastes and greater focus on Asian style foods, smaller families and double incomes all impact on what food is purchased by domestic consumers.

The vast range of alternatives including poultry and protein substitutes, pre prepared meals and the trend away from the "meat and three veg" culture of the Australian market augurs badly for the traditional means of edible offal marketing and distribution.

6.6 Summary of Key Threats and Opportunities

6.6.1 Threats

i) Market Access

New competitors from the EC and South America may gain access to the Pacific basin markets, particularly as they qualify for FMD free classification.

Consumer Attitudes

Recently edible offal products have come under scrutiny as a food product assumed to be "unhealthy" and high in fat and cholesterol. As yet this trend does not appear to be prominent in Europe or Asia.

Two factors pose a threat to the edible offal market. Firstly, new generations of consumers do not have the same affinity to offal as their parents - limiting the future market potential. Secondly, the older generations are becoming more health conscious and as such may elect to eliminate offal products from their diets.

These factors, combined with a general demand for less fried products and greater convenience in food product preparation, may impact on future sales of edible offal in the global market.

6.6.2 Opportunities

i) New markets

Immediate opportunities that are apparent is the potential to supply to countries such as Eastern Europe, Vietnam and China. Although offal production within these countries is high, higher disposable incomes and the relatively low pricing of some offal products may generate opportunities for Australian suppliers.

Further, given the fact that Australia is perceived as an environmentally safe agricultural producer, more opportunities may emerge in the EC in response to consumer pressure for "clean" products.

ii) FMD

The world market is currently divided into two segments, FMD free countries (FMD -) and exports and those countries which have presence of the disease or vaccinate against it (FMD+). FMD- countries dominate world supply of beef exports (58% according to ABARE 1989 data). FMD issues principally impact on beef and veal trade.

FMD free importers include US, most of the EC countries, East Asia (Japan, Sth Korea, Taiwan), although cooked and canned meats enter the EC and US. Under the EC arrangement movements of livestock between member countries is free and FMD control measures are harmonised.

Those nominated FMD + include the EC and River Plate region of South America incorporating Uruguay and parts of Argentina and Brazil.

The table demonstrates that substantial potential exists to further develop both the beef and sheepmeat markets for edible offal.

In terms total production capacity the table clearly highlights that producers concentrate on recovery of certain products for the export market, such as sheep spleen, where other potentially equally viable products such as heart and liver are under marketed.

In the edible beef offal market the table demonstrates a similar picture with markets developed in relation to heart, skirt and tail but underdeveloped in key areas such as tongue and tripe.

Some of the market "balance" can be accounted for by domestic market consumption, however the assumption that prime products are still undermarketed holds.

Exports

Exports from the EC are expected to decline and subsequently imports rise as a result of reduced production and internal pricing changes. As a key supplier to the region, Australia could potentially gain increased volume sales.

In addition, potential exists to encroach on the NZ supply chain into Europe particularly for sheepmeat and the entry into chilled offal supply.

With the potential eradication of FMD in Europe a window of opportunity exists to substitute Australian product for current non FMD free suppliers. In volume terms this represents approximately 11000 tonnes of offal product, which if secured would in effect double Australia's offal trade with Europe.

Although Australia has no advantage in providing the market with supply during the low season - as it does, say with horticultural produce - Australia has a natural advantage, in terms of product shelflife, for provision of products to the Asian region. In this respect the markets of Asia and in particular the Pacific basin appear relatively secure.

Domestic

On the domestic scene, potential exists to expand the local market through concerted marketing efforts and greater reliability and consistency in supply.

Major retailers believe they could increase edible offal sales by 100% if supply was secured and product quality assured.

Section 5 Implications for R&D and Recommendations

7.2 Marketing

The key requirements in marketing relate to the development of marketing programs for pricing, branding, positioning, distribution, promotion, packaging and product development.

Specifically, opportunities exist to take offal out of the realms of a low grade commodity and taking a leaf from the NZ agriculturists, transform the "Chinese gooseberry into a Kiwi fruit". Branding Australian product on a clean and green basis may provide a competitive edge and may also encourage increased consumption both domestically and internationally.

In regard to pricing, the edible offal consumer market appears segmented on the basis of offal bought for personal consumption and that bought for pet food.

By price segmentation, opportunities may arise to obtain price premiums for "human" consumption offal as opposed to offal destined for domestic pet food. The foodservice sector is a key example of the premiums available for edible offal if the product is positioned and marketed differently.

Related to this is the opportunity to differentiate edible offal products in the production and distribution chain, such as, those edible offals recognised as suitable for domestic fresh pet food may be separately handled, packaged, displayed and promoted.

Packaging was raised as an area requiring greater customisation and improvements in terms of appearance to end consumers and portion controlling. With this is linked the idea of smaller frozen bulk packs to allow retail operators to simply thaw the amount or product they desire at any one time.

In terms of product development, several opportunities are apparent.

Key amongst these are product development research in regard to shelf life stability, transportation integrity, value added preparations and improvements in colour and texture for customer display and handling. In addition, product development to reduce the incidence of cholesterol producing substances in offals is also required. There is also the need to examine the potential for substitution of offal for further uses in both food and non food applications.

In respect to research and information requirements, data is required on:

- **market potential;** particularly:-
  - potential to enter new export markets or capture untapped domestic market segments

- the **economic rate of recovery;** ie the break even point at which abattoirs can invest in edible offal recovery
- **production, handling and slaughter process** impacts on offal yields
- impact of **market prices** for carcase meat on the production and rate of recovery of edible offals, particularly skirt
- feeding regimes and the use of chemicals and their impacts on **offal quality**, nutrition and reduction of cholesterol producing fats
- the potential for cooperative marketing or the shipment of offals from **domestic sheds for export**
- **inspection and TQM** processes
- the potential for the introduction of **new technologies** and greater automation
- development of internationally recognised **standards** for processing and distribution
- the need for **sensory trials** to detect any differences between grain and grass fed animals
- **shelf life** extension and optimum storage conditions
- **reliability of supply**, this was raised as one of the major obstacles to domestic market expansion by the larger retailers. These retailers require the delivery of fresh product on a daily basis, however they find that suppliers are reluctant to invest in chiller facilities to accommodate this need. Potential may exist for local suppliers to pool resources to accommodate the fresh market demand and provide a reliable service.
- the need for customised **training** in the preparation, handling, transport and marketing of edible offals

One of the major issues raised in relation to production was the edible offal recovery rate, with currently available data the rate of recovery in total and also between ovine and bovine species and individual product types is difficult to track.

Once a price premium analysis has been undertaken, greater incentives may exist to increase recovery of edible offal from the slaughter process.

An analysis of current recovery procedures, possibly through a tracking study of several "typical" abattoirs, may highlight further training, technology and procedures that can be adopted to ensure higher rates of recovery.

7.5 Recommendations

The following recommendations highlight priorities for research either by the Corporation or the AMLC.

7.5.1 Marketing

In terms of the edible offal marketing environment, several opportunities exists and are as follows:-

- **Domestic Market**

- *the immediate priority is to satisfy current demand by improving supply reliability, product quality and distribution methods*

- *secondly emphasis should be placed on increasing demand in current edible offal user segments such as ethnic communities and the older population*

  This objective would require:

  1) **research into current user segments (including fresh pet food) to determine market size, needs and price sensitivity**

  2) **the development of a promotional campaign targeted at ethnic groups**

  3) **research into the nutritional benefits and problems with edible offal consumption and an education campaign to publicise these results**

- *the third objective in relation to the domestic market would be to develop market demand*

  This would require development of improved packaging and shelf-life, new product initiatives (targeted first at foodservice and then retail) and product awareness and handling education programs.

- *capture market share from competitors*

  As discussed throughout this study, potential exists to capture market share from NZ in the EC market particularly for sheepmeat and in the longer term from beef offals.

  This requires a review of mutton offal labelling for these markets, investigation of the potential for chilled product exports and a review of pricing structures to capture volume markets - particularly in Eastern Europe.

7.5.2 Production

All the above objectives and strategies are aimed at increasing or harnessing market demand. However increasing market expectation without ensuring the availability of product supply will result in potentially increasing the threat of imports into the local market - particularly from New Zealand.

Thus a priority is to ensure that local production capacity is available, accessed and developed and delivered to consumer specifications.

In order to determine the potential for the local industry to fulfil supply demands.

A priority is to develop accurate information on the following:-

- **volume of edible offal products produced by the processing sector, ovine, porcine and bovine**
- **volume of potentially edible offal products condemned, rendered or sent to pet food manufacture**
- **types of edible offal products consumed domestically**
- **volume of edible offal products consumed domestically by product type and species**
- **the volume by type of edible offal products consumed through the fresh pet food market**

- **Option Two**

Operator efficiency is likely to be a contributing factor to increasing recovery of edible offals in the processing sector. The opportunity is probably not as great as option one. Therefore the following requirements are needed to not only increase yields but also product quality.

- *analyse current processor recovery methods*

  The objectives of such analysis would be to determine the efficiency of the local industry in offal production and analyse the potential for increased recovery with minimum change to the industry structure.

- *assess operator and producer effectiveness in achieving maximum yield ratios*

  This process would assess the requirement for further or specific training or technology and information systems introduction in the industry.

- *track rates of recovery by product type*

  Strategies for this analysis could include a tracking study of edible offal production in 3 selected abattoirs (varying sizes) and comparison of the processes, quality, condemned rate, timing and recovery with abattoirs in competitor countries.