



final report

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Commercialisation of Value Added Red Meat in the Aged Care Market

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Executive summary

Meat and Livestock Australia appointed Mary Whelan, Food Services Advisor, to research and provide a report on the Commercialisation of Value Added Red Meat in the Aged Care Market – project number RMIACM.002.

In order to assess commercialisation of value added red meat, key industry players within the aged care and Meals on Wheels markets attended workshops as a forum for discussion regarding the current status and issues associated with the delivery of value added red meat in the aged care market. Manufacturers were individually interviewed to determine current practices/production methods and obtain feedback regarding how information on product knowledge and awareness can best be disseminated. Information on new technology and packaging was also sought from industry specialists.

The key recommendation of this report is the formation of a new independent intermediate development company. It is evident from considerable consultation with the meat sector, from processors and marketers, that there is a high degree of disillusionment and lack of confidence in the way in which current marketing and innovation grants are funded and executed within the industry.

The establishment of an independent company with funding from a number of sources will help to develop credibility for MLA. The new company would be responsible for:

- Improving and building relationships between all key players, including MLA, operators and manufacturers.
- Increasing the confidence, skill level and knowledge of operators and manufacturers.
- Product development – including launching and marketing new products into the market place.

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1 INTRODUCTION

Meat and Livestock Australia (MLA) appointed Mary Whelan, Food Services Advisor, to research and provide a report on the Commercialisation of Value Added Red Meat in the Aged Care Market – project number RMIACM.002.

Increasing the market share of value added red meat within the aged care market first requires an understanding of the aged care industry in relation to the provision of food services. To this end, Mary Whelan has researched residential aged care facilities and meal delivery services, as they exist within the aged care industry today, to provide the framework and context against which recommendations are made.

In order to assess commercialisation of value added red meat, key industry players within the aged care and Meals on Wheels (MOW) markets attended workshops as a forum for discussion regarding the current status and issues associated with the delivery of value added red meat in the aged care market. Manufacturers were individually interviewed to determine current practices/production methods and obtain feedback regarding how information on product knowledge and awareness can best be disseminated. Information on new technology and packaging was also sought from industry specialists.

There are many opportunities for product development to assist in increasing the market share of value added red meat in the aged care market. Commitment has been gained from (1) manufacturers to develop and supply products and (2) operators to purchase and trial the use of new products.

Recommendations are based on the workshop and interview responses and outcomes and can be found in relevant sections throughout the report. *The key recommendation from this report is the formation of an independent development company to oversee and facilitate the implementation of other report recommendations.*

Terminology

The author would like to make note of particular terminology used throughout this report:

Operators refers to catering/chef managers of an aged care facility. This person is responsible for decision making in relation to products and suppliers, with input from:

- Managers of facilities to ensure budgets are met.
- Dieticians to ensure nutritional requirements are met.
- Speech pathologists to ensure suitability of food texture.

Manufacturers refers to small butchers who provide raw red meat to aged care facilities and large manufacturers with the ability to produce and provide value added red meats (e.g. cooked roast meats) to aged care facilities.

Suppliers are companies who can produce the 'finished' product, e.g. Gourmania and Lite n' Easy provide and sell the cooked meal either directly to the client or via a bulk shipment, which is then delivered to clients.

The author would also like to note the following abbreviations used throughout this report:

- MLA – Meat and Livestock Australia.
- BDM – Business Development Manager (MLA).
- MOW – Meals on Wheels.
- DMO – Delivered Meal Organisation.
- HACC – Home and Community Care. (Funding via Federal Government; Service provided by Local Government).
- EACH – Extended Aged Care Home. (Funding via Federal Government; Service provided by private, commercial companies).
- CACP – Community Aged Care Packages. (Funding via Federal Government; Service provided by private, commercial companies).

2 THE AGED CARE MARKET

The aged care market referred to within this report includes:

- Those living in a residential facility.
- Those living in their own home but requiring some assistance, e.g. delivery of meals.
- Those living in retirement villages that allow independent living but offer a range of on-site facilities that may include provision of meals in a communal dining room or delivery to their unit by a private supplier or by Meals on Wheels.

2.1 THE AGEING PROCESS IN RELATION TO FOOD PROCESSES

The author has spent considerable time working within and providing chilled meals for the aged care market and as a result has gained an understanding of the criteria to be considered when selecting products that meet the needs of aged.

As people age the chewing ability lessens, the amount of saliva diminishes, cutting foods becomes too difficult as they may have arthritis in the wrists; dentures may be ill fitting thus making it very difficult to chew red meat.

The authors of 'Best Practice Food and Nutrition Manual for Aged Care Facilities' (Bunney and Bartl, 2004) refer to the ageing process and identify some key areas that need to be considered in regard to the provision of food to ageing clients. These include:

- Ability to chew (the bite dexterity).
- Ability to swallow.
- Appropriate texture.
- Dexterity (handling cutlery, holding a cup).
- Dietary requirements.

2.2 THE SUPPLY CHAIN

The supply chain for the aged care market is a complex one, as illustrated in Figure 1 below.

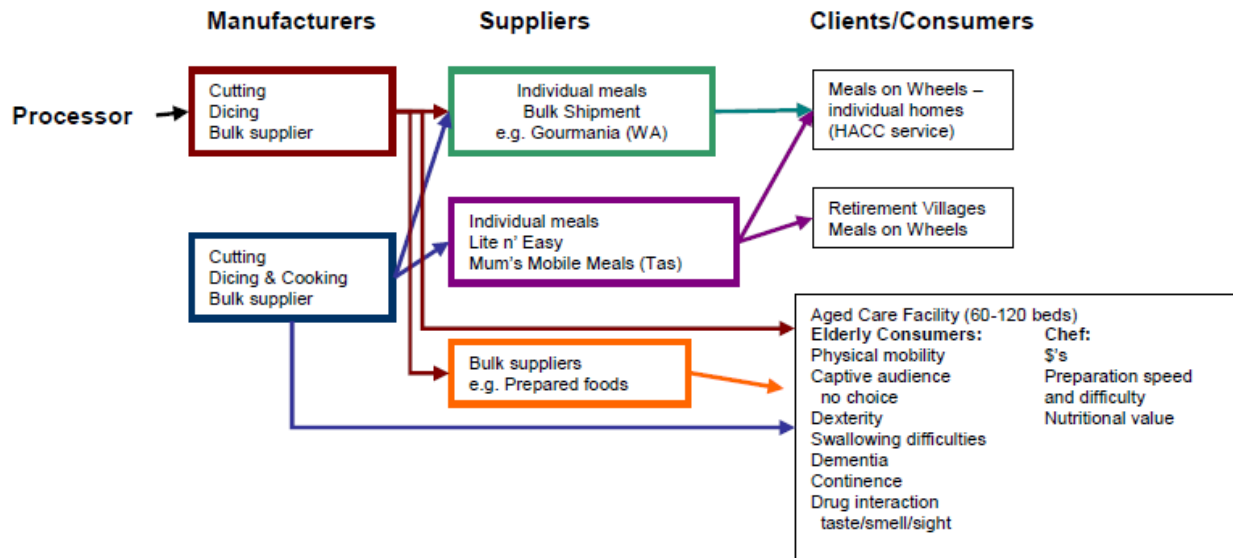


Figure 1: Supply Chain for the Aged Care Market

The manufacturers are not always aware of the ageing process nor do they have a full understanding of the operators' requirements, therefore it can be seen as being too difficult to assist with product development and costs.

2.3 AGED CARE RESIDENTIAL FACILITIES

2.3.1 Providers of Aged Care Facilities

The types of provider of aged care residential facilities in Australia vary and include:

- The private sector.
- Local government.
- State government.
- Not-for-profit organisations (charitable).
- Religious groups.
- Community based groups.

Table 1 below indicates the number and type of provider of aged care facilities as at 30th June 2005.

Organisation	State								Total per provider type
	NSW	VIC	Qld	WA	SA	TAS	ACT	NT	
Private sector	215	303	102	68	61	9	3	1	762
Local Government	25	21	11	15	7	2	0	0	81
State Government	18	179	20	3	33	10	0	0	263
Charitable	201	45	52	41	65	17	11	2	434
Religious	294	131	233	95	82	28	7	8	878
Community- based	182	139	78	35	49	26	2	4	515
Total Services per State	935	818	496	257	297	92	23	15	2,933

Table 1: Aged Care Providers by State and Type
(Source: Australian Institute of Health and Welfare, 2006)

3.2. Occupancy in Aged Care Facilities

Australia is an ageing population and the demand/need for residential aged care facilities is increasing. According to Australian Institute of Health and Welfare statistics, as at 30th June 2005, there were 161,765 residents in residential aged care facilities, compared with 134,899 at 30th June 2004.

Australian Bureau of Statistics state population over 65 to rise from 12.8% (2002/04) to 26.1% (2044/45).

Table 2 below indicates the number of operational residential aged care places, CACP's and EACH packages, 30th June 1995 to 30 June 2005.

	Residential Places	Year CACP Packages	EACH Packages	Total
1995	134,810	2542		137,352
1998	139,917	10,046		149,963
2001	144,013	24,629		168,642
2004	156,580	29,063	860	186,503
2005	161,765	30,973	1672	194,411

Table 2: Residential Aged Care Places, CACP's and EACH Packages
(Source: Australian Institute of Health and Welfare, 2006)

Note: The EACH program began in 2003 as a pilot program.

2.3.2 Regulations and Standards

The aged care industry is highly regulated, with most facilities relying on Federal Government funding. Residential facilities are either high care or low care (previously referred to as nursing homes and hostels respectively by Government) with the level of funding determined by the level of care offered by the facility. Guidelines for the levels of care – RCS (residential care subsidy) are:

- Level 1-4 high care (1 being the most dependent)
 - These clients are normally very frail, requiring a high level of dependence on staff. Assistance with feeding is often required – refer texture modified foods on page 11.
- Level 5-8 low care (8 being the most independent)
 - These clients are more independent. They may require assistance for movement but are normally able to consume their own meals without assistance. However, the texture of the meal in most cases is required in a ‘soft’ form. Some people may refer this to being ‘overcooked’.

Federal Government regulations include aged care standards and the facilities are assessed against these standards every three years to gain/maintain accreditation. It should be noted that these standards are the base line; most facilities strive to go above and beyond them. There are two standards from the Department of Health and Ageing – Standards for Aged Care Facilities that relate to the provision of food services. These are:

1. *Standard 2.10 Nutrition and Hydration*

- Expected Outcome: Residents receive adequate nourishment and hydration. Policies and practices should ensure:
 - That residents’ nutrition and hydration needs are assessed, documented, regularly reviewed and acted upon.
 - That residents are offered a varied, healthy and well-balanced diet that considers individual preferences.
 - That residents receive sufficient fluid and food to meet their nutritional requirements.
 - That residents are assessed for, and provided with, assistive devices that enhance the residents’ ability to meet their nutrition and hydration needs.
 - That residents are assisted to maintain their dietary customs according to their religious and cultural needs.
 - That residents’ swallowing is regularly assessed, documented and reviewed and that food and fluids of appropriate texture are provided.

2. *Standard 4.8 Catering, Cleaning and Laundry*

- Expected Outcome: Hospitality services are provided in a way that enhances residents’ quality of life and the staff’s working environment.

Policies and practices should ensure:

- That menu planning taking into account variety and quality of food is maintained and reviewed regularly.
- That allowance is made for residents’ likes and dislikes.
- That expert dietary advice is sought when necessary.

Safe and correct food purchasing, storage, handling, preparation and serving.

- Safe and sanitary disposal of unused foods and other wastes.
- That equipment used is fit for the purpose intended, well maintained and staff are trained in its use.

- That the dining environment is conducive to the relaxed, pleasant and social enjoyment of food.

The regulations ensure that the compliance with the Age Care Act 1997 and the Standards for Aged Care Facilities 1997 reflect the quality management and services expected of a residential aged care facility.

2.3.3 Funding

The Federal Government funds 85% of the daily care fees (e.g. rent, provision of services – including food) with the resident's pension providing the shortfall.

Funding is also provided by Federal Government for the following programs:

- Extended Aged Care Home (EACH).
- Community Aged Care Packages (CACP).

This funding covers the provision of meals to clients in their own homes or retirement villages. Whilst funding is provided by Federal Government, service is provided by private, commercial companies.

2.3.4 Meal Services

Residential aged care facilities traditionally have one kitchen that caters for all meals. Meals are served either in a communal dining room or on trays to residents' rooms.

The majority of facilities prefer to cook on-site, with residents being able to smell the cooking and see the preparation, thus perceiving meals to be fresher and tastier. However, with the ever-increasing issue of food safety, and the difficulty in retaining cooks, it can become a difficult task to achieve high quality meals and to maintain meal choices offered on-site on a daily basis.

Some aged care facilities rely on purchasing pre-cooked meals from a catering production facility. In most cases, these production facilities produce food using a cook chill production system, which can be a combination of short shelf life and long shelf life production. The facilities hold the prepared foods in the cool room and operators rely on special regeneration ovens to heat the food. This heating process can cause meat to toughen – it is important that staff have undergone training to minimise this result. Invariably this is one reason for complaints regarding tough meat. Some facilities outsource the management of the catering division. Contract catering companies will then manage the food services department at the aged care facility. Catering companies may either cook on-site or purchase pre-cooked meals.

Labour in aged care is kept to a minimum – there is little time to consider presentation of meals. The author has suggested to some clients to buy in pre-prepared foods, thus allowing the cook time to present the food with some flair and talk to the residents in the dining room during meal service.

The workshop questionnaire highlighted that of all the facilities that responded (thirty facilities), twenty facilities rely on purchasing in some pre-prepared/pre-cooked food items, with the most common food item purchased being the roast meats.

2.3.5 Menu

Traditionally the menu within an aged care facility consists of:

- Breakfast – continental style.
- Lunch – main meal with vegetables, with at least two choices; dessert.
- Dinner – soup; lighter style meal (e.g. quiche and salad, sandwiches/salads); dessert.
- Mid-meal snacks – at least one of these will include a homemade item.

The menu is normally a 4-6 week rotation with seasonal adjustments. One week’s menu would consist of a balance of all types of meat – beef, lamb, pork, chicken, and fish for the two meals per day. Approximately 6-7 meals per week contain red meat – with residents consuming, on average, a red meat dish four times per week.

According to the author, based on many years experience working within the aged care industry, an average menu choice for meat dishes per week is as follows:

Beef	Lamb	Chicken	Pork	Fish	Egg	Vegetarian	Finger foods
Mince (1-2)	Diced (1)	Casserole (1)	Casserole (1 f/night)	Crumbed (1)	Scrambled (1)	Patties (1)	Party pies(1)
Roast (1)	Roast (1)	Roast (1)	Roast (1)	Tuna mornay (1 f/night)	Quiche (1)	Lasagne (1 f/night)	Chicken drummies(1)
Diced	Forequarter chops (f/night)	Schnitzel (1 f/night)					Sausage rolls
Silverside (1 f/night)							

Table 3: Average Menu Choice for Meat Dishes per Week in Aged Care Facilities

The relationship between the aged care operator (normally the catering manager or chef manager) and the manufacturer (or butcher) should be seen as a critical one. Both parties need to understand what is required to ensure the consumption of red meat is maintained on the menus.

Texture Modified Foods

Texture modified foods (or vitamised foods) is still a small but growing market. Residents that have difficulty chewing meat because of swallowing difficulties may be offered a vitamised or minced meal. These meals are usually prepared on-site due to the small numbers required. In some cases, there is a lack of understanding of food safety requirements in regard to the production or texture modified foods. This area requires further input to ensure production of quality, flavoursome and safe products.



Figure 2: A texture modified meal

2.4 DELIVERED MEAL SERVICES

For the Meals on Wheels sector social isolation may be a significant issue along with issues related to the ageing process. Many of the elderly live by themselves and do not have contact with others outside their home – except for the person delivering the meal. The meal then becomes the focus of the day. Maintaining flavour, texture and variety of meals that are packaged in a foil container can present enormous challenges.

This service provides the delivery of pre-prepared, fully cooked meals to ‘nutritionally at risk’ clients within the community – either in residential homes or retirement villages. Meals may be delivered hot, cold or frozen. The program is funded by Federal and State Government under Home and Community Care (HACC) with Local Government responsible for administration of the program. Delivery of meals relies on volunteers transporting a quantity of meals in insulated containers to clients.

Note: Meals on Wheels is the most common terminology used in all states although the industry is moving towards ‘Delivered Meals Organisation’ (DMO) terminology.

Table 4 indicates the number of clients who received a meal via a delivered meal organisation in 2004/2005, as per HACC data. The mean age of the HACC clients was 72 years as at 2004/2005. Note: Home refers to MOW provision of meals to clients’ homes; Centre refers to senior citizens centres where meals are served. These figures do not include meals provided at aged care facilities.

State	Home	Centre
Australian Capital Territory	1,078	152
New South Wales	28,875	20,707
Northern Territory	1,359	415
Queensland	21,959	11,110
South Australia	3,999	5,333
Tasmania	3,134	1,155
Victoria	27,652	3,772
Western Australia	9,167	6,908
TOTALS	97,223	49,552

Table 4: Number of Clients who Received HACC Meal Services 2004/2005

(Source: Australian Government Department of Health and Ageing, 2006)

2.4.1 Funding and Client Costs

HACC is a joint Federal, State and Territory cost-shared program with the Federal Government providing 60% of funds and the States and Territories providing 40%. The HACC Program funds a wide range of non-profit organisations. Funding is \$1.29 per person per meal.

The States vary in the administration/delivery of the HACC service. In Victoria, Local Government provides the meal service; in New South Wales, Meals on Wheels provides the meal service; in

Western Australia, Queensland and South Australia the production and delivery of meals rely on volunteers.

As at September 2005 there were approximately 3,100 HACC-funded organisations providing services to approximately 750,000 people per year (Australian Government Department of Health and Ageing, 2006).

Clients pay a nominal fee for the delivery of a three-course meal. The price varies between states, with the average price being \$4.50-\$6.00. In most cases, the Local Government pays the shortfall, which can be between \$6.00 and \$10.00 per meal. This figure includes the labour for cooking/packing of the meal and petrol allowance for volunteers who deliver the meal.

All states have a varying system, with some employing labour to cook, pack and deliver, whilst others may rely on volunteers to assist with the cooking, packing and delivery. There is a growing trend towards buying in the prepared meal with the local centre responsible for the meal delivery only.

The known centres who are buying in are ACT – buying the prepared main meal (frozen) and dessert (frozen) from Gourmania in West Australia. Gourmania are also supplying meals to some northern areas in New South Wales.

2.4.2 Menus

- Meals on Wheels provide a 3-course meal that includes soup, main meal with vegetables, dessert, juice and vitamin C.
- There are nutritional guidelines in place for HACC clients – a review undertaken in Victoria in 2004 by the HDG Consulting Group suggests these guidelines be reevaluated.
- With a review of the dietary guidelines, flexibility within the menu in order to provide choices was discussed. Suggestions have been made that clients should have an option of obtaining only the cooked protein component of the meal as this is usually the most difficult to cook.
- HACC clients have a wider selection of pre-prepared meals to choose from, however it is still the 'main meal and vegetable' package.

2.4.3 Private Providers

Private companies who currently provide pre-cooked meals include, but are not limited to:

- Supermarkets with the sale of 'frozen dinners' – e.g. M^cCains, Lean Cuisine.
- Lite n' Easy who deliver prepared chilled and frozen meals to home. (www.liteneasy.com.au)
- Fit Kitchen NSW – mainly using doypouches (www.fitkitchen.com.au) Note: doypouches are plastic pouches that stand upright.
- Mum's Mobile Meals Tasmania (www.mumsmobilemeals.com.au)
- Tender Loving Cuisine (NSW Central Coast, www.tlc.org.au).
- Various small companies in each state that offer either a hot or chilled meal home-delivery service.



Figure 3: Samples of Lite n' Easy

2.5 RETIREMENT VILLAGES

Retirement villages allow independent living but offer a range of on-site facilities/services that may include provision of meals in a communal dining room or delivery to their unit by a MOW or private provider. In this respect, these facilities may also encounter the same issues regarding the provision of food as aged care facilities and delivered meal services. The HACCC program usually funds clients who receive meals from MOW in retirement villages.

2.6 FOOD SAFETY REGULATIONS

Food safety standards are detailed in 'Safe Food Australia – A Guide to the Food Safety Standards' (ANZFA*, 2000). Standards that must be complied with are:

- Standard 3.1.1 – Interpretation and Application.
- Standard 3.2.2 – Food Safety Practices and General Requirements.
- Standard 3.2.3 – Food Premises and Equipment.

(* Note: ANZFA – Australia New Zealand Food Authority has since changed to FSANZ – Food Standards Australia New Zealand)

Victoria is currently the only state in which food safety programs are mandatory for the class 1 category – which includes health care, aged care and childcare. This class 1 category must also have an external audit carried out yearly. This standard is voluntary for other States:

- Standard 3.2.1 Food Safety Programs.

Queensland and New South Wales have allocated a time for a food safety program to be implemented within the next twelve months. Other states will follow, but the timing at this stage is unknown.

3 PRIMARY OBJECTIVES

The primary objectives of this study were:

1. To identify commercial partners willing to develop products for the aged care market.
2. To work with aged care establishments to identify specific product opportunities for the aged care market.
3. To quantify the opportunities identified in tonnes of red meat per annum.
4. To identify products using low value cuts that commercial partners could develop to meet the needs of the aged care market.
5. To obtain commitment from an aged care establishment to purchase selected value added red meat products utilising low value red meat cuts.
6. To obtain commitment from a manufacturer to develop and supply these products to an aged care establishment.

4 METHODOLOGY

- A list of operators and manufacturers in four states – New South Wales, Queensland, Victoria and Western Australia – was established.
- Letters were sent to these operators and manufacturers informing them of the project and seeking their interest in participating in workshops and interviews.
- MLA Business Development Managers (BDM's) within each state were sent copies of the letters and invited to attend the workshops and/or interviews. The author would like to note that MLA's BDM's did not participate in or attend workshops or interviews.
- Timetables and venues were established and information/confirmation was emailed participants.
- A number of meetings were also held with key personnel from organisations that have, or potentially could have, significant input into various aspects of the provision of food services, e.g. nutrition, packaging, technology, research.
- At the completion of workshops, interviews and meetings within each State, outcomes were compiled and presented to MLA.
- Refer to appendix 1 for a full list of participants.

4.1 OPERATORS

- Operators representing Meals on Wheels services, aged care residential facilities, retirement villages and production kitchen managers who provide bulk cooked chilled meals to aged care facilities attended the workshops. This representation covered:
 - Facilities that cook on-site.
 - Facilities that cook chill.
 - Facilities that buy in bulk cook chill meals.
- Operators were sent a questionnaire to be completed prior to attending workshops. Refer to appendix 2 for a copy of the questionnaire. This questionnaire formed the basis for discussions at each workshop regarding the requirements and issues in an aged care facility in relation to the provision of food services. Discussions also included current practices. Note: participants were asked to complete the questionnaire prior to attending the workshop.

4.2 MANUFACTURERS

- Individual interviews were scheduled with manufacturers.
- The author used the questionnaire (as per operators) as a 'list of questions' to ask manufacturers and recorded their answers during interviews.

Topics covered include:

- Issues they face when dealing with chefs/managers of aged care facilities.
- Dietary requirements of the aged care market – do they find this difficult.

Constraints they have when dealing with operators

4.3 OTHER MEETINGS

Meetings were held with the following personnel from organisations that have, or potentially could have, significant input into various aspects of the provision of food services, e.g. nutrition, packaging, technology, product development, research.

Nutrition/Research

- Dr. Peter Williams, Senior Dietician, Food Centre of Excellence (NSW).
- Professor Neil Mann, Nutritionist, RMIT Food Science (Vic).
- Justin McDermott, Department of Human Services (Vic).
- Pamela Dawes, Consultant Dietician (WA).
- Linda Kilworth, Consultant Dietician (Qld).

Technology/Product Development

- Aarti Tobin, Senior Food Technologist, CSIRO Food Science Australia (Qld).
- Keith Pitts, Senior Food Technologist, CSIRO Food Science Australia (Qld).
- Brian Day, Program Leader-Packaging, CSIRO Food Science Australia (Vic).
- Barry Lee, Director, Connectica International (NSW).
- Andrew Harris, Managing Director, Frontier Foods (Qld).
- David Vaile, Catering Manager, Marion Centre (Qld).

Packaging

- Simon Hamilton, Team Leader, Amcor (Vic).
- Peter Joseph, Product Line Manager-Logistics, Cryovac (Vic).
- Geoff Walledge, Area Customer Manager, Case Ready Meals (Vic).

Funding

- John Meyers, Consultant, Meyers Strategy Group (NSW).
- Trevor Sargent, Economic Development Manager, Port Macquarie Council (NSW).
- Stuart Bland, Manager Tenders, Federal Government, Aus Industries (Vic).

5 RESEARCH RESULTS, OUTCOMES AND RECOMMENDATIONS

5.1 MARKET SIZE – CONSUMPTION FIGURES

Australia's population will face significant ageing over the next 40 years. According to the Australian Bureau of Statistics (ABS) data, the share of the population over the age of 65 years is predicted to rise from 12.8% in 2004/2005 to 26.1% (1.28 million people) in 2044/2045. The share of the population over the age of 85 years is predicted to rise from 1.5% in 2005 to 6% (or 1.6million people) in 2055 (ABS).

As Australia's population is ageing, the number of residents in residential aged care facilities is increasing, as is the number of clients using MOW services.

According to data from the Australian Institute of Health and Welfare (2006), as at June 2005 there were 161,765 residents in residential aged care facilities as compared with 134,899 at June 1995. Of these residents, 52% were aged 85 years or over, 43.6% were aged between 65 and 85 years and 4.4% were aged under 65 years.

As per HACC data, 12,006,799 clients received meals via a delivered meal organisation in 2004/2005 (refer p12). Table 5 summarises the total number of residents and clients being provided meals in aged care facilities and via MOW services as at June 2005.

Provision Method		Number of Clients
Residential Places		161,765
CACP's		30,973
EACH Packages		1672
HACC	Homes	97,223
	Centres	49,552
TOTAL		341,185

Table 5: The Number of Clients and Residents Receiving Meals
(Taken from Table 2, p8 and Table 4, p12)

Current Consumption

The approximate current consumption of red meat for 2006 in the aged care market (includes meals provided in residential aged care facilities and meals delivered to homes and centres) is **10,644,972kg per year**. This is based on 4 red meat meals per week at 150g red meat per meal – i.e. 31.2kg of red meat per person per year. ($31.2 \times 341,185 = 10,644,972\text{kg}$).

Projected Consumption

There are no projected statistics available for the aged care market – in residential aged care or in the delivery of meals. Therefore, the author has based projected red meat consumption on statistics regarding the percentage of the population over the age of 65 years by the year 2044 (as per ABS data above). The assumption has been made that the same percentage rise in population can be applied to red meat consumption – i.e. if the share of the population over 65 years increases by 13.3% then red meat consumption within the aged cared market will increase by approximately 13.3%. Based on this, consumption would rise to **12,060,753kg per year**.

The growing aged care market is an important target market for MLA. The aged care market requires more variety and choice in their meals than ever before and an opportunity exists for value added red meat to address this requirement.

5.2 MEAT SPECIFICATIONS

Meat specifications are not understood or able to be determined by operators and the manufacturers are unable to supply exactly what is needed due to their lack of understanding of the aged care market. This leads to the issues of tough and the provision of inconsistently sized meat. Operators do not know how to seek specifications for various meat cuts. Workshops highlighted that most of the operators and cooks in aged care facilities were not aware of the varying grades of meat, how meat is graded or how different muscle meats may be found within one cut of meat.

The main areas of concern for aged care cooks are as follows:

- Inconsistency within the meat cut ordered, e.g. when ordering diced blade to a pre-determined size, the size and cuts included vary. This especially occurs when the meat orders are quite large (e.g. over 50kg).
- The same inconsistency is found with orders of stir-fry cuts.
- The manufacturer is unable to advise the fat content and nutritional value of cuts.

5.2.1 Development of Meat Specifications

The following points should be taken into account when developing meat specifications for the aged care market:

- Current dietary/nutritional information should be included.
- Information regarding the muscle groups in meat cuts and the most suitable cooking methods should be included. Manufacturers should provide this information.
- Ordering appropriate muscle group/meat cuts should be considered.
- Dieticians' input into developing specifications should be sought.
 - As people age the chewing ability diminishes (bite dexterity). However, the level of degeneration is not clearly understood – further research needs to be conducted to fully understand its impact on red meat intake.
 - Recent research by Williams, Droulez, Levy and Stobaus (2006) regarding the composition of red meat suggests that products such as mutton should be included in the specifications.
 - The dieticians' guidelines for healthy eating set the standard required for the aged care operator to comply with. The specifications should also reflect these requirements.
- Various meat gradings suitable for the industry should be included. As mentioned by Ilonka Meats (WA) during interviews, confusion exists in the market place regarding meat gradings – 'A' grade does not necessarily mean 'high quality'.
- There is a need for more than one template to cover a range of specifications and pricing.

Recommendations

1. Draw up meat specifications in the form of templates.
2. Hold workshops to determine 2-3 separate specifications. Participation should include operators, manufacturers, MLA and dieticians.
 - Specifications to include the grading of the red meat, nutritional information, bite dexterity and be endorsed by MLA.

The following operators and manufacturers were keen to be involved in assisting MLA to compile templates for meat specifications:

- Marion Centre (NSW).
- Tarragal Glen Village (NSW).
- Sodexo Seniors (NSW).
- Top Cut Meat Industries (Vic).
- Ilonka Foods (WA).

5.3 VARIETY OF RAW MATERIALS (RED MEAT)

Workshops discussions also centred on the cuts of meat. Operators currently purchase:

- Diced Blade
 - Oyster Blade steaks (portion control)
 - Chuck for roasting
 - Lean Mince Beef
 - Corned Silverside
 - Blade for roasting
 - Lamb's Fry
 - Legs of Lamb (B&R)
 - Diced Lamb
 - Lamb Chops
 - Forequarter lamb chops
- Ordering of the above meats usually includes the word 'lean' however no operator actually specifies what the lean requirements are.
 - The diced meats are usually between 2-3cm – operators request this size assuming that the meat will cook in a shorter period of time and be large enough for the resident to hold on a fork.
 - The beef stir-fry invariably does not stipulate the size required.
 - For roasting, a cook chill facility will order no larger than 5kg pieces to ensure the chilling process occurs within the 90 minutes to 3 C.
 - If the facility is producing a cook serve meal, the roast meat is usually larger (sometimes around the 6-8kg).

5.3.1 Value Added Red Meat Products

Value added red meat products currently available include:

1. Cooked roast meats:
 - Lamb – using the boned and rolled legs, mutton, shoulder.
 - Beef – using bolar, blade, sirloin.

- Casseroles:
 - Traditional such as Irish stew, beef stroganoff.
 - Curries – including the Thai curries
- Lamb shanks & osso bucco (not seen on the menus currently, due to costs).
- Braised beef (using oyster blade).
- Spareribs – both beef and pork.
- Meatloaf – usually using beef and vegetables.

The taste, nutritional requirements/value, texture and price of products vary between manufacturers. The general opinion obtained from the workshops that the current pre-cooked roast meats all taste the same – to the point where it is difficult to identify the roast beef from lamb. The aged care operators are confused by this variability and would like further understanding of:

- what is in the product
- how to 'use' the product i.e. heating and serving suggestions
- why the product can't resemble the 'traditional roast meal'

Recommendations

3. Manufacturers to conduct workshops for operators to discuss the meat cut from the carcass and suitability for cooking and reheating of value added red meat products.

5.4 NUTRITION AND MENU DESIGN

It is important that meals provided to the aged care market, either to those in residential aged care facilities or those utilising MOW services, are nutritionally sound. Menus and products need to be designed and produced to ensure the provision of adequate nutrition. The inclusion of appropriate value added red meat products has an important role to play in ensuring adequate nutrition and protein intake.

Workshop discussions with operators highlighted the fact that whilst they consider adequate nutrition to be an essential component of meal provision, there is confusion regarding dietary guidelines for the elderly. Dieticians' opinions vary from state to state and often within the state. A consolidation of dietary/nutritional requirements for the aged care market is required – the Victorian Department of Human Services is currently determining how this can be achieved.

5.4.1 Nutritional Requirements

There are several National Health and Medical Research (NHMRC) dietary guidelines available to/in use within residential aged care facilities:

- 'Eat Well for Life – A Practical Guide to the Dietary Guidelines for Older Australians' was rescinded by NHMRC in December 2005. However most residential aged care facilities still follow these guidelines.
- Dietary Guidelines for all Australians', was published in 2003.
- Dietary Intakes' was published in 2006.

The basis of the guidelines is to ensure that residents eat daily from the five food groups:

- Bread, cereals, rice, pasta and noodles
- Vegetables, including legumes
- Fruit
- Milk, yoghurt, cheese
- Meat, fish, poultry, eggs, nuts and legumes

For MOW clients, the recommended meal servings are (Victorian Government Department of Human Services, Feb 2003):

- Protein 75-90gm
- Starch 90gm
- Yellow/green vegetables: 90 & 60gm
- Fruit - 1 whole piece
- Bread/cereal: 1 slice – 1/2 cup
- Milk 200ml

It is generally understood that nutrition plays a key role in maintaining a healthy lifestyle. Discussions held at workshops regarding nutrition highlighted the need for more information and training for manufacturers, cooks and managers of aged care facilities, particularly on the benefits of red meat.

5.4.2 Nutrition Research

There has been much research undertaken in relation to the nutritional value of red meat. In Australia, Dr Peter Williams, Professor Neil Mann, and Dr Peter Lipski have carried out research into the relationship between the elderly and their nutritional requirements. Whilst their studies do not focus specifically on the aged care market, their findings may still apply. All three are willing to assist with the dissemination of the values by attending conferences and/or workshops.

- Associate Professor Neil Mann lectures in nutrition at RMIT (Melbourne) as well as supervising undergraduate students in their research projects. Student research has taken them into aged care facilities, where they have carried out projects qualifying the nutritional intake of the elderly and have assisted in developing suitable recipes. This project was carried out in conjunction with Nutrition Consultants Australia and resulted in the publication of a 3-week cycle menu of finger foods. (edited by Yvonne Coleman)
- Dr. Peter Lipski has talked about the elderly eating three meals per day and not following any restricted diet – also supported by the Heart Foundation. At a Symposium on 'Nutritional Care of the Housebound Elderly' in November 2005, Dr Lipski spoke of the fact 'that most doctors pay little attention to the nutritional status of the elderly, yet lack of adequate nutrition is such a common problem, leading to potentially catastrophic outcomes but it is potentially reversible'.

5.4.3 The Importance of Adequate Nutrition

Poor diet and inadequate nutrition may cost not only the individual but also the aged care facilities and the community as a whole. If diet is poor:

- Residents' behaviour may change. □ Weight loss may occur.
- Residents' sleep patterns may be disturbed, possibly leading to changes in medication for pain management.
- Continence may become more of an issue.

This will have an economic impact due to higher staffing and medication requirements within facilities. It is therefore important that residents are not nutritionally at risk.

5.4.4 Factors Affecting Nutritional Intake

Nutritional intake may be affected by many by factors such as:

- Ability to chew and swallow – chewing becomes difficult if products are firm to bite. It is important to note that ill-fitting dentures may contribute to this. Weight loss may result due to not eating.
 - Texture of meals – residents within aged care facilities that are very frail and unable to chew may require texture modified meals (vitamised, pureed or minced) to ensure their nutritional needs are met. Alternatively, enteral feeding may be necessary (tube feeding for the very frail). Reference was made to protein powders in discussions with Dr Peter Williams. Follow up indicates that Earlee products (Qld) currently make a protein powder that could be added to vitamised products to enhance their nutritional value.
- Dexterity – the ability for a person to hold a knife and fork needs to be considered in relation to products being served. Ideally, for clients with compromised dexterity, food should be soft so that it pulls apart with a fork.
- Dementia – ensuring adequate nutrition for those with dementia is a particular challenge as there are many factors that affect food intake. In general, such areas as texture, moisture and handling of foods need to be considered, and the traditional three meals per day may not be suitable.
- Frances Katz (2005) states our basic senses of taste and smell lose their sharpness as we get older. Perception of sweet and sour decreases more sharply than perception of saltiness and acidity.
 - Most nutritional requirements can be met in the newly developed product as well as ensuring that the sensory and taste perceptions are considered.

It is ironic that at present most countries in the world are concentrating on obesity yet amongst our elderly it is the opposite! We need to ensure that this group keep their food intake up.

Recommendations

4. Nutritional data dissemination with the involvement of prominent researchers via trade magazines; industry food service magazines, workshops and conferences.
 - The nutritional research undertaken by Dr. Peter Williams and Professor Neil Mann should be included in the meat specifications.
 - Invite Professor Neil Mann and Dr Peter Williams to present a paper on nutritional findings in red meat at appropriate conferences such as:
 - Aged care managers conferences held yearly.
 - Institute of Hospitality and Health Care (IHCC) conference for catering managers, held yearly.
 - DAA conferences held yearly for dieticians. Workshops for operators and manufacturers held by dieticians.

5.5 UNDERSTANDING THE OPERATORS' NEEDS

5.5.1 Budget

- The budget available for each aged care facility has little variation, however all operators are conscious of the money spent on consumables.
- The provision of nutritious, flavoursome and well-presented meals to residents 3 meals per day, seven days per week is a complex process for the operator. Operators have a budget in which to operate the food services department. The following table indicates the average amount of money budgeted per day per resident.

Facility	Average Raw Food Cost per person per day	Includes 2 main meals & mid-meal snacks	Average cost main meal protein item \$/100gm
NSW cook on-site	\$5.35-\$5.80	Yes	\$0.85-\$1.00
VIC production facility	\$5.20-\$5.80	Yes	\$0.85-\$1.00
QLD production facility	\$5.10-\$5.80	Yes	\$0.85-\$1.00
QLD cook on-site	\$5.20-\$5.50	Yes	\$0.85-\$1.00
WA cook on-site	\$5.20-\$5.50	Yes	\$0.85-\$1.00

Table 6: Average Food Budget per Day per Resident in Aged Care Facilities

(Data supplied by operators in each state)

- As is evident from Table 6, the average price for the main meal protein item varies between \$0.85-\$1.00 per serve – from mince steak to roast meats. For pre-cooked roast meat, the average price per 100gm of protein is \$1.20.
- Approximately half of the operators perceive that white meat is cheaper than red meat. However, when asked to consider the percentage of edible meat from chicken, participants were more open to the \$/kilo of red meat being reasonable (e.g. roast topside \$10.99/kg; beef mince \$8.99/kg, beef stroganoff strips \$12.60/kg. No 12 chicken that costs \$5.50 – approximately 2kg, 60% bone – works out at approximately \$6.90/kg of edible meat).

5.5.2 Identifying the 'True Costs' for Production of Meals

- This subject is one that was raised repetitively by most manufacturers in all States. Most operators are not aware of the actual costs involved within the food services areas. They will usually include raw materials and labour but are not able to calculate other costs associated with production – such as gas, water and chemicals.
- This makes it extremely difficult for the manufacturers to sell the 'cost effectiveness' of value added products when the true cost of on-site preparation is not accurately identified
- The aged care operators are prepared to assist with the design of a template to determine the actual costs involved in meal preparation. This will be beneficial to both operators and manufacturers.

Recommendations

5. Establish a template that enables actual costs to be determined. This process needs to be supported by MLA in the form of financial support, endorsement or provision of resources. The following operators and manufacturers are keen to be involved in this project:
 - Sodexo Seniors (NSW).
 - Tarragal Glen Village (NSW).
 - Marion Centre (NSW).
 - RSL Care (Qld).
 - Ambrosia Foods (WA).
 - Top Cut Industries (Vic).

5.5.3 Food Wastage

- The workshops held in both Gosford and Sydney generated discussion around the amount of food that is wasted both as 'plate waste' and bulk waste. Carolyn Bunney et al, noted when writing 'Best Practice Food and Nutrition Manual for Aged Care Facilities that no one was documenting the amount of food – in particular red meat – that came back on the plates at the end of meal services. When she began talking to the residents, feedback indicated difficulty in chewing the meat as the reason.
- When operators see meat being returned on the plate, invariably they seek 'cheaper' cuts to assist with the budgetary constraints, rather than identifying why the meat was not consumed. This is because they see it as valuable budget dollars 'going down the sink'.
- The lack of understanding of meat specifications (e.g. the correct cuts of meat to order for various dishes, cooking methods and times) contributes significantly to food wastage.
- The equipment used for meal preparation may also contribute to food wastage – refer 5.5 Equipment Constraints.
- At the workshops a suggestion was made that there be a cost analysis carried out on the actual plate waste and how this converts into dollars and reduced nutritional intake.
 - Professor Neil Mann (RMIT, Melbourne) has indicated an interest in having students assist with this project. Student dieticians should also be approached.
 - By monitoring the plate waste residents can be questioned as to why meals are not finished.
 - Along with plate waste, the total production waste should also be reviewed. This will identify the contribution cooking methods and the level of understanding re cooking products and the tenderness of product to wastage.

Recommendations

6. Involve students (undertaking nutritional qualifications) to assist with carrying out plate waste surveys to identify:
 - Quantity of red meat not consumed by the client.
 - Why the red meat was left and whether other components of the meal were not consumed.
 - Cooking and reheating methods – is the correct equipment used for the various cooking and reheating methods.

5.5.4 Time Constraints

- Operators are often 'time poor' – they manage the staff for the catering facility, attend meetings within the facility and are also responsible for cooking. They must oversee staff in order to ensure food safety requirements are complied with, including temperature monitoring and cleaning requirements.
- As a result, operators are seeking quality products (e.g. products that are tender) that offer value for money that can be prepared relatively quickly and easily. To cook products that require long slow cooking requires some time, time that many operators do not currently have.
- Some operators still believe that their role is to offer meals cooked on-site. However, operators need to understand that their 'core business' is ensuring the meal presented on the plate is attractive, appetising and nutritious. Training may be required for operators to gain an understanding that buying in tasty, quality, pre-prepared products is a viable and possibly better option to meals cooked on-site.

5.5.5 Equipment Constraints

- Cooking equipment in aged care facilities can be limited in terms of capacity and/or new technology. This may significantly impact the operators' ability to cook products for the recommended times or by the recommended method.
- In this way, the equipment used in food preparation within the aged care facility may very well dictate the products purchased and the quality of the cooked product – and consequently make a significant contribution to wastage.
- It is important to note that cooking methods may also result in considerable shrinkage of the meat. This leads to the perception that red meat does not offer value for money – the operators pay for 150g of raw product that is reduced to 100g when cooked.
- Approximately eighty percent of operators have a combination oven that allows for some steam injection and or slow cooking. Planning for and allowing time for slow cooking methods is an issue for most operators, as discussed above.

5.6 REHEATING PRE-PREPARED PRODUCTS

Value added red meats offer the operator and client some quality choices of meals. The key for value added red meats to be fully accepted and included regularly on the menu is to work diligently on the reheating systems in order to maintain nutritional value, tenderness, texture and flavour.

Equipment companies have various systems for reheating of chilled/pre-prepared foods. These include:



Figure 4:
Combination
Oven

- The combination style oven, which allows steam and heat during the reheating process.
- The 'cold plated' systems, which allow the operator to plate the meals chilled. These meals are then placed onto a tray and into a cabinet that is kept cold until the programmed time for heating is commenced. The meals are then heated to the desired temperature. This system is used predominately in the hospital environment.
- Banqueting system, which utilises the combination oven, however the meals are plated chilled, then placed onto a rack. At the time of heating, the rack of plated meals is placed into the oven for heating. This system is now becoming a widely used method of heating in aged care facilities.

It is important to consider the production method in order to use the most appropriate heating system for value added red meat products.

The most commonly used production methods used within Australia – the cook chill production methods – are outlined in Appendix 5.



Figure 5:
Cold plated system

Recommendations

7. Following product development, trials in the various reheating systems are required. Instructions for reheating should be included on the recipe and/or product packaging.
8. Training for the operators via workshops to ensure that all products are re-thermalised correctly to ensure correct temperature and texture of the product are achieved. For example, when reheating roast potatoes, the lid is removed to ensure crispness; roast meats require low temperature and short time for heating.
9. Operators need to be educated in order to select the most appropriate reheating method dependent upon the production method – in order to maintain tenderness, nutritional values etc. This can be done via workshops and/or cooking demonstrations.

5.7 TRAINING

- Understanding the complexities that the manufacturer may face with the various cuts of meats to use, as discussed the lack of knowledge re the tenderness, flavour and nutritional requirements are all areas that operators require some assistance in understanding. Operators should be informed regularly regarding product development, cuts of meat and their suitability, the muscles within the cuts of meat and how these should be handled.
- Training and qualifications vary amongst the operators – those who have undertaken some form of training (usually an apprenticeship) and those that are ‘self taught’.
- For those who completed a cooking apprenticeship, most commented that the actual understanding of meat cuts was not an extensive subject. Operators requested that further information on the carcass and cuts of meats should be provided – possibly via attending a manufacturer’s premises whereby a qualified butcher can demonstrate the cuts and suggested cooking methods, along with actually cooking some products.
- Further education is required for the following:
 - Information on meat cuts, cooking methods and cooking times.
 - Reheating methods for 5-day cook chill meals.
 - Presentation of meals on the plate.
- One of the main issues faced by operators is that red meat will toughen on reheating. This process requires some cooking/chilling and reheating trials with the results published in trade magazines – including Chef’s Special.
- Recipe development involving the aged care ‘chef’ promoting the products with distribution through trade magazines.
- Manufacturers also should be informed regularly regarding clients and residents’ requirements of red meat regarding texture, nutritional value, flavour, tenderness.

Recommendations

10. MLA to develop training programs to cover carcass, muscle types, cooking methods, value added red meat products. On completion of specifications, include training programs for both operators and manufacturers.
11. Meat cuts, cooking methods and reheating methods to become a training program established by MLA.
12. Operator visits to the manufacturers where a demonstration of boning the various muscles from the carcass would assist the cooks understanding of meat cuts.
13. Operators need to be taught the best cooking methods for the various cuts of red meat. This can best be done via cooking demonstrations.
14. Train cooks to present the food attractively on plates – requires an understanding that using value added meat products allows them time for this. This could be achieved via a food presentation workshop.

5.8 COMMUNICATION AND KEY RELATIONSHIPS

5.8.1 Operators and Manufacturers

- The relationship between operators and manufacturers is viewed as a critical relationship that needs improvement. At all of the workshops, participants expressed their concern that there was very little communication between the two groups. This has resulted from manufacturers not understanding the aged care market along with operators providing no information to manufacturers.
- The 'stand off' between the manufacturers and operators occurs over the specifications and the 'true costs' of providing the finished meal. The operators understand that to obtain the exact costs of meal preparation vary from site to site. Agreement was reached in all workshops that there needs to be a template established outlining the indicators for assessing the true costs.
- Operators feel that manufacturers do not understand the aged care market. It was suggested at the workshops held in NSW and QLD that manufacturers and MLA representatives in each state be invited to visit an aged care facility during a mealtime. This will provide an opportunity to increase their knowledge regarding product requirements (sizing, tenderness etc.) and to gain an understanding of the conditions under which aged care cooks operate (budget controls, meal quantities, lack of time for slow cooking etc.).
- Interviews with manufacturers indicated they are unfamiliar with the aged care market and therefore find it difficult to guide the operator in providing quality cuts of meat. They perceive that the operators are unable to afford 'quality' meats, therefore the cheaper (and sometimes tougher) cuts are provided.
- Manufacturers have requested that operators provide them with information regarding the types of meals required, the nutritional requirements and tenderness needs. They acknowledge that the gradings for meat and information regarding cuts and tenderness needs to be shared with operators to ensure a 'win-win' situation for all.
- Workshops with manufacturers to actually see products being cooked and served would offer both the operator and the manufacturer the opportunity to develop open communication and enhance the relationship.
- Operators would also like to see regular workshops held with manufacturers to assist the cooks to gain a clearer understanding of what occurs during the manufacturing process.
- The workshops will also be for developing and trialling of new products. Some of the new product ideas discussed include:
 - Meat kebabs using rigid collagen thread.
 - Portion steaks from various cuts of the carcass – following tenderising.

Recommendations

Refer to recommendation 6 in section 5.2.

15. Manufacturers and MLA representatives in each state to visit an aged care facility.

5.8.2 With MLA

- The participants at the workshops in all states raised the issue that there is no information on a regular basis available to this industry.
- Operators were unaware MLA has BDM's in each state
- Approximately seventy five percent of operators were unaware of the Chef's Special magazine produced by MLA.
- Operators would appreciate the inclusion of regular articles that focus on the aged care market in the Chef's Special – recipes, nutritional data, cooking methods, preferred cooking equipment.
- Operators requested that they be included on the mailing list for this publication.

Recommendations

17. MLA BDM's to promote awareness of MLA to operators – via workshops, marketing.

5.9 MARKETING

- Marketing for the aged care sector in general is not undertaken.
- Operators would like to see recipes designed for 100 serves or more and that a product can meet dietary guidelines and be accepted by dieticians i.e. they want specific data rather than glossy brochures.
- Operators would like to see regular articles relating to catering for the elderly, appropriate to aged care, written up for food service magazines.
- A representative of the operators, Stuart Kerr from East Grampians Health Services (Vic) has agreed to be the spokesperson for the industry. Stuart has extensive cooking skills and knowledge of the aged care industry. Stuart is innovative within the aged care market, implementing a variety of new approaches to both cooking (using cook chill systems) and meal distribution systems for the market.
- The New Zealand Beef and Lamb website (www.nzbeeflamb.co.nz) explains nutrition facts. Included is a separate section on iron facts with questions and answers.

Recommendations

18. Workshops to be held and articles relating to product, recipe and nutritional development be reported in the food service magazines, including MLA's 'Chef Special'.
19. Regular articles should be included in the appropriate journals, such as:
 - Hospital and Healthcare Journal.
 - Institute of Hospitality and Healthcare quarterly newsletter.
 - Chef's Special – MLA publication.
20. Involvement of MLA, dieticians and/or industry knowledgeable personnel at conferences by:
 - Offering sponsorship – promotion/supplying guest speakers.
 - Conducting cooking workshops.
21. MLA to add nutritional data to their website similar to New Zealand Beef and Lamb website (www.nzbeeflamb.co.nz).

6 FUTURE PRODUCT DEVELOPMENT

6.1 PRODUCT TECHNOLOGY

- An on-site meeting was held with David Vaile at the Marion Centre (NSW) regarding the research that has led to a process whereby knuckles of meat are cooked to the flavour and texture of roast meats. David Carew assisted in the research into the product specification, the cooking technique along with the bite dexterity. (David was working at the Marion Centre when research was undertaken; he is now employed by MLA).
 - Lengthy discussions were held as to the quality, flavour, texture and bite dexterity. The roast meats actually tasted like the traditional roast and the texture was smooth to cut and chew.
 - This facility caters to the aged care market now and should be considered as the 'test' kitchen for further developments.
- Talks were also held with Aarti Tobin (CSIRO, Qld). Various projects have been undertaken in relation to red meat and value adding – these have included looking at whether the texture and quality meet industry requirements.
 - Aarti has undertaken research on behalf of a number of companies, including Aria Farms (NZ) that resulted in the release of a finger food minced product.
- Barry Lee (Connectica International) and Andrew Harris (Frontier Foods) provided information regarding product development, in particular the meat strip alignment project (MSAT). This product was tested at CSIRO (Qld) and whilst it is still being trialled, there are many prospective uses for the product in the aged care market.
- There are currently no cooked meat products that people can buy on their way home from work. The chicken rotisserie stores throughout Australia are open over the meal time period – allowing people stop on way home from work and pick up a 'ready' meal. It is difficult to say the same for red meat, without calling into a supermarket to purchase a prepared ready to heat red meat meal (e.g. Coles Lamb shanks in mint and pea sauce \$9.50 servings 3-4).
- A cooked roast meat (2-4 serves) available at stores similar to roast chicken shops will also enhance the retail market – refer to the Simple steps process (p34).

Recommendations

22. Refer to 'Key Recommendation: Formation of an Independent Intermediate Development Company'
23. It is recommended that the system of cooking knuckles of meat (as per research at the Marion Centre) be further developed via funded research in order to be enhance the overall project results and investigate further benefits.
24. CSIRO should be involved in the development of value added red meat products.

6.2 OPERATORS

At the workshops, operators discussed product requirements. Following is a summary of products they would like to see introduced.

- Brawn type product – suitable for the frail/dementia clients to break apart the meat rather than having their meal minced or texture modified.
- Meat Kebabs – without the wooden skewer: tender cubes of meat threaded on rigid collagen string.
- Osso bucco without the bone.
- Portioned steaks – tender cuts of meat that resemble a steak (this could come from secondary cuts of meat).
- Roast meats – improvements in flavour and texture – to resemble the actual product.
- Follow up on the MSAT product – to ensure the flavour, texture and shape resemble a meat cut.
- Flavoured Sausages – edible skins (or no skins) – such as beef and mustard seed / beef and horseradish, including mini sausages.
- Boneless spareribs – or spareribs where the meat falls off the bone.
- Simple Steps™ – the Cryovac product – where meat is cooked in the tray.
- Lamb neck chops (no bones).
- Lamb chops – more meat/less fat /less bone.
- Mutton products – steaks/kebabs.
- Flavoursome rissoles – need to be tender. Note: shape is a key indicator for consumption. Rissoles are easier for the elderly to cut than meatballs.
- Versions on the meatloaf.
- Development of a meat pie that meets diabetic requirements.
- Meat protein powder that can be added to soups and/or some products above, such as sausages, rissoles. Items that can be eaten with fingers would benefit from the addition of a protein powder.

The following operators have committed to continue with the development of new products:

- Sodexo Seniors (NSW).
- Brightwater Group (WA).
- Marion Centre (NSW).
- Amity Group (NSW).
- RSL Care (Qld).
- BHS (Ballarat Health Services, Vic).
- Ararat Health Services (East Grampians Health Services, Vic).

6.3 MANUFACTURERS

Discussions with manufacturers across Australia indicate that technology and product knowledge is advancing, which is assisting with the development of high quality, pre-cooked products. These products use secondary cuts (including cow or mutton) to assist in providing a very tender product at very reasonable prices.

6.3.1 Current Products

There is a depth of creativeness and quality of products amongst some of the manufacturers. Examples of products currently available that could be used or modified for use within the aged care market are:

Ambrosia Meats (WA)

- Produce cooked diced meats in vacuum packaging. The meat is extremely tender and can then be used for a variety of casseroles with ingredients added as determined by the recipe.
- Produce a range of gluten free skinless sausages that can be flavoured as required, e.g. beef and mustard seed sausages.

Bryopin Meats (NSW)

- Bryopin Meats is the tendered supplier for the health care industry in NSW. They also provide products directly to the aged care market. They produce an extensive range of products. Examples are beef spareribs (could be utilised as finger food for an evening meal) and meatloaves (variations on the traditional meatloaf and/or addition of protein powder would increase nutritional value for the very frail elderly).

Lifestyle Chef (Qld)

- Lifestyle Chef have developed cooked meats that are packed using modified atmosphere packaging (MAP). Meat Standards Australia guidelines along with involvement and expertise from MLA have been used to develop roast meats suitable for the MAP process. This product would be very suitable for the home delivered meals market.

OSI

- OSI produce both cooked and raw frozen hamburgers. The technology and equipment at the facility would assist in producing new products for the aged care market.

6.3.2 New Product Development

The following manufacturers are interested in developing quality products that meet the aged care market needs:

Ambrosia Meats

Ilonka Meats (WA)

Bryopin Meats (NSW)

Kitchen Sorcery (WA)

Recommendations

25. Compile a proforma stating the requirements for the development of a new product and seek input from the above companies for further advancement.

6.3.3 Packaging

Technology has provided wider choices in packaging; however the price can still be restrictive for the aged care market. Packaging costs contribute significantly to the purchase price of pre-cooked foods. There is a need for the development and improvement of packaging – in relation to cost, sizing, shelf life/stability and reheating – to meet the needs of a growing and changing market.

- Aged care facilities who currently buy in cook chill meals, usually purchase these from organisations such as BHS (Ballarat Health Services) and NutriFresh (Qld). These companies produce products using the 5-day cook chill systems. Prepared meals such as these are traditionally delivered in stainless steel trays/lid (dimensions 350mm x 530mm x of 55mm depth) and are quite heavy when loaded with food (e.g. a casserole weighs 3kg and the tray/lid weighs 1.5kg).
- The delivered meals market still use the conventional foil 3-compartment container with lid. These foil containers do not offer the client a well-presented meal, as food has to be 'packed' into the tray.
- It is envisaged that over the next few years, the nutritional guidelines will be adjusted to allow the supplier to offer a more flexible meal service for the MOW market. This would allow for the option of delivering 2-4 serves of meat (i.e. the protein portion of a meal) in one container. Clients are then able to either prepare their own vegetables or purchase them pre-cooked.
- The size of the packaging and therefore the product weight needs to be considered in order safe handling without any OH&S issues.
 - For bulk liquid type products, polypropylene bags holding approx 3kg of product would be a suitable size.
 - The largest size in bulk would be 5kg.
 - Similar weight is required if packing 'piece items' in bags i.e. steak portions, using sous-vide or cook tank methods.
- Manufacturers who are producing cooked red meats are trialling products cooked in the tray and/or pouches. Factors to be considered to optimise results in terms of tenderness, flavour, nutrition and quality include:
 - The strength of the bag (measured in microns) during the slow cooking process.
 - Slow cooking of the secondary cuts of meat.
 - Various types of muscle meats and the cooking process.



Figure 6: Examples of bagged products

The Australian Institute of Packaging (AIP) is the association representing companies of various backgrounds involved with packaging. To assist in gaining a clearer understanding of current and future trends in packaging, conversations and meeting were held with Amcor, Cryovac and Case Ready Meals.

Amcor

- Amcor do not currently provide packaging suitable for cooked red meats.

Cryovac

Cryovac are constantly researching containers with one criterion -to add longevity to the product within the container – Simple Steps™ is one such example.

- Simple Steps™ packaging involves placing prepared raw meat into a polypropylene rigid tray with a barrier sealant layer for long shelf life.
- The Simple Steps™ packaging allows for the protein to be cooked in the container then heated by the clients as required. It would be suitable for packaging whole roast meals.
- This packaging method continues to be trialled amongst many industries – specific trials need to be undertaken to determine its suitability for the use within the aged care market.



Figure 7: Simple Steps™ packaging

Case Ready Meal

- Case Ready Meal packaging introduces a steam channel into the packaging to assist with the reheating of pre-cooked meals. The product is from Norway and is currently undergoing trials. In order to be suitable for the aged care market, trials would need to demonstrate that the quality and flavour are not compromised.

Packaging technology represents an opportunity for improving the product range, shelf life and product quality for the aged care market. Most of these technologies are not limited to the aged care market – they could also be applied to the retail sector.

Recommendations

26. Product development needs to be undertaken with manufacturers and operators working with Simple Steps™ and Case Ready technology.

Operator requirements regarding size, storage and reheating methods should be discussed at workshops and communicated to packaging manufacturers.

7 KEY RECOMMENDATION: FORMATION OF AN INDEPENDENT INTERMEDIATE DEVELOPMENT COMPANY

The primary aims of the intermediate development company are to:

- Increase the confidence, skill level and knowledge of both operators and manufacturers.
- Improve and build relationships between all key players, including MLA, operators and manufacturers.
- Focus on product development - create new, innovative value added red meat products to support an increase in production and sale of red meat. It is important to note that an increase in market share may not be restricted to the aged care market but may also include the retail and export markets.
- Launch new products into the market place.
- Develop recipes for new products and market products and recipes.

The development company will be the industry focal point for conducting research into and trials for secondary cuts of meat. Requirements considered will include bite dexterity needs (as determined through further research), flavour and texture suitability for the aged care market.

There are companies who are willing to carry out product development. However, there are many other areas that need to be pursued to ensure that the recommendation made in this report are developed and instigated.

It is evident from considerable consultation with the meat sector, from processors and marketers, that there is a high degree of disillusionment and lack of confidence in the way in which current marketing and innovation grants are funded and executed within the industry. The establishment of an independent company with funding from a number of sources will also help to develop credibility for MLA. Funding may be sourced from:

- Meat and Livestock Australia (MLA)
- National Food Industries Strategy Group (NFIS)
- Aus Industries
- Port Macquarie Local Council

Contact has been made with Aus Industries, who have mentioned some areas to obtain government grants; and Port Macquarie Council, who are keen to proceed with this concept.

It is envisaged that the business entity would:

Involve the skills and knowledge of the two people who have currently commenced work on roast meats. (David Vaile and David Carew – refer 1.Product Technology p30.

Involve the Council of Port Macquarie who have a strategic plan in place for a facility located in the area.

Assist with the development of the meat Specifications.

Oversee the student research project reviewing and evaluating food wastage.

Develop further products using the elements that have been set up for the roast meat trial at Marion Centre, Port Macquarie.

Strategic Plan

Establishing the development company requires further discussion to develop a strategic plan, including, but not limited to the following:

Stage 1

- Establish a business plan for the development company, including:
- Location (suggested location Centre of Innovation, Port Macquarie).
- Financial requirements.
- Personnel who will be part of the business (suggested that the project be driven by Mary Whelan).
- Outline of assistance required from MLA.
- Source industry funds.

Stage 2

- Consolidate the manufacturing requirements.

Stage 3

- Project implementation (to include marketing and evaluation processes).

The recommendations throughout this report become part of the action plan for the development company.

7.1 SUMMARY OF RECOMMENDATIONS

1. Draw up meat specifications in the form of templates.
2. Hold workshops to determine 2-3 separate specifications. Participation should include operators, manufacturers, MLA and dieticians.
 - Specifications to include the grading of the red meat, nutritional information, bite dexterity and be endorsed by MLA.
3. Manufacturers to conduct workshops for operators to discuss the meat cut from the carcass and suitability for cooking and reheating of value added red meat products.
4. Nutritional data dissemination with the involvement of prominent researchers via trade magazines; industry food service magazines, workshops and conferences.
 - The nutritional research undertaken by Dr. Peter Williams and Professor Neil Mann should be included in the meat specifications.
 - Invite Professor Neil Mann and Dr Peter Williams to present a paper on nutritional findings in red meat at appropriate conferences such as:
 - Aged care managers conferences held yearly.
 - Institute of Hospitality and Health Care (IHCC) conference for catering managers, held yearly.

- DAA conferences held yearly for dieticians.
5. Workshops for operators and manufacturers held by dieticians.
 6. Establish a template that enables actual costs to be determined. This process needs to be supported by MLA in the form of financial support, endorsement or provision of resources.
 7. Involve students (undertaking nutritional qualifications) to assist with carrying out plate waste surveys to identify:
 - Quantity of red meat not consumed by the client.
 - Why the red meat was left and whether other parts of the meal were not consumed.
 - Cooking and reheating methods – is the correct equipment used for the various cooking and reheating methods.
 8. Following product development, trials in the various reheating systems are required. Instructions for reheating should be included on the recipe and/or product packaging.
 9. Training for the operators via workshops to ensure that all products are re-thermalised correctly to ensure correct temperature and texture of the product are achieved. For example, when reheating roast potatoes, the lid is removed to ensure crispness; roast meats require low temperature and short time for heating.
 10. Operators need to be educated in order to *select* the most appropriate reheating method dependent upon the production method – in order to maintain tenderness, nutritional values etc. This can be done via workshops and/or cooking demonstrations.
 11. MLA to develop training programs to cover carcass, muscle types, cooking methods, value added red meat products. On completion of specifications, include training programs for both operators and manufacturers.
 12. Meat cuts, cooking methods and reheating methods to become a training program established by MLA.
 13. Operator visits to the manufacturers where a demonstration of boning the various muscles from the carcass would assist the cooks understanding of meat cuts.
 14. Operators need to be taught the best cooking methods for the various cuts of red meat. This can best be done via cooking demonstrations.
 15. Train cooks to present the food attractively on plates – requires an understanding that using value added meat products allows them time for this. This could be achieved via a food presentation workshop.

16. Manufacturers and MLA representatives in each state to visit an aged care facility.
17. MLA BDM's to promote awareness of MLA to operators – via workshops, marketing.
18. Workshops to be held and articles relating to product, recipe and nutritional development be reported in the food service magazines, including MLA's 'Chef Special'.
19. Regular articles should be included in the appropriate journals, such as:
 - Hospital and Healthcare Journal.
 - Institute of Hospitality and Healthcare quarterly newsletter.
 - Chef's Special – MLA publication.
20. Involvement of MLA, dieticians and/or industry knowledgeable personnel at conferences by:
 - Offering sponsorship – promotion/supplying guest speakers.
 - Conducting cooking workshops.
21. MLA to add nutritional data to their website similar to the New Zealand Beef and Lamb website (www.nzbeeflamb.co.nz).
22. It is recommended that the system of cooking knuckles of meat (as per research at the Marion Centre) be further developed via funded research in order to be enhance the overall project results and investigate further benefits.
23. CSIRO should be involved in the development of value added red meat products.
24. Compile a proforma stating the requirements for the development of a new product and seek input from the above companies for further advancement.
25. Product development needs to be undertaken with manufacturers and operators working with Simple Steps™ and Case Ready technology.
26. Operator requirements regarding size, storage and reheating methods should be discussed at workshops and communicated to packaging manufacturers.

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9 APPENDICES

9.1 APPENDIX 1: WORKSHOP, INTERVIEW AND MEETING PARTICIPANTS

The author would like to thank all participants for their input into this study.

NEW SOUTH WALES	
	ACT Meals on Wheels
	Amity Group
	Bathurst Meals on Wheels
	BCS Catering
	Cater Care
	Crow's Nest Meals on Wheels
	Eurest Australia
Operators	Marion Centre – Port Macquarie
	Nareen Gardens
	NSW Meals on Wheels Association
	Qantas Flight Catering
	Sodexo – Seniors
	Tarragal Glen Village
	Uniting Care Ageing / Sydney region
	Wyong Shire Food Services
	Andrew's Meats
	Beak 'n Johnson
Manufacturers	Bryopin Meats
	Fit Kitchens
	The Commissary
	Connectica International
	Food Centre of Excellence
Other	Meyers Strategy Group
	Port Macquarie Council

QUEENSLAND	
Operators	Churches of Christ
	Holland Park Meals on Wheels – QLD
	John Flynn Hospital – QLD
	Nutrifresh Pty Ltd – QLD
	Prescare
	Queensland Baptist Care
	Qld Meals on Wheels Association
	Qld Meals on Wheels Association
	RSL Care
	The Chateau Nursing Home
	Toowoomba MOW
	Village Life – Qld
Manufacturers	Conrad Jupiter's - QLD
	Earlee Products
	IMPT Meats
	Lifestyle Chef – QLD
	Prepared Foods – QLD
	Tenderplus
	OSI International Foods – QLD
Other	CSIRO Food Science Australia – QLD
	Dietician
	Frontier Foods

VICTORIA	
Operators	Ballarat Health Services
	Hobson's Bay Food Services (MOW's)
	Moreland Food Services (MOW's)
	Mum's Mobile Meals
	St John of God Health Services
	Tasmania Meals on Wheels
Manufacturers	Colac Meats
	Lite n' Easy
	Tatiara Meat Company
	Top Cut Meat Industries
	University Meats
Other	Ancor Packaging
	Aus Industries (Federal Government)
	Case Ready Meals
	Cryovac
	CSIRO – Food Science Australia
	RMIT Food Science
WESTERN AUSTRALIA	
Operators	Bentley Park/Swan Care Group
	Brightwater Group
	City of Sterling MOW
	Rosewood Care Group
	St John of God Health Care
	Total Catering Solutions
	Uniting Church Homes
Manufacturers	Ambrosia Foods
	Classic Meats
	Gourmania Foods
	Illonka Foods
	Kitchen Sorcery
Other	Dietician

9.2 APPENDIX 2: QUESTIONNAIRE



Mary Whelan
Food Services Advisor

Questionnaire:

Red Meat

Clientele Served:

- Health Care
- Aged Care
- Meals on Wheels
- Both of above

Number of Meals Prepared for 'Main' Meal (i.e. lunch time)

Kilos purchased

- 50 meals _____
- 80 meals _____
- 100meals _____
- 150meals _____
- 200meals _____
- Other – please state number _____

Consumption of:

How frequently is red meat on the menu per week

- Daily
- Three times week
- Five times week

What cuts of meat are used?

- Mince steak
- Diced blade
- Oyster blade steaks
- Bolar Blade
- Roast cuts (please state the cut)
- Other cuts (please state the cut)

Do you cook all meats on site?

- Yes
- No

If no – what do you buy in precooked?

Would you like to buy in more precooked meats?

Yes

No

If 'yes' :- are there any particular products you would like to see available?

If 'no' – why?

Chefs: what are your comments in relation to the following?

Meat cuts: Variety / Quality

Quality:

Cooking qualities:

Reheating processes

What method is used?

Combi Oven

Regeneration Oven – convection system

Conduction system

Banquetting system

Other

Do you find reheating suitable for red meat?

Yes (why) _____

No(why) _____

Issues faced with 'holding' _____

Information via manufacturers:

Is the 'relationship' with manufacture an 'open/informative' one?

What do Chefs require from Manufacturer

Dietary requirements:

What is required?

- Protein
- Calcium
- Carbohydrates
- Gluten Free
- Diabetic

Other

Would you like to see meat products that suit a range of diets?

- Yes
- NO
- If 'yes' – have you any suggestions?

What about the chewing quality of meat?

Pricing:

How much do you allow (raw food cost) per day per Resident / Client:

(NB, this information is not shared and no facility's pricing will be reported)

Do you buy via a Tender System?
If 'yes'- what is the usual term of the tender? _____

If 'no'- who decides on frequency of review? _____

Do you receive the Chef's Special Magazine published by MLA?

Yes

No

Comments: Please feel free to add further information which you believe will be of benefit to the Industry

9.3 APPENDIX 2: COOK CHILL PRODUCTION METHODS

- The 3 most frequently used production systems in Australia currently are:
 - Cook Chill Five-Day (short shelf life).
 - Kettle Cooked (extended shelf life).
 - Cook Chill Cook Tank (extended shelf life).
- Sous vide is another form of cook chill that is slowly gaining momentum in Australia – requiring specialised equipment for monitoring cooking and the cooking process.
- The Australian Cook Chill Council Inc. launched the Guidelines for Chilled Foods Production Systems including Food Safety Programs in October 2000. The updated guidelines will be released early in 2007.
- The ‘acceptance’ of cook chill production systems over the past 5-8 years has grown rapidly – not only within the hospital industry, but also within the larger commercial industries that have adopted these production systems to:
 - Increase the variety of products available.
 - Produce products that have a more acceptable shelf life.
- Packaging plays a critical role to ensure the stability and required shelf life of the products are achieved. Microbiological testing on a regular basis should also occur to ensure that the products are ‘safe’ as well as testing for shelf life.

5-Day Cook Chill (Short Shelf Life)

- The 5-day cook chill catering is a system based on the initial cooking of food followed by fast cooling, typically in a blast chiller. The food is held at 1-5 C in specially designed cold stores prior to reheating. The cooking is carried out in the conventional manner, i.e. roasts are cooked in the oven, casseroles are cooked in bratt pans (large fry pans), vegetables are steamed via combination ovens.
- During cooking, the centre of the foodstuff must reach a temperature of 70 C for 2 minutes. Large cuts of meats ideally should not weigh more than 2.5kg to ensure that the temperature of 70 C is achieved.
- Once cooked, the food is transferred, if required, to a 5cm stainless steel gastronorm tray and then chilled to 5 C within a designated time. Ideally the rapid chiller will reduce the temperature of a 5cm layer of food from 70 C or greater to 5 C or below in a period of 90 minutes when fully loaded.
- The food must be consumed within 5 days from the day of production.
- Examples of food cooked via the 5-day cook chill system:
 - Mash Potato – typically the weight of the mash potato portioned into a 350mmx 530mm-gastronorm tray is 4kg.
 - Broccoli floweret’s (in similar container as above) – 3kg.
 - Casserole (in similar container as above) – 4kg.
- 5-day shelf-life foods are typically packaged in stainless steel gastronorm trays (5cm depth is ideal to assist chilling and reheating). A large aluminium foil tray (5cm depth) with a cardboard lid is another form of packaging along with the traditional Meals on Wheels foil 3 compartment container and lid.
- There are very few food items that are unable to be prepared/cooked via the 5 day cook chill system – this system suits all vegetables, roasts, baked fish, chicken, and baked desserts (these are usually prepared in the stainless steel trays, then baked, chilled and distributed).



Figure 8: Sample of foods cooked using the 5-day cook chill system

- From a manufacturer's point of view, this system is limited due to the shelf life. It is usually found in large hospitals or convention centres whereby the cooked foods will be utilised within a specified time.

Kettle Cooked Foods

- This system is used for the cooking, pumping, tumble or blast chilling of what is commonly known as 'wet dishes'.
- These items include soups, gravies, sauces, and casseroles – items that can be pumped hot from a large cooking vessel into heat resistant pouches, bags, or casings. Reference to a specialised casings manufacturer is recommended to ensure the correct casing density is met.
- The product should be pumped at between 80 C and 90 C.
- The bag is then either sealed with a metal clip or heatsealed, then labelled.
- The packaged product is then chilled quickly to below 3 C (i.e. reaching the centre product) in a tumble water chiller, blast chiller or a static water /ice bath.
- Various food mixtures will have varying degrees of extended shelf-life. Some products can obtain up to 45 days; however it is imperative that microbiological testing is carried out to verify the shelf life.



Figure 9: Kettle Cooking System

Cook Chill Tank Foods (Water Bath or Steamed Cooking)

- Food items such as meat cuts, poultry portions, fish portions, pieces of vegetables after preparation are packaged in shrinkable bags or pouches, then placed in water in a cook tank or steam oven and cooked at controlled low temperatures for long periods – commonly not exceeding 90 C.
- Spices, seasonings or marinades can be applied before placing the product into the shrinkable bag or pouch. Some spices or spice blends can be a potential risk (microbiologically and for foreign objects) and these risks need to be included in the development of the Food Safety Plan.
- When the desired centre temperature is reached, chill immediately to stop further cooking. The chilling process can be carried out in the same vessel with chilled water added and chilled within the specified time.
- Strict controls must be adhered to when operating the cook tank system – to ensure all risks are monitored at each stage of production, chilling, storage and reheating.
- Types of foods suitable for this system include joints of meats for roasting, chicken pieces, whole fish, and vegetable pieces.



Figure 10: Example of a Water Bath