



Australian Government

A review of the
AUSTRALIAN DAIRY INDUSTRY



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**Prepared for the Primary Industries Standing Committee
Working Group on Dairy, August 2004**

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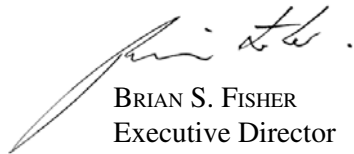
foreword

Since the 1980s the Australian dairy industry has undergone considerable restructuring as a result of the phasing out of Commonwealth government support for manufacturing milk and state government regulation of domestic drinking milk. During this period, the world market for major dairy products has also changed dramatically.

Following a recommendation from the Primary Industry Ministerial Council in May 2004 it was determined at the Primary Industries Standing Committee that a national review of the Australian dairy industry would be undertaken to identify the key economic drivers affecting the industry.

A working group was convened to facilitate this review and manage the process. This working group requested that the review be undertaken by ABARE.

ABARE submitted its report to the Primary Industries Standing Committee Working Group on Dairy in August 2004. In September 2004 the report was considered by members of the Primary Industry Standing Committee, who in turn recommended to the Primary Industry Ministerial Council that the report be released to the public. At its meeting in December 2004, PIMC agreed to this recommendation.



BRIAN S. FISHER
Executive Director

December 2004

acknowledgments

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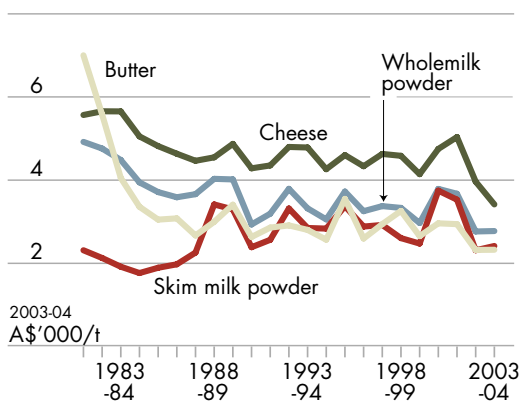
introduction

Over the past two decades the Australian dairy industry has undergone substantial restructuring as a consequence of the phasing out of government support and regulation in an environment of change in world dairy product markets. During this period, the number of dairy farms in Australia has more than halved and the processing and distribution sectors have been significantly rationalised. This restructuring has promoted a more efficient industry and has enabled significant growth to occur in the value of Australian dairy production.

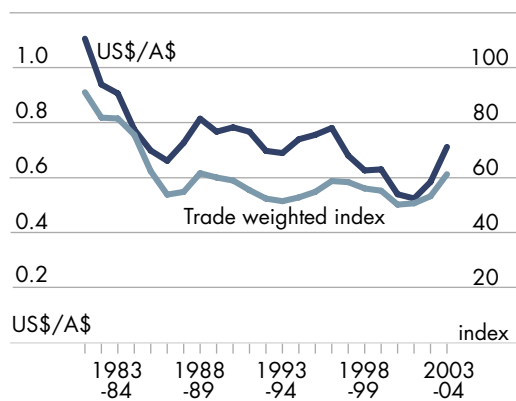
Although the dairy herd declined in the 1980s, milk production rose as a result of increases in milk yields per cow. With increases in both cow numbers and milk yields in the 1990s and into the 2000s, milk production rose considerably, from 6.3 billion litres in 1989-90 to a peak of 11.3 billion litres in 2001-02. This increase in production, together with a declining Australian exchange rate and improved world prices for major dairy products, resulted in significant growth in Australian exports, particularly from the mid-1990s to 2001-02. Along with New Zealand, Australia is one of the lowest cost milk producing countries in the world.

However, as a result of the 2002-03 drought and continued dry conditions in some areas in 2003-04, lower world prices (figure A) and a strengthening in the exchange rate in the past two years (figure B), Australian milk production and milk prices fell and feed costs rose, which led to significantly lower incomes in 2002-03 and 2003-04. Although deregulation of the market milk arrangements reduced average farm milk prices in 2000-01, changes in fresh milk processing and retailing sectors since then do not appear to have been a driver

A Dairy export unit values



B Australian exchange rate



of lower milk prices. Dairy farm incomes have also differed considerably between states. The main factors influencing different farm incomes between states relates to farm size and milk price. Farms in states that have more manufacturing milk and more seasonal production are more reliant on export markets and receive a lower milk price.

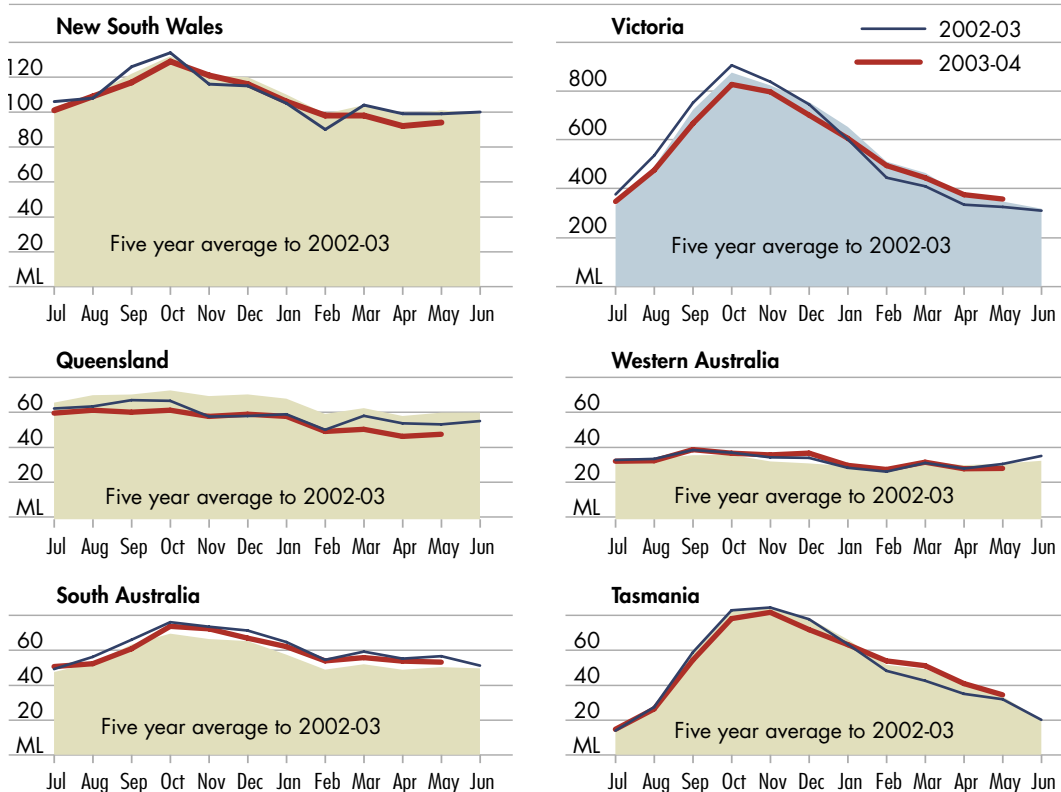
The purpose in this report is to review the key economic drivers affecting the Australian dairy industry and the implications for future growth and development.

milk production systems

A range of milk production systems are used by Australian dairy farms. These systems are a consequence of differences in climatic conditions across the country, the response of producers to differing market requirements, and the relative cost of farm inputs including land, feed grains and irrigation water.

Of the two basic systems of milk production, the most common is seasonal milk production in which cows are mated to calve and lactate in the period of peak pasture availability, typically during spring in southern Australia. This system is used by almost two-thirds of Australian dairy farms and is currently the dominant production system in Tasmania, Victoria and to a lesser extent South Australia (figure C).

C Monthly milk production comparisons



Milk is also produced on a year round basis. Calving of cows is spread through the year to enable the herd's total milk production to be maintained throughout the year. Year round calving has traditionally been used to provide a constant supply of drinking milk and in regions where there is less seasonal variation in pasture production. Year round production is the dominant dairying system in Queensland, Western Australia and New South Wales, particularly in the northern region.

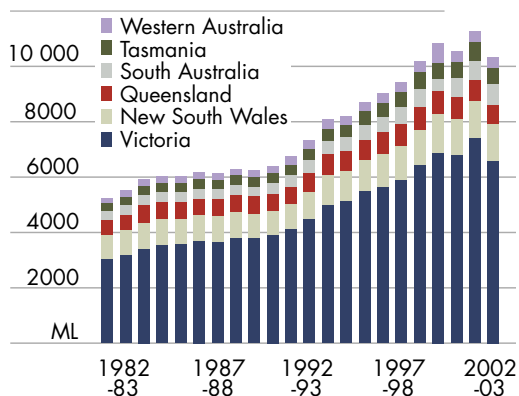
milk use in Australia

Dairy farming occurs in all states, mainly in higher rainfall coastal areas and in some inland irrigated regions: Victoria (Gippsland, Murray Basin and South West), New South Wales (North Coast, Central West, South Coast, Riverina and Hunter), Queensland (South East, Atherton Tablelands), South Australia, Western Australia (Bunbury–Harvey, Busselton–Albany) and Tasmania. Victoria is the largest producing state accounting for 66 per cent of milk production (figure D).

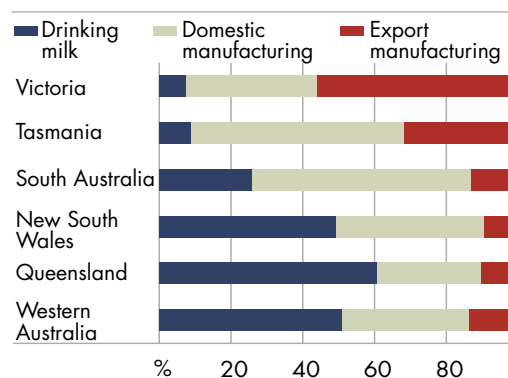
Presented in figure E is the estimated use of milk, by state, in 2003-04. While the majority of milk produced in all states is used for manufactured product, farmers in Victoria, Tasmania and South Australia are more reliant on income from manufacturing milk than farmers in New South Wales, Queensland and Western Australia. In addition, a greater proportion of milk in Victoria and Tasmania is used for manufactured product that is exported compared with the other states where the majority of the product from manufacturing milk is sold on the domestic market. As a result milk prices and incomes for farmers in Victoria and Tasmania will be more affected by world markets than is the case for the other states.

The influences of export sales on prices can be gauged from the data in table 1. Average prices in 2002-03 were lower in all states apart from New South Wales where prices rose slightly. Prices in Victoria and Tasmania fell by a greater percentage than in other states because of their greater reliance on the export market where returns fell (in part) because of a strengthening Australian dollar.

D Milk production, by state



E Estimated use of milk, 2003-04



Another factor influencing prices received by dairy farmers is the solids composition of their milk. The two most important solids in milk are butterfat and protein as these components are the basis of manufactured dairy products. In general, the higher the fat and protein

1 Milk prices, by state ^a

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australia
	c/L	c/L	c/L	c/L	c/L	c/L	c/L
1996-97	37.5	25.3	38.7	28.7	34.2	22.8	28.5
1997-98	36.4	24.2	38.4	28.7	35.1	22.6	27.7
1998-99	35.1	24.4	38.5	29.1	34.1	23.7	27.5
1999-2000	32.3	22.1	36.8	28.0	34.2	20.9	25.4
2000-01	29.1	29.3	30.6	27.7	26.6	25.0	29.0
2001-02	32.5	33.3	34.5	31.5	28.7	32.7	33.0
2002-03	32.8	24.8	34.8	30.3	28.2	25.9	27.1

^a Prior to 2000-01, prices are weighted average of both market and manufacturing prices.
 Source: Dairy Australia.

2 Average fat and protein content of milk

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australia
	kg/100L	kg/100L	kg/100L	kg/100L	kg/100L	kg/100L	kg/100L
Fat content							
1995-96	3.98	4.24	3.90	4.06	3.89	4.37	4.16
1996-97	3.98	4.20	3.91	4.05	3.95	4.38	4.14
1997-98	3.94	4.13	3.90	4.00	4.02	4.35	4.09
1998-99	3.95	4.16	3.94	4.00	4.02	4.32	4.11
1999-2000	3.94	4.17	3.93	3.98	3.95	4.29	4.12
2000-01	3.92	4.13	3.92	3.97	3.92	4.19	4.07
2001-02	3.90	4.11	3.96	3.93	3.88	4.25	4.06
2002-03	3.87	4.12	3.93	3.94	3.98	4.26	4.06
2003-04 ^p	3.91	4.13	3.96	3.95	3.99	4.29	4.08
Average all years	3.93	4.15	3.93	3.99	3.96	4.30	4.10
	kg/100L	kg/100L	kg/100L	kg/100L	kg/100L	kg/100L	kg/100L
Protein content							
1995-96	3.20	3.26	3.17	3.21	3.03	3.30	3.23
1996-97	3.20	3.23	3.14	3.21	3.06	3.28	3.21
1997-98	3.17	3.25	3.17	3.21	3.08	3.27	3.22
1998-99	3.21	3.28	3.19	3.22	3.07	3.29	3.25
1999-2000	3.22	3.30	3.18	3.22	3.07	3.29	3.26
2000-01	3.31	3.29	3.14	3.25	3.05	3.24	3.27
2001-02	3.21	3.31	3.13	3.27	3.03	3.28	3.28
2002-03	3.13	3.27	3.05	3.17	3.11	3.29	3.22
2003-04 ^p	3.25	3.33	3.21	3.42	3.24	3.35	3.32
Average all years	3.21	3.28	3.15	3.24	3.08	3.29	3.25

^p Provisional.
 Source: Dairy Australia

content of fresh milk used for manufacturing, the higher the price received per litre by dairy farmers.

Fat and protein content can also affect payments made by drinking milk processors to farmers for their milk. Fresh drinking milk is processed to meet the different levels of fat and protein required for each product line and so contracts with individual farmers typically stipulate minimum levels of solids. Companies typically employ a range of bonus/penalty payments to reflect these and other quality factors.

The average fat and protein content of milk in each state is presented in table 2. With the exception of Queensland and Western Australia, the average butterfat content of milk trended down over the period 1995-96 to 2003-04. Over the same period, however, the average protein content of milk in each state appears to have been relatively stable. Among the states, the average butter fat and protein content appears noticeably higher in the states oriented to manufacturing milk production, particularly Tasmania and Victoria. This may indicate that these states continue to have an important comparative advantage in producing milk for manufacturing, which typically is the predominant end use of expanding milk production.

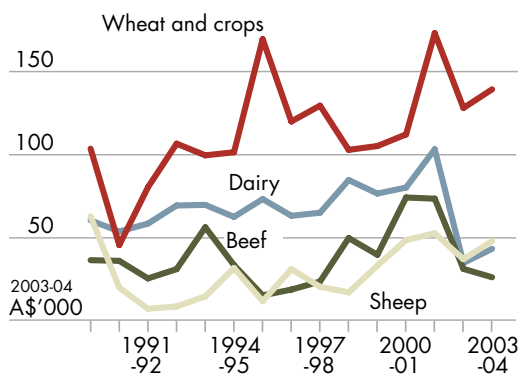
farm level performance

In order to provide some perspective on how Australian dairy farmers compare with other major farming enterprises and the impact that the 2002-03 drought had on major agricultural enterprises, a comparison of farm cash incomes and rates of return on investment in Australian agriculture is presented in figures F and G. Apart from the 2002-03 drought year, estimated farm cash incomes and rates of return from dairying have consistently outperformed all but the cropping industry since 1989-90 and sheep in 2003-04. From these data it would appear that those farmers remaining in dairy have coped well with the phasing out of government support over the past fifteen years and that the drought in 2002-03 was a major factor in reducing average farm income and rate of return in that year.

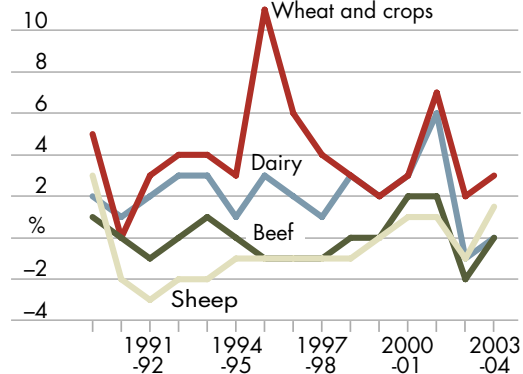
Receipts from milk are estimated to have fallen further in 2003-04, with lower milk prices and a further small reduction in milk production. After declining in 2002-03, dairy cow numbers are estimated to have declined only slightly during 2003-04, but with some improvement in grazing conditions, improved irrigation water availability and lower feed grain and fodder prices, milk yields are estimated to have increased.

The estimated reduction in fodder expenditure in 2003-04 compared with 2002-03 was considerable and is estimated to have more than offset the reduction in milk receipts, resulting in a modest increase in farm cash incomes in most states in 2003-04.

F Average cash incomes for Australian farms



G Rate of return for Australian farms



dairy farm productivity

Dairy farming has gone through a number of changes in the past two decades largely in response to the cost of inputs used in dairying rising faster than the prices received by dairy farmers for their outputs. In such an environment the only way that farm incomes can be maintained or improved in real terms is for producers to improve on-farm efficiency. Productivity growth is a measure of the gains from such factors as technological change and better farm management.

Several measures of productivity growth can be estimated, including single measures like milk yield per cow or per hectare, but total productivity growth provides the best indication of the performance of the enterprise as a whole. If total factor productivity has increased then the rate of increase in total output is relatively higher than the rate of increase in the use of all inputs. Changes in average total factor productivity growth on dairy farms in each state are reported in table 3.

Over the twenty years from 1982-83 to 2001-02, total factor productivity in New South Wales, South Australia, Western Australia and Tasmania grew at a faster average rate than that for Australia. Compared with the decade to 1991-92, total factor productivity growth in the second decade was lower in most states. Only dairy farms in New South Wales and South Australia managed in the decade 1992-93 to 2001-02 to increase the growth in productivity compared with a decade earlier.

3 Estimated average growth in total factor productivity on dairy farms

	New South Wales	Victoria	Queens- land	South Australia	Western Australia	Tasmania	Australia
	%	%	%	%	%	%	%
1982-83 to 1991-92	1.89	3.98	2.45	1.96	3.41	3.68	3.51
1992-93 to 2001-02	2.87	0.75	1.51	2.11	1.67	1.26	1.63
1982-83 to 2001-02	2.39	1.29	1.60	2.10	2.04	1.99	1.89

Source: ABARE Farm Surveys.

dairy farm financial performance

Presented in tables 4, 5 and 6 are selected estimates for average dairy farms in each state, estimates for seasonal producers in each state and estimates for year round producers in each state for 1999-2000, 2001-02 and 2002-03. Only limited estimates, by state, are available for 2003-04.

In 2002-03 farm cash incomes fell across Australia's dairy industry in response to lower export prices and higher production costs. With a large proportion of Australia's manufacturing milk being exported, states with high proportions of manufacturing milk production received lower prices for milk because of the strong rise in the Australian dollar. The other major factors affecting farm cash incomes were lower milk production per farm in states other than South Australia and Western Australia, and the sharp rise in the cost of feed associated with the drought. For example, in Victoria (where manufacturing milk typically accounts for more than 90 per cent of production) farm cash incomes fell by 75 per cent as a result of lower Australian dollar milk prices combined with higher feed costs. Farm cash incomes also fell in other states in 2002-03 — by 38 per cent in Tasmania, by 62 per cent in South Australia, by 84 per cent in Queensland, by 61 per cent in New South Wales and by 45 per cent in Western Australia. As noted earlier, the heavy reliance of Victoria and Tasmania on manufacturing milk — much of which is exported in dairy products such as cheese and milk powders — contributed to milk prices in these states falling by relatively more than in the other states where a greater proportion of their production is sold as fresh drinking milk for the domestic market.

Drought combined with a shortage of irrigation water in a number of key irrigation areas including northern Victoria, which contains over a third of Australia's dairy herd, led to a reduction in on-farm feed production. The increased requirement to purchase feed, combined with high feed prices as a consequence of widespread drought and high international grain prices, led to prices for most feeds more than doubling and to an average increase in feed costs at the national level of almost 50 per cent. Large increases in expenditure on irrigation water also occurred, particularly in the Murray basin irrigation areas. In New South Wales average water charges increased by 182 per cent per farm to \$6135 and in Victoria water charges per farm increased by 50 per cent to \$9556.

The majority of dairy farmers responded with actions to cut cash costs, selling both dry stock and dairy cows and drying off cows earlier. Even in regions relatively less affected by drought such as south western Victoria and Tasmania, average herd sizes declined slightly in what appears to be an attempt by farmers to lower their dependence on purchased feed.

In contrast, in 2002-03 dairy farms in South Australia increased cow numbers and milk production. While dairy farms in that state did not suffer as severely from the effects of the drought as many dairy regions, prices paid for grain and fodder still rose considerably because farmers from drought stricken areas in other states sought South Australian fodder and grain. With larger milking herds and high feed prices, average feed costs per cow increased by 40 per cent on a year earlier, the biggest relative increase in feed costs among the states. The increase in feed costs more than offset the rise in income from milk sales and just as in the other states in 2002-03, average farm cash incomes fell significantly.

It is not clear why dairy farmers in South Australia reacted in this way. It may have reflected 2001-02 being an exceptional year in which the average milk price increased by 15 per cent and farm cash income more than doubled to nearly \$124 000. Some farmers in the Lower Murray swamps of South Australia may have been encouraged to stay in dairying as farmers in this area were in the process of receiving tradable water entitlement for the first time under the Lower Murray Reclaimed Areas Irrigation Management Plan. When water rights were granted to these farmers early in 2004 many sold their water entitlements and left dairying. Although the water rights were predominantly sold to South Australian farmers, some went interstate to farmers in Victoria and New South Wales.

In New South Wales and Western Australia, farmers producing milk all year round have performed better than seasonal producers in those states, especially in the two years prior to the drought of 2002-03 (tables 5 and 6). Although feed costs were higher for year round producers, milk yields per cow were considerably higher. In Victoria, nearly 95 per cent of farmers are seasonal producers and farm cash incomes were higher than for year round producers over the three years ended 2002-03. Although farm size and herd numbers are smaller, milk yields per cow are higher on seasonal farms compared with year round farms. It appears that seasonal producers benefit by being able to grow more of their own feed compared with year round producers. As well, year round producers have more irrigated land than seasonal producers, which also contributed to increased costs in 2002-03.

In South Australia, year round producers fared better in 2002-03 than seasonal producers. Although producers in South Australia increased their average herd sizes in 2002-03, seasonal producers have much larger herds. While these larger herds provided seasonal producers with more milk, it also led to considerably higher feed costs per farm than year round farms with more purchased feed. As a result of these differences seasonal producer cash incomes were considerably lower than year round producers'. Seasonal producer incomes fell by around 70 per cent to \$44 600 in 2002-03, while year round producer incomes fell by around 40 per cent to an average of around \$51 000 per farm.

In 2003-04, estimated average farm cash incomes have improved in all states except for Tasmania. These increases in average farm cash incomes are mainly the result of reduced farm cash costs. Although purchased feed costs remained relatively high in the first half of 2003-04, over the year as a whole these costs are estimated to have averaged considerably lower in the majority of states, following a record grain harvest in Australia in 2003-04.

4 Selected physical and financial performance indicators for all producers – New South Wales Average per farm

		1999-2000	2000-01	2001-02	2002-03	2003-04
Physical						
Total farm area operated	ha	245	215	232	235	na
Area farm irrigated	ha	36	32	40	34	na
Dairy herd at 30 June	no.	253	254	278	270	na
Milking cow numbers	no.	147	149	166	165	na
Total milk produced	L	751 280	704 946	821 853	785 161	na
Total milk solids	kg	53 685	50 396	57 357	55 038	na
Milk yield per cow	L	5 437	5 045	5 377	5 071	na
Milk solids per cow	kg	388	361	375	355	na
Feed cost per cow	c	627	558	682	895	na
Irrigation water used per cow	ML	1.0	1.1	1.5	0.9	na
Financial						
Milk income	\$	304 099	223 078	281 220	268 167	na
Dairy cattle sales	\$	21 985	28 412	26 118	27 914	na
Total income	\$	346 065	269 679	325 580	302 232	na
Dairy cattle purchases	\$	4 706	7 253	3 204	3 225	na
Feed costs	\$	86 660	77 956	104 184	138 617	na
– purchased feed	\$	58 036	51 160	72 383	104 422	na
– home grown	\$	28 624	26 795	31 801	34 195	na
Water charges	\$	3 615	2 685	2 178	6 135	na
Farm debt at 30 June	\$	280 819	206 293	227 060	251 785	232 900
Farm capital at 30 June	\$	1 587 249	1 588 814	1 837 321	2 303 928	na
Farm equity at 30 June	\$	1 297 498	1 382 521	1 579 399	2 039 657	na
Total cash receipts	\$	350 771	276 932	328 783	305 457	290 700
less total cash costs	\$	256 999	215 009	237 453	269 440	237 900
Farm cash income	\$	93 773	61 923	91 330	36 017	52 800
plus buildup in trading stocks	\$	5 216	18 412	7 010	2 700	na
less depreciation	\$	24 435	25 836	22 399	23 772	na
less total imputed value of family labor	\$	56 797	57 104	53 465	51 338	na
Farm business profit	\$	17 758	–2 605	22 476	–36 393	–23 100
Profit full equity	\$	42 987	21 177	46 948	–15 032	na
Rate of return excluding capital appreciation	%	2.7	0.7	2.3	–0.8	–0.3
Milk price per litre	c	35.2	29.2	32.5	33.4	na
Income per kg milk solids	c	566	443	490	487	na
Purchased feed cost per litre	c	7.7	7.3	8.8	13.3	na
Total feed cost per litre	c	11.5	11.1	12.7	17.7	na
Total cost per litre	c	41.7	37.6	35.6	41.7	na
Return on total assets used	%	2.7	0.7	2.3	–0.8	na
Farm business equity ratio at 30 June	%	82	87	87	89	na
Population	no.	1 801	1 830	1 572	1 599	na

4 Selected physical and financial performance indicators for all producers – Victoria Average per farm

		1999-2000	2000-01	2001-02	2002-03	2003-04
Physical						
Total farm area operated	ha	179	195	220	229	na
Area farm irrigated	ha	50	54	52	50	na
Dairy herd at 30 June	no.	264	272	329	303	na
Milking cow numbers	no.	182	187	224	216	na
Total milk produced	L	866 963	880 768	1 082 912	959 849	na
Total milk solids	kg	65 558	66 456	81 655	73 731	na
Milk yield per cow	L	5 079	5 003	5 138	4 734	na
Milk solids per cow	kg	384	378	387	364	na
Feed cost per cow	c	460	528	598	653	na
Irrigation water used per cow	ML	1.4	1.4	1.2	0.9	na
Financial						
Milk income	\$	257 072	304 786	410 042	277 447	na
Dairy cattle sales	\$	22 604	28 403	28 330	25 991	na
Total income	\$	295 202	344 503	472 145	308 422	na
Dairy cattle purchases	\$	4 444	8 133	6 473	3 626	na
Feed costs	\$	78 492	93 020	126 025	132 359	na
– purchased feed	\$	46 259	54 941	84 159	93 031	na
– home grown	\$	32 233	38 079	41 867	39 328	na
Water charges	\$	4 879	5 557	6 389	9 556	na
Farm debt at 30 June	\$	275 017	282 823	346 548	352 347	437 400
Farm capital at 30 June	\$	1 323 332	1 313 063	1 685 866	1 776 799	na
Farm equity at 30 June	\$	1 063 646	1 026 063	1 333 821	1 416 461	na
Total cash receipts	\$	299 646	352 636	478 618	312 048	393 900
less total cash costs	\$	231 769	256 778	344 359	278 662	249 100
Farm cash income	\$	67 878	95 858	134 259	33 385	44 800
plus buildup in trading stocks	\$	5 743	8 240	28 033	–9 558	na
less depreciation	\$	23 730	24 211	26 168	25 701	na
less total imputed value of family labor	\$	52 732	48 862	47 587	47 657	na
Farm business profit	\$	–2 842	31 025	88 538	–49 529	–30 300
Profit full equity	\$	23 073	60 084	122 525	–18 659	na
Rate of return excluding capital appreciation	%	1.6	4.1	6.8	–2.3	0.3
Milk price per litre	c	25.8	31.9	35.9	28.3	na
Income per kg milk solids	c	392	459	502	376	na
Purchased feed cost per litre	c	5.3	6.2	7.8	9.7	na
Total feed cost per litre	c	9.1	10.6	11.6	13.8	na
Total cost per litre	c	33.1	35.1	34.8	36.5	na
Return on total assets used	%	1.6	4.1	6.8	–2.3	na
Farm business equity ratio at 30 June	%	79	78	79	80	na
Population	no.	7 617	7 475	6 633	6 846	na

4 Selected physical and financial performance indicators for all producers – Queensland Average per farm

		1999-2000	2000-01	2001-02	2002-03	2003-04
Physical						
Total farm area operated	ha	309	294	329	282	na
Area farm irrigated	ha	17	18	33	19	na
Dairy herd at 30 June	no.	189	195	211	228	na
Milking cow numbers	no.	113	128	128	136	na
Total milk produced	L	480 490	478 862	579 549	538 153	na
Total milk solids	kg	34 129	33 848	56 595	38 097	na
Milk yield per cow	L	4 531	3 972	4 862	4 205	na
Milk solids per cow	kg	322	281	475	298	na
Feed cost per cow	c	677	552	716	779	na
Irrigation water used per cow	ML	0.4	0.5	0.6	0.3	na
Financial						
Milk income	\$	226 145	164 161	191 181	190 718	na
Dairy cattle sales	\$	16 466	21 246	32 655	16 594	na
Total income	\$	273 613	207 579	247 141	230 629	na
Dairy cattle purchases	\$	2 956	2 942	2 350	4 202	na
Feed costs	\$	71 772	66 570	85 331	99 738	na
– purchased feed	\$	49 900	45 988	60 750	76 850	na
– home grown	\$	21 872	20 581	24 581	22 888	na
Water charges	\$	841	970	1 002	992	na
Farm debt at 30 June	\$	173 567	151 244	194 369	182 450	204 400
Farm capital at 30 June	\$	1 118 532	1 121 015	1 507 400	1 533 612	na
Farm equity at 30 June	\$	943 248	969 194	1 304 256	1 327 258	na
Total cash receipts	\$	276 568	210 522	249 492	234 831	228 400
less total cash costs	\$	191 777	169 016	197 824	226 883	197 100
Farm cash income	\$	84 791	41 505	51 668	7 947	31 300
plus buildup in trading stocks	\$	7 518	783	7 993	9 485	na
less depreciation	\$	22 144	22 437	28 078	23 585	na
less total imputed value of family labor	\$	65 008	59 801	56 663	57 109	na
Farm business profit	\$	5 156	–39 949	–25 080	–63 262	–52 800
Profit full equity	\$	22 756	–17 655	–9 013	–48 064	na
Rate of return excluding capital appreciation	%	1.9	–1.6	–0.7	–2.7	–2.5
Milk price per litre	c	40.9	31.6	31.3	34.6	na
Income per kg milk solids	c	663	485	338	501	na
Purchased feed cost per litre	c	10.4	9.6	10.5	14.3	na
Total feed cost per litre	c	14.9	13.9	14.7	18.5	na
Total cost per litre	c	52.7	46.9	43.4	47.3	na
Return on total assets used	%	1.9	–1.6	–0.7	–2.7	na
Farm business equity ratio at 30 June	%	84	87	87	88	na
Population	no.	1 705	1 528	1 246	1 289	na

4 Selected physical and financial performance indicators for all producers – South Australia Average per farm

		1999-2000	2000-01	2001-02	2002-03	2003-04
Physical						
Total farm area operated	ha	359	411	396	365	na
Area farm irrigated	ha	20	27	34	28	na
Dairy herd at 30 June	no.	254	274	312	357	na
Milking cow numbers	no.	154	168	197	212	na
Total milk produced	L	912 496	969 495	1 175 026	1 336 470	na
Total milk solids	kg	64 998	69 887	92 641	95 340	na
Milk yield per cow	L	6 312	6 154	6 498	6 706	na
Milk solids per cow	kg	450	444	512	478	na
Feed cost per cow	c	678	718	764	1053	na
Irrigation water used per cow	ML	0.9	1.6	1.2	0.7	na
Financial						
Milk income	\$	294 451	293 096	397 333	428 077	na
Dairy cattle sales	\$	24 572	30 974	32 185	29 366	na
Total income	\$	345 504	363 911	479 038	498 758	na
Dairy cattle purchases	\$	5 578	7 857	10 321	9 674	na
Feed costs	\$	98 025	113 149	138 074	209 807	na
– purchased feed	\$	64 601	72 989	98 739	163 857	na
– home grown	\$	33 424	40 161	39 336	45 949	na
Water charges	\$	2 774	4 250	4 455	2 853	na
Farm debt at 30 June	\$	277 030	310 026	369 156	419 262	400 400
Farm capital at 30 June	\$	1 265 986	1 479 836	1 801 086	2 230 699	na
Farm equity at 30 June	\$	979 574	1 154 128	1 431 930	1 791 241	na
Total cash receipts	\$	351 082	371 768	489 359	508 432	462 200
less total cash costs	\$	272 964	311 179	365 471	461 736	374 200
Farm cash income	\$	78 118	60 589	123 888	46 695	88 000
plus buildup in trading stocks	\$	11 748	20 310	22 651	25 382	na
less depreciation	\$	26 384	28 231	28 366	27 389	na
less total imputed value of family labor	\$	56 449	57 132	50 259	51 743	na
Farm business profit	\$	7 033	–4 465	67 914	–7 054	6 100
Profit full equity	\$	36 442	28 965	103 209	32 980	na
Rate of return excluding capital appreciation	%	2.3	1.5	5.2	0.9	2.3
Milk price per litre	c	28.1	27.9	32.1	31.3	na
Income per kg milk solids	c	453	419	429	449	na
Purchased feed cost per litre	c	7.1	7.5	8.4	12.3	na
Total feed cost per litre	c	10.7	11.7	11.8	15.7	na
Total cost per litre	c	35.4	36.0	33.0	36.4	na
Return on total assets used	%	2.3	1.5	5.2	0.9	na
Farm business equity ratio at 30 June%		78	79	80	81	na
Population	no.	752	694	590	573	na

4 Selected physical and financial performance indicators for all producers – Western Australia Average per farm

		1999-2000	2000-01	2001-02	2002-03	2003-04
Physical						
Total farm area operated	ha	418	475	525	419	na
Area farm irrigated	ha	19	15	18	17	na
Dairy herd at 30 June	no.	340	305	322	357	na
Milking cow numbers	no.	185	172	181	183	na
Total milk produced	L	993 892	891 326	1 068 619	1 078 702	na
Total milk solids	kg	68 310	61 945	74 173	75 000	na
Milk yield per cow	L	5 728	5 505	5 977	6 284	na
Milk solids per cow	kg	394	383	415	437	na
Feed cost per cow	c	714	699	791	804	na
Irrigation water used per cow	ML	0.8	0.8	0.7	0.7	na
Financial						
Milk income	\$	413 040	282 249	340 532	327 499	na
Dairy cattle sales	\$	35 292	47 418	50 148	33 074	na
Total income	\$	512 726	402 903	470 977	446 239	na
Dairy cattle purchases	\$	4 445	12 270	11 129	10 149	na
Feed costs	\$	123 948	113 254	141 414	138 000	na
– purchased feed	\$	75 944	67 418	84 736	86 124	na
– home grown	\$	48 003	45 836	56 678	51 876	na
Water charges	\$	3 454	4 286	4 408	3 969	na
Farm debt at 30 June	\$	485 010	366 329	378 058	451 704	434 600
Farm capital at 30 June	\$	3 363 297	3 085 476	3 605 703	3 460 428	na
Farm equity at 30 June	\$	2 878 288	2 719 147	3 115 284	2 960 197	na
Total cash receipts	\$	517 170	415 173	482 106	456 388	410 200
less total cash costs	\$	371 943	338 134	363 253	391 330	316 700
Farm cash income	\$	145 227	77 039	118 853	65 058	93 500
plus buildup in trading stocks	\$	4 574	15 527	17 710	39 472	na
less depreciation	\$	43 038	33 289	33 166	32 920	na
less total imputed value of family labor	\$	56 250	56 315	55 034	54 765	na
Farm business profit	\$	50 513	2 963	48 364	16 845	4 800
Profit full equity	\$	103 190	47 678	80 582	60 319	na
Rate of return excluding capital appreciation	%	2.8	1.2	2.1	1.6	1.5
Milk price per litre	c	36.1	29.2	30.2	29.7	na
Income per kg milk solids	c	605	456	459	437	na
Purchased feed cost per litre	c	7.6	7.6	7.9	8.0	na
Total feed cost per litre	c	12.5	12.7	13.2	12.8	na
Total cost per litre	c	42.0	38.1	34.0	34.7	na
Return on total assets used	%	2.8	1.2	2.1	1.6	na
Farm business equity ratio at 30 June%		86	88	89	87	na
Population	no.	402	420	357	368	na

4 Selected physical and financial performance indicators for all producers – Tasmania Average per farm

		1999-2000	2000-01	2001-02	2002-03	2003-04
Physical						
Total farm area operated	ha	236	231	300	258	na
Area farm irrigated	ha	47	49	62	52	na
Dairy herd at 30 June	no.	295	308	368	372	na
Milking cow numbers	no.	207	213	259	251	na
Total milk produced	L	839 465	863 935	1 130 772	938 094	na
Total milk solids	kg	62 334	65 058	85 668	78 629	na
Milk yield per cow	L	4 306	4 308	4 538	3 973	na
Milk solids per cow	kg	320	324	344	333	na
Feed cost per cow	c	352	331	439	381	na
Irrigation water used per cow	ML	0.7	0.6	0.6	0.7	na
Financial						
Milk income	\$	251 421	250 865	397 212	277 568	na
Dairy cattle sales	\$	29 312	27 552	33 008	29 481	na
Total income	\$	364 906	360 178	524 535	364 926	na
Dairy cattle purchases	\$	2 388	6 748	3 091	978	na
Feed costs	\$	68 578	66 445	109 287	89 854	na
– purchased feed	\$	31 365	30 267	54 162	42 273	na
– home grown	\$	37 213	36 178	55 125	47 581	na
Water charges	\$	1 356	438	1 064	713	na
Farm debt at 30 June	\$	295 551	217 998	322 836	349 068	482 200
Farm capital at 30 June	\$	1 384 722	1 485 607	1 953 743	1 974 040	na
Farm equity at 30 June	\$	1 028 107	1 289 454	1 608 210	1 588 351	na
Total cash receipts	\$	367 293	366 926	527 626	365 904	369 600
less total cash costs	\$	264 222	264 956	365 752	264 368	304 000
Farm cash income	\$	103 071	101 970	161 874	101 536	65 600
plus buildup in trading stocks	\$	–4 327	13 812	15 783	13 145	na
less depreciation	\$	26 116	25 375	28 408	25 761	na
less total imputed value of family labor	\$	52 912	48 369	47 932	50 541	na
Farm business profit	\$	19 716	42 038	101 317	38 378	–18 800
Profit full equity	\$	45 943	66 790	131 584	68 155	na
Rate of return excluding capital appreciation	%	2.8	3.7	5.9	1.3	0.8
Milk price per litre	c	26.0	26.8	33.3	28.9	na
Income per kg milk solids	c	403	386	464	353	na
Purchased feed cost per litre	c	3.7	3.5	4.8	4.5	na
Total feed cost per litre	c	8.2	7.7	9.7	9.6	na
Total cost per litre	c	33.1	31.4	30.9	34.1	na
Return on total assets used	%	2.8	3.7	5.9	1.3	na
Farm business equity ratio at 30 June	%	78	86	83	82	na
Population	no.	683	638	558	564	na

5 Selected physical and financial performance indicators for seasonal producers – New South Wales Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	208	217	229	250
Area farm irrigated	ha	62	48	36	15
Dairy herd at 30 June	no.	280	261	273	225
Milking cow numbers	no.	178	164	165	160
Total milk produced	L	860 047	792 741	702 465	567 368
Total milk solids	kg	62 877	57 662	51 413	41 383
Milk yield per cow	L	5 152	5 150	4 577	3 762
Milk solids per cow	kg	377	375	335	274
Feed cost per cow	c	614	593	557	646
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	321 289	263 188	248 922	193 736
Dairy sales	\$	27 966	22 233	23 422	25 493
Total income	\$	359 021	312 619	299 410	209 897
Dairy purchases	\$	8 942	2 818	1 468	1 150
Feed costs	\$	102 435	91 329	85 490	97 477
– purchased feed	\$	63 176	54 729	60 659	71 514
– home grown	\$	39 259	36 599	24 832	25 963
Water charges	\$	9 863	6 490	2 184	5 030
Farm debt at 30 June	\$	476 280	349 829	293 358	277 824
Farm capital at 30 June	\$	1 443 383	1 661 346	1 514 064	1 368 562
Farm equity at 30 June	\$	967 103	1 311 517	1 220 707	1 090 738
Total cash receipts	\$	367 963	315 436	300 878	211 046
less total cash costs	\$	296 204	254 001	224 150	200 621
Farm cash income	\$	71 760	61 435	76 728	10 425
plus buildup in trading stocks	\$	–3 156	17 016	9 114	–26 523
less depreciation	\$	25 212	27 619	20 218	20 135
less total imputed value of family labor	\$	45 374	42 136	37 726	32 406
Farm business profit	\$	–1 982	8 696	27 896	–68 639
Profit full equity	\$	36 412	45 283	59 043	–57 341
Rate of return excluding capital appreciation	%	2.5	2.3	3.6	–2.1
Milk price per litre	c	32.5	30.6	33.6	33.4
Income per kg milk solids	c	511	456	484	468
Purchased feed cost per litre	c	7.3	6.9	8.6	12.6
Total feed cost per litre	c	11.9	11.5	12.2	17.2
Total cost per litre	c	40.3	37.1	36.0	43.0
Return on total assets used	%	2.5	2.3	3.6	–2.1
Farm business equity ratio at 30 June	%	67	79	81	80
Population	no.	298	334	396	356

5 Selected physical and financial performance indicators for seasonal producers – Victoria Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	172	192	213	216
Area farm irrigated	ha	41	45	47	42
Dairy herd at 30 June	no.	263	274	330	301
Milking cow numbers	no.	180	188	223	215
Total milk produced	L	857 204	876 093	1 087 681	983 419
Total milk solids	kg	64 855	66 159	82 112	75 821
Milk yield per cow	L	5 053	4 951	5 150	4 872
Milk solids per cow	kg	382	374	389	376
Feed cost per cow	c	460	522	600	670
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	253 725	302 564	412 592	283 336
Dairy sales	\$	22 355	28 347	28 854	26 327
Total income	\$	290 287	342 299	471 110	312 288
Dairy purchases	\$	4 429	8 517	6 715	3 950
Feed costs	\$	78 026	92 329	126 769	135 185
– purchased feed	\$	45 916	54 463	84 436	93 912
– home grown	\$	32 111	37 866	42 332	41 273
Water charges	\$	5 012	5 268	6 441	10 052
Farm debt at 30 June	\$	271 628	284 313	336 793	349 978
Farm capital at 30 June	\$	1 326 762	1 326 496	1 677 190	1 742 164
Farm equity at 30 June	\$	1 071 512	1 038 161	1 334 468	1 377 305
Total cash receipts	\$	294 716	350 816	477 825	316 238
less total cash costs	\$	226 600	254 870	342 477	281 201
Farm cash income	\$	68 116	95 946	135 348	35 037
plus buildup in trading stocks	\$	5 603	9 482	27 316	–8 351
less depreciation	\$	23 818	24 371	25 458	24 615
less total imputed value of family labor	\$	52 557	48 631	47 228	46 888
Farm business profit	\$	–2 656	32 426	89 978	–44 818
Profit full equity	\$	22 800	61 344	123 087	–14 591
Rate of return excluding capital appreciation	%	1.6	4.2	6.8	–2.2
Milk price per litre	c	25.7	31.8	36.0	28.2
Income per kg milk solids	c	391	457	502	374
Purchased feed cost per litre	c	5.4	6.2	7.8	9.6
Total feed cost per litre	c	9.1	10.5	11.7	13.7
Total cost per litre	c	32.9	34.9	34.6	36.0
Return on total assets used	%	1.6	4.2	6.8	–2.2
Farm business equity ratio at 30 June	%	80	79	80	80
Population	no.	7 164	7 033	6 306	6 283

5 Selected physical and financial performance indicators for seasonal producers – South Australia Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	390	511	483	419
Area farm irrigated	ha	19	25	32	25
Dairy herd at 30 June	no.	257	304	359	382
Milking cow numbers	no.	157	185	224	228
Total milk produced	L	940 826	1 107 371	1 366 738	1 477 266
Total milk solids	kg	66 853	79 607	97 838	104 349
Milk yield per cow	L	6 369	6 367	6 615	6 878
Milk solids per cow	kg	453	458	474	486
Feed cost per cow	c	699	761	798	1120
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	303 504	335 018	462 214	469 560
Dairy sales	\$	26 041	36 580	36 777	31 272
Total income	\$	358 694	423 682	566 392	546 198
Dairy purchases	\$	5 060	9 576	12 963	11 054
Feed costs	\$	103 281	132 316	164 864	240 643
– purchased feed	\$	67 977	86 962	120 693	194 221
– home grown	\$	35 304	45 354	44 171	46 422
Water charges	\$	3 190	4 581	4 917	2 832
Farm debt at 30 June	\$	288 255	340 623	406 387	402 791
Farm capital at 30 June	\$	1 294 636	1 655 644	2 069 974	2 453 885
Farm equity at 30 June	\$	1 006 381	1 315 021	1 663 587	2 064 079
Total cash receipts	\$	363 753	433 258	579 355	557 252
less total cash costs	\$	280 854	359 366	433 216	512 642
Farm cash income	\$	82 900	73 893	146 139	44 610
plus buildup in trading stocks	\$	10 634	23 216	28 655	12 915
less depreciation	\$	26 911	31 333	35 605	31 156
less total imputed value of family labor	\$	55 162	61 248	53 236	54 869
Farm business profit	\$	11 461	4 528	85 952	–28 501
Profit full equity	\$	39 402	40 444	124 481	11 979
Rate of return excluding capital appreciation	%	2.5	2.0	5.4	0.2
Milk price per litre	c	28.1	27.9	32.1	31.1
Income per kg milk solids	c	454	421	472	450
Purchased feed cost per litre	c	7.2	7.9	8.8	13.1
Total feed cost per litre	c	11.0	11.9	12.1	16.3
Total cost per litre	c	34.9	35.3	32.6	36.4
Return on total assets used	%	2.5	2.0	5.4	0.2
Farm business equity ratio at 30 June	%	78	79	80	84
Population	no.	617	439	367	385

5 Selected physical and financial performance indicators for seasonal producers – Western Australia Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	448	647	663	438
Area farm irrigated	ha	33	11	15	14
Dairy herd at 30 June	no.	356	279	304	349
Milking cow numbers	no.	213	157	176	180
Total milk produced	L	1 047 952	758 077	1 046 939	1 033 097
Total milk solids	kg	73 001	53 132	73 042	72 959
Milk yield per cow	L	5 246	5 150	5 855	6 092
Milk solids per cow	kg	365	361	409	430
Feed cost per cow	c	751	643	757	779
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	415 489	235 890	330 675	308 782
Dairy sales	\$	27 313	43 092	50 541	33 198
Total income	\$	548 969	357 124	450 816	422 863
Dairy purchases	\$	9 749	23 197	9 157	16 180
Feed costs	\$	150 071	94 571	135 391	132 049
– purchased feed	\$	96 052	57 319	78 131	81 500
– home grown	\$	54 019	37 252	57 260	50 549
Water charges	\$	8 098	2 671	1 717	1 800
Farm debt at 30 June	\$	760 356	491 042	481 906	554 414
Farm capital at 30 June	\$	4 073 276	3 463 068	3 920 590	3 567 385
Farm equity at 30 June	\$	3 312 920	2 972 026	3 438 684	3 012 972
Total cash receipts	\$	558 718	380 321	459 973	439 043
less total cash costs	\$	481 913	341 065	367 244	400 929
Farm cash income	\$	76 805	39 257	92 729	38 115
plus buildup in trading stocks	\$	26 638	23 498	6 786	36 343
less depreciation	\$	53 119	28 699	33 024	34 040
less total imputed value of family labor	\$	59 986	59 887	54 341	49 665
Farm business profit	\$	–9663	–25 832	12 149	–9 247
Profit full equity	\$	67 877	30 716	59 727	44 939
Rate of return excluding capital appreciation	%	1.6	0.7	1.3	1.1
Milk price per litre	c	34.5	28.7	30.0	29.2
Income per kg milk solids	c	569	444	453	423
Purchased feed cost per litre	c	9.2	7.6	7.5	7.9
Total feed cost per litre	c	14.3	12.5	12.9	12.8
Total cost per litre	c	45.7	40.5	35.3	35.6
Return on total assets used	%	1.6	0.7	1.3	1.1
Farm business equity ratio at 30 June	%	81	86	88	84
Population	no.	60	137	144	151

5 Selected physical and financial performance indicators for seasonal producers – Tasmania Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	236	231	300	258
Area farm irrigated	ha	47	49	62	52
Dairy herd at 30 June	no.	295	308	368	372
Milking cow numbers	no.	207	213	259	251
Total milk produced	L	839 465	863 935	1 130 772	938 094
Total milk solids	kg	62 334	65 058	85 668	78 629
Milk yield per cow	L	4 306	4 308	4 538	3 973
Milk solids per cow	kg	320	324	344	333
Feed cost per cow	c	352	331	439	381
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	251 421	250 865	397 212	277 568
Dairy sales	\$	29 312	27 552	33 008	29 481
Total income	\$	364 906	360 178	524 535	364 926
Dairy purchases	\$	2 388	6 748	3 091	978
Feed costs	\$	68 578	66 445	109 287	89 854
– purchased feed	\$	31 365	30 267	54 162	42 273
– home grown	\$	37 213	36 178	55 125	47 581
Water charges	\$	1 356	438	1 064	713
Farm debt at 30 June	\$	295 551	217 998	322 836	349 068
Farm capital at 30 June	\$	1 384 722	1 485 607	1 953 743	1 974 040
Farm equity at 30 June	\$	1 028 107	1 289 454	1 608 210	1 588 351
Total cash receipts	\$	367 293	366 926	527 626	365 904
less total cash costs	\$	264 222	264 956	365 752	264 368
Farm cash income	\$	103 071	101 970	161 874	101 536
plus buildup in trading stocks	\$	–4 327	13 812	15 783	13 145
less depreciation	\$	26 116	25 375	28 408	25 761
less total imputed value of family labor	\$	52 912	48 369	47 932	50 541
Farm business profit	\$	19 716	42 038	101 317	38 378
Profit full equity	\$	45 943	66 790	131 584	68 155
Rate of return excluding capital appreciation	%	2.8	3.7	5.9	1.3
Milk price per litre	c	26.0	26.8	33.3	28.9
Income per kg milk solids	c	403	386	464	353
Purchased feed cost per litre	c	3.7	3.5	4.8	4.5
Total feed cost per litre	c	8.2	7.7	9.7	9.6
Total cost per litre	c	33.1	31.4	30.9	34.1
Return on total assets used	%	2.8	3.7	5.9	1.3
Farm business equity ratio at 30 June	%	78	86	83	82
Population	no.	683	638	558	564

6 Selected physical and financial performance indicators for year round producers – New South Wales Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	253	214	233	231
Area farm irrigated	ha	31	28	41	39
Dairy herd at 30 June	no.	247	252	280	283
Milking cow numbers	no.	141	145	166	166
Total milk produced	L	729 724	685 373	862 049	847 485
Total milk solids	kg	51 863	48 776	59 359	58 945
Milk solids per cow	kg	391	357	389	378
Feed cost per cow	c	630	549	724	964
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	300 693	214 136	292 094	289 466
Dairy sales	\$	20 800	29 789	27 025	28 607
Total income	\$	343 498	260 106	334 391	328 656
Dairy purchases	\$	3 866	8 242	3 788	3 819
Feed costs	\$	83 533	74 974	110 478	150 390
– purchased feed	\$	57 017	50 365	76 330	113 840
– home grown	\$	26 517	24 610	34 148	36 550
Water charges	\$	2 377	1 836	2 176	6 451
Farm debt at 30 June	\$	239 975	174 293	204 336	244 286
Farm capital at 30 June	\$	1 615 761	1 572 644	1 946 157	2 571 598
Farm equity at 30 June	\$	1 366 537	1 398 351	1 702 345	2 312 938
Total cash receipts	\$	347 364	268 348	338 178	332 474
less total cash costs	\$	249 228	206 316	241 932	289 134
Farm cash income	\$	98 136	62 031	96 246	43 341
plus buildup in trading stocks	\$	6 876	18 723	6 302	11 063
less depreciation	\$	24 281	25 438	23 134	24 813
less total imputed value of family labor	\$	59 061	60 441	58 764	56 756
Farm business profit	\$	21 670	–5 124	20 651	–27 165
Profit full equity	\$	44 290	15 803	42 876	–2 925
Rate of return excluding capital appreciation	%	2.7	0.3	1.9	–0.6
Milk price per litre	c	35.8	28.8	32.1	33.4
Income per kg milk solids	c	580	439	492	491
Purchased feed cost per litre	c	7.8	7.3	8.9	13.4
Total feed cost per litre	c	11.4	10.9	12.8	17.7
Total cost per litre	c	42.0	37.7	35.5	41.5
Return on total assets used	%	2.7	0.3	1.9	–0.6
Farm business equity ratio at 30 June	%	85	89	89	90
Milk yield per cow	L	5 508	5 018	5 649	5 434
Population	no.	1 503	1 496	1 176	1 243

6 Selected physical and financial performance indicators for year round producers – Queensland Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	316	302	333	292
Area farm irrigated	ha	18	18	34	19
Dairy herd at 30 June	no.	188	197	210	228
Milking cow numbers	no.	111	128	126	137
Total milk produced	L	476 605	473 999	585 409	547 671
Total milk solids	kg	33 768	33 401	58 236	38 745
Milk yield per cow	L	4 562	3 940	4 992	4 264
Milk solids per cow	kg	323	278	497	302
Feed cost per cow	c	685	549	744	779
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	224 034	163 743	192 242	194 451
Dairy sales	\$	16 713	21 072	34 106	16 859
Total income	\$	271 795	210 055	249 221	233 839
Dairy purchases	\$	3 085	2 890	2 367	4 212
Feed costs	\$	71 557	66 043	87 205	100 041
– purchased feed	\$	49 758	45 923	62 510	77 825
– home grown	\$	21 799	20 120	24 695	22 216
Water charges	\$	857	987	1 083	968
Farm debt at 30 June	\$	179 926	159 579	186 847	179 542
Farm capital at 30 June	\$	1 096 761	1 093 723	1 471 787	1 524 259
Farm equity at 30 June	\$	914 855	933 274	1 269 497	1 318 931
Total cash receipts	\$	274 880	212 944	251 588	238 051
less total cash costs	\$	192 532	173 946	200 770	236 243
Farm cash income	\$	82 348	38 998	50 818	1 808
plus buildup in trading stocks	\$	7 241	3 692	6 958	2 253
less depreciation	\$	22 260	22 630	27 566	23 727
less total imputed value of family labor	\$	64 316	58 846	55 651	57 012
Farm business profit	\$	3 013	–38 785	–25 441	–76 677
Profit full equity	\$	20 963	–15 488	–8 985	–60 897
Rate of return excluding capital appreciation	%	1.8	–1.4	–0.8	–2.8
Milk price per litre	c	40.9	31.8	31.2	34.7
Income per kg milk solids	c	663	490	330	502
Purchased feed cost per litre	c	10.4	9.7	10.7	14.2
Total feed cost per litre	c	15.0	13.9	14.9	18.3
Total cost per litre	c	53.2	47.6	43.1	47.0
Return on total assets used	%	1.8	–1.4	–0.8	–2.8
Farm business equity ratio at 30 June	%	84	85	87	88
Population	no.	1 632	1 427	1 152	1 201

6 Selected physical and financial performance indicators for year round producers – South Australia Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	218	238	252	255
Area farm irrigated	ha	28	31	35	36
Dairy herd at 30 June	no.	242	221	235	305
Milking cow numbers	no.	139	138	153	178
Total milk produced	L	783 626	731 568	858 554	1 048 847
Total milk solids	kg	56 559	53 113	84 063	76 937
Milk yield per cow	L	6 013	5 660	6 210	6 255
Milk solids per cow	kg	434	411	608	459
Feed cost per cow	c	569	620	679	876
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	253 269	220 753	290 230	343 333
Dairy sales	\$	17 893	21 299	24 603	25 471
Total income	\$	285 508	260 765	334 838	401 846
Dairy purchases	\$	7 935	4 890	5 959	6 855
Feed costs	\$	74 119	80 073	93 851	146 814
– purchased feed	\$	49 247	48 875	62 497	101 830
– home grown	\$	24 872	31 198	31 354	44 984
Water charges	\$	882	3 679	3 692	2 896
Farm debt at 30 June	\$	222 664	255 458	307 697	453 165
Farm capital at 30 June	\$	1 135 664	1 176 448	1 357 213	1 774 769
Farm equity at 30 June	\$	849 737	867 180	1 049 516	1 229 629
Total cash receipts	\$	293 443	265 655	340 798	408 701
less total cash costs	\$	237 076	228 025	253 639	357 746
Farm cash income	\$	56 367	37 630	87 158	50 955
plus buildup in trading stocks	\$	16 818	15 295	12 739	50 851
less depreciation	\$	23 988	22 879	16 417	19 694
less total imputed value of family labor	\$	62 306	50 029	45 344	45 355
Farm business profit	\$	–13 110	–19 983	38 137	36 757
Profit full equity	\$	22 975	9 156	68 094	75 883
Rate of return excluding capital appreciation	%	1.2	0.2	4.5	2.8
Milk price per litre	c	28.1	27.8	32.1	32.0
Income per kg milk solids	c	448	416	345	446
Purchased feed cost per litre	c	6.3	6.7	7.3	9.7
Total feed cost per litre	c	9.5	10.9	10.9	14.0
Total cost per litre	c	38.3	38.0	33.9	36.3
Return on total assets used	%	1.2	0.2	4.5	2.8
Farm business equity ratio at 30 June	%	79	77	77	73
Population	no.	136	255	223	188

6 Selected physical and financial performance indicators for year round producers – Western Australia Average per farm

		1999-00	2000-01	2001-02	2002-03
Physical					
Total farm area operated	ha	413	391	433	406
Area farm irrigated	ha	16	17	19	18
Dairy herd at 30 June	no.	337	317	335	363
Milking cow numbers	no.	180	180	185	184
Total milk produced	L	984 357	956 021	1 083 232	1 110 485
Total milk solids	kg	67 483	66 223	74 935	76 422
Milk yield per cow	L	5 829	5 655	6 058	6 416
Milk solids per cow	kg	400	392	419	442
Feed cost per cow	c	707	724	814	821
Irrigation water used per cow	ML	na	na	1.5	na
Financial					
Milk income	\$	412 608	304 758	347 176	340 543
Dairy sales	36 699	49 519	49 883	32 987	
Total income	\$	506 333	425 129	484 566	462 531
Dairy purchases	3 509	6 965	12 458	5 946	
Feed costs	\$	119 340	122 325	145 473	142 148
– purchased feed	\$	72 398	72 321	89 188	89 347
– home grown	\$	46 942	50 004	56 285	52 801
Water charges	\$	2 636	5 070	6 222	5 480
Farm debt at 30 June	\$	436 448	305 779	289 674	379 186
Farm capital at 30 June	\$	3 238 080	2 902 149	3 393 458	3 385 887
Farm equity at 30 June	\$	2 801 632	2 596 370	2 840 038	2 922 936
Total cash receipts	\$	509 843	432 094	497 025	468 477
less total cash costs	\$	352 548	336 711	360 563	384 641
Farm cash income	\$	157 295	95 383	136 461	83 835
plus buildup in trading stocks	\$	683	11 657	25 074	41 652
less depreciation	\$	41 260	35 517	33 261	32 139
less total imputed value of family labor	\$	55 591	54 580	55 501	58 319
Farm business profit	\$	61 126	16 943	72 773	35 029
Profit full equity	\$	109 418	55 914	94 639	71 036
Rate of return excluding capital appreciation	%	3.0	1.5	2.6	2.0
Milk price per litre	c	36.4	29.4	30.4	30.0
Income per kg milk solids	c	611	460	463	446
Purchased feed cost per litre	c	7.4	7.6	8.2	8.0
Total feed cost per litre	c	12.1	12.8	13.4	12.8
Total cost per litre	c	41.3	37.1	33.1	34.1
Return on total assets used	%	3.0	1.5	2.6	2.0
Farm business equity ratio at 30 June	%	87	89	91	89
Population	no.	342	283	213	217

support programs for dairy farms

In the wake of deregulation in the Australian dairy industry in 2000, the Dairy Structural Adjustment Program was established to provide assistance payments to dairy farmers. The scheme is administered by the Dairy Adjustment Authority, with payments under this program being made quarterly over eight years until 2008.

Dairy producers qualified for a standard payment if they could demonstrate that they had an interest at 6.30 pm on 28 September 1999 in a dairy farm that delivered milk during 1998-99.

Supplementary payment rights for exceptional events were granted to eligible producers who suffered a production loss greater than 30 per cent in 1998-99 as a result of a natural event such as storm, flood, drought, disease etc. In addition, an anomalous circumstances payment right, granted at the discretion of the Dairy Adjustment Authority, was made available to some dairy farmers.

The Supplementary Dairy Assistance program targeted producers who were most affected by adverse price movements following deregulation and those who were ineligible for DSAP payments.

Basic and additional market milk payment rights were granted to those dairy producers who had been granted a payment right under DSAP and who delivered at least 25.1 per cent market milk in 1998-99 and held an interest in a dairy farm enterprise on 21 May 2001.

7 Assistance to dairy farms

	Dairy Structural Adjustment Program	Market Milk Supplementary Dairy Assistance	Discretionary Supplementary Dairy Assistance	Total payments	Average payment per farm
	\$m	\$m	\$m	\$m	\$
New South Wales and the ACT	337	46	1	385	222 434
Queensland and Northern Territory	221	34	1	256	161 788
South Australia	126	7	4	137	189 763
Tasmania	78	0	1	79	98 999
Victoria	758	0	11	769	101 164
Western Australia	108	15	0	123	227 490
Australia	1 628	102	18	1 748	135 511

These payments are made as a lump sum or quarterly over eight years until 2008.

Dairy farmers' payment rights and the average payment per farm by state are shown in table 7. In Victoria and Tasmania, states where over 90 per cent of milk production is used for manufacturing purposes, dairy farmers have an average payment right of around \$100 000. In contrast, in Queensland, New South Wales and Western Australia where market milk makes up 50–60 per cent of production, average payment rights per farm range from around \$160 000 to almost \$230 000. At \$190 000 on average, payment rights per farm in South Australia are almost double those received by Victoria and also exceed those in Queensland, the state most predominantly oriented to market milk production.

dairy manufacturing and processing sector

Over the past two decades there has been significant rationalisation and restructuring in Australia's milk processing and manufactured dairy product sector. The key drivers of the industry's restructuring have been the expansion of multinational food corporations, the Closer Economic Relations (CER) agreement with New Zealand, the phase out from 1985 of Australian Government assistance to the manufacturing milk sector through the Dairy Marketing Scheme and the deregulation by state governments of the market milk sector from 2000.

By increasing exposure to world market prices for traded bulk dairy commodities through the CER agreement, and the progressive removal of domestic support, dairy manufacturers adjusted and rationalised to remain competitive. Greater competition in the market milk sector followed the deregulation of market milk arrangements because the sector for the first time was allowed to operate as a national milk processing industry supplying a national retail milk market. While considerable adjustment has occurred already in milk processing, the pressure of competition may lead to further rationalisation.

A feature of the rationalisation in the milk processing and dairy manufacturing sector has been the merging of enterprises and an increase in the degree of concentration. Currently, the sector comprises numerous enterprises of all types and sizes, from large multinational and Australian owned companies, both publicly listed and unlisted, and farmer owned cooperatives to small private businesses producing specialist dairy products. However six companies, Murray Goulburn, Bonlac, Dairy Farmers, National Foods, Warnambool Cheese and Butter Factory, and Parmalat Australia receive and process between 75 and 80 per cent of Australian milk production.

The intake of milk by farmer owned cooperatives represents around 62 per cent of total Australian milk production, with the two large Victorian cooperatives Murray Goulburn and Bonlac Supply Co. together accounting for just under 50 per cent of national supplies. The other large cooperative, Dairy Farmers, which has plants located in New South Wales, Queensland, Victoria and South Australia, receives another 12 per cent of the nation's milk production.

While Dairy Farmers produces both fresh milk and manufactured products, the Victorian cooperatives focus on the manufacture of processed dairy products like cheese, milk powders, butter and fresh manufactured product. Although not directly involved in the fresh milk sector, these cooperatives do supply milk to other large fresh drinking milk

processors like National Foods, as well as bulk manufactured product to multinationals like Kraft and Nestle for further processing.

More cost effective transport and concentration of industry processing capacity has meant that milk is moved over long distances for further processing. For instance, Dairy Farmers is understood to use 'B Double' trucks to move milk from South Australia to Sydney to produce manufactured dairy products while Murray Goulburn transports milk produced in the south east region of South Australia to its factory near Warnambool in Victoria.

Specialised drinking milk processing plants are typically located close to the final consumer because transporting milk in bulk is less costly than moving it in packed form. While it is important that factories processing market milk have a supply of milk within close proximity because milk quality deteriorates with time, improvements in bulk milk transport have again allowed milk for processing to be sourced from greater distances.

In some of the smaller milk producing states efficiency gains have also been made in milk collection. In Western Australia for example, factories have been converted to collection centres to improve efficiency and lower costs. Similarly in South Australia, two companies have contracted a haulage company to collect milk from farmers and deliver it to their factories. In the south east of South Australia, three companies have a joint collection milk depot that is coordinated by the Victorian processor and manufacturer, Warnambool Cheese and Butter Factory Co. (WCBF). Like Murray Goulburn, WCBF transports milk from Mount Gambier in South Australia to its dairy factory where it processes the milk into cheese, powder, butter, cream and market milk. WCBF is an Australian owned unlisted public company that currently receives and processes nearly 6 per cent of total Australian milk production.

In 1998, a major international company entered the sector when Parmalat Australia, a subsidiary of Italian company, Parmalat Finanziaria SpA, acquired Pauls Limited. Parmalat receives around 5 per cent of Australian milk production and has facilities in Queensland, New South Wales, Victoria and the Northern Territory where it mainly processes fresh market milk and manufactures fresh dairy products and cheese.

With the exception of individual company reports there is little information available about the performance of the milk processing and manufactured dairy product sector in Australia. An analysis of growth of the Australian dairy and meat processing industry (Jahan, Smith and Rodriguez 2003), estimated that the dairy processing industry grew annually over the period 1980–98 at a rate four times faster than meat processing and that total factor productivity grew at around 0.7 per cent a year. However, in the 1990s total factor productivity in dairy processing fell slightly compared with an increase of 1.9 per cent a year in total factor productivity in meat processing.

The financial performance of the largest Australian dairy companies, including cooperatives, was analysed recently in a food pricing study (Whitehall Associates 2004). While the cooperatives with lower return on equity capital and lower earnings before interest and tax, plus lower debt to equity ratios on average, did not perform as well as public Australian dairy companies, their performance is comparable with overseas cooperatives. According

to the report, Australia's best performing dairy company, National Foods, also performed well in comparison with international dairy companies in terms of margins and return on assets.

In assessing the impact of the deregulation of market milk, the Australian Competition and Consumer Commission (2001) estimated that average net profit margins of Australian milk processors were significantly lower in the first six months after deregulation than before deregulation. The ACCC concluded that consumers captured the benefits of deregulation rather than milk processors and retailers.

A recent report for Dairy Australia on the situation and outlook for the industry (Ridge Partners 2004) indicates that the combination of drought and low prices for manufactured products in 2002-03 led to lower earning ratios of major cooperatives as well as reduced retention of funds in order to maximise milk prices paid to member farmers.

Allocation of milk

The volume of milk production being sold as drinking milk in Australia was fairly static over the eight years from 1997-98 to 2002-03 (table 8). However, on a per person basis, milk consumption continues its long term downward trend with consumers substituting to other beverages like fruit juices, water and health drinks. In contrast, with total milk production expanding in Australia over the same period, both the volume and the proportion of

8 Milk use in Australia ^a

	New South Wales	Victoria	Queens- land	South Australia	Western Australia	Tasmania	Australia
	ML	ML	ML	ML	ML	ML	ML
Drinking milk sales							
1996-97	576	452	376	173	193	50	1 920
1997-98	575	442	377	182	188	49	1 919
1998-99	578	442	382	185	192	49	1 931
1999-2000	566	440	383	185	190	48	1 933
2000-01	630	456	393	199	192	50	1 920
2001-02	622	459	402	184	192	50	1 909
2002-03	616	473	403	181	200	51	1 924
2003-04	629	484	409	183	205	52	1 963
Manufacturing milk							
1996-97	616	5182	421	362	156	479	7 116
1997-98	667	5424	445	398	199	494	7 521
1998-99	708	5972	445	461	211	554	8 248
1999-2000	829	6430	465	528	222	561	8 914
2000-01	696	6328	367	500	196	540	8 627
2001-02	721	6946	342	531	201	621	9 362
2002-03	685	6111	316	552	204	534	8 402
2003-04 ^p	649	5955	265	524	198	539	8 130

^a Sum of states does not equal Australian total before 2001 because interstate transfers are not included, ^p Provisional. *Source:* Dairy Australia.

milk being used for manufacturing purposes increased significantly. Naturally, the drought in 2002-03 and 2003-04 reduced the amount of milk being used for manufacturing.

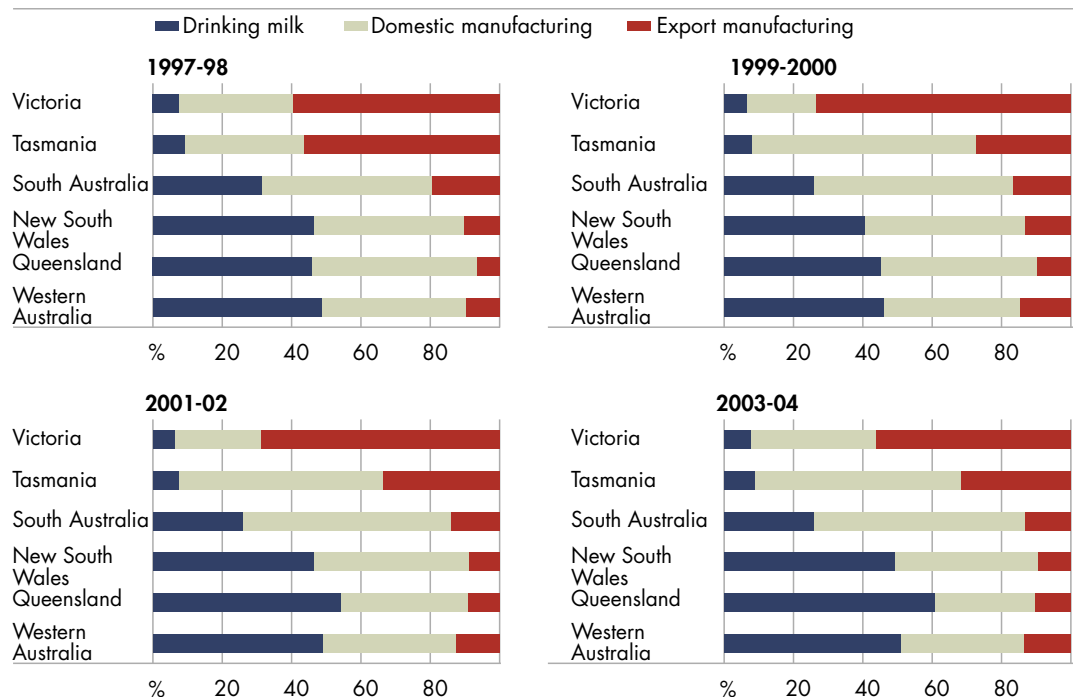
The share of drinking milk and manufacturing milk in total milk use, which varies significantly among the states, provides a good indication of the orientation of the dairy manufacturing and processing industries in each state (figure H).

The dairy industries in Victoria and Tasmania are clearly oriented toward manufactured dairy products, with in excess of 90 per cent of milk production being used for manufacturing. This position has applied in both states before and after market milk deregulation. Victorian and Tasmanian manufacturers also have a greater focus on export markets compared with manufacturers in the other states, although it appears that in Tasmania the trend since the mid-1990s has been to focus more on the domestic market rather than exports.

Victoria is not only the biggest milk producing state but also the largest user of manufacturing milk, accounting for over 70 per cent of the nation's use of milk for manufacturing. Victoria's dominance in manufacturing milk use compared with the other states is so great that at 6–7 million litres a year it typically uses more than nine times more milk for manufacturing than the next largest user, New South Wales.

In contrast, in New South Wales and Western Australia, just under half of all milk produced is currently sold as drinking milk. In Queensland between 55 and 60 per cent of milk is used for drinking milk. In the period since market milk was deregulated, it appears that the

H Milk utilisation in Australia



industry in Queensland, and to a much lesser extent those in New South Wales and Western Australia, have become more reliant on market milk. In the four years after deregulation, drinking milk accounted on average for 55.6 per cent, 49.7 per cent and 47.6 per cent of total milk use in Queensland, Western Australia and New South Wales respectively, compared with 46.1 per cent, 49.4 per cent and 45.0 per cent for the same period before deregulation (based on data reported in table 8).

Although manufacturing milk is still important in Queensland, New South Wales and Western Australia, it is clear that makers of manufactured dairy products in these states are oriented toward the domestic market and are not as dependent on export markets as Victoria and Tasmania. Around one in every three litres of milk in Queensland and Western Australia are used for manufactured dairy products for the domestic market, while in New South Wales the proportion is even higher.

While dairy manufacturing has always been the predominant use of milk in South Australia, the proportion used for manufacturing has increased since the mid-1990s and in 2003-04 accounted for 3 in every 4 litres of milk used in that state. While not as dependent as New South Wales, Queensland and Western Australia on market milk, the South Australia industry is much more reliant on the fresh milk market than the two predominantly manufacturing milk states, Victoria and Tasmania. It also appears that not only is South Australia's expanding milk production used increasingly for manufacturing, but also the industry is becoming more dependent on export markets.

Milk intake by factories

An important factor affecting the costs of dairy manufacturers is the volume of milk available for processing. In the report prepared for Dairy Australia on the situation and outlook for the industry, a simple analysis was conducted to illustrate the impact on the processing sector of the fall in milk volumes as a result of the drought. It was estimated that the reduction in throughput might have increased some manufacturers costs by up to 2-3 cents a litre. The efficiency of processing milk and manufacturing dairy products is likely to be affected by the scale of plant and any reduction in milk flows could have an adverse impact on the ability of factories to recover fixed or overhead costs in the longer term.

9 Average intake of milk by factories

	New South Wales	Victoria	Queens- land	South Australia	Western Australia	Tasmania	Australia
	ML	ML	ML	ML	ML	ML	ML
1997-98	56	168	103	53	32	60	97
1998-99	58	178	92	72	37	67	106
1999-00	63	191	94	79	37	68	113
2000-01	49	200	48	58	23	49	89
2001-02	41	200	44	60	56	56	96

Source: Dairy Australia.

Information on companies' plant capacity is not readily available but average factory milk intake may provide some indication of differences in plant size and potential economies of scale among the states' dairy industries. Average dairy factory milk intake in each state in 1997-98 to 2001-02 are reported in table 9.

Below the state level, there is concern in some regional areas where farmers are leaving dairying, and milk production is falling, that low milk throughput may threaten the viability of factories. North and central Queensland are probably the areas in Australia most vulnerable to the threat of falling throughput. In these areas, milk production has declined by around 30 per cent compared with levels in 1999-2000, the last year before deregulation. The north coast region of New South Wales has also experienced a significant drop in milk production since deregulation, with milk output declining by around 80 million litres or 20 per cent between 1999-2000 and 2002-03. In its favor, the area is well located to Brisbane and southern Queensland, one of the fastest growing areas in Australia, and as the population grows so will the quantity of drinking milk and fresh dairy products demanded. However, some dairy farmers are being affected by urban encroachment and rising land values and rates.

It is important to note that firm conclusions cannot be made on the basis of this evidence about the relative efficiency and costs of production in each state's dairy manufacturing and processing industry. Data reported by Dairy Australia on the number of factories receiving milk includes all factories big and small, and it is possible that factories producing lower volumes of highly differentiated products for niche or special markets may be very efficient. This may be a subject for further investigation.

Milk processing

Milk processing is highly concentrated in Australia with three dominant processors, National Foods, Dairy Farmers and Parmalat Australia, reported to supply over 80 per cent of all drinking milk. There are also a number of small regional and niche market milk processors. Although milk processing is highly concentrated, there appears to be strong competition in the sector.

During the late 1990s prior to deregulation, the major processors made considerable investments in state based processing facilities to be situated near major markets and to maximise marketing and distribution synergies by developing 'national' milk brands. In addition to drinking milk, the major milk processors also produce fresh dairy products like yoghurt and dairy desserts, ice cream, branded cheese products and small volumes of butter. The manufacture of fresh dairy products complements milk processing and allows factories to maximise economies of scale, particularly in distribution.

Even though some rationalisation in the number of milk processing factories has generally lowered fixed processing costs, it appears that significant overcapacity is an issue in the sector. In a food pricing study undertaken for the Australian Government Department of Agriculture, Fisheries and Forestry by Whitehall Associates (2004), capacity in milk processing was estimated to be as much as two to three times the size of the market.

An important factor in the increase in investment in milk processing facilities was the change in the way that supermarkets retailed milk. Coinciding with deregulation the two major supermarket chains moved to tender for the supply of generic label milk on a national basis, thereby encouraging the expansion of capacity by the main milk processors to enable supply to geographically widespread markets.

According to the ACCC report into the impact of deregulation on the milk industry, the new strategy by supermarkets was to set reduced milk prices nationally for generic label milk to attract more consumers to the store rather than to increase milk sales revenue. In Australia, supermarkets are the main retail outlet for drinking milk. The supermarket share of drinking milk sales has risen consistently over the past five years and now represents nearly 57 per cent of total milk sales compared with just under 50 per cent in 1999-2000. The introduction of cheaper generic milk has been the main factor behind the rise in supermarkets' share of milk sales. In 1999-2000 less than 1 in every 10 litres of milk sold was generic supermarket whole milk. Last financial year that figure had reached more than 1 in every 5 litres. Supermarket sales and prices of regular whole milk in each state, both private label generic and branded, before and since market milk deregulation are reported in table 10.

There has been a dramatic shift by consumers in every state away from branded whole milk toward generic milk although it is less pronounced in South Australia, Western Australia and Tasmania. It is clear that in every state the lower price has been a major factor in

10 Supermarket milk sales of regular whole milk

	1999-2000		2000-01		2001-02		2002-03		2003-04	
	ML	\$/L	ML	\$/L	ML	\$/L	ML	\$/L	ML	\$/L
New South Wales										
Generic	60	1.21	105	1.05	118	1.06	127	1.08	132	1.06
Branded	89	1.27	62	1.24	52	1.34	49	1.42	46	1.45
Victoria										
Generic	29	1.41	84	1.08	106	1.10	110	1.15	112	1.15
Branded	88	1.42	49	1.34	34	1.44	30	1.51	26	1.53
Queensland										
Generic	44	1.20	78	1.04	88	1.07	91	1.12	89	1.09
Branded	65	1.26	41	1.24	35	1.34	33	1.39	34	1.38
South Australia										
Generic	4	1.30	17	1.06	26	1.10	30	1.11	32	1.12
Branded	42	1.37	32	1.27	25	1.38	21	1.44	19	1.47
Western Australia										
Generic	7	1.30	24	1.04	30	1.06	26	1.09	27	1.13
Branded	38	1.34	28	1.25	24	1.28	26	1.23	24	1.29
Tasmania										
Generic	0	1.31	4	1.04	6	1.08	7	1.14	7	1.17
Branded	10	1.32	7	1.24	6	1.31	5	1.38	6	1.40

Source: Dairy Australia, AC Nielsen.

consumers switching to generic milk. Also, in the last two years the price of generic product in the three states that are the largest milk consumers, New South Wales, Victoria and Queensland, has either stayed the same or fallen while in the other states it has risen.

This may in part explain why the shift to generic milk is less pronounced in the smaller states. Another factor in Western Australia has been the periodic but aggressive discounting of branded milk in supermarkets. It is understood that while Peters and Brownes have very recently engaged in heavy discounting of their branded milk in supermarkets, the price received by farmers for their milk has not been affected (personal communication Dairy Australia).

With excess capacity and an increasing reliance on branded dairy products to improve margins, tendering by processors for generic milk contracts with supermarkets appears to be very competitive.

Woolworths awarded the first national contract for the supply of house brand milk to National Foods in 2002 and have recently announced its renewal to the same company. The other major supermarket chain, Coles Myer, awards contracts on a state by state basis. Currently National Foods has the Tasmanian contract while Peters and Brownes (Fonterra) holds the contract to supply house brand milk in Western Australia.

Dairy Farmers cooperative holds the New South Wales, South Australian and Queensland contracts, although Parmalat, which supplies Coles Myer in Victoria, also has won the new contract to supply Queensland from 1 October 2004. As an example of how competitive the tendering can be, it was reported that Macquarie Equities estimated that under the terms of the National Foods contract with Coles Myer in Queensland, National Foods made just 2 cents per litre (Whyte 2004).

Manufactured dairy products

The three largest cooperatives, Murray Goulburn, Bonlac Supply Company and Dairy Farmers, account for more than 70 per cent of all milk used for manufacturing. Since bulk manufactured dairy products are storable, it is advantageous to produce them where plentiful milk supplies are available from lower cost seasonal production systems. Consequently, Victoria and Tasmania, where Murray Goulburn and Bonlac are located, produce most of the non fresh manufactured dairy products in Australia (table 11).

Cheese is the highest value non fresh manufactured dairy product and the only manufactured dairy product that is produced in significant quantities in all states. Notably in South Australia, traditionally the biggest cheese producer after Victoria, cheese production in recent years has fallen to a level similar to that in Tasmania. Nearly all milk powder and butter is manufactured in Victoria and Tasmania, while virtually no powder and only tiny volumes of butter are made in South Australia.

The last 'greenfield' factories constructed were powder plants built by Bonlac in Victoria and Tasmania in the 1990s. During the same decade, rationalisation by some companies of their cheese factories together with investment to consolidate cut and pack facilities as

11 Production of manufactured dairy products

	New South Wales	Victoria	Queens- land	South Australia	Western Australia	Tasmania	Australia
	kt	kt	kt	kt	kt	kt	kt
Cheese a							
1996-97	22	180	23	34	5	26	290
1997-98	28	196	23	31	7	27	310
1998-99	30	204	24	33	6	30	327
1999-2000	26	240	26	41	7	33	373
2000-01	23	247	33	34	7	33	376
2001-02	23	286	25	36	8	35	413
2002-03	21	256	22	28	8	32	368
2003-04 p	na	na	na	na	na	na	381
Milk powder b							
1996-97	9	342	1	0	3	16	372
1997-98	8	333	1	0	3	14	359
1998-99	6	386	2	0	4	20	417
1999-2000	5	426	1	0	3	15	451
2000-01	1	456	0	0	2	11	471
2001-02	na	na	na	na	na	na	496
2002-03	na	na	na	na	na	na	379
2003-04 p	na	na	na	na	na	na	363
Butter/AMF							
1996-97	5	120	9	0	2	11	147
1997-98	5	128	9	0	3	9	154
1998-99	4	148	9	0	3	12	176
1999-2000	4	145	8	2	3	8	170
2000-01	3	140	6	2	2	6	160
2001-02	na	145	5	na	na	na	164
2002-03	na	na	na	na	na	na	137
2003-04 p	na	na	na	na	na	na	123

a Natural cheddar equivalent. b Includes wholemilk powder, skim milk powder and buttermilk powder. p Preliminary. na Not available

Source: Dairy Australia.

well as expand existing plant, has enabled manufacturers to realise some benefits from economies of scale.

The proportion of cheese production exported from each state from 1996-97 to 2002-03 is reported in table 12. Cheese manufacturers in the states export half or more of the cheese they produce in most years with the exception Queensland. Queensland typically exports around 20 per cent of its cheese production each year. Natural and processed cheddars are the highest volume cheeses exported, with most of the bulk commodity cheese trade originating from Victoria.

With the phase out of the domestic support provided by the Dairy Marketing Scheme and no binding restrictions on cheese imports, returns from manufactured dairy products are driven mainly by the prices prevailing in world markets. Even firms in the smaller manu-

facturing states, New South Wales, Queensland, South Australia and Western Australia, that rely more heavily on the domestic market to sell their dairy products are affected by prevailing world prices. Manufacturers in the smaller states face strong competition from large efficient Victorian manufacturers as well as from imports of bulk and packed cheese, butter and blended table spreads from New Zealand. Both can readily provide large volumes of dairy products at world prices.

With dairy companies using established brands and also creating new and innovative products to differentiate their products and improve margins, the domestic retail market is intensely competitive in the high valued products like cheese, dairy spreads and chilled desserts. Supermarkets, which sell more than 55 per cent of domestic cheese, have introduced lower priced house brand cheese. In addition, the major supermarket chains are tendering for national supply contracts to enable them to sell cheese at significant discount to branded product, similar to the situation with drinking milk.

12 Export shares of cheese production

	New South Wales	Victoria	Queens- land	South Australia	Western Australia	Tasmania	Australia
	%	%	%	%	%	%	%
1996-97	22	52	4	39	4	63	44
1997-98	31	57	10	41	9	70	49
1998-99	46	62	23	46	48	35	54
1999-2000	50	73	23	33	59	24	59
2000-01	51	72	21	31	46	31	58
2001-02	51	60	19	31	39	44	53
2002-03	46	61	19	63	60	50	57
2003-04 ap	na	na	na	na	na	na	53

a To May 2004. p Provisional. na Not available.

outlook for the Australian dairy industry

Price forecasts and outlook

International spot prices for dairy products, particularly butter and cheese, rose substantially during 2003-04, largely because of stronger demand and with world supplies constrained by drought in Australia and New Zealand. Over the coming year, the growth in international spot prices is expected to ease because of rising world supplies, with prices forecast to average marginally higher for the 2004-05 financial year as a whole.

New Zealand, the world's second largest exporter of dairy products, is expected to be the main source of increase in world supplies in 2004-05 because of improved seasonal conditions. Despite the recent expansion of the European Union to twenty-five countries, little change in total supply is expected in the short term as dairy producers in the new entrant countries will need to adjust to meet quality requirements set by the European Union.

Among the major traded dairy products, stronger demand for cheese — particularly in Japan and the European Union — has been the main factor contributing to recent rises in world cheese prices. Continued strong demand and only modest increases in supplies are forecast to result in average international spot prices for cheese in 2004-05 averaging around 5 per cent higher than in 2003-04.

After many years of stagnant prices, world butter prices increased sharply in 2003-04, rising by 34 per cent over the course of the year. Improved demand in the Russian Federation, the world's largest importer of butter, and the Middle East were the main drivers of stronger world butter prices. With demand expected to remain strong in 2004-05, international spot prices for butter are forecast to average around US\$1650 a tonne, 3 per cent higher than in the previous year and substantially higher than the average of US\$1186 a tonne in 2002-03.

International spot prices for milk powders also increased by 15 per cent in 2003-04. Although price rises have not been as strong as those for cheese and butter, demand for milk powders, particularly in south east Asia and the EU vealer sector, were key factors behind the recent rises in world milk powder prices. While demand is expected to remain strong, increased supplies are forecast to result in monthly spot prices easing from current highs over the coming year. Nevertheless, international spot prices for milk powders are forecast to average 1–2 per cent higher in 2004-05.

Over the medium term, world demand for dairy products is expected to continue to grow, largely as a result of rising incomes — and westernisation of diets — in Asia. The major sources of growth are expected to be in cheese consumption in Japan and milk powders in south east Asia for use in a variety of processed foods and for reconstitution as drinking milk.

Australian export returns to improve

After dropping by an estimated 1.5 per cent in 2003-04, Australian farm gate milk prices are forecast to rise by 2.2 per cent in 2004-05 to average 27.3 cents a litre, as higher world prices and an assumed lower Australian dollar relative to the US dollar boost export returns.

Following a fall in Australian milk production in 2002-03, production for the ten months to April 2004 was down by a further 3.0 per cent as the drought continued to have a negative impact on pasture quality and irrigation water availability. Assuming an improvement in seasonal conditions and small increases in both cow numbers and milk yields, Australian milk production is forecast to rise by over 2 per cent in 2004-05, to 10.3 billion litres.

Cheese to lead dairy exports

Lower milk production and increased domestic consumption of fresh milk has resulted in less milk being available for manufacture into dairy products in 2003-04. Of this lower volume of milk available for manufacturing, an increased proportion is forecast to be diverted to higher priced cheese production at the expense of butter and skim milk powder.

With Australian milk production forecast to increase slightly in 2004-05, and with little growth in domestic consumption, Australian shipments of manufactured dairy products are expected to increase in 2004-05.

Trends in global demand and supply for dairy products

New Zealand — the world's second largest exporter of dairy products — is expected to be the main source of increase in world supplies in 2004-05 because of improved seasonal conditions. Despite recent expansion of the European Union, little change in total supply is expected in the short term as dairy producers in the new entrant countries will need to adjust to meet EU quality requirements.

Among the major traded dairy products, stronger demand for cheese, particularly in Japan and the European Union, has been the main factor contributing to recent rises in world cheese prices. Continued strong demand and only modest increases in supplies is forecast to result in average international spot prices for cheese in 2004-05 averaging around 5 per cent higher than in 2003-04.

Projections for the longer term

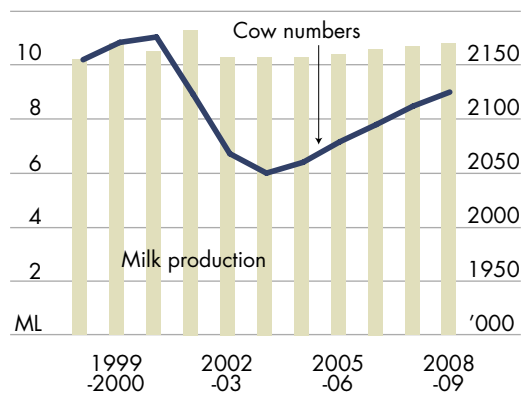
The trend toward more intensive dairy farming — particularly the greater use of supplementary feeding of herds together with the economics of scale associated with increasing herd size — is projected to result in rising milk production over the medium term (figure I). However, the rate of growth in milk production is expected to be somewhat slower as a result of reduced incentives to rebuild milking cow numbers because of forecast lower farm gate milk prices in real terms.

Australia exports over half of its annual milk production as manufactured dairy products, primarily in the form of cheese, milk powders, butter and other fresh dairy products. Relative to domestic production, Australia imports relatively small quantities of manufactured dairy products, with New Zealand being the source of around 78 per cent of all imports, by volume.

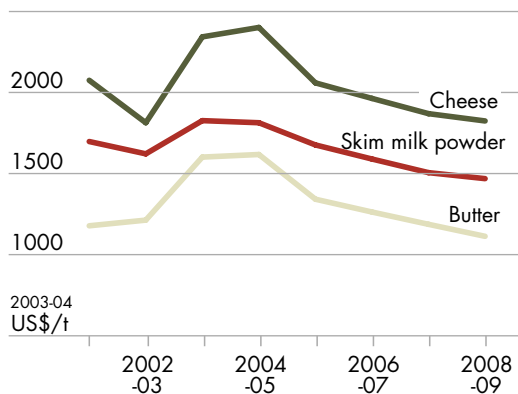
The recently announced free trade agreement with the United States stands to provide a small benefit to the Australian dairy industry. For example, the dairy industry will benefit from the elimination of tariffs on exports within existing quotas to the United States, although these tariffs tend to be small. As well Australian exporters will have access to some additional dairy product quota into the US market and importantly this quota will grow gradually over time. In a study undertaken by the Centre for International Economics (2004) for the Australian Government Department of Foreign Affairs and Trade, it was estimated that exports of dairy products to the United States would increase by \$113 million (2003-04 value) twenty years after implementation of the agreement. This represents about 6 per cent of total Australian dairy products exported on 2003-04.

With cheese prices expected to remain stronger than prices for other dairy products over the medium term (figure J) — largely as a result of increasing per capita consumption of cheese and the adoption of more western style diets in Asia — cheese production is expected to increasingly dominate Australian dairy exports over the next few years. Overall, the total value of Australian dairy product exports is projected to rise by around 20 per cent in real terms over the next five years to \$2.3 billion.

I Cow numbers and milk production



J World dairy prices



terms of reference

Primary Industries' Standing Committee Review of the Australian Dairy Industry

Background

It was determined at the PISC meeting in May 2004, that a national review of the Australian dairy industry would be undertaken to identify the key economic drivers affecting the industry against the following recommendation:

‘Ministers noted that the Australian dairy industry is facing difficult economic circumstances due largely to the combined impact of drought and the higher Australian dollar. Ministers also noted that the long-term outlook for the dairy industry remains positive. Council agreed to refer the state of the industry to Standing Committee for further analysis and report back to Council later in 2004.’

A working group was convened to facilitate this review and manage the process. This working group proposed that the review be undertaken in two steps, the initial step being to have ABARE undertake a scoping study of the review, the outcome of which would provide the basis for the Terms of Reference to be developed for the primary review, to be undertaken by ABARE and delivered in February 2005.

Terms of reference for the review

Scope

To review the key economic drivers affecting the Australian dairy industry and the implications for future growth and development.

Particulars

The review is to provide:

- (a) An assessment of the key economic drivers, including (but not limited to):
- The impact of the 2003 drought;
 - The impact of changes in production systems (including shifts from static to seasonal supply patterns, and the changing costs of water and feed production regimes);
 - The impact of milk marketing arrangements, post industry deregulation on 1 July 2000; and
-

- The impact of the changing international market environment (including changing markets in east Asia and the US)

Report format

The report is to be made available in a format suitable for tabling and distribution to the PISC and PIMC committees.

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Australian Quarantine and Inspection Service	Meat and Livestock Australia
Australian Wool Innovation Limited	Ministerial Council on Energy
Canegrowers	Natural Heritage Trust
Chevron Texaco	National Land and Water Resources Audit
Commonwealth Secretariat, London	National Landcare Program
CSIRO (Commonwealth Scientific and Industrial Research Organisation)	National Oceans Office
Dairy Australia	New Zealand Ministry of Foreign Affairs and Trade
Department of Agriculture, Fisheries and Forestry	New Zealand Ministry of Prime Minister and Cabinet
Department of Foreign Affairs and Trade	Organisation for Economic Cooperation and Development
Department of Health and Ageing	Office of Resource Development, Northern Territory
Department of Industry, Tourism and Resources	Plant Health Australia
Department of Natural Resources and Mines, Queensland	Pratt Water
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