

Submission to the

House of Representatives
Standing Committee on
Industry, Science and Resources

Increasing value-adding to Australia's raw materials

Commonwealth Department of Agriculture, Fisheries and Forestry –
Australia

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Executive Summary

Value-adding offers great opportunities for Australia's agricultural, fisheries and forestry industries.

These industries have traditionally exported commodity products and have been very successful in this. Australian agriculture continues to be highly dependent on world commodity markets, with 80 per cent of agricultural production being exported. This situation cannot continue indefinitely.

The long-term decline in the terms of trade for agriculture and changes in world trade, particularly in relation to food where consumers are becoming more affluent and global supply networks are becoming more dominant, means that Australia's production advantages and reputation for clean, green products may not be enough to sustain growth over the longer term. Australia has been able to maintain its position through strong, ongoing productivity growth. In the future, to achieve growth, to increase returns to primary producers, to capture emerging market opportunities and to increase global market share, the Government and industry must work together to develop trade opportunities and enhance industry capabilities throughout the value chain.

Value-adding provides opportunities for farm diversification and employment, especially in rural areas. It can broaden Australia's export base and enable the agriculture, fisheries and forestry industries to improve their competitiveness and profitability.

Value-adding encompasses any process or service in the supply chain that adds to or enhances the value of products to customers. It is more than just processing. Among other things, value-adding can include supplying new products or different varieties, changing presentation to meet market requirements, providing expertise and/or services and promotion and marketing activities to differentiate Australian products.

Critics argue that the proportion of agriculture, fisheries and forestry products value-added in Australia is less than in other comparable countries. Analysis of OECD data does not support this. As a proportion of GDP, agriculture, fisheries and forestry in Australia is roughly equivalent to that in France. Food, beverages, tobacco and wood and paper products make up about the same proportion of GDP in Australia as they do in the United States, France and Germany.

Critics also argue that Australia imports too many value-added products that could be produced onshore from domestically produced primary products. While this may be true in some cases, Australia imports value-added agricultural, fisheries and forestry products for a range of reasons. Trade is a dynamic process involving many different players with different aims and cost structures. Australia imports value-added foods and other products because they are cheaper or because we do not or cannot produce the same variety or type of product. There are also cases where, although Australia does produce the raw product, we can earn more by exporting it in raw form than value-adding.

There are limitations to the opportunities offered by value-adding. There are cases where it may not be profitable, suitable, appropriate or practical to value-add to a commodity and it may make better commercial sense to export a product as a bulk commodity. For example, the returns for high quality fresh fish or horticultural products can often be greater than if they were value-adding through processing.

The Department of Agriculture, Fisheries and Forestry encourages value-adding among its portfolio industries where value-adding is commercially practical and sustainable and is consistent with consumer demand and market signals, in order to promote rural growth, employment and

diversification opportunities. The department has worked with industry to identify impediments to increasing value-adding in Australia. These will be dealt with in AFFA's second submission to this inquiry.

Introduction

AFFA and its immediate predecessor, the Department of Primary Industries and Energy (DPIE), have had a strong interest in the debate on the place of value-adding in the Australian economy. Value-adding has a place in achieving the portfolio and departmental outcomes of achieving more sustainable, competitive and profitable agricultural, food, fisheries and forestry industries which continue to create jobs, particularly in regional Australia.

Given AFFA's experience and policy and program responsibilities for the agricultural, fisheries and forestry industries, the products of which are sold to customers in both raw and value-added form, the department believes that it can make a valuable contribution to this inquiry.

This submission will:

- define the term 'value-adding';
- examine the forms of value-adding which can be applied in the agricultural, fisheries and forestry industries;
- for each industry sector in turn, examine:
 - the proportion of a particular product which is value-added compared to that which is on sold in raw form;
 - the nature of value-adding for different products (eg: improved customer services, processing); and
 - the character of the value-adding (ie: number of workers employed; number and location of processing plants, etc).
- compare Australia's performance in value-adding in selected industries to that of other countries, particularly Australia's main competitors in agricultural, fisheries and forest products.

There are difficulties, such as the limited availability of data, in attempting to undertake aspects of this analysis because of the confusion surrounding the concept of value-adding and because of problems in separating the value-added components from the value of the final product. Nevertheless, as far as possible given these problems, this submission addresses the issues associated with value-adding in Australia's agricultural, fisheries and forestry industries.

Who we are

AFFA is the Commonwealth Government department responsible for helping Australia's agricultural, food, fisheries and forest industries become more competitive, profitable and sustainable and thereby creating jobs, particularly in regional Australia.

AFFA is structured into the five groups. These are:

- Industries Development Group;
- Competitiveness and Sustainability Group;

- Australian Quarantine and Inspection Service;
- Bureau of Rural Sciences; and
- Australian Bureau of Agricultural and Resource Economics.

The groups pool their expertise to tackle competitiveness and sustainability issues with a national character. AFFA seeks to work cooperatively with other Commonwealth agencies, state/territory government departments, peak industry bodies, community groups and enterprises.

What we do

AFFA's responsibilities cover the agricultural, food, fisheries and forestry industries and the natural resource base on which they rely. We deliver for the Government research, policy advice, programs and services to help deal with the challenges affecting portfolio industries' future competitiveness, profitability and sustainability. In particular, our economic and scientific research capabilities enable AFFA to make a unique contribution by developing evidenced based policy advice and research based programs.

Our responsibilities span Australia's entire food supply chain, from producer to processor right through to the consumer. The Government has also charged us with responsibility for managing the soils and water resources on which the food and fibre supply chain is based.

We achieve results by producing the following specific outputs:

- **Research-based policy advice** on national agrifood, forestry and fisheries industry issues, including legislation and support for the portfolio Ministers and the Parliamentary Secretary;
- **Programs and other measures** consistent with the Government's broader natural resource management and economic reform agenda to maximise competitiveness, profitability and sustainability of portfolio industries;
- **National export certification services** to maintain Australia's access to international markets;
- **National quarantine services** to protect Australia's agricultural systems, animals, plants and human health and the environment from pests and diseases;
- **World-class economic research and analysis** to help portfolio industries be more competitive and sustainable and to provide reliable information for our work; and
- **Scientific assessments, analysis and advice** to underpin our policies on the sustainable development of our portfolio industries and to manage important national databases, such as the National Forest Inventory.

These outputs are designed to assist portfolio industries to maximise their competitiveness and profitability and their ability to create jobs while using Australia's natural resource base in a sustainable fashion.

AFFA's involvement with value-adding

AFFA's interest and involvement in value-adding extends over a long period. Some of AFFA's core activities are integral to value-adding in the agricultural, fisheries and forestry industries and over the past decade the department has prepared or contributed to several reports on value-adding and on agribusiness issues (including value-adding).¹

¹ These include, among others:

Following the Federal Election of October 1998 policy responsibility for processed food was transferred from the industry portfolio and added to the non-resource and energy primary industry responsibilities of the former DPIE to form the Department of Agriculture, Fisheries and Forestry. The addition of food to the department's responsibilities has provided a new focus and given new impetus to AFFA's work on value-adding to raw agricultural and fishery products. For the first time policy responsibility for food industry issues - from producer to consumer - is located in a single portfolio at Commonwealth level, allowing a more coordinated and comprehensive approach to food policy.

Several areas within AFFA have direct or indirect responsibility for issues affecting value-adding to agricultural, fisheries and forestry products. The role of the Food and Agribusiness Industries Division is to foster a culture of innovation, international competitiveness and best practice through all levels of the processed food and agribusiness industries, including the need to continually produce and trade higher value, niche products. This division has a range of initiatives where the government and industry are working together to increase value-adding in Australia, including the Supermarket to Asia, Food and Fibre Supply Chain and New Industries Development programs. It is also developing a knowledge base through the *Australian Highly Processed Food Export Competitiveness and Market Development Study* and a database of key performance information on the agrifood industry.

The Agricultural Industries Division and the Fisheries and Forestry Industries Division have policy responsibility for production, regulation and industry development issues (including value-adding and trade) affecting these commodities. The Portfolio Policy and International Division has responsibility for international trade, research and development and economic policy issues affecting portfolio industries. These issues have an impact on the prospects for value-adding.

Services and programs delivered by the Australian Quarantine and Inspection Service (AQIS), the National Office of Food Safety and the National Office of Animal and Plant Health play an important role in supporting industry value-adding activities based on quality management and food safety. For example, the development of an implementation plan for the National Safe Food System, including Food Safety Standards, and the residue testing programs, under the National Residue Survey, underpin efforts to meet consumer demands for clean, safe food. The fact that such services are provided by government is often a key determinant of consumer confidence in marketing claims such as 'clean, green' food.

AFFA recognises that there is a paucity of statistics on value-adding. One of the reasons for this is the problem of defining value-adding and collecting suitable data. The Australian Bureau of Agricultural and Resource Economics (ABARE) is seeking to deal with this by establishing a new section – the Food and Agribusiness Section – dedicated to economic research into aspects of the food and agribusiness sector, including value-adding. It is anticipated that it will take up to three years before this research capability is fully established.

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- 1989 *International agribusiness trends and their implications for Australia*
 - 1991 *Value adding in the agriculture and food industries*
 - 1998 *Chains of success*
 - 1999 *Developing successful niche agribusiness exports*
 - 1999 *Food Quality Program. Food Quality Management Systems for the Future*

What is value-adding?

There is no single accepted definition of the term 'value-adding'. It has been variously defined and is often misunderstood. The most common and enduring misconception is that value-adding is processing. The two terms are often, incorrectly, used interchangeably. Value-adding is much more than just processing.

AFFA and the former DPIE have maintained that value-adding encompasses any activity that adds to or enhances the value of products to customers.

In evidence to the Senate Rural and Regional Affairs and Transport Committee's inquiry *Value Adding in Agricultural Production* in 1995 DPIE witnesses stated that value-adding "goes beyond simply moving from raw materials to a processed product; it encompasses any activity that adds value to agricultural commodities." The committee accepted this definition of value-adding in its report.²

AFFA submits that the House of Representative Standing Committee on Industry, Science and Resources should adopt the following definition of value-adding for this inquiry.

Value-adding encompasses any process or service in the supply chain that adds to or enhances the market value of products to customers.

Types of value-adding

Value can be added to raw agricultural, fisheries and forestry products in a number of ways, including activities which:

- result in a change in the form of the product;
- result in a change in the distribution of products between markets; or
- are geared toward better meeting consumer demand.

Value-adding activities which result in a change in the form of the product can be classified as including:

- partial or early stage processing involving minimal or simple transformation of the raw product;
- further processing involving elaborate transformation of the raw product into an intermediate product to be used as an input to another production process or into a 'manufactured' product for consumer ; and
- improvements in utilisation, such as recovery of by-products which might otherwise have been discarded.

² Senate Rural and Regional Affairs and Transport Committee, Parliament of the Commonwealth of Australia, 1997, *Value Adding in Agricultural Production*, Canberra, p5

This definition is consistent with definitions in earlier departmental reports and submissions on value adding. As early as 1989, DPIE defined value-adding in a report to the Primary and Allied Industries Council in the following way. "Any type of product differentiation can add value. Value adding does not involve just further processing and or changing the form of the product. Value is also added when services associated with the product are improved ..."

These differences can be illustrated with examples of value-adding to raw agricultural products. The transformation of livestock at abattoir into boxed, boned, chilled beef or lamb is an example of early stage processing. The transformation of wheat or flour (together with other products) into packet cake mixes or bakery products is an example of further processing. The transformation of low-grade or damaged stone fruit, unsuitable for sale as fresh fruit and likely otherwise to be discarded, into puree, concentrate, jam or fruit leather is an example of recovery.

Value-adding activities which can be classified as meeting customer requirements or distribution of products between markets include:

- producing different varieties of a particular product;
- introducing quality standards;
- changing packaging and product presentation; and
- providing expertise and/or other support to customers on product preparation and use.

Value-adding has become increasingly important throughout the 1980s and 1990s some agricultural producers have moved into the production of organic foods, herbs and Asian fruits and vegetables to target different market sectors. Quality standards have been increasingly adopted across a number of industries, with major efforts currently being made in the fisheries industry. Horticultural producers have introduced new packaging for small quantities of apples and even experimented with the idea of apples as gifts, by developing packaging for individual apples. AWB Limited has developed training programs in milling and baking for buyers of Australian wheat. Major dairy manufacturers and processors have invested significant resources into the development of new milk-based products such as whey powder. Value-adding at this level often has direct benefits for agricultural producers through higher returns and opportunities for diversification and expansion.

AFFA suggests that, in defining what activities constitute value-adding, the House of Representative Standing Committee on Industry, Science and Resources should adopt the following definitions for this inquiry.

Value-adding may include:

- transforming raw products into highly processed or manufactured products;
- supplying new products or different varieties;
- increasing utilisation of by-products;
- introducing quality assurance standards;
- changing presentation to meet market requirements;
- providing expertise and/or services, including advice on product use and improved delivery and distribution;
- partially enhancing the value of products traditionally exported in their raw form;
- managing the use of natural resources more efficiently and sustainably in order to attract price premiums; or
- promotion and marketing activities to differentiate Australian products.

Value-adding in Australia's agricultural, fisheries and forestry industries – An overview and some issues

Traditionally Australia's agricultural, fisheries and forestry industries have been exporters of commodity products and have been very successful in this. Limited value-adding was undertaken in Australia beyond meeting the demands of the domestic market. Some products destined for export were value-added, but this was usually confined to small scale, early stage processing. The vast bulk of Australia's agricultural, fisheries and forestry exports were in raw form, with a proportion used as inputs for further processing overseas.

Critics have argued that exporting Australian commodities for value-adding overseas, while importing large quantities of value-added food, fibre, timber and paper products, some of which was produced using Australian raw products, amounted to exporting jobs. The heart of this argument was that by increasing value-adding in Australia new and diverse employment opportunities would be created, especially in rural areas and a greater share of the wealth to be derived from value-adding would be retained in Australia. Additionally, value-adding in Australia was also seen as having an import replacement effect, with fewer imports of value-added agricultural, fisheries and forestry products required.

This argument has been a factor in driving several policy debates, inquiries and reports aimed at assessing whether and how value-adding in Australia can be increased. In some cases this has led to wider debate within industries and to some shifts in industry culture over the last decade. The most important of these shifts has been a recognition and acceptance by industry that a whole range of activities and services beyond just processing adds value to products. This has resulted in producers and exporters looking at new ways of doing things including working together to establish supply chains, introducing quality management systems and adopting innovative packaging to add value to their products.

Another means of adding value to Australian product is through effective, competitive and market driven supply chains. Rapid changes taking place in global markets will have significant implications for Australian food and fibre producers and processors and must be taken into account if Australia is to remain an influential player in these markets, rather than being a price taking, supplier of bulk commodities. Australian food and fibre industries are at risk of losing markets and the opportunity to supply higher value, differentiated and niche market products because other countries are reacting faster to the changes occurring in overseas distribution, retailing and consumer preferences.

Consumers are becoming more discerning in their product choice. As well as an increased emphasis on convenience, there is an increasing demand worldwide for products that are high-quality, residue free and produced in environmentally friendly ways. At the same time, the globalisation of food and fibre markets is proceeding rapidly as major international supermarket chains expand into new markets. Global sourcing of products is being undertaken to meet the demands of consumers. Meeting consumer requirements reliably and consistently is now a critical element of marketing and value-adding strategies and gaining premium prices for our products.

Value-adding strategies for Australian food and fibre industries are likely to focus less on traditional processing and manufacturing of raw commodities in future, with increasing emphasis on through-chain approaches aimed at developing higher value products in response to customer requirements. This can be achieved in a variety of ways including by linking and managing chain processes where this has not been done previously, by better managing the returns from existing chains and by reducing costs through the

chain. Key objectives will be improving chain practices and responsiveness to customer requirements including by developing new products, improved product integrity, packaging and other requirements.

AFFA and industry are working together to develop strong and cohesive through-chain approaches to meeting the requirements of our customers. Initiatives such as the Food and Fibre Chains Programme, the New Industries Development Programme and the Processed Food Export Competitiveness Study, recently commissioned by AFFA, focus on building stronger and cooperative chain relationships and removing impediments to the efficient operation of chains.

Nevertheless, Australian agriculture continues to be highly dependent on world commodity markets, with 80 per cent of agricultural production being exported. With the long-term decline in the terms of trade for agriculture Australia's considerable production advantages may not be enough to sustain growth over the longer term. Australia has been able to maintain its position through strong, ongoing productivity growth. However, in the future, to achieve this growth, to increase returns to primary producers, to capture emerging market opportunities and to increase global market share, the Government and industry must work together to develop trade opportunities and enhance industry capabilities throughout the value chain, particularly through value-adding.

While AFFA accepts that further value-adding plays a part in this approach, AFFA cautions against acceptance of the popular beliefs that decisions to add value can be taken in isolation from the market requirements. AFFA, and before it DPIE, has and continues to invest significant resources in encouraging primary producers to be more aware of and responsive to market signals reflecting customer requirements.

There are cases where it may not be suitable, appropriate or practical to value-add to a commodity and it may make better commercial sense to export a product as a bulk commodity. There has to be a market for the product. There is no point adding value to a commodity if there is no demand for the end product at the price on offer. The following examples are provided to illustrate this.

It could be argued that all wheat should be processed into flour in Australia prior to export, contributing to increased employment and wealth within the Australian economy. This is impractical, even if the processing capacity were available, because flour is less stable than wheat and spoils after a shorter time period. As a consequence of this and other factors, there is only limited customer demand for Australian flour in export markets. There is, however, strong customer demand for Australian wheat, which incidentally has been value-added by being differentiated into categories/classes according to various characteristics and specifications sought by customers. There is also demand for frozen or packaged bakery products, for example biscuits and cake mixes, in overseas markets, but this has been constrained by high tariffs and non-tariff barriers.

A similar situation exists with the export of live cattle to Southeast Asian markets. The lack of extensive refrigeration and other infrastructure to support trade in dressed meat products beyond major cities has been the main factor in the development of the live cattle trade from Australia's north to Indonesia, the Philippines and, recently, Vietnam. There are also good prospects for live cattle exports to China. Cattle are shipped live to the market, fattened on local farms and slaughtered as they are required. This approach has opened a whole new trade, introducing Australian beef to an entirely new, and previously inaccessible, set of customers and providing Australian producers with an alternative market with more lucrative returns for their cattle than if these were processed in Australia. Value-adding has developed with the live cattle trade, with the Australian industry providing veterinary and other support services to ease the transition of the cattle to their new environments and assist Asian farmers to better understand how to raise the cattle.

Whether or not a particular value-adding activity should take place should be determined by market forces, provided there are no policy or institutional impediments hindering this. It is important to recognise that the comparative advantage of nations shift over time and that whole industries relocate from one country to another as these factors change. The second-half of the twentieth century has seen some industries, particularly those involved in manufacturing, regularly relocating their processing plants to countries with cheaper labour and other input costs. This shifting comparative advantage has been a major factor in the development of the Asian economies from the 1960s to the 1990s. For example, during the postwar period the focus of textiles, clothing and footwear manufacturing has shifted from Northeast Asian countries, such as Korea and Taiwan, to Southeast Asian and Pacific countries, such as Indonesia and Fiji, as costs in the former economies have increased with high levels of growth. It should be remembered that the costs of adding value to some products in Australia may not be as competitive as those in some other countries.

Tariff escalation, whereby higher tariffs are applied to processed goods, is another factor which can influence the level of value-adding. Countries adopt tariff escalation to encourage domestic manufacturing industries and restrict imports to basic input materials. Tariff escalation on processed food products is a problem facing Australian exports in certain markets, particularly in Asia. Not only does tariff escalation restrict access opportunities for Australian processed food exporters, but also acts a disincentive for value-adding in Australia. Tariff escalation has been identified as an important market access issue that Australia will seek to address in the forthcoming World Trade Organisation negotiations on agriculture, mandated to commence by the end of 1999.

Another issue to note is that, in some particular cases, returns from raw product may in fact be higher than if the same product were processed in some way. Such situations arise in response to specific customer demand. For example the export of live coral trout can realise returns of up to five times those received for fresh fillets.

AFFA contends that while it is important to examine the opportunities to add value to products, several factors need to be carefully considered in the decision on whether or not to value-add to a particular product. These factors include:

- is value-adding practical (ie: does it make sense to value add)?;
- is value-adding appropriate (ie: the costs and benefits of adding value)?;
- is there a market for the value-added product (ie: is the value-adding in response to customer demand)?;
- is the market sustainable?

This should not be interpreted as accepting that there is no potential to increase value-adding in Australia. AFFA's contention does not preclude the development of new value-added products or new markets for those products through promotion and market development. On the contrary AFFA is committed to encouraging value-adding, where this is practical and appropriate, particularly in the food and fibre sectors through building processed food industry competitiveness and initiatives such as the Supermarket to Asia Strategy where this is practical and appropriate.

AFFA believes that it is also important to recognise that there are limitations to the import replacement argument. The contention that if more raw materials were value-added onshore Australia would be more self-sufficient in these products and fewer imports would be required is

not at all clear cut. Australia imports value-added agricultural, fisheries and forestry products for a range of reasons. First and foremost, trade is a dynamic process involving many different players with different aims and cost structures. Australia imports value-added foods and other products because they are cheaper or because it does not or cannot produce the same variety or type of product. As mentioned above, there are also cases where although Australia does produce the raw product more can be earned by exporting it in raw form than value-adding.

The case of seafood products is an illustrative example. Australia exports and imports prawns, lobsters, tuna and salmon. Critics would argue that since Australia produces all of these fisheries products there is no reason to import them. This argument is simplistic and overlooks the actual nature of the trade. Australian exports of these products are primarily in the high quality, high value end of the market in fresh, chilled or frozen form. In 1997-98 approximately one-third of our seafood imports, by both volume and value, were in canned form, mostly from countries with greater economies of scale or cheaper inputs (eg: labour or raw materials) than Australia.³ Other imported fish products included smoked, dried or salted species not produced in Australia. In the case of prawns, in 1997-98, Australia exported an estimated 12,297 tonnes valued at \$233m in fresh, chilled or frozen form, while importing 14,531 tonnes valued at \$190m, mostly from Thailand. The Australian product was clearly of greater value.⁴

Shifts in consumer preferences are becoming increasingly important in the global market, particularly for food products. For example, growing affluence among consumers over the 1990s has led to increasing demand for high quality fresh produce in preference to processed products. At the same time convenience foods have also gained increasing consumer acceptance. This has implications for value-adding activities based on processing, with a relative decline in the processing of low value products, such as tinned tuna, in favour of high value foods such as frozen prepared meals.

Value-adding in Australia's agricultural industries

Agricultural products fall into two categories: food products and non-food products. This section will examine the current state of value-adding in selected agricultural industries and will provide an overview of food processing in the Australian economy.

Value-adding and food products

Dairy

All dairy products have been value-added. The highly perishable nature of milk means that all dairy products must undergo some form of transformation to be marketable.

There are about 18 major milk manufacturing and processing firms in Australia, most of which are producer owned co-operatives. Australia's five largest co-operatives control around 70 per cent of Australia's milk production. On the domestic market, the major players are Murray Goulburn, Bonlac, the Dairyfarmers Group (all co-operatives), National Foods Ltd and Parmalat. While many firms participate in export markets, the main exporters are Murray Goulburn and Bonlac. There are also a number of small and medium enterprises involved in value-adding in the dairy industry.

³ Australian Bureau of Agricultural and Resource Economics, 1998, *Australian Fisheries Statistics 1998*, Canberra, p40ff

⁴ *ibid* pp28, 40

Apart from milk the value-added products produced by the Australian dairy industry include butter, milk powders (skim, butter and whole), yoghurt, icecream, dairy desserts (ie: mousses, custards, etc) and other specialist or niche products. The industry also produces a range of cheeses. Although cheddar and cheddar types make up about half Australia's cheese production, a number of other types are also produced. In fact, production of most other cheese types has increased significantly during the 1990s. For example, the production of fresh cheeses (ie: cream cheese, cottage, ricotta, etc) more than doubled between 1993 and 1998 (from 20,859 tonnes to 42,700 tonnes). Similarly the production of shredding cheeses (ie: mozzarella, pizza cheese, etc) increased from 29,709 tonnes in 1993 to an estimated 45,106 tonnes in 1998.⁵

Australia's dairy exports, by value, have almost doubled over the past seven years and are expected to have grown to around \$2 billion in 1998-99. Australia currently exports nearly half of its annual milk production which is equivalent to around 65 per cent of total manufactured dairy products. Principal export products in both value and volume terms are skim milk powder (SMP) and cheese, with butter and wholemilk powder (WMP) also major contributors to industry export returns. In recent years, increasing volumes of short shelf-life products have been exported to the growing retail markets of Asia.

The following table compares the proportion of milk value-added into the main dairy products produced in Australia between 1992 and 1997.

**Proportion of total milk production value-added into selected products
Australia 1992-1997
(000 tonnes)**

Product	1992	1993	1994	1995	1996	1997
<i>Cows Milk</i>	7,550	8,320	8,451	8,977	9,307	9,723
<i>Butter</i>	124.3 1.65 %	132.9 1.6 %	144.1 1.71 %	131 1.46 %	153.8 1.65 %	153.5 1.58 %
<i>Cheese</i>	206.3 2.73 %	213.7 2.57 %	226.8 2.68 %	259.6 2.89 %	274.6 2.95 %	301.6 3.1 %
<i>Whole Milk Powder</i>	75.4 1 %	90.2 1.08 %	113.7 1.35 %	102.7 1.14 %	127.2 1.37 %	123.5 1.27 %
<i>Skim Milk Powder</i>	169.9 2.25 %	202.1 2.43 %	228.2 2.7 %	208.6 2.32 %	226.7 2.44 %	234 2.41 %
Total of selected categories	575.9 7.63 %	638.9 7.68 %	712.8 8.43 %	701.9 7.82 %	782.3 8.41 %	812.6 8.39 %

Source: ADC 1998

The most important conclusion from the table is that the proportion of milk value-added as cheese has been steadily increasing in Australia since 1993. In contrast, the proportion of milk value-added, both in total and into the other products, over the period has varied, although not significantly.

The milk manufacturing and processing sector has undergone significant rationalisation over the past decade or so. This has been typified by acquisitions, mergers and strategic alliances of dairy processing enterprises. Manufacturers have sought to secure sufficient equity capital to improve the efficiency of their operations through the establishment and operation of large scale, cost-efficient dairy factories with good distribution networks and successful marketing strategies.

⁵ Australian Dairy Corporation, 1998, *Dairy Compendium* 98, p20

The process of rationalisation has been facilitated by improvements in transport, storage and handling processes, which have reduced the need for the production and processing of milk close to markets and has led to some factory closures, investment in new plant and equipment and a greater concentration of ownership. As a consequence, manufacturers have been better able to take advantage of opportunities in domestic and international markets.

Asian markets now account for around 80 per cent of Australia's exports. Japan is the largest single country market for Australian dairy products, taking around 44 per cent of total Australian cheese exports and 12 per cent of skim milk powder exports in 1996-97. Apart from Japan, other important destinations for Australian dairy products include the ASEAN countries of the Philippines, Malaysia, Singapore and Thailand.

Meat

Australia is traditionally a major producer and exporter of meat. The industry is predominantly based on red meat (beef and sheepmeat) and also includes small but expanding white meat (pork and chicken) and game industries.

The case of meat is a good example of the complexity of defining 'value-adding'. Meat, like dairy products, is considered a minimally processed food. Put simply, this is because meat is the result of the 'processing' - livestock is the raw product - yet, to the average person meat is a basic food product.

Beef and sheepmeat

Reliable data on value-added meat products in Australia is limited. It is thought current usage rates are about 100,000-200,000 tonnes per annum, which is less than 1 per cent of total industry production. This should not be seen as an indication that value-adding is not seriously pursued in the beef and sheepmeat industries. While opportunities to increase value-adding in these industries do exist, it should be remembered that Australia has comparative advantages in the production and export of red meat and has successfully met customer demand in its marketing.

Current examples of value-adding of meat include:

- Abattoir Processing sector
 - customer specified processed or trimmed primal, sub-primal cuts;
 - ground beef and chubb pack products;
 - retail-ready packaged meats.

- Food Manufacturing sector
 - smallgoods;
 - low-fat products;
 - reformed/restructured products;
 - co-extruded products;
 - reformed and restructured products;
 - dried meats;
 - retorted and aseptic processed meat products
 - ground beef
 - retail-ready packaged meats
 - pre-prepared meals and Home Meal Replacements

The processing sector is an important contributor to rural Australia, where abattoirs can often be the largest or one of the largest employers in country towns and a major user of local services (eg: transport). The following table of the principal meat processing companies operating in Australia gives some indication of this. For example, in 1998 the top ten meat processing companies between them employed over 11,000 workers.

Principal meat processors in Australia, 1998

Rank 1998	Organisation	Through put (ETCW) 1998	Kill Share % 1998	No. Plants 1998	T/O \$m	Employees 1998
1	Australia Meat Holdings P/L	255,000	8.86	5	1256	2,600
2	Nippon Meat Packers Aust P/L	163,000	5.67	6	506	1,240
3	Consolidated Meat Group	139,000	4.83	3	463	1,466
4	QLD Abattoir Corporation	125,000	4.35	4	41	600
5	SBA Foods P/L	110,000	3.82	3	250	1,000
6	Tey's Bros (Holdings) P/L	99,840	3.47	3	325	900
7	Metro Meat International Ltd	97,000	3.37	5	302	1,300
8	Bindaree Beef P/L	87,000	3.02	2	200	780
9	Cargill Foods Australia	68,500	2.38	2	171	680
10	Northern Cooperative Meat Co Ltd	66,000	2.29	2	40	800

Data compiled by ProAnd Associates

A number of demographic factors such as changes in style and size of meals, differences in working hours with a consequent emphasis upon convenience and pre-prepared foods, food safety and lifestyle changes (and the reduced availability of time) which have resulted in increasing use of take-away and convenience foods for casual eating, offer new value-adding opportunities for the red meat industries. For example, in the retail and food service sector such opportunities include further development of retail-ready packaged meats, pre-prepared meals and home meal replacements.

Pork

Value-adding in the pork industry is extensive. Apart from basic processing at the abattoir, pigmeat is processed into ham, smallgoods and other products. The Australian Pork Corporation estimates that approximately 60-65 per cent of Australian pork production is processed (35-40 per cent cooked fresh). There are about 130 abattoirs in Australia that kill pigs and 28 processing plants.⁶

Most of Australia's production is consumed domestically, although the industry, with the encouragement and support of the Commonwealth Government, has been working very hard to develop exports. At present export opportunities are most likely to be for fresh, chilled pork, especially in Asian markets where local industries cannot meet demand due to disease outbreaks in Malaysia and Taiwan. Australia's major competitive advantage is our proximity to these markets, enabling Australian fresh, chilled pork to be landed at prices competitive with the major exporting countries of North America. Since the outbreak of Nipah virus in Malaysia, which previously supplied pork to Singapore, Australian exports of chilled pork to Singapore grew from nil to nearly 1000 tonnes per month by April 1999.

Asian markets almost exclusively prefer fresh pork for cooking though some offals (such as crackling) are eaten. Taiwan, for example, was expected to issue quotas for the import of 1160 tonnes of pork belly and 2500 tonnes of offals in July 1999, but exporters would have to contend

⁶ Australian Pork Corporation 1999, *Pig Stats 1998*

with applied tariff rates of from 45-50% for most frozen or chilled lines. Australian pork exports to Singapore must also be clearly labelled in Mandarin as 'Australian airflown Chilled product', not 'fresh', which implies locally killed, unless they enter the local wet markets. Australian pork is currently preferred on the basis of price, quality assurance, leanness, fat characteristics, white skin and meat colour. There may be scope for value-adding by further tailoring exports to provide pork cuts that more closely meet Singapore cuisine.

Chicken

Value-adding in the chicken meat industry has been particularly extensive in recent years with the growth of highly processed products, prepared meals and new products utilising offal and previously discarded pieces. In the domestic market the fast food and pre-cooked sector has 20 per cent of all chicken sales and is growing at an annual rate of 25 per cent.

ABARE estimates Australian production of chicken meat for 1999/00 will be 630,000 tonnes (603,000 tonnes 98/99).⁷ The estimated retail value of the industry, including takeaways, is \$2.25 billion. Exports for 1998/99 are estimated at 18,500 tonnes and are forecast to rise to 21,900 tonnes by 1999/00 valued at around \$27million.⁸

The industry is dominated by two major processors Steggles and Inghams which together command two thirds of the processed chicken market. The industry is overall, in an expansion phase, due in part to plans by Steggles for a \$30-40m expansion. Industry-wide investment is estimated at more than \$3 billion. Until recent years, the Australian industry has primarily focussed on supplying only the domestic market, and continues to escape serious overseas competition in that market because of quarantine protocols designed to prevent the introduction of exotic disease.

Supermarket to Asia Limited claims that because of the cost base of the Australian industry, poultry meat needs to be differentiated by seriously seeking to go up the value chain.⁹ Current export efforts are focussed on a few markets including Hong Kong - which takes feet, giblets, mechanically separated meat, wings, mid wings, wing tips and value-added raw and cooked meat; Singapore which takes value-added raw and cooked meat; and South Africa and Sri Lanka which take mechanically separated meat and backs. The Western Australian company Gold Source Enterprises has been reported as exporting five containers of chicken feet (each containing 15 tonnes) to Hong Kong and China's Guangdong province each month.

Hong Kong imported 370,000 tonnes of chicken feet alone in 1997, as well as 230,000 tonnes of chicken wings and 150,000 tonnes of other frozen chicken cuts.¹⁰ An estimated 65 per cent of this product is re-exported to China which is the world's second largest poultry producer after the USA, and consumed an estimated 12.92 million tonnes of poultry meat in 1998. Poultry meat was estimated to comprise 20 per cent of average Chinese meat consumption in 1998. Austrade officers in Hong Kong have confirmed that chicken wings, legs and feet, parts traditionally regarded as of low value and often consigned to pet food, are the products most in demand there. In the USA chicken legs are seen as a by-product of no value and disposed into European and African markets at dramatically low prices.

Another WA firm, Belmar Italian Fine Foods, has successfully exported chicken filled ravioli and tortellini to Singapore, Thailand and Indonesia, principally to the food service industry such as caterers and airlines.

⁷ ABARE, 1999, *Australian Commodities Forecasts and Issues June Quarter 1999*, p289

⁸ *ibid*

⁹ Supermarket to Asia Limited, Chicken Meat Export Seminar, Canberra, May 1998

¹⁰ Austrade, flier for Chicken Meat Export Seminar, Canberra, May 1998

Game Products

The game industries are classic examples of value-adding. By utilising feral and farmed native and introduced animals to produce meat and other products farmers and others in rural Australia have added value to animals which are often considered pests. Although production and marketing in the game industries are characterised by boom and bust cycles, limited market research and poor product development, once an industry has developed a mature and stable market, game products have the potential to offer farmers diversification opportunities.

The main industries are wild boar, kangaroo, emu, ostrich, deer and goat. All produce meat. Some also produce other products, such as skins and hides. Lean game meats require a different approach to cooking than for conventional species with higher fat contents. Wider consumer acceptance, and hence demand and higher values, could be expected to follow from a better understanding of how to cook kangaroo meat. A potential area for value-adding across the game industries may be the provision of information and training to the food service sector, especially restaurants, particularly overseas, and to consumers.

Since the early 1980s Australia has become one of the world's largest exporters of wild boar meat with exports for the 12 months to the end of May 1999 valued at nearly A\$18.5 million. The 3,188 tonnes exported over that period returned an average A\$5.79/kg at a time of chronic low world pork prices arising from oversupply.¹¹ Australian farmed pork prices over the same period were around A\$2.00/kg. In 1997-98 wild pigmeat formed about one-quarter of the value of Australia's pigmeat exports.

The major markets for Australian field-shot wild boar are European countries where it is highly sought after during the northern winter. By comparison, very little wild boar meat is sold within Australia although an undetermined amount is consumed by hunters and people who are recreational hunters in rural Australia. In 1990 the Bureau of Resource Sciences estimated Australia was supplying up to 30 per cent of international trade but noted that patterns of demand were subject to wild fluctuations with that for Germany cycling between 2000 and 4000 tonnes per annum.¹²

The only form of value-adding is product differentiation. No markets for by-products such as hides of wild boar are known to have been established by the Australian industry. Opportunities exist for the industry to value-add its product, however, by convenience packing of product for sale in developed countries or processing into smallgoods for some European markets. At least one Australian company has gone down this route already, selling retail-ready packs of wild boar into French supermarkets

Industries based on Australian wild kangaroo populations produce meat for human consumption and pet food and hides as well as the intrinsic contribution these species make to the tourism industry.

The kangaroo meat industry has faced a number of barriers to growth, not least of which have been strident animal welfare campaigns which have seen kangaroo meat for human consumption removed from the shelves of major UK food chains such as Tesco's and Sainsbury's. The industry has successfully outflanked those campaigns, however, by targeting markets in Europe, Asia and Oceania where people have more open attitudes to eating non-conventional meats. The industry boasts a 50 fold increase in domestic consumption since 1993 and an increase in meat exports of 52

¹¹ Australian Pork Corporation, figures derived from Australian Bureau of Statistics data

¹² Bureau of Resource Sciences, 1994, *The Commercial Use of Wild Animals in Australia*

per cent between 1997 and 1998. The largest export market for kangaroo meat in 1998 was Bulgaria, followed by the Netherlands, Austria, Belgium and Germany. In all, the industry exported 5,975 tonnes of kangaroo meat to 30 overseas markets in that year for both human consumption and pet food.¹³

The industry has benefited from the misfortunes of conventional red meat industries. Its ability to claim a "clean green" image as wild game presented it with a market advantage during the BSE scare in Europe and sales have most recently benefited again by consumers seeking alternative meat to chicken and pork following the dioxin in stock-feed scare in Belgium. In Europe kangaroo meat is used in high value restaurant game dishes and as a cheap smallgoods meat. In Asia it is suitable for Cantonese style cooking demanding game species, some of which are becoming rare in their native range.

The challenge for the industry is to convert more product from the lower value 'pet food' category to meat for human consumption.

The emu and ostrich industries have been limited by inadequate market research and underdevelopment of the limited markets which have been identified. Emu and ostrich meat are marketed as a high quality, low fat, tasty meat and while widely available in Australian restaurants, are yet to be regarded as a regular component in home cuisine. The meat is mostly marketed fresh in various cuts. Some attempts have been made at value-adding, with some firms using the meat to produce unique smallgoods and pies. The emu industry has enjoyed the opportunity presented by Qantas listing emu meat dishes in its first class international cuisine but this high profile opportunity has not translated to significant base market demand. The ostrich industry has been active in trying to diversify its markets by moving into export. In 1998 exports rose by 400 per cent to 425 tonnes worth \$2.4m, with the main markets being the Netherlands, France, Germany and Bulgaria. Other markets were in Asia, the Pacific and the Middle East.

The main products of the deer industry are venison and deer velvet antler. The bulk of venison production from the estimated herd of around 160,000 farmed deer in Australia has gone to the EU, and in particular Germany. Efforts to add value to venison and to differentiate product have been constrained by an oversupply of mainly New Zealand venison into EU markets coupled with the Asian economic downturn. The industry's problems are compounded by the fact that there are 34 vendor/processors in Australia, 13 of whom are in the export market, competing for available annual production of around 1000 tonnes.

Australian exports of goat meat in 1998 totalled 10,928 tonnes, which represented 57 per cent of total world exports of goat meat. Goat meat was exported to 25 countries and returned more than \$22 million to Australia. Live goat exports valued at \$2.1 million were made to mainly Asian and Middle East markets where demand has been increasing, on average, around 8 per cent per year.¹⁴

Opportunities for improving the value of Australian goat meat production could arise from the development of quality assurance systems which are reflected in appropriate branding. Further advantages might accrue from targeting particular markets, especially in non-Western markets, with specific cuts, packaging, branding, promotion and distribution systems. For example some Asian markets demand lean skin-on carcasses while others stipulate Halal slaughter. The industry could also value add its product by moving away from its traditional 'whole carcass' culture towards one of diversification and value-adding through marketing of specific cuts and products.

¹³ NEWR: Journal of the Kangaroo Industry Association of Australia, No 13 May 1999

¹⁴ Commonwealth of Australia, (forthcoming), Prospective Australian Animal Industries – Strategic Discussion Paper

Eggs

Value in the egg industry is added through product differentiation and processing. Eggs are differentiated in the domestic market by criteria such as price, size, method of production (free range, barn, cage) Omega 3, organic, etc. Other value added egg products include a range of liquid, dried and frozen whole eggs, egg white and egg yolk products, low cholesterol egg products, scrambled egg mix, peeled hard-boiled eggs and pickled eggs.

Australia produces nearly all of its domestic requirements for eggs and egg products. The Gross value of production is variously estimated by the ABS at \$266m or \$300m by the Australian Egg Industry Association (AEIA) for 1997/98. Retail sales were valued by the ABS at around \$520m in the same year.¹⁵ Most eggs sold into the domestic market are in fresh form. Exports amounted to a mere \$1.23m in 1997/98, mainly processed egg products. At the same time egg imports amounted to only \$3.49m in the same year, also mainly processed egg products reflecting Australia's quarantine protocols.

Opportunities exist for Australian egg exports to Asia, particularly following the turmoil of the Asian financial crisis. At present these opportunities are most likely to be for fresh (ie: in the shell) eggs to meet demand that can no longer be supplied by local industries. For example, in Indonesia, where production was highly dependent on imported feeds, the industry has collapsed and about 120 tonnes of eggs from Thailand and 300 tonnes from the US had to be imported by air between late 1998 and early 1999 to cater for soaring demand from Muslim consumers during the fasting month of Ramadan. In Singapore, consumers and regulators are increasingly scrutinising the quality of imported foods from traditional sources following the outbreak of Nipah virus in Malaysia. Singapore sees Australia as a potential source of 'clean' foods and officials of the Singapore Primary Production Department are currently working with AQIS on accrediting and certifying Australian poultry farms in a position to supply the Singapore fresh egg market. Malaysia has previously supplied seventy per cent of the Singapore market for eggs, but there is a premium market in Singapore for quality assured products.

Wheat

Wheat is often thought of as the archetypal bulk commodity and certainly around 80 per cent of Australia's wheat production is exported in bulk form. However, there have been great advances in adding value to Australia's wheat crop in recent years.

As well as processing, value has been added to Australian wheat through a range of services and other activities. In recent years the Australian Wheat Board (AWB) and its successor AWB Ltd, have added value to bulk wheat through better quality assurance (protein, moisture, residue levels etc), development and segregation of varieties suited to particular end products, especially noodles, training in milling and baking programs for buyers of Australian wheat, and joint ventures with research bodies to develop wheats suited to customer requirements, eg AWB Ltd's involvement in the biotechnology venture, Graingene, with the CSIRO and the Grains Research and Development Corporation.

The domestic market for flour is relatively steady with around 46 per cent used for breadmaking and 25 per cent for starch/gluten manufacture. Flour exports have risen from 107,000 tonnes in 1996/97 to around 180,000 tonnes for 1998/99, valued at \$65m. Exports of gluten have remained steady at around 40,000 tonnes (worth \$60-80m) or 50 per cent of output.

¹⁵ Australian Egg Industry Association, Facts Sheet, March 1999

Australia is a minor exporter of flour in a world market of 10m tonnes. The major players are the EU (5-6mt) and the US, China, Argentina and Turkey (0.5-1mt each). The potential for exports of flour and gluten is affected by the subsidy practices of major competitors. For example, gluten manufacture ceased in Tasmania in 1996 when subsidised international prices made it uneconomic to continue exports to the USA. Freight disadvantages associated with exporting processed as opposed to bulk products, and higher trade barriers on processed products in some countries, all mitigate against further value adding by processing.

Small niche markets have been developed in recent years for bread pre-mixes and organic and other specialty flours.

Barley

Value-adding to the Australian barley crop is considerable. The domestic market for barley as malt comes primarily from brewers and has remained relatively stable at around 150,000 tonnes per year. In addition, Australia exports around 450,000 tonnes of malt worth \$180m annually and about 1.5m tonnes of malting barley (compared to 1.5 to 2m tonnes of feed barley exports).

The volume of malt exports has increased gradually over the last five years. Australia is the third largest exporter of malt after the EU and Canada and accounts for about 10% of world trade. The potential for increased exports of malt as opposed to the raw product, malting barley, is strongly influenced by the policies of the EU, as the major exporter.

Value-adding is not limited to processing barley. As in the case of wheat, quality assurance and the development of new varieties suited to particular end uses, has provided the opportunity for statutory marketing authorities to add value to exports of bulk products. These trends are expected to continue if Australia is to remain competitive and maintain its market share, particularly in the malting barley/malt markets which serve the brewing industries in those countries.

Oilseeds

Total oilseed production in Australia is approximately 2 million tonnes. Oilseed production is dominated by one commodity (canola), which accounts for approximately 80% of production or around 1.6 million tonnes.

Around 1.2 million tonnes of canola is exported as raw product. However, only a small percentage of processed canola is exported in the form of canola oil -around 62,000 tonnes of canola oil is exported. There is also an export market for value-added oilseed product in the form of oilseed meal for stockfeed. However, at present most of these exports occur as a result of excess production over domestic demand.

Australian oilseed products are currently seen to have a market advantage because of Australia's 'clean green' image and higher quality and also because there are no genetically modified varieties of oilseed being grown in Australia. However, their competitiveness is affected by import duties imposed on processed oilseed products in some countries, for example Korea.

Increased development of processing plants is unlikely to occur due to this situation. Also the level of domestic production can vary substantially depending on seasonal conditions, thus making it risky for processors to invest in new plant. Secondary refining of the oil from oilseeds is not viable because of the decrease in shelf life once this level of processing occurs.

The use of genetically modified organisms and biotechnology to value add through improved varieties and increased production is possible, but there is concern within the industry about consumer perceptions of the safety of these products.

Horticulture and wine

Value-adding in horticulture historically involved processing to produce dried, canned or frozen products. The situation now is very different. Horticulture today is a very competitive industry characterised by relatively low barriers to entry and comparatively high resource mobility. Horticultural enterprises are seeking to add value to their products in a great diversity of ways.

Increasing standards of living, a greater appreciation of non-traditional foods among consumers and the growth in supply chains worldwide have had a profound effect on value-adding in horticulture. Consumer demand for high quality, fresh fruit and vegetables in preference to traditional processed products over the last decade has been marked. Consumers are demanding higher standards of food quality and greater convenience with product safety now a fundamental consumer expectation. Commercial success is becoming increasingly dependent on the ability of horticultural enterprises to respond to these changing market dynamics and foster innovative practices that exploit emerging growth and development opportunities.

The horticultural industry is positioning itself to capitalise on a number of strategic advantages, such as Australia's close proximity to the growing Asian markets and Australia's "clean green" image. Demand for differentiated products to supply niche markets continues to grow with increasing economies of scale in handling, packaging, storage, freight and distribution assisting in the realisation of new marketing opportunities.

Successful research and development endeavours have resulted in the release of new cultivars with properties that allow producers to capture an increasing share of the consumer dollar. The release of new products such as the Pink Lady apple, the Hass avocado and the Kensington Pride mango has translated into increased prices due to significantly improved taste and quality attributes for which consumers are willing to pay premium prices. Through plant breeding techniques, the growing season, shelf-life and ripening period of many fruits have been altered in ways that minimise product spoilage and enhance storage and handling efficiencies. Again, this has a commensurate benefit for the market price of the product. Biotechnology will ultimately expand the choice of products competing for the discerning consumer dollar, although demand will be dependant on consumer perceptions about biotechnology.

Many horticultural industries have developed marketing campaigns that promote commodity brands, such as bananas, with targeted advertising leading to increases in demand and/or higher retail prices. Grading of horticultural products serves to better match products and markets while the implementation of quality assurance schemes has allowed growers to increase the value of supply contracts through product consistency.

Value-adding through the development of convenient and 'consumer ready' products is an important area of growth in the horticultural industry. For example, lightly processed, mixed commodity products such as fresh cut salads are also playing a prominent role in value adding as does product packaging that is tailored to the specific requirements of the just-in-time convenience consumer. Similarly, in the nursery industry, an increasing trend towards higher-value ready-to-plant products is becoming evident.

Traditional processing companies such as Ardmona, Simplot, McCains, SPC and Golden Circle also play a vital role in adding value to specific products through processes such as canning and

freezing which prolong the shelf-life of products and enhance domestic storage and consumer convenience.

Rapid uptake of new communication technologies is expected to give further impetus to supply chain efficiencies. Indications suggest that electronic commerce will reduce the time taken for produce to reach the consumer. New delivery systems are creating further value adding opportunities with fruit and vegetables now being able to be home-delivered by placing an order through the internet.

The wine industry is one of the most dynamic and successful industries in the portfolio. Australia is one of the leaders in winemaking and viticultural technology innovation and adoption. Every year Australian winemakers are in demand to work vintages for northern hemisphere wineries to improve the quality wine being produced by those wineries.

While Australia's climate allows a diversity of wine styles it also affords a much more reliable environment for winemaking and viticulture. This coupled with technological know how and a strong commitment to ongoing research and development is allowing Australia to develop new markets for its wine products.

The wine industry has set itself a target of being, by 2025, the most influential and profitable supplier of branded wines in the world. The strength of the Australian industry is that it can provide a high quality product at a competitive price. As a result the industry has in 1998/1999 reached \$1 billion of wine exports per annum, up from a base of \$135 million per annum in 1991.

Sugar

Although the sugar industry adds value in a number of ways, the proportion of total production which is subject to value-adding is relatively small. Australia is recognised as one of the most efficient raw sugar producers in the world and has developed market strategies to utilise this competitive advantage, with about 80 per cent of Australia's sugar production exported, primarily as bulk raw sugar.

The industry value-adds to meet domestic refined requirements and also utilises milling byproducts where possible. For example, sugar mills supply electricity to surrounding grid areas use the cane byproduct bagasse as the fuel source. Waste water is also recycled to irrigate surrounding farms and high energy stockfeed is produced using molasses as a base.

Only a very small proportion of Australia's sugar exports are value-added. The following tables detail total exports as proportion of production and value-added products as a proportion of exports respectively between 1993-94 and 1997-98.

Australia sugar production and exports 1993-94 to 1997-98 (000 tonnes)

	1993-94	1994-95	1995-96	1996-97	1997-98
<i>Production</i>	4,234	4,931	4,837	5,301	5,567
<i>Exports</i>	3,456	4,112	3,981	4,309	4,489
<i>Exports as a proportion of production</i>	81.6 %	83.4 %	82.3 %	81.3 %	80.6 %

Source: ABARE, Australian Commodity Statistics 1998

As can be seen from the information in the table, raw sugar in bulk has made up about 95 per cent of Australia's sugar exports for much of the 1990s.

**Australia sugar exports
1993-94 to 1996-97
(000 tonnes)**

	1993-94	1994-95	1995-96	1996-97
<i>Exports</i>	3,456	4,112	3,981	4,309
<i>Raw sugar in bulk</i>	3,443 99.6 %	3,951 96.1 %	3,747 94.1 %	4,110 95.4 %
<i>Raw sugar in bags</i>	2.3 0.07 %	3.1 0.08 %	23.5 0.59 %	16.9 0.39 %
<i>Refined sugar</i>	10.8 0.31 %	157.6 3.83 %	210.8 5.3 %	182.2 4.23 %

Source: ABARE, Australian Commodity Statistics 1998

Encouragingly, exports of refined sugar as a proportion of total exports, although still very small, have increased during the second-half of the decade.

Rice

The unique structure of the Australian rice industry has played an important part in its extensive acceptance of value-adding. The industry is predominantly (ie: 99 per cent of production) located in the Murrumbidgee Irrigation Area of NSW. The rice is vested in the Rice Marketing Board for NSW which uses the Ricegrowers' Co-operative Ltd (RCL) as its agent. There is a small industry in Victoria and there is potential for development in WA and Queensland.

The vertical integration of the industry has also allowed it to develop a number of other successful value adding activities with niche markets for many of the products. Around 85 per cent of production is exported, primarily in smaller size bags. RCL markets a range of products including packaged and branded rice of different types and mixtures, rice cakes, rice bran and rice flour. Bulk rice is sold for further processing by food companies into a range of products including breakfast cereals, soups and meat and food products.

The basic marketing thrust of RCL is to market the maximum possible proportion of the product available in branded packets. Promotional support for brands, domestically and internationally, involves a full range of advertising strategies, point of sale promotions and participation in selected trade exhibitions.

RCL policy is not to participate in generic packaging of rice as generic sales do not attract a premium. RCL is continuing to explore new value adding opportunities.

RCL also owns and operates two stockfeed mills in Leeton, NSW and Tongala, Vic which use the by-products of rice milling, the hulls, pollard and damaged rice, to produce a range of stockfeed pellets and meals.

Other uses of by-products from the milling process include rice hulls for stock bedding, as mulches, potting mix and compost for horticulturalists. The Biocon plant, owned by the RCL, burns rice hulls to produce electricity used to process waste citrus peel which is used in the stockfeed production. The resultant ash is used in industrial filters.

The rice industry, through research and development, has developed a product to compete with imported rice, predominantly fragrant varieties for the Asian population.

Food Processing

The processed food sector is Australia's second largest manufacturing sector with Industry Gross Product of \$11.4 billion and turnover of \$43.7 billion in 1996-97. In 1997-98 Australian processed food exports totalled \$12.1 billion, an increase of over 10 per cent on the previous year, and over 60 per cent up on 1990-91 figures.¹⁶ There are around 3934 processed food manufacturing enterprises, employing approximately 162,000 people. Most of these enterprises are SMEs. The processed food sector accounts for approximately 18% of Australia's manufacturing output. The industry produces a diverse range of products ranging from minimally through to highly processed foods and beverages for the domestic and export markets, utilising both Australian and imported raw materials. Further examples of minimally and highly processed foods are provided in Appendix 1.

Most of the increase in processed food exports since 1990-91 has been highly processed food exports. These accounted for 45 per cent of the total in 1997-98, up from 28 per cent in 1990-91.

Australia is a mature market for processed food, exporting around 25 per cent of the processed food produced. The OECD estimates that by 2000, processed food will account for 75% of world agricultural trade, rising from 50% in 1985. The major export potential for Australian processed food products will continue to be in Asian markets. There are still profitable growth opportunities for both processed and unprocessed food exports to Asia even in the current downturn.

Australia's competitive advantages include an abundance of raw commodities, a reputation as a reliable supplier of high quality and safe food products, leading edge processing technology and highly skilled workforce, close proximity to Asian markets and our multicultural society. Consequently, any significant increase in the production of processed (value added) food will be dependent on an increased demand for exports of Australian processed food. There is potential for some growth in the domestic market for processed food though this will largely be dependent on changing consumer trends such as home meal replacements, organic foods, sous-vide products, functional foods and beverages, and meeting the increasing demand from multicultural communities for foods, eg. Asian vegetables.

In addition, there is potential for attracting investment by foreign enterprises in Australia as a base for exporting to third countries, and for Australian investment, including through joint ventures, in Asian countries for domestic consumption and export to third countries utilising Australian raw materials. These types of ventures help overcome barriers to entry for processed products in some markets.

Value-adding and other agricultural products

Wool

Australia has a comparative advantage in wool production, and is the world's largest producer and exporter of apparel wool. Wool is a highly value-added product, and finished products are sold at a

¹⁶ Processed foods and beverages include minimally and highly processed food but not unprocessed food (eg horticultural products, livestock, bulk grains). Processed foods include meat, dairy products (inc milk), sugar and wine.

premium on world markets. The value added on finished products can be up to 40 times the value of the greasy product.

There has been an increase in efforts to add value to the Australian wool clip over the past decade both through the introduction of quality assurance, contamination control and electronic trading and through the processing of a larger proportion of the clip. The extent of this can be seen from the data in the following table.

Australian Production of Processed Wool and Exports

YEAR ENDED JUNE:	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997
Australian Shorn Wool Production	642.4	752.7	1033.	993.1	801.0	815.0	761.7	682.5	645.9	661.0
Clean Wool Equivalent	404.3	483.3	679.6	651.5	520.7	537.7	509.9	440.9	425.0	425.2
Australian Scoured Wool Production	70.1	83.5	85.7	106.6	149.0	145.2	154.2	142.3	138.9	144.8
Australian Carbonised Wool Production	12.4	14.7	19.3	17.7	26.0	25.8	23.0	23.0	19.4	20.5
Total Early Stage Processed in Australia	82.5	98.2	105.0	124.3	175.0	171.0	177.2	165.3	158.3	165.3
% of Clip	20.4	20.3	15.5	19.1	33.6	31.8	34.8	37.5	37.2	38.9
Wooltop Production in Australia	19.9	22.6	19.5	25.1	37.0	37.7	38.1	44.9	54.0	57.4
Woollen Yarn (excluding carpet)	3.990	3.082	1.974	1.885	2.056	2.403	2.453	2.525	1.805	1.673
Worsted Yarn	5.329	5.044	3.722	3.345	3.198	3.746	3.664	3.536	2.923	3.077
Woollen Fabric (including blanketing) 000 sq. metres	9098	7009	4314	3495	3683	4314	3567	3613	2442	2604
Worsted Fabric (including Mix) 000 sq. metres	6433	6476	6519	6540	6107	6327	6418	7282	5692	5435
EXPORTS										
Scoured and Carbonised Exports	61.4	75.2	76.2	94.6	131.9	129.2	134.1	119.1	112.4	112.9
Top Exports	12.5	15.1	15.0	20.0	23.7	24.4	38.3	42.7	50.7	57.3
Greasy Export (Clean Equivalent)	317.2	356.0	335.1	302.3	404.3	367.7	370.1	305.0	273.4	322.3
Early Stage Processed as % of Shorn Wool Exports (Excluding Noil & Waste)	22.4	20.2	21.1	27.5	27.8	29.9	31.8	34.7	37.4	34.6

Source: ABS Statistics, Woolmark Statistics.

Wool processing involves early stage processing, such as scouring which adds about 10 per cent to the cost of the product, and further processing, such as top-making which adds about 50 per cent to the value of scoured wool. There are currently 20 early-stage wool processing plants, owned by both Australian and foreign interests, operating in Australia.

Presently, about one-third of Australia's wool exports have a small amount of value added through early-stage processing (ie scouring). Only about two to three per cent of the clip is processed beyond this. This is largely, but not entirely, for domestic consumption. Topmaking capacity has doubled during the 1990's, largely due to a government assistance program. The industry, however,

is suffering from worldwide over-capacity, closures and cut-backs, although opportunities do still exist for efficient and cost effective processors.

Not all product is made into top. A smaller proportion of Australian wools, generally of broader microns, is sold for processing on woollen chains, as opposed to the worsted chain. Australia also has limited opportunities for blending of products, whether they are with different wools or synthetics which typically occurs at the yarn stage but can occur at the topmaking stage. Australian top, while competitive, is often re-processed overseas with other wools to make a blended top. Unfortunately, this can result in product of variable quality.

Australia is competitive in early stage wool processing, which is capital intensive, but is generally uncompetitive at the more labour intensive middle and later stages other than for small niche markets. This is due to the high wage structure and the labour-intensive nature of the operations, particularly at the making-up final stage where the value of the product is typically doubled.

Cotton

Australia has a comparative advantage in cotton production and is the world's seventh largest producer and the third largest exporter of cotton. Australia ranks among the world's most efficient in the processing, distribution and marketing of raw cotton. However over 90 per cent of cotton grown in Australia is exported as raw cotton (cotton lint). Australia ranks around 39th in terms of volume of raw cotton spun to yarn. In fact, Australia is the only major cotton producing country which does not have a large spinning industry.

There are no significant manufacturers of lightweight cotton fabric in the domestic market. Australia faces significant disadvantages relating to wages and labour on-costs compared with non-OECD countries, especially in labour intensive activities in cotton processing.

World markets for cotton yarn and fabric are very competitive and industry protection by governments is prevalent. Competition for cotton products in world markets is tight, with subsidies in the form of industry assistance programs a feature of many cotton growing countries.

Leather, hides and skins

Hides and skins are derived from a number of animal industries in Australia, including the cattle, sheep, goat, kangaroo, emu, ostrich and crocodile industries. Production, however, is dominated by the traditional livestock industries (ie: cattle and sheep industries).

A number of meat processors and specialist operators are involved in the processing of hides and skins of slaughtered animals. Hides and skins may be treated in a variety of ways, from simple preservation measures to tanning. The bulk of cattle hides were exported in salted or brined form to processors overseas. Over the last two decades processing of cattle hides as wet-blue leather has increased significantly, with new tanneries being established and old equipment in existing plants being upgraded.

Fellmongering, which involves the separation of wool and skins from sheepskins, has also expanded in Australia over the last decade. Improved technology has allowed the commercial recovery of wool often previously considered as uneconomic. Australian merino leather has unique qualities which market research suggests may make it highly attractive to customers.

Skins and hides are also derived from some of the game industries and are used in the manufacture of fashion goods. In fact, leather is the most valuable product derived from the ostrich, emu,

crocodile industries. South Africa dominates world ostrich leather production, with the low cost of labour, at around \$A2-3 per day, likely to make the South African tanneries very competitive with Australian tanners in the foreseeable future. Australian producers are currently being offered from \$103 for a fourth grade hide to \$281 for a first grade specimen by agents for the South African tanner PT Royal Ostrindo.

Quality emu leather sells between \$270 to \$325 per square metre with average birds producing .46 - .65 square metre. Significant efforts need to be made to improve the quality of emu leather available for marketing. Kangaroo leather is particularly suited for manufacture of quality footwear. This is mostly produced overseas from exports of Australian kangaroo skins. Kangaroo skin exports were reported down 20 per cent in 1998 to 2.1 million skins, though the reason for this is unclear. Crocodile skin is used in the manufacture of high quality fashion goods.

Other products

Efforts have been made to develop and market other, non-food products derived from agriculture.

The fodder and stockfeed industry has developed a range of innovative products over the last decade or so which have significantly increased returns to producers and opened new market opportunities. For example, the use of new technique and the introduction of quality management programs have enabled the development of a small, but expanding and lucrative trade in compressed hay to Japan.

A number of attempts have been made to establish pulp mills utilising wheat straw to produce pulp. Wheat straw is currently discarded or burnt as a waste product.

In the game industries oil derived from emus after slaughter is reputed to have a number of therapeutic and other qualities, and, although these have yet to be confirmed by scientific research, emu oil has been used in several products. For example, the oil is used as a carrier medium in the cosmetics industry and has been used in various creams for treatment of arthritis and joint pains.

Antler or velvet is an important product of the deer industry, and is value-added by processing it as a health food. Velvet is value-added by at least two firms in Australia to therapeutic product stage. In 1999 the price for A grade velvet is \$50/kg, with a quality mature red deer stag able to produce about 7kg of velvet per year. Most of Australia's velvet production has been exported to Asian markets. However, there has been a downturn in demand as a result of the Asian financial crisis. Returns for velvet have been as high as \$150/kg in the recent past.

It should be remembered that in the case of some of these products the value-adding initiatives are particularly important since they would have been discarded and no income would have been derived from them.

Value-adding in Australia's fisheries industries

In 1997-98 the gross value of Australian fisheries production totalled \$1.86 billion. Major sectors included prawns (\$378m), rock lobster (\$373m), abalone (\$176m), tuna (\$111m) and other finfish. The value of aquaculture production was \$491m.

A large proportion of Australia's fish and seafood products are exported. Exports comprise mainly high unit value, low volume perishable products such as rock lobster, prawns, pearls, abalone,

finfish and scallops. Exports in 1997-98 totaled \$1.49 billion. Major export markets included Japan, Hong Kong and Taiwan.

Although the potential to increase production from the wild caught sector is limited, because most of Australia's fisheries are fully exploited, there are considerable opportunities to increase the value of Australian seafood production, including through improved value-adding strategies.

It has been estimated that, at present, around 90 per cent of the fisheries catch is used in fresh and frozen form. Most of the remainder is canned or reduced to fishmeal. There is little value-adding through processing of fisheries product in Australia, although the knowledge and the technologies for achieving this are available either in Australia or overseas.

Currently, processing can take the form of elaborate transformation, for example producing oven ready foods or preparations for fast food outlets, or by 'reforming' the flesh from smaller fish into larger fillets.

Most seafood processors in Australia use imported fish either as their major source of raw material or to make up shortfall, eg production of fish fingers destined for the domestic market is based on imported fish.

Processing establishments vary substantially in size, scope of operations and sophistication of technologies employed. They range from establishments undertaking only the most basic cleaning, filleting, packing and freezing processes (which comprise the majority) to those equipped with modern equipment and the capacity for product diversification.

Most seafood processing establishments operate on a seasonal basis and with casual staff. Most produce seafood products exclusively, while a small number process other food lines.

There is a widespread feeling in the industry that processing is more closely related to 'cost adding' than to 'value adding'. With few exceptions the motivation for investment and innovation in processing activity is lacking. The reasons for this include the:

- difficulty in guaranteeing volume and continuity of supply of raw material,
- perceived market preference for whole or minimally processed fish, and
- comparatively high cost of Australian product and labour, making processing uneconomic.

To encourage any significant interest in further processing it is necessary to demonstrate that profitable market opportunities for processed products exist, that there is assistance available to develop these and that there is backup at a technical level should this be required.

As a result, the costs of processing tend to be high and in most cases the activity is either uneconomic or marginally economic. Processors have turned to imported raw material and targeted traditional market opportunities, such as breaded fish portions. Other processing activities, which are labour intensive, such as canning, are more economically undertaken overseas, such as in Thailand.

While there is scope for increasing the value of fisheries product through further processing, it is very limited under the existing cost structures and resource availability. However, there are commendable examples of success in this objective, a notable one is fish skin leather for use in wallets, bags, belts and shoes and clothes. The development of live fish trade is another activity, which has potential to generate maximum returns from a limited resource base.

Some of the best export returns for fisheries products are for live fish. For example the export of live coral trout can realise returns of up to five times those received for fresh fillets. The industry has a very strong record in meeting the demand for premium live product. For example, in 1997-98 nearly 60 per cent of Australian rock lobster exports were sent live and attracted a premium of 27 per cent over whole frozen exports. The industry has been quick to seize on such opportunities, adding value to their product by introducing quality management systems that deliver product in optimum condition.

The Commonwealth Government and prominent seafood industry companies have actively promoted the quality and freshness associated with Australia's clean and green image through international marketing campaigns. Successful marketing has resulted in price premiums for Australian seafood in export markets.

The adoption of quality management systems is important if industry is to maintain market access, improve international competitiveness and increase returns. There are a number of quality related initiatives completed or currently underway within the Australian seafood industry, including broad programs, such as SeaQual and the Australian Seafood Industry Quality Assurance Program, and company-specific initiatives. However, diversity in the seafood industry across both geographical and species lines has hampered the development of co-ordinated industry wide quality management systems. Considerable further work remains to be done.

Seafood is highly perishable and consumers worldwide are asking for an attractively presented, wholesome product. The production and distribution chain for seafood products (particularly exports) is often long, typically involving catchers, transporters, processors, exporters, freight forwarders, wholesalers and retailers. There is a recognition that the best way for Australian industry to meet consumer preferences is through the development of integrated 'through the chain' quality management systems, which requires commitment from all stakeholders. Such an approach would give customers greater confidence in Australian seafood products, adding value and attracting a price premium.

Value adding in Australia's forestry industries

Australia's forest and wood products industries (ie: forestry, sawmilling, wood and paper processing) had an annual turnover of over \$11 billion in 1996-97, contributing around 2.5 per cent to Gross Domestic Product.¹⁷ This makes forest industries the second largest manufacturing industry in Australia, producing over \$1 billion of income a year for Australia. About 82,500 people are directly employed in the forest industries including 62,900 employed in the manufacture and processing of wood and paper products.

In Australia, there are around 1126 hardwood mills and 265 softwood mills, with the hardwood mills being generally small scale and scattered and the softwood mills being large and integrated with other processing. There are also 22 pulp and paper mills and 18 panel board mills.

Australia currently produces about 83 per cent of its sawn timber needs obtaining 34 per cent of these needs from native forests and 66 per cent from softwood plantations. In 1996-97 Australia exported about \$97 million of round and sawnwood products, \$516 million of woodchips, \$370 million of paper and paper products and \$64 million of other forest products.¹⁸ However, we imported about \$375 million of round and sawnwood products, \$1.7 billion of paper and paper products and \$397 million of other forest products.

¹⁷ Commonwealth of Australia, 1998, *Australia's Forests: Path to Sustainability (Industry 8-98)*

¹⁸ *ibid*

Australia's trade deficit in forest products in 1996-97 was \$1.44 billion. The majority of imports comprised paper and paperboard products which accounted for \$A1.03 billion of Australia's trade deficit. In 1996-97 exports totalled \$1.05 billion. This consisted of woodchips (49 per cent) and paper and paperboard products (33 per cent). Most of Australia's imports are from New Zealand, the United States and Canada, while the bulk of exports are to the Asia-Pacific region. Considering Australia's small population and relatively large forest estate, the trade deficit has been the focus of considerable attention.

Australia's lack of manufacturing capacity has seen us exporting relatively low value unprocessed wood while importing high value processed paper products. It is expected Australia's trade deficit will continue to increase unless there is substantial new investment in pulp and paper manufacturing capacity. Over recent years, uncertainty about access to forest resources and the high environmental standards expected in pulp mills have discouraged investment in value-adding operations such as pulp mills.

The supply of wood from Australia's plantations is expected to increase over the medium term. It will reach around 70 per cent of total Australian consumption of sawnwood by the year 2000 as softwood timbers displace higher priced imported and domestic hardwood timbers. To facilitate increased softwood production, mill capacity will be expanded.

Emerging shortfalls in the world's supply of wood are expected to provide Australian producers with export opportunities. The native forest industry will continue to move further into high value products featuring the natural beauty of Australian timbers. Governments agreed in the National Forest Policy Statement to promote continued development of internationally competitive and sustainable forest industries. Efficient industries based on maximum value-adding and efficient wood use will provide the basis for expanding manufacturing which, in turn, will generate national and regional benefits.

Through Regional Forest Agreements (RFAs), Governments will provide secure access to wood resources and create an environment which encourages investment in value-adding manufacturing. A Wood and Paper Industry Strategy (WAPIS) commenced in 1996. The strategy comprises a four year Commonwealth initiative to encourage investment and value-adding in the forest industries. The strategy details Government actions to promote development in industry skills and resources with a focus on regional development.

How does Australia compare to other countries

This section examines the current state of value-adding in selected industries focussing particularly on Australia's major competitors. There are two reasons for concentrating on competitor countries:

- agricultural, fisheries and forestry industries in these countries tend to have a similar structure to the Australian industries; and
- as a consequence of the trade competition AFFA has better knowledge and information on these countries.

In general, it does not appear that Australia is any more reliant on agriculture, fisheries and forestry or value-adds any less to these products than other comparable countries. The following table compares the contributions of agriculture (including hunting), fisheries and forestry and of food, beverages, tobacco and wood and paper products to the Gross Domestic Product (GDP) of selected OECD countries.

Output of Agriculture, fisheries and forestry industries and value-added activities

Country	GDP	Agriculture, fisheries and forestry ^a	Proportion of GDP	Food, beverages, tobacco, and wood and paper products	proportion of GDP
Australia	387,325	11,911	3.08%	19,832	5.12%
Canada	667,414	13,993	2.10%	44,805	6.71%
New Zealand ^b	73,125	5,380	7.36%	7,001	9.57%
United States	5,656,400	110,300	1.95%	284,800	5.04%
France	6,763,949	204,959	3.03%	343,542	5.08%
Germany	2,647,600	33,800	1.28%	145,220	5.48%
Japan ^c	451,297	9,977	2.21%	18,658	4.13%

Source: OECD, National accounts detailed tables volume II 1981-1993, 1995 edition

Notes:

GDP estimates are in local currencies, 1991, million units and at current prices

a) AFF - agriculture, hunting, fisheries and forestry

b) 1990 figure

c) excludes tobacco and some paper and forest products; figures in billions of yen

With the exception of New Zealand and Germany, agriculture, fisheries and forestry makes up about 2-3 per cent of GDP for most of the OECD countries considered. The place of agriculture, fisheries and forestry in the Australian economy is not significantly different to that of the other countries. Similarly, using the contribution of food, beverages, tobacco and wood and paper products to the GDP as an indicator of the processing sector's output, Australia's performance can be seen to be comparable to several of the OECD economies, including the United States, Germany and France.

While this data only deals with processing, and therefore does not cover other value-adding activities, it does provide some indication of Australia's performance against comparable countries.

Dairy

In 1997 Australia ranked as the third largest exporter of dairy products, with 12 per cent of world trade, after the European Union (38 per cent) and New Zealand (31 per cent).

The following table compares Australia's share of world trade in selected dairy products with the other major exporters.

Share of world dairy trade for selected products – 1997

Product	Australia	New Zealand	EU	USA	Other
<i>Cheese</i>	12 %	22 %	46 %	4 %	17 %
<i>Butter</i>	15 %	44 %	28 %	4 %	10 %
<i>Whole Milk Powder</i>	8 %	31 %	48 %	4 %	8 %
<i>Skim Milk Powder</i>	17 %	18 %	28 %	11 %	26 %

Source: ADC 1998

New Zealand is Australia's main competitor in dairy products. The New Zealand dairy industry is highly competitive and export oriented. Nearly 90 per cent of production is exported. Dairy products constitute 20 per cent of New Zealand's total merchandise trade receipts every year.

New Zealand produces a full range of dairy products including cheese, butter, milk powders (skim, butter and whole) and casein.

As in Australia, dairy processing in New Zealand has been dominated by co-operatives. However, the New Zealand industry is rapidly becoming more concentrated and is moving towards a single 'mega-co-operative'.¹⁹ Industry deregulation and amalgamations saw the number of co-operatives fall from 12 to nine during 1998. The South Island Dairy Cooperative has merged with the New Zealand Dairy Group (NZDG) to effectively control the direction of the industry. This has prompted another major player, Kiwi Cooperative Dairies, to push for a merger with NZDG to form a mega-co-op in which milk processing and ingredients marketing would be handled by a single integrated company and consumer marketing would be undertaken by a separate farmer-owned company. Some smaller, niche co-operatives are expected to remain outside the mega-co-operative.

The following table compares the proportion of total milk production of the major exporters which is processed into selected products.

**Proportion of total milk production processed into selected products – 1997
(000 tonnes)**

<i>Product</i>	Australia	New Zealand	EU	USA
<i>Total Cows Milk Produced</i>	9,723	10,826	113,300	71,173
<i>Butter</i>	153.5 1.58 %	394.2 3.64 %	1,756 1.55 %	522.9 0.73 %
<i>Cheese</i>	301.6 3.1 %	282.1 2.61 %	5,868.3 5.18 %	3,337 4.7 %
<i>Whole Milk Powder</i>	123.5 1.27 %	434.4 4.01 %	874.5 0.77 %	55.4 0.08 %
<i>Skim Milk Powder</i>	234 2.41 %	197.7 1.83 %	1130.9 1.0 %	544.9 0.77 %
<i>Condensed Milk</i>	-	-	1253.4 1.11 %	255.3 0.35%
<i>Casein</i>	6.4 0.07 %	98.8 0.09 %	133 0.01 %	-
<i>Total of selected categories</i>	819 8.4 %	1407.2 13 %	11,016.1 9.72 %	4,715.5 6.63 %

Source: ADC 1998

The proportion of milk value-added as butter in Australia is on a par with the EU, but less than half that of New Zealand. New Zealand also value-adds a greater proportion of milk as milk powders than its competitors, although Australia processes a greater proportion of milk as skim milk powder. Among the products considered, the main area of value-adding of milk by the Australian, EU and US dairy industries is in cheese. The proportion of milk devoted to cheese production has steadily increased in all three since 1993. The average annual rate of increase in the proportion of milk value-added as cheese has been greatest for Australia, at a rate of almost twice that for the EU.

¹⁹ Australian Dairy Corporation, 1999, *New Zealand Industry Developments*, pp2-4

From the foregoing it can be concluded that the Australian dairy industry is not substantially different from its competitors in the proportion of milk it value-adds ,either into selected products or in total.

Sugar

In 1997-98 Australia ranked as the third largest exporter of sugar, with over 11 per cent of world trade, after the European Union (21 per cent) and Brazil (almost 19 per cent).

Sugar is traded in both raw and white/refined form, with the latter composing slightly more than half of traded sugar throughout the 1990s. The four main exporters of raw sugar since the mid-1990s, in rank order, were Australia, Brazil, Cuba and Thailand. The main exporters of white sugar for the same period were the European Union, Brazil and Thailand. Australia has been the world's largest exporter of raw sugar since 1993-94 with, on average, about one-quarter of the trade, but has negligible white sugar exports. Conversely, the European Union has about 40 per cent of the white sugar trade, but is a negligible exporter of raw sugar. Brazil and Thailand are important exporters of both raw and white sugar and in 1997-98 both countries exported more sugar in refined form than in raw form. In fact, a greater proportion of Brazil's sugar exports throughout the decade have been in processed form. It is only in recent years that a significant proportion of Brazilian sugar exports have been in raw form.

Sugar exports 1993-94 to 1997-98 (Mt in raw sugar equivalent)

	1993-94	1994-95	1995-96	1996-97	1997-98
Australia					
<i>Raw sugar</i>	4.01	4.07	4.25	3.84	4.13
<i>White sugar</i>	-	-	-	-	-
Brazil					
<i>Raw sugar</i>	0.67	1.10	0.99	2.27	3.33
<i>White sugar</i>	3.06	3.88	4.51	3.65	3.58
Thailand					
<i>Raw sugar</i>	2.28	2.81	3.24	2.37	1.26
<i>White sugar</i>	0.76	0.92	1.61	1.45	1.35

Source: ABARE, Australian Commodity Statistics 1998

Compared to the other major exporters in the world sugar trade Australia value-adds to a significantly smaller proportion of its exports. There are sound reasons for this. Australia's geographic location and the specialised shipping requirements for refined sugar make it difficult for Australia to compete with more favourably positioned overseas suppliers. The EU, Brazil and Thailand are all substantially closer to the world's major sugar importers than Australia. One of the factors affecting the cost and availability of shipping is the difficulty in finding back cargoes to help cut shipping costs. Additionally, the cost of labour in both Brazil and Thailand is significantly cheaper than in Australia. It is also important to remember that some markets, for example Japan, prefer to import raw sugar and undertake the processing themselves. As mentioned in the previous section on sugar, Australia is recognised as one of the most efficient raw sugar producers in the world and has its developed market strategies to capitalise on this competitive advantage.

Wool

Australia continues to be the world's leading producer of apparel wool, with Uruguay, Argentina and South Africa as its main competitors. New Zealand is the major producer of non-apparel wool, which is used in the production of carpets, etc. The world wool trade has experienced significant upheaval since 1990. This has driven change in the major wool producing countries, including efforts to increase value-adding.

At the farm level Australia has historically been to the forefront, but this is no longer the case. Most of the other competing producer countries are also developing quality assurance programs to add value to their wool. Uruguay, Argentina and, increasingly, New Zealand have also developed cheaper direct trading links with mills.

Value-adding in each of the major wool trading countries is largely confined largely to low value-added early stage processing. New Zealand, which basically produces for the woollen chain, scours the majority of its product. Like Australia, later stage processing by the other major exporters with the exception of Uruguay, is largely for domestic consumption. Uruguay, which enjoys preferential access to MERCOSUR countries, predominantly exports product at the top stage and has been able to develop a small export trade within its immediate region. Both Argentina and South Africa have significant topmaking industries.

Early Stage Processing by Major Wool Exporters (1997)

	Wool production (⁰⁰⁰ tonnes clean equivalent)	Scoured wool ⁽¹⁾ (⁰⁰⁰ tonnes)	Top production (⁰⁰⁰ tonnes)	Top production (as % of clean wool prod ⁿ)
Australia	472	130.5	65.5	13.8
New Zealand	203	153.7	2.5 ⁽²⁾	1.2
Uruguay	60 ⁽³⁾	49.6	46.8	78.0
Argentina	41	30*	15.5 ⁽²⁾	37.8
South Africa	36	32.6	19.2	53.3
Total	812	396.4	149.5	18.4

Source: International Wool Textile Organisation

- (1) Scoured wool figures includes both scoured wool for subsequent combing and scoured wool as a final product. However, the figure from Uruguay consists of only scoured wool for subsequent combing.
 - (2) Export figures only.
 - (3) Uruguay imports some wool which it processes.
- ** 1995-96 as 1996-97 figures are not available.

Australia has increased the proportion of product undergoing early-stage processing over the last decade, but lags behind its competitors. As can be seen from the table above Australian production of tops as a proportion of total clean wool production is significantly less than its main apparel wool competitors and less than the average across all the major wool producing countries. It is important to recognise that the other apparel wool producing countries have in the past provided considerable incentives for the development of early-stage processing.

In the globalised market place wool is increasingly processed at each stage where the comparative advantage lies. This is not peculiar to wool, but as an expensive product that is costly to process it

is vital to wool's competitive position. Expanding trading blocs have played an increasingly important role in this.

Australia could benefit from the progressive demise of early-stage processing industries in Europe, the US and the developed countries in Asia. While, to a large extent, this is a reflection of world over-capacity in a shrinking wool market it is occurring at a rapid rate and also reflects a declining competitive position.

Spinning, however, is typically the last area to erode and moves within the free trade blocs or, in the case of Asia, is contracting to China, India and the Asian tigers, which remain lower cost than Australia. This limits the likelihood of a substantial industry being established in Australia.

Fisheries

Australia does not appear to be alone in selling a significant proportion of its fisheries exports in live or fresh form. In 1997 fresh and frozen products made up 90 per cent by volume of US exports of edible fishery products, compared to only 6.5 per cent of canned items.

Thailand, on the other hand, which has a competitive advantage in lower labour and input costs, is a major producer of value-added fisheries products such as canned fish.

According to the United Nations Food and Agriculture Organisation (FAO) the volume, in both absolute terms and as a percentage of all uses of fish, of fishery products marketed in their fresh state has increased from 20 per cent in 1986 to about 33 per cent in 1996.²⁰ The supply of frozen fish is growing in both developed and developing countries. The production of frozen fish fillets, shrimps and prawns and seafood ready-to-eat meals and other convenience food products has also increased in volume in recent years.

Conclusion

Value-adding encompasses any process or service in the supply chain that adds to or enhances the market value of products to customers. It can include, among other things:

- transforming raw products into highly processed or manufactured products;
- promotion and marketing activities to differentiate Australian products;
- introducing quality assurance standards; and
- increasing utilisation of by-products.

Value-adding offers agricultural producers and others in the supply chain an opportunity to improve their returns and build new markets, important considerations in an industry where there has been a continuing long-term decline in the terms of trade. Similarly, import replacement of various wood and paper products through value-adding to forestry products in Australia could encourage further growth in both the forestry industry and the economy as a whole.

To achieve this growth, to increase returns to primary producers, to capture emerging market opportunities and to increase global market share, the Government and industry must work together to develop trade opportunities and enhance industry capabilities throughout the value chain, especially through value-adding.

²⁰ FAO, 1998, *Fishstate*

Although the situation differs from industry to industry, overall the proportion of agriculture, fisheries and forestry products in value-added in Australia is similar to that in other comparable countries, such as the United States, France and Germany. More work needs to be done to develop consistent, comprehensive statistical data on value-adding in agriculture, fisheries and forestry and the relationship between raw and value-added products. However, on the available OECD and ABS data it appears that Australia does not lag behind other countries in value-adding.

What is more, it appears that Australia's agricultural, fisheries and forestry industries have been highly responsive to the market, providing products in value-added or raw form to meet customer requirements, while at the same time recognising the importance of and developing value-adding where this is commercially practical and sustainable. Demographic changes worldwide over the last two decades – such as increasing living standards and disposable incomes, busier lifestyles and exposure to the cuisine of other cultures – has seen a major increase in demand for fresh foods from more affluent, health conscious consumers. This has often led to a situation where farmers and fishers have achieved greater returns from fresh product than if the same product was processed in some way. Value can be added to fresh products through the introduction of quality systems or services.

The Department of Agriculture, Fisheries and Forestry supports and encourages value-adding at a policy level and through its services and programs in order to achieve its portfolio and departmental outcomes of more sustainable, competitive and profitable agricultural, food, fisheries and forestry industries which continue to create jobs, particularly in regional Australia.

Classification of processed food products

The following information, based on the Australia-New Zealand Standard Industrial Classification codes used by the Australian Bureau of Statistics, provides some indication of the differences minimally and highly processed food products.

Minimally processed foods: meat (ANZSIC code 2111), poultry (2112), dairy products (liquid milk and cream, yoghurt, skim and flavoured milk, buttermilk, sour cream 2121), sugar (raw, refined, molasses 2171), and seafood (including cooked, frozen, canned, dried, fish, crustaceans, oysters, molluscs 2174, but not including fishing and processing at sea)

Highly processed foods: bacon, ham and smallgoods (2113); dairy products (butter, cheese, milk powders, condensed and evaporated milk and cream, casein); processed fruit and vegetables (canned, bottled, preserved, frozen, dried, including jam, soups, sauces, pickles, some juices etc 2130); oils and fats (2140); flour mill products (milling flour, cereal starch, gluten, arrowroot etc 2151); cereal foods and baking mixes (prepared breakfast cereals, pasta, milled rice, self raising flour, oatmeal, baking mixes, jelly crystals, custard powder 2152); bread (2161); cakes and pastries (2162); biscuits (2163); confectionary (2172); pet food (including canned meat 2174); manufactured food not elsewhere classified including coffee, snack foods, dessert mixes, tea, herbs, spices, honey, flavourings and seasonings, yeast etc (2179); soft drinks, cordials and syrups, fruit drinks (2181); beer and malt (2182); wine (including mead, vinegar and wine coolers 2183); and spirits (2184).