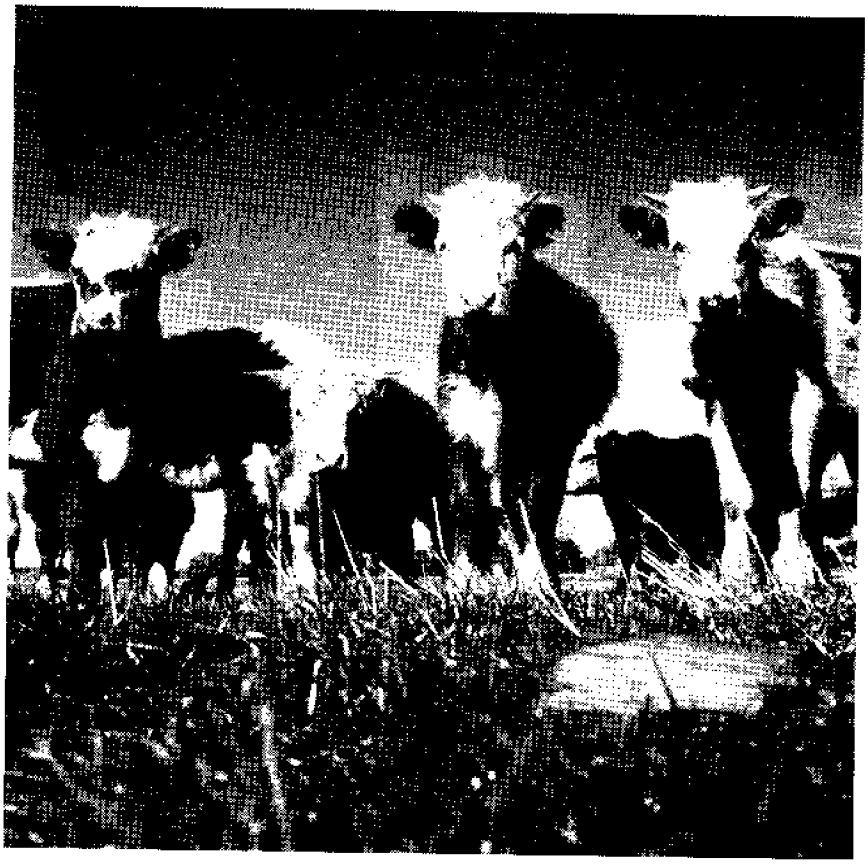


14 Primary Industries

OVERVIEW

This chapter contains information on Victoria's primary industries. Topics covered include agriculture, fishing, forestry and mining.

The majority of agricultural data in the chapter are derived from the annual Agricultural Census. Readers should be aware that the 1994–95 and 1993–94 Agricultural Censuses included those establishments with an Estimated Value of Agricultural Operations (EVAO) of $5,000 or more. In both 1991–92 and 1992–93 the scope of the census was those establishments undertaking agricultural activity having an EVAO of $22,500 or more. Consequently this change in the scope of the census means that care should be taken when comparing 1993–94 and 1994–95 census results with the results of previous censuses.

AGRICULTURE

The 1994–95 Agricultural Census included over 37,000 establishments with agricultural activity. The season was affected by drought conditions throughout the state, causing a decrease in the production of cereals and legumes grown for grain and fodder crops. The dairy industry continued to make gains in production, and meat cattle numbers increased marginally. Sheep numbers were down. Overall, fruit and vegetable production was similar to the previous season.

Wool production increased by 10.9 % to 138,000 tonnes. The gross value of wool increased by nearly $194 million, to $634 million.

The gross value of all crops decreased by 19% to $1.77 billion. This was mainly as a result of the decrease in the gross value of cereals for grain, which fell by almost 38% to $369 million.

The total gross value of agricultural commodities produced was $5.1 billion, a 7% decrease compared with the previous season.

Victoria compared with Australia

In terms of farm income, as measured in the Australian National Accounts, Victoria's share for the latest 6 year period (1989–90 to 1994–95) fluctuated markedly. The 1994–95 Victorian figure was $909 million, which represented 31.5% of the total Australian farm income of $2,884 million.

The Gross Value of Agricultural Commodities Produced (GVACP) provides a measure of the output from farming. In 1994–95, the GVACP for Victoria was $5,147 million, or 21.7 % of the Australian total of $23,755 million. In terms of value, Victoria produced 16% of Australia's crops, 21% of livestock slaughtered, and 33% of livestock products (wool, milk, eggs, and honey).

14.1 AUSTRALIAN NATIONAL ACCOUNTS: FARM INCOME

Year	*Victoria* $m	*Australia* $m	*Victoria as a percentage of Australia* %
1989–90	1 199	4 429	27.1
1990–91	697	1 463	47.6
1991–92r	1 011	1 935	52.2
1992–93r	1 223	3 148	38.9
1993–94r	1 423	3 606	39.5
1994–95	909	2 884	31.5

Source: Australian National Accounts: State Accounts (5220.0)

14.2 GROSS VALUE OF AGRICULTURAL COMMODITIES PRODUCED, VICTORIA

Particulars	Year ended 30 June 1990 $'000	1991 $'000	1992 $'000	1993 $'000	1994 $'000	1995 $'000	Victoria as a percentage of Australia 1995 %
Crops –							
Cereals for grain	578 167	343 967	413 010	600 975	593 056	368 928	10.6
Hay	234 627	287 937	285 127	263 850	228 734	261 689	35.1
Industrial crops (a)	44 228	42 031	41 292	47 598	62 530	44 689	22.5
Vegetables	345 303	320 528	314 933	316 239	413 213	385 090	25.8
Grapes	141 160	158 598	178 620	155 721	175 568	144 516	28.3
Fruit	233 050	244 160	334 263	342 669	344 563	324 959	22.8
Other	234 334	211 270	265 893	384 009	355 231	240 720	7.4
Total	1 810 869	1 608 591	1 834 131	2 111 061	2 172 895	1 770 592	15.9
Livestock slaughterings and other disposals –							
Cattle and calves	706 928	794 469	743 455	678 886	830 553	775 794	18.4
Sheep and lambs	180 182	112 914	146 071	203 312	243 602	263 402	31.5
Other	332 799	363 327	392 961	389 325	411 682	336 233	21.4
Total	1 219 909	1 270 711	1 282 487	1 271 523	1 485 837	1 375 429	20.8
Livestock products –							
Wool	1 099 775	707 796	552 141	413 178	439 771	683 714	19.1
Dairy products	956 927	1 000 565	1 080 903	1 332 455	1 381 149	1 313 269	54.3
Other	92 649	95 507	72 468	79 267	56 868	54 383	21.2
Total	2 149 351	1 803 870	1 705 510	1 824 900	1 877 788	2 001 366	33.4
Grand total	**5 178 442**	**4 683 172**	**4 822 131**	**5 207 484**	**5 536 522**	**5 147 387**	**21.7**

(a) Industrial crops for the period 1990–1994 refers to tobacco, hops, linseed, canola, safflower and sunflower. Linseed production data was not collected by the ABS in 1995.

Source: Value of Agricultural Commodities Produced, Australia (7503.0)

14.3 NUMBER OF ESTABLISHMENTS, WITH AGRICULTURAL ACTIVITY, AREA, AND LAND UTILISATION, BY STATISTICAL DIVISION 1994–95

Statistical division	Number of establishments (a) ha	Area of cereal crops (b) ha	Area of other crops ha	Area of orchard trees ha	Area of Vegetables ha	Total area of establishments '000 ha
Melbourne	2 848	5 373	2 329	2 554	10 505	247
Barwon	1 874	18 865	4 256	29	1 462	449
Western District	5 190	35 975	4 677	41	680	1 766
Central Highlands	2 120	55 839	8 911	321	3 088	799
Wimmera	3 040	445 470	328 275	720	122	2 099
Mallee	4 146	746 670	167 583	7 466	2 111	2 549
Loddon-Campaspe	3 541	155 510	53 034	660	1 445	1 317
Goulburn	5 688	79 581	16 433	9 370	2 009	1 296
Ovens-Murray	2 450	21 804	5 408	1 296	110	704
East Gippsland	1 628	1 610	304	63	3 038	865
Gippsland	4 545	3 075	1 561	210	3 646	627
Total Victoria	**37 070**	**1 569 772**	**592 771**	**22 729**	**28 215**	**12 719**

(a) Includes non land based beekeeping establishments (i.e. beekeeping activity not permanently located at one site).

(b) Duplicated area included if double-cropping occurred.

Source: AgStats on Floppy Disk (7117.0)

Field crops

The cereal crops of wheat, oats, and barley are the principal field crops grown in Victoria. These, together with hay production, green feed, and silage, represent about 75% of the total area sown to field crops, although there is some variation from year to year.

Wheat

Wheat is still Victoria's largest crop in terms of area and production. In 1994–95 the area sown increased 5% to 822,000 hectares; however as a result of drought conditions production decreased by over 50%, to 944,000 tonnes. Of the major cereals for grain, wheat accounted for 52% of the total production, with a gross value of $205 million.

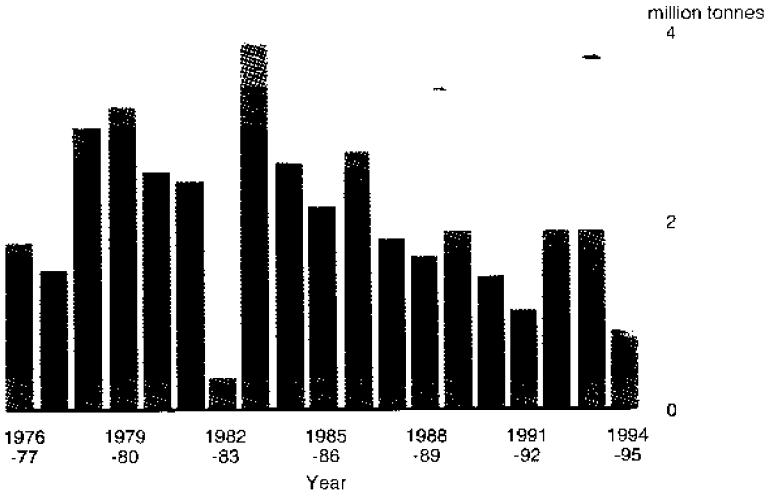
14.4 WHEAT FOR GRAIN, VICTORIA

Season	Area '000 ha	Production '000 tonnes	Average yield per hectare tonnes	A.S.W.(a) wheat standard kg/hl
1989–90	952	1 961	2.06	83.5
1990–91	911	1 493	1.64	82.5
1991–92	664	1 150	1.73	83.0
1992–93	821	2 015	2.5	79.5
1993–94	780	2 022	2.6	80.0

(a) Australian Standard White, quoted in kilograms per hectolitre, which is a measure of density.

Source: AgStats on Floppy Disk (7117.0), Australian Wheat Board

WHEAT PRODUCTION, VICTORIA, YEAR ENDED 31 MARCH



Source: AgStats on floppy disk (7117.0)

Oats

Oats are sown for grain production, winter grazing, and hay production. Of the total area sown, about 78% was harvested for grain, some of it having been grazed during the winter.

14.5 OATS FOR GRAIN, VICTORIA

Season	Area '000 ha	Production '000 tonnes	Average yield per hectare tonnes
1989–90	189	330	1.75
1990 91	177	301	1.70
1991–92	183	300	1.64
1992–93	223	404	1.81
1993 94	186	362	1.95
1994–95	148	201	1.36

Source: AgStats on Floppy Disk (7117.0)

A significant portion of the total production of oats is held on farms for future use, with the balance being used for compound/urban feed markets, for milling, and for export. Within the feed market, the horse racing industry takes an estimated 25,000 tonnes each year of the higher quality oats available for feed.

Barley

As a result of drought conditions, the previous upward trend in the area sown to barley was reversed in 1994–95. While barley is grown throughout the state, production has been traditionally centred in two distinct areas where high quality grain is produced. The highest production is in the south-west of the Mallee Statistical Division and the adjacent north-western Wimmera Statistical Division. The second source of high quality barley grain is in an area between Melbourne, Geelong, and Bacchus Marsh in southern Victoria.

14.6 BARLEY FOR GRAIN, VICTORIA

Season	Area '000 ha	Production '000 tonnes	Average yield per hectare tonnes
1989–90	389	696	1.79
1990–91	463	651	1.41
1991–92	534	898	1.68
1992–93	551	1 116	2.03
1993–94	639	1 386	2.17
1994–95	492	448	0.91

Source: AgStats on Floppy Disk (7117.0)

14.7 OTHER CEREAL CROPS FOR GRAIN

	Rye		Maize		Millet		Triticale	
Season	Area '000 ha	Production '000 tonnes	Area '000 ha	Production '000 tonnes	Area '000 ha	Production '000 tonnes	Area '000 ha	Production '000 tonnes
1989–90	8.3	4.7	0.3	1.0	1.8	3.0	14.8	25.9
1990–91	11.0	7.1	0.3	2.0	1.3	2.1	18.3	32.7
1991–92	19.0	17.1	0.3	3.0	0.9	1.7	18.9	34.6
1992–93	18.7	16.3	0.4	2.8	0.8	1.6	22.6	50.0
1993–94	12.5	14.2	0.2	1.7	1.4	2.1	32.4	70.7
1994–95	n.a.	n.a.	0.7	5.1	1.7	2.6	47.0	66.2

Source: AgStats on Floppy Disk (7117.0)

14.8 HAY PRODUCTION, VICTORIA, SEASON 1994–95

Variety	Area ha	Production tonnes	Average yield per hectare tonnes
Pastures (excluding lucerne)	329 547	1 245 898	3.78
Oaten	42 343	143 849	3.40
Lucerne	37 154	188 372	5.07
Cereals (excluding oats)	9 706	26 732	2.75
Total	**418 750**	**1 604 851**	**3.83**

Source: AgStats on Floppy Disk (7117.0)

Oilseeds

The drought conditions experienced during 1994–95 also had a detrimental effect upon oilseeds. The area sown to rapeseed, of which canola is a cultivar, increased by 155%. However, although production increased from 47,000 tonnes to 57,000 tonnes, the average yield per hectare decreased from 1.61 to 0.76. The area sown and the production of both safflower and sunflower showed significant decreases.

14.9 SELECTED OILSEEDS PRODUCTION, VICTORIA

	Linseed		*Rapeseed (a)*		*Safflower*		*Sunflower*	
Season	Area ha	Production tonnes	Area ha	Production tonnes	Area ha	Production tonnes	Area ha	Production tonnes
1989–90	709	681	12 392	16 609	21 842	13 580	3 187	5 331
1990–91	2 187	2 129	10 235	9 544	7 891	4 398	1 742	3 041
1991–92	1 287	1 251	22 957	26 481	19 707	12 116	1 396	2 222
1992–93	1 073	1 045	18 459	23 543	15 376	12 347	1 157	1 828
1993–94	3 004	3 258	29 151	46 835	29 358	24 404	2 425	3 720
1994–95	n.a.	n.a.	74 467	56 728	17 708	8 223	880	1 523

(a) Includes canola.

Source: AgStats on Floppy Disk (7117.0)

Grain legumes

The area of lupins sown rose by almost 17% to 64,400 hectares in 1994–95. However the production of lupins decreased by 39% to 23,000 tonnes, considerably down on the record 1992–93 season of 82,500 tonnes. The production of field peas also experienced a significant decrease.

14.10 LEGUMES FOR GRAIN, VICTORIA

	Lupins		*Field peas*		*Total legumes (a)*	
Season	Area '000 ha	Production '000 tonnes	Area '000 ha	Production '000 tonnes	Area '000 ha	Production '000 tonnes
1989–90	35.9	41.2	154.4	198.2	237.7	314.9
1990–91	33.2	29.6	165.2	131.7	291.4	224.4
1991–92	36.7	40.5	193.6	211.7	382.3	437.8
1992–93	52.6	82.5	174.2	246.2	411.7	558.3
1993–94	55.1	59.5	199.9	292.5	421.2	575.0
1994–95 (b)	64.4	23.0	223.2	68.9	n.a.	n.a.

(a) Includes chick peas, dried edible beans, etc.

(b) Only lupins and field peas were collected in 1994–95.

Source: AgStats on Floppy Disk (7117.0)

Fruit

In Victoria , the area planted with fruit, nuts, and berries in 1994–95 was 23,779 hectares, and the area of vineyards was 21,591 hectares. Although the total represented only about 2% of the total area under crops, fruit and grapes contributed more than 26% of the gross value of crops produced.

In Victoria, the main fruit growing areas are in the Goulburn, Mallee, and Melbourne Statistical Divisions. There are other important, but smaller areas throughout the State, including areas in the Ovens-Murray, Wimmera and Loddon-Campaspe Statistical Divisions.

Apple production was up almost 5% on the previous season, and with a gross value of production of $97.6 million, is the most significant fruit grown in Victoria. Peaches, oranges and pears are the next most important orchard fruit grown. The total gross value of production of orchard fruit, including nuts, was $305.5 million.

14.11 ORCHARD FRUIT PRODUCTION, VICTORIA

	Year ended 31 March					
Type of fruit	*1990* tonnes	*1991* tonnes	*1992* tonnes	*1993* tonnes	*1994* tonnes	*1995* tonnes
Pears	142 419	140 184	158 394	146 145	138 967	138 696
Apples	94 098	91 269	105 725	109 488	97 657	98 971
Peaches	32 456	32 271	35 758	36 787	33 875	34 354
Apricots	9 279	8 227	10 421	10 203	5 976	10 649
Cherries	1 291	1 495	1 736	1 525	1 943	2 391
Plums and prunes	3 411	3 553	4 414	4 235	4 500	4 312
Olives	183	157	352	356	410	n.a.
Nectarines	3 393	3 935	4 537	5 618	6 126	6 175
Quinces	14	14	19	122	132	n.a.
Figs	6	3	3	10	9	n.a.
Oranges	70 357	62 502	68 507	97 747	92 369	84 253
Lemons and limes	7 468	6 425	5 846	6 206	5 913	6 088
Grapefruit	7 123	5 872	6 647	5 932	5 570	n.a.
Mandarins	4 078	3 411	3 781	4 211	4 643	3 830

(a) The production of oranges in 1994–95 totalled 84,253 tonnes. Varieties were not collected.

Source: AgStats on Floppy Disk (7117.0)

Small fruit

Climatic requirements have restricted the commercial production of strawberries, and cane and bramble fruits in particular, to the cooler southern regions of Victoria; consequently most of this fruit is grown in the Dandenong Ranges and the Mornington Peninsula areas, which are relatively close to the Melbourne markets. In recent years, fruit growers in other parts of the State have diversified into strawberries, raspberries and kiwi fruit, particularly for the fresh fruit market.

14.12 SMALL FRUIT PRODUCTION, VICTORIA

	Year ended 31 March					
Type of fruit	*1990* tonnes	*1991* tonnes	*1992* tonnes	*1993* tonnes	*1994* tonnes	*1995* tonnes
Strawberries	1 665	1 725	1 976	2 333	3 145	2 921
Raspberries	376	275	279	341	266	224
Kiwi Fruit	2 239	2 271	2 380	2 317	2 593	2 731
Blueberries	50	73	107	131	131	n.a.
Loganberries	3	2	1	5	3	n.a.
Other berries	102	75	67	90	64	n.a.

Source: AgStats on Floppy Disk (7117.0)

Nuts

A wide range of nuts can be grown in Victoria. Examples are almonds, walnuts, chestnuts, hazelnuts, and pistachios. In the past, only a few of these trees have been grown in commercial plantings. Almonds were mainly planted in the northern area; walnuts and chestnuts in situations with deep soil in the north-east, the Dandenongs and Gippsland; and hazelnuts on shallower soils in the north-east and the Dandenongs.

Almonds are the most significant of nuts grown in Victoria, although production in 1994–95 decreased by 3% to 2,805 tonnes.

14.13 NUT PRODUCTION, VICTORIA

	Year ended 31 March					
Type of nut	*1990* tonnes	*1991* tonnes	*1992* tonnes	*1993* tonnes	*1994* tonnes	*1995* tonnes
Walnuts	74	47	47	52	65	n.a.
Chestnuts	103	148	231	208	345	n.a.
Almonds	1 896	2 077	2 454	2 411	2 898	2 805

Source: AgStats on Floppy Disk (7117.0)

Grapes

Grape growing, particularly for wine making, is extensive throughout Victoria. The Mallee Statistical Division is the principle grape growing region, with most vines being grown under irrigation. Ovens-Murray and Goulburn Statistical Divisions are also major grape growing regions – irrigation is used extensively in both areas. The increasing interest in wine grapes over recent years has resulted in the establishment of many vineyards of varying sizes throughout the State.

Grape production decreased by about 23% to 277,435 tonnes with a gross value of production of $144.5 million, or 28% of the Australian gross value.

14.14 VITICULTURE, AREA AND PRODUCTION, VICTORIA

Season	*Bearing* ha	*Non-bearing* ha	*Wine making* tonnes	*Drying and table (a)* tonnes
1989-90	17 648	1 265	85 225	215 284
1990-91	18 112	1 138	78 674	276 747
1991-92	18 490	981	104 398	294 514
1992-93	19 049	1 014	118 452	192 448
1993-94	19 535	1 511	167 083	192 150
1994-95	18 989	2 603	137 613	139 822

(a) Production for drying is estimated as fresh weight equivalent of dried weight.

Source: AgStats on Floppy Disk (7117.0)

14.15 AREA OF GRAPEVINES AND PRODUCTION BY VARIETY, VICTORIA, 1994–95

Variety	*Area Planted* — *Not yet bearing* ha	*Bearing* ha	*Production* tonnes	*Average yield (a)* tonnes/ha
Red grapes				
Cabernet Franc	10	95	788	8.3
Cabernet Sauvignon	217	817	6 437	7.8
Currant (including Carina)	54	506	6 443	12.7
Frontignanc Red	0	105	345	3.3
Grenacne	1	84	866	10.3
Merlot	31	143	1 462	10.2
Muscat Hamburgh	25	73	424	5.9
Pinot Noir	77	336	3 309	9.8
Shiraz	295	639	5 297	8.3
Ruby Cabernet	23	104	1 711	16.5
Other red grapes	135	931	9 692	10.4
Total red grapes	868	3 833	36 774	9.6
White grapes				
Chardonnay	975	1 269	13 116	10.3
Chenin Blanc	10	109	1 970	18.1
Colombard	16	239	5 496	23.0
Doradillo	0	49	1 214	24.8
Muscat Gordo Blanco	47	1 004	17 952	17.9
Riesling	11	348	4 494	12.9
Sauvignon Blanc	32	215	2 361	11.0
Semillon	127	75	739	9.9
Sultana	437	10 801	180 934	16.8
Traminer	1	42	523	12.5
Waltham Cross	6	396	4 985	12.6
Other white grapes	73	639	6 880	10.8
Total white grapes	1 735	15 156	240 664	15.9
Total	**2 603**	**18 989**	**277 435**	**14.6**

(a) Yield is production per hectare of bearing vines.

Source: Agstats on Floppy Disk (7117.0)

Wine exports

Exports of Victorian sparkling and table wines amounted to over $61 million in 1995–96. In particular, the value of red table wine exports increased considerably, by around 150% between 1992–93 and 1995–96. The main increase was in bottled wine, as opposed to cask and bulk wine.

14.16 EXPORTS OF SPARKLING AND TABLE WINES, VICTORIA

	Quantity			*Value (FOB)*		
	1989–90 '000 litres	*1992–93* '000 litres	*1995–96* '000 litres	*1989–90* $'000	*1992–93* $'000	*1995–96* $'000
Sparkling wine	360	186	286	1 750	1 619	2 564
White table wine	3 445	7 060	4 348	12 940	21 680	22 922
Red table wine	780	2 800	5 435	3 589	14 452	36 062
Total	**4 585**	**10 046**	**10 069**	**18 279**	**37 751**	**61 548**

Source: ABS unpublished data

The major importer of Victorian wine in 1995–96 was the United States of America, which took $7.8 million of white table wine and $10.9 million of red table wine. The corresponding figures for the United Kingdom were $6.1 million and $8.3 million respectively.

THE VICTORIAN WINE INDUSTRY

History

The Victorian wine industry was established in the 1840s. Early development centred in the Yarra Valley, Melbourne and Geelong. The gold rushes, beginning in 1851, brought labour, consumption and capital into Victoria, and encouraged development inland. The gold generation immigrants brought winemaking to areas such as Rutherglen, Castlemaine, Great Western and Bendigo. At its height, the Victorian industry was the largest in the Australasian colonies.

The early development was mainly driven by European immigrants, particularly the German and Swiss communities. The growth of the early industry, and eventually its survival, was constrained by the difference in taste between the winemaking communities and their principle commercial market. Anglo-Celtic immigrants favoured beer and richer fortified styles of wine, resulting in the dry styles of Southern Victoria becoming somewhat of a commercial gamble.

Along with the limited appeal of their European wine styles, the early winemakers were undermined by the discovery of phylloxera in Geelong in 1877. By 1900 the pest had spread through many wine producing areas of Victoria. During this time the financial system collapsed (in the early 1890's) and the encouragement for new plantings without appropriate finance led to the ruin of many vineyards. These factors weakened the industry in southern Victoria to the point where it could not survive the removal of tariff barriers after Federation. The fortified styles of north-eastern Victoria survived the changing tastes and along with surviving remnants at Great Western and Nagambie kept the industry going until recent revivals.

While the wine industry was declining in southern Victoria, the irrigation developments in north west Victoria, started by the Chaffey brothers, meant that growers were beginning to convert some of their grapes into wine. In the early days of the settlements there was very limited ability to sell fresh grapes and so much of the produce was dried or made into wine. However the fortified styles produced had limited market acceptance.

The rebirth of the southern Victoria industry dates from the early 1960s. It was originally driven by similar wine interested professionals to those who drove the redevelopment of the Hunter Valley. In the case of Victoria, the wine industry returned to districts where wine production had not occurred for sixty years or more, and also spread to new areas. In north west Victoria, there was rapid growth of the wine cask trade in the 1970s and 1980s which stimulated the production of varietal table wines. The period since then has seen growth at an exceptional rate, whether measured in terms of operations, planting or quantity and quality of output.

The current industry

Victoria grows a substantial amount of Australia's total grapes. About 40% of all grapes grown in Australia are produced in Victoria. These grapes are used for wine, dried fruit and fresh table grapes. For wine production Victoria produces about 25% of Australia's wine grapes. Australian Bureau of Statistics figures indicate about 21,600 hectares were being used to grow winegrapes in Victoria in 1994–95. However there is some concern that the ABS statistics may not accurately reflect the extent of planting due to difficulties in collecting information in a rapidly growing industry. Some 137,948 tonnes of wine grapes were recorded in Victoria in 1994–95 but this was an unusually low production year.

From the total value of grapes for winemaking in Australia recorded by the ABS, Victoria would derive $100m farm gate value from winegrapes. In recent years the prices paid for winegrapes have been steadily increasing and over the five years to June 1995 prices increased 68%. This trend has been due to demand exceeding supply, particularly from years of low production, e.g. 1995, and the strong demand from the export market.

The Murray Valley region produces over 80% of the winegrapes in Victoria. In this region, total vineyard planted area has not increased greatly, although there has been an increase in winegrape production. Thus there have been diversions of grapes from other uses and the total multipurpose grape intake by wineries peaked at about 75% of the intake. The proportion is expected to gradually decline as new premium grape varietal plantings come on stream. These winegrape varietals are a major component of the growing export wine market. About 90% of the total winegrapes in the region are white grapes and there is an opportunity for the area to develop more red winegrape plantings to produce the styles of wine required for the export market. This region has the greatest number of grape growers in the state and the winegrape yields are high at about 25 tonne per hectare.

In central Victoria there is a mix of a small number of large establishments and many small producers. Part of the regional vineyards are located on the Goulburn Valley which provides a supply of good quantity water. Vine yields are good and the area is expanding its production quite rapidly. Other vineyards in the region located near Heathcote and Bendigo have limited access to water. Yields are consequently quite low and the area mostly consists of small vineyards producing very high quality wine.

North-east Victoria consists of long established vineyards around Rutherglen, Glenrowan and Milawa as well as a rapidly expanding production into the alpine valleys. In the older established areas, vineyard size is large but yields can be low in unirrigated vineyards. Although the planted area has decreased in recent years, production has increased slightly. The area is renowned for the rich fortified Muscats and Tokays but these days the full range of table styles is produced. The alpine valleys area has seen very rapid growth since the early 1980s. Average vineyard size and yields per hectare are higher than many other regions, enabling good economies of scale. The area has quite a wide range of climate that enable a broad range of wine styles to be produced.

The Gippsland area covers a disparate group of vineyards ranging between Lakes Entrance, Omeo, Warragul and Leongatha. Vineyard size is small, yields are very low and the summer rainfall makes disease control more difficult. the wide variation in climatic conditions and the premium table wines styles produced make this area attractive for further development.

There are a number of regional wine growing areas around the Port Phillip Bay Zone including Mornington Peninsula, Yarra Valley, Macedon Ranges and Geelong. Some of these areas were important grape producing areas towards the end of last century but largely faded away early this century. In the past 20 years there has been rapid growth in plantings. A number of large wine companies have invested in these regions as well as many small producers. Although land prices are higher than other grape producing areas the wineries are often established in close proximity to tourist developments. Each region is beginning to develop its own range of wine styles and several wineries are providing restaurant facilities to fulfil a demand for combining food and wine.

The western area of Victoria ranges from the traditional grape growing area around Great Western to newer areas near Portland and Ballarat. Some very large developments dominate the area, which has low soil fertility and limited irrigation capacity. Whilst planted area has declined in recent years due to rationalisation of varieties, production has increased slightly.

Future prospects

Recent growth in the Australian wine industry has been spectacular. Whilst domestic market consumption has remained quite steady, exports have been increasing at a rate of 30% per year. Australian wine has established a reputation for purity and flavour in our major export markets of UK, USA and Canada.

To further develop the wine export market, the wine industry has developed a strategy for increasing the wine exports from a current value of around $500 million to $2.5 billion in 30 years' time. This will require about 40,000 hectares of additional vineyard planting. Recent trends indicate that the planting rate has increased to meet the short to medium term demand.

Victoria has an excellent opportunity to be a major part of the export targets. The state has a diverse range of climates and soils to meet the demands of any wine style likely to be supplied to the export market. Limitations on water availability are not as great in Victoria as other states and Victoria is well placed to capitalise on the shift in consumer trend to premium and diverse styles. The new plantings provide a chance to capitalise on emerging varietal trends such as Merlot.

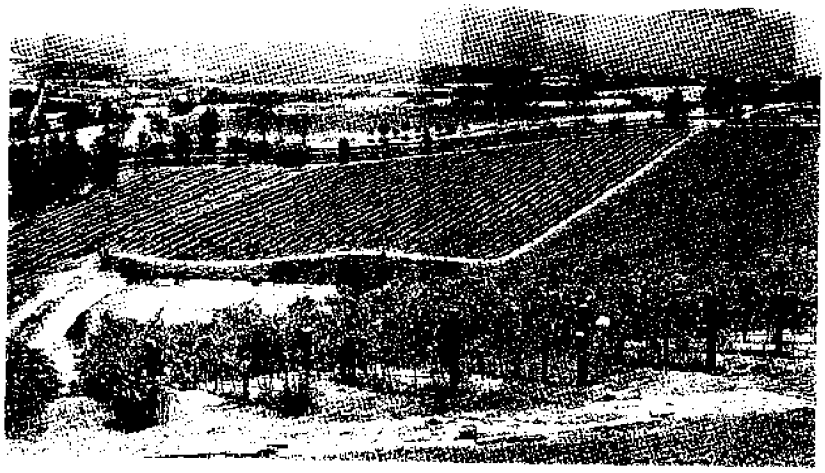
Over the next 15 years the Victorian industry is looking at expansion of about 7,000 hectares of new vineyard which will require investment of around $250 million. Additional investment will be required to process the grapes and market the wine.

Victoria is a leading state in the development of winery tourism. Almost 2 million visits were made to wineries throughout the state last year and this generated $120m. Much of this expenditure was spent on food, accommodation, and with local retailers. The extensive development of cellar door operations and winery tourism infrastructure will, in the future, allow the industry to draw on increased tourism activities.

Summary

The Victorian wine industry is in a good position to reclaim some of its pre-eminence in wine production of just over 100 years ago. Victoria has the land, the water and the climates to produce any style of wine for the domestic and growing export markets. Whilst many small vineyards and wineries are contributing to the expansion much of the gains will be in larger plantings utilising updated technology and using economies of scale. This will ensure we remain internationally competitive and maintain our edge in the market for producing pure and flavoursome wine.

John Whiting, Senior Officer for Viticulture, Institute for Sustainable Irrigated Agriculture, Tatura, Department of Natural Resources and the Environment.



Vegetables

Most of the fresh vegetable production in Victoria is located in the Melbourne, Central Highlands, Gippsland, East Gippsland and Goulburn Statistical Divisions.

Potatoes, the most significiant vegetable produced, are grown mainly in the Melbourne (at Toolangi and Koo-wee-rup), Central Highlands (around Ballarat), and Gippsland (Thorpdale) Statistical Divisions, with additional areas around Warrnambool, the Bellarine Peninsula, Colac, and the Otway Ranges.

The gross value of production of potatoes in 1994–95 was $106 million. The total gross value of production of vegetables was $385 million, which was down 7% on the previous year.

The tomato industry in Victoria is predominantly processing-oriented with most of the crop produced in the irrigated areas between Shepparton and Rochester in northern Victoria. Total production of tomatoes in 1994–95 was 139,541 tonnes, and was valued at $32 million.

14.17 VEGETABLES FOR HUMAN CONSUMPTION, VICTORIA

	Area sown			*Production*		
Type of vegetable	*1992–93* ha	*1993–94* ha	*1994–95* ha	*1992–93* tonnes	*1993–94* tonnes	*1994–95* tonnes
Potatoes	11 955	12 005	10 135	309 192	322 147	279 876
Onions	342	545	512	9 590	16 200	15 427
Carrots	1 537	1 938	2 253	49 148	66 460	74 637
Parsnips	175	197	238	3 159	3 388	3 843
Beetroot	42	72	75	575	803	879
Tomatoes	2 580	2 740	2 812	94 390	120 396	139 541
French beans	592	504	655	2 769	2 188	2 575
Green peas	301	281	293	736	613	699
Cabbages	737	726	750	27 616	26 548	27 875
Cauliflowers	1 300	1 280	1 264	28 620	28 573	19 638
Lettuce	1 432	1 632	1 639	33 912	35 041	34 155
Pumpkins	386	379	394	5 414	5 975	6 271

Source: AgStats on Floppy Disk (7117.0)

Tobacco

The tobacco industry in Victoria is centred at Myrtleford in the Ovens-Murray Statistical Division, with production areas in the adjacent valleys of the Buffalo, Ovens, King, and Kiewa Rivers. In 1994–95, the total number of tobacco growers in Victoria decreased by 12% to 121. The total production was 2,893 tonnes (dried weight), with a gross value of production of $16.1 million.

14.18 TOBACCO PRODUCTION, VICTORIA

Season	*Area* ha	*Production* tonnes (dry)	*Average yield per hectare* tonnes (dry)
1989–90	2 116	5 001	2.36
1990–91	1 937	5 233	2.70
1991–92	1 845	4 219	2.29
1992–93	1 983	4 738	2.39
1993–94	1 357	4 128	3.04
1994–95	1 357	2 893	2.13

Source: AgStats on Floppy Disk (7117.0)

Hops

In Victoria production of hops is confined to the alluvial soils in the valleys of the Ovens and King Rivers where good quality irrigation water is available to supplement the natural summer rainfall. In 1994–95 the 15 hop gardens in Victoria produced 644 tonnes (dried weight) of hops for both domestic brewers and the export market. The gross value of production was $2,816 million.

14.19 HOP PRODUCTION, VICTORIA

Season	Area ha	Production (dried weight) tonnes	Average yield per hectare tonnes
1989–90	348	577	1.66
1990–91	341	661	1.94
1991–92	352	764	2.17
1992–93	335	566	1.69
1993–94	356	643	1.81
1994–95	319	644	2.02

Source: AgStats on Floppy Disk (7117.0)

Livestock and livestock products

Sheep numbers, including lambs, declined by almost 9% to 21.4 million head in 1994–95. The number of sheep slaughtered decreased by almost 19%, whilst the number of lambs slaughtered was up by over 12%. The number of live sheep exported from Victorian ports was 1.3 million. Numbers of cattle and pigs have remained relatively steady, with some increase in the number slaughtered.

14.20 SELECTED LIVESTOCK NUMBERS, VICTORIA

	Cattle				
Season	Dairy '000	Beef '000	Total '000	Sheep '000	Pigs '000
1989–90	1 445	2 200	3 646	29 268	428
1990–91	1 423	2 208	3 631	27 494	403
1991–92	1 422	2 152	3 574	24 782	431
1992–93	1 463	2 226	3 689	23 552	423
1993–94	1 585	2 604	4 189	23 439	460
1994–95	1 622	2 663	**4 285**	**21 361**	439

Source: AgStats on Floppy Disk (7117.0)

14.21 LIVESTOCK SLAUGHTERED, VICTORIA

Types of livestock	1989–90 '000	1990–91 '000	1991–92 '000	1992–93 '000	1993–94 '000	1994–95 '000
Sheep	3 326	4 054	4 154	3 723	3 976	3 230
Lambs	6 200	6 246	6 321	6 288	5 601	6 303
Cattle and calves	1 995	2 229	2 226	1 974	1 977	2 103
Pigs	971	1 013	1 211	1 071	1 189	1 197

Source: Livestock Products, Australia (7215.0)

Sheep and wool

At 31 March 1995 the Victorian sheep population was 21.4 million head, well below the 1971 peak of 34 million head. More than 60% of the State's sheep flock is located in the Western District, Central Highlands, and Wimmera Statistical Divisions. Total wool production in 1994–95 increased by 11% to 138,000 tonnes, with a gross value of $633.7 million.

14.22 SHEEP AND LAMBS BY STATISTICAL DIVISION, AT 31 MARCH 1995

Statistical division	*Sheep (a)* '000	*Lambs and hoggets* '000	*Total* '000
Melbourne	145	40	185
Barwon	933	268	1 201
Western District	5 036	1 515	6 551
Central Highlands	2 712	685	3 397
Wimmera	2 534	676	3 210
Mallee	802	247	1 049
Loddon-Campaspe	1 676	484	2 160
Goulburn	1 495	402	1 897
Ovens-Murray	329	82	410
East Gippsland	563	166	729
Gippsland	431	141	573
Total Victoria	**16 655**	**4 706**	**21 361**

(a) Includes rams, ewes and wethers

Source: AgStats on Floppy Disk (7117.0)

14.23 TOTAL WOOL PRODUCTION, VICTORIA

Season	*Clip* tonnes	*Stripped from or exported on skins (greasy)* tonnes	*Total quantity (greasy)* tonnes
1989–90	142 737	27 974	170 711
1990–91	133 172	28 317	161 489
1991–92	116 574	28 791	145 365
1992–93	117 520	27 554	145 082
1993–94	110 035	14 500	124 535
1994–95	123 303	14 827	138 130

Source: Value of Agricultural Commodities Produced, Australia (7503.0)

Lambing

Victoria's largest lambing season occurred in 1970–71, when 12.7 million lambs were marked from 14.8 million ewes mated (86 %). The peak in more recent years was in 1984–85 when 10.4 million lambs were marked from 11.7 million ewes mated (89%). In 1994–95, 9 million ewes were mated resulting in 7.3 million lambs marked; and a success rate of 81%, which is consistent with recent years.

14.24 LAMBING, VICTORIA

Season	Ewes mated '000	Lambs marked '000	Percentage of lambs marked to ewes mated %
1989–90	10 923	9 504	87
1990–91	10 632	8 843	83
1991–92	9 466	7 412	78
1992–93	9 352	7 592	81
1993–94	9 325	7 549	81
1994–95	9 029	7 318	81

Source: AgStats on Floppy Disk (7117.0)

Mutton and lamb production

Mutton, the meat from adult sheep, is mainly produced from sheep which are surplus to the wool industry; consequently production patterns correspond closely to expansions and contractions in that industry. In 1994–95, mutton production was 64,000 tonnes, down on the previous year's figure of 85,000 tonnes.

Prime lamb producers are found throughout the state. However, early to mid-season producers are distributed in a broad band across northern Victoria, including some irrigated areas. In addition, a considerable number of early lambs are brought from southern New South Wales for slaughter in Victoria. Mid to late-season producers are located mainly in the Western District, Central Highlands, Gippsland, and parts of the Ovens-Murray Statistical Divisions of the State. In 1994–95, 111,000 tonnes of lamb meat was produced.

Meat cattle

The Victorian environment is very favourable for beef production with cattle able to graze on pasture throughout the year. The herd is spread throughout the State, with the Western District, Goulburn, Ovens-Murray, East Gippsland and Gippsland Statistical Districts being the major regions.

14.25 DISTRIBUTION OF CATTLE AND PIGS BY STATISTICAL DIVISION AT 31 MARCH 1995

Statistical division	Meat cattle '000	Milk cattle (a) '000	Pigs '000
Melbourne	157	44	22
Barwon	127	113	6
Western District	580	356	21
Central Highlands	117	10	22
Wimmera	52	2	35
Mallee	68	44	47
Loddon-Campaspe	183	156	190
Goulburn	363	349	64
Ovens-Murray	324	63	13
East Gippsland	223	83	2
Gippsland	470	403	17
Total Victoria	**2 663**	**1 622**	**439**

(a) Excludes house cows.

Source: AgStats on Floppy Disk (7117.0)

Milk cattle

Dairy farming in Victoria is largely confined to the higher rainfall areas of Gippsland, Western District, and Barwon, and the northern irrigation areas of Loddon-Campaspe and Goulburn Statistical Divisions. Milk cattle numbers have been gradually increasing in recent years. With 62% of the national wholemilk intake by factories, Victoria is Australia's major milk producing State. At 31 March 1995 there were 1.6 million milk cattle in Victoria, an increase of 2% on the previous year. The increase in milk production is attributed to the increase in herd size and pasture improvement.

14.26 MILK PRODUCTION, VICTORIA

Year ended 30 June	Million litres	*Year ended 30 June*	Million litres
1990	3 787	1993	4 456
1991	3 908	1994	4 967
1992	4 118	1995	5 113

Source: Australian Dairy Corporation

Pigs

The number of commercial establishments with pigs declined by 12%. At 31 March 1995, there were 748 establishments with a total of 439,000 pigs, a 5% reduction in pig numbers over the previous year. However, the average number of pigs per establishment rose form 540 to 586, indicating that the loss in establishments was mainly confined to the smaller producers.

Poultry

In 1994–95 Victorian egg production for human consumption was 40.1 million dozen, 32% of the total Australian production. The gross value of production was $49.8 million.

At 31 March 1995, there were 2.6 million hens for egg production held on farms, up 16% on the previous year. The average size of farms was 13,000 hens, although there are many larger farms with up to 40,000 plus layers. The main areas for commercial egg production are centred on the outskirts of the Melbourne Statistical Division; other significant regions are the Goulburn, Barwon, Gippsland and Loddon-Campaspe Statistical Divisions.

14.27 POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION, VICTORIA

Year ended 30 June	*Chickens (i.e. broilers, fryers, or roasters)* '000	*Other fowl and turkeys* '000	*Ducks and drakes* '000
1990	68 335	2 154	657
1991	72 165	2 321	r727
1992	r73 921	1 938	735
1993	r8 615	1 391	830
1994	85 798	1 782	821
1995	77 337	1 374	935

Source: Livestock Products Australia (7215.0)

In 1994–95, there were 79.6 million chickens, hens, stags, and ducks and drakes slaughtered for human consumption. The total dressed weight was 116,383 tonnes. The gross value was $189.8 million, or 21% of the Australian total.

Most broiler farms range in capacity from 30,000 to 100,000 broilers, and with the present average of 5.5 batches of broiler chickens a year, these farms may produce from 165,000 to 550,000 broilers a year.

The main broiler production centres are located on the Mornington Peninsula, in areas east and south-east of Melbourne, the Geelong area, and the Goulburn Statistical District – near the processing works and the main centres of consumption. Most of Victoria's production is consumed locally.

14.28 DRESSED WEIGHT (a) OF POULTRY SLAUGHTERED, FRESH AND FROZEN (b), VICTORIA

Year ended 30 June	*Chickens (i.e. broilers, fryers, or roasters)* '000 kg	*Other fowl and turkey* '000 kg	*Ducks and drakes* '000 kg
1990	92 608	3 708	1 222
1991	100 529	4 130	1 377
1992	107 049	3 565	1 399
1993	114 587	2 474	1 567
1994	123 529	3 170	1 547
1995	110 971	3 661	1 751

(a) Dressed weight of whole birds, pieces, and giblets intended for sale as reported by producers.
(b) Fresh: sold immediately after slaughter or chilled for sale soon after. Frozen: frozen hard for storage of indefinite duration.

Source: Livestock Products, Australia (7215.0)

Apiculture

Honey production in Victoria was 3,302 tonnes in 1994–95. The bulk of the honey produced is sold to large processors who clarify and pack it. Nearly 50% of the annual production of honey is exported, chiefly to the United Kingdom.

14.29 BEEHIVES, HONEY, AND BEESWAX, VICTORIA

Year ended 30 June	*Apiarists* No.	*Production* *Beehives* No.	*Honey* tonnes	*Beeswax* tonnes
1990	131	56 657	3 127	58
1991	149	60 747	4 129	71
1992	118	56 540	3 579	56
1993	129	57 562	3 160	65
1994	322	88 742	4 905	194
1995	294	82 704	3 302	58

Source: AgStats on Floppy Disk (7117.0)

FISHING

Australia's fisheries stocks are extremely diverse but, by world standards, its marine ecosystem is relatively unproductive. The Australian Fishing Zone covers an area 16% larger than the Australian land mass and is the third largest fishing zone in the world. However, Australia's fish production is small by world standards. This reflects low productivity of the oceans rather than under-exploitation of the resource.

Over 3,000 species of marine and freshwater fish and at least an equal number of crustacean and mollusc species occur in and around Australia. Fewer than 100 of these are commercially exploited, the major species being prawns, rock lobster, abalone, tuna, other fin fish, scallops, oysters and pearls. Australian fishing operators concentrate their efforts on estuarine, coastal, pelagic (surface) species and demersal (bottom living) species that occur on the continental shelf.

In 1993–94, Australians consumed 3.5kg of edible weight fresh and frozen fish per person sourced from Australian waters, and 2.1kg of imported fish. The consumption per person of crustaceans and molluscs (such as prawns, lobsters, crabs and oysters) was 1.5kg. A further 3.1kg per person was consumed in the form of prepared seafood products.

Aquaculture, or 'fish farming', is an alternative to harvesting the naturally occurring fish stocks and has considerable potential as a means of ensuring sustainability of harvesting yields. Aquaculture industries are established in all States, with species involved ranging from pearl oysters to freshwater trout. The industry has experienced rapid growth during the past six years, with the value of production rising from $188 million in 1989–90 to $419 million in 1994–95.

Victorian fisheries

Statistics relating to the Victorian fisheries catch are produced by the Victorian Fisheries Research Institute on behalf of Victorian Fisheries. Data is supplied by licensed commercial fishers, the Melbourne Fish Market and selected fish processors.

As at March 1995, there were 972 personal fishing licences and 1,063 boat licences valid in Victoria.

14.30 ANNUAL FISHERIES CATCH, LANDED COMMERCIALLY IN VICTORIA (a)

	Production, live weight			*Value*		
Fish	*1993–94* tonnes	*1994–95* tonnes	*1995–96* tonnes	*1993–94* $'000	*1994–95* $'000	*1995–96* $'000
Freshwater	836	655	715	1 184	1 372	1 624
Abalone	1 356	1 447	1 521	51 978	42 546	37 361
King Crab	122	54	41	1 216	768	534
Rock Lobster	526	510	479	15 391	15 862	13 955
Scale Fish	6 522	5 381	5 210	12 330	9 747	11 032
Scallops	8 542	418	2 617	11 073	846	5 235
Squid	385	1 317	93	802	1 899	403
Shark	1 753	1 416	1 478	8 799	8 172	10 235
Other	767	1 037	924	1 470	1 250	624
Total	**20 809**	**12 235**	**13 078**	**104 243**	**82 462**	**81 003**

(a) This information is based on mandatory fishing returns submitted by commercial fishers. The figures do not take into account returns not received or processed.

Source: Victorian Fisheries Research Institute, Department of Natural Resources and Environment

The drop in production between 1993–94 and 1994–95 was mainly due to commercial scallops, which decreased from approximately 8,500 tonnes to 400 tonnes. The population of scallops can be quite unstable and may vary markedly from year to year.

FORESTRY

Forests are an important sustainable natural resource providing a wide range of essential products and benefits to the community.

Forest vegetation cover protects the soil from water and wind erosion, reduces the potential for flooding and siltation of water bodies and sustains water quality. Forests also act as an agent in the absorption of greenhouse gases and provide habitats for a wide variety of native animals and plants.

The forest and wood products industries, based on native and plantation forests, contribute substantially to Australia's economy and provide substantial employment in regional areas. Forests are also valuable ecosystems providing a gene pool of great diversity for scientific investigation; a source of honey, oils, gums, resins and medicines; and a resource base for education, tourism and recreation.

Forests cannot necessarily provide for all uses at the same time, but careful management can ensure that forests provide multiple benefits in the long term for the Australian community.

Farm forestry is becoming increasingly important as a potential commercial source of timber. A broad range of programs have been implemented by government and private agencies to promote landcare and reafforestation on Australian farms.

Plantations

Under the National Forest Policy Statement ratified by the Commonwealth, State and Territory Governments in 1992, Australia is committed to expanding its plantation estate. Previously, the National Afforestation Program was established to stimulate an expansion in the commercial hardwood timber resource and to assist in land rehabilitation through broadacre commercial plantations (including farm forestry).

In July 1996, Ministerial Council on Forestry, Fisheries and Aquaculture had agreed to a national goal of trebling Australia's forest plantations estate by the year 2020.

14.31 PLANTATION AREAS CLASSIFIED BY SPECIES AT 31 MARCH 1995

Species	*Victoria* ha	*Australia* ha	*Victoria as a % of Australia* %
Coniferous –			
Pinus radiata	213 209	725 731	29.4
Pinus elliottii	8	69 170	0.0
Pinus pinaster	1 313	30 853	4.3
Pinus caribaea	3	57 539	0.0
Araucaria species	—	46 700	0.0
Other	2 018	33 880	6.0
Total	216 551	963 873	22.5
Broadleaved			
Eucalyptus species	18 074	150 703	12.0
Populus species	151	1 048	14.4
Other	126	3 199	3.9
Total	18 351	154 950	11.8
Grand Total	**234 902**	**1 118 823**	**21.0**

Source: Australian Bureau of Agricultural and Resource Economics Quarterly Forest Products Statistics.

Native forest

Native forest is defined as land dominated by trees with an existing or potential mature height of 20 metres or more, including native stands of cypress pine in commercial use regardless of height. Based on this definition, the total area of native forest in Australia at June 1993 was estimated at 41 million hectares (about 5% of Australia's land area).

14.32 NATIVE FOREST AREAS, BY TYPE AND OWNERSHIP, AT 30 JUNE 1993

Forest Type	*Victoria* '000 ha	*Australia* '000 ha	*Victoria as a % of Australia* %
Rainforest	(a)16	2 287	0.7
Eucalypt productivity	5 410	27 737	19.5
Tropical eucalypt & paperbark	—	6 528	0.0
Cypress pine	7	4 167	0.2
Total	**5 433**	**40 719**	**13.3**
Ownership			
Public ownership	4 773	29 446	16.2
Private ownership	660	11 273	5.9
Total	**5 433**	**40 719**	**13.3**

(a) Temperate.

Source: Australian Bureau of Agricultural and Resource Economics – Quarterly Forest Products Statistics.

MINING

Mining has played a significant part in Victoria's economic development since the discovery of gold in central Victoria in 1851.

Much of Victoria's industry, transport and infrastructure, including the growth of towns such as Bendigo, Ballarat and Melbourne itself, can be traced back to the impetus of the discovery and mining of gold and other minerals.

Today, mineral exploration and extraction remains a significant component of Victoria's economic activity, in particular, the extraction of oil and natural gas from the rich Bass Strait off-shore fields.

In 1994–95, the Victorian mining industry contributed 19.1% of the Australian mining component of Gross Domestic Product (GDP) at factor cost. In the same period, the mining industry accounted for 3.1% of Victoria's Gross State Product (GSP) at factor cost.

The mining component of GDP includes the extraction of minerals occurring naturally as solids, such as coals and ores, liquids such as crude petroleum, and gases such as natural gas.

In 1994–95, Victoria's main mining outputs were oil and gas from Bass Strait, gold from mining ventures in central Victoria and brown coal for use in the power stations of the LaTrobe Valley. Additionally, small quantities of zinc, copper and bauxite were also mined.

14.33 MINING, SUMMARY OF OPERATIONS, VICTORIA

Year	Establishments at June 30 No.	Employment (a) No.	Wages and salaries (b) $m	Turnover $m	Stocks Opening $m	Stocks Closing $m	Purchases, transfers in, selected expenses $m	Value added (c) $m
1989–90	163	3 286	155.8	3 504.6	103.6	93.2	343.7	3 150.5
1990–91 (d)	9	r1 517	r100.4	r4 037.9	r35.2	r33.2	r130.6	3 905.3
1991–92 (d)	11	1 031	124.5	3 630.6	46.1	61.5	170.9	3 475.1
1992–93	116	2 108	90.1	4 310.5	82.7	65.5	332.6	3 960.7
1993–94 (d) (e)	29	2 225	139.6	4 082.6	46.9	43.8	328.5	3 750.9
1994–95 (d) (e)	25	2 036	139.5	3 434.6	41.4	52.3	266.7	3 178.8

(a) At 30 June, including working proprietors.

(b) Excludes drawings of working proprietors.

(c) Value added is calculated by adding to turnover the increase (or deducting the decrease) in value of stock and deducting the value of purchases and selected items of expense. All components needed to calculate value added are only collected triennially.

(d) The 1990–91, 1991–92, 1993–94 and 1994–95 (truncated) censuses differ from previous mining censuses in that the construction materials and other non-metallic minerals industries have been excluded.

(e) Includes brown coal mining operations of the former State Electricity Commission of Victoria.

Source: The Australian Mining Industry (8414.0)

At 30 June 1995, 2,036 people were employed in the mining industry in Victoria, 1,470 in coal and metal ore mining (72.2%) and 566 in oil and gas mining (27.7%).

This represents a fall in employment of 8.5% over 1993–94. This fall was entirely accounted for by a fall in employment of 12.2% in the coal and metal ore mining sector. Employment in oil and gas mining rose marginally by 2.7%.

The oil and gas mining sector showed a far higher level of concentration of employment than coal and metal ore mining. The three establishments in this sector employed an average 188.7 workers each, whilst the 22 coal and metal ore mining establishments employed an average of 66.8 workers each.

14.34 MINING INDUSTRY EMPLOYMENT, VICTORIA

Items	Unit	Coal mining and metal ore mining 1993–94	Coal mining and metal ore mining 1994–95	Oil and gas extraction 1993–94	Oil and gas extraction 1994–95	Total coal mining, oil and gas extraction and metal ore mining 1993–94	Total coal mining, oil and gas extraction and metal ore mining 1994–95
Number of establishments at 30 June	No.	26	22	3	3	29	25
Employment at 30 June							
Males	No.	1 600	1 400	511	526	2 111	1 926
Females	No.	74	70	40	40	114	110
Total	No.	1 674	1 470	551	566	2 225	2 036
Persons employed per establishment	No.	64.4	66.8	183.7	188.7	76.7	81.4
Employment type –							
Administrative office and sales	No.	177	164	186	188	363	352
Production and all other	No.	1 497	1 306	365	378	1 862	1 684
Employees working below ground	No.	114	90	0	0	114	90
Wages and salaries	$m	103.1	100.7	36.4	38.8	139.6	139.5

Source: The Australian Mining Industry (8414.0)

Brown coal

Most of Australia's measured resources of brown coal are located in Victoria's Latrobe Valley, with 52,000 megatonnes considered to be economically viable. Brown coal is by far Victoria's most valuable solid mineral commodity, with the 1994–95 production (50.6 million tonnes) valued at an estimated $414 million. Production in 1993–94 was 49.7 million tonnes.

Metallic minerals

Victorian gold production increased dramatically from a low base of 41kg in 1979–80, largely as a result of the Wonga open cut mine at Stawell coming on stream. In 1990–91, Victorian production peaked at 4,863 kilograms of gold bullion (doré) and 1 tonne of gold concentrate, valued at $70.9 million. Gold production then fell by over 30% in 1991–92 before steadily rising to around 4,000 kilograms in 1992–93. Production increased by nearly 10% between 1993–94 and 1994–95, from 3,984 kilograms to 4,370 kilograms.

In 1994–95, 58,000 tonnes of copper concentrate and 13,000 tonnes of zinc concentrate were produced. The only other metallic mineral produced in any quantity in Victoria has been bauxite. However production has generally been sporadic – in 1994–95 only 2,000 tonnes were mined.

14.35 MINERALS PRODUCED, VICTORIA AND AUSTRALIA

		Victoria		*Australia*
Mineral	*Unit*	*1993–94*	*1994–95*	*1994–95*
Oil and gas		–		
Crude oil-stabilised (incl. condensate)	megalitres	17 221	14 598	31 301
Natural gas (a)	gigalitres	4 999	5 480	17 486
Ethane	gigalitres	181	189	208
Liquefied petroleum gases (b)				
Propane	megalitres	1 400	1 395	1 999
Butane	megalitres	1 267	1 139	1 480
Liquefied natural gases	'000 tonnes	0	0	6 888
Metallic minerals –				
Bauxite	'000 tonnes	2	2	45 384
Copper concentrate	'000 tonnes	84	58	(c)1 114
Gold bullion (dore) (c)	kg	3 984	4 370	298 697
Zinc concentrate	'000 tonnes	3	13	1 699
Coal (lignite) –				
For briquettes	'000 tonnes	1 470	750	750
Other	'000 tonnes	48 214	49 929	49 929

(a) Includes field and plant usage.
(b) Excludes refinery production.
(c) Includes alluvial gold.
Source: The Australian Mining Industry (8414.0)

Oil and gas production

In 1994–95, Victoria produced 14,598 megalitres (46.6%) of Australia's crude oil, and 5,480 gigalitres (31.3%) of Australia's natural gas. This highlights the importance of the Bass Strait field to Australia's economy, as one of only three off-shore oil and gas fields (the other two being in the Timor Sea and the North-West Cape, both in Western Australia).

14.36 REFINING CAPACITY, VICTORIA, AT 31 DECEMBER 1995

Refining Company	*Location*	*Capacity b/sd (a)*
Mobil Refining Australia Pty Ltd	Altona, Vic (1949)	108 000 (or 5 013 000 tonnes/year)
Shell Refining (Australia) Pty Ltd	Geelong, Vic (1954)	110 000 (or 5 343 000 tonnes/year)

(a) b/sd: barrels per stream day. Barrels per day are multiplied by 46.42 to convert to tonnes per year.
Source: Australian Institute of Petroleum Ltd: Oil and Australia Statistical Review, 1996

The total Australian refining capacity as at 31 December 1994 was 743,500 barrels per stream day (b/sd) or 34,513,270 tonnes per year. The Australian lubricating oil refinery capacity at the same date was 15,000 b/sd or 695,000 tonnes per year. Refineries do not operate at 100% capacity for 365 days per year, with maximum operating capacity generally around 85–88% of designed capacity. Actual capacity at any given time depends on the type of crude oil being processed.

14.37 ESTIMATED HYDROCARBON RESERVES, VICTORIA

Item	Unit	At 30 June 1993	1994
Crude oil and condensate	gigalitres	106	113
Natural gas	giga cubic metres	144	139
LPG	gigalitres	37	36

Source: Department of Energy & Minerals, Victoria: Annual Report 1993–94.

REFERENCES

Data sources

The majority of agricultural statistics in this chapter are derived from the Agricultural Census conducted at 31 March each year.

Estimated Value of Agricultural Operations (EVAO) is an aggregation of derived values for all crop and livestock activity for each unit. It should be noted that EVAO is applicable only for industry coding and size valuation purposes. It is not an indicator of receipts obtained by units, nor of the actual value of agricultural commodities produced by these units.

Gross value of production is the value placed on production at the wholesale prices realised in the market place.

Fishing statistics were sourced from the Victorian Fisheries Research Institute (Catch and Effort Unit), Department of Conservation and Natural Resources, while the forestry statistics emanated from the Australian Bureau of Agricultural and Resource Economics.

The Australian Mining Industry compendium (first released in January 1996) brings together a range of ABS information relating to mining, including the annual mining census, mineral commodity production estimates, the mineral exploration collection, environmental expenditure related to mining, overseas trade, employment and industrial relations information.

ABS sources

Australian National Accounts: State Accounts (5220.0)

Agriculture, Victoria (7113.2)

AgStats on Floppy Disk (7117.0)

Livestock Products, Australia (7215.0)

Value of Agricultural Commodities Produced, Australia (7503.0)

The Australian Mining Industry (8414.0)

Non-ABS sources

Australian Dairy Corporation

Australian Wheat Board

Australian Institute of Petroleum Ltd: Oil and Australia, Statistical Review

Department of Energy and Minerals, Victoria, Annual Report

Australian Bureau of Agricultural and Resource Economics – Quarterly Forest Products Statistics

Victorian Fisheries Research Institute, Department of Natural Resources and Environment

Photographs

Cattle grazing: Courtesy of Tourism Victoria

Farmland

Grape harvesting: Courtesy of Tourism Victoria

Vineyards

Sheep grazing