Farm management and technology in the Australian dairy industry 1993-94

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1. Summary

Improving farm productivity has been targeted by the Dairy Research and Development Corporation (DRDC) as one way of ensuring the long term viability of the dairy industry.

During 1994-95, with the financial assistance of the DRDC, ABARE again conducted a supplementary survey to measure the use of technology and farm management practices on Australian dairy farms. The collection was incorporated into the Australian dairy industry survey. The questionnaire was designed to determine what technology dairy farmers were using and the variability of technology use between States. A similar survey in 1991-92 established a base year for data against which productivity changes could be measured. When comparing data from 1993-94 with 1991-92, the following points were observed.

- Concentrates or grain was fed to 85 per cent of Australian dairy herds in 1993-94, compared with 79 per cent in 1991-92.

- Fodder conservation of wilted silage had increased by 60 per cent in 1993-94, with most of the additional wilted silage conserved in wrapped bales.

- Computers were used on 16 per cent of Australian dairy farms in 1993-94, unchanged from 1991-92, but many farmers indicated a desire to use computers.

- The practices of herd recording and artificial insemination were more commonly used in 1993-94 than in 1991-92.

- Most Australian dairy farmers still devised their own herd health programs, but 16 per cent more farmers used a defined mastitis control program in 1993-94 than in 1991-92.

- An estimated 48 per cent of Australian dairy farmers had a 5 year plan and those with a plan intended milking an additional 30 cows at the completion of the plan.

- Most dairy farmers were satisfied with their current technology and management practices and those that were not indicated that cost was the main reason for not changing.

2. Background and objectives of the study

Dairy Research and Development Corporation portfolios

This study contributes to two of the Dairy Research and Development Corporation's (DRDC) portfolios. The Farm Portfolio objective is 'sustainable improvement in farm productivity', while the Economic and Marketing Portfolio objective is 'increased industry competitiveness and profitability'.

In order to meet the objectives of these portfolios, it was necessary to establish a database over time from which productivity gains could be measured.

ABARE designed a questionnaire to collect information on the management practices and technology used by Australian dairy farmers which would enable:

- determination of existing levels of technology use and how they differ between States;
- profiles to be developed of farms using different technologies and management practices by linking survey results to the ADIS collection;
- determination of States or regions which the DRDC could target to promote use of new technologies and management practices.

Using the framework of the ADIS ensured a comparable data collection across all States.

The 1991-92 data set provided the base for a time series that would be used to measure dairy farm productivity gains, the adoption of new technology and changes in management practices. Three years between such data collections was the suggested interval.

The DRDC asked ABARE to collect a similar data set as part of the 1993-94 Australian dairy industry survey. Although only two years had elapsed, the Australian dairy industry had been buoyant and the DRDC believed that investment in new technologies and management practices had occurred.

Although the 1993-94 collection was only the second in a time series, some trends may be evident, particularly at the Australia level. The 1991-92 results are included in the tables for reference and comparison.

3. Method

3.1 Survey of the Australian dairy industry

The Australian dairy industry survey (ADIS) has been conducted annually by ABARE since 1979 and usually involves visits to approximately 300 dairy farms in all States. In 1993-94 the sample was increased to 402 to accommodate a 'Cost of Production' survey in Western Australia and a study of the economic performance and irrigation practices of farms in the Shepparton, Kerang and NSW Murray regions.

This survey covers establishments defined by the Australian and New Zealand Standard Industrial Classification (ANZIC) class 0130 (dairy cattle farming) — those engaged in dairy farming and with an estimated value of agricultural operations (EVAO) of $22 500 or more.

A more detailed description of the survey can be found in ABARE's *Farm Surveys Report 1995*.

3.2 The sample

The 1993-94 population and number of dairy farms sampled in each state are shown in the table below.

	NSW	Vic.	Qld	WA	SA	Tas.	Australia
Population	1 944	7 619	1 832	506	837	759	13 497
Sample	96	134	39	57	46	30	402

In New South Wales and Victoria there are sufficient sample farms to enable regional estimates to be produced. The numbers of 1993-94 sample farms, by region, for these two States are as follows:

	NSW regions		
	11	12	13
	Northern	Central & Southern	Riverina
Population	797	919	228
Sample	20	41	35

	Victorian regions			
	21	22	23	Other
	Western – south	GMID	Gippsland (excl. MIA)	
Population	1 252	2 568	1 973	1 826
Sample	19	71	21	23

Maps of New South Wales and Victoria displaying regional boundaries are included at the end of this report.

3.3 Reliability of estimates

Sampling errors

Only a small number out of the total number of dairy farms is used to produce survey estimates. The differences between these estimates and those that would have been obtained if information had been collected from all dairy farms are called sampling errors.

The more farms there are in the sample, the lower the sampling error is likely to be. So regional estimates are likely to have greater sampling errors than State estimates, and State estimates are likely to have greater sampling errors than national estimates.

To give a guide to the reliability of estimates, estimates of sampling errors have been calculated. These estimated errors, expressed as a percentage and termed 'relative standard errors', are given next to each estimate in parentheses.

In general, the smaller the relative standard error, the more reliable the estimate. Note, however, that numerically small estimates tend to have large relative standard errors. Where the relative standard error exceeds 99 it is not supplied in the tabulation.

Example of use of relative standard errors

To obtain the standard error from the relative standard error, multiply the relative standard error by the survey estimate and divide by 100. There is roughly a two in three chance that a survey estimate is within one standard error of the 'census value' (the value which would have been obtained if all farms in the target population had been surveyed). There is roughly a nineteen

in twenty chance that a survey estimate is within two standard errors of the census value.

For example, if the average number of cows per farm is estimated to be 150 with a relative standard error of 6 per cent, the standard error for this estimate is 9. In other words, the estimate of the average number of cows per farm is in the range 141 to 159.

Non-sampling errors

The values obtained in a survey are affected by errors other than those relating directly to the sampling procedure. For example, it might not be possible to contact certain types of farms, or the respondent may provide inaccurate information.

ABARE's experience in conducting surveys of rural industries has resulted in procedures designed to minimise non-sampling errors. However, when drawing inferences from estimates derived from sample surveys, users of survey data should bear in mind that both sampling and non-sampling errors do occur.

Sample weighting

The estimates in this report are calculated by weighting the data from each sample farm and then using these weighted data to calculate population estimates. ABARE constructs sample weights by combining data on the total number of dairy establishments and total production for dairy outputs, obtained from and based on the Australian Bureau of Statistics' annual Agricultural Census, with the corresponding numbers and dairy production of the farms in the dairy survey sample.

Since output varies from farm to farm sample weights usually differ for each farm interviewed. Typically, larger farms have smaller weights and smaller farms have larger weights, reflecting the small number of large farms and larger number of small farms in the population.

3.4 The questionnaire

The questionnaire used to collect data on management practices and technology use on Australian dairy farms covered the following aspects:

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- Type of dairy, time taken to complete a milking and types of equipment and machinery used
- Bulk vat type, age and capacity
- Effluent disposal system
- Feeding regimes and fodder conservation practices
- Soil testing and drainage
- Farm management
  - sources and frequency of advice
  - discussion group attendance
  - computer use
  - planning horizons
- Dairy herd management
  - breeding technology
  - herd health
  - incidence of specific diseases
- Farmers' intentions to change and factors limiting their ability to change.

Responses to this questionnaire were obtained at face to face interviews with dairy farmers who were also providing data for the ADIS. All farmers participating in the ADIS also responded to this technology questionnaire.

The questionnaire was developed in consultation with officers from the DRDC, the Australian Dairy Industry Council and the New South Wales and Victorian departments of agriculture.

Additional data on items such as farm labour, milk production and receipts were sourced from ABARE's Australian dairy industry survey 1993-94 (ADIS) and used in the productivity/efficiency ratio tables. Other ADIS data are included in tables detailing receipts and costs, financial performance measures, fertiliser use and irrigation.

4. Results of the survey

The survey of dairy technology and management practices has provided data for 1991-92 and 1993-94 on milking shed types and technology and usual farm management practices, including feeding and animal health. Information on when many of the practices and types of technology were adopted by dairy farms is also provided.

It should be noted that a substantial number (70 per cent) of farms included in the 1991-92 study were still participating in the 1993-94 ADIS which provides a high proportion of sample overlap between the two studies. Also, the 1993-94 ADIS sample was increased in Western Australia by 27 to allow for a 'Cost of Production' survey and in the Shepparton, Kerang and NSW Murray regions by 62 to enable a study of the economic performance and irrigation practices of dairy farms.

Generally, a comparison of results between 1991-92 and 1993-94 indicate progress in the uptake of technology, productivity and management practices in the Australian dairy industry. However, a longer time series will be required to establish more reliable trend estimates, given the potential for sampling errors and other influences such as seasonal conditions.

Outlined below are some of the results which are shown in more detail in the tables attached to this report. Averages per farm are averages for all farms covered by the survey, irrespective of whether or not all farms are using a particular technology or practice.

4.1 Feeding

Intensive grazing in some form was used by an estimated 92 per cent of dairy farms. This was a 2 per cent increase from 1991-92 (see table 1). Strip grazing was practiced by an estimated 61 per cent of dairy farmers, while 28 per cent were estimated to use a 'small paddock' grazing system.

The assessment of pasture for available quantity and quality of feed included 'visual' assessment in 1993-94, with an estimated 67 per cent of dairy farmers regularly assessing their pastures.

Overall, an estimated 85 per cent of dairy farmers fed their cows concentrates or grain, compared with 79 per cent in 1991-92. Total tonnages of grain, concentrates and other such materials fed out were also substantially higher. Drought or dry seasons may be responsible for these increases; however, future studies will determine if the trend is consistent. Again, in most States, the major reason for feeding concentrates or grain was to lift overall milk production.

4.2 Fodder conservation

The most popular method of conserving hay across the dairy industry (table 2) by a significant margin was, again, round bales. Round bale tonnages in 1993-94 increased by approximately the same tonnage that small rectangular bales declined when compared with the 1991-92 figures.

Bulk storage was still the most common method of storing silage across the industry, with an estimated 60 per cent stored in bulk, but a trend away from bulk storage is indicated as an estimated 70 per cent was stored in bulk in 1991-92. Conservation of non-wilted silage remained static, while the increase in wilted silage storage had mainly gone into wrapped bales.

Industry-wide, the main reasons for conserving fodder were still 'normal practice', or to boost off-season milk production.

Fertiliser advisory services were provided mainly by departments of agriculture in Queensland and Tasmania and company representatives in Victoria, Western Australia and South Australia.

4.3 Soil testing and drainage

Soil testing had been carried out on an estimated 71 per cent of Australia's dairy farms, compared with 59 per cent in 1991-92 (table 3). It is estimated that 63 per cent of dairy farmers who had soils tested changed their fertiliser management practices.

Routine pasture renovation was carried out on an estimated 72 per cent of Australian dairy farms.

Drainage work was still required on an estimated 16 per cent of Australian dairy farms, which is similar to the situation in 1991-92.

4.4 Management advice and herd management

As shown in table 4, Australian dairy farmers received advice from several sources, with State departments of agriculture used most frequently in New South Wales, Queensland, South Australia and Western Australia. Dairy companies and fertiliser or chemical company representatives were consulted to a lesser degree in all States.

Discussion groups were popular with an estimated 50 per cent of survey respondents (47 per cent in 1991-92), who again attended an estimated three discussion group meetings on average in 1993-94.

For the industry as a whole, an estimated 58 per cent of dairy farmers considered that advice helped improve their farm profitability in 1993-94, which is a 2 per cent increase on 1991-92. New South Wales and Western Australia had the highest proportion (72 per cent) who considered that advice helped improve farm profitability.

It is estimated that only 16 per cent of Australian dairy farms used computers in their farm operations, which is similar to the estimate obtained in 1991-92. Computers were mainly used in herd breeding and milk production recording, closely followed by budgeting and financial details. Many dairy farmers without computers indicated a desire to use computers in their dairy operations. Factors such as cost and the training time required were indicated as the main reasons for not using computers.

Herd recording was carried out on an estimated 62 per cent of farms across the industry, which is up substantially on the estimated 55 per cent in 1991-92. Western Australia again had the highest rate of dairy farms that herd recorded (82 per cent).

4.5 Herd breeding

The use of artificial insemination (AI) on dairy cows was still strong across Australia in 1993-94, at an estimated 80 per cent (73 per cent in 1991-92). AI was still most widely used in Tasmania (89 per cent) and New South Wales (91 per cent) and least used in Queensland (67 per cent).

When selecting bulls for inclusion in an artificial breeding program, the combination of production, type and price was the selection criteria used by an estimated 65 per cent of dairy farmers in 1993-94.

Neither embryo transplants nor synchronised oestrus technology was widely used in any State in either 1993-94 or 1991-92, although the use of synchronised oestrus has increased slightly.

Induced calving practices are still not widely used across the dairy industry, with an average 6 cows per farm induced in 1993-94 and 5 cows per farm in 1991-92.

4.6 Herd health

As shown in table 6, in 1993-94 most Australian dairy farmers (86 per cent) had devised their own herd health programs, which is a similar estimate to that obtained in the previous study. A defined mastitis control program was used on an estimated 70 per cent of Australian dairy farms in 1993-94, up from 54 per cent in 1991-92.

Across the Australian dairy industry the most common mastitis control measure used on each farm was dry cow treatment (65 per cent), each farm treating, on average, 54 cows. The next two most common measures were teat dipping (58 per cent) and cell counts on individual cows (49 per cent). These figures are higher than those estimated in the 1991-92 study.

Industry-wide, the most common dairy cow disease in 1993-94 was milk fever, with an estimated 9 cases on each farm, closely followed by clinical mastitis, with an estimated 8 cases per farm.

4.7 Milking shed and equipment

The most common type of milking shed on Australian dairy farms (table 7) was again the herringbone design (74 per cent of sheds) and the most common herringbone was a swingover unit. Rotary dairies were still uncommon, comprising an estimated 4 per cent of the total.

Annual performance testing of milking machines in 1993-94 was carried out on an estimated 69 per cent of farms, with biennial testing carried out on a further 18 per cent of dairy farms (table 8). This indicates that more dairy farmers (10 per cent) are testing milking machines than in 1991-92.

Runoff into a paddock was still the usual method of dairy effluent disposal on an estimated 44 per cent of Australian dairy farms, down from the 1991-92 estimate of 54 per cent. Ponding effluent disposal systems (up 10 per cent on 1991-92) had replaced these runoff systems.

Refrigerated direct expansion bulk milk vats again comprised an estimated 97 per cent of the vats used in the Australian dairy industry, with the balance mainly refrigerated off peak units (table 7). The majority of bulk milk vats were manufactured prior to 1980 and an estimated 75 per cent of vats had a storage capacity less than 2500 litres.

4.8 Milking shed productivity and numbers of cows milked

It should be noted that the productivity numbers in table 9 include the whole milking operation at seasonal peak, including the cleanup after milking.

Across the dairy industry, rotary dairies were by far the most labour efficient in terms of both estimated cows milked per hour (131) and estimated cows milked per operator (133). Herringbone dairy operational rates were generally estimated to be less labour efficient than rotary dairies, with average Australian results of an estimated 58 cows milked per hour and 79 cows milked per operator. Productivity figures for both rotary and herringbone dairies in 1993-94 were estimated above those indicated in 1991-92.

The average number of cows milked per farm in 1993-94 across Australia was estimated at 122, with the anticipated number to be milked in 1994-95 rising slightly to 124.

An estimated 48 per cent of Australian dairy farmers had a 5 year plan in relation to cow numbers, production per cow or total milk production. Across Australia, those dairy farms with a 5 year plan milked an estimated 128 cows in 1993-94 and intended to increase the number of cows milked to an estimated 158 cows at the end of their 5 year plan.

4.9 Regional results

Regional results are provided for New South Wales and Victoria (tables 10–21). Some variables have been combined or excluded where small numbers of observations occurred.

4.10 Change of technologies or practices

Similar results were obtained for questions on dairy farmers' intentions to change technologies and factors limiting their ability to change technologies or practices between the 1993-94 and 1991-92 surveys (tables 22 and 23).

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When asked about their need or ability to change various aspects of their farming operations in 1993-94, dairy farmers generally indicated no need or willingness to change. Their responses differed to some extent according to the particular aspect of their operations and differed between States.

For example, an estimated 62 per cent stated that they would not like to change their existing milking shed and of these farmers most stated that this was because they were satisfied with it. Of the estimated 38 per cent of farmers who would like to change their milking shed, an estimated 55 per cent considered that the cost of doing so was too great.

With respect to management advice, 93 per cent did not want to change their existing arrangements mainly because they were satisfied with things the way they were.

Overall, for the various aspects discussed (which also included dairy equipment, feeding of concentrates, intensive grazing, fodder conservation, soil testing, pasture renovation, increased fertiliser use, drainage, farm computers, herd breeding and herd health), most indicated no change mainly because they were satisfied with the current situation. For those who wanted to make changes, cost was given as the main reason for not upgrading their facilities or changing their management practices.

The percentages of dairy farms wanting to change various technologies or practices is shown in table 22. The factors limiting dairy farmers' ability to change are listed in table 23 for the four major items wanting to be changed (in table 22).

If dairy farmers had decided to change, or were in the process of changing their technologies or practices but the change was occuring outside the surveyed year, this was recorded as 'other factors' in table 23.

4.11 Performance indicators

Measures of productivity have been calculated for each State and on a regional basis for New South Wales and Victoria. Measures included are litres of milk and kilograms of butterfat and protein produced per cow milked; milk produced per hectare used by the milking herd; and milk receipts per cow. Full details are included in tables 24–26.

Survey tabulations

Table 1 Feeding regimes

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area utilised	– by milking herd	ha	**96.5**	(9)	89.1	**84.7**	(5)	85.2	**106.7**	(10)	98.1	**140.9**	(13)	155.7
	– dry cows or other enterprise	ha	**95.6**	(19)	115.8	**54.9**	(11)	43.9	**166.6**	(33)	109.1	**177.4**	(19)	167.7
	– unproductive	ha	**10.9**	(33)	11.7	**6.1**	(19)	5.3	**11.9**	(22)	13	**10.2**	(23)	3.9
Total farm area		ha	**203.0**	(15)	216.6	**145.7**	(5)	134.4	**285.2**	(25)	220.2	**328.5**	(47)	327.3
Intensive grazing system used														
	– none	%	**2**	(57)	2	**9**	(39)	9	**12**	(62)	6	**4**	(62)	0
	– small paddock	%	**11**	(23)	6	**30**	(16)	33	**10**	(50)	22	**52**	(16)	34
	– strip grazing	%	**87**	(3)	91	**57**	(9)	51	**78**	(11)	72	**39**	(20)	60
	– other system	%	**0**		1	**2**	(53)	7	**0**		0	**5**	(57)	6
Farms assessing pasture for quantity and quality of available feed (1)		%	**56**	(13)	26	**76**	(6)	11	**41**	(22)	3	**79**	(8)	7
Farms feeding concentrates or grain		%	**95**	(3)	98	**79**	(5)	69	**100**	(0)	100	**99**	(1)	97
Quantity used	– self mixed concentrates	t	**13.8**	(41)	33.9	**4.5**	(66)	0.5	**29.2**	(45)	10.3	**19.9**	(39)	36.4
	– purchased concentrates	t	**72.0**	(18)	46.4	**28.2**	(17)	23.9	**65.1**	(18)	50.5	**41.8**	(21)	46.1
	– grain	t	**60.0**	(20)	58.1	**47.2**	(12)	27.8	**44.4**	(28)	48.9	**82.6**	(15)	47.7
	– by-products eg.brewers grain	t	**12.3**	(78)	3.7	**2.4**	(73)	3	**5.9**	(80)	20.7	**2.0**	(60)	0
Primary reason for feeding concentrates grain etc.														
	– lift milk production	%	**58**	(8)	57	**35**	(17)	29	**90**	(7)	86	**49**	(16)	39
	– performance feeding	%	**5**	(58)	6	**0**		4	**2**	ns	8	**10**	(46)	35
	– seasonal incentives	%	**18**	(17)	12	**8**	(46)	2	**0**		0	**16**	(44)	0
	– fill supply gaps	%	**13**	(30)	23	**31**	(18)	29	**1**	(96)	6	**20**	(28)	12
	– zero grazing/other reasons	%	**1**	(54)	*	**5**	(30)	5	**7**	(90)	0	**4**	(63)	11

(1) Includes visual assessment in 94

ns Not supplied, exceeds 99 per cent

* Percentage less than 0.5

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area utilised	– by milking herd	ha	**114.5**	(12)	97.3	**91.9**	(8)	92.9	**93.6**	(4)	91.2
	– dry cows or other enterprise	ha	**106.7**	(16)	86.5	**59.1**	(23)	56.9	**83**	(10)	72
	– unproductive	ha	**8.7**	(21)	7.3	**14.9**	(19)	17.2	**8.3**	(11)	8.1
Total farm area		ha	**229.9**	(13)	191.1	**165.9**	(8)	167	**184.9**	(7)	171.3
Intensive grazing system used											
	– none	%	**17**	(42)	62	**0**		0	**8**	(28)	10
	– small paddock	%	**40**	(22)	18	**48**	(26)	54	**28**	(11)	27
	– strip grazing	%	**27**	(30)	20	**52**	(24)	46	**61**	(6)	59
	– other system	%	**16**	(39)	0	**0**		0	**3**	(31)	4
Farms assessing pasture for quantity and quality of available feed (1)		%	**57**	(16)	11	**57**	(21)	32	**67**	(5)	13
Farms feeding concentrates or grain		%	**94**	(4)	80	**61**	(20)	54	**85**	(3)	79
Quantity used	– self mixed concentrates	t	**39.3**	(40)	0	**0**		0	**11.5**	(24)	8.3
	– purchased concentrates	t	**11.2**	(53)	17.7	**29.3**	(34)	24.1	**38.7**	(10)	31.6
	– grain	t	**82.8**	(20)	69.6	**7.4**	(63)	3	**50.0**	(8)	37.5
	– by-products eg.brewers grain	t	**10.4**	ns	2.3	**0**		3	**4.6**	(43)	5.4
Primary reason for feeding concentrates grain etc.											
	– lift milk production	%	**45**	(18)	65	*	ns	5	**44**	(8)	43
	– performance feeding	%	**0**		0	**0**		0	**2**	(40)	5
	– seasonal incentives	%	**2**	(72)	0	**15**	(40)	14	**9**	(25)	5
	– fill supply gaps	%	**26**	(37)	11	**44**	(28)	35	**25**	(14)	23
	– zero grazing/other reasons	%	**21**	(48)	4	**2**	ns	0	**5**	(24)	3

(1) Includes visual assessment in 94

ns Not supplied, exceeds 99 per cent

* *Percentage less than 0.5*

Table 2 Fodder conservation

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Quantity of hay cut	– small bales	t	**42.0**	(27)	35.4	**17.5**	(16)	36.5	**10.8**	(39)	23.0	**19.8**	(37)	35.3
	– big bales(square)	t	**11.8**	(47)	0	**2.4**	(44)	15.6	**0**		0.6	**8.9**	(66)	0
	– round bales	t	**22.1**	(29)	10.1	**69.7**	(10)	59.5	**15.9**	(36)	12.6	**236.0**	(9)	208.7
Silage cut and stored	– wilted in bulk storage	t	**26.9**	(37)	5.0	**17.4**	(41)	11.9	**41.4**	(86)	3.3	**133.5**	(25)	221.2
	– wilted wrapped	t	**12.1**	(49)	8.5	**29.2**	(28)	12.5	**21.9**	(51)	7.7	**65.1**	(37)	1.8
	– normal in bulk storage	t	**26.1**	(41)	13.3	**5.5**	(73)	15.2	**43.9**	(73)	23.5	**16.3**	(57)	2.3
	– normal wrapped	t	**1.2**	(84)	0.4	**2.0**	(95)	3.8	**0**		3.3	**0**		3.2
Purchased hay or silage		%	**44**	(20)	62	**47**	(13)	49	**67**	(15)	65	**41**	(19)	22
Reason cut or purchased hay or silage (1)														
	– normal practice	%	**69**	(12)	52	**78**	(5)	96	**69**	(15)	47	**92**	(5)	97
	– boost off-season production	%	**52**	(16)	49	**46**	(13)	59	**39**	(30)	6	**41**	(17)	65
	– drought measure	%	**57**	(14)	63	**15**	(25)	36	**79**	(9)	70	**6**	(65)	17
	– for sale	%	**4**	(63)	6	**4**	(59)	4	**6**	(54)	8	**2**	(88)	0
	– pasture control measure	%	**13**	(15)	12	**50**	(13)	57	**18**	(48)	6	**9**	(46)	36
	– other reason	%	**2**	(55)	3	**15**	(30)	19	**0**		1	**0**		0
Fertiliser advice provided by														
	– company rep	%	**14**	(27)	9	**49**	(11)	27	**18**	(31)	14	**65**	(11)	43
	– consultant	%	**7**	(49)	6	**9**	(21)	9	**4**	(75)	2	**2**	(75)	0
	– Dept. of Agriculture	%	**28**	(20)	44	**9**	(30)	9	**50**	(21)	40	**9**	(48)	35
	– other sources	%	**1**	(62)	1	**4**	(47)	8	**8**	(25)	3	**6**	(68)	4

(1) Since more than one reason may be given by farmers, figures may add to more than 100 percent

ns Not supplied; exceeds 99 per cent

ABARE

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Quantity of hay cut	– small bales	t	**29.4**	(34)	39.3	**20.0**	(50)	20.7	**21.1**	(12)	33.7
	– big bales(square)	t	**7.9**	(95)	0	**8.5**	(64)	1.5	**4.4**	(27)	8.8
	– round bales	t	**108.5**	(19)	86.1	**77.6**	(22)	73.6	**65.1**	(7)	52.6
Silage cut and stored	– wilted in bulk storage	t	**16.6**	(60)	24.0	**88.7**	(34)	122.0	**30.2**	(22)	23.4
	– wilted wrapped	t	**4.5**	(59)	1.2	**41.6**	(38)	44.1	**26.3**	(20)	11.8
	– normal in bulk storage	t	**1.1**	ns	6.8	**19.0**	(96)	2.7	**14.2**	(35)	14.4
	– normal wrapped	t	**13.1**	(65)	6.3	**16.0**	(70)	0	**3.1**	(45)	3.1
Purchased hay or silage		%	**51**	(23)	41	**44**	(28)	44	**49**	(8)	52
Reason cut or purchased hay or silage (1)											
	– normal practice	%	**81**	(9)	75	**95**	(4)	90	**77**	(4)	81
	– boost off-season production	%	**25**	(29)	36	**51**	(24)	64	**45**	(9)	49
	– drought measure	%	**10**	(44)	4	**9**	(87)	0	**28**	(10)	41
	– for sale	%	**5**	(53)	0	**1**	(98)	0	**4**	(37)	4
	– pasture control measure	%	**14**	(16)	3	**29**	(28)	22	**35**	(11)	37
	– other reason	%	**1**	(87)	0	**0**		24	**9**	(29)	13
Fertiliser advice provided by											
	– company rep	%	**52**	(21)	49	**29**	(40)	38	**40**	(8)	25
	– consultant	%	**2**	(74)	1	**4**	(87)	7	**7**	(18)	7
	– Dept. of Agriculture	%	**16**	(44)	19	**53**	(23)	33	**20**	(12)	21
	– other sources	%	**7**	(76)	1	**0**		7	**4**	(28)	5

(1) Since more than one reason may be given by farmers, figures may add to more than 100 percent

ns Not supplied; exceeds 99 per cent

Table 3 Soil testing and drainage

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Never had soil test		%	**49**	(14)	39	**29**	(17)	47	**19**	(51)	40	**18**	(37)	19
Year of first soil test	– before 1970	%	**2**	(66)	7	**8**	(46)	5	**4**	(75)	6	**2**	(92)	3
	– 1970 to 1979	%	**16**	(29)	8	**7**	(36)	7	**14**	(45)	12	**17**	(36)	12
	– 1980 to 1989	%	**26**	(24)	39	**35**	(16)	30	**40**	(23)	30	**41**	(17)	54
	– 1990 and later	%	**7**	(35)	7	**21**	(23)	11	**23**	(31)	12	**22**	(31)	12
After soil test, changed fertiliser management		%	**35**	(20)	35	**45**	(11)	38	**36**	(17)	37	**62**	(12)	75
Routinely renovate pasture		%	**96**	(1)	85	**67**	(8)	54	**69**	(13)	42	**80**	(9)	77
Year commenced routinely renovating or resowing pastures														
	– before 1970	%	**29**	(27)	37	**16**	(29)	5	**18**	(40)	5	**29**	(20)	27
	– 1970 to 1979	%	**32**	(27)	17	**13**	(27)	8	**10**	(56)	12	**17**	(37)	29
	– 1980 to 1989	%	**33**	(24)	30	**22**	(17)	29	**28**	(32)	24	**22**	(29)	21
	– 1990 and later	%	**2**	(52)	1	**16**	(25)	12	**13**	(50)	1	**12**	(44)	0
Area pasture renovated or sown		ha	**25.3**	(12)	23.3	**6.7**	(15)	5.3	**7.1**	(26)	6.4	**65.5**	(16)	24.0
Farm drainage situation	– fully drained natural	%	**80**	(5)	57	**39**	(13)	46	**48**	(21)	86	**41**	(18)	31
	– fully drained with improvement	%	**15**	(24)	36	**41**	(9)	30	**39**	(28)	9	**45**	(16)	46
	– requires drainage work	%	**5**	(45)	7	**20**	(25)	24	**13**	(65)	5	**14**	(41)	23
Farms with drainage improvement work in last 3 yrs		%	**14**	(20)	23	**39**	(10)	29	**22**	(41)	7	**33**	(22)	23
Area drained in the last 3 yrs	– open drains	ha	**8.1**	(25)	9.9	**16.9**	(14)	9.3	**11.6**	(76)	1.2	**44.9**	(33)	19.7
	– other	ha	**21.3**	(18)	0	**55.4**	(10)	0.2	**33.9**	(43)	0	**77.6**	(26)	0.7

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Never had soil test		%	**22**	(36)	31	**14**	(60)	15	**29**	(11)	41
Year of first soil test	– before 1970	%	**8**	(50)	11	**0**		0	**6**	(36)	5
	– 1970 to 1979	%	**10**	(60)	8	**8**	(59)	12	**9**	(19)	9
	– 1980 to 1989	%	**48**	(23)	48	**65**	(18)	69	**37**	(10)	35
	– 1990 and later	%	**12**	(58)	2	**13**	(69)	4	**19**	(17)	10
After soil test, changed fertiliser management		%	**49**	(20)	51	**75**	(13)	79	**45**	(7)	42
Routinely renovate pasture		%	**75**	(11)	61	**63**	(17)	69	**72**	(5)	59
Year commenced routinely renovating or resowing pastures											
	– before 1970	%	**18**	(31)	17	**9**	(93)	2	**18**	(17)	12
	– 1970 to 1979	%	**23**	(36)	20	**13**	(66)	20	**16**	(16)	12
	– 1980 to 1989	%	**28**	(33)	21	**35**	(36)	43	**25**	(11)	28
	– 1990 and later	%	**6**	(88)	3	**6**	(63)	4	**12**	(20)	7
Area pasture renovated or sown		ha	**13.3**	(27)	9.6	**6.4**	(23)	8.9	**12.0**	(7)	9.4
Farm drainage situation	– fully drained natural	%	**91**	(4)	78	**55**	(21)	54	**50**	(6)	55
	– fully drained with improvement	%	**6**	(53)	14	**19**	(56)	25	**34**	(8)	28
	– requires drainage work	%	**3**	(56)	8	**26**	(41)	21	**16**	(19)	17
Farms with drainage improvement work in last 3 yrs		%	**10**	(33)	19	**41**	(30)	42	**31**	(8)	25
Area drained in the last 3 yrs	– open drains	ha	**1.2**	(69)	4.1	**14.0**	(42)	12.6	**14.9**	(13)	8.5
	– other	ha	**11.5**	(32)	1.8	**53.8**	(30)	0.8	**45.8**	(8)	0.3

Table 4 Management advice and herd management

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
No of times obtained advice from	– dairy company	no.	1	(23)		2	(24)		2	(41)		1	(18)	
	– priv consultant	no.	0			1	(29)		0			1	(33)	
	– agriculture dept	no.	3	(17)		1	(17)		3	(26)		3	(25)	
	– fert/chem co rep	no.	1	(22)		1	(14)		1	(33)		1	(15)	
	– other sources	no.	0			0			1	(49)		3	(34)	
Total no. of times farmers obtained advice		no.			5			6			4			6
Participated in discussion groups	– never	%	48	(14)	44	58	(9)	60	29	(25)	42	59	(13)	46
	– before 1980	%	10	(31)	13	9	(28)	15	6	(54)	13	6	(52)	6
	– 1980 onwards	%	42	(16)	43	33	(15)	25	65	(12)	45	35	(22)	48
Number of times farmers attended discussion groups		no.	3	(17)	4	3	(15)	3	4	(22)	3	2	(27)	2
Number of farmers attending discusson groups		no.	996	(13)	1236	2927	(13)	2773	1137	(12)	1160	173	(21)	266
Farmers considered advice helped farm profit		%	72	(11)	74	53	(11)	53	60	(16)	39	72	(9)	64
Farmers using computers		%	18	(32)	12	16	(24)	17	10	(54)	8	24	(26)	11
Computer used for (1)	– breeding records	%	16	(35)	11	14	(27)	14	6	(53)	8	17	(28)	7
	– milk production records	%	16	(34)	10	13	(29)	13	6	(52)	8	19	(28)	6
	– pasture/crop/irrigation records	%	1	ns	0	2	(49)	2	2	*ns*	1	2	(51)	0
	– budgeting/financial etc.	%	14	(39)	6	10	(29)	14	9	(60)	8	18	(31)	10
	– microchip tags for livestock	%	*	ns	0	0		0	2	(88)	1	2	(87)	0
	– other uses	%	*	ns	0	0		1	0		0	3	(64)	0
Farms that don't weigh cows		%	97	(2)	100	52	(3)	92	97	(3)	100	96	(3)	91
Farms that don't condition score cows		%	92	(3)	88	65	(9)	75	85	(10)	100	83	(7)	90
Farms not herd recording		%	49	(11)	57	37	(17)	44	39	(20)	49	18	(32)	23
Year commenced herd recording	– before 1980	%	22	(24)	14	25	(20)	20	11	(38)	15	32	(21)	37
	– between 1980 and 1989	%	24	(21)	22	30	(17)	28	36	(29)	33	35	(21)	30
	– 1990 onwards	%	5	(33)	7	8	(33)	8	14	(61)	3	15	(39)	10

(1) Since a computer may be used for more than one purpose, figures may add to more than the percentage of farmers using computers

* Percentage less than 0.5

ns Not supplied; exceeds 99 per cent

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
No of times obtained advice from	– dairy company	no.	**1**	(31)		**1**	(37)		**1**	(17)	
	– priv consultant	no.	**0**			**0**			**1**	(22)	
	– agriculture dept	no.	**4**	(79)		**1**	(35)		**2**	(13)	
	– fert/chem co rep	no.	**1**	(30)		**0**			**1**	(10)	
	– other sources	no.	**3**	(97)		**0**			**1**	(30)	
Total no. of times farmers obtained advice		no.			4			5			5
Participated in discussion groups	– never	%	**42**	(20)	53	**38**	(31)	52	**50**	(6)	53
	– before 1980	%	**17**	(48)	15	**0**		8	**9**	(19)	14
	– 1980 onwards	%	**41**	(23)	32	**62**	(19)	40	**41**	(8)	33
Number of times farmers attended discussion groups		no.	**4**	(24)	2	**5**	(20)	4	**3**	(10)	3
Number of farmers attending discusson groups		no.	**493**	(15)	334	**484**	(19)	329	**6210**	(7)	6098
Farmers considered advice helped farm profit		%	**58**	(14)	53	**62**	(19)	67	**58**	(7)	56
Farmers using computers		%	**19**	(40)	20	**20**	(31)	27	**16**	(16)	15
Computer used for (1)	– breeding records	%	**16**	(45)	19	**10**	(48)	18	**13**	(18)	13
	– milk production records	%	**18**	(42)	16	**9**	(53)	12	**13**	(18)	12
	– pasture/crop/irrigation records	%	**2**	(88)	3	*	ns	1	**1**	(37)	1
	– budgeting/financial etc.	%	**17**	(43)	14	**16**	(36)	14	**11**	(18)	12
	– microchip tags for livestock	%	**3**	ns	3	**0**		0	*	(54)	1
	– other uses	%	**1**	ns	6	**2**	ns	1	*	(49)	1
Farms that don't weigh cows		%	**95**	(4)	100	**89**	(6)	89	**94**	(2)	94
Farms that don't condition score cows		%	**84**	(6)	67	**68**	(15)	64	**73**	(5)	80
Farms not herd recording		%	**20**	(34)	31	**46**	(25)	46	**38**	(10)	45
Year commenced herd recording	– before 1980	%	**30**	(28)	33	**39**	(29)	34	**24**	(13)	21
	– between 1980 and 1989	%	**31**	(33)	18	**15**	(50)	13	**29**	(11)	26
	– 1990 onwards	%	**19**	(40)	18	**0**		7	**9**	(22)	8

(1) Since a computer may be used for more than one purpose, figures may add to more than the percentage of farmers using computers

* Percentage less than 0.5

ns Not supplied; exceeds 99 per cent

Table 5 Herd breeding

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
AI not used		%	**9**	(45)	19	**20**	(22)	28	**33**	(30)	32	**28**	(28)	26
Commenced using AI	– before 1980	%	**55**	(15)	40	**38**	(14)	38	**16**	(30)	24	**36**	(19)	61
	– between 1980 and 1989	%	**30**	(25)	40	**28**	(18)	30	**37**	(28)	38	**24**	(28)	10
	– 1990 onwards	%	**6**	(42)	1	**14**	(35)	4	**14**	(45)	6	**12**	(42)	3
Select AI bulls for	– production only (1)	%	**20**	(26)	27	**12**	(36)	30	**23**	(38)	52	**18**	(30)	50
	– type only (1)	%	**0**			**1**	(99)		**0**			**2**	(88)	
	– price only	%	**1**	(71)	2	**0**		2	**0**		2	**0**		0
	– production, type and price	%	**70**	(9)	54	**67**	(8)	42	**44**	(26)	14	**52**	(15)	24
Cows calved	– to AI	no.	**74**	(9)	57	**68**	(6)	60	**54**	(14)	44	**58**	(12)	60
	– mated to dairy bulls	no.	**32**	(18)	29	**48**	(11)	45	**20**	(26)	32	**45**	(14)	44
	– mated to beef bulls	no.	**11**	(18)	13	**19**	(14)	30	**18**	(28)	10	**20**	(21)	19
Embryo transplants not used		%	**95**	(3)	95	**98**	(1)	96	**91**	(5)	94	**99**	(1)	89
Do not used synchronised oestrus by														
	– injection	%	**95**	(2)	98	**82**	(3)	83	**93**	(4)	93	**85**	(5)	87
	– CIDR B	%	**98**	(1)	99	**92**	(2)	98	**94**	(4)	99	**90**	(4)	90
Induced calving not practised		%	**99**	(1)	99	**46**	(11)	56	**96**	(3)	91	**91**	(5)	84
Commenced induced calving	– before 1980	%	**0**		0	**10**	(39)	6	**0**		0	**3**	ns	0
	– between 1980 and 1989	%	**0**		0	**20**	(15)	27	**0**		2	**2**	(74)	12
	– 1990 onwards	%	**1**	(93)	1	**24**	(21)	11	**4**	(80)	7	**4**	(75)	4
Cows induced		no.	*	(64)	*	**8**	(12)	8	**1**	(91)	*	**1**	(53)	2
Purchased replacements		%	**0**		3	**3**	(74)	10	**0**		7	**4**	(98)	0
Bred own replacements		%	**100**	(0)	97	**97**	(3)	90	**100**	(0)	93	**96**	(4)	100
Average age at which heifers calve (2)		months	**30**	(3)	29	**24**	(1)	25	**25**	(1)	26	**29**	(1)	29

(1) *Production and type combined in one category in 1992*

(2) Average for those farms that bred own replacement heifers

* Average number per farm less than 0.5

ns Not supplied; exceeds 99 per cent.

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
AI not used		%	**21**	(31)	43	**11**	(77)	14	**20**	(15)	27
Commenced using AI	– before 1980	%	**46**	(21)	33	**45**	(28)	50	**38**	(9)	37
	– between 1980 and 1989	%	**16**	(18)	16	**43**	(27)	36	**30**	(12)	32
	– 1990 onwards	%	**17**	(51)	8	**1**	(98)	0	**12**	(25)	4
Select AI bulls for	– production only (1)	%	**9**	(75)	42	**0**		28	**13**	(20)	34
	– type only (1)	%	**4**	ns		**0**			**1**	(70)	
	– price only	%	**5**	ns	0	**4**	(81)	8	**1**	(62)	2
	– production, type and price	%	**61**	(17)	15	**85**	(11)	50	**65**	(5)	37
Cows calved	– to AI	no.	**61**	(11)	43	**74**	(10)	63	**66**	(4)	56
	– mated to dairy bulls	no.	**28**	(20)	35	**35**	(22)	31	**40**	(8)	39
	– mated to beef bulls	no.	**8**	(28)	12	**24**	(21)	20	**17**	(10)	22
Embryo transplants not used		%	**90**	(5)	93	**85**	(9)	92	**95**	(1)	95
Do not used synchronised oestrus by											
	– injection	%	**82**	(7)	87	**81**	(7)	91	**85**	(2)	88
	– CIDR B	%	**91**	(5)	93	**93**	(5)	88	**93**	(1)	97
Induced calving not practised		%	**95**	(2)	93	**38**	(30)	30	**64**	(5)	70
Commenced induced calving	– before 1980	%	**0**		0	**6**	(70)	5	**6**	(37)	3
	– between 1980 and 1989	%	**2**	(71)	6	**43**	(28)	51	**15**	(13)	19
	– 1990 onwards	%	**3**	(65)	1	**13**	(69)	14	**15**	(19)	8
Cows induced		no.	**1**	(72)	2	**10**	(20)	10	**6**	(11)	5
Purchased replacements		%	**2**	ns	0	**0**		0	**2**	(66)	7
Bred own replacements		%	**98**	(3)	100	**100**	(0)	100	**98**	(1)	93
Average age at which heifers calve (2)		months	**27**	(2)	28	**24**	(0)	24	**26**	(1)	26

(1) Production and type combined in one category in 1992
(2) Average for those farms that bred own replacement heifers
* Average number per farm less than 0.5
ns Not supplied; exceeds 99 per cent.

Table 6 Herd health

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Herd health program devised by	– self	%	**81**	(7)	79	**91**	(2)	90	**71**	(14)	86	**88**	(5)	89
	– vet	%	**14**	(36)	18	**7**	(28)	8	**16**	(32)	14	**9**	(43)	11
	– other	%	**5**	(42)	3	**2**	(64)	2	**13**	(67)	0	**3**	(71)	0
Defined mastitis control program used		%	**76**	(11)	66	**66**	(8)	43	**73**	(7)	64	**74**	(9)	73
Mastitis control plan using	– cell count on individual cows	%	**45**	(13)	41	**47**	(13)	29	**51**	(17)	44	**61**	(13)	66
	– teat dipping/spraying	%	**50**	(14)	53	**59**	(10)	34	**51**	(16)	35	**48**	(16)	66
	– dry cow treatment	%	**72**	(11)	60	**64**	(9)	43	**58**	(15)	59	**62**	(11)	61
	– dry cows treated	no.	**46**	(14)	42	**64**	(9)	36	**17**	(28)	25	**43**	(14)	52
	– other control	%	**5**	(39)	13	**15**	(28)	9	**9**	(90)	43	**26**	(24)	29
Mastitus control program commenced	– before 1980	%	**21**	(29)	10	**14**	(32)	13	**24**	(42)	22	**33**	(22)	27
	– between 1980 and 1989	%	**35**	(20)	40	**38**	(14)	27	**49**	(22)	41	**32**	(22)	37
	– 1990 onwards	%	**20**	(30)	16	**14**	(26)	3	**0**		1	**9**	(47)	9
Farms vaccinating for Leptospirosis by stock type (1)														
	– heifers	%	**61**	(14)	50	**58**	(10)	55	**55**	(20)	66	**33**	(16)	47
	– milkers	%	**55**	(16)	47	**47**	(11)	54	**48**	(22)	66	**28**	(19)	34
	– dry cows	%	**55**	(16)	46	**45**	(12)	48	**49**	(22)	66	**26**	(18)	32
Cases per farm in dairy herd of	– grass tetany	no.	*	(42)	*	**1**	(19)	1	*	(53)	*	**1**	(35)	1
	– milk fever	no.	**7**	(14)	5	**11**	(9)	9	**4**	(16)	2	**9**	(12)	11
	– leptospirosis	no.	*	(94)	3	**0**		*	**0**		*	*	(63)	*
	– clinical mastitis	no.	**6**	(9)	6	**9**	(9)	8	**6**	(18)	6	**13**	(17)	14
	– bloat	no.	**3**	(36)	2	**3**	(29)	6	**1**	(64)	1	**6**	(52)	1
	– abortion	no.	**1**	(21)	2	**1**	(12)	1	**2**	(20)	2	**2**	(13)	2

(1) As more than one stock type may be vaccinated at one time, figure may add to more than 100 per cent

* Average number per farm less than 0.5.

ns Not supplied; exceeds 99 per cent.

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Herd health program devised by	– self	%	**74**	(9)	89	**92**	(5)	79	**86**	(2)	87
	– vet	%	**11**	(52)	11	**8**	(58)	18	**10**	(16)	11
	– other	%	**15**	(37)	0	**0**		3	**4**	(30)	2
Defined mastitis control program used		%	**76**	(10)	69	**74**	(15)	78	**70**	(5)	54
Mastitis control plan using	– cell count on individual cows	%	**70**	(13)	51	**46**	(26)	33	**49**	(8)	36
	– teat dipping/spraying	%	**65**	(13)	35	**72**	(16)	73	**58**	(6)	41
	– dry cow treatment	%	**71**	(12)	57	**74**	(15)	78	**65**	(6)	51
	– dry cows treated	no.	**41**	(17)	33	**79**	(16)	74	**54**	(7)	38
	– other control	%	**7**	(56)	29	**10**	(75)	19	**12**	(22)	17
Mastitus control program commenced	– before 1980	%	**21**	(43)	16	**35**	(33)	38	**18**	(17)	16
	– between 1980 and 1989	%	**48**	(22)	46	**35**	(24)	40	**40**	(9)	33
	– 1990 onwards	%	**7**	(60)	7	**4**	(82)	0	**12**	(19)	5
Farms vaccinating for Leptospirosis by stock type (1)											
	– heifers	%	**31**	(23)	17	**54**	(21)	51	**55**	(7)	53
	– milkers	%	**30**	(24)	17	**52**	(22)	51	**47**	(8)	52
	– dry cows	%	**30**	(24)	17	**52**	(22)	51	**46**	(8)	48
Cases per farm in dairy herd of	– grass tetany	no.	*	(45)	1	**1**	(42)	1	**1**	(15)	1
	– milk fever	no.	**6**	(14)	10	**5**	(18)	5	**9**	(6)	8
	– leptospirosis	no.	**0**		*	**0**		*	**0**		*
	– clinical mastitis	no.	**6**	(15)	7	**7**	(19)	13	**8**	(6)	8
	– bloat	no.	**2**	(90)	1	**2**	(39)	12	**3**	(20)	4
	– abortion	no.	**2**	(14)	1	**3**	(32)	2	**2**	(8)	2

(1) As more than one stock type may be vaccinated at one time, figure may add to more than 100 per cent

* Average number per farm less than 0.5.

ns Not supplied; exceeds 99 per cent.

Table 7 Milking shed and bulk vat

Percentage of farms

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Types of milking shed	– walk through single	%	**4**	(61)	7	**3**	(57)	2	**2**	(97)	0	**10**	(63)	0
	– walk through double	%	**47**	(12)	41	**10**	(40)	8	**37**	(27)	42	**0**		*0*
	– herringbone swingover	%	**33**	(16)	28	**54**	(9)	47	**35**	(23)	20	**52**	(15)	55
	– herringbone double high	%	**10**	(28)	21	**20**	(24)	25	**15**	(57)	33	**23**	(27)	18
	– herringbone double low	%	**3**	(50)	2	**9**	(31)	15	**8**	(42)	4	**13**	(34)	26
	– rotary	%	**3**	(48)	1	**4**	(33)	3	**3**	(66)	1	**2**	(60)	1
Herringbone angle	– 45 degrees	%	**31**	(18)	38	**32**	(17)	47	**25**	(38)	28	**71**	(11)	87
	– 60 degrees	%	**4**	(48)	6	**7**	(49)	7	**8**	(52)	8	**4**	(67)	3
	– 70 degrees	%	**0**		0	**3**	(46)	1	**9**	(62)	2	**3**	(68)	*6*
	– 80 degrees	%	**5**	(35)	4	**12**	(23)	14	**3**	(81)	8	**0**		0
	– 90 degrees	%	**6**	(47)	3	**29**	(17)	18	**13**	(36)	11	**10**	(39)	3
Milk cooled prior to bulk vat		%	**48**	(13)	34	**77**	(7)	72	**23**	(21)	25	**66**	(11)	*60*
Bulk vats (1)	– refrigerated direct expansion	%	**97**	(2)	100	**96**	(3)	95	**100**	(0)	100	**91**	(6)	100
	– refrigerated off-peak	%	**3**	(77)	*	**5**	(55)	5	**0**			**4**	(48)	0
	– insulated only	%	**0**			**0**			**0**			**18**	(34)	19
Refrigerated dir. expansion va	– before 1960	%	**2**	(74)	0	**1**	(66)	1	**3**	(96)	0	**1**	(95)	0
	– 1960 to 1969	%	**39**	(22)	35	**29**	(18)	30	**22**	(33)	30	**20**	(30)	16
	– 1970 to 1979	%	**35**	(24)	57	**47**	(13)	56	**73**	(10)	70	**60**	(13)	68
	– 1980 to 1989	%	**13**	(37)	9	**24**	(20)	23	**23**	(42)	13	**12**	(41)	16
	– 1990 on (1)	%	**11**	(30)	3	**10**	(32)	3	**6**	(61)	1	**4**	(50)	0
Vat capacity (1)	– under 1500 litres	%	**41**	(18)	32	**24**	(19)	50	**64**	(14)	72	**30**	(26)	23
	– 1500 and under 2500 litres	%	**48**	(14)	65	**62**	(9)	48	**52**	(20)	43	**59**	(14)	72
	– 2500 and under 4500 litres	%	**13**	(34)	14	**26**	(18)	23	**11**	(47)	5	**31**	(20)	24
	– 4500 litres and over	%	**10**	(30)	2	**9**	(32)	3	**7**	(51)	1	**5**	(41)	0

(1) Percent may sum to more than 100 as some farms had more than one bulk vat

* Percentage less than 0.5

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Types of milking shed	– walk through single	%	**0**		16	**0**		0	**3**	(38)	3
	– walk through double	%	**28**	(34)	29	**10**	(95)	11	**19**	(15)	19
	– herringbone swingover	%	**33**	(26)	30	**59**	(20)	51	**47**	(7)	40
	– herringbone double high	%	**29**	(33)	16	**22**	(45)	22	**19**	(17)	25
	– herringbone double low	%	**8**	(76)	8	**7**	ns	14	**8**	(22)	11
	– rotary	%	**2**	(59)	1	**2**	(70)	2	**4**	(25)	2
Herringbone angle	– 45 degrees	%	**40**	(25)	26	**46**	(26)	38	**34**	(11)	42
	– 60 degrees	%	**20**	(47)	18	**11**	(77)	24	**7**	(28)	9
	– 70 degrees	%	**3**	ns	3	**1**	ns	6	**3**	(33)	2
	– 80 degrees	%	**5**	(57)	4	**12**	(44)	8	**9**	(19)	10
	– 90 degrees	%	**2**	(97)	3	**19**	(29)	11	**21**	(14)	13
Milk cooled prior to bulk vat		%	**57**	(17)	22	**72**	(15)	68	**64**	(5)	56
Bulk vats (1)	– refrigerated direct expansion	%	**100**	(0)	100	**100**	(0)	100	**97**	(2)	97
	– refrigerated off-peak	%	**1**	(94)	2	**0**		0	**3**	(46)	3
	– insulated only	%	**0**		1	**0**		0	**1**	(34)	1
Refrigerated dir. expansion va	– before 1960	%	**0**		1	**0**		0	**2**	(44)	1
	– 1960 to 1969	%	**28**	(21)	40	**25**	(44)	26	**29**	(12)	30
	– 1970 to 1979	%	**58**	(16)	53	**54**	(24)	55	**50**	(8)	58
	– 1980 to 1989	%	**20**	(39)	16	**23**	(47)	30	**22**	(15)	19
	– 1990 on (1)	%	**5**	(57)	*	**7**	(52)	2	**9**	(22)	2
Vat capacity (1)	– under 1500 litres	%	**44**	(25)	59	**45**	(25)	35	**34**	(9)	49
	– 1500 and under 2500 litres	%	**53**	(22)	46	**58**	(19)	60	**58**	(6)	51
	– 2500 and under 4500 litres	%	**13**	(41)	9	**36**	(32)	30	**22**	(13)	19
	– 4500 litres and over	%	**7**	(34)	3	**10**	(38)	6	**9**	(21)	3

(1) Percent may sum to more than 100 as some farms had more than one bulk vat

* *Percentage less than 0.5*

ns Not supplied; exceeds 99 per cent

Table 8 Milking shed equipment

Percentage of farms

ABARE

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Automatic cup removers used		%	**25**	(25)	25	**10**	(26)	13	**7**	(59)	4	**23**	(23)	20
Type of bail feeders used	– none	%	**12**	(40)	9	**23**	(22)	40	**12**	(66)	5	**10**	(51)	15
	– manual	%	**41**	(20)	59	**39**	(15)	32	**57**	(19)	67	**35**	(21)	26
	– mechanised	%	**47**	(18)	32	**36**	(12)	28	**31**	(26)	27	**51**	(15)	58
	– computerised	%	**0**		0	**2**	(63)	0	**0**		1	**4**	(52)	1
Performance testing of milking machine														
	– none	%	**34**	(19)	15	**7**	(40)	23	**24**	(33)	38	**11**	(53)	13
	– annual	%	**50**	(14)	65	**74**	(6)	54	**50**	(20)	41	**74**	(10)	69
	– biennial	%	**16**	(27)	20	**19**	(25)	23	**26**	(30)	21	**15**	(32)	18
Third line machine washing	– none	%	**42**	(17)	36	**28**	(19)	32	**45**	(24)	28	**16**	(38)	27
	– manual	%	**41**	(19)	40	**59**	(10)	51	**45**	(25)	62	**56**	(13)	56
	– fully automatic	%	**17**	(27)	24	**13**	(25)	17	**10**	(44)	10	**28**	(25)	17
Effluent disposal	– run off into paddock	%	**58**	(13)	74	**35**	(17)	46	**68**	(15)	78	**55**	(14)	50
	– pump and spray	%	**21**	(29)	14	**12**	(26)	16	**20**	(34)	10	**10**	(41)	19
	– one pond system	%	**6**	(47)	4	**36**	(17)	28	**6**	(54)	8	**19**	(32)	18
	– two pond system	%	**7**	(27)	5	**15**	(22)	7	**0**		0	**7**	(40)	6
	– mechanical removal	%	**6**	(69)	3	**1**	(63)	1	**6**	ns	4	**6**	(61)	4
	– other	%	**2**	ns	0	**1**	(77)	2	**0**		0	**3**	(67)	3
Dairy yard backup gate used		%	**16**	(19)	12	**47**	(13)	39	**17**	(28)	14	**60**	(13)	65

ns Not supplied ; exceeds 99 per cent

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Automatic cup removers used		%	**25**	(39)	17	**7**	(53)	4	**13**	(15)	14
Type of bail feeders used	- none	%	**17**	(48)	8	**35**	(35)	50	**20**	(17)	28
	- manual	%	**45**	(22)	52	**40**	(30)	43	**42**	(10)	43
	- mechanised	%	**38**	(17)	40	**25**	(37)	7	**37**	(8)	29
	- computerised	%	**0**		0	**0**		0	**1**	(56)	0
Performance testing of milking machine											
	- none	%	**17**	(35)	35	**0**		0	**13**	(16)	23
	- annual	%	**65**	(13)	43	**97**	(3)	92	**69**	(5)	56
	- biennial	%	**18**	(39)	22	**3**	(85)	8	**18**	(16)	21
Third line machine washing	- none	%	**35**	(28)	46	**7**	ns	17	**31**	(11)	32
	- manual	%	**50**	(21)	52	**84**	(11)	82	**55**	(7)	53
	- fully automatic	%	**15**	(31)	2	**9**	(52)	1	**14**	(15)	15
Effluent disposal	- run off into paddock	%	**60**	(13)	40	**16**	(60)	30	**44**	(9)	54
	- pump and spray	%	**5**	(44)	26	**40**	(31)	28	**15**	(15)	16
	- one pond system	%	**20**	(38)	12	**7**	(51)	14	**24**	(15)	19
	- two pond system	%	**8**	(57)	8	**30**	(34)	25	**12**	(17)	7
	- mechanical removal	%	**0**		11	**0**		0	**3**	(43)	2
	- other	%	**7**	(52)	3	**7**	ns	3	**2**	(42)	2
Dairy yard backup gate used		%	**37**	(20)	55	**45**	(26)	71	**38**	(9)	35

ns Not supplied; exceeds 99 per cent

Table 9 Milking shed productivity and numbers of cows milked

Percentage of farms or average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked per hour (1)	– walkthrough	c/hr	**32**	(8)	29	**36**	(21)	42	**26**	(19)	27	**16**	(5)	0
	– herringbone	c/hr	**57**	(6)	46	**60**	(4)	58	**46**	(9)	42	**47**	(5)	47
	– rotary	c/hr	**163**	(11)	123	**124**	(17)	127	**113**	(31)	na	**136**	(28)	na
Cows milked per operator (1)	– walkthrough	no.	**46**	(10)	44	**55**	(20)	80	**34**	(14)	32	**32**	(5)	0
	– herringbone	no.	**68**	(7)	62	**84**	(4)	74	**55**	(9)	48	**76**	(5)	76
	– rotary	no.	**122**	(19)	110	**137**	(14)	139	**88**	(18)	na	**136**	(28)	na
Cows milked for at least 3 months in 93-94		no.	**113**	(5)		**133**	(3)		**87**	(6)		**119**	(4)	
Cows milked for at least 3 months in 94-95		no.	**110**	(6)		**138**	(3)		**86**	(8)		**122**	(5)	
Farms with a 5 yr plan		%	**43**	(18)		**48**	(13)		**68**	(13)		**48**	(13)	
If 5 yr plan exists, no. of cows milked for at least 3 months in 93-94		no.	**117**	(7)		**143**	(4)		**81**	(6)		**124**	(6)	
If 5 yr plan exists, number of cows milked in 5 years		no.	**136**	(14)		**182**	(11)		**93**	(16)		**146**	(14)	

(1) Includes cleanup time etc

na Not available, insufficient respondents

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked per hour (1)	– walkthrough	c/hr	**32**	(11)	22	**38**	(0)	35	**32**	(9)	32
	– herringbone	c/hr	**51**	(7)	50	**62**	(8)	58	**58**	(3)	54
	– rotary	c/hr	**135**	(7)	na	**212**	(14)	192	**131**	(13)	124
Cows milked per operator (1)	– walkthrough	no.	**40**	(13)	33	**75**	(0)	54	**46**	(9)	47
	– herringbone	no.	**82**	(7)	87	**83**	(9)	74	**79**	(3)	70
	– rotary	no.	**166**	(7)	na	**204**	(25)	167	**133**	(10)	132
Cows milked for at least 3 months in 93-94		no.	**100**	(4)		**130**	(4)		**122**	(2)	
Cows milked for at least 3 months in 94-95		no.	**100**	(5)		**130**	(7)		**124**	(2)	
Farms with a 5 yr plan		%	**39**	(22)		**20**	(33)		**48**	(8)	
If 5 yr plan exists, no. of cows milked for at least 3 months in 93-94		no.	**115**	(8)		**170**	(8)		**128**	(3)	
If 5 yr plan exists, number of cows milked in 5 years		no.	**148**	(16)		**204**	(30)		**158**	(8)	

(1) Includes cleanup time etc

na Not available, insufficient respondents

Table 10 Feeding regimes

Percentage of farms or average per farm

New South Wales, by region

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area utilised	– by milking herd	ha	**73.4**	(24)	54.4	**110.8**	(11)	102.7	**117.3**	(13)	173	**96.5**	(9)	89.1
	– dry cows or other enterprise	ha	**58.8**	(32)	94.4	**134.2**	(25)	139.1	**66.2**	(21)	96.4	**95.6**	(19)	115.8
	– unproductive	ha	**5.3**	(55)	19.6	**13.7**	(52)	6.5	**18.9**	(21)	2.9	**10.9**	(33)	11.7
Total farm area		ha	**137.4**	(24)	168.4	**258.7**	(15)	248.3	**202.4**	(12)	272.3	**203.0**	(12)	216.6
Intensive grazing system used														
	– none	%	**0**		0	**0**		*	**12**	(57)	22	**2**	(57)	2
	– small paddock	%	**10**	(56)	5	**2**	(69)	0	**54**	(18)	41	**11**	(23)	6
	– strip grazing	%	**91**	(6)	95	**98**	(1)	100	**28**	(26)	32	**87**	(3)	91
	– other system	%	**0**		0	**0**		0	**3**	(92)	5	**0**		1
Farms assessing pasture for quantity and quality of available feed (1)		%	**85**	(16)	46	**32**	(29)	15	**52**	(20)	0	**56**	(13)	26
Farms feeding concentrates or grain		%	**100**	(0)	100	**94**	(6)	97	**85**	(7)	100	**95**	(3)	98
Quantity used	– self mixed concentrates	t	**7.6**	(89)	10.6	**21.6**	(48)	55	**4.0**	(87)	33	**13.8**	(41)	33.9
	– purchased concentrates	t	**108.6**	(26)	51.1	**51.0**	(23)	48.6	**31.4**	(33)	15.2	**72.0**	(18)	46.4
	– grain	t	**9.9**	ns	24.3	**96.2**	(24)	84	**84.8**	(16)	80.3	**60.0**	(20)	58.1
	– by-products eg.brewers grai	t	**0**		8.5	**25.8**	(78)	0.1	**0**		0.1	**12.3**	(78)	3.7
Primary reason for feeding concentrates, grains etc														
	– lift milk production	%	**84**	(9)	52	**37**	(20)	73	**51**	(18)	18	**58**	(8)	57
	– performance feeding	%	**6**	(93)	10	**6**	(80)	2	**2**	(87)	8	**6**	(58)	6
	– seasonal incentives	%	**0**		0	**35**	(18)	10	**12**	(48)	69	**18**	(17)	12
	– fill supply gaps	%	**10**	(55)	38	**15**	(43)	12	**14**	(43)	5	**13**	(30)	23
	– fill supply gaps	%	**0**		0	**1**	(82)	*	**6**	(71)	0	**1**	(54)	*
	– zero grazing/other reasons													

(1) Includes visual assessment in 94

* Percentage less than 0.5

ns Not supplied; exceeds 99 per cent

Table 11 Fodder conservation, soil testing and drainage

ABARE

Percentage of farms or average per farm

New South Wales, by region

		Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
		1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Total hay cut	t	**22.4**	(66)	5.6	**105.5**	(22)	66.0	**138.5**	(15)	119.6	**75.8**	(17)	45.5
Total silage cut	t	**42.5**	(37)	16.9	**81.5**	(29)	34.2	**86.6**	(46)	37.9	**66.4**	(21)	27.2
Purchased hay or silage	%	**40**	(41)	71	**51**	(22)	60	**29**	(30)	33	**44**	(20)	62
Reason cut or purchased hay or silage (1)													
– normal practice	%	**59**	(29)	36	**73**	(14)	60	**83**	(7)	84	**69**	(12)	52
– boost off-season production	%	**45**	(36)	40	**57**	(17)	46	**49**	(18)	100	**52**	(16)	49
– drought measure	%	**56**	(29)	60	**67**	(14)	73	**19**	(37)	33	**57**	(14)	63
– for sale	%	**0**		0	**7**	(71)	7	**4**	ns	22	**4**	(63)	6
– pasture control measure	%	**0**		14	**25**	(16)	12	**5**	(77)	0	**13**	(15)	12
– other reason	%	**0**		4	**3**	(79)	3	**7**	(63)	0	**2**	(55)	3
Never had soil test	%	**66**	(13)	27	**37**	(32)	46	**43**	(19)	61	**49**	(14)	39
After soil test, changed fertiliser management	%	**24**	(42)	37	**43**	(27)	33	**38**	(25)	31	**35**	(20)	35
Routinely renovate pasture	%	**100**	(0)	99	**100**	(0)	81	**66**	(14)	41	**96**	(1)	85
Area pasture renovated or sown	ha	**31.1**	(20)	25.7	**20.9**	(17)	22.1	**23.4**	(17)	18.9	**25.3**	(12)	23.3
Farm drainage situation													
– fully drained natural	%	**94**	(6)	49	**86**	(8)	75	**7**	(85)	0	**80**	(5)	57
– fully drained with improvement	%	**6**	(93)	51	**10**	(53)	19	**66**	(14)	56	**15**	(24)	36
– requires drainage work	%	**0**		0	**4**	ns	6	**27**	(32)	44	**5**	(45)	7
Farms with drainage improvement in last 3 years	%	**9**	(71)	26	**2**	(27)	5	**77**	(10)	91	**14**	(20)	23

(1) Since more than one reason may be given by farmers, figures may add to more than 100 percent

ns Not supplied; exceeds 99 per cent

Table 12 Herd breeding and health

Percentage of farms or average per farm

New South Wales, by Region			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
AI not used		%	**3**	ns	12	**11**	(68)	19	**21**	(47)	47	**9**	(45)	19
Select AI bulls for	– production only (1)	%	**21**	(38)	39	**20**	(41)	15	**17**	(40)	29	**20**	(26)	27
	– type only (1)	%	**0**		0	**0**		0	**0**		0	**0**		0
	– price only	%	**0**		0	**0**		0	**5**	(71)	16	**1**	(71)	2
	– production, type and price	%	**76**	(11)	49	**69**	(16)	66	**58**	(18)	8	**70**	(9)	54
Cows calved	– to AI	no.	**57**	(22)	48	**85**	(11)	68	**90**	(17)	46	**74**	(9)	57
	– mated to dairy bulls	no.	**27**	(35)	20	**33**	(26)	33	**42**	(18)	56	**32**	(18)	29
	– mated to beef bulls	no.	**8**	(51)	14	**9**	(20)	15	**26**	(17)	5	**11**	(18)	13
Bred own replacements		%	**100**	(0)	100	**100**	(0)	95	**100**	(0)	100	**100**	(0)	97
Age at which heifers calve (2)		month	**32**	(7)	30	**29**	(2)	29	**25**	(2)	26	**30**	(3)	29
Herd health program devised by	– self	%	**95**	(5)	93	**69**	(15)	68	**80**	(10)	64	**81**	(7)	79
	– vet	%	**5**	(95)	6	**23**	(44)	26	**11**	(51)	36	**14**	(36)	18
	– Dept of Agriculture/other	%	**0**		1	**8**	(50)	6	**9**	(68)	0	**5**	(42)	3
Defined mastitis control program used		%	**72**	(24)	61	**79**	(12)	71	**78**	(9)	59	**76**	(11)	66
Defined mastitis control program using	– cell count on individual cows	%	**33**	(36)	44	**51**	(14)	39	**64**	(13)	37	**45**	(13)	41
	– teat dipping/spraying	%	**48**	(31)	45	**47**	(17)	61	**71**	(11)	48	**50**	(14)	53
	– dry cow treatment	%	**64**	(26)	48	**79**	(12)	71	**68**	(15)	59	**72**	(11)	60
	– dry cows treated	no.	**23**	(41)	30	**60**	(17)	57	**72**	(20)	23	**46**	(14)	42
	– other control	%	**0**		21	**6**	(53)	8	**14**	(51)	8	**5**	(39)	13
Farms vaccinating for leptospirosis by stock type (3)	– heifers	%	**60**	(29)	58	**60**	(17)	40	**68**	(15)	68	**61**	(14)	50
	– milkers	%	**60**	(29)	47	**49**	(24)	43	**68**	(15)	68	**55**	(16)	47
	– dry cows	%	**60**	(29)	47	**49**	(24)	43	**67**	(16)	57	**55**	(16)	46
Cases per farm dairy herd of	– grass tetany	no.	*	ns	*	*	(61)	*	**1**	(36)	2	*	(42)	*
	– milk fever	no.	**4**	(28)	2	**9**	(22)	7	**12**	(11)	4	**7**	(14)	5
	– leptospirosis	no.	*	ns	*	**0**		5	*	ns	2	*	(94)	3
	– clinical mastitis	no.	**6**	(15)	4	**5**	(16)	7	**11**	(15)	8	**6**	(9)	6
	– bloat	no.	**1**	(57)	2	**4**	(46)	1	**3**	(26)	1	**3**	(36)	2
	– abortion	no.	**1**	(50)	1	**2**	(30)	2	**2**	(25)	2	**1**	(21)	2

(1) Production and type combined in one category in 1992

(2) Average for those farms where breed own replacement heifers

(3) As more than one stock type may be vaccinated at one time, figures may add to more than 100 per cent

* Average number per farm less than 0.5 ns Not supplied; exceeds 99 per cent.

Table 13 Milking shed, bulk vat and equipment

Percentage of farms or average per farm

New South Wales, by Region

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Type of milking shed (1)	– walk through single	%	5	(94)	8	3	(96)	0	4	ns	22	4	(61)	6
	– walk through double	%	58	(15)	45	48	(19)	44	6	(71)	0	47	(12)	39
	– herringbone swingover	%	32	(29)	29	33	(24)	27	42	(23)	26	34	(16)	27
	– herringbone double high	%	5	(87)	18	11	(41)	26	29	(35)	32	11	(28)	24
	– herringbone double low	%	0		0	4	(79)	3	11	(43)	15	3	(50)	3
	– rotary	%	0		0	5	(64)	1	8	(50)	6	4	(48)	1
Milk cooled prior to bulk vat		%	43	(26)	12	46	(17)	53	73	(13)	46	48	(13)	34
Vat capacity (1)	– under 1500 litres	%	50	(32)	38	36	(20)	26	30	(33)	32	41	(18)	32
	– 1500 and under 2500 litres	%	50	(26)	71	44	(18)	61	57	(14)	59	48	(14)	65
	– 2500 and under 4500 litres	%	8	ns	4	15	(33)	21	24	(26)	23	13	(34)	14
	– 4500 litres and over	%	5	(95)	0	12	(41)	3	22	(29)	0	10	(30)	2
Automatic cup removers used		%	22	(35)	28	28	(39)	26	19	(31)	6	25	(25)	25
Performance testing of milking machines														
	– none	%	43	(27)	10	36	(26)	17	3	(93)	34	35	(19)	15
	– annual	%	49	(26)	74	45	(22)	64	73	(12)	27	50	(14)	65
	– biennial	%	8	(64)	16	20	(37)	19	25	(35)	39	16	(27)	20
Third line machine washing	– none	%	48	(32)	37	42	(19)	29	21	(35)	67	42	(17)	36
	– manual	%	39	(41)	49	40	(21)	39	55	(18)	5	41	(19)	40
	– fully automatic	%	13	(55)	14	19	(38)	32	24	(35)	28	17	(27)	24
Effluent disposal (1)	– run off into paddock	%	63	(21)	85	53	(22)	66	60	(15)	68	58	(13)	74
	– pump and spray	%	28	(43)	10	16	(42)	17	11	(60)	14	21	(29)	14
	– one pond system	%	6	(93)	1	4	(73)	8	14	(49)	5	6	(47)	4
	– two pond system	%	3	(89)	0	9	(39)	7	16	(25)	13	7	(27)	5
	– mechanical removal	%	0		4	13	(69)	2	0		0	6	(69)	3
	– other	%	0			4	ns		0			2	ns	
Motorised or rolling yard backup gate used		%	3	(89)	1	19	(30)	11	52	(16)	58	16	(19)	12

(1) Percentages may sum to more than 100 as some farms had more than one bulk vat
ns Not supplied; exceeds 99 per cent

Table 14 Milking shed productivity and numbers of cows milked

ABARE

Percentage of farms or average per farm

New South Wales, by Region

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked per hour (1)	– walkthrough	c/hr	**32**	(14)	30	**30**	(8)	31	**42**	(18)	13	**32**	(8)	29
	– herringbone	c/hr	**47**	(4)	45	**62**	(11)	49	**61**	(6)	45	**57**	(6)	46
	– rotary	c/hr	**0**		0	**166**	(14)	200	**156**	(8)	100	**163**	(11)	123
Cows milked per operator (1)	– walkthrough	no.	**37**	(18)	44	**59**	(9)	49	**57**	(12)	17	**46**	(10)	44
	– herringbone	no.	**54**	(10)	58	**72**	(12)	64	**84**	(9)	81	**68**	(7)	62
	– rotary	no.	**0**		0	**131**	(25)	133	**100**	(7)	100	**122**	(19)	110
Cows milked for at least 3 months in 93-94		no.	**91**	(8)		**123**	(8)		**150**	(6)		**113**	(5)	
Cows milked for at least 3 months in 94-95		no.	**90**	(8)		**116**	(10)		**155**	(7)		**110**	(6)	
Farms with a 5 yr plan		%	**52**	(31)		**36**	(23)		**42**	(23)		**43**	(18)	
If 5 yr plan exists, no. of cows milked for at least 3 months in 93-94		no.	**98**	(10)		**127**	(12)		**163**	(6)		**117**	(7)	
If 5 yr plan exists, number of cows milked in 5 yrs		no.	**98**	(10)		**153**	(15)		**234**	(9)		**136**	(8)	

(1) Includes cleanup time etc

Table 15 Management advice and herd management

ABARE

Percentage of farms or average per farm

New South Wales, by Region

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
No of times obtained advice from	– dairy company	no.	0			2	(27)		1	(31)		1	(23)	
	– priv consultant	no.	0			0			2	(36)		0		
	– agriculture dept	no.	2	(33)		3	(24)		4	(24)		3	(17)	
	– fert/chem co rep	no.	1	(45)		1	(27)		1	(37)		1	(22)	
	– other sources	no.	0			1	(51)		0			0		
Total no. of times farmers obtained advice		no.			5			6			6			5
Participated in discussion groups	– never	%	71	(14)	36	30	(35)	53	38	(25)	33	48	(14)	44
	– before 1980	%	3	(96)	22	13	(43)	6	20	(46)	10	10	(31)	13
	– 1980 onwards	%	26	(37)	42	58	(19)	41	42	(22)	57	42	(16)	43
Number of times farmers attended discussion groups		no.	2	(40)	4	4	(18)	4	3	(21)	3	3	(17)	4
Number of farmers attending discusson groups		no.	234	(34)	523	669	(15)	440	131	(17)	140	996	(13)	1236
Farmers considered advice helped farm profit		%	74	(20)	78	70	(15)	67	77	(11)	84	72	(11)	74
Farmers using computers		%	20	(58)	11	16	(39)	11	12	(45)	16	18	(32)	12
Computer used for (1)	– breeding records	%	20	(58)	10	14	(42)	11	10	(51)	16	16	(35)	11
	– milk production records	%	20	(58)	11	16	(39)	10	3	(40)	6	16	(34)	10
	– pasture/crop/irrigation records	%	0		0	1	ns	*	0		0	1	ns	0
	– budgeting/financial etc.	%	18	(63)	7	11	(52)	4	11	(49)	10	14	(39)	6
	– microchip tags for livestock	%	0		0	1	ns	1	0		0	*	ns	0
	– other uses	%	0		0	*	ns	0	0		0	*	ns	0
Farms not herd recording		%	66	(10)	52	40	(22)	61	24	(35)	54	49	(11)	57
Year commenced herd recording	– before 1980	%	12	(47)	9	29	(33)	18	22	(30)	16	22	(24)	14
	– between 1980 and 1989	%	20	(40)	27	26	(30)	21	27	(38)	10	24	(21)	22
	– 1990 onwards	%	3	(92)	12	5	(62)	1	27	(33)	19	5	(33)	7

(1) Since a computer may be used for more than one purpose,figures may add to more than the percentage of farmers using computers

* Percentage less than 0.5.

ns Not supplied; exceeds 99 per cent.

Table 16 Feeding regimes

Percentage of farms or average per farm

Victoria, by Region

		Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
		1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area utilised – by milking herd	ha	**117.1**	(13)	102.7	**67.0**	(8)	65.1	**92.2**	(9)	86.8	**84.7**	(5)	85.2
– dry cows or other enterprise	ha	**57.9**	(16)	53.8	**53.6**	(22)	38.4	**32.3**	(25)	19.9	**54.9**	(11)	43.9
– unproductive	ha	**4.1**	(24)	5.2	**7.5**	(12)	6.7	**2.8**	(14)	1.7	**6.1**	(19)	5.3
Total farm area	ha	**179.1**	(11)	161.7	**128.1**	(10)	110.2	**127.3**	(9)	108.4	**145.7**	(6)	134.4
'Intensive' grazing system used													
– none	%	**14**	(68)	15	**5**	(95)	14	**10**	(73)	0	**10**	(39)	9
– small paddock	%	**50**	(28)	44	**32**	(20)	20	**17**	(48)	46	**31**	(16)	33
– strip grazing	%	**36**	(34)	39	**56**	(12)	56	**73**	(13)	47	**57**	(9)	51
– other system	%	**0**		2	**7**	(53)	10	**0**		7	**2**	(53)	7
Farmers assessing pasture for quantity and quality of available feed (1)	%	**49**	(32)	20	**85**	(6)	15	**91**	(5)	0	**76**	(6)	11
Farms feeding concentrates or grain	%	**67**	(20)	62	**74**	(7)	65	**73**	(12)	63	**79**	(4)	69
Quantity used – self mixed concentrates	t	**16.7**	(98)	0	**2.1**	(87)	1.3	**0**		0.1	**4.5**	(66)	0.5
– purchased concentrates	t	**25.5**	(55)	24.6	**37.2**	(20)	39.2	**18.9**	(56)	13.7	**28.2**	(18)	23.9
– grain	t	**40.8**	(39)	17.0	**57.5**	(18)	24.2	**38.6**	(30)	14.6	**47.2**	(12)	27.8
– by-products eg.brewers grain	t	**0**		0	**5.2**	(96)	1.3	**1.1**	ns	3.5	**2.4**	(73)	3.0
Primary reason for feeding concentrates grain etc													
– lift milk production	%	**36**	(44)	24	**39**	(16)	26	**24**	(59)	35	**35**	(17)	29
– performance feeding	%	**0**		0	**0**		7	**0**		5	**0**		4
– seasonal incentives	%	**2**	(79)	1	**1**	ns	0	**16**	(88)	0	**8**	(46)	2
– fill supply gaps	%	**29**	(39)	34	**20**	(25)	21	**30**	(45)	21	**31**	(18)	29
– zero grazing/other reasons	%	**0**		3	**14**	(31)	11	**3**	ns	2	**5**	(30)	5

(1) Includes visual assessment in 94

ns Not supplied; exceeds 99 per cent

Table 17 Fodder conservation, soil testing and drainage

Percentage of farms or average per farm

Victoria, by Region

		Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
		1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Total hay cut	t	**155.0**	(13)	129.5	**79.3**	(10)	106.4	**68.4**	(17)	100.5	**89.6**	(7)	111.6
Total silage cut	t	**57.3**	(49)	36.2	**22.7**	(52)	31.4	**76.5**	(31)	47.0	**54.1**	(20)	43.3
Purchased hay or silage	%	**26**	(59)	17	**73**	(8)	56	**41**	(40)	59	**47**	(13)	49
Reason cut or purchased hay or silage (1)													
– normal practice	%	**100**	(0)	100	**65**	(10)	97	**79**	(9)	97	**78**	(5)	96
– boost off-season production	%	**26**	(42)	55	**46**	(14)	67	**43**	(40)	51	**46**	(13)	59
– drought measure	%	**3**	ns	7	**13**	(29)	18	**22**	(41)	70	**15**	(25)	36
– for sale	%	**6**	ns	13	**4**	(57)	0	**0**		0	**4**	(58)	4
– pasture control measure	%	**77**	(18)	75	**29**	(21)	50	**58**	(29)	57	**50**	(13)	57
– other reason	%	**31**	(48)	27	**8**	(38)	13	**28**	(53)	19	**15**	(30)	19
Never had soil test	%	**42**	(37)	30	**43**	(15)	66	**5**	(92)	56	**29**	(17)	47
After soil test, changed fertiliser management	%	**21**	(66)	45	**30**	(21)	21	**66**	(14)	38	**45**	(12)	38
Routinely renovate pasture	%	**87**	(8)	68	**69**	(9)	57	**61**	(24)	28	**67**	(8)	54
Area pasture renovated or sown	ha	**5.7**	(27)	4.7	**10.3**	(26)	7.5	**4.6**	(33)	1.5	**6.7**	(15)	5.3
Farm drainage situation – fully drained natural	%	**12**	(60)	10	**14**	(34)	54	**73**	(13)	57	**39**	(12)	46
– fully drained with improvement	%	**63**	(18)	52	**72**	(9)	27	**19**	(35)	25	**41**	(9)	30
– requires drainage work	%	**25**	(44)	38	**14**	(37)	19	**8**	(85)	18	**20**	(24)	24
Farms with drainage improvement in last 3 years	%	**40**	(23)	33	**68**	(10)	41	**22**	(41)	20	**39**	(10)	29

(1) Since more than one reason may be given by farmers, figures may add to more than 100 percent

ns Not supplied; exceeds 99 per cent

Table 18 Herd breeding and health

Percentage of farms or average per farm

ABARE

Victoria, by Region			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
AI not used		%	**35**	(36)	13	**19**	(29)	20	**16**	(51)	37	**20**	(21)	28
Select AI bulls for	– production only (1)	%	**6**	(98)	45	**15**	(35)	24	**3**	(70)	26	**12**	(36)	30
	– type only (1)	%	**0**			**2**	(99)		**0**			**1**	(99)	2
	– price only	%	**0**		0	**0**		7	*	ns	0	**0**		
	– production, type and price	%	**59**	(23)	42	**64**	(10)	49	**81**	(10)	37	**67**	(8)	42
Cows calved	– to AI	no.	**78**	(16)	57	**79**	(8)	76	**44**	(16)	43	**68**	(6)	60
	– mated to dairy bulls	no.	**61**	(24)	52	**39**	(12)	34	**70**	(19)	55	**48**	(10)	45
	– mated to beef bulls	no.	**18**	(34)	25	**16**	(16)	26	**20**	(19)	29	**19**	(14)	30
Bred own replacements		%	**88**	(14)	90	**100**	(0)	86	**100**	(0)	93	**97**	(3)	90
Age at which heifers calve (2)		months	**22**	(13)	25	**24**	(1)	24	**25**	(3)	25	**24**	(3)	25
Herd health program devised by	– self	%	**93**	(6)	99	**86**	(5)	83	**99**	(1)	92	**91**	(2)	90
	– vet	%	**7**	(80)	1	**12**	(31)	12	**0**		7	**7**	(28)	8
	– other	%	**0**		0	**2**	(99)	5	**1**	ns	1	**2**	(64)	2
Defined mastitis control program used		%	**43**	(26)	40	**69**	(9)	72	**79**	(18)	18	**66**	(8)	43
Defined mastitis control program using	– cell count on individual cows	%	**26**	(43)	21	**58**	(12)	49	**53**	(32)	18	**47**	(13)	29
	– teat dipping/spraying	%	**43**	(26)	40	**55**	(12)	44	**73**	(20)	18	**59**	(10)	34
	– dry cow treatment	%	**43**	(26)	40	**66**	(10)	72	**79**	(18)	18	**64**	(9)	43
	– dry cows treated	no.	**65**	(27)	36	**56**	(13)	54	**88**	(16)	11	**64**	(9)	36
	– other control	%	**29**	(33)	20	**10**	(41)	0	**2**	(90)	13	**15**	(28)	9
Farms vaccinating for leptospirosis by stock type (3)	– heifers	%	**47**	(34)	39	**71**	(9)	64	**65**	(23)	60	**58**	(10)	55
	– milkers	%	**32**	(43)	28	**58**	(12)	74	**37**	(26)	60	**47**	(11)	54
	– dry cows	%	**17**	(45)	13	**55**	(12)	61	**53**	(32)	60	**45**	(13)	48
Cases per farm in dairy herd of	– grass tetany	no.	**1**	(37)	1	*	(43)	1	**1**	(29)	1	**1**	(20)	1
	– milk fever	no.	**16**	(23)	13	**16**	(11)	10	**6**	(15)	6	**11**	(9)	9
	– leptospirosis	no.	**0**		0	**0**		0	**0**		0	**0**		*
	– clinical mastitis	no.	**11**	(28)	10	**8**	(10)	8	**10**	(22)	7	**9**	(9)	8
	– bloat	no.	**1**	(47)	15	**5**	(42)	5	**3**	(46)	1	**3**	(29)	6
	– abortion	no.	**1**	(43)	1	**2**	(13)	2	**2**	(30)	1	**1**	(12)	1

(1) Production and type combined in one category in 1992

(2) Average for those farms where breed own replacement heifers

(3) As more than one stock type may be vaccinated at one time, figures may add to more than 100 per cent

* Percentage less than 0.5. ns Not supplied 99 per cent

Table 19 Milking shed, bulk vat and equipment

Percent of farms

Victoria, by Region

			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Type of milking shed (1)	– walk through single	%	0		0	6	(66)	0	6	ns	9	3	(57)	2
	– walk through double	%	0		0	5	(77)	0	4	ns	20	10	(37)	5
	– herringbone swingover	%	89	(8)	72	53	(13)	38	55	(23)	41	54	(9)	49
	– herringbone double high	%	4	ns	11	19	(28)	42	30	(44)	16	20	(24)	26
	– herringbone double low	%	8	(96)	12	15	(33)	18	2	(98)	9	9	(31)	15
	– rotary	%	7	(84)	14	2	(47)	2	9	(46)	8	4	(31)	5
Milk cooled prior to bulk vat		%	100	(0)	91	73	(7)	73	78	(19)	61	77	(7)	72
Vat capacity (1)	– under 1500 litres	%	11	(75)	35	35	(19)	49	10	(72)	57	24	(19)	50
	– 1500 and under 2500 litres	%	77	(12)	76	58	(11)	31	66	(20)	51	62	(9)	48
	– 2500 and under 4500 litres	%	12	(60)	14	24	(23)	31	32	(41)	12	26	(18)	23
	– 4500 litres and over	%	22	(42)	2	4	(35)	5	4	(46)	3	9	(32)	3
Automatic cup removers used		%	3	ns	6	16	(28)	23	3	ns	4	10	(26)	13
Performance testing of milking machines														
	– none	%	12	(97)	10	12	(42)	39	3	ns	14	7	(40)	23
	– annual	%	55	(26)	86	72	(9)	44	89	(8)	42	74	(6)	54
	– biennial	%	33	(46)	4	16	(30)	17	8	(80)	44	19	(25)	23
Third line machine washing	– none	%	16	(59)	33	32	(20)	42	18	(73)	14	28	(19)	32
	– manual	%	72	(20)	59	54	(12)	26	65	(23)	81	59	(10)	51
	– fully automatic	%	12	(94)	8	14	(31)	32	17	(48)	8	13	(25)	17
Effluent disposal (1)	– run off into paddock	%	66	(17)	47	21	(27)	34	33	(50)	65	35	(17)	46
	– pump and spray	%	2	ns	33	16	(29)	8	12	(64)	11	12	(26)	16
	– one pond system	%	11	(76)	17	49	(14)	51	35	(46)	14	36	(17)	28
	– two pond system	%	24	(45)	11	10	(32)	0	21	(43)	10	15	(22)	7
	– mechanical removal	%	0		0	3	(83)	0	0		0	1	(63)	1
	– other	%	0		0	4	(97)	7	2	(98)	0	1	(77)	2
Motorised or rolling yard backup gate used		%	49	(16)	59	52	(13)	50	37	(44)	15	47	(13)	39

(1) Percentages may sum to more than100 as some farms had more than one dairy or bulk vat

ns Not supplied; exceeds 99 per cent

Table 20 Milking shed productivity and numbers of cows milked

Percentage of farms or average per farm

Victoria, by Region

			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked per hour (1)	– walkthrough	c/hr	**0**		0	**34**	(22)	0	**55**	(11)	41	**36**	(23)	42
	– herringbone	c/hr	**68**	(8)	54	**60**	(5)	56	**54**	(8)	58	**60**	(4)	58
	– rotary	c/hr	**114**	(22)	152	**182**	(16)	143	**90**	(19)	102	**121**	(15)	127
Cows milked per operator (1)	– walkthrough	no.	**0**		0	**40**	(22)	0	**80**	(23)	80	**55**	(22)	80
	– herringbone	no.	**85**	(8)	80	**85**	(5)	70	**84**	(12)	76	**84**	(4)	74
	– rotary	no.	**104**	(24)	123	**177**	(25)	141	**129**	(18)	167	**137**	(13)	139
Cows milked for at least 3 months in 93-94		no.	**156**	(4)		**133**	(4)		**140**	(4)		**133**	(3)	
Cows milked for at least 3 months in 94-95		no.	**164**	(6)		**135**	(5)		**151**	(5)		**139**	(3)	
Farms with a 5 yr plan		%	**61**	(26)		**46**	(13)		**59**	(28)		**48**	(13)	
If 5 yr plan exists, no. of cows milked for at least 3 months in 93-94		no.	**147**	(7)		**143**	(4)		**145**	(6)		**143**	(4)	
If 5 yr plan exists, number of cows milked in 5 yrs		no.	**196**	(15)		**196**	(7)		**172**	(12)		**182**	(6)	

(1) Includes cleanup time etc

Table 21 Management advice and herd management

Percentage of farms or average per farm

Victoria, by Region

			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
No of times obtained advice from	– dairy company	no.	1	(85)	38	2	(31)	39	3	(48)	25	2	(24)	35
	– ptiv consultant	no.	1	(51)	17	1	(34)	21	1	(76)	1	1	(29)	11
	– agriculture dept	no.	0		48	1	(20)	47	0		18	1	(18)	39
	– fert/chem co rep	no.	1	(35)	56	1	(19)	39	1	(27)	7	1	(14)	31
	– other sources	no.	1	(51)	45	1	(32)	22	0		27	0		29
Total no. of times farmers obtained advice														
Participated in discussion groups	– never	%	66	(17)	59	62	(8)	59	48	(31)	73	58	(9)	60
	– before 1980	%	2	(75)	14	8	(36)	14	1	ns	18	9	(29)	17
	– 1980 onwards	%	32	(35)	27	30	(17)	27	51	(29)	9	33	(15)	23
Number of times farmers attended discussion groups		no.	2	(46)	4	2	(19)	10	5	(31)	3	3	(15)	6
Number of farmers attending discusson groups		no.	386	(35)	687	749	(17)	985	994	(29)	440	2927	(14)	2773
Farmers considered advice helped farm profit		%	36	(31)	60	45	(15)	56	63	(22)	46	53	(11)	53
Farmers using computers		%	20	(70)	23	20	(24)	19	4	(48)	1	16	(24)	17
Computer used for (1)														
	– breeding records	%	19	(72)	10	16	(29)	18	3	(57)	0	14	(27)	17
	– milk production records	%	19	(72)	10	16	(29)	15	3	(57)	0	13	(29)	15
	– pasture/crop/irrigation records	%	0		0	4	(52)	5	0		0	2	(49)	2
	– budgeting/financial etc.	%	*	ns	12	13	(30)	14	4	(48)	1	10	(29)	17
	– microchip tags for livestock	%	0		0	0		0	0		0	0		0
	– other uses	%	0		0	0		1	0		0	0		*
Farms not herd recording		%	48	(31)	38	25	(24)	34	33	(45)	52	37	(16)	44
Year commenced herd recording	– before 1980	%	3	ns	0	33	(20)	37	10	(51)	20	24	(19)	23
	– 1980 to 1989 and 1989	%	35	(45)	63	32	(20)	23	51	(29)	27	31	(16)	26
	– 1990 onwards	%	14	(70)	5	10	(39)	6	7	(98)	8	8	(33)	8

(1) Since a computer may be used for more than one purpose, figyres may add to more than the percentage of farmers using computers

* Percentage less than 0.5.

ns Not supplied; exceeds 99 per cent.

Table 22 Dairy farms wanting to change technologies or practices

Percent of farms

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Would like to change	– dairy shed	%	**39**	(21)	40	**38**	(15)	41	**34**	(30)	34	**26**	(20)	52
	– dairy equipment	%	**32**	(25)	26	**29**	(20)	32	**25**	(42)	20	**24**	(25)	51
	– feeding concentrates etc.	%	**9**	(30)	19	**31**	(19)	24	**6**	(43)	19	**32**	(21)	33
	– intensive grazing management	%	**7**	(37)	11	**22**	(23)	15	**15**	(63)	8	**27**	(26)	29
	– fodder conservation	%	**12**	(25)	27	**15**	(30)	8	**42**	(25)	20	**26**	(27)	22
	– soil testing	%	**13**	(40)	9	**22**	(19)	13	**4**	(66)	10	**27**	(26)	43
	– pasture renovation/resow	%	**9**	(30)	8	**18**	(25)	23	**22**	(45)	17	**21**	(33)	46
	– increasing fertiliser usage	%	**20**	(25)	32	**42**	(14)	25	**22**	(36)	18	**33**	(19)	44
	– drainage	%	**9**	(31)	12	**26**	(18)	22	**21**	(43)	8	**23**	(28)	26
	– management advice	%	**6**	(38)	8	**7**	(37)	9	**11**	(69)	4	**9**	(60)	17
	– farm computer	%	**18**	(30)	28	**32**	(17)	28	**33**	(34)	21	**46**	(18)	56
	– herd breeding	%	**5**	(51)	11	**10**	(33)	15	**5**	(63)	16	**19**	(33)	17
	– herd health	%	**6**	(49)	5	**13**	(34)	11	**3**	(79)	2	**14**	(37)	20

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Would like to change	– dairy shed	%	**51**	(19)	35	**45**	(27)	32	**38**	(10)	39
	– dairy equipment	%	**22**	(30)	44	**22**	(50)	12	**28**	(14)	30
	– feeding concentrates etc.	%	**28**	(35)	28	**38**	(32)	17	**25**	(14)	23
	– intensive grazing management	%	**14**	(47)	16	**3**	ns	5	**17**	(18)	13
	– fodder conservation	%	**17**	(37)	11	**21**	(51)	15	**19**	(16)	14
	– soil testing	%	**20**	(41)	23	**21**	(49)	20	**18**	(14)	14
	– pasture renovation/resow	%	**23**	(36)	33	**15**	(40)	17	**18**	(17)	21
	– increasing fertiliser usage	%	**29**	(32)	52	**30**	(40)	49	**34**	(11)	29
	– drainage	%	**20**	(41)	22	**25**	(26)	29	**22**	(13)	19
	– management advice	%	**11**	(57)	14	**3**	(91)	9	**7**	(25)	9
	– farm computer	%	**19**	(31)	29	**42**	(29)	49	**30**	(12)	29
	– herd breeding	%	**13**	(54)	29	**8**	(42)	14	**9**	(23)	15
	– herd health	%	**2**	ns	7	**2**	(98)	8	**10**	(27)	9

ns Not supplied; exceeds 99 per cent.

Table 23 Factors limiting ability to change dairy shed, dairy equipment and use of more fertiliser and computers

ABARE

Percent of farms

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Dairy shed	– cost prohibitive	%	**26**	(27)	25	**18**	(25)	30	**12**	(60)	14	**18**	(21)	15
- would like	– time unavailable	%	**6**	(46)	1	**2**	ns	4	**0**		0	**2**	(96)	0
to change but	– labour unavail/cost	%	**1**	ns	0	**6**	(59)	1	**1**	(91)	3	**1**	(98)	0
	– viability farm/indust	%	**0**		2	**1**	(70)	1	**3**	(79)	8	**0**		6
	– age factor	%	**4**	(91)	3	**0**		2	**0**		0	**3**	ns	10
	– other factors	%	**2**	(83)	9	**11**	(32)	3	**18**	(57)	9	**2**	(67)	21
Dairy machines	– cost prohibitive	%	**22**	(31)	20	**15**	(31)	26	**8**	(54)	4	**4**	(67)	24
- would like	– time unavailable	%	**2**	ns	0	**0**		3	**0**		0	**4**	(66)	0
to change but	– labour unavail/cost	%	**1**	ns	0	**3**	(62)	0	**1**	(91)	0	**1**	(99)	0
	– viability farm/cost	%	**0**		0	**1**	(70)	1	**1**	ns	0	**4**	(98)	6
	– age factor	%	**4**	(91)	0	**0**		0	**0**		0	**3**	ns	4
	– other factors	%	**3**	(68)	6	**10**	(35)	2	**15**	(63)	16	**8**	(48)	17
Increase fert. use	– cost prohibitive	%	**18**	(27)	24	**17**	(28)	21	**0**		2	**16**	(32)	29
- would like	– time unavailable	%	**0**		0	**1**	(98)	1	**0**		0	**0**		0
to change but	– labour unavail/cost	%	**0**		0	**3**	(58)	1	**0**		0	**1**	(99)	0
	– viability farm/indust	%	**0**		2	**1**	(67)	0	**0**		0	**8**	(60)	0
	– age factor	%	**0**		0	**0**		0	**1**	ns	0	**0**		0
	– other factors	%	**2**	(76)	6	**20**	(20)	2	**21**	(37)	16	**8**	(41)	15
Farm computer	– cost prohibitive	%	**7**	(59)	10	**5**	(31)	16	**13**	(63)	8	**18**	(34)	12
- would like	– time unavailable	%	**3**	(57)	6	**11**	(38)	4	**5**	ns	2	**8**	(47)	8
to change but	– labour unavail/cost	%	**0**		0	**2**	(65)	1	**4**	(67)	3	**0**		0
	– viability farm/indust	%	**0**		0	**0**		0	**0**		0	**2**	(94)	0
	– age factor	%	**5**	(46)	2	**2**	(67)	3	**1**	ns	4	**2**	(98)	3
	– other factors	%	**3**	(59)	10	**12**	(27)	4	**10**	(62)	4	**16**	(37)	33

ns Not supplied; exceeds 99 per cent

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Dairy shed	– cost prohibitive	%	**39**	(26)	23	**37**	(31)	17	**21**	(15)	25
- would like	– time unavailable	%	**4**	ns	0	**0**		0	**2**	(52)	3
to change but	– labour unavail/cost	%	**0**		0	**1**	ns	1	**4**	(54)	1
	– viability farm/indust	%	**3**	ns	3	**2**	ns	3	**2**	(44)	2
	– age factor	%	**0**		7	**5**	(73)	9	**1**	(58)	3
	– other factors	%	**5**	(52)	2	**0**		2	**8**	(26)	5
Dairy machines	– cost prohibitive	%	**13**	(40)	33	**22**	(50)	8	**15**	(20)	21
- would like	– time unavailable	%	**0**		0	**0**		0	**0**		2
to change but	–labour unavail/cost	%	**0**		0	**0**		0	**2**	(54)	0
	– viability farm/cost	%	**0**		0	**0**		4	**1**	(55)	1
	– age factor	%	**0**		7	**0**		0	**1**	(78)	1
	– other factors	%	**9**	(49)	4	**0**		0	**9**	(26)	5
Increase fert. use	– cost prohibitive	%	**20**	(40)	42	**28**	(42)	48	**16**	(19)	22
- would like	– time unavailable	%	**0**		0	**0**		0	**0**		1
to change but	– labour unavail/cost	%	**0**		0	**0**		0	**2**	(57)	1
	– viability farm/indust	%	**0**		0	**1**	(82)	1	**1**	(42)	0
	– age factor	%	**0**		7	**0**		0	**0**		0
	– other factors	%	**9**	(53)	3	**1**		0	**15**	(16)	5
Farm computer	– cost prohibitive	%	**4**	(79)	13	**19**	(57)	30	**7**	(22)	14
- would like	– time unavailable	%	**6**	(46)	1	**11**	(48)	7	**8**	(29)	4
to change but	– labour unavail/cost	%	**0**		0	**0**		1	**2**	(49)	1
	– viability farm/indust	%	**0**		0	**0**		0	**0**		0
	– age factor	%	**0**		7	**0**		5	**2**	(43)	4
	– other factors	%	**9**	(47)	8	**12**	(59)	6	**11**	(20)	6

ns Not supplied; exceeds 99 per cent

Table 24 Productivity /efficiency ratios

ABARE

Average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked (1)	– per hectare used by milking herd	no.	**1.2**	(8)	1.1	**1.6**	(5)	1.5	**0.8**	(9)	0.8	**0.8**	(13)	0.8
	– per labour unit (2)	no.	**45**	(5)	43	**63**	(3)	59	**37**	(7)	32	**51**	(5)	49
Litres produced	– per hectare (av. area operated)	l	**2328**	(10)	1801	**3863**	(6)	3519	**1556**	(17)	1366	**2031**	(10)	1823
	– per hectare used by milkers	l	**5116**	(9)	4362	**6764**	(6)	5596	**3891**	(11)	3079	**4591**	(12)	3793
	– per cow (1)	l	**4347**	(3)	3881	**4317**	(2)	3734	**4758**	(6)	3788	**5422**	(3)	5046
	– per week of farm labour	l	**3721**	(5)	3182	**5217**	(4)	4263	**3366**	(8)	2307	**5288**	(5)	4721
Total butterfat	– per hectare used by milking herd	kg	**203**	(9)	173	**294**	(6)	248	**156**	(11)	122	**179**	(12)	148
	– per cow (1)	kg	**173**	(3)	154	**187**	(2)	165	**190**	(6)	150	**212**	(3)	196
	– per week of farm labour	kg	**148**	(5)	126	**226**	(4)	188	**135**	(8)	91	**206**	(5)	184
Total protein	– per hectare used by milking herd	kg	**165**	(9)	143	**223**	(6)	188	*** 123**	(12)	* 125	**147**	(12)	122
	– per cow (1)	kg	**140**	(3)	127	**142**	(2)	125	*** 156**	(8)	* 100	**174**	(3)	162
	– per week of farm labour	kg	**120**	(5)	104	**172**	(4)	143	*** 115**	(9)	* 61	**170**	(5)	151
Milk receipts	– per hectare used by milking herd	$	**1920**	(9)	1506	**1957**	(6)	1392	**1435**	(11)	1083	**1566**	(12)	1185
	– per cow (1)	$	**1631**	(3)	1341	**1249**	(2)	929	**1755**	(5)	1332	**1849**	(3)	1576
	– per week of farm labour	$	**1397**	(5)	1097	**1510**	(4)	1059	**1242**	(7)	811	**1803**	(5)	1474
Total cash receipts	– per hectare operated	$	**950**	(9)	724	**1199**	(6)	1069	**653**	(16)	581	**832**	(9)	765

(1) Cows milked based on cooperator's estimate of the number of cows milked for 3 months or more

(2) Average number of cows milked per full time labour unit or equivilent

* Excluding some properties as not all Queensland dairy factories provide protein data

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked (1)	– per hectare used by milking herd	no.	**0.9**	(12)	0.9	**1.4**	(8)	1.2	**1.3**	(3)	1.2
	– per labour unit (2)	no.	**48**	(6)	39	**56**	(8)	48	**55**	(2)	50
Litres produced	– per hectare (av. area operated)	l	**2134**	(12)	2163	**3758**	(10)	2925	**2927**	(5)	2555
	– per hectare used by milkers	l	**4348**	(14)	4257	**6454**	(11)	5147	**5780**	(4)	4807
	– per cow (1)	l	**4961**	(4)	4884	**4549**	(5)	4297	**4449**	(2)	3889
	– per week of farm labour	l	**4565**	(7)	3666	**4937**	(8)	3995	**4666**	(3)	3744
Total butterfat	– per hectare used by milking herd	kg	**178**	(14)	181	**282**	(11)	223	**244**	(4)	206
	– per cow (1)	kg	**203**	(4)	207	**199**	(4)	186	**188**	(1)	166
	– per week of farm labour	kg	**186**	(7)	155	**216**	(8)	173	**197**	(2)	160
Total protein	– per hectare used by milking herd	kg	**138**	(14)	140	**216**	(11)	168	*** 191**	(4)	* 173
	– per cow (1)	kg	**158**	(4)	160	**152**	(5)	140	*** 146**	(2)	* 133
	– per week of farm labour	kg	**145**	(7)	120	**165**	(7)	130	*** 155**	(3)	* 135
Milk receipts	– per hectare used by milking herd	$	**1294**	(14)	1215	**1609**	(11)	1082	**1785**	(4)	1322
	– per cow (1)	$	**1477**	(4)	1394	**1134**	(5)	903	**1374**	(1)	1070
	– per week of farm labour	$	**1359**	(7)	1046	**1231**	(8)	839	**1441**	(3)	1029
Total cash receipts	– per hectare operated	$	**732**	(11)	722	**1158**	(9)	869	**995**	(4)	859

(1) Cows milked based on cooperator's estimate of the number of cows milked for 3 months or more

(2) Average number of cows milked per full time labour unit or equivilent

* Excluding some properties as not all Queensland dairy factories provide protein data

Table 25 Productivity /efficiency ratios

New South Wales, by region

Average per farm

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked (1)	– per hectare used by milking herd	no.	**1.2**	(15)	1.5	**1.1**	(11)	1.1	**1.3**	(10)	0.6	**1.2**	(8)	1.1
	– per labour unit (2)	no.	**38**	(9)	38	**49**	(7)	45	**49**	(6)	47	**45**	(5)	43
Litres produced	– *per hectare (av. area operated)*	l	**2510**	(21)	1651	**2135**	(13)	1949	**2860**	(9)	1560	**2328**	(10)	1801
	– per hectare used by milkers	l	**4722**	(20)	5092	**5219**	(11)	4687	**5613**	(12)	2460	**5116**	(9)	4362
	– per cow (1)	l	**3829**	(7)	3328	**4667**	(4)	4211	**4404**	(4)	4060	**4347**	(3)	3881
	– per week of farm labour	l	**2814**	(9)	2435	**4354**	(7)	3682	**4118**	(7)	3642	**3721**	(5)	3182
Total butterfat	– per hectare used by milking herd	kg	**183**	(19)	206	**207**	(11)	184	**235**	(12)	99	**203**	(9)	173
	– per cow (1)	kg	**149**	(6)	135	**185**	(4)	165	**184**	(4)	163	**173**	(3)	154
	– per week of farm labour	kg	**109**	(9)	99	**173**	(7)	144	**172**	(8)	146	**148**	(5)	126
Total protein	– per hectare used by milking herd	kg	**150**	(20)	167	**168**	(11)	154	**185**	(12)	80	**165**	(9)	143
	– per cow (1)	kg	**122**	(7)	109	**150**	(4)	139	**145**	(4)	132	**140**	(3)	127
	– per week of farm labour	kg	**90**	(9)	80	**140**	(7)	121	**136**	(7)	119	**120**	(5)	104
Milk receipts	– per hectare used by milking herd	$	**1706**	(20)	1709	**2020**	(11)	1664	**2020**	(12)	787	**1920**	(9)	1506
	– per cow (1)	$	**1383**	(7)	1117	**1807**	(4)	1495	**1585**	(4)	1299	**1631**	(3)	1341
	– per week of farm labour	$	**1017**	(9)	817	**1685**	(7)	1303	**1482**	(7)	1166	**1397**	(5)	1097
Total cash receipts	- per hectare operated	$	**959**	(21)	653	**920**	(12)	795	**1071**	(7)	604	**950**	(9)	724

(1) Cows milked based on cooperator's estimate of the number of cows milked for 3 months or more

(2) Average number of cows milked per full time labour unit or equivilent

Table 26 Productivity /efficiency ratios

Victoria, by region

Average per farm

			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Cows milked (1)	– per hectare used by milking herd	no.	**1.3**	(10)	1.3	**2.0**	(7)	2.0	**1.5**	(8)	1.3	**1.6**	(5)	1.5
	– per labour unit (2)	no.	**77**	(8)	73	**61**	(4)	53	**65**	(8)	64	**63**	(3)	59
Litres produced	– per hectare (av. area operated)	l	**3299**	(13)	2685	**4628**	(10)	4554	**4611**	(11)	3899	**3863**	(6)	3519
	– per hectare used by milkers	l	**5127**	(14)	4148	**9349**	(8)	8232	**6257**	(9)	4768	**6764**	(6)	5596
	– per cow (1)	l	**3849**	(8)	3118	**4696**	(2)	4065	**4209**	(5)	3694	**4317**	(2)	3734
	– per week of farm labour	l	**5709**	(10)	4357	**5504**	(5)	4163	**5230**	(10)	4507	**5217**	(4)	4263
Total butterfat	– per hectare used by milking herd	kg	**226**	(12)	194	**398**	(8)	358	**274**	(9)	208	**294**	(6)	248
	– per cow (1)	kg	**169**	(6)	146	**200**	(2)	177	**184**	(4)	161	**187**	(2)	165
	– per week of farm labour	kg	**251**	(9)	203	**234**	(4)	181	**229**	(9)	196	**226**	(4)	188
Total protein	– per hectare used by milking herd	kg	**172**	(14)	150	**305**	(8)	270	**207**	(9)	157	**223**	(6)	188
	– per cow (1)	kg	**129**	(7)	112	**153**	(2)	133	**139**	(4)	122	**142**	(2)	125
	– per week of farm labour	kg	**191**	(10)	157	**180**	(4)	136	**173**	(9)	148	**172**	(4)	143
Milk receipts	– per hectare used by milking herd	$	**1504**	(14)	1068	**2688**	(8)	2022	**1745**	(10)	1161	**1957**	(6)	1392
	– per cow (1)	$	**1129**	(7)	803	**1350**	(2)	999	**1174**	(4)	899	**1249**	(2)	929
	– per week of farm labour	$	**1674**	(10)	1121	**1582**	(4)	1021	**1459**	(9)	1097	**1510**	(4)	1059
Total cash receipts	– per hectare operated	$	**1021**	(11)	844	**1372**	(10)	1285	**1467**	(10)	1237	**1199**	(6)	1069

(1) Cows milked based on cooperator's estimate of the number of cows milked for 3 months or more

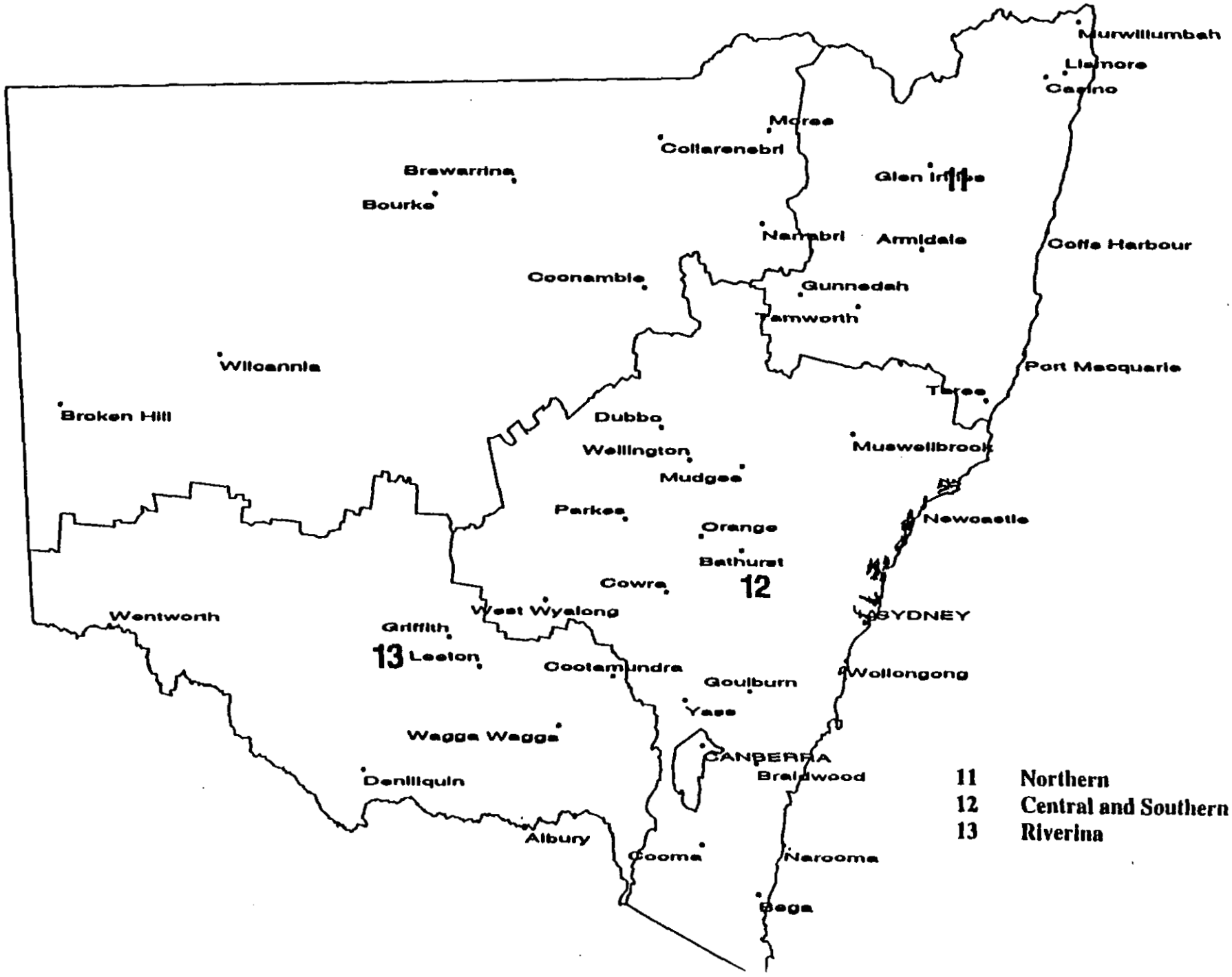
(2) Average number of cows milked per full time labour unit or equivilent

(3) The Victorian population and sample of 7619 And 134 respectively included farms in other areas such as the Macallister Irrigation Area and NE Victoria which are not covered by the three regions shown

Australia's dairy industry regions

ADIS regions in New South Wales

For Local Government Areas in each region, see over



New South Wales Local Government Areas By Region

Region 1

Bellingen	Byron	Coffs Harbour
Dumaresq	Greater Taree	Hastings
Kempsey	Kyogle	Lismore
Nambucca	Richmond River	Tweed
Uralla		

Region 2

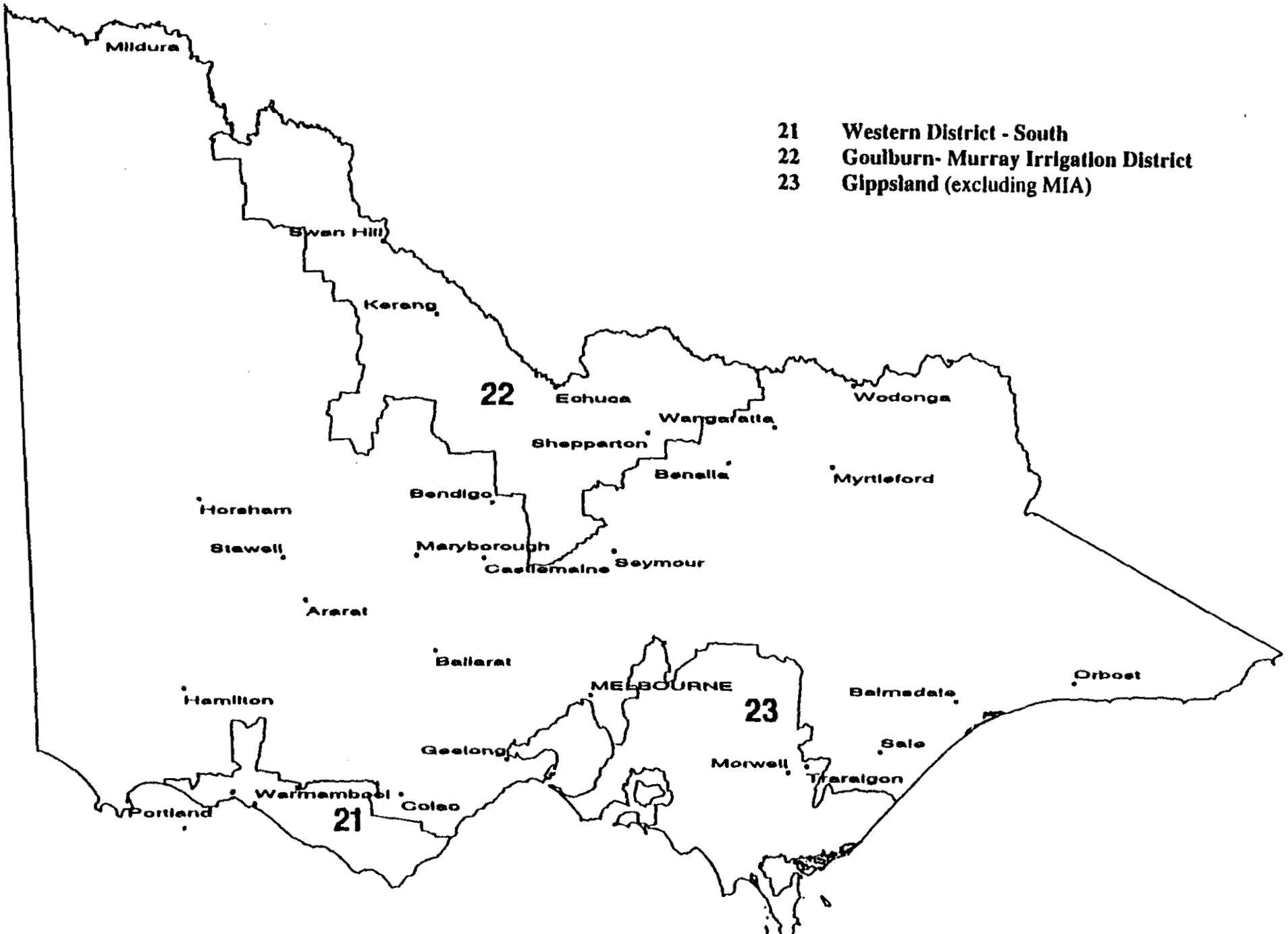
Baulkham Hills	Bega Valley	Camden
Dungog	Eurobodalla	Gloucester
Great Lakes	Kiama	Liverpool
Maitland	Muswellbrook	Orange
Parry	Penrith	Port Stephens
Scone	Shoalhaven	Singleton
Wingecarribee	Wollondilly	Wyong

Region 3

Berrigan	Conargo	Hume
Jerilderie	Leeton	Tumbarumba
Tumut	Wagga Wagga	Wakool

ADIS regions in Victoria

For Local Government Areas in each region, see over



ADIS Victoria Local Government Areas By Region

Region 21 - Western

Belfast	Heytesbury	Otway
Warrnambool		

Region 22 - Northern

Cobram	Cohuna	Deakin
East Loddon	Gordon	Kerang
Kyabram	Nathalia	Numurkah
Rochester	Rodney	Shepparton
Swan Hill	Tungamah	Waranga

Region 23 Gippsland

Alberton	Bass	Buln Buln
Cranbourne	Flinders	Korumburra
Mirboo	Narracan	Packenham
South Gippsland	Traralgon	Upper Yarra
Warragul	Woorayl	

Other Local Government Area's not included above

Avon	Ballarat	Beechworth
Bellarine	Benalla	Buninyong
Colac	Hampden	Heywood
Maffra	Mortlake	Newstead
Orbost	Oxley	Rosedale
Strathfieldsaye	Tallangatta	Winchelsea
Yackandandah	Yea	

Dairy industry Receipts and costs, by state Average per farm

	Unit	New South Wales		Victoria		Queensland		Western Australia	
		1992-93 e	1993-94 p	1992-93 e	1993-94 p	1992-93 e	1993-94 p	1992-93 e	1993-94 p
Estimated population	no.	1 965	1 998	7 672	7 825	1 840	1 862	514	512
Cash receipts									
Total milk receipts a	$	166 593	173 180 (5)	147 973	152 200 (3)	135 486	144 960 (7)	194 293	199 020 (5)
Sales – dairy cattle	$	12 698	12 990 (4)	11 378	12 750 (8)	9 127	11 600 (15)	21 253	21 410 (8)
– beef cattle	$	7 120	9 090 (33)	6 648	8 950 (24)	3 987	5 730 (25)	33 231	34 640 (14)
– sheep	$	182	60 (ns)	64	170 (71)	0	0 (0)	1 087	1 100 (77)
– wool	$	121	110 (ns)	29	90 (66)	0	0 (0)	511	1 890 (83)
– crops	$	1 444	2 000 (36)	727	880 (38)	996	2 260 (52)	1 218	1 280 (37)
Off-farm contracts	$	705	1 180 (36)	1 118	1 250 (42)	335	1 000 (47)	1 510	1 640 (35)
Other cash receipts	$	4 369	4 630 (17)	2 651	2 500 (12)	5 903	5 760 (32)	3 325	3 990 (20)
Total cash receipts	$	193 232	203 220 (5)	170 587	178 790 (3)	155 834	171 300 (7)	256 428	264 970 (4)
Cash costs									
Purchases – dairy cattle	$	3 348	3 620 (26)	4 486	4 430 (18)	5 955	4 510 (34)	1 375	4 840 (25)
– beef cattle	$	1 973	1 660 (84)	1 859	2 830 (57)	501	270 (72)	6 000	3 880 (29)
Hired labour	$	6 101	7 610 (19)	3 552	3 660 (19)	3 420	2 700 (28)	7 788	7 480 (14)
Fertiliser	$	5 669	7 400 (15)	7 178	7 720 (7)	5 623	5 850 (21)	16 200	17 080 (7)
Fodder	$	32 097	32 720 (7)	13 471	16 280 (7)	40 855	41 340 (12)	30 726	32 430 (7)
Crop and pasture chemicals	$	715	700 (21)	420	610 (21)	403	710 (27)	553	860 (18)
Fuel, oil and grease	$	5 681	5 670 (10)	4 750	5 020 (6)	5 834	5 880 (12)	7 552	6 980 (7)
Repairs and maintenance	$	12 228	12 030 (9)	13 071	12 730 (6)	10 363	11 130 (12)	18 146	17 500 (7)
Electricity	$	5 878	5 480 (8)	3 344	3 620 (6)	5 249	4 600 (10)	4 818	4 180 (6)
Dairy supplies	$	2 414	3 490 (16)	3 428	3 070 (10)	954	970 (20)	2 292	2 620 (15)
Livestock materials	$	2 993	2 490 (10)	2 530	2 630 (9)	2 896	3 130 (21)	4 966	4 870 (13)
Other materials	$	4 337	4 330 (12)	3 651	4 090 (10)	2 515	2 780 (14)	2 787	3 200 (14)
Contracts	$	1 558	1 460 (23)	2 221	2 070 (15)	875	1 310 (25)	1 977	2 430 (18)
Rates	$	3 718	3 070 (9)	5 506	5 950 (6)	1 984	2 000 (10)	8 189	8 240 (12)
Milk levies	$	10 022	10 510 (5)	11 853	14 180 (4)	9 121	9 790 (8)	13 496	13 810 (5)
Other services	$	15 446	15 820 (11)	14 383	14 100 (5)	12 348	14 080 (13)	23 433	24 350 (6)
Interest	$	8 339	8 870 (20)	13 719	11 710 (9)	13 477	11 120 (20)	22 427	17 730 (11)
Rent	$	5 107	3 330 (32)	2 568	2 910 (16)	1 111	420 (51)	1 642	3 070 (32)
Payment to sharefarmers	$	2 908	1 960 (48)	6 296	8 550 (26)	651	310 (97)	492	550 (66)
Other cash costs	$	71	190 (71)	112	240 (67)	115	150 (ns)	1 823	1 890 (57)
Total cash costs	$	130 604	132 410 (7)	118 396	126 400 (4)	124 250	123 050 (8)	176 683	177 970 (5)

Extract from **Farm Surveys Report 1995**

	Unit	South Australia 1992-93 e	South Australia 1993-94 p	Tasmania 1992-93 e	Tasmania 1993-94 p	Northern Territory 1992-93 e	Northern Territory 1993-94 p	Australia 1992-93 e	Australia 1993-94 p
Estimated population	no.	849	852	767	779			13 607	13 828
Cash receipts									
Total milk receipts a	$	147 156	147 190 (6)	133 221	147 820 (7)	*Few or no farms in this industry*		149 841	155 440 (2)
Sales – dairy cattle	$	11 703	12 920 (9)	13 059	15 340 (17)			11 752	13 110 (5)
– beef cattle	$	4 347	4 980 (25)	10 144	10 300 (34)			7 414	9 320 (15)
– sheep	$	1 751	280 (53)	2 317	580 (58)			343	200 (40)
– wool	$	436	470 (56)	679	290 (58)			118	180 (41)
– crops	$	1 861	1 130 (45)	9 707	4 370 (51)			1 462	1 450 (21)
Off-farm contracts	$	797	970 (58)	665	330 (47)			922	1 150 (27)
Other cash receipts	$	3 617	2 690 (20)	2 624	3 830 (28)			3 423	3 390 (10)
Total cash receipts	$	171 669	170 620 (6)	172 416	182 860 (7)			175 276	184 230 (2)
Cash costs									
Purchases – dairy cattle	$	1 542	1 530 (28)	2 691	3 390 (40)			4 118	4 100 (13)
– beef cattle	$	111	510 (52)	2 019	2 630 (94)			1 748	2 200 (43)
Hired labour	$	4 050	4 780 (26)	5 374	7 470 (28)			4 196	4 530 (11)
Fertiliser	$	5 502	6 820 (13)	11 223	13 320 (12)			7 214	8 030 (5)
Fodder	$	20 233	24 880 (15)	10 612	9 680 (27)			20 776	22 790 (4)
Crop and pasture chemicals	$	900	1 010 (15)	853	740 (26)			519	680 (12)
Fuel, oil and grease	$	6 340	5 910 (9)	4 383	5 200 (10)			5 216	5 370 (4)
Repairs and maintenance	$	14 094	12 360 (9)	13 046	11 670 (9)			12 837	12 510 (4)
Electricity	$	4 478	4 950 (10)	4 073	4 290 (14)			4 135	4 160 (4)
Dairy supplies	$	2 055	2 380 (28)	2 706	3 070 (37)			2 778	2 790 (8)
Livestock materials	$	2 955	2 660 (14)	2 633	3 600 (11)			2 770	2 820 (6)
Other materials	$	2 359	2 640 (17)	4 083	4 110 (24)			3 507	3 830 (7)
Contracts	$	1 445	1 370 (20)	4 680	5 300 (23)			2 024	2 030 (10)
Rates	$	4 056	4 040 (17)	1 893	1 960 (11)			4 579	4 750 (4)
Milk levies	$	11 029	10 960 (6)	11 318	12 410 (8)			11 199	12 750 (2)
Other services	$	13 449	14 050 (8)	11 413	11 920 (9)			14 378	14 600 (4)
Interest	$	9 968	9 270 (18)	6 892	9 150 (16)			12 619	11 150 (7)
Rent	$	1 540	640 (77)	4 314	2 450 (35)			2 737	2 480 (13)
Payment to sharefarmers	$	9 761	7 940 (36)	2 248	3 600 (54)			4 812	5 870 (22)
Other cash costs	$	248	150 (54)	779	510 (59)			217	290 (36)
Total cash costs	$	116 113	118 860 (7)	107 234	116 490 (8)			122 381	127 700 (3)

a To put all states on a comparable basis, total milk receipts are shown net of milk freight, and freight costs are excluded from cash costs. e Final estimates. p Preliminary estimates. ns Not supplied; exceeds 99 per cent.

Note: Figures in parentheses are relative standard errors, expressed as percentages of the estimates. A guide to interpreting these is included in 'Survey methods and definitions', as are explanations of other items. Note that year to year changes in both sample and population affect the comparability of estimates between years.

Dairy Industry Receipts and costs 1993-94 *

ABARE

Average per farm

		New South Wales, by Region						Victoria, by Region					
		Northern (region 11)		Central/Southern (region 12)		Riverina (region 13)		Western-south (region 21)		GMID (region 22)		Gippsland (region 23)	
Cash receipts													
Total milk receipts (a)	$	120309	(7)	210069	(8)	207685	(7)	160038	(7)	163272	(5)	153514	(6)
Sales – dairy cattle	$	9048	(6)	16317	(6)	14945	(12)	14066	(13)	12943	(9)	15918	(21)
– beef cattle	$	3885	(67)	13141	(46)	13302	(35)	9496	(48)	4613	(28)	12373	(57)
– sheep receipts	$	0		53	ns	257	(94)	0		120	ns	498	(93)
– wool	$	0		187	ns	137	(94)	0		0		168	(87)
Crop receipts	$	307	(60)	3004	(47)	3242	(62)	549	(76)	420	(56)	786	(67)
Off farm contracts	$	727	(97)	1589	(38)	2311	(59)	508	(69)	2322	(61)	5069	(80)
Other income	$	3719	(33)	5380	(23)	5670	(19)	1517	(31)	3103	(16)	2740	(31)
Total cash receipts	$	137996	(7)	249739	(8)	247551	(7)	186174	(6)	186793	(5)	191065	(7)
Cash costs													
Purchases – dairy cattle	$	2744	(50)	4517	(35)	3817	(43)	7519	(39)	2605	(29)	6513	(31)
– beef cattle	$	508	(62)	3006	ns	1187	(63)	1380	ns	126	(53)	7432	(88)
Hired labour	$	2119	(55)	12670	(24)	6978	(22)	2221	(57)	4513	(29)	4430	(43)
Fertiliser	$	5034	(26)	7563	(26)	11991	(12)	10066	(16)	5675	(11)	9711	(15)
Fodder	$	35361	(10)	33851	(10)	20270	(16)	17885	(20)	21684	(9)	11830	(22)
Crop and pasture chemicals	$	283	(57)	864	(31)	1306	(20)	662	(59)	322	(22)	301	(28)
Fuel, oil and grease	$	3843	(16)	6341	(16)	7703	(9)	4353	(18)	5156	(8)	4696	(12)
Livestock materials	$	1788	(17)	2620	(16)	4446	(20)	1834	(19)	3899	(11)	2948	(18)
Electricity	$	3351	(12)	7163	(12)	5639	(10)	3125	(15)	4104	(6)	3211	(9)
Repairs and maintenance	$	9769	(19)	13239	(12)	22771	(13)	12163	(14)	12766	(9)	15295	(11)
Dairy supplies	$	1853	(46)	4936	(17)	5792	(27)	2968	(19)	3049	(13)	3674	(29)
Other materials	$	3797	(17)	4800	(19)	4139	(15)	1927	(17)	5987	(11)	4582	(31)
Total materials cost	$	65079	(9)	81378	(8)	84058	(9)	54983	(12)	62640	(6)	56248	(10)
Contracts	$	1096	(53)	1002	(36)	3980	(23)	1985	(33)	2320	(24)	1172	(35)
Rates	$	1380	(18)	3218	(16)	6873	(12)	3017	(14)	10470	(6)	3159	(11)
Milk levies	$	7375	(7)	12216	(8)	14538	(7)	14759	(7)	15258	(5)	14569	(6)
Other services	$	9254	(17)	23581	(15)	21073	(10)	14652	(14)	15144	(7)	14047	(10)
Total services and contracts cost	$	19105	(12)	40016	(12)	46464	(9)	34413	(10)	43192	(6)	32946	(6)
Interest	$	4847	(31)	10936	(32)	16584	(15)	17315	(19)	11724	(14)	12355	(23)
Rent paid	$	967	(84)	6269	(34)	631	(59)	2728	(35)	1503	(38)	4203	(26)
Payment to sharefarmers	$	0		3113	(62)	4337	(39)	15253	(47)	5191	(40)	16214	(42)
Other cash costs	$	279	(96)	121	ns	333	(80)	0		124	(62)	208	(93)
Total cash costs	$	95648	(10)	162025	(10)	164388	(9)	135812	(7)	131616	(6)	140549	(9)

a To put all states on a comparable basis, total milk receipts are shown net of milk freight, and freight costs are excluded from cash costs.

ns Not supplied; exceeds 99 per cent

* Source: Australian Dairy Industry Survey

Dairy industry Financial performance measures, by state Average per farm

	Unit	New South Wales				Victoria				Queensland				Western Australia			
		1992-93 e	1993-94 p		1994-95 s	1992-93 e	1993-94 p		1994-95 s	1992-93 e	1993-94 p		1994-95 s	1992-93e	1993-94p		1994-95 s
Components of investment returns																	
Total cash receipts	$	193 232	203 220	(5)	206 600	170 587	178 790	(3)	178 700	155 834	171 300	(7)	169 100	256 428	264 970	(4)	256 600
less total cash costs	$	130 604	132 410	(7)	145 900	118 396	126 400	(4)	132 600	124 250	123 050	(8)	126 700	176 683	177 970	(5)	190 600
Farm cash income	$	62 628	70 810	(6)	60 700	52 191	52 390	(5)	46 000	31 584	48 240	(12)	42 400	79 745	87 000	(8)	66 100
plus buildup in trading stocks	$	11 816	8 750	(19)	200	8 963	10 600	(16)	100	7 075	3 240	(54)	400	3 571	10 440	(26)	–200
less depreciation	$	12 944	14 540	(8)	15 100	13 161	13 870	(5)	14 300	12 898	12 700	(9)	14 000	21 396	23 670	(7)	24 100
less operator and family labour	$	40 348	41 160	(4)	42 600	35 965	34 250	(5)	35 400	42 263	41 200	(4)	43 300	36 958	36 950	(4)	38 300
Farm business profit	$	21 152	23 860	(17)	3 200	12 028	14 880	(19)	–3 600	–16 501	–2 430	(ns)	–14 600	24 961	36 820	(16)	3 500
Profit at full equity	$	35 595	36 560	(13)	18 600	28 517	29 810	(10)	13 700	–1 790	9 610	(58)	–2 900	49 322	58 340	(10)	32 200
plus capital appreciation	$	167 950	42 520	(27)	na	43 547	8 180	(62)	na	54 692	24 080	(34)	na	144 419	60 770	(24)	na
Profit at full equity, incl. capital appr.	$	203 545	79 080	(18)	na	72 064	37 990	(18)	na	52 902	33 700	(30)	na	193 740	119 110	(13)	na
Farm capital at 1 July	$	1 467 496	1 259 260	(7)	1 288 400	790 368	881 110	(5)	916 900	694 796	842 700	(9)	862 200	1 731 702	2 063 320	(6)	2 179 900
Rate of return, excl. capital appr.	%	2.4	2.9	(13)	1.0	3.6	3.4	(11)	1.0	–0.3	1.1	(58)	0	2.8	2.8	(10)	1.0
Rate of return, incl. capital appr.	%	13.9	6.3	(18)	na	9.1	4.3	(18)	na	7.6	4	(29)	na	11.2	5.8	(12)	na
Real rate of return, incl. capital appr.	%	12.9	4.5	(22)	na	8.1	2.5	(24)	na	6.6	2.2	(38)	na	10.2	4	(15)	na
Other financial items																	
Net capital purchases	$	32 993	26 710	(31)	na	33 598	30 090	(22)	na	33 838	20 180	(63)	na	55 235	75 140	(39)	na
Farm capital at 30 June a	$	1 693 201	1 312 510	(7)	na	832 541	922 110	(5)	na	760 489	872 110	(9)	na	1 911 837	2 178 820	(6)	na
Farm business debt at 1 July b	$	62 418	90 410	(21)	93 600	110 944	128 440	(9)	130 700	101 831	110 730	(22)	110 400	205 107	222 620	(10)	237 000
Farm business debt at 30 June b	$	90 651	96 040	(22)	112 900	128 104	133 410	(9)	136 800	116 207	122 740	(21)	111 000	242 090	238 440	(10)	259 900
Change in debt over year b	$	28 233	5 630	(ns)	19 300	17 160	4 970	(57)	6 200	14 376	12 010	(ns)	600	36 983	15 820	(42)	23 000
Farm business equity at 30 June a	$	1 602 550	1 216 470	(7)	na	704 437	788 700	(5)	na	644 282	749 370	(10)	na	1 669 747	1 940 380	(7)	na
Farm business equity ratio at 30 June a	%	94.6	92.7	(2)	na	84.6	85.5	(1)	na	84.7	85.9	(3)	na	87.3	89.1	(1)	na
Farm liquid assets at 30 June a	$	19 674	34 840	(23)	na	18 153	16 540	(23)	na	15 502	15 150	(22)	na	8 881	36 210	(32)	na
Off-farm income b	$	7 422	8 130	(20)	na	9 566	8 290	(17)	na	5 275	3 300	(25)	na	4 708	11 290	(24)	na

Extract from **Farm Surveys Report 1995**

	Unit	South Australia 1992-93 e	1993-94 p		1994-95 s	Tasmania 1992-93 e	1993-94 p		1994-95 s	Northern Territory 1992-93 e	1993-94 p	1994-95 s	Australia 1992-93 e	1993-94 p		1994-95 s
Components of investment returns																
Total cash receipts	$	171 669	170 620	(6)	172 500	172 416	182 860	(7)	181 700	*Few or no farms in this industry*			175 276	184 230	(2)	184 100
less total cash costs	$	116 113	118 860	(7)	130 500	107 234	116 490	(8)	125 100				122 381	127 700	(3)	135 300
Farm cash income	$	55 556	51 760	(8)	42 000	65 183	66 370	(12)	56 700				52 895	56 530	(4)	48 800
plus buildup in trading stocks	$	1 981	6 050	(27)	–9 700	2 030	16 200	(22)	0				8 090	9 370	(11)	–500
less depreciation	$	15 172	16 510	(7)	16 100	17 338	15 290	(11)	16 600				13 766	14 410	(3)	15 000
less operator and family labour	$	34 628	32 660	(6)	32 700	40 018	36 150	(8)	37 900				37 632	36 290	(3)	37 600
Farm business profit	$	7 737	8 630	(51)	–16 500	9 857	31 130	(21)	2 100				9 586	15 190	(13)	–4 300
Profit at full equity	$	19 451	18 680	(22)	–5 200	21 139	42 760	(15)	16 700				25 245	29 160	(7)	11 800
plus capital appreciation	$	15 119	18 800	(26)	na	34 707	30 400	(26)	na				64 558	19 140	(19)	na
Profit at full equity, incl. capital appr.	$	34 569	37 480	(15)	na	55 846	73 160	(15)	na				89 803	48 300	(10)	na
Farm capital at 1 July	$	806 942	810 220	(7)	841 200	698 630	715 510	(6)	786 700				906 651	960 650	(3)	998 000
Rate of return, excl. capital appr.	%	2.4	2.3	(23)	–1.0	3.0	6.0	(14)	2.0				2.8	3.0	(7)	1.0
Rate of return, incl. capital appr.	%	4.3	4.6	(17)	na	8.0	10.2	(15)	na				9.9	5.0	(10)	na
Real rate of return, incl. capital appr.	%	3.3	2.8	(22)	na	7.0	8.4	(16)	na				8.9	3.2	(12)	na
Other financial items																
Net capital purchases	$	2 803	19 800	(18)	na	34 333	35 280	(29)	na				32 481	29 590	(15)	na
Farm capital at 30 June a	$	810 422	827 440	(7)	na	742 313	779 340	(6)	na				979 164	1 007 690	(3)	na
Farm business debt at 1 July b	$	88 310	96 750	(17)	10 000	79 242	107 410	(17)	124 000				103 244	120 760	(7)	124 200
Farm business debt at 30 June b	$	94 615	107 740	(18)	106 400	73 760	117 950	(20)	122 000				120 360	127 910	(6)	131 800
Change in debt over year b	$	6 306	10 990	(48)	6 400	–5 483	10 530	(ns)	–2 000				17 116	7 150	(39)	7 500
Farm business equity at 30 June a	$	715 808	719 700	(8)	na	668 553	661 390	(8)	na				858 804	879 780	(3)	na
Farm business equity ratio at 30 June a	%	88.3	87.0	(3)	na	90.1	84.9	(4)	na				87.7	87.3	(1)	na
Farm liquid assets at 30 June a	$	15 601	11 630	(54)	na	38 637	19 630	(40)	na				18 720	19 540	(13)	na
Off-farm income b	$	6 787	9 520	(25)	na	9 021	10 700	(34)	na				8 265	7 930	(11)	na

a Average per farm responding on debt. b Average per responding farm. For assistance in interpreting estimates of debt see 'Survey methods and definitions'. e Final estimates. p Preliminary estimates. s Provisional estimates. na Not available. ns Not supplied; exceeds 99 per cent.

Note: Figures in parentheses are relative standard errors, expressed as percentages of the estimates. A guide to interpreting these is included in 'Survey methods and definitions', as are explanations of other items. Note that year to year changes in both sample and population affect the comparability of estimates between years.

Dairy Industry Financial performance measures 1993-94 *

ABARE

Average per farm

		New South Wales, by Region						Victoria, by Region					
		Northern (region 11)		Central/Southern (region 12)		Riverina (region 13)		Western-south (region 21)		GMID (region 22)		Gippsland (region 23)	
Components of investment returns													
Total cash receipts	$	137996	(7)	249739	(8)	247551	(7)	186174	(6)	186793	(5)	191065	(7)
less Total cash costs	$	95648	(10)	162025	(10)	164388	(9)	135812	(7)	131616	(6)	140549	(9)
Farm cash income	$	42348	(9)	87714	(9)	83163	(9)	50362	(12)	55177	(8)	50516	(13)
plus Buildup in trading stocks	$	5920	(38)	9137	(31)	15671	(30)	7445	(31)	7712	(21)	15871	(33)
less Depreciation expense	$	10529	(14)	16717	(13)	20235	(9)	16024	(12)	14058	(7)	12907	(10)
less Operator and family labour	$	44690	(6)	36365	(7)	48354	(7)	27871	(18)	35958	(5)	33760	(9)
Farm business profit	$	-6951	(63)	43769	(16)	30244	(28)	13911	(40)	12874	(33)	19720	(38)
Profit at full equity(1)	$	-1246	ns	61892	(14)	47832	(18)	34054	(18)	26769	(15)	36278	(23)
plus capital appreciation	$	10545	(36)	73307	(33)	28916	(25)	15493	(71)	-2254	ns	18719	(82)
Profit at full equity incl. capital appreciation	$	9299	(66)	135200	(21)	76748	(15)	49547	(27)	24516	(24)	54996	(36)
Farm capital at 1 July	$	727779	(8)	1780766	(10)	994183	(6)	988824	(8)	694247	(5)	1098299	(10)
Rate of return excl. capital appreciation	%	-0.2	ns	3.5	(15)	4.8	(15)	3.4	(21)	3.9	(15)	3.3	(23)
Rate of return incl. capital appreciation	%	1.3	(64)	7.6	(23)	7.7	(13)	5.0	(32)	3.5	(24)	5.0	(32)
Real rate of return incl. capital appr.	%	0.3	ns	6.6	(26)	6.7	(15)	4.0	(40)	2.5	(33)	4.0	(40)
Other financial items													
Net capital purchases	$	-27008	(71)	104470	(26)	24765	(60)	-281	ns	4488	ns	-12915	ns
Farm capital at 30 June (a)	$	767832	(8)	1856715	(10)	1059441	(7)	1043478	(7)	699451	(5)	1171018	(10)
Farm business debt at 1 July (b)	$	38745	(37)	115409	(31)	181275	(15)	182573	(19)	110825	(12)	155278	(20)
Farm business debt at 30 June (b)	$	48279	(27)	123021	(35)	186724	(15)	189103	(16)	116775	(11)	157592	(20)
Change in debt over year (b)	$	9534	(58)	7612	ns	5450	ns	6529	ns	5950	(56)	2314	ns
Farm business equity at 30 june (a)	$	715540	(8)	1721852	(10)	884817	(8)	846975	(8)	585242	(5)	1012886	(11)
Farm business equity ratio at 30 june (a)	%	93.7	(2)	93.3	(2)	82.6	(3)	81.7	(3)	83.4	(2)	86.5	(2)
Farm liquid assets at 30 June (a)	$	25209	(46)	57055	(26)	18491	(27)	45154	(44)	13007	(22)	4163	(50)
Off-farm income (b)	$	8262	(38)	9364	(23)	4674	(22)	9498	(30)	5203	(18)	11576	(40)

(a) Average per farm responding on debt
(b) Average per responding farm
ns Not supplied; exceeds 99 per cent
* Source: Australian Dairy Industry Survey

Fertiliser use *

ABARE

Average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Quantity applied	– NPK (1)	t	**21.5**	(11)	14.3	**28.5**	(6)	24.4	**16.6**	(19)	13.3	**75.2**	(7)	71.4
	– Lime	t	**7.1**	(41)	3.7	**5.2**	(27)	5.4	**0.2**	ns	1.0	**11.8**	(46)	27.4
	– Gypsum	t	**0.8**	(38)	0.4	**3.3**	(43)	1.5	**0**		0	**0**		0.3
Area by fertiliser type (2)														
NPK (1)	– pasture	ha	**87.1**	(13)	62.9	**110.1**	(7)	109.8	**69.8**	(17)	44.5	**388.6**	(8)	333.0
	– total	ha	**95.8**	(12)	68.9	**112.7**	(7)	111.5	**81.0**	(15)	58.3	**393.9**	(9)	333.0
Lime	– pasture	ha	**4.7**	(47)	1.6	**2.7**	(36)	2.7	**0.1**	ns	0.9	**8.2**	(50)	14.6
	– total	ha	**4.7**	(47)	1.6	**2.8**	(35)	3.0	**0.1**	ns	0.9	**8.2**	(50)	14.6
Gypsum	– total	ha	**0.8**	(46)	0.3	**1.5**	(44)	1.0	**0**		0	**0**		0.2
Organic	– total	ha	**1.6**	(51)	2.1	**5.8**	(54)	2.3	**0.3**	ns	0	**0**		0
Total area fertilised		ha	**72.7**	(12)	59.2	**93.4**	(6)	94.5	**54.3**	(16)	43.2	**255.2**	(9)	279.5

(1) NPK Nitrogen, phosphorous and potassium
(2) Some areas may receive more than one application of fertiliser and be counted more than once
ns Not supplied; exceeds 99 per cent

* Source: Australian Dairy Industry Survey

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Quantity applied	– NPK (1)	t	**22.2**	(16)	18.9	**36.0**	(8)	35.4	**27.7**	(4)	23.1
	– Lime	t	**1.5**	(86)	4.0	**24.4**	(43)	10.5	**5.9**	(19)	5.5
	– Gypsum	t	**1.2**	ns	1.0	**0**		0	**2.1**	(39)	1.0
Area by fertiliser type (2)											
NPK (1)	– pasture	ha	**128.3**	(17)	123.8	**136.6**	(13)	118.5	**114.3**	(5)	102.2
	– total	ha	**150.7**	(14)	136.8	**140.7**	(12)	123.1	**120.3**	(4)	107.1
Lime	– pasture	ha	**1.1**	(94)	3.6	**14.3**	(46)	6.0	**3.4**	(22)	2.9
	– total	ha	**1.1**	(94)	3.9	**16.0**	(41)	6.0	**3.5**	(21)	3.1
Gypsum	– total	ha	**0.5**	ns	0.4	**0**		0	**1.0**	(38)	0.6
Organic	– total	ha	**11.5**	(54)	11.5	**1.5**	ns	0	**4.3**	(42)	2.3
Total area fertilised		ha	**145.0**	(12)	133.9	**96.6**	(9)	122.0	**94.5**	(4)	91.9

(1) NPK Nitrogen, phosphorous and potassium
(2) Some areas may receive more than one application of fertiliser and be counted more than once
ns Not supplied; exceeds 99 per cent

* Source: Australian Dairy Industry Survey

Fertiliser use *

Average per farm

New South Wales, by Region

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Quantity applied	– NPK (1)	t	**13.7**	(20)	14.0	**22.4**	(18)	14.7	**45.1**	(15)	21.8	**21.5**	(11)	14.3
	– Lime	t	**12.5**	(54)	1.8	**3.7**	(49)	7.4	**2.1**	(76)	0	**7.1**	(41)	3.7
	– Gypsum	t	**0.3**	(96)	0.9	**0**		0	**5.5**	(41)	0	**0.8**	(38)	0.4
Area by fertiliser type (2)														
NPK (1)	– pasture	ha	**44.0**	(23)	44.8	**108.3**	(20)	69.6	**151.5**	(13)	113.9	**87.1**	(13)	62.9
	– total	ha	**55.0**	(18)	46.8	**115.3**	(19)	78.8	**159**	(13)	125.9	**95.8**	(12)	68.9
Lime	– pasture	ha	**9.7**	(55)	1.2	**1.3**	(51)	2.9	**0.9**	(76)	0	**4.7**	(47)	1.6
	– total	ha	**9.7**	(55)	1.2	**1.3**	(51)	2.9	**0.9**	(76)	0	**4.7**	(47)	1.6
Gypsum	– total	ha	**0.8**	(96)	0.8	**0**		0	**4.1**	(43)	0	**0.8**	(46)	0.3
Organic	– total	ha	**0.1**	ns	3.6	**1.7**	(40)	1.5	**6.1**	ns	0	**1.6**	(51)	2.1
Total area fertilised		ha	**41.7**	(15)	38.1	**84.2**	(21)	71.8	**134.4**	(12)	108.3	**72.7**	(12)	59.2

(1) NPK Nitrogen, phosphorous and potassium
(2) Some areas may receive more than one application of fertiliser and be counted more than once
ns Not supplied; exceeds 99 per cent

* Source: Australian Dairy Industry Survey

Fertiliser use *

Average per farm

Victoria, by Region

			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Quantity applied	– NPK (1)	t	**44.3**	(12)	38.8	**21.4**	(7)	20.8	**34.0**	(15)	27.3	**28.5**	(6)	24.4
	– Lime	t	**3.1**	(98)	1.6	**0**	ns	1.2	**11.8**	(34)	7.1	**5.2**	(27)	5.4
	– Gypsum	t	**0**		0	**8.5**	(49)	1.8	**0**		0	**3.3**	(43)	1.5
Area by fertiliser type (2)														
NPK (1)	– pasture	ha	**170.6**	(14)	166.1	**80.3**	(8)	77.9	**112.4**	(15)	116.1	**110.1**	(7)	109.8
	– total	ha	**172.0**	(14)	170.4	**82.4**	(8)	78.6	**115.1**	(15)	116.4	**112.7**	(7)	111.5
Lime	– pasture	ha	**5.0**	(98)	0	**0**	ns	0.5	**4.6**	(37)	4.7	**2.7**	(36)	2.7
	– total	ha	**5.0**	(98)	0.6	**0**	ns	0.5	**4.8**	(34)	4.7	**2.8**	(35)	3.0
Gypsum	– total	ha	**0**		0	**3.5**	(52)	0.2	**0**		0	**1.5**	(44)	1.0
Organic	– total	ha	**5.0**	(98)	3.7	**4.5**	(40)	0	**10.4**	ns	2.1	**5.8**	(54)	2.3
Total area fertilised		ha	**138.1**	(12)	141.3	**73.1**	(7)	66.5	**99.4**	(13)	90.3	**93.4**	(6)	94.5

(1) NPK Nitrogen, phosphorous and potassium

(2) Some areas may receive more than one application of fertiliser and be counted more than once

ns Not supplied; exceeds 99 per cent

* Source: Australian Dairy Industry Survey

Irrigation - Area, water source and method of irrigation *

Average per farm

			New South Wales			Victoria			Queensland			Western Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area irrigated	– Pasture	ha	**31.6**	(11)	21.5	**33.0**	(9)	30.0	**12.8**	(17)	12.8	**15.7**	(16)	20.2
	– Crops	ha	**1.9**	(30)	1.1	**0.5**	(56)	0.5	**0.7**	(70)	0	**0**		0.1
Total area irrigated		ha	**33.5**	(11)	22.6	**33.5**	(9)	30.5	**13.5**	(16)	12.8	**15.7**	(16)	20.3
Water source	– State scheme	ha	**17.3**	(13)	7.9	**28.9**	(9)	26.6	**0.5**	ns	0.6	**14.9**	(17)	16.5
	– Private diversion	ha	**12.8**	(18)	12.3	**2.7**	(45)	2.0	**6.0**	(34)	7.8	**0.8**	(67)	1.3
	– Bores or wells	ha	**2.2**	(82)	1.0	**1.6**	(54)	1.6	**6.1**	(27)	3.7	**0**		0.6
	– Farm dams	ha	**1.1**	(33)	1.3	**0.3**	(87)	0.3	**0.9**	(62)	0.7	**0**		1.9
	– Other sources	ha	**0.1**	ns	0.1	**0**		0	**0**		0	**0**		0
Method of irrigation	– Flood	ha	**19.2**	(13)	8.8	**31.4**	(10)	24.7	**0.2**	(91)	0	**15.7**	(16)	18.2
	– Travelling irrigators	ha	**6.6**	(25)	6.3	**1.4**	(39)	5.1	**7.5**	(29)	8.3	**0**		0.6
	– Moveable spray lines	ha	**6.7**	(23)	7.5	**0.7**	(56)	0.7	**5.4**	(31)	4.3	**0**		1.5
	– Other methods	ha	**1.0**	(91)	0	**0**		0	**0.4**	(88)	0.2	**0**		0

			South Australia			Tasmania			Australia		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area irrigated	– Pasture	ha	**13.2**	(17)	12.0	**17.1**	(20)	14.3	**27.3**	(7)	24.0
	– Crops	ha	**0.2**	(92)	0	**2.5**	(60)	2.6	**0.8**	(26)	0.6
Total area irrigated		ha	**13.4**	(17)	12.0	**19.6**	(21)	16.9	**28.1**	(7)	24.6
Water source	– State scheme	ha	**3.6**	(52)	3.0	**0.7**	ns	0.5	**19.7**	(7)	16.7
	– Private diversion	ha	**3.8**	(28)	2.6	**6.3**	(46)	10.2	**4.8**	(17)	4.9
	– Bores or wells	ha	**5.4**	(24)	4.5	**2.9**	(61)	3.3	**2.5**	(24)	2.1
	– Farm dams	ha	**0.3**	(80)	0.8	**9.4**	(31)	2.9	**1.0**	(24)	0.8
	– Other sources	ha	**0.3**	ns	1.1	**0.3**	ns	0	**0.1**	(70)	0.1
Method of irrigation	– Flood	ha	**3.4**	(38)	4.8	**0.2**	ns	0.8	**21.3**	(8)	16
	– Travelling irrigators	ha	**4.8**	(36)	4.3	**10.8**	(35)	5.8	**3.7**	(15)	5.6
	– Moveable spray lines	ha	**2.9**	(27)	2.7	**4.5**	(44)	9.6	**2.5**	(16)	2.9
	– Other methods	ha	**2.3**	(39)	0.2	**4.1**	(51)	0.7	**0.6**	(33)	0.1

ns Not supplied; exceeds 99 per cent.

* Source: Australian Dairy Industry Survey

Irrigation - Area, water source and method of irrigation *

Average per farm

ABARE

New South Wales, by Region

			Northern (region 11)			Central/Southern (region 12)			Riverina (region 13)			New South Wales		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area irrigated	– Pasture	ha	**8.5**	(29)	7.9	**21.5**	(23)	20.6	**152.3**	(12)	112.6	**31.6**	(11)	21.5
	– Crops	ha	**0.7**	(96)	0	**2**	(45)	2.1	**5.5**	(39)	1.5	**1.9**	(30)	1.1
Total area irrigated		ha	**9.2**	(27)	7.9	**23.5**	(23)	22.7	**157.8**	(12)	114.1	**33.5**	(11)	22.6
Water source	– State scheme	ha	**0**	(0)	0	**2.9**	(75)	6.7	**135.5**	(12)	72.1	**17.3**	(13)	7.9
	– Private diversion	ha	**7.3**	(33)	5.9	**16.0**	(23)	13.2	**19.5**	(52)	40.8	**12.8**	(18)	12.3
	– Bores or wells	ha	**1.0**	(117)	0.2	**2.8**	(122)	2.0	**2.8**	(52)	0.6	**2.2**	(82)	1.0
	– Farm dams	ha	**0.9**	(67)	1.8	**1.6**	(36)	0.6	**0**	(0)	0.6	**1.1**	(33)	1.3
	– Other sources	ha	**0**	(0)	0	**0.2**	(124)	0.2	**0**	(0)	0	**0.1**	(124)	0.1
Method of irrigation	– Flood	ha	**0**	(0)	0	**2.4**	(65)	1.3	**153.5**	(13)	107.2	**19.2**	(13)	8.8
	– Travelling irrigators	ha	**4.9**	(38)	4.5	**9.2**	(33)	10.2	**1.9**	(66)	2.2	**6.6**	(25)	6.3
	– Moveable spray lines	ha	**3.5**	(54)	3.4	**10.6**	(26)	11.2	**1.8**	(84)	4.7	**6.7**	(23)	7.5
	– Other methods	ha	**0.8**	(96)	0	**1.3**	(140)	0	**0.6**	(94)	0	**1.0**	(91)	0

Victoria, by Region

			Western-south (region 21)			GMID (region 22)			Gippsland (region 23)			Victoria		
			1993-94		1991-92	1993-94		1991-92	1993-94		1991-92	1993-94		1991-92
Area irrigated	– Pasture	ha	**0.3**	ns	1.0	**83.0**	(6)	79.0	**0.2**	ns	0.3	**33.0**	(9)	30.0
	– Crops	ha	**0.2**	ns	0.2	**0.7**	ns	0.4	**0**		0	**0.5**	(56)	0.5
Total area irrigated		ha	**0.5**	ns	1.2	**83.7**		79.4	**0.2**	ns	0.3	**33.5**	(9)	30.5
Water source	– State scheme	ha	**0**		0	**78.6**	(7)	76.9	**0**		0	**28.9**	(9)	26.6
	– Private diversion	ha	**0.5**	ns	0.1	**3.9**	(83)	0	**0**		0	**2.7**	(45)	2.0
	– Bores or wells	ha	**0**		1.0	**1.2**	(72)	2.5	**0.2**	ns	0.1	**1.6**	(53)	1.6
	– Farm dams	ha	**0**		0.1	**0**		0	**0**		0.2	**0.3**	(86)	0.3
	– Other sources	ha	**0**		0	**0**		0	**0**		0	**0**		0
Method of irrigation	– Flood	ha	**0**		0	**83.2**	(7)	68.8	**0**		0	**31.4**	(10)	24.7
	– Travelling irrigators	ha	**0.5**	ns	0.6	**0**		10.6	**0.2**	ns	0.3	**1.4**	(39)	5.1
	– Moveable spray lines	ha	**0**		0.6	**0.5**	(95)	0	**0**		0	**0.7**	(56)	0.7
	– Other methods	ha	**0**		0	**0**		0	**0**		0	**0**		0

ns Not supplied; exceeds 99 per cent

* Source: Australian Dairy Industry Survey