

INSTITUTE OF FOOD, NUTRITION AND HUMAN HEALTH

A study into the
**level of value-added products in
New Zealand food and beverage exports**

by Professor Ray Winger of Massey University

2005 update

A report for New Zealand Trade and Enterprise

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Foreword

The food and beverage sector is a key sector in the New Zealand economy, both in its own right and as a value-adding sector to New Zealand's primary industries. In 2004, food and beverage accounted for more than half (50.3 per cent) of New Zealand's total merchandise exports, at a value of \$15.03 billion.

The food and beverage sector offers further demonstration of New Zealand's international reputation for innovation and quality, and has significant competitive advantage in the area of productivity. However, like other nations, the sector faces the challenges of fluctuating commodity prices and an increasingly sophisticated consumer environment.

In order to meet these challenges, the sector has made significant progress in developing innovative new products, with a focus on improving the proportion of its value added exports compared with commodities.

The Massey University study has provided a useful tool to help measure the progress of the sector towards this value-added goal. The study uses detailed export data as its base to define the dollar and percentage values of added-value and commodity food products. It seeks to incorporate some of the wider dimensions of "added-value", particularly shareholder value, not adequately covered in traditional economic definitions of "value-add".

Since 2000, the proportion of value added products of total exports has grown nearly 10 per cent from 44.5 per cent to 54 per cent in 2004. This is a trend that has occurred year on year and we expect to see the focus on value added products continue into the future.

New Zealand Trade and Enterprise

Executive Summary

New Zealand exported \$15.03 billion food and food ingredient products for the year ended June, 2004. This represents 50.3% of the \$29.88 billion of total merchandise exports from New Zealand.

Detailed export data were provided by Statistics New Zealand. Human food products and ingredients used for the manufacture of human food products were identified from the most detailed export codes available. It should be noted that animal feeds, pharmaceuticals, and inedible products derived from agricultural and related raw materials are not included in these food data. There were approximately 1500 codes per year for food products. These were then grouped into industrial sectors (beverages, cereals, dairy, fruit & vegetables, meat, seafood, miscellaneous). Industry representatives identified which of the 2002 year export codes contained value-added products: each code identified as “value-added”, “commodity” or “mixed” (contained both types of products). For “mixed” codes financial analysis based on export prices was used to estimate the proportion of value-added and commodity within each individual code.

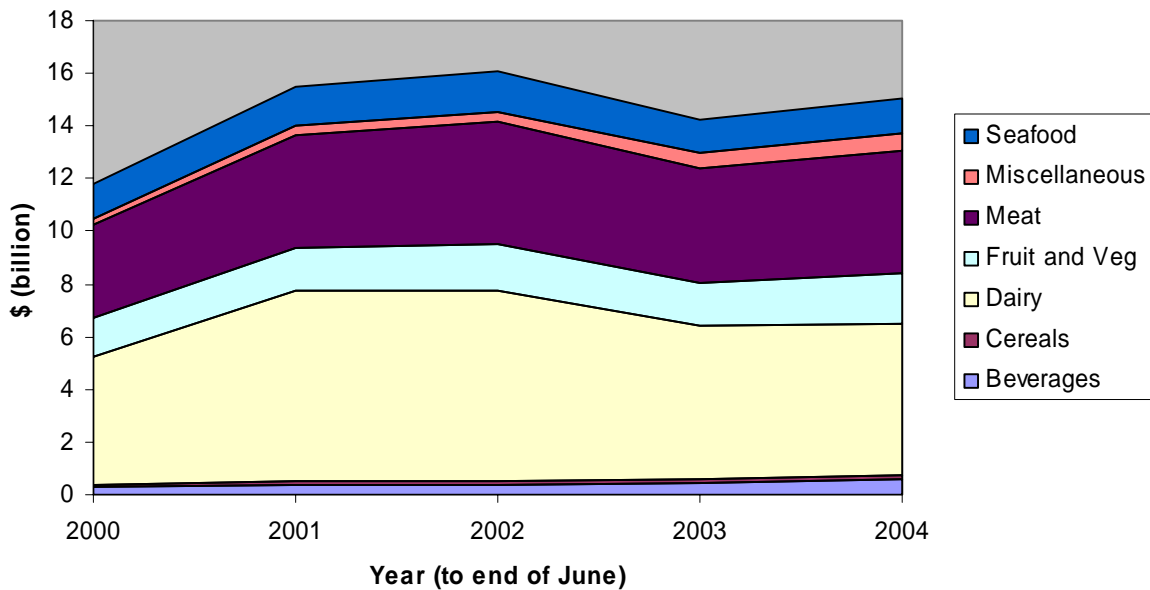
Export code data contain many different food products within each of the codes used. This makes quantitative identification of value-added products extremely difficult. It should also be recognised that “value-added” in the context measured here does not reflect level of innovation. For this study, value-added is a reflection of added shareholder value as measured by FOB export prices for broad categories of food products. One of the most important innovation practices in food manufacture focuses on reducing cost – a feature which would be completely missing from a study of export prices alone.

Food products and food ingredients export revenue increased from \$11.85 billion in 2000 to \$15.03 billion in 2004. The food sector represents around 50% of the total merchandise exports from New Zealand.

Export Category	Total F.O.B. Value NZ\$ billion				
	2000	2001	2002	2003	2004 ¹²
Total Merchandise	26.11	32.00	32.33	29.29	29.88
Total Food	11.85	15.51	16.09	14.27	15.03
Food as % of total merchandise	45.4%	48.5%	49.8%	48.7%	50.3%

In comparison to 2003, beverages, fruit & vegetables, meat and miscellaneous products all increased their export revenue. Seafood exports were down by \$0.02 billion (or 1.5% lower than 2003); cereals were down by \$0.04 billion (or 25% lower than 2003), and; dairy was down by \$0.06 billion (or 1% lower than 2003).

Food Industry Sector Exports



Value-added products represented \$8.11 billion (or 54%) of all food and food ingredient exports for 2004 which was higher than 2003 (\$7.60 billion, or 53.3% value-added). Individual sectors include:

- beverages (\$0.59 billion, 100% value-added)
- cereal products (\$0.13 billion, 92% value-added)
- seafood (\$1.30 billion, 79% value-added)
- meat (\$4.7 billion, 65% value-added)
- “miscellaneous” products (\$0.64 billion, 55% value-added)
- dairy (\$5.76 billion, 44% value-added)
- fruit & vegetables (\$1.89 billion, 23% value-added)

It is interesting to note that the value-added component of New Zealand’s food export sector has increased steadily and unabated since 2000. The dairy sector recorded a decline in total revenue for 2004, but a 20% increase in value-added products compared with 2003. If New Zealand industry is going to thrive, then companies and researchers need to focus on innovation and to continue to move away from commodity products.

This study indicates New Zealand food manufacturers have a high level of value-added in their export food products and food ingredients. However, this study did not include benchmarking against other countries. The available data were limited to five years and this was insufficient to establish any meaningful time trends. “Value maps” would be a useful tool to assess the performance of the food industry in recent years and how their current strategies focus on future performance and product innovation.

1. Introduction

In 2002, Industry NZ (INZ) approached Massey University to gain further insight to the level of innovation and value-added in the New Zealand export food industry. The resulting study (Winger et al., 2003) described the methodology used and presented results from three years’ export data (2000 – 2002, inclusive). This current report updates the data to the end of the June, 2004 financial year.

New Zealand's comparative advantage in global trade is its favourable growing conditions and expertise in producing low cost temperate climate commodities (Porter, 1991). This remains firmly in the production of food and live animals (Ballingall and Briggs, 2002). However, New Zealand industry needs greater emphasis on innovation, which is at the heart of competitive advantage. New Zealand needs to “broaden our notion of innovation to encompass not only innovation in primary production, but also in new products, processes and marketing logistics” (Porter, 1991).

1.1 Definitions:

For the purpose of this study “**value-added**” products are viewed in terms of shareholder value and not the degree of processing. This is an essential element of this research as it ensures that the technology incorporated into minimally processed food (giving it value) is not overlooked.

The **New Zealand Harmonised System Classification** (HS) is the primary commodity classification used for processing entries and publishing statistics on overseas trade. The HS is used for the classification of imports and exports and is maintained by Statistics New Zealand. The HS is derived from The Tariff of New Zealand (Customs Tariff) which is legally owned by the Ministry of Economic Development and jointly maintained by the Ministry of Economic Development and the New Zealand Customs Service. The HS provides international statistical comparability of trade information. The HS has a broad structure of approximately 5,000 six-digit headings, which are used for classifying goods involved in international trade. This structure is further broken down into 10 digit codes (HS10) for New Zealand's purposes (Statistics NZ web site: (<http://www.stats.govt.nz/statistical-methods/classifications/nz-harmonised-system-class.htm>)).

The difference between “value-added” and “**innovation**” deserves clarification. There are no concise definitions of innovation which capture the wealth of activities routinely encountered in a food manufacturing organisation. A definition of “innovation” needs to incorporate the integrated functions across the entire agri-food chain – from the farm to the consumer: involving technology, products and services and the customer.

Innovation embraces the following:

- Changes in raw materials (eg selected traits enabled through biotechnology)
- selection of different raw materials and ingredients
- technological improvements in processes and process control
- products and formulations
- packaging materials and packaging solutions
- distribution and consumer appeal
- integration with enabling technologies and services (eg Information Technology, communications)
- increased utilisation of existing capital equipment, including economies of scale
- improved recovery and use of by-products and waste streams

In many instances, innovation does not relate directly to a given food product but does have a major impact on a company's ability to compete in a global market.

This means any definition of ***innovation for the food industry must integrate all aspects of wealth creation*** in a given company or economic sector. It is a mistake to focus solely on a given product – which is the limitation of most definitions of innovation.

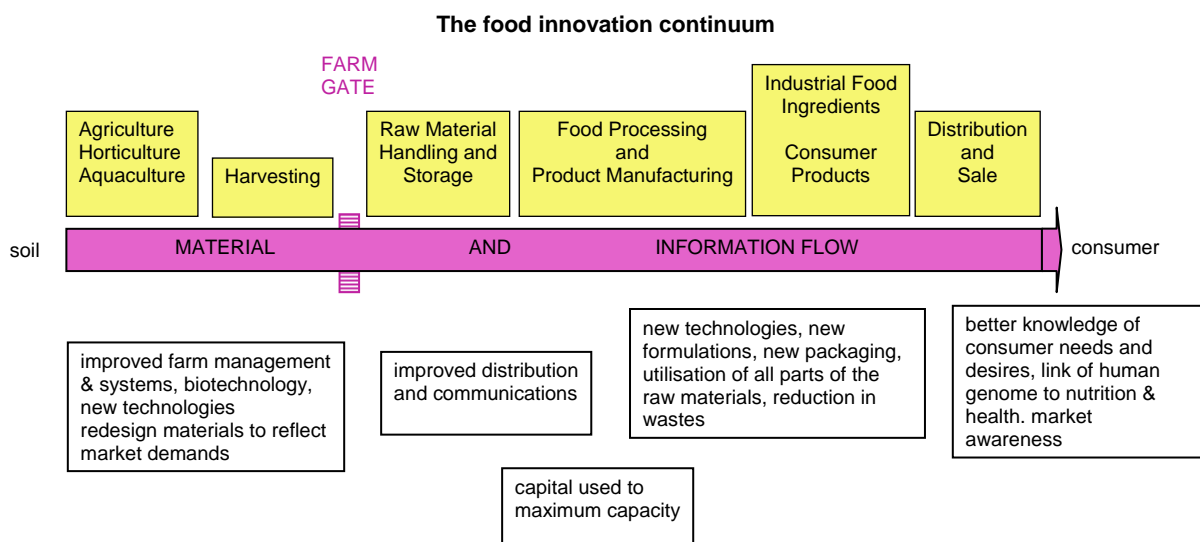
1.2 Food Industry Features:

Of all industrial sectors, the food sector is by far the most complex. The industry begins with a highly variable and complex raw materials, which by their biological nature are labile with a very short shelf life. These materials are converted into high volumes of intermediate industrial ingredients, or finished foods for human consumption, plus by-products (that may be more valuable than the foodstuff itself) and waste streams that often create substantial environmental issues.

For New Zealand, manufactured foods for export typically require a six weeks' shipping (distribution) time to their target markets and customers.

A further complication is that successful manufacture of a specific consumer food product can be achieved by a variety of combinations of processes and ingredients. It is therefore incorrect to assume that all companies producing a similar end-product make it from the same ingredients and by the same process. Companies maintain their commercial viability by using their skilled technologists to choose the most appropriate processes and ingredients.

Finally, the food industry encompasses and integrates all elements of the agri-food chain.



2. Methodology

2.1 Identification of Industry Sectors

New Zealand's total export data ending 30 June each year were provided by Statistics New Zealand (Anon, 2000, 2001, 2002, 2003, 2004). These data were provided at the most detailed, 10-digit level available (HS10). This provided information on product value (FOB\$) and quantity by country of destination. The data include food re-exports.

For this study statistics related to human food products or food ingredients only were assessed, while non-food industry data were omitted. It should be noted that some exported non-food products, derived from food raw materials produced in New Zealand, were excluded from this current evaluation because they were considered unsuitable for human use. For the food categories as analysed there were 17,000 individual rows of data.

The export data were further sub-divided into categories (industry sectors), as shown in Table 2.1. While some HS2 code data were included in a specific industry sector in their entirety (eg HS2, meat and edible meat offal), other codes were spread over several sectors (eg HS21: divided between meat, miscellaneous and dairy sectors). Also, some HS2 codes included non-edible entries and these non-edible entries were deleted from the analysis (eg HS11 Products of the milling industry, malt, starch, etc.).

There were many HS10 codes for each HS2 level code. Each HS10 code effectively represented one specific product description. These were then identified by the Freight on Board (FOB) value and quantity exported to each of the global markets. Thus, each HS10 code had multiple entries, depending upon the number of markets to which that particular product was exported.

All data were treated the same for each year provided (2000 – 2004).

Table 2.1: Categorisation of Food Industry Sectors from NZ Export Statistics

Category (Industry Sector)	Abbreviation	HS2 Code	HS2 Code Description
Alcoholic Beverages, Water, Beer, Wine ³	Beverages	22	Beverages, spirits and vinegar
Cereals and Cereal Products	Cereals	10 11 12 15 19	Cereals Products of the milling industry, malt, starches, etc. Oil seeds and oleaginous fruits Animal or vegetable fats or oils, margarine Preparations of cereals, flour, starches or milk
Dairy and Dairy Products	Dairy	04 17 18 19 21 30 35	Dairy produce, birds eggs, honey, animal products NES ⁴ Sugars and sugar confectionery ⁵ Cocoa and cocoa preparations Preparations of cereals, flour, starch or milk Miscellaneous edible products ⁶ Pharmaceutical products Albuminoidal substances, starches, glues, enzymes
Fruit, Vegetables, Nuts and Fruit Juice	Fruit & Veg.	07 08 20	Vegetables and certain roots and tubers Fruit and nuts, peels of citrus fruit or melons Preparations of vegetables, fruit, nuts or plants
Meat and Meat Products	Meat	02 05 15 16 35	Meat and edible meat offal Animal originated products, NES Animal or vegetable fats or oils Meat, fish, crustaceans, molluscs – preparations of Albuminoidal substances, starches, glues, enzymes
Miscellaneous	Miscellaneous	04 09 12 13 17 18 19 21 33 35	Dairy products, birds eggs, honey, animal products NES Coffee, tea, mate and spices Seaweeds and other algae Vegetable saps, pectic substances Sugars and sugar confectionery Cocoa and cocoa products Preparations of cereals, flour, starch or milk ⁷ Miscellaneous edible preparations ⁸ Essential oils and resinoids, perfumery, cosmetics Albuminoidal substances, starches, glues, enzymes
Seafood	Seafood	03 16 21	Fish and crustaceans, molluscs, aquatic invertebrates Meat, fish, crustaceans, molluscs – preparations of Miscellaneous edible preparations ⁹

³ Note: Beverages Category does NOT include Fruit Juices (see Fruit & Veg.)

⁴ NES – not elsewhere specified

⁵ Lactose and lactose syrups

⁶ Ice cream and infant formulae

⁷ Malt extract

⁸ Baking powders, mustard, condiments, seasonings

⁹ Soup broths from fish and molluscs

2.2 Analysis of Data

Two methods of examining the data supplied by Statistics NZ were employed: Industry Analysis and Financial Value Analysis.

2.2.1 Industry Analysis

A selected representative from each industry sector was asked to define which of the HS10 coded products was considered to be “value-added”. Products could be categorised as value-added by type, processing methodology, storage regime, or market. This was done for 2002 data alone. These representatives classified these HS10 codes as “all value-added”, “all commodity”, or HS10 codes which contained both value-added and commodity products.

It is important to note, that although HS10 codes are quite detailed, most of these codes contain many different food products. In addition, each code covers all markets into which these products were sold. Of these “mixed” HS10 codes the industry representatives generally did not have sufficient information to accurately quantify the relative proportion of value-added and commodity products.

In some instances, the industry representative believed one or more markets within an HS10 code were considered to be value-added, while other markets for the same HS10 code were considered commodity. Similarly, there were HS10 codes these representatives believed contained special value-added products. However, in both instances the representatives did not have detailed information to quantify these judgements. In these instances, that specific HS10 code was treated using a financial value analysis (section 2.2.2).

The database was then compiled to quantify the “value-added” and “commodity” portions of each industry sector for the year ending June 30, 2002.

It was assumed that data for 2000, 2001, 2003 and 2004 could be divided into value-added and commodity components in the same manner as the 2002 data.

2.2.2 Financial Value Analysis

In a given year, the overall average value per unit [OAV] (\$/kg) was calculated for each HS10 code over all destination countries by dividing the sum of the FOB values by the total quantity of products exported. In addition, the market average value per unit [MAV] (\$/kg) was calculated in the same manner for each market within that HS10 code. Any market with a MAV above the OAV was considered value-added. Any market with a MAV equal to, or below the OAV was considered commodity. By summing the total value and the quantity for all “value-added markets” within a given HS10 code, the value and quantity of value-added products was derived for that HS10 code. An example is provided in Table 2.2.

Table 2.3 provides a summary of all data that were modified from the raw data provided by Statistics New Zealand, as described above. The details of these corrections are given in Winger et al., 2003.

Table 2.2: Example of Financial Value Analysis

HS10 Code	Description	Country of Destination	Unit	Quantity	FOB (\$NZ)	FOB/Quantity
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	French Polynesia	KGM	1,124	5,799	5.16
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Germany	KGM	12,862	79,939	6.22
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Italy	KGM	50,262	295,551	5.88
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Malaysia	KGM	249	1,390	5.58
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Malta	KGM	2,400	11,955	4.98
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Portugal	KGM	51,802	292,465	5.65
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Russia	KGM	97	350	3.61
0204.30.00.02	Meat; of sheep, lamb carcasses and half-carcasses, A grade, frozen	Spain	KGM	11,095	53,852	4.85

The overall Average Value (OAV) for this HS10 code was calculated as

$$\sum_{\substack{\text{Spain} \\ \text{FrenchPolynesia}}} \frac{FOB(\$NZ)}{Quantity} = \frac{741,301}{129,891} = 5.71.$$

Thus any FOB/Quantity value greater than 5.71 was added value (shaded markets).

Table 2.3: Proportion of Value-added of 2002 Exports Using “Correction” criteria

Industry Sector	TOTAL VALUE OF SECTOR \$ billion	Value-added (\$ billion)		
		Industry Identified ¹⁰	Rule Derived ¹¹	Total
Beverages	0.40	0.40	0	0.40
Cereals	0.11	0.10	0	0.10
Dairy	7.24	0.29	2.24	2.53
Fruit & Veg	1.78	0.17	0.45	0.62
Meat	4.61	1.17	1.18	2.35
Miscellaneous	0.42	0.31	0	0.31
Seafood	1.52	1.10	0.005	1.10
TOTAL	16.09	3.54	3.87	7.41

The various options used to define the data were:

	Value-added	Commodity
“Industry identified”	HS10 code identified as entirely value-added available industry data quantifies proportion of HS10 code as value-added	HS10 code identified as entirely commodity available industry data quantifies proportion of HS10 code as commodity
“Rule derived” (financial analysis method)	“mixed” HS10 code, market average value greater than overall average value for that code	“mixed” HS10 code, market average value less than or equal to overall average value for that code

2.2.3 Special Analysis for Meat Data

For the years 2000 to 2003, inclusive, one HS10 code for Meat Export data (0202.30.00.01: Boneless frozen beef to USA and Canada) included both commodity (manufacturing beef) and value-added (quality portion controlled cuts for restaurants) products. Because of the large quantity involved, this was considered a serious anomaly. Using data provided by the Meat Industry Association and Meat Producers’ Board, this HS10 code was split into two fractions.

¹⁰ Full HS10 code identified, or industry derived data quantifying value-added

¹¹ Financial value analysis method used to estimate proportion of value-added within a given HS10 code

A summary of the revised data is provided in Table 2.4.

Table 2.4: Calculated quantities of value-added frozen beef exported to USA and Canada (2000 – 2003)

HS10 Code	Year	Destination	TOTAL AMOUNT		VALUE-ADDED	
			weight (tonnes)	value (\$million)	weight (tonnes)	value (\$million)
0202.30.00.01	2000	Canada	8,710	32.85	5,475	22.49
		USA	108,856	409.05	70,789	312.90
	2001	Canada	26,447	114.94	16,624	78.69
		USA	81,089	369.67	52,732	282.77
	2002	Canada	28,632	135.93	17,998	93.06
		USA	75,847	379.90	49,323	290.60
	2003	Canada	42,582	163.39	15,972	82.12
		USA	216,811	858.18	53,612	258.05

However, for 2004 this calculation was not possible. The New Zealand Meat Producers' Board changed the method of data collection and data in the format of Table 2.4 were no longer available. In addition, the export classification for frozen beef was changed to 0202.30.00.11 (Meat; of bovine animals, boneless cuts of bull, frozen). For these reasons, the data for this HS10 category for 2004 only were analysed using the Financial Value Analysis (2.2.2) and commodities and value-added components were calculated across all markets for this HS code. It should be noted that under this analysis all frozen beef sent to Canadian and USA markets was classified as commodity.

3. Results

3.1 Total Export Value

The total annual value of the New Zealand Merchandise exports and the food & beverage exports assessed in this study is shown in Table 3.1. The total value of food exports from New Zealand increased dramatically from 2000 to 2002, decreased for the 2003 financial year and recovered significantly in 2004.

Table 3.1: Total Value of New Zealand Exports

Export Category	Total F.O.B. Value NZ\$ billion				
	2000	2001	2002	2003	2004 ¹²
Total Merchandise	26.11	32.00	32.33	29.29	29.88
Total Food	11.85	15.51	16.09	14.27	15.03
Food as % of total merchandise	45.4%	48.5%	49.8%	48.7%	50.3%

The detailed breakdown by industry sector of the food and beverage industry exports assessed in this study is shown Table 3.2.

Table 3.2: Total Value of New Zealand Food Exports

Industry Sector	Total F.O.B. Value NZ\$ billion				
	2000	2001	2002	2003	2004 ¹²
Beverages	0.27	0.38	0.40	0.42	0.59
Cereals	0.09	0.12	0.11	0.16	0.13
Dairy	4.90	7.21	7.24	5.82	5.76
Fruit and Veg	1.45	1.67	1.78	1.62	1.89
Meat	3.56	4.29	4.61	4.38	4.70
Miscellaneous	0.22	0.34	0.42	0.55	0.64
Seafood	1.33	1.50	1.52	1.32	1.30
TOTAL	11.85	15.51	16.09	14.27	15.03

Beverages, fruit and vegetables, meat and miscellaneous sectors all increased their total revenue in 2004 compared with 2003. The remaining sectors all had small declines in their revenue.

¹² Financial Year to the end of June.

3.2 Value-added of Food Exports from New Zealand

A summary of the data for all the product categories is provided in Table 3.3 and Figures 3.1 – 3.6.

Table 3.3: FOB Value of New Zealand Food Exports

Product Category	Type of Value	Value of Exports for Year Ending 30 June NZ\$ billion				
		2000	2001	2002	2003	2004
Beverages	Value-added	0.27	0.38	0.40	0.42	0.59
	Commodity	0	0	0	0	0
	Total	0.27	0.38	0.40	0.42	0.59
Cereals	Value-added	0.08	0.10	0.10	0.15	0.12
	Commodity	0.01	0.02	0.01	0.01	0.01
	Total	0.09	0.12	0.11	0.16	0.13
Dairy	Value-added	1.57	2.15	2.53	2.11	2.54
	Commodity	3.34	5.06	4.71	3.71	3.22
	Total	4.90	7.21	7.24	5.82	5.76
Fruit & Veg	Value-added	0.38	0.57	0.62	0.65	0.43
	Commodity	1.07	1.10	1.16	0.98	1.46
	Total	1.45	1.67	1.78	1.62	1.89
Meat	Value-added	1.86	2.14	2.35	2.86	3.04
	Commodity	1.70	2.15	2.26	1.52	1.67
	Total	3.56	4.29	4.61	4.38	4.70
Miscellaneous	Value-added	0.15	0.26	0.31	0.44	0.35
	Commodity	0.07	0.08	0.11	0.11	0.29
	Total	0.22	0.34	0.42	0.55	0.64
Seafood	Value-added	0.97	1.11	1.10	0.98	1.03
	Commodity	0.36	0.39	0.42	0.34	0.27
	Total	1.33	1.50	1.52	1.32	1.30
OVERALL	Value-added	5.28	6.71	7.41	7.60	8.11
	Commodity	6.57	8.80	8.68	6.67	6.92
	Total	11.85	15.51	16.09	14.27	15.03

Figure 3.1: Cereals Value-Added Data

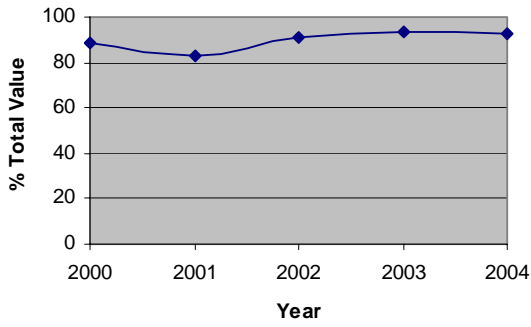


Figure 3.2: Dairy Value-Added Data

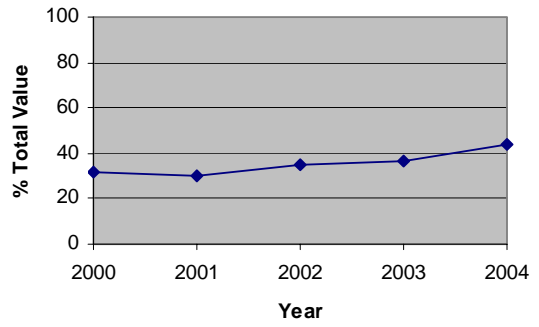


Figure 3.3: Fruit & Veg. Value-Added Data

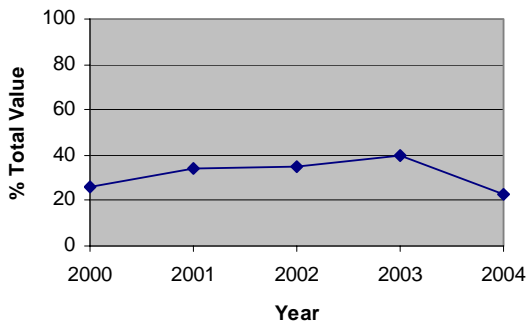


Figure 3.4: Meat Value-Added Data

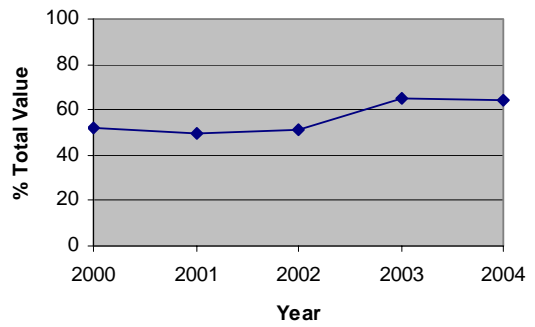


Figure 3.5: Miscellaneous Value-Added Data

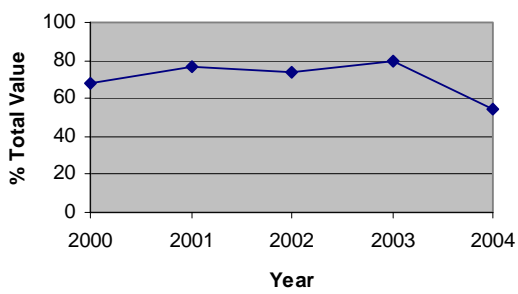


Figure 3.6: Seafood Value-Added Data

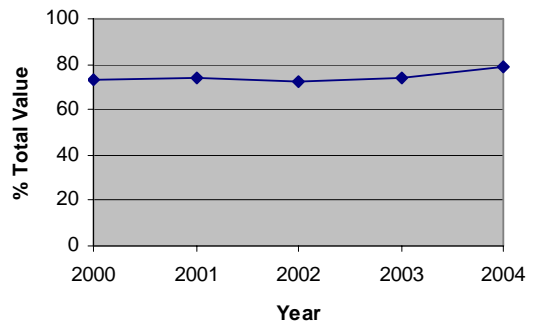
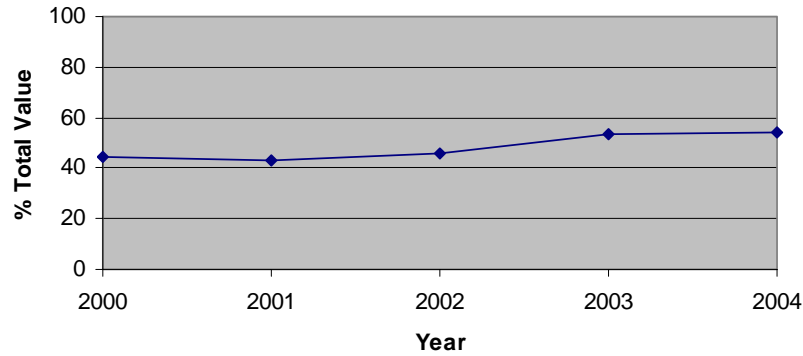


Figure 3.5: Total Value-Added Data

Industry is clearly focussed on using innovation in food exports to capture additional value, as shown by the increase from 2000 to 2004 44.5% to 54% of exports. The dairy industry, for example, increased its revenue from value-added products in 2004 by over 20% compared with 2003, while losing about 13% from its commodity product revenue.

There have been some changes in the HS10 categories that some industry sectors use for recording their exports. For example, the meat industry has moved the classification of frozen beef from 0202.30.00.01 to 0202.30.00.11. This does not make a significant difference to the overall result for an industry sector. It is possible that some products might have been moved from a commodity to a value-added code (or vice versa). However, it is believed that these modifications are minimal and do not affect significantly the overall classification between value-added and commodity.

4. Discussion

The continuing incremental increase of value-added exports, both in absolute terms and as a proportion of total food exports, is encouraging. Overall there has been a 53.6% increase in revenue from value-added products since 2000, whereas there was only a 5.3% increase in revenue from commodity exports. The dairy industry increased its value-added exports by over 20% in the year ending June 2004, compared with 2003. This occurred in a trading climate where commodity revenue continued to decline. This is a remarkable response to the major drop in revenue that occurred during the 2003 year.

The decline in export value for 2003 was accounted for within the commodity components of NZ exports. The overall value of "value-added" exports had increased from 2002, whereas the commodity exports dropped by \$2 billion (or 23%). The majority of this decline was in the dairy industry. Higher dollar exchange rates and reduced commodity prices in a competitive market were considered to be the major reasons for this decline (personal communication, dairy industry representative).

The most detailed level of export data available from statistics New Zealand (HS10 code) was not sufficiently detailed for accurate identification of the extent of value-added. In some instances, products under a specific HS10 code were different from one market to another. In addition, these data were FOB, and there are differences in freight costs to different markets, which in turn could create distortions in the data.

It was assumed that careful analysis for 2002 could be extrapolated directly to 2000, 2001, 2003 and 2004 data. However, from the 2004 data it was apparent that some of the food products had been allocated to different HS10 codes over this time. Using the meat sector data as an example, the author found that the impact of these changes on the outcome was small at the industry sector level. However, correction for these changes cannot be made without a detailed knowledge of the individual products. Such knowledge is not possible from the HS10 coding.

It is important to note that this study focussed on export value-added. This is NOT an indication of the level of innovation capability of the industry. Many NZ commodity exports incorporate a high degree of innovation, particularly in aspects of processing technologies and cost saving measures. This cannot be assessed from export data. Conversely, all value-added reflects either product development or marketing innovation. For a given food product, high priced sales to individual markets reflects marketing acumen.

While the HS10 codes were quite detailed, the groupings of food products into these codes was still very coarse. For example, under dairy code 0402.10 (Dairy produce; milk and cream, concentrated or containing added sugar or other sweetening matter, skimmed milk powder) there are three HS10 codes (0402.10.02 spray-dried; 0402.10.09 not spray dried; 0402.10.18 granular). However, each of these three categories includes numerous food products from commodity based dried milk to value-added products containing bioactives and functional ingredients. There is no simple method for identifying these food products amongst the data combined into

these HS10 codes. The Financial Value Analysis was used to estimate the level of value-added within each HS10 code.

5. Conclusion

While five years' data were used in this study, it was too short a period to establish any meaningful trends or comparisons. Trade statistics using the HS10 code level of detail was only compiled in New Zealand from 2000. Earlier trade statistics are not directly compatible. It was also clear from the analysis of the 2002 data with industry stakeholders, that the statistics were too coarse to track product innovation within a single HS10 code.

Exporters are assigning some products in 2004 to different HS10 codes compared to earlier years. This makes accurate analysis of export data difficult.

The analysis has identified that a substantial proportion of products exported by the New Zealand food industry can be classified as value-added. During the five years covered in this study, different sectors showed a range of value-added from 23% to 79%¹³. This is an indication that New Zealand food industry has a high level of value-added.

Successful marketing and product development is an essential aspect of long-term sustainability in any industrial environment, particularly in a global market. The future of the New Zealand food industry will be determined in large part by our ability to understand our key markets and customers, and to timely design innovative products and ingredients to meet their wishes, desires and needs.

6. Recommendations

A full understanding of the NZ food industry would be easier with more detailed information. This may be achieved by:

- conducting detailed case studies in selected food sectors
- identify and document "value maps" that exist in some sectors
- compare value maps with exports and relevant HS10 codes
- complete a time series analysis by incorporating product lifecycles within the HS10 codes

Extend this study to benchmark New Zealand against other countries.

- evaluate the HS10 code for selected countries (competitors, such as Australia, Ireland, Netherlands, Argentina, South Africa) (innovative consumer product markets, such as USA, UK).

Complete a more detailed economic analysis benchmarking the innovation practices of New Zealand against other countries.

¹³ Excluding Cereal at 83 - 91% and beverages at 100% each year.

- use collaborative studies with institutions located in targeted countries (Australia, Ireland, Netherlands and UK).

These studies are essential to focus on how we can further improve New Zealand's transformation to a high value-added economy.

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