Australian vegetable growing farms

an economic survey, 2006-07

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Participation in the survey of vegetable growers was voluntary. The cooperation of vegetable growers responding to the survey is greatly acknowledged. Their assistance was vital to the success of the project.

Foreword

The Australian vegetable production sector is an important source of food, supplying most of the fresh vegetables consumed in Australia and also providing inputs for a large proportion of the processed vegetable products consumed in Australia and exported overseas. The gross value of production of the vegetable industry is estimated to have been $3315 million during 2007-08 contributing around 7 per cent to Australia's gross value of agricultural production.

Information available on the physical and financial characteristics of Australian vegetable farms is limited. To address this information gap, Horticulture Australia Limited commissioned and funded ABARE to conduct three surveys of vegetable growers to help the industry build a rich database to access valuable information. Horticulture Australia Limited funded the project using the vegetable industry levy which is matched by funds provided by the Australian Government. The survey of vegetable growers was conducted in close cooperation with the industry.

This report presents results from the first of the three ABARE surveys and was conducted in September 2008. It collected comprehensive data on the physical, financial and socioeconomic characteristics of vegetable farms during the 2006-07 and 2007-08 financial years.

Additionally, a comparison of results is undertaken using results from a survey conducted by ABARE in 2007 on behalf of the Australian Vegetable Industry Development Group (AVIDG).

The information contained in this report is expected to contribute to policy decisions affecting the future direction and growth of the Australian vegetable growing industry. Survey results will assist benchmarking to improve the industry's performance and provide information to target industry efforts to improve productivity and profitability.

Philip Glyde
Executive Director
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January 2009

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Executive summary

This report presents results from the first of three surveys of Australian vegetable growers conducted by ABARE on behalf of Horticulture Australia Limited. Comprehensive data on the physical, financial and socioeconomic characteristics of vegetable growing farms during 2006-07 and preliminary data for 2007-08 were collected as part of this survey. A comparison with 2005-06 financial year results from a survey conducted in 2007 by ABARE and funded by the Australian Vegetable Industry Development Group (AVIDG) is also undertaken in this report.

During 2006-07 there were an estimated 4222 commercial vegetable farms operating in Australia with an estimated value of agricultural output (EVAO) of at least $40 000 a farm. These farms accounted for 85 per cent of all vegetable growing farms. The average area sown to vegetables was 33 hectares a farm during the financial year. However, half of Australian vegetable growers produced vegetables on areas of less than 12 hectares during 2006-07.

The majority of Australian vegetables (55 per cent) were produced by farms in Victoria and Queensland. Potatoes and tomatoes were the major vegetable crops grown in Australia during 2005-06, 2006-07 and 2007-08 in terms of area sown, production and contribution to gross value of vegetable production.

An estimated 56 per cent of vegetable growers experienced drought or below average seasonal conditions in 2005-06. During 2006-07, seasonal conditions improved somewhat with 48 per cent of vegetable growers experiencing adverse seasonal conditions. As a result of improved seasonal conditions, the average yield of most vegetable crops improved with the exception of tomatoes, green peas and some other vegetables during 2006-07. Vegetable production and crop yields are estimated to have fallen in 2007-08, although results for 2007-08 are preliminary.

Cash receipts for vegetable farms during 2006-07 are estimated to have been $888 000 a farm on average, of which 89 per cent was from the sale of vegetables. Vegetable cash receipts are estimated to have risen by 41 per cent on average between 2005-06 and 2006-07 as a result of increased vegetable sales and higher prices received for vegetables. However, preliminary estimates for 2007-08 indicate a fall of around 11 per cent in average vegetable cash receipts as a result of lower vegetable production and lower vegetable prices.

Total cash costs in 2006-07 were $650 400 a farm on average, up by 30 per cent from the previous year. The largest share of average cash expenditure for each farm during 2006-07 was on hired labour, packing materials, seed, contracts paid and fertiliser. The costs associated with hired labour are estimated to have risen by more than $45 000 a farm on average since 2005-06.

Despite the rise in costs between 2005-06 and 2006-07, farm cash incomes are estimated to have risen by 51 per cent as a result of higher receipts. The average farm cash income for vegetable farms during 2006-07 was $237 600 a farm. Vegetable farms in Queensland had the highest average farm cash income while vegetable farms in Tasmania had a farm cash loss of

$2100 on average for each farm mainly as a result of adverse seasonal conditions, higher input costs and lower prices received for vegetables grown by Tasmanian farms.

The performance of vegetable growers in 2006-07 was superior on average to that of broadacre farms (sheep, beef and cropping farms). Vegetable farms are estimated to have had an average rate of return to capital, excluding capital appreciation of 6 per cent during 2006-07 up from 3 per cent on average during 2005-06. Larger farms, with more than 70 hectares of vegetables sown, realised the highest rate of return, excluding capital appreciation, on average, at 13 per cent.

The equity position of vegetable farms as measured by equity ratio (total business assets as a percentage of total farm capital) remained high in 2006-07 despite a higher average level of debt. The average equity ratio was 88 per cent during 2006-07. Additionally, only around 2 per cent of vegetable farms had both an equity ratio of less than 70 per cent and a negative farm cash income.

The majority of vegetable growers (92 per cent) used irrigation water for vegetable production during 2006-07 at an average rate of 4 megalitres a hectare. Vegetable farms using irrigation water for vegetable production had a much higher average yield than those not using irrigation water during the financial year.

Around three-quarters of vegetable growers tested their produce for chemical residues. However, the proportion of vegetable growers who tested crops for chemical residue varied between states with only an estimated 17 per cent of vegetable growers in Northern Territory doing this. Similarly, an estimated 62 per cent of vegetable growers had a food safety program in place. An estimated 38 per cent of vegetable growers participated in, or were considering, an environmental management plan. Larger vegetable farms, with more than 70 hectares sown, were more likely to undertake food safety precautions.

Almost all vegetable growers were concerned with pests and diseases. An estimated 94 per cent of growers followed a set pest and disease monitoring program. Additionally, 89 per cent of vegetable growers rated pest and disease management as a high or very high research and development priority during 2006-07. Other important priorities included higher yielding varieties and farm productivity.

The most common impediment to the future viability of vegetable farms that growers identified was increased farm input costs. The majority of vegetable growers also indicated other impediments including, marketing costs, low vegetable prices, access to and cost of labour and availability of irrigation water.

Despite these challenges, vegetable growers were generally positive about their future involvement in vegetable growing. At the time of the survey, around two-thirds of vegetable growers expected to be still engaged in vegetable production in five years time. Additionally, 29 per cent of vegetable growers intended to expand vegetable production in the next three to five years and 18 per cent expected to focus on another type of agricultural production in five years time.

1 Introduction

Background

In 2006, the Australian Vegetable Industry Development Group (AVIDG) was established to provide an industry-wide perspective on setting directions for sustainable growth of the industry. An initial task for the AVIDG was to develop an industry-wide strategic plan called Vegvision 2020. In developing this plan, the AVIDG recognised a need for the vegetable industry to have a better understanding of the key drivers of physical and financial farm performance for vegetable growers.

To cover this information gap, in 2007 AVIDG contracted ABARE to collect information about production, the financial situation of vegetable growers and issues they faced during 2005-06. This study was funded by the Australian Government Department of Agriculture, Fisheries and Forestry. Horticulture Australia limited (HAL) has funded the next three surveys to help the industry build a rich data base to source information from.

This report presents the results from the first of the three vegetable surveys conducted by ABARE on behalf of HAL. This survey of vegetable enterprises was conducted in September 2008 to collect 2006-07 data and preliminary data for 2007-08. Further surveys are to be conducted in 2009 and 2010.

The survey of vegetable growers was developed in consultation with industry stakeholders about the information needs of the industry. The survey is designed to collect comprehensive production and financial performance data. In addition the survey collects information on farm management practices including:

- water and chemical usage;
- pests and diseases;
- sale points;
- sources of information;
- future intentions;
- constraints; and
- relationship of growers with main buyers.

The primary aim of this report is to build on the data collected in 2007 and compare estimates from 2006-07 to those obtained in 2005-06. Additionally, some preliminary analysis is performed looking at estimates for vegetable farms during 2007-08.

Australian vegetable production

The Australian vegetable production sector is an important supplier of food to the domestic market, supplying most of the fresh vegetables consumed in Australia and also providing vegetable inputs for a large proportion of the processed vegetable products consumed in Australia and exported overseas.

Over the period 1999-2000 to 2005-06, vegetable growing accounted for an average of around 6 per cent of the gross value of Australia's agricultural production. As shown in table 1, vegetable growing accounted for 7 per cent of the gross value of Australia's agricultural production in 2005-06 ($2833 million). It is estimated that the gross value of vegetable production in Australia was $3315 million during 2007-08 (ABARE, December 2008).

1 Gross value of production in the vegetable growing industry, 2005-06

	vegetable growing $ '000	% of total agricultural production value
New South Wales	358 842	4
Victoria	635 628	7
Queensland	945 027	11
South Australia	388 296	9
Western Australia	292 399	5
Tasmania	198 510	19
Northern Territory	14 413	5
ACT and other **a**	238	1
Total	2 833 353	7

a Includes Territory of Cocos Islands, Jervis Bay Territory, Territory of Christmas Island and persons with no usual address.
Source: ABS, 2006.

The wide range of climate and soils in Australia enables many types of vegetables to be grown in various parts of the country. Potatoes and tomatoes are the major vegetable crop grown in Australia in terms of area sown, value of production and volume of production.

Employment in the vegetable industry

Vegetable growing in Australia is typically more labour intensive than other agricultural industries. However, the industry is relatively small in terms of total employment. Data from the Australian Bureau of Statistics indicate that in 2005-06 vegetable production directly employed around 14 660 people in Australia, equivalent to around 0.16 per cent of total Australian employment (table 2). Tasmania had the highest proportion of its workforce employed in the vegetable growing industry during 2005-06.

Given the timing of the census, these statistics may understate actual employment in vegetable growing as many seasonal employees would not be taken into account. Additionally, when casual employment of people working in other jobs and employment in vegetable processing is considered, the regional importance of vegetable growing is increased further.

2 Employment in the vegetable growing industry, 2005-06

	vegetable growing	% of total employment
New South Wales	2 659	0.09
Victoria	3 174	0.14
Queensland	4 774	0.26
South Australia	1 672	0.24
Western Australia	1 404	0.15
Tasmania	872	0.43
Northern Territory	101	0.12
ACT and other **a**	3	0.00
Total	14 659	0.16

a Includes Territory of Cocos Islands, Jervis Bay Territory, Territory of Christmas Island and persons with no usual address.
Source: ABS, 2006.

2 Profile of vegetable growers

The average area operated by vegetable growers in 2006-07 is estimated to have been 231 hectares a farm, down by around 70 hectares from the previous year (table 3). The average area sown to vegetables fell to 33 hectares per farm in 2006-07.

3 Area operated and area sown to vegetables, 2005-06 and 2006-07

average per farm

	area operated (ha)		area sown to vegetables (ha)	
	2005-06	2006-07	2005-06	2006-07
New South Wales	323	444	45	21
Victoria	201	218	53	49
Queensland	470	150	29	39
South Australia	352	209	26	26
Western Australia	130	85	19	26
Tasmania	208	210	31	28
Northern Territory	94	38	6	16
Australia	304	231	36	33

On average, Victorian vegetable farms had the largest area sown to vegetables during 2006-07 at 49 hectares per farm. Vegetable farms in Northern Territory had the smallest average area sown to vegetables per farm at 16 hectares in 2006-07.

The distribution of vegetable farm size varied considerably between states. A small number of vegetable growers operate 50 hectares of vegetables or more. It is estimated that the smallest 50 per cent of farms produce vegetables on areas of up to 12 hectares and the smallest 75 per cent on areas of up to 39 hectares (table 4).

4 Distribution of vegetable growing farms, by area sown to vegetables, by state, 2006-07

		hectares of area sown below which specified percentage of farms lie			
		25 per cent	50 per cent	75 per cent	average
New South Wales	ha	1	7	32	21
Victoria	ha	10	22	58	49
Queensland	ha	3	15	50	39
South Australia	ha	2	4	23	26
Western Australia	ha	1	10	24	24
Tasmania	ha	8	13	35	28
Northern Territory	ha	2	2	17	16
Australia	ha	3	12	39	33

Major producers of vegetables during 2006-07 were in Victoria and Queensland, contributing 30 per cent and 25 per cent of Australia's total vegetable production respectively (table 5). Around one quarter of Australia's potato production was by vegetable farms in Victoria and a further 20 per cent each from vegetable farms in Tasmania and South Australia. Vegetable farms in New South Wales and Queensland accounted for an estimated 88 per cent of national pumpkin production in 2006-07. Vegetable farms located in Northern Territory played only a small role in vegetable production during 2006-07.

5 Proportion of vegetables produced from each state, 2006-07

	NSW %	Vic %	Qld %	SA %	WA %	Tas %	NT %	Australia %
Potatoes	12	24	13	19	11	20	0	100
Pumpkins	45	0	43	2	7	0	3	100
Green peas	15	33	6	0	7	39	0	100
Beans	1	56	19	0	4	21	0	100
Tomatoes	15	52	31	0	2	0	0	100
Onions	0	7	27	21	11	34	0	100
Carrots	0	0	7	39	38	16	0	100
Cauliflowers	29	23	28	2	5	12	0	100
Lettuce	12	23	44	3	18	0	0	100
Broccoli	13	69	0	0	11	7	0	100
Cabbage	19	15	60	1	5	0	0	100
Other vegetables	11	30	41	6	9	1	2	100
All vegetables	12	30	25	11	10	11	0	100

Note: Figures may not add up to 100 per cent because of rounding.

3 Farm performance to 2007-08

Farm physical performance

In 2006-07, an estimated 48 per cent of vegetable growers experienced drought or below average seasonal conditions, compared to 56 per cent of growers in 2005-06 (table 6 and map 1). A high proportion of Tasmanian growers indicated that they encountered adverse seasonal conditions during 2006-07 with more than 80 per cent experiencing drought or below average seasonal conditions. All of the vegetable growers surveyed in Northern Territory reported that they experienced average seasonal conditions during 2006-07.

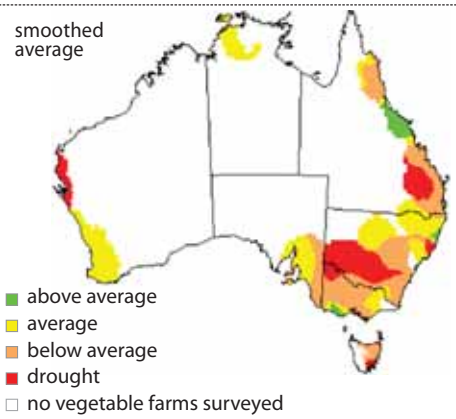
6 Vegetable growers' assessment of seasonal conditions, by state, 2006-07

percentage of growers

		drought	below average	average	above average
New South Wales	%	29	5	56	11
Victoria	%	30	34	27	9
Queensland	%	42	14	28	16
South Australia	%	16	17	67	0
Western Australia	%	15	2	72	12
Tasmania	%	24	57	12	6
Northern Territory	%	0	0	100	0
Australia	%	28	20	41	10

Note: Figures may not add up to 100 per cent because of rounding.

1 Vegetable growers' assessment of seasonal conditions, 2006-07

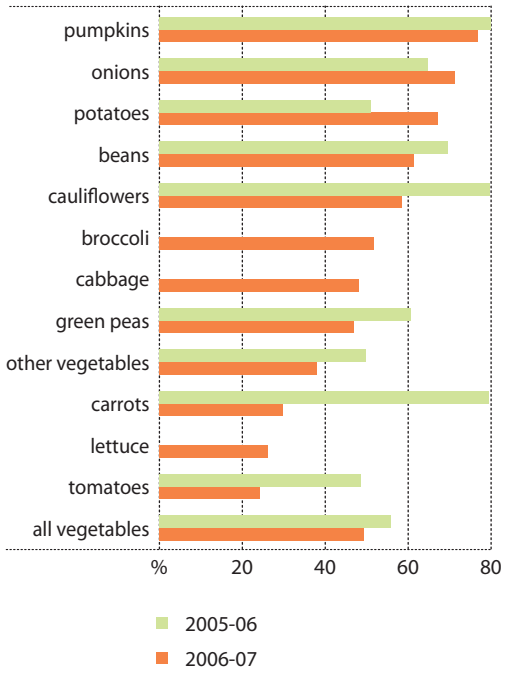


A high proportion of vegetable farms that grew pumpkins encountered adverse seasonal conditions during 2006-07, with an estimated three-quarters experiencing drought or below average seasonal conditions compared to only 26 per cent of vegetable farms that grew tomatoes (figure a). However, seasonal conditions for farms that grew pumpkins were slightly better in 2006-07 than in 2005-06.

Crop yields in 2006-07 are estimated to have been higher than in 2005-06 for all vegetables except tomatoes, green peas and other vegetables reflecting improved seasonal conditions (table 7). The largest increase in yield was for carrots.

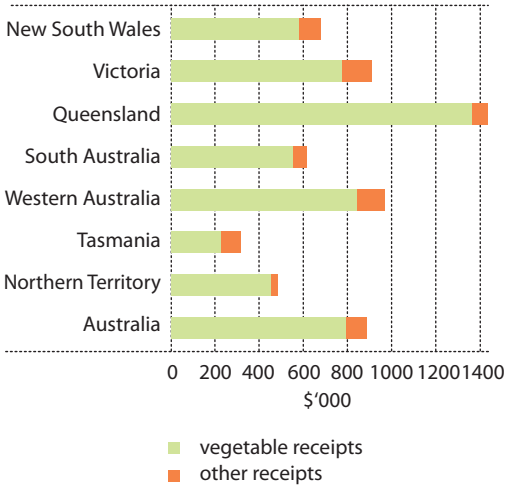
a Growers facing adverse seasonal conditions, by vegetable crop

percentage of farms that grew the vegetable



b Total cash receipts, 2006-07

average per farm



During 2007-08 there is estimated to have been a fall in the average total quantity of vegetables produced and the average crop yield per farm. Crop yields for pumpkins and carrots are estimated to have risen in 2007-08.

Farm cash receipts

Total cash receipts for Australian vegetable farms were $888 000 per farm on average during 2006-07 (figure b). Sale of vegetables is estimated to have accounted for around 89 per cent of total farm cash receipts. The remainder was largely from the sale of crops other than vegetables. Vegetable farms in Queensland had the highest average receipts at $1 438 300 per farm while vegetable farms in Tasmania had the lowest average cash receipts. Vegetable farms in Tasmania had the lowest average proportion of their cash receipts coming from vegetable sales in 2006-07 at 71 per cent of total cash receipts, while farms in Queensland had 95 per cent of cash receipts from vegetable sales.

Between 2005-06 and 2006-07, there was a rise in the average quantity of vegetables sold (table 8). Increases in vegetable sales were driven by a rise in the average quantities of tomatoes, pumpkins, beans and carrots sold. Total cash receipts from the sale of vegetables increased by 41 per cent on average between 2005-06 and 2006-07 because of increased sales and an increase in the price received for vegetables. However, average receipts for vegetables are estimated to have fallen during 2007-08 because of lower sales and lower prices received for vegetables.

Tomato sales accounted for 23 per cent of total cash receipts of vegetable growers during 2006-07 and a further 18 per cent of cash receipts were from the sale of potatoes (table 9).

box 1 Farm financial performance

Definitions (see appendix A for more detailed definitions)

Total cash receipts: total revenues received by the business during the financial year

Total cash costs: payments made by the business for materials and services and for permanent and casual hired labour (excluding owner manager, partner and family labour)

Farm cash income: *total cash receipts - total cash costs*

Farm business profit:
farm cash income + change in trading stocks - depreciation - imputed labour costs

Profit at full equity: return produced by all the resources used in the business
farm business profit + rent + interest + finance lease payments - depreciation on leased items

Rate of return: return to all capital used $100 \times \left(\frac{\textit{profit at full equity}}{\textit{total opening capital}} \right)$ (%)

7 Area sown, quantity produced and yield, by vegetable crop, 2005-06 to 2007-08

average per farm

	area sown (ha)			quantity produced (t)			crop yield (t/ha)		
	2005-06	2006-07	2007-08 p	2005-06	2006-07	2007-08 p	2005-06	2006-07	2007-08 p
Potatoes	12	10	10	431	357	355	36	37	37
Pumpkins	1	1	1	12	16	20	14	18	22
Green peas	1	1	1	5	4	3	5	4	4
Beans	1	1	1	6	12	11	5	10	9
Tomatoes	4	4	3	282	301	193	79	76	64
Onions	2	1	1	82	74	64	53	55	53
Carrots	1	1	1	47	77	75	52	70	72
Cauliflowers	2	1	1	23	15	14	20	23	22
Other vegetables a	13	13	13	289	270	269	22	20	20
All vegetables	36	33	32	1177	1127	1005	33	34	32

a Other vegetables here include lettuce, cabbage and broccoli as data on these vegetable types are unavailable for 2005-06. For estimates relating to these vegetables during 2006-07 see appendix D. **p** Preliminary estimates. Estimates are based on data collected in September 2008.

8 Quantity sold, total cash receipts and price received, by vegetable crop, 2005-06 to 2007-08

average per farm

	quantity sold (t)			total receipts a ($)			price received a ($/t)		
	2005-06	2006-07	2007-08	2005-06	2006-07	2007-08	2005-06	2006-07	2007-08
Potatoes	412	365	348	136 438	140 789	127 560	331	386	367
Pumpkins	12	16	20	3 900	7 330	7 889	331	447	404
Green peas	5	4	3	5 087	6 615	5 287	956	1639	1829
Beans	6	12	11	7 972	10 580	10 498	1 247	920	922
Tomatoes	283	301	193	103 080	180 339	159 478	362	600	827
Onions	77	67	63	28 248	27 129	23 171	365	408	367
Carrots	45	76	73	24 123	24 693	24 624	536	324	335
Cauliflowers	22	15	14	14 957	11 719	10 905	675	774	806
Other vegetables b	293	163	403	235 543	272 271	220 198	803	1675	546
All vegetables	1 156	1 319	1 234	559 347	790 171	704 239	484	599	571

a In 2006-07 dollars. **b** Other vegetables here include lettuce, cabbage and broccoli as individual data on these vegetable types are unavailable for 2005-06. For estimates relating to these vegetables during 2006-07 see appendix D.

9 Contribution of vegetables to total vegetable receipts, by state, 2006-07

average per farm

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Potatoes	17	16	13	30	20	63	0	18
Pumpkins	4	0	1	0	1	0	5	1
Green peas	1	2	0	0	1	2	0	1
Beans	0	4	0	0	1	4	0	1
Tomatoes	11	16	39	3	13	0	0	23
Onions	0	1	2	18	5	10	0	3
Carrots	0	0	0	12	17	4	0	3
Cauliflowers	2	3	0	1	1	4	0	1
Lettuce	5	9	8	13	12	0	0	8
Broccoli	3	12	0	0	5	4	0	4
Cabbage	1	2	2	1	2	0	0	2
Other vegetables	55	36	32	22	22	9	95	34
Total	100	100	100	100	100	100	100	100

Note: Figures may not add up to 100 per cent because of rounding.

Around 34 per cent of vegetable receipts came from the sale of other vegetables including capsicum and cucumber. Tomatoes were the major source of vegetable receipts for vegetable farms in Queensland, accounting for 39 per cent of vegetable receipts. In Tasmania, potatoes were the major source of vegetable receipts at 63 per cent of total vegetable receipts.

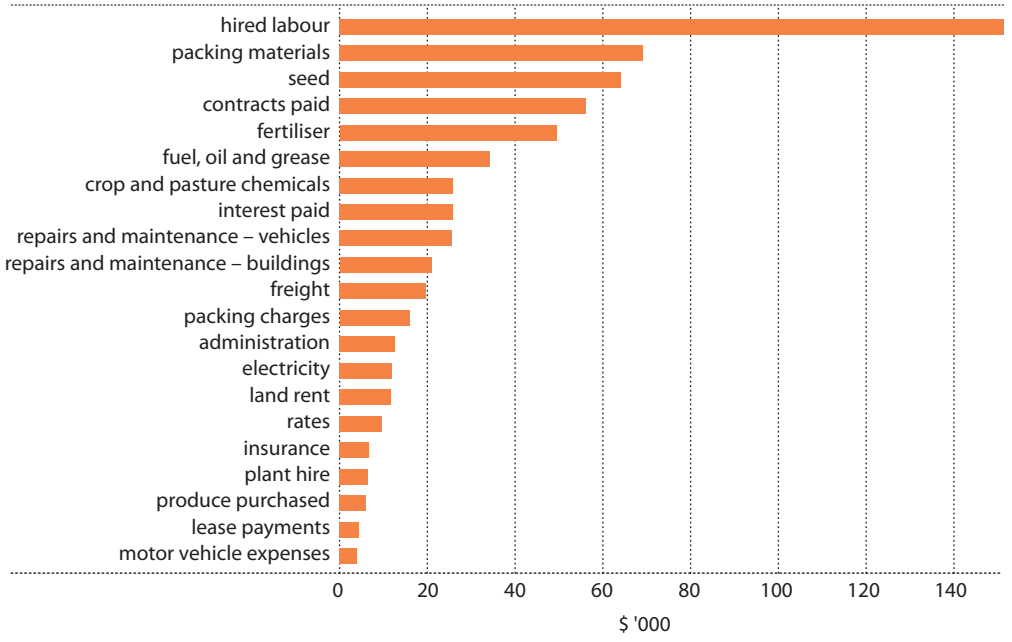
Farm cash costs

Total cash costs were $650 400 on average during 2006-07, up by 30 per cent from the previous year (figure c). The largest share of average cash expenditure per farm was on hired labour (23 per cent), packing materials (11 per cent), seed (10 per cent), contracts (9 per cent) and fertiliser (8 per cent). However, composition of cash expenditure varied across states. Vegetable farms in New South Wales had a low proportion of their expenditure on contracts compared to other states but had 22 per cent of their expenditure on seed. Hired labour accounted for a relatively low proportion of total cash costs for Tasmanian vegetable farms in 2006-07, estimated to have been around 9 per cent on average. However, fertiliser costs accounted for a relatively high proportion of farm cash costs for vegetable farms in Tasmania.

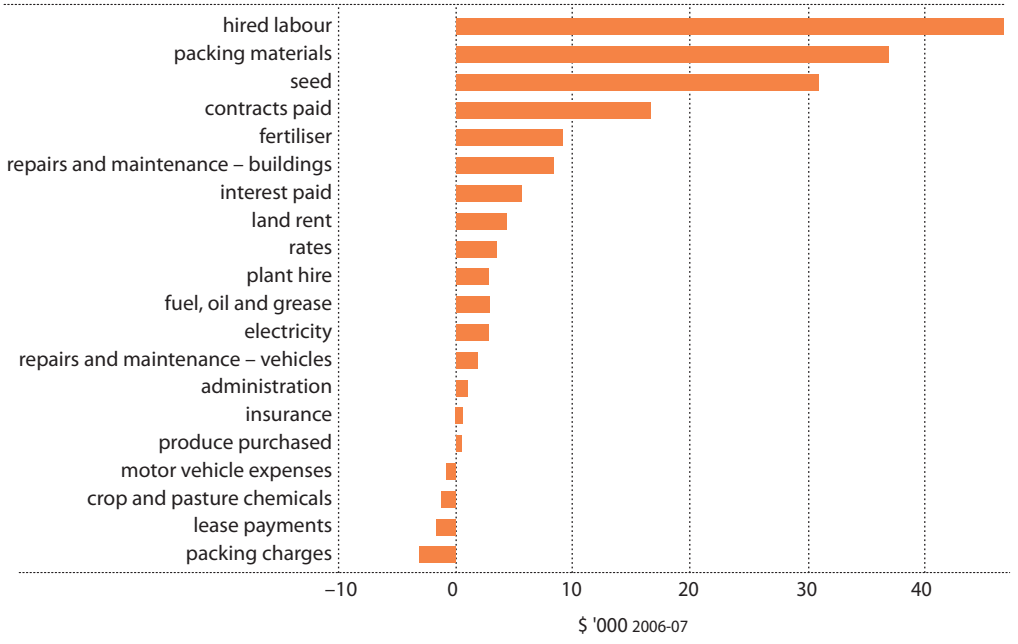
A detailed breakdown of cash costs during 2006-07 for vegetable growers by state can be found in appendix D, table A5.

The costs associated with hired labour rose by more than $45 000 on average per farm between 2005-06 and 2006-07 (figure d). There was also a high rise in the costs associated with packing materials, seed and contracts paid over the period, while costs associated with lease payments, motor vehicle expenses, crop and pasture chemicals and packing charges fell.

c Composition of cash costs of vegetable farms, 2006-07
average per farm



d Change in cash costs, 2005-06 to 2006-07
average per farm



Farm cash income

The average farm cash income (total cash receipts minus total cash costs) was $237 600 per vegetable farm in 2006-07 up by 51 per cent from the previous financial year (table 10). The proportion of vegetable farms realising a negative farm cash income fell and was 16 per cent in 2006-07. Vegetable farms in Queensland had the highest average farm cash incomes at $365 400 per farm while vegetable farms in Tasmania had a farm cash loss of around $2100 per farm as a result of adverse seasonal conditions and lower prices received for vegetables in Tasmania. With the rise in average costs exceeding the rise in average cash receipts, vegetable farms in both Tasmania and Victoria had a decline in their average farm cash income between 2005-06 and 2006-07.

10 Financial performance of vegetable farms, by state, 2005-06 and 2006-07

average per farm

	total cash receipts ($) a		total cash costs ($) a		farm cash income ($) a		% with negative farm cash income	
	2005-06	2006-07	2005-06	2006-07	2005-06	2006-07	2005-06	2006-07
New South Wales	513 498	678 013	370 248	441 493	143 250	236 520	21	17
Victoria	903 738	910 309	660 023	708 696	243 716	201 613	13	14
Queensland	867 733	1 438 307	701 016	1 072 861	166 717	365 445	25	7
South Australia	528 855	612 179	408 423	404 168	120 432	208 012	29	17
Western Australia	509 541	969 281	289 026	650 480	220 515	318 801	12	2
Tasmania	296 336	317 244	292 005	319 358	4 330	–2 113	46	52
Northern Territory	517 924	482 794	352 145	250 860	165 780	231 934	43	21
Australia	656 766	888 005	499 284	650 399	157 481	237 606	24	16

a In 2006-07 dollars.

Farm business profit

The average farm business profit of vegetable farms was higher in 2006-07 than in 2005-06 for all states except Victoria (table 11). During 2006-07 average farm business profit is estimated to have been $142 900 per vegetable farm. Farm business profit is calculated as farm cash income plus change in the value of trading stocks minus depreciation and the value of family and partner labour inputs to the farm.

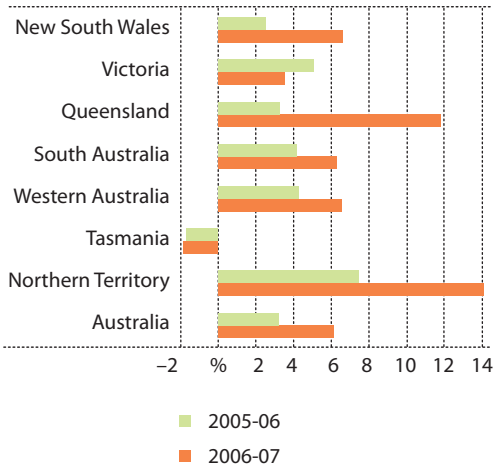
11 Farm business profit of vegetable farms, 2005-06 and 2006-07

average per farm

	farm business profit ($) a	
	2005-06	2006-07
New South Wales	55 318	149 528
Victoria	141 738	85 565
Queensland	73 205	268 379
South Australia	47 319	126 777
Western Australia	134 767	216 330
Tasmania	–75 846	–75 268
Northern Territory	108 633	170 088
Australia	68 461	142 903

a In 2006-07 dollars.

e Rate of return, excluding capital appreciation for vegetable farms, 2005-06 and 2006-07 average per farm



Return on capital

The average rate of return to capital, excluding capital appreciation, is estimated to have been 6.1 per cent during 2006-07 up from an average of 3.2 per cent achieved during 2005-06 (figure e). Vegetable farms in Northern Territory and Queensland realised the highest rate of return on average during 2006-07 while vegetable farms in Tasmania had a negative rate of return of –2 per cent. On average, the performance of vegetable growers in 2006-07 was better than that of broadacre farms which achieved an average rate of return, excluding capital appreciation of –0.4 per cent (ABARE, 2008).

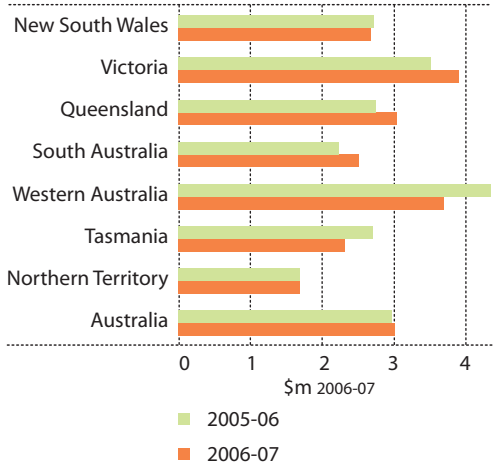
Capital and debt

The total capital value of vegetable farms is estimated to have been more than $3 million on average per farm during 2006-07 with vegetable farms in Victoria, Western Australia and Queensland having the highest average capital values per farm (figure f). The value of capital employed by the vegetable business is the market value of all the assets used including leased items but excluding machinery and equipment either hired or used by contractors. Market valuations were provided by the owner manager of surveyed vegetable farms. Capital also includes the market value of land and fixed improvements used by the surveyed vegetable business.

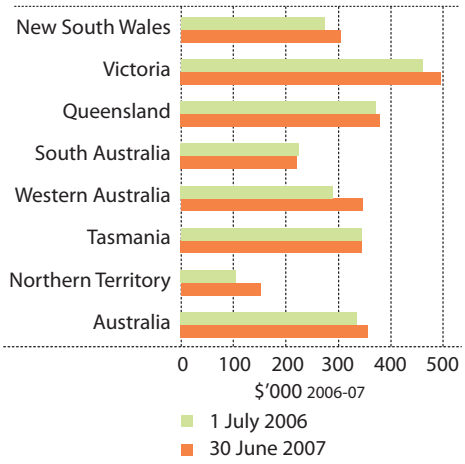
During 2006-07, vegetable growers invested an estimated $38 000 per farm in additional capital. New investment, providing it is well directed, is an important means of boosting farm productivity and future incomes.

Vegetable growers on average had a debt of $355 800 per farm at 30 June 2007 up by 6 per cent from the average debt level at 1 July 2006 (figure g). Average debt levels increased for vegetable farms in Western Australia by an average of $56 400 per farm during 2006-07.

f Total business capital of vegetable farms, 2005-06 and 2006-07
average per farm



g Total farm debt of vegetable farms, 2006-07
average per farm



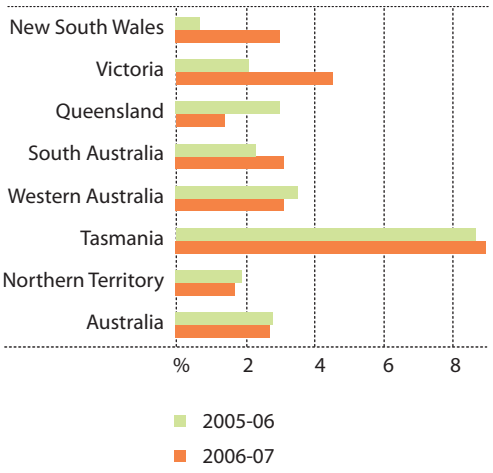
However, the largest proportional increase was for vegetable farms in Northern Territory where debt levels grew by 44 per cent during the year.

On average, one third of debt was made up of working capital debt at 30 June 2007 and a further one half was land purchase debt. The composition of farm debt was similar to that of 2005-06.

The debt servicing ratio is the ratio of interest payments to total cash receipts and is a measure of the ability of farmers to service debts from their revenue stream. The average debt servicing ratio of vegetable farms during 2005-06 and 2006-07 was around 3 per cent and was lower than 5 per cent for all states expect Tasmania where the average debt servicing ratio was 9 per cent (figure h). The low proportion indicates that the average vegetable farm is likely to be easily able to meet its debt servicing requirements. The high debt servicing ratio in Tasmania compared to other states reflects low cash receipts for vegetable farms in Tasmania on average.

The equity position of Australian vegetable farms can be gauged using the equity ratio, an indicator of the level of leverage used by the farm. The equity ratio is measured as total business assets as a percentage of total farm capital. The equity position of vegetable farms fell in 2006-07 reflecting a higher level of debt on average. Despite this fall, vegetable growers are still generally in a strong equity position with an average equity ratio of 88 per cent (figure i). Vegetable farms in Tasmania had the lowest equity ratio in 2006-07 at 85 per cent on average.

h Debt servicing ratio of vegetable farms 2005-06 and 2006-07
average per farm



i Equity ratio of vegetable farms, 2005-06 and 2006-07 average per farm

Vegetable growers who have low equity (those with an equity ratio of less than 70 per cent) and negative farm cash incomes are the most likely to have difficulty funding future investments (table 12). During 2006-07 only 2 per cent of vegetable farms had both a negative farm cash income and an equity ratio of less than 70 per cent. However, this proportion was much higher in Tasmania (14 per cent) and Northern Territory (31 per cent). An estimated 72 per cent of vegetable farms were operating with high equity and positive farm cash income.

12 Distribution of vegetable growers, by equity ratio and farm cash income, 2006-07

	farms with low equity a		farms with high equity b	
	negative farm cash income	positive farm cash income	negative farm cash income	positive farm cash income
	%	%	%	%
New South Wales	0	17	11	72
Victoria	2	20	13	65
Queensland	0	10	7	83
South Australia	0	10	12	79
Western Australia	0	21	2	77
Tasmania	14	0	38	48
Northern Territory	31	4	0	65
Australia	2	13	12	72

a Farms with an equity ratio of less than 70 per cent are defined as having low farm equity. **b** Farms with an equity ratio of more than 70 per cent are defined as having high farm equity.

Financial performance by area of vegetable crops sown

There was evidence of economies of size in the Australian vegetable growing industry during 2006-07 with financial performance rising on average as the area sown to vegetables increased (table 13). The average rate of return to capital for vegetable farms sowing less than 5 hectares of vegetables was 2.6 per cent compared to 12.8 per cent on average for those sowing more than 70 hectares of vegetables.

Farm business debt grew by 18 per cent during 2006-07 for vegetable farms sowing less than 5 hectares of vegetables. With a lower level of cash receipts, they had a relatively high debt servicing ratio reflecting the additional burden they face in servicing their debt.

Financial performance by equity and farm cash income position

The two per cent of vegetable growers operating with a low level of equity and a negative farm cash income may struggle to improve their viability in the future.

During 2006-07, vegetable farms with low equity (those with an equity ratio of less than 70 per cent) and negative farm cash income had an average farm cash income of –$106 100 per farm

13 Financial performance and debt characteristics for growers, by area sown to vegetables, 2006-07 average per farm

		area sown to vegetables			
		less than 5 hectares	5 – 20 hectares	20 – 70 hectares	more than 70 hectares
Total cash receipts	$	208 547	310 997	710 275	4 409 358
Total cash costs	$	134 813	218 899	491 856	3 363 485
Farm cash income	$	73 734	92 098	218 419	1 045 873
Farm business profit	$	16 699	17 397	108 319	843 959
Proportion of receipts from vegetables	%	83	86	78	94
Rate of return excluding capital appreciation	%	2.6	1.8	3.6	12.8
Equity ratio	%	88	91	92	81
Farm business debt	$	147 133	170 566	320 713	1 657 154
Debt servicing ratio	%	5	4	4	2
Change in debt during the year	%	18	3	–2	9

and an average equity ratio of 60 per cent (table 14). Additionally, this group of vegetable growers had a debt servicing ratio of 34 per cent compared with 2 per cent for vegetable growers who had high equity and positive farm cash income. This highlights the additional burden faced by vegetable growers with low equity and negative farm cash income.

Vegetable farms that had low equity and positive farm cash income were run by younger owner/operators on average and had much higher average receipts, costs and farm cash income. If a high level of farm cash income can be maintained these farms should be able to fund future investment and pay off their debt over time.

Financial performance of potato and tomato specialists

Table 15 shows selected estimates for specialist potato and tomato growers. Specialist producers have been defined as those vegetable farms growing either potatoes or tomatoes, but not both.

Specialist potato growers operated from a larger area of land and grew a larger area of vegetables on average than tomato specialist growers. Specialist potato growers were also more diverse in the other vegetable crops they sowed.

The average age of owner/operators of specialist potato farms was estimated to be 52 years compared to an average of 49 years of age for owner/operators of specialist tomato farms.

Average total cash receipts and total cash costs were much higher for specialist tomato farms compared to specialist potato farms (table 16). Additionally, specialist tomato growers had an average farm cash income of around $40 000 more per farm than specialist potato growers. The average rate of return to capital excluding capital appreciation, at 3.7 per cent for specialist potato growers was much lower than for both specialist tomato growers and other vegetable farms.

14 Financial performance and debt characteristics, by equity ratio and farm cash income position, 2006-07

average per farm

		low equity [a]		high equity [b]	
		negative farm cash income	positive farm cash income	negative farm cash income	positive farm cash income
Total area operated	ha	200	189	702	166
Area cropped to vegetables	ha	30	54	20	29
Age of operator/owner	years	53	46	54	53
Total cash receipts	$	270 565	1 576 387	222 099	837 092
Total cash costs	$	376 642	1 156 822	273 654	578 537
Farm cash income	$	–106 077	419 565	–51 555	258 555
Farm business profit	$	–175 430	302 427	–135 936	167 052
Rate of return					
– excl. capital appreciation	%	–9.4	10.4	–5.4	5.5
Equity ratio	%	60	59	87	93
Farm business debt	$	827 117	1 075 000	325 936	215 951
Debt servicing ratio	%	34	4	13	2
Change in debt during the year	%	8	11	2	3

15 Selected estimates for specialist tomato and potato farms, 2006-07

average per farm

		specialist potato growers	specialist tomato growers	remaining vegetable farms
Population	no	1376	773	2073
Total area operated	ha	294	174	211
Age of operator/owner	years	52	49	52
Area cropped to vegetables				
Potatoes	ha	29	0	0
Pumpkins	ha	0	0.2	1
Green peas	ha	1	0	1
Beans	ha	1	0	2
Tomatoes	ha	0	22	0
Onions	ha	2	0	1
Carrots	ha	2	0	1
Cauliflowers	ha	1	0.1	1
Lettuce	ha	0	0.2	4
Broccoli	ha	1	0.1	4
Cabbage	ha	0	0.2	1
Other vegetables	ha	4	5	26
All vegetables	ha	40	27	31

Specialist tomato growers had a 16 per cent increase in their debt levels during 2006-07 compared to only 3 per cent for specialist potato growers and 5 per cent for other vegetable growers. However, their farm business debt overall was lower than for specialist potato growers and their high level of average farm cash receipts allowed them to maintain a low debt servicing ratio of around 2 per cent.

16 Financial performance and debt characteristics of specialist tomato and potato farms, 2006-07 average per farm

		specialist potato growers	specialist tomato growers	remaining vegetable farms
Total cash receipts	$	723 656	1 276 950	852 058
Total cash costs	$	523 117	1 035 925	591 111
Farm cash income	$	200 539	241 024	260 947
Farm business profit	$	97 018	155 294	168 753
Rate of return				
– excluding capital appreciation	%	3.7	7.6	8
Equity ratio	%	89	86	88
Farm business debt	$	420 859	396 590	292 185
Debt servicing ratio	%	4	2	3
Change in debt during the year	%	3	16	5

Financial performance of farms growing vegetables under protection

Vegetable growers were asked whether they produced vegetables under protection such as glass, poly, plastic or shadecloth. An estimated 18 per cent of vegetable growers produced vegetables under such protection during 2006-07.

Reflecting the nature of producing vegetables under protection, these farms operated a much smaller land size on average and had a smaller area cropped to vegetables (table 17). Growers using protection grew 1 hectare of tomatoes, 1 hectare of capsicums and 2 hectares of lettuce on average. Around 15 hectares on average were sown to other vegetables for growers using protection compared to 6 hectares on average for growers not using protection.

An estimated 67 per cent of vegetable farms that grew cucumbers used protection for vegetable growing in 2006-07. However, the majority of cucumber growers using protection grew cucumbers on areas of less than 1 hectare and growers using protection only sowed 0.3 hectares of cucumbers on average. An estimated 62 per cent of vegetable farms that grew capsicums used protection for vegetable growing in 2006-07 as well as 48 per cent of tomato growers and 31 per cent of lettuce growers.

Average farm cash income for growers who used protection was similar to those who did not use protection in 2006-07 (table 18). However, after trading stocks, depreciation and imputed labour costs were taken into account growers using protection had a farm business profit of over $20 000 more on average than those not using protection. Additionally, growers using protection had a much higher rate of return to capital, excluding appreciation.

Vegetable growers using protection were less diverse in their business with an average of 97 per cent of their receipts coming from the sale of vegetables during 2006-07 compared with 87 per cent on average for growers not using protection.

17 Selected estimates for farms that used protection, 2006-07

average per farm

		grow under protection	did not grow under protection
Total area operated	ha	69	268
Age of operator/owner	years	49	52
Area cropped to vegetables			
Potatoes	ha	0	12
Pumpkins	ha	0	1
Green peas	ha	0	1
Beans	ha	0	1
Tomatoes	ha	1	5
Onions	ha	0	2
Carrots	ha	0	1
Cauliflowers	ha	0	1
Lettuce	ha	2	2
Broccoli	ha	0	3
Cabbage	ha	0	1
Capsicum	ha	1	1
Other vegetables	ha	15	6
All vegetables	ha	20	36

On average, vegetable growers using protection had a higher rise in debt than growers not using protection during 2006-07. They also had lower equity ratio at 80 per cent compared to 89 per cent for growers who did not use protection. Despite the 12 per cent growth in their debt levels during the year, growers using protection had a lower level of farm business debt and had a low debt servicing ratio of 2 per cent.

18 Financial performance and debt characteristics for farms that used protection, 2006-07

average per farm

		grow under protection	did not grow under protection
Total cash receipts	$	846 648	897 321
Total cash costs	$	601 485	661 417
Farm cash income	$	245 163	235 904
Farm business profit	$	160 875	138 855
Proportion of receipts from vegetables	%	97	87
Rate of return			
– excluding capital appreciation	%	11.1	5.5
Equity ratio	%	80	89
Farm business debt	$	284 266	371 731
Debt servicing ratio	%	2	3
Change in debt during the year	%	12	5

4 Other issues

To gauge some of the issues faced by vegetable growers, a number of supplementary questions were added to the core questionnaire. Information was sought on a number of issues including; irrigation water use, pests and diseases, farm sale outlets, sources of information, future intentions and constraints.

Irrigation use

Irrigation water is an important input to vegetable production with 92 per cent of vegetable growers using irrigation water during 2006-07 (table 19). Vegetable farms in New South Wales were less likely to use irrigation water at 77 per cent of farms. All vegetable farms surveyed in South Australia, Northern Territory and Tasmania indicated that they had used irrigation water during 2006-07.

19 Proportion of farmers who used irrigation water, by state, 2006-07

percentage of farms

New South Wales	77
Victoria	92
Queensland	96
South Australia	100
Western Australia	98
Tasmania	100
Northern Territory	100
Australia	92

All crops relied heavily on irrigation water with at least 88 per cent of farmers using irrigation for each vegetable type (table 20). All farmers surveyed who grew beans, onions and carrots used irrigation water during 2006-07.

20 Proportion of farmers who used irrigation water, by vegetable type, 2006-07

percentage of farms

Potatoes	89
Pumpkins	93
Green peas	93
Beans	100
Tomatoes	94
Onions	100
Carrots	100
Cauliflowers	89
Lettuce	88
Broccoli	98
Cabbage	88
Other vegetables	89
All vegetables	92

During 2006-07, an average of 34 hectares of vegetable crops was irrigated per farm (table 21). The average yield from irrigated crops was 35 tonnes per hectare which was higher than the average yield for vegetable farms not using irrigation water of 21 tonnes per hectare. The average water used was 136 megalitres per farm that irrigated vegetable crops in 2006-07 which was equivalent to 4 megalitres per hectare of vegetable crops on average.

An estimated 41 per cent of irrigation water used by vegetable farms was sourced from groundwater bores and 26 per cent from an irrigation scheme (table 22). The source of irrigation water varied according to state with 45 per cent of irrigation water for vegetable crops in New South Wales sourced from an irrigation scheme.

21 Area irrigated, crop yield and water applied, by vegetable crop, 2006-07

average per farm

	area irrigated ha	production t	crop yield t/ha	water applied mL	water per ha mL/ha
Potatoes	10	378	39	47	5
Pumpkins	1	16	18	3	4
Green peas	1	4	6	1	2
Beans	1	13	10	4	3
Tomatoes	4	325	76	17	4
Onions	1	81	55	6	4
Carrots	1	84	70	6	5
Cauliflowers	1	16	23	2	3
Lettuce	2	53	29	7	4
Broccoli	2	23	10	7	3
Cabbage	1	28	42	3	5
Other vegetables	9	178	20	30	3
All vegetables	34	1 199	35	136	4

a Farms that irrigated vegetable crops in 2006-07.

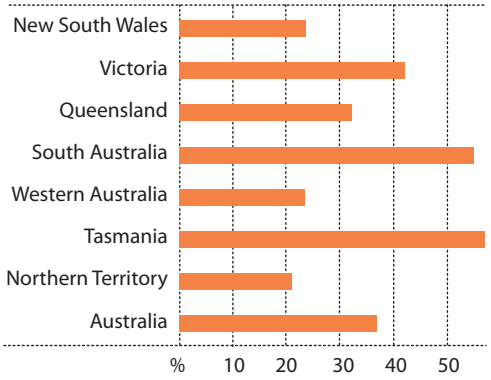
22 Sources of irrigation water, by state, 2006-07

average proportion per farm

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
Irrigation scheme	45	39	10	17	17	9	0	26
Groundwater bore	11	43	49	67	55	12	100	41
Diversion from river/stream	34	10	24	6	2	12	0	15
Town water (mains supply)	0	0	0	0	1	5	0	1
Farm storage dam	1	4	16	0	22	54	0	12
Treated or reclaimed water	0	3	0	6	0	1	0	2
Other	8	1	1	3	3	7	0	3
Total	100	100	100	100	100	100	100	100

j Farms intending to increase irrigation water use, by state, 2006-07

percentage of farms



On average, more than half of irrigation water used by vegetable farms in Tasmania came from farm storage dams compared to an 12 per cent national average.

A higher percentage of vegetable growers in Tasmania and South Australia indicated that they intend to increase irrigation water use in the future (57 per cent and 55 per cent of growers respectively) (figure j). Only around 21 per cent of vegetable growers in the Northern Territory were intending to increase irrigation water use.

A higher proportion of larger vegetable farms were intending to increase irrigation water use in the future, with 68 per cent of those with more than 70 hectares of vegetable crops sown expressing the intention compared with 26 per cent of those who had less than 5 hectares of vegetables.

The majority of additional water for irrigation use is likely to come from increased on-farm storage and purchase of additional water entitlements (table 23). An estimated 43 per cent of Tasmanian vegetable growers expected to source additional irrigation water for vegetable crops from increased on-farm storage.

23 Source of additional water, by state, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
Increase on-farm storage	9	17	15	3	6	43	0	15
Increase water reuse	0	6	1	2	0	3	0	2
Purchase entitlements	9	12	19	15	14	19	0	14
Access treated water	0	10	1	12	0	5	0	4
Undisclosed	6	10	3	24	4	0	21	7

Food safety precautions

Just less than half of Australian vegetable farms undertook a food safety assessment of their water source (table 24). Around three-quarters of vegetable growers tested produce for chemical residues. However, the proportion of vegetable growers who tested crops for chemical residue varied between states with only an estimated 17 per cent of vegetable farms in the Northern Territory conducting such a test. Similarly, only 17 per cent of vegetable growers in the Northern Territory have a food safety program in place compared to 62 per cent of Australian vegetable farms nationally. An estimated 38 per cent of vegetable growers participated in or were considering an environmental management plan.

24 Food safety precautions undertaken by vegetable growers, by state, 2006- 07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
Conducted a food safety assessment of the farms water source	11	55	67	58	58	46	59	48
Test produce for chemical residues	59	75	78	92	90	64	17	74
Have a food safety program in place	68	69	50	79	70	48	17	62
Have participated in or are considering an environmental management program	34	40	41	37	43	35	3	38

Larger vegetable farms, with more than 70 hectares of vegetables sown were more likely to undertake food safety precautions than other growers (table 25). An estimated 56 per cent of larger vegetable farms are estimated to have participated in or considered an environmental management plan compared to only 27 per cent of smaller vegetable farms, with less than 5 hectares of vegetable sown.

25 Safety precautions undertaken by vegetable growers, by area of vegetables sown, 2006-07

percentage of farms

	area sown to vegetables			
	less than 5 hectares	5 - 20 hectares	20 - 70 hectares	more than 70 hectares
Conducted a food safety assessment of the farms water source	42	37	60	62
Test produce for chemical residues	70	61	81	94
Have a food safety program in place	63	47	69	81
Have participated in or considering an environmental management program	27	37	44	56

Pests and diseases

The majority of vegetable growers were concerned with pests and diseases with an estimated 94 per cent of vegetable growers following a set pest and disease monitoring program (table 26). Most vegetable growers conducted their pest and disease monitoring routinely although vegetable growers in New South Wales were more likely to conduct intermittent pest and disease monitoring than vegetable growers in other states (figure k). Larger vegetable farms, with more than 70 hectares of vegetables sown were more likely to undertake pest and disease monitoring on a routine basis.

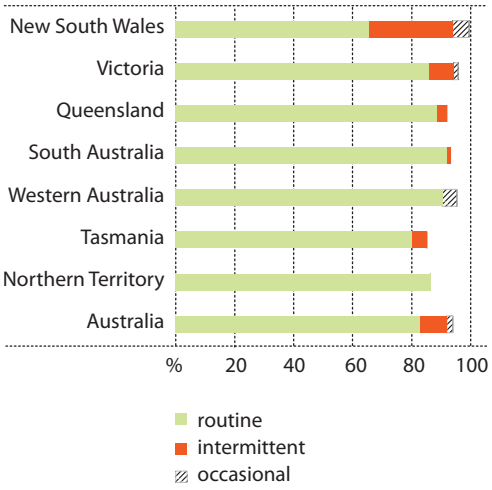
26 Pests and disease monitoring, by state, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
Follow a set pest and disease monitoring program	99	96	92	93	95	85	86	94
Support for a growers levy	86	77	77	89	72	89	47	81
Support for grower compensation	90	72	68	90	63	88	44	77

In the event of an exotic pest or disease outbreak, 81 per cent of vegetable growers supported the idea of a grower's levy that would be matched by government funding to meet the costs of eradication. The majority of vegetable growers also supported using an industry levy and joint government funding to compensate growers for lost income if crops were to be destroyed as part of the eradication effort.

k Frequency of pest and diseases monitoring, by state, 2006-07
percentage of farms



Vegetable production and selling methods

An estimated 18 per cent of vegetable growers produced vegetables under protection such as glass, plastic or shadecloth during 2006-07 (table 27). For those growing vegetables under protection, an average of 74 per cent of their vegetable revenue came from the sale of vegetables grown under protection.

Only 6 per cent of vegetable growers produced vegetables hydroponically during 2006-07 and on average 95 per cent of their vegetable revenue came from vegetables grown hydroponically.

Farms growing vegetables under protection or using hydroponics generally had a smaller area of vegetable crops sown than the average.

More than half of vegetable growers in Australia sold vegetables to the fresh vegetable market in their local capital city wholesale market and 36 per cent of vegetable revenue was received through that outlet (table 28). Selling direct to a processor was another highly used outlet (32 per cent of vegetable growers). On average, 26 per cent of total vegetable revenue was received from selling vegetables direct to a processor.

27 Vegetable production methods, 2006-07
average per farm

	NSW	VIC	QLD	SA	WA	TAS	NT	Australia
	%	%	%	%	%	%	%	%
Proportion of growers producing vegetables under protection	15	20	13	44	25	4	0	18
Share of vegetable revenue produced – under protection	10	17	10	32	13	4	0	14
– under protection for those who used protection	68	88	77	72	54	100		74
Proportion of growers producing vegetables using hydroponics	11	9	4	0	6	0	0	6
Share of vegetable revenue produced – using hydroponics	11	9	3	0	6	0	0	5
– using hydroponics for farmers who used hydroponics	100	100	69		100			95

28 Vegetable selling methods, 2006-07

average per farm

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Proportion of growers selling								
For export	3	11	3	3	15	12	0	7
Direct to food services	6	5	5	7	0	2	0	4
Interstate	11	32	32	39	12	13	59	25
Local capital wholesale	54	56	58	56	78	2	5	51
Local market	26	23	34	11	24	9	29	23
Direct to processor	28	36	13	26	15	96	0	32
Direct to retail	22	19	21	9	21	7	46	18
Proportion of vegetable revenue received from selling								
For export	1	4	0	0	3	2	0	2
Direct to food services	1	2	2	1	0	0	0	1
Interstate	6	13	18	26	5	2	58	13
Local capital wholesale	45	33	38	42	61	1	1	36
Local market	9	12	23	7	13	2	3	12
Direct to processor	27	25	8	21	9	90	0	26
Direct to retail	11	12	11	3	8	3	39	9
Total	100	100	100	100	100	100	100	100

Larger vegetable farms, with more than 70 hectares sown to vegetables were more likely to sell vegetables for export, direct to processors or interstate than other growers. However, they were less likely to sell at the local market.

Nationally, more than 80 per cent of vegetable growers rated their relationship with their main buyer as being good or excellent during 2006-07 (table 29). More than 75 per cent of vegetable growers in each state/territory had a good or excellent relationship with their main buyer except Tasmania where only 67 per cent of vegetable growers indicated this level of relationship.

Smaller vegetable farms with less than 5 hectares sown to vegetables were most likely to rate their relationship highly, with 90 per cent rating their relationship as good or excellent.

29 Relationship with main buyer, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Excellent	27	34	51	35	22	11	29	33
Good	60	44	33	57	56	56	58	49
Satisfactory	9	17	10	8	22	20	13	13
Poor	5	5	6	0	0	13	0	5

Education and training

During the two years to June 2007, just less than three-quarters of vegetable growers attended field days to improve their farm management and technical skills (table 30). Additionally, around a half of vegetable growers attended workshops and more than a third attended conferences. Only 12 per cent of vegetable growers attended a TAFE course during the two years prior to June 2007 and 1 per cent attended university.

30 Education and training undertaken by vegetable growers, by state, 2006-07

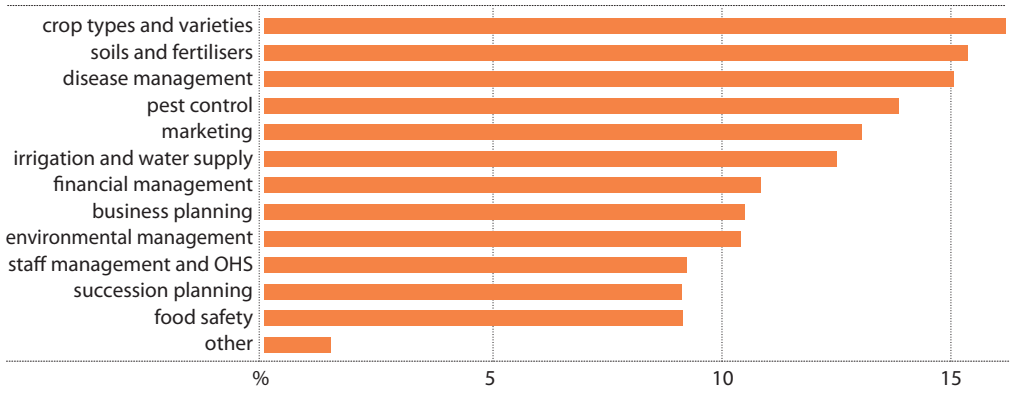
percentage of growers attending

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Conferences	32	44	21	37	32	58	3	35
Field days	61	86	69	57	72	90	52	72
TAFE	25	12	8	11	2	10	4	12
University	0	2	1	2	0	0	0	1
Workshops	56	52	25	47	52	56	54	46
Other	11	3	10	9	16	6	0	9

Vegetable growers were asked which type of training would help them to develop their business (figure I). The types of training that were most commonly thought to be helpful included, training on crop types and varieties suitable for production (16 per cent), soils and fertilisers (15 per cent), disease management (15 per cent), pest control (14 per cent), marketing (13 per cent) and irrigation and water supply (12 per cent).

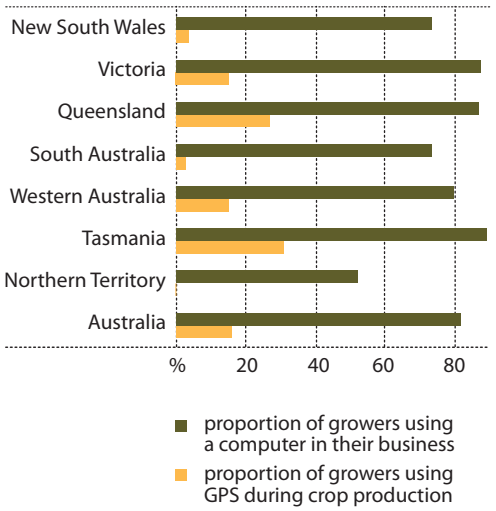
Training thought helpful to develop vegetable business, 2006-07

percentage of growers



m Computer and GPS use in vegetable farms, by state, 2006-07

percentage of growers



Use of computers

An estimated 82 per cent of vegetable growers used a computer for the running of their business during 2006-07 and 15 per cent used a GPS for preparing, planting or harvesting crops (figure m). Use of computers was highest for vegetable farms located in Tasmania, Queensland and Victoria and was lowest for vegetable farms in the Northern Territory.

The internet was commonly used to assist vegetable growers to obtain weather information (67 per cent of growers) and manage their financial affairs (64 per cent), while only 20 per cent of vegetable growers used a computer to look up media releases (table 31).

A higher proportion of larger vegetable growers, with more than 70 hectares of vegetables sown, used a computer and GPS system than smaller growers (table 32). Small vegetable farms, with less than 5 hectares of vegetables sown indicated that they used the internet for purchasing farm inputs more than larger vegetable farms. However, they were less likely to use the internet for all other categories in the survey than growers who had more than 70 hectares of vegetables sown. Only 25 per cent of small vegetable farms used the internet to access market information compared to 66 per cent of larger vegetable farms with more than 70 hectares of vegetables.

31 Use of computers in vegetable business, by state, 2006-07

percentage of growers

	NSW %	Vic %	Qld %	SA %	WA %	Tas %	NT %	Australia %
Proportion of growers using a computer for								
Education resources	21	28	21	25	36	37	22	27
Financial affairs	62	74	59	57	64	69	47	64
Industry links	36	50	25	31	43	56	26	39
Market information	27	54	36	27	46	44	48	39
Media releases	12	27	11	22	38	23	3	20
Weather information	49	79	80	57	55	72	52	67
Purchasing farm inputs	3	31	29	17	35	41	3	25
Other	1	2	0	15	7	6	0	4

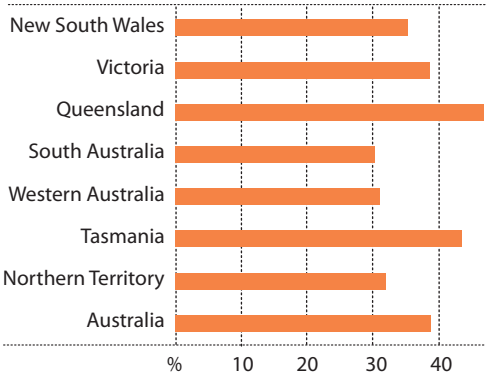
32 Use of computers and GPS in vegetable business, by area of vegetables sown, 2006-07 percentage of growers

	area sown to vegetables			
	less than 5 hectares	5 - 20 hectares	20 - 70 hectares	more than 70 hectares
Proportion of growers using a computer in their business	86	72	80	97
Proportion of growers using GPS during crop production	1	14	21	47
Use of the internet for:				
Education resources	29	22	22	41
Financial affairs	63	54	65	88
Industry links	39	24	39	71
Market information	25	41	41	66
Media releases	20	13	19	37
Weather information	67	52	74	85
Purchasing farm inputs	8	3	1	0
Other	21	20	19	56

Research and development priorities

Pest and disease management was the research and development priority most commonly rated as important for vegetable growers during 2006-07 with around 89 per cent indicating that it was a high or very high priority (table 33). Higher yielding varieties and farm productivity were also important priorities for a high proportion of vegetable growers. Only 35 per cent of vegetable growers gave chilling and storage technology a high priority.

n Growers expecting to do more value adding in the future, by state, 2006-07 percentage of growers



Value adding

An estimated 72 per cent of vegetable growers engaged in some level of value adding. However, only 29 per cent of growers regarded the extent of their value adding to be high or very high (table 34). The proportion of vegetable growers undertaking value adding varied by state with only around half of vegetable growers in Tasmania undertaking value adding in 2006-07 compared to 88 per cent of vegetable growers in Victoria.

Just less than 40 per cent of vegetable growers are expecting to do more value adding in the future (figure n).

33 Research and development priorities, by state, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Pest and disease management								
Very high	54	48	65	53	39	38	25	51
High	42	41	20	31	40	58	75	38
Medium	4	5	13	15	10	5	0	8
Low	1	4	0	0	7	0	0	2
None	0	2	2	0	4	0	0	1
Higher yielding varieties								
Very high	36	28	42	47	18	39	3	35
High	40	55	24	23	40	49	44	39
Medium	11	13	19	13	21	13	14	15
Low	12	0	9	16	8	0	39	8
None	1	4	6	1	12	0	0	4
Farm productivity								
Very high	46	35	19	37	20	35	7	32
High	43	47	47	45	38	47	40	45
Medium	10	11	23	9	21	14	41	15
Low	0	5	7	9	13	4	11	6
None	1	2	4	0	7	0	0	2
Marketing and market development								
Very high	46	40	18	22	16	32	0	30
High	35	15	29	27	40	39	14	29
Medium	12	31	34	30	16	24	42	26
Low	5	7	17	21	14	4	32	11
None	2	6	2	0	13	2	11	4
Chilling/Storage technology								
Very high	15	20	7	8	2	8	14	11
High	21	21	32	21	24	19	36	24
Medium	29	22	32	31	30	43	7	30
Low	21	29	26	27	19	17	43	24
None	14	8	4	13	25	13	0	11
Environmental sustainability								
Very high	33	38	19	24	12	18	14	26
High	44	40	46	52	29	61	38	45
Medium	17	10	25	19	25	16	3	18
Low	5	7	8	4	21	5	39	8
None	1	5	2	0	13	0	6	3
Consumer research								
Very high	20	14	14	13	8	16	3	15
High	36	28	38	10	26	25	3	29
Medium	17	39	43	33	32	27	4	32
Low	21	10	3	39	23	21	56	17
None	6	10	2	5	11	10	34	7

34 Level of value adding, by state, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Very high	15	17	11	9	2	3	0	11
High	13	28	28	3	8	6	26	18
Medium	13	20	12	13	22	17	6	15
Low	33	23	19	40	37	23	33	28
None	26	11	31	36	31	52	35	28

Future in vegetable growing

At the time of the survey, two-thirds of vegetable growers expected to be still engaged in vegetable production in five years time with 18 per cent expecting to focus on other agricultural production and 17 per cent leaving agriculture (table 35).

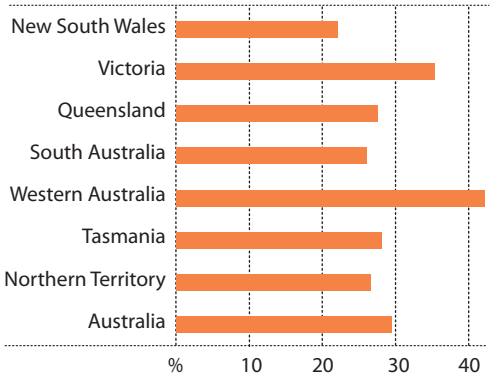
35 Intentions of vegetable growers in five years, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Vegetable production	66	59	66	77	67	52	91	64
Other agricultural production	26	19	15	4	12	30	0	18
Leave agriculture	8	21	19	19	21	19	9	17

o Intention to expand vegetable production in the next 3–5 years, 2006-07

percentage of farms



Those who indicated that they intended to leave agriculture in five years time were older on average (57 years) and operated a smaller holding of land (121 hectares per farm) during 2006-07 (table 36). Those who were intending to be more focused on other agricultural production operated from a much larger holding of land than the average vegetable farm.

During 2006-07, an estimated 29 per cent of vegetable growers intended to expand vegetable production in the next three to five years (figure o). Vegetable growers in Western Australia were the most likely to expand vegetable production in the next three to five years while growers in New South Wales were the least likely to expand vegetable production.

36 Age of operator and area operated, by intention in five years, 2006-07

average per farm

	age of operator/manager years	area operated ha	area sown to vegetables ha
Vegetable production	49	160	36
Other agricultural production	53	589	29
Leave agriculture	57	121	27
Total	50	231	33

Of those who intend to expand vegetable production in the next three to five years, the most common method of expansion was to create additional vegetable areas on existing farm land (60 per cent) followed by using existing land more intensively (table 37).

37 Intention to expand vegetable production in the next 3-5 years

percentage of farms

	NSW %	Vic %	Qld %	SA %	WA %	Tas %	NT %	Australia %
Use existing land more intensively	3	68	25	28	62	35	11	39
Additional vegetable area using existing farm	76	72	50	55	32	71	28	60
Purchase more land	7	48	37	11	32	40	72	33
Lease more land	14	23	39	49	20	59	0	31
Sharefarming arrangement	0	0	17	5	16	31	0	10

Vegetable growers were asked what management practices would improve the productivity of their farm business (table 38). The production of higher yielding varieties was the most common response (62 per cent), followed by expanding technology use (52 per cent) and expanding mechanisation (45 per cent).

38 Management practices to improve vegetable farm productivity

percentage of farms

	NSW %	Vic %	Qld %	SA %	WA %	Tas %	NT %	Australia %
Expand mechanisation	39	45	51	49	47	36	49	45
Introduce or expand technology use	42	64	50	48	45	61	43	52
Increase scale of operation	42	31	18	31	9	46	9	29
Improve financial management	0	2	4	3	13	4	0	3
Higher yielding varieties	59	68	62	81	37	58	30	62
Introduce genetically modified vegetables	10	17	11	26	17	28	4	16
Nothing	25	13	10	12	17	13	0	15
Other	2	0	2	6	29	6	0	5

Few vegetable growers believed that improved financial management would improve farm productivity. An estimated 15 per cent believed that there was nothing they could do to improve farm productivity.

Around 20 per cent of growers operating vegetable farms with less than 5 hectares of vegetables sown believed there was nothing they could do to improve farm productivity (table 39). Additionally, 24 per cent of growers with small vegetable farms believed that increasing the scale of operations or expanding technology use would improve farm productivity. The most common way that growers with small vegetable farms believed they could increase productivity was through higher yielding varieties.

39 Management practices to improve vegetable farm productivity, by area of vegetables sown, 2006-07

percentage of farms

	area sown to vegetables			
	less than 5 hectares	5 - 20 hectares	20 - 70 hectares	more than 70 hectares
Expand mechanisation	36	45	42	74
Introduce or expand technology use	40	50	54	79
Increase scale of operation	24	26	30	51
Improve financial management	3	4	3	2
Introduce genetically modified vegetables	8	13	25	25
Higher yielding varieties	64	51	66	70
Nothing	20	12	15	8
Other	5	4	5	8

While a high proportion of vegetable growers indicated that a move to higher yielding varieties would improve farm productivity, just under one-third of vegetable growers indicated that they faced one or more constraints to changing their crop mix. An estimated 18 per cent indicated that water availability was a constraint and 15 per cent viewed climate suitability as a constraint (table 40).

40 Constraints to changing vegetable crop mix, 2006-07

percentage of farms

	NSW %	Vic %	Qld %	SA %	WA %	Tas %	NT %	Australia %
Soil type or topography	1	0	9	0	14	12	0	5
Climate suitability	13	8	30	2	16	8	40	15
Water availability	18	26	26	4	4	12	0	18
Knowledge or experience								
–growing	0	0	7	0	8	3	23	3
–marketing products	0	1	6	0	2	1	3	2

The production of high quality vegetables, selling direct to retail and the production of niche products were the strategies that were most commonly agreed to be opportunities for growth (table 41). Only 10 per cent of vegetable growers saw hydroponics as an opportunity to expand their vegetable growing business.

41 Major sources of growth opportunities for vegetable farms, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Exports	22	17	13	28	30	23	0	20
Selling direct to retail	27	60	40	17	36	27	14	37
Direct to food services sector	21	22	25	31	15	25	0	23
Niche products	46	34	25	44	29	44	42	36
High quality produce	62	68	38	56	55	67	63	57
Value adding on farm	28	39	25	21	28	26	3	28
Under protective cropping	16	11	13	14	11	6	14	12
Hydroponics	18	7	11	11	5	1	0	10
Other	1	0	5	7	13	5	3	4

An estimated 21 per cent of vegetable growers saw export markets as a viable method of expanding their vegetable growing business. However, a number of impediments were highlighted (table 42). More than half of vegetable growers believed that the development of export markets was too difficult or time consuming. Inadequate prices for exported vegetables, shipping costs and insufficient farm infrastructure were also commonly agreed to be impediments to developing export markets.

42 Impediments to developing export markets for vegetable farms, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
No local agents	19	11	12	6	6	9	17	12
Prices not high enough	50	56	27	38	55	56	23	45
Shipping costs too high	41	42	18	31	18	32	11	31
Transport not available	15	14	15	9	6	2	5	12
Infrastructure on farm needed	29	33	16	31	16	42	14	27
Too hard/time consuming	38	47	78	53	45	65	63	55

Increased farm input costs was the factor most commonly agreed to be an impediment to the future viability of vegetable farms in all states (table 43). Other impediments which were reported by the majority of vegetable farms include increased marketing costs, low vegetable prices, irrigation water availability and access to or costs of labour.

43 Impediments to future business viability of vegetable farms, 2006-07

percentage of farms

	NSW	Vic	Qld	SA	WA	Tas	NT	Australia
	%	%	%	%	%	%	%	%
Increased farm input costs	94	99	96	90	91	100	100	96
Increased marketing costs	83	89	52	62	77	67	46	72
Low prices because of imports	47	93	39	80	41	91	84	64
Low prices for other reasons	50	77	41	66	69	61	68	59
Availability of irrigation water	54	85	69	67	26	71	3	64
Quality of irrigation water	7	9	5	4	12	0	0	6
Environmental sustainability	15	23	9	33	12	26	20	18
Urban expansion	36	38	5	29	42	16	14	26
Closure of local processing plant	13	12	0	6	5	24	0	9
Access/cost of labour	47	60	67	64	81	70	9	62
Other	15	3	6	13	15	3	3	8

appendix A Definitions

Area of land at business premises: Includes all land operated by the vegetable business, whether owned or rented by the business.

Capital: The value of capital employed by the vegetable business is the market value of all the assets used including leased items but excluding machinery and equipment either hired or used by contractors. Market valuations were provided by the owner manager of surveyed. Capital also includes the market value of land and fixed improvements used by the surveyed vegetable business.

Debt: Estimated as vegetable business debt. Includes all debts attributable to the vegetable business, excluding personal debt and underwritten loans. Information collected at the survey interview was supplemented by information in the business accounts.

Depreciation: Estimated by applying the diminishing value depreciation method to the market value of capital items at 30 June. Capital items are categorised into several groups and relevant depreciation rates are applied. The capital groups include vehicles; handling, harvesting and packing equipment; cultivation and sowing equipment; computers, electronic and communications equipment; other plant and equipment; and buildings on the business premises.

Equity ratio: Calculated as vegetable business equity as a percentage of total owned capital at 30 June.

Farm business profit: Farm cash income plus buildup in trading stocks, less depreciation, less the imputed value of the owner manager, partner(s) and family labour.

Farm cash income: The difference between total cash receipts and total cash costs.

Fixed improvements: Fixed assets including machinery, plant and packing sheds as well as other specialist industry buildings.

Hired labour: Excludes the owner manager, partners and family labour, and work undertaken by contractors. Expenditure on contract services appears as a cash cost.

Imputed labour cost: Payments for owner manager and family labour may bear little relationship to the actual work input. An estimate of the labour input of the owner manager, partners and their families is calculated in work-weeks and a value is imputed at the relevant Federal Pastoral Industry Award rates.

Labour: Measured in work-weeks, as estimated by the owner manager. It includes all work on the business by the owner manager, partners, family, hired permanent and casual workers, but excludes work done by contractors.

Non-farm income: Collected for the owner manager and spouse only, including income from wages, other businesses, investment and social welfare payments.

Owner operator: The primary decision maker for the vegetable business. This person is identified by discussion between interviewer and interviewee as (one of) the key decision maker(s) in the business. This person is usually responsible for the day-to-day operation of the business and may own or have a share in the vegetable business.

Profit at full equity: Farm business profit plus interest, rent and finance lease payments. It is the return produced by all the resources used in the business.

Rate of return: Computed by expressing profit at full equity as a percentage of the total opening capital of the vegetable business.

Total cash costs: Payments made by the vegetable business for materials and services and for permanent and casual hired labour (excluding owner/operator, partner and other family labour). It includes the value of any lease payments on capital, produce purchased for resale, rent and interest. Capital and household expenditures are excluded from total cash costs. Handling and marketing expenses include commission, levies etc. for business produce sold. Administration costs include accountancy fees, banking and legal expenses, postage, stationery, subscriptions and telephone. Other cash costs include stores, electricity, advisory services, motor vehicle expenses, travelling expenses and insurance. While 'other cash costs' may comprise a relatively large proportion of total cash costs, individually the components are relatively small overall and, as such, have not been listed.

Total cash receipts: Total of revenues received by the vegetable business during the financial year, including revenues from the sale of vegetable. It includes revenue received from royalties, rebates, refunds, plant hire, contracts, insurance claims and compensation, and government assistance payments.

appendix B Methodology

Target population

The survey of vegetable enterprises was designed and sample selected on the basis of a framework drawn from the Business Register maintained by the Australian Bureau of Statistics (ABS). This framework includes agricultural establishments in each statistical local area classified by size and major industry. The estimates published in this report cover establishments with an Estimated Value of Agricultural Operations (EVAO) of $40 000 or more. The EVAO is an indicator of the extent of agricultural activity. A detailed definition of this measure is given in Australian Standard Industrial Classification (ABS 1983, cat. no. 1201.0).

The vegetable growing industry definition is based on the Australian and New Zealand Standard Industrial Classification (ANZSIC). This classification is consistent with an international standard that is applied comprehensively across Australian industry, permitting comparisons between industries, both within Australia and internationally. Farms assigned to a particular ANZSIC class have a high proportion of their total output characterised by that class. Further information on ANZSIC and on the vegetable growing industry is provided in Australian and New Zealand Standard Industrial Classification (ABS 2006, cat. no. 1292.0).

For the purpose of this survey, vegetable farms in the sample were selected from units classified in ANZSIC 0122 (Vegetable growing, under cover) and 0123 (Vegetable growing, outdoors). These classes consist of units mainly engaged in growing vegetables, with primary activities including: capsicums, cucumbers, herbs, lettuces, sprouts, tomatoes, asparagus, beans, carrots, garlic, kumara, melons, onions, peas, potatoes and sweetcorn.

Survey design and sample weighting

The population was stratified by operation size using the EVAO. The size of each stratum was determined using the Dalenius Hodges method (Lehtonen and Pahkinen 2004). The sample allocation to each stratum was done using a mixture of the Neyman allocation, which takes into account variability within strata of the auxiliary variable, in this case EVAO, and proportional allocation, which only considers the population number in each stratum. The Neyman allocation allocates large proportions of sample to strata with large variability, in the case of this survey, strata of larger farms (Lehtonen and Pahkinen 2004).

In 2006-07, there were an estimated 4222 commercial vegetable farms in Australia, with an EVAO of $40 000 or more (table 44). These farms account for 85 per cent of all vegetable

44 Vegetable farms and sample numbers, 2006-07

	number of growers	survey sample
New South Wales	882	41
Victoria	910	51
Queensland	1 006	58
South Australia	454	37
Western Australia	430	40
Tasmania	484	48
Northern Territory	55	12
Australia	4 222	287

growing farms (ABS, cat. no. 7121.0) . Results are based on 287 vegetable establishments which responded to the survey.

Queensland, New South Wales and Victoria had the largest numbers of commercial vegetable farms, accounting for more than two-thirds of vegetable farms across Australia.

The estimates presented in this report are calculated by appropriately weighting the data collected from each sample farm and then using the weighted data to calculate population estimates. Generally, larger farms have small weights and smaller farms have larger weights, reflecting the strategy of sampling a higher fraction of the larger farms than of smaller farms (the former having greater variability of key characteristics).

To gauge the precision of survey estimates, Relative Standard Errors (RSE) of selected estimates are provided in appendix D. For more information on how RSEs can be interpreted and used, refer to appendix C.

Survey questionnaire

The survey of vegetable growing enterprises was conducted in September 2008 and covered the following topics:

Pre-interview questions, to

- Determine eligibility and stratification level.
- Establish business structure and activities.
- Confirm address and location.
- Check availability of financial and production data.

Production details

- Vegetable related production for the survey year (2006-07 financial year).
- Details of each type of product including quantity produced, sales, transfers, and stocks on hand.

Labour

- Family and hired labour.
- Workers' status in the operation, hours worked and wages paid.
- Questions about operator and spouses education, off-farm work and government assistance.

Assets

- Type and value of liquid assets (owned by or available to the business), land, vehicles, plant and equipment and buildings and other structural improvements used in the business.

Liabilities

- Details of farm debt.

Income and expenses

- All costs and income associated with the vegetable business.

Supplementary survey questions covering a range of issues, including:

- Irrigation water and chemical usage.
- Pests and diseases.
- Farm sale outlets.
- Sources of information.
- Future intentions.
- Constraints.
- Relationship of growers with main buyers.

The questionnaire used in 2008 is similar to that used for the 2007 survey. Results from the survey conducted in 2007 are in the report, Ashton, D, *Australian vegetable growing industry – an economic survey 2005-06*.

appendix C Reliability of estimates

The reliability of the estimates of population characteristics presented in this report depends on the design of the sample and the accuracy of the measurement of characteristics for the individual sample businesses.

Sampling errors

Only a proportion of businesses in a state are surveyed. The data collected from each sample business are weighted to calculate population estimates. Estimates derived from these businesses are likely to be different from those that would have been obtained if information had been collected from a census of all businesses. Any such differences are called 'sampling errors'.

The size of the sampling error is most influenced by the survey design and the estimation procedures, as well as the sample size and the variability of businesses in the population. The larger the sample size, the lower the sampling error is likely to be. So state estimates are likely to have greater sampling errors than national estimates.

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

Comparing estimates

When comparing estimates between different states and size groups, it is important to recognise that the differences are subject to sampling error. As a rough rule of thumb, a conservative estimate (an overestimate) of the standard error of the difference can be constructed by adding the squares of the estimated standard errors of the component estimates and then taking the square root of the result. An example is given below.

Suppose the estimates of total cash receipts were $100 000 in Victoria and $125 000 in Tasmania - a difference of $25 000 - and the relative standard error is given as 6 per cent for each estimate. The standard error of the difference can be estimated as:

$$\sqrt{(0.06 \times \$100\,000)^2 + (0.06 \times \$125\,000)^2} = \$9605$$

so the relative standard error of the difference is:

$$\left\{\frac{\$9605}{\$25\,000}\right\} \times 100 = 38\%$$

Data quality

ABARE's survey system is designed to produce data of a quality suitable for research and analysis at the unit level. This involves a set of quality controls, with procedures being tailored to the specific requirements of individual surveys. The key to the success of the system is employing specialist highly experienced survey officers and statisticians to guide the design and operation of the data collection and estimation process.

With voluntary surveys, the first critical control point is maximising the response rate of the selected survey sample. Having staff with appropriate interpersonal skills is essential. Nevertheless, low response rates can be unavoidable in some surveys. Problems of data quality arising from this source are reduced by the use of procedures to guide the selection of replacement businesses, and the use of statistical modeling in the estimation process.

Data quality is also enhanced by checks against available external data sources and by internal consistency checks. The first of these checks takes place at the time of collection. With expert survey staff and training in the specific survey topic, much of the checking for internal consistency of data is done as part of the interview. After the collection of the survey information, further automated and manual checks against the full set of collected data are made. Extreme observations are also identified and, if necessary, checked by a second contact with the survey respondent.

appendix D

Appendix tables

A1 Selected physical estimates of vegetable farms, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Farms																	
Population	no	882		910		1 006		454		430		484		55		4 222	
Sample	no	41		51		58		37		40		48		12		287	
Total area operated	ha	444	(53)	218	(22)	150	(18)	209	(20)	85	(21)	210	(16)	38	(30)	231	(22)
Seasonal conditions for vegetable growing																	
Above average	%	11	(48)	9	(69)	15	(44)	0		12	(50)	4	(97)	0		10	(26)
Average	%	56	(14)	27	(26)	28	(29)	67	(13)	72	(11)	12	(38)	100		41	(8)
Below average	%	5	(45)	34	(17)	14	(35)	17	(41)	2	(93)	57	(14)	0		20	(10)
Drought	%	29	(22)	30	(20)	42	(20)	16	(45)	15	(43)	24	(28)	0		28	(10)
Flood	%	0		0		1	(98)	0		0		2	(96)	0		1	(69)
Age of operator/ owner	years	51	(5)	52	(2)	53	(3)	49	(5)	50	(3)	53	(3)	41	(7)	51	(2)
Educational attainment of operator/owner																	
Primary school completed	%	6	(78)	1	(96)	8	(50)	6	(74)	2	(93)	0		9	(80)	4	(34)
Year 10 or less	%	51	(25)	43	(13)	40	(20)	28	(32)	50	(17)	26	(23)	65	(25)	41	(9)
Year 11 or 12	%	15	(26)	33	(24)	16	(37)	45	(22)	28	(27)	25	(24)	9	(38)	25	(11)
Trade apprenticeship/ technical	%	0		11	(33)	12	(55)	4	(49)	13	(44)	32	(23)	17	(81)	11	(19)
University education	%	28	(41)	12	(58)	24	(32)	17	(48)	5	(68)	17	(37)	0		18	(19)
Business structure																	
Sole operator	%	12	(80)	22	(35)	18	(39)	32	(22)	6	(75)	10	(39)	65	(21)	18	(19)
Partnership	%	87	(11)	75	(11)	72	(10)	56	(14)	85	(7)	85	(5)	35	(39)	76	(4)
Company	%	2	(70)	3	(68)	10	(33)	13	(36)	9	(39)	5	(50)	0		6	(19)

Figures in parenthesis are Relative Standard Errors (RSE) expressed as a percentage of the estimate provided. For more information on RSEs see appendix C.

A2 Vegetable yields, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT	Australia	
Potatoes																
Area sown	ha	6	(39)	13	(22)	6	(27)	16	(32)	9	(25)	12	(11)	na	10	(11)
Quantity harvested	t	210	(40)	397	(24)	190	(29)	638	(34)	403	(29)	635	(10)	na	357	(11)
Yield	t/ha	32	(4)	31	(12)	30	(6)	40	(7)	45	(9)	53	(4)	na	37	(4)
Pumpkins																
Area sown	ha	2	(50)	na		2	(41)	na		0	(45)	na		2	(31)	1 (29)
Quantity harvested	t	34	(40)	na		29	(49)	na		11	(54)	na		36	(49)	16 (28)
Yield	t/ha	19	(23)	na		16	(24)	na		30	(37)	na		20	(42)	18 (15)
Green peas																
Area sown	ha	0	(82)	2	(82)	na		na		na		3	(34)	na	1	(40)
Quantity harvested	t	3	(92)	6	(81)	na		na		na		14	(31)	na	4	(33)
Yield	t/ha	9	(14)	3	(83)	na		na		na		4	(10)	na	4	(35)
Beans																
Area sown	ha	na		3	(81)	1	(51)	na		na		3	(26)	na	1	(39)
Quantity harvested	t	na		31	(92)	10	(58)	na		na		22	(26)	na	12	(53)
Yield	t/ha	na		12	(16)	7	(21)	na		na		9	(17)	na	10	(18)
Tomatoes																
Area sown	ha	2	(67)	7	(52)	7	(59)	0	(47)	1	(32)	na		na	4	(34)
Quantity harvested	t	212	(63)	721	(63)	392	(60)	7	(47)	68	(40)	na		na	301	(38)
Yield	t/ha	89	(7)	97	(15)	55	(5)	38	(11)	58	(35)	na		na	76	(14)
Onions																
Area sown	ha	na		na		2	(52)	3	(37)	1	(43)	4	(18)	na	1	(20)
Quantity harvested	t	na		na		84	(53)	144	(39)	81	(39)	223	(20)	na	74	(19)
Yield	t/ha	na		na		53	(19)	51	(6)	63	(12)	60	(14)	na	55	(7)
Carrots																
Area sown	ha	na		na		na		4	(53)	4	(45)	1	(38)	na	1	(28)
Quantity harvested	t	na		na		na		279	(53)	288	(50)	106	(35)	na	77	(29)
Yield	t/ha	na		na		na		72	(2)	75	(9)	75	(7)	na	70	(6)
Cauliflowers																
Area sown	ha	1	(51)	1	(51)	0	(61)	na		1	(54)	1	(37)	na	1	(24)
Quantity harvested	t	21	(49)	17	(52)	18	(64)	na		8	(48)	16	(40)	na	15	(27)
Yield	t/ha	25	(34)	17	(18)	41	(15)	na		13	(20)	18	(11)	na	23	(15)
Lettuce																
Area sown	ha	1	(71)	3	(59)	3	(59)	na		2	(49)	na		na	2	(33)
Quantity harvested	t	30	(55)	55	(64)	96	(54)	na		89	(60)	na		na	51	(31)
Yield	t/ha	22	(57)	19	(10)	30	(12)	na		54	(21)	na		na	27	(13)
Broccoli																
Area sown	ha	na		6	(56)	na		na		2	(45)	1	(48)	na	2	(38)
Quantity harvested	t	na		67	(63)	na		na		22	(41)	13	(44)	na	21	(45)
Yield	t/ha	na		12	(15)	na		na		9	(22)	10	(22)	na	10	(16)
Cabbage																
Area sown	ha	1	(50)	1	(67)	1	(56)	na		1	(47)	na		na	1	(30)
Quantity harvested	t	25	(49)	20	(76)	69	(54)	na		13	(47)	na		na	28	(35)
Yield	t/ha	43	(24)	30	(16)	58	(10)	na		15	(38)	na		na	41	(13)

continued...

A2 Vegetable yields, by state, 2006-07

average per farm *continued*

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Other vegetables																	
Area sown	ha	5	(29)	14	(56)	15	(32)	2	(28)	5	(33)	3	(53)	14	(26)	9	(24)
Quantity harvested	t	90	(33)	238	(72)	290	(33)	98	(39)	147	(54)	8	(62)	322	(51)	170	(26)
Yield	t/ha	17	(31)	17	(27)	20	(21)	45	(21)	33	(56)	3	(79)	22	(31)	19	(13)
All vegetables																	
Area sown	ha	21	(16)	49	(20)	39	(20)	26	(18)	26	(15)	28	(11)	16	(26)	33	(9)
Quantity harvested	t	639	(23)	1 574	(29)	1 202	(26)	1 190	(19)	1 138	(20)	1 037	(9)	357	(51)	1 127	(12)
Yield	t/ha	30	(18)	32	(25)	31	(12)	45	(6)	44	(12)	37	(10)	22	(32)	34	(8)

na Because of insufficient sample points.

A3 Farm cash reciepts of vegetable farms, by state 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Cash receipts																	
Potatoes	$	97 916	(35)	125 557	(23)	176 857	(32)	164 313	28	169 169	27	141 272	10			140 789	(13)
Pumpkins	$	20 323	(46)	85	(100)	8 110	(39)	1 625	(97)	6 235	(60)			24 805	(43)	7 330	(29)
Green peas	$	5 901	(84)	15 156	(70)	3 705	(96)			6 037		5 371	(31)			6 615	(41)
Beans	$	956	(80)	33 130	(79)	4 564	(48)			11 211	(76)	8 780	(24)			10 580	(54)
Tomatoes	$	62 710	(39)	122 722	(53)	538 025	(55)	15 563	(60)	106 295	(48)	188	(97)			180 339	(40)
Onions	$	870	(95)	7 342	(82)	33 676	(60)	98 940	(53)	41 092	(46)	21 944	(22)			27 129	(29)
Carrots	$					6 466	(95)	67 591	(49)	146 257	(54)	8 664	(38)			24 693	(36)
Cauliflowers	$	12 323	(48)	23 420	(64)	6 461	(61)	4 360	(102)	9 344	(51)	9 878	(44)			11 719	(31)
Lettuce	$	29 846	(54)	67 978	(53)	109 354	(56)	72 317	(92)	100 386	(59)					64 958	(30)
Broccoli	$	20 172	(88)	90 778	(52)	916	(100)	1 431	(102)	43 815	(55)	8 705	(43)			29 623	(37)
Cabbage	$	7 858	(46)	12 196	(74)	32 517	(57)	3 928	(94)	16 493	(46)					14 125	(35)
Other vegetables	$	321 433	(81)	275 620	(46)	443 030	(31)	122 165	(23)	187 530	(41)	19 812	(71)	428 063	(33)	272 271	(26)
Other cash receipts	$	97 707	(41)	136 327	(28)	74 627	(21)	59 946	(28)	125 417	(29)	92 631	(12)	29 927	(29)	97 834	(13)
Total cash receipts	$	678 013	(39)	910 309	(19)	1 438 307	(27)	612 179	(13)	969 281	(16)	317 244	(7)	482 794	(31)	888 005	(13)
Cash receipts from vegetables	%	86	(8)	85	(5)	95	(1)	90	(3)	87	(4)	71	(4)	94	(3)	89	(2)

A4 Quantity sold, cash receipts and price received, by vegetable type, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Potatoes																	
Quantity sold	t	269	(48)	391	(24)	194	(29)	643	(34)	386	(30)	607	(10)	na		365	(12)
Cash receipts	$	97 916	(35)	125 557	(23)	176 857	(32)	164 313	(28)	169 169	(27)	141 272	(10)	na		140 789	(13)
Price received	$/t	364	(20)	321	(6)	914	(16)	255	(14)	438	(10)	233	(3)	na		386	(9)
Pumpkins																	
Quantity sold	t	34	(40)	na		31	(46)	na		11	(55)	na		36	(49)	16	(27)
Cash receipts	$	20 323	(46)	na		8 110	(39)	na		6 235	(60)	na		24 805	(43)	7 330	(29)
Price received	$/t	595	(20)	na		266	(31)	na		557	(13)	na		692	(10)	447	(20)
Green peas																	
Quantity sold	t	3	(92)	6	(81)	1	(85)	na		na		14	(31)	na		4	(34)
Cash receipts	$	5 901	(84)	15 156	(70)	3 705	(96)	na		na		5 371	(31)	na		6 615	(41)
Price received	$/t	2 040	(11)	2 426	(57)	3 846	(22)	na		na		391	(12)	na		1 639	(27)
Beans																	
Quantity sold	t	na		31	(92)	7	(51)	na		na		22	(26)	na		12	(55)
Cash receipts	$	na		33 130	(79)	4 564	(48)	na		na		8 780	(24)	na		10 580	(54)
Price received	$/t	na		1 062	(24)	636	(19)	na		na		407	(9)	na		920	(14)
Tomatoes																	
Quantity sold	t	212	(63)	721	(63)	393	(60)	7	(47)	64	(38)	na		na		301	(38)
Cash receipts	$	62 710	(39)	122 722	(53)	538 025	(55)	15 563	(60)	106 295	(48)	na		na		180 339	(40)
Price received	$/t	296	(52)	170	(21)	1 368	(8)	2 335	(42)	1 650	(16)	na		na		600	(34)
Onions																	
Quantity sold	t	na		na		68	(53)	135	(37)	74	(40)	201	(18)	na		67	(19)
Cash receipts	$	na		na		33 676	(60)	98 940	(53)	41 092	(46)	21 944	(22)	na		27 129	(29)
Price received	$/t	na		na		492	(21)	732	(36)	558	(14)	109	(13)	na		408	(18)
Carrots																	
Quantity sold	t	na		na		na		282	(52)	295	(51)	89	(36)	na		76	(30)
Cash receipts	$	na		na		na		67 591	(49)	146 257	(54)	8 664	(38)	na		24 693	(36)
Price received	$/t	na		na		na		240	(36)	495	(10)	98	(11)	na		324	(20)

continued...

A4 Quantity sold, cash receipts and price received, by vegetable type, by state, 2006-07

average per farm *continued*

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Cauliflowers																	
Quantity sold	t	21	(49)	17	(51)	18	(64)	na		7	(48)	16	(40)	na		15	(27)
Cash receipts	$	12 323	(48)	23 420	(64)	6 461	(61)	na		9344	(51)	9 878	(44)	na		11 719	(31)
Price received	$/t	587	(31)	1 411	(29)	360	(10)	na		1 322	(12)	617	(11)	na		774	(22)
Lettuce																	
Quantity sold	t	30	(55)	58	(61)	96	(54)	na		87	(60)	na		na		52	(31)
Cash receipts	$	29 846	(54)	67 978	(53)	109 354	(56)	na		100 386	(59)	na		na		64 958	(30)
Price received	$/t	1 010	(46)	1 175	(28)	1 145	(6)	na		1 148	(7)	na		na		1 247	(12)
Broccoli																	
Quantity sold	t	na		67	(63)	na		na		20	(45)	13	(44)	na		21	(46)
Cash receipts	$	na		90 778	(52)	na		na		43 815	(55)	8 705	(43)	na		29 623	(37)
Price received	$/t	na		1 352	(37)	na		na		2 214	(18)	675	(6)	na		1 422	(26)
Cabbage																	
Quantity sold	t	25	(49)	20	(76)	69	(54)	na		13	(46)	na		na		28	(35)
Cash receipts	$	7 858	(46)	12 196	(74)	32 517	(57)	na		16 493	(46)	na		na		14 125	(35)
Price received	$/t	315	(12)	622	(2)	469	(23)	na		1 301	(23)	na		na		511	(14)
Other vegetables																	
Quantity sold	t	90	(33)	203	(67)	288	(33)	102	(38)	148	(54)	8	(61)	325	(50)	163	(24)
Cash receipts	$	321 433	(81)	275 620	(46)	443 030	(31)	122 165	(23)	187 530	(41)	19 812	(71)	428 063	(33)	272 271	(26)
Price received	$/t	3 558	(89)	1 357	(58)	1 537	(21)	1 203	(30)	1 263	(55)	2 459	(42)	1317	(20)	1 675	(28)
All vegetables																	
Quantity sold	t	698	(25)	1 537	(29)	2 030	(46)	1 196	(19)	1 114	(20)	969	(9)	361	(50)	1 319	(19)
Cash receipts	$	580 306	(45)	773 982	(21)	1 363 679	(28)	552 233	(15)	843 864	(17)	224 614	(9)	452 868	(33)	790 171	(14)
Price received	$/t	831	(51)	504	(29)	672	(37)	462	(21)	757	(14)	232	(7)	1 255	(19)	599	(17)

na Because of insufficient sample points.

A5 Farm cash costs of vegetable farms, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Hired labour	$	107 770	(53)	191 705	(46)	260 512	(38)	69 017	(23)	138 633	(24)	27 209	(19)	59 313	(37)	151 387	(22)
Fertiliser	$	25 693	(21)	48 555	(17)	67 773	(48)	53 048	(18)	60 018	(15)	44 983	(9)	36 281	(40)	49 439	(17)
Contracts paid	$	8 119	(31)	73 590	(32)	117 166	(45)	26 411	(21)	19 321	(38)	48 475	(12)	19 707	(42)	56 118	(24)
Seed	$	98 624	(81)	45 090	(19)	78 224	(45)	29 720	(20)	77 809	(30)	32 855	(12)	20 590	(32)	64 134	(30)
Fuel, oil and grease	$	26 173	(19)	48 032	(17)	36 474	(23)	37 117	(19)	32 497	(19)	20 212	(10)	12 973	(35)	34 307	(9)
Crop and pasture chemicals	$	14 867	(24)	22 086	(21)	39 394	(22)	27 235	(16)	26 068	(20)	25 320	(10)	13 587	(38)	25 923	(10)
Repairs - motor vehicles and plant	$	19 264	(26)	26 399	(21)	31 302	(21)	25 021	(16)	34 431	(20)	17 401	(10)	16 386	(25)	25 584	(9)
Interest	$	20 519	(33)	42 013	(23)	20 847	(20)	18 243	(26)	23 801	(18)	25 816	(16)	7 514	(30)	25 761	(11)
Repairs - buildings and structures	$	15 504	(27)	29 921	(26)	34 319	(27)	9 803	(22)	7 296	(35)	10 277	(16)	7 282	(33)	20 943	(14)
Electricity	$	6 607	(22)	10 412	(11)	16 497	(18)	10 771	(14)	17 176	(18)	12 559	(14)	7 129	(17)	11 998	(8)
Administration	$	11 416	(42)	13 831	(11)	15 646	(22)	9 171	(14)	13 458	(12)	9 601	(8)	6 596	(12)	12 641	(11)
Land rent expense	$	4 277	(42)	9 759	(43)	23 519	(37)	10 705	(35)	8 412	(35)	8 877	(33)	47	(73)	11 631	(20)
Insurance	$	3 357	(20)	8 173	(18)	8 788	(31)	4 600	(22)	9 555	(18)	6 061	(7)	2 719	(16)	6 757	(11)
Rates	$	10 538	(48)	18 176	(23)	5 980	(21)	7 502	(19)	7 821	(25)	4 089	(12)	925	(9)	9 631	(15)
Lease payments	$	2 416	(41)	7 588	(50)	7 434	(39)	4 285	(69)	35	(93)	432	(78)			4 427	(26)
Produce purchased	$			6 512	(58)	17 627	(89)	3 345	(99)							5 966	(64)
Motor vehicle expense	$	3 315	(22)	4 416	(23)	4 643	(13)	5 165	(18)	3 410	(18)	2 058	(15)	1 058	(22)	3 904	(8)
Plant hire expense	$	6 307	(39)	7 459	(51)	8 187	(34)	3 246	(43)	9 682	(48)	1 414	(47)	1 665	(50)	6 397	(20)
Packing materials	$	21 958	(50)	51 048	(43)	176 011	(55)	22 243	(46)	85 657	(43)	722	(97)	28 560	(35)	69 120	(35)
Packing charges	$	10 237	(47)	12 254	(53)	26 314	(50)	3 310	(75)	44 275	(36)	133	(92)			15 934	(25)
Freight	$	11 524	(38)	12 968	(39)	51 581	(38)	6 445	(60)	7 627	(31)	6 526	(31)	87	(98)	19 720	(25)
Other cash costs	$	13 008	(37)	18 709	(24)	24 621	(24)	17 764	(28)	23 497	(20)	14 338	(24)	8 442	(29)	18 678	(11)
Total cash costs	$	441 493	(39)	708 696	(20)	1 072 861	(32)	404 168	(12)	650 480	(18)	319 358	(7)	250 860	(31)	650 399	(15)

A6 Financial performance of vegetable farms, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Total cash receipts	$	678 013	(39)	910 309	(19)	1 438 307	(27)	612 179	(13)	969 281	(16)	317 244	(7)	482 794	(31)	888 005	(13)
Total cash costs	$	441 493	(39)	708 696	(20)	1 072 861	(32)	404 168	(12)	650 480	(18)	319 358	(7)	250 860	(31)	650 399	(15)
Farm cash income	$	236 520	(42)	201 613	(19)	365 445	(17)	208 012	(25)	318 801	(18)	– 2113	(818)	231 934	(31)	237 606	(12)
Farms with negative farm cash income	%	17	(66)	14	(32)	7	(50)	17	(45)	2	(94)	52	(15)	21	(84)	16	(18)
Buildup in trading stocks	$	2 345	(59)	– 158	(124)	167	(202)	250	(168)			1 603	(108)			707	(52)
Depreciation	$	35 333	(21)	60 984	(21)	38 716	(17)	32 731	(11)	40 085	(19)	30 921	(9)	17 343	(24)	41 135	(9)
Operator and family imputed labour	$	54 005	(8)	54 907	(6)	58 518	(4)	48 755	(6)	62 386	(6)	43 837	(6)	44 504	(12)	54 275	(3)
Farm business profit	$	149 528	(61)	85 565	(44)	268 379	(22)	126 777	(41)	216 330	(23)	–75 268	(22)	170 088	(40)	142 903	(18)
Farms with negative farm business profit	%	44	(27)	45	(20)	44	(12)	49	(20)	33	(25)	74	(9)	52	(29)	47	(8)
Profit at full equity																	
– excl. capital app.	%	181 709	(55)	142 939	(27)	313 736	(20)	157 991	(33)	248 475	(21)	– 40 372	(38)	177 649	(39)	182 176	(15)
– incl. capital app.	%	230 833	(67)	422 567	(20)	618 353	(18)	261 735	(22)	535 821	(16)	212 018	(29)	222 887	(31)	359 067	(19)
Rate of return																	
– excl. capital app.	%	7	(54)	4	(26)	12	(17)	6	(39)	7	(26)	– 2	(38)	14	(32)	6	(15)
– incl. capital app.	%	9	(68)	10	(19)	23	(15)	10	(28)	14	(16)	10	(28)	18	(25)	12	(18)
Change in farm debt during the year	%	11	(85)	8	(87)	2	(217)	– 2	(377)	20	(78)	0	(639)	44	(28)	6	(48)
Total farm debt at 30 June	$	303 456	(28)	493 938	(25)	378 813	(20)	221 003	(23)	345 100	(20)	344 666	(17)	151 412	(20)	355 768	(10)
Total farm capital at 30 June	$	2 678 390	(15)	3 900 690	(10)	3 037 376	(18)	2 507 549	(18)	3 691 275	(19)	2 317 263	(8)	1 690 746	(15)	3 018 492	(7)
Farm equity ratio	%	89	(4)	87	(4)	87	(3)	91	(3)	91	(3)	85	(3)	91	(2)	88	(2)
Debt servicing ratio	%	3	(30)	5	(22)	1	(32)	3	(28)	3	(23)	9	(17)	2	(35)	3	(15)

A7 Area irrigated and irrigated vegetable production, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Area irrigated																	
Potatoes	ha	7	(45)	12	(23)	6	(28)	16	(32)	9	(25)	12	(11)	0		10	(12)
Pumpkins	ha	2	(56)	0	(100)	2	(41)	0		0	(45)	0		2	(31)	1	(30)
Green peas	ha	0	(82)	0	(107)	0	(80)	0		0		3	(34)	0		1	(28)
Beans	ha	0	(80)	3	(81)	2	(52)	0		0	(69)	3	(26)	0		1	(39)
Tomatoes	ha	3	(67)	8	(52)	7	(59)	0	(47)	1	(32)	0	(97)	0		4	(34)
Onions	ha	0	(95)	0	(92)	2	(52)	3	(37)	1	(43)	4	(18)	0		1	(20)
Carrots	ha	0		0		1	(83)	4	(53)	4	(45)	1	(38)	0		1	(28)
Cauliflowers	ha	1	(62)	1	(52)	0	(61)	0	(102)	1	(54)	1	(37)	0		1	(25)
Lettuce	ha	1	(72)	3	(59)	3	(60)	1	(92)	2	(48)	0		0		2	(35)
Broccoli	ha	3	(92)	6	(56)	0	(100)	0	(102)	2	(47)	1	(48)	0		2	(38)
Cabbage	ha	0	(54)	1	(67)	1	(56)	0	(94)	1	(47)	0		0		1	(32)
Other vegetables	ha	5	(32)	15	(58)	15	(32)	2	(28)	4	(37)	3	(53)	14	(26)	9	(25)
All vegetables	ha	22	(18)	49	(22)	40	(20)	26	(18)	26	(15)	28	(11)	16	(26)	34	(10)
Production																	
Potatoes	t	239	(46)	420	(24)	194	(30)	638	(34)	411	(29)	635	(10)	0		378	(12)
Pumpkins	t	39	(46)	0	(100)	30	(50)	3	(97)	12	(54)	0		36	(49)	16	(30)
Green peas	t	4	(92)	5	(109)	1	(85)	0		3		14	(31)	0		4	(36)
Beans	t	1	(80)	34	(92)	10	(58)	0		5	(84)	22	(26)	0		13	(53)
Tomatoes	t	270	(65)	783	(63)	408	(60)	7	(47)	69	(40)	0	(97)	0		325	(39)
Onions	t	1	(95)	25	(93)	87	(53)	144	(39)	83	(39)	223	(20)	0		81	(19)
Carrots	t	0		0		25	(100)	279	(53)	294	(50)	106	(35)	0		84	(29)
Cauliflowers	t	23	(56)	18	(52)	19	(64)	3	(102)	8	(48)	16	(40)	0		16	(28)
Lettuce	t	32	(64)	60	(64)	96	(56)	13	(92)	90	(59)	0		0		53	(32)
Broccoli	t	17	(90)	73	(63)	0	(100)	1	(102)	20	(45)	13	(44)	0		23	(46)
Cabbage	t	22	(62)	21	(76)	72	(54)	4	(94)	14	(47)	0		0		28	(37)
Other vegetables	t	94	(40)	255	(72)	302	(33)	98	(39)	140	(58)	8	(62)	322	(51)	178	(27)
All vegetables	t	741	(26)	1 695	(29)	1 244	(26)	1 190	(19)	1 148	(20)	1 037	(9)	357	(51)	1 199	(12)

A8 Volume of irrigation water used and use per hectare, by state, 2006-07

average per farm

		NSW		Vic		Qld		SA		WA		Tas		NT		Australia	
Volume of irrigation water applied																	
Potatoes	ML	36	(54)	50	(24)	31	(32)	92	(31)	38	(26)	61	(11)			47	(13)
Pumpkins	ML	10	(56)	0	(100)	3	(47)	1	(97)	3	(51)			14	(35)	3	(33)
Green peas	ML	0	(79)	0	(107)	0	(80)					9	(35)			1	(30)
Beans	ML	0	(139)	10	(82)	2	(66)			2	(84)	5	(25)			4	(53)
Tomatoes	ML	21	(70)	33	(46)	20	(76)	1	(52)	10	(40)	0	(97)			17	(33)
Onions	ML			1	(94)	4	(58)	19	(40)	9	(40)	17	(30)			6	(20)
Carrots	ML					1	(91)	16	(48)	26	(46)	4	(41)			6	(29)
Cauliflowers	ML	2	(62)	3	(59)	1	(71)	1	(102)	4	(58)	2	(36)			2	(28)
Lettuce	ML	2	(66)	14	(57)	8	(64)	7	(92)	12	(43)					7	(32)
Broccoli	ML	8	(92)	15	(57)	0	(100)	1	(102)	17	(63)	3	(49)			7	(37)
Cabbage	ML	2	(58)	2	(80)	7	(63)	1	(94)	5	(44)					3	(37)
Other vegetables	ML	19	(32)	29	(48)	59	(35)	11	(31)	26	(41)	5	(59)	111	(20)	30	(20)
All vegetables	ML	112	(22)	158	(15)	136	(23)	150	(18)	152	(18)	106	(10)	125	(19)	136	(8)
Irrigation water per hectare																	
Potatoes	Ml/ha	5	(12)	4	(10)	5	(12)	6	(8)	4	(22)	5	(9)			5	(5)
Pumpkins	Ml/ha	5	(3)	1		2	(12)			8	(23)				(17)	4	(13)
Green peas	Ml/ha	0	(20)	1	(1)	3						3	(8)			2	(14)
Beans	Ml/ha	0	(129)	4	(4)	1	(29)			6	(23)	2	(21)			3	(18)
Tomatoes	Ml/ha	7	(6)	4	(11)	3	(33)	3	(23)	9	(27)	10				4	(13)
Onions	Ml/ha	0		2	(2)	2	(10)	7	(13)	7	(20)	5	(19)			4	(12)
Carrots	Ml/ha					2	(12)	4	(20)	7	(14)	3	(15)			5	(13)
Cauliflowers	Ml/ha	2	(26)	3	(20)	1	(46)	5		6	(28)	3	(11)			3	(15)
Lettuce	Ml/ha	3	(19)	5	(15)	2	(11)	11		7	(12)					4	(14)
Broccoli	Ml/ha	3	(1)	3	(19)	0		6		7	(27)	3	(37)			3	(16)
Cabbage	Ml/ha	6	(21)	3	(21)	5	(11)	2		5	(42)					5	(12)
Other vegetables	Ml/ha	4	(17)	2	(31)	4	(18)	5	(24)	6	(23)	2	(30)	8	(19)	3	(17)
All vegetables	Ml/ha	5	(12)	3	(14)	3	(10)	6	(8)	6	(12)	4	(8)	8	(18)	4	(6)

A9 Selected physical estimates of vegetable farms, by area of vegetables sown, 2006-07 average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Farms											
Population	no	1 304		1 203		1 205		510		4 222	
Sample	no	56		75		101		55		287	
Total area operated	ha	206	(82)	123	(20)	241	(16)	527	(14)	231	(22)
Age of operator/ owner	years	51	(4)	53	(3)	51	(2)	51	(4)	51	(2)
Seasonal conditions for vegetable growing											
Above average	%	14	(44)	6	(57)	5	(53)	17	(45)	10	(26)
Average	%	71	(9)	31	(20)	24	(20)	29	(22)	41	(8)
Below average	%	8	(42)	26	(21)	30	(14)	16	(36)	20	(10)
Drought	%	7	(49)	36	(19)	40	(15)	38	(20)	28	(10)
Flood	%	0		1	(96)	1	(99)	0		1	(69)
Educational attainment of operator/owner											
Primary school completed	%	5	(66)	3	(64)	4	(89)	6	(82)	4	(34)
Year 10 or less	%	31	(30)	43	(17)	56	(10)	29	(22)	41	(9)
Year 11 or 12	%	29	(26)	18	(24)	23	(19)	35	(22)	25	(11)
Trade apprenticeship/ technical	%	12	(44)	8	(35)	11	(24)	13	(41)	11	(19)
University education	%	23	(39)	27	(24)	5	(37)	17	(35)	18	(19)
Business structure											
Sole operator	%	29	(25)	18	(34)	8	(42)	10	(75)	18	(19)
Partnership	%	71	(10)	80	(7)	81	(5)	66	(15)	76	(4)
Company	%	0		2	(97)	10	(22)	23	(27)	6	(19)

A10 Vegetable yields, by area of vegetables sown, 2006-07

average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Potatoes											
Area sown	ha	0.3	(45)	3	(19)	15	(12)	37	(19)	10	(11)
Quantity harvested	t	10	(47)	110	(17)	533	(12)	1 413	(19)	357	(11)
Yield	t/ha	33	(21)	37	(10)	36	(7)	38	(4)	37	(4)
Pumpkins											
Area sown	ha	0.1	(63)	1	(45)	2	(40)	1	(82)	1	(29)
Quantity harvested	t	2	(66)	8	(50)	38	(38)	18	(71)	16	(28)
Yield	t/ha	19	(11)	14	(34)	21	(20)	13	(14)	18	(15)
Green peas											
Area sown	ha	na		0.2	(60)	1	(45)	6	(58)	1	(40)
Quantity harvested	t	na		2	(66)	4	(54)	20	(36)	4	(33)
Yield	t/ha	na		7	(39)	6	(21)	3	(55)	4	(35)
Beans											
Area sown	ha	na		0.5	(32)	2	(33)	4	(63)	1	(39)
Quantity harvested	t	na		5	(38)	15	(32)	53	(73)	12	(53)
Yield	t/ha	na		11	(15)	7	(13)	13	(13)	10	(18)
Tomatoes											
Area sown	ha	0.3	(29)	0	(30)	3	(43)	25	(44)	4	(34)
Quantity harvested	t	31	(42)	18	(44)	166	(46)	1976	(53)	301	(38)
Yield	t/ha	101	(33)	54	(46)	64	(15)	79	(19)	76	(14)
Onions											
Area sown	ha	na		1	(38)	1	(22)	7	(30)	1	(20)
Quantity harvested	t	na		24	(42)	89	(27)	343	(29)	74	(19)
Yield	t/ha	na		39	(14)	68	(11)	52	(9)	55	(7)
Carrots											
Area sown	ha	na		na		2	(36)	4	(38)	1	(28)
Quantity harvested	t	na		na		122	(37)	335	(41)	77	(29)
Yield	t/ha	na		na		65	(8)	74	(7)	70	(6)
Cauliflowers											
Area sown	ha	na		1	(47)	1	(36)	1	(49)	1	(24)
Quantity harvested	t	na		12	(48)	32	(38)	21	(58)	15	(27)
Yield	t/ha	na		19	(12)	25	(24)	23	(15)	23	(15)
Lettuce											
Area sown	ha	na		na		2	(100)	11	(48)	2	(33)
Quantity harvested	t	na		na		35	(52)	282	(47)	51	(31)
Yield	t/ha	na		na		21	(75)	26	(13)	27	(13)
Broccoli											
Area sown	ha	na		na		3	(40)	10	(39)	2	(38)
Quantity harvested	t	na		na		26	(35)	105	(50)	21	(45)
Yield	t/ha	na		na		9	(20)	11	(20)	10	(16)

continued...

A10 Vegetable yields, by area of vegetables sown, 2006-07

average per farm *continued*

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Cabbage											
Area sown	ha	na		na		2	(47)	1	(65)	1	(30)
Quantity harvested	t	na		na		67	(46)	54	(85)	28	(35)
Yield	t/ha	na		na		44	(17)	46	(27)	41	(13)
Other vegetables											
Area sown	ha	0.6	(20)	5	(15)	6	(20)	46	(39)	9	(24)
Quantity harvested	t	26	(25)	80	(39)	155	(23)	787	(48)	170	(26)
Yield	t/ha	43	(26)	17	(39)	25	(13)	17	(26)	19	(13)
All vegetables											
Area sown	ha	2	(8)	11	(6)	39	(4)	153	(11)	33	(9)
Quantity harvested	t	98	(16)	274	(13)	1 281	(7)	5 407	(20)	1 127	(12)
Yield	t/ha	55	(19)	25	(13)	33	(6)	35	(17)	34	(8)

na Because of insufficient sample points.

A11 Farm cash receipts of vegetable farms, by area of vegetables sown, 2006-07

average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Cash receipts											
Potatoes	$	7 191	(48)	56 339	(27)	190 731	(15)	563 967	(22)	140 789	(13)
Pumpkins	$	1 006	(66)	5 517	(46)	16 697	(43)	5 645	(62)	7 330	(29)
Green peas	$			2 957	(74)	5 545	(69)	34 711	(60)	6 615	(41)
Beans	$			6 013	(51)	11 731	(57)	45 720	(74)	10 580	(54)
Tomatoes	$	54 403	(33)	32 147	(51)	41 934	(42)	1 179 768	(45)	180 339	(40)
Onions	$	207	(113)	10 604	(49)	16 932	(29)	159 154	(39)	27 129	(29)
Carrots	$	2 582	(81)			27 236	(42)	133 563	(48)	24 693	(36)
Cauliflowers	$	581	(97)	17 358	(61)	18 253	(36)	11 464	(52)	11 719	(31)
Lettuce	$	38 694	(46)	5 459	(51)	26 521	(64)	363 523	(43)	64 958	(30)
Broccoli	$	151	(97)	11 681	(77)	25 759	(41)	156 544	(44)	29 623	(37)
Cabbage	$			6 504	(40)	26 887	(44)	38 087	(84)	14 125	(35)
Other vegetables	$	68 204	(21)	113 858	(26)	145 570	(32)	1 468 123	(35)	272 271	(26)
Other cash receipts	$	35 529	(69)	42 560	(17)	156 480	(18)	249 089	(26)	97 834	(13)
Total cash receipts	$	208 547	(17)	310 997	(11)	710 275	(7)	4 409 358	(16)	888 005	(13)
Cash receipts from vegetables	%	83	(11)	86	(3)	78	(5)	94	(1)	89	(2)

A12 Quantity sold, cash receipts and price received, by area of vegetables sown, 2006-07 average per farm

		area sown to vegetables									
		less than 5 hectares		5 - 20 hectares		20 - 70 hectares		more than 70 hectares		all farms	
Potatoes											
Quantity sold	t	9	(46)	115	(17)	518	(12)	1 504	(21)	365	(12)
Cash receipts	$	7 191	(48)	56 339	(27)	190 731	(15)	563 967	(22)	140 789	(13)
Price received	$/t	762	(39)	490	(23)	369	(9)	375	(15)	386	(9)
Pumpkins											
Quantity sold	t	2	(66)	10	(44)	38	(38)	18	(71)	16	(27)
Cash receipts	$	1 006	(66)	5 517	(46)	16 697	(43)	5 645	(62)	7 330	(29)
Price received	$/t	462	(1)	546	(8)	445	(31)	315	(12)	447	(20)
Green peas											
Quantity sold	t	na		2	(66)	4	(55)	20	(36)	4	(34)
Cash receipts	$	na		2 957	(74)	5 545	(69)	34 711	(60)	6 615	(41)
Price received	$/t	na		1 874	(29)	1 353	(29)	1 734	(49)	1 639	(27)
Beans											
Quantity sold	t	na		5	(37)	13	(30)	53	(73)	12	(55)
Cash receipts	$	na		6 013	(51)	11 731	(57)	45 720	(74)	10 580	(54)
Price received	$/t	na		1 163	(28)	934	(40)	856	(2)	920	(14)
Tomatoes											
Quantity sold	t	31	(42)	17	(41)	166	(46)	1 978	(53)	301	(38)
Cash receipts	$	54 403	(33)	32 147	(51)	41 934	(42)	1 179 768	(45)	180 339	(40)
Price received	$/t	1 750	(15)	1 842	(17)	253	(48)	596	(45)	600	(34)
Onions											
Quantity sold	t	na		24	(41)	71	(21)	322	(29)	67	(19)
Cash receipts	$	na		10 604	(49)	16 932	(29)	159 154	(39)	27 129	(29)
Price received	$/t	na		451	(21)	240	(23)	495	(24)	408	(18)
Carrots											
Quantity sold	t	na		na		118	(38)	337	(42)	76	(30)
Cash receipts	$	na		na		27 236	(42)	133 563	(48)	24 693	(36)
Price received	$/t	na		na		232	(33)	396	(18)	324	(20)
Cauliflowers											
Quantity sold	t	na		12	(49)	32	(39)	21	(58)	15	(27)
Cash receipts	$	na		17 358	(61)	18 253	(36)	11 464	(52)	11 719	(31)
Price received	$/t	na		1 494	(24)	571	(23)	552	(14)	774	(22)
Lettuce											
Quantity sold	t	na		na		35	(52)	286	(46)	52	(31)
Cash receipts	$	na		na		26 521	(64)	363 523	(43)	64 958	(30)
Price received	$/t	na		na		758	(33)	1 273	(15)	1 247	(12)
Broccoli											
Quantity sold	t	na		na		25	(36)	105	(50)	21	(46)
Cash receipts	$	na		na		25 759	(41)	156 544	(44)	29 623	(37)
Price received	$/t	na		na		1 034	(16)	1 488	(43)	1 422	(26)

continued...

A12 Quantity sold, cash receipts and price received, by area of vegetables sown, 2006-07

average per farm *continued*

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Cabbage											
Quantity sold	t	na		na		67	(46)	54	(85)	28	(35)
Cash receipts	$	na		na		26 887	(44)	38 087	(84)	14 125	(35)
Price received	$/t	na		na		401	(15)	710	(2)	511	(14)
Other vegetables											
Quantity sold	t	28	(24)	79	(39)	155	(23)	724	(43)	163	(24)
Cash receipts	$	68 204	(21)	113 858	(26)	145 570	(32)	1 468 123	(35)	272 271	(26)
Price received	$/t	2 433	(18)	1 449	(39)	941	(25)	2 028	(48)	1 675	(28)
All vegetables											
Quantity sold	t	101	(15)	278	(12)	1 240	(7)	7 082	(28)	1 319	(19)
Cash receipts	$	173 018	(12)	268 437	(13)	553 795	(8)	4 160 269	(16)	790 171	(14)
Price received	$/t	1 714	(12)	966	(15)	447	(10)	587	(26)	599	(17)

na Because of insufficient sample points.

A13 Farm cash costs of vegetable farms, by area of vegetables sown, 2006-07

average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Hired labour	$	27 365	(25)	41 852	(15)	76 775	(13)	903 811	(25)	151 387	(22)
Fertiliser	$	8 859	(17)	18 510	(12)	52 398	(8)	219 315	(23)	49 439	(17)
Contracts paid	$	2 230	(30)	19 638	(24)	44 904	(19)	306 666	(34)	56 118	(24)
Seed	$	9 961	(24)	13 431	(13)	33 296	(10)	395 398	(34)	64 134	(30)
Fuel, oil and grease	$	6 710	(19)	14 005	(10)	41 064	(7)	136 886	(15)	34 307	(9)
Crop and pasture chemicals	$	3 335	(21)	9 347	(15)	26 006	(10)	122 667	(16)	25 923	(10)
Repairs - motor vehicles and plant	$	4 070	(18)	9 389	(12)	28 611	(9)	111 720	(15)	25 584	(9)
Interest	$	11 149	(33)	11 745	(18)	27 225	(13)	92 781	(21)	25 761	(11)
Repairs - buildings and structures	$	9 499	(23)	9 134	(22)	18 032	(21)	84 993	(23)	20 943	(14)
Electricity	$	4 683	(16)	6 011	(10)	12 702	(7)	43 189	(10)	11 998	(8)
Administration	$	4 659	(11)	6 775	(5)	11 841	(7)	48 807	(17)	12 641	(11)
Land rent expense	$	1 402	(42)	3 252	(37)	6 475	(19)	69 781	(17)	11 631	(20)
Insurance	$	1 730	(18)	3 444	(12)	7 655	(8)	25 317	(12)	6 757	(11)
Rates	$	3 299	(18)	4 378	(14)	10 102	(12)	37 120	(34)	9 631	(15)
Lease payments	$	1 219	(52)	2 087	(43)	3 670	(65)	19 951	(34)	4 427	(26)
Produce purchased	$	1 878	(72)	1 046	(86)	1 965	(98)	37 500	(83)	5 966	(64)
Motor vehicle expense	$	3 269	(26)	2 399	(13)	4 702	(13)	7 196	(15)	3 904	(8)
Plant hire expense	$	261	(59)	865	(34)	6 193	(46)	35 642	(20)	6 397	(20)
Packing materials	$	15 356	(49)	18 255	(33)	28 886	(21)	421 936	(34)	69 120	(35)
Packing charges	$	4 556	(57)	8 246	(41)	15 912	(36)	63 255	(42)	15 934	(25)
Freight	$	1 946	(27)	6 072	(26)	18 561	(28)	100 165	(38)	19 720	(25)
Other cash costs	$	7 376	(26)	9 018	(23)	14 879	(16)	79 390	(19)	18 678	(11)
Total cash costs	$	134 813	(14)	218 899	(9)	491 856	(7)	3 363 485	(17)	650 399	(15)

A14 Financial performance of vegetable farms, by area of vegetables sown, 2006-07

average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Total cash receipts	$	208 547	(17)	310 997	(11)	710 275	(7)	4 409 358	(16)	888 005	(13)
Total cash costs	$	134 813	(14)	218 899	(9)	491 856	(7)	3 363 485	(17)	650 399	(15)
Farm cash income	$	73 734	(27)	92 098	(25)	218 419	(12)	1 045 873	(17)	237 606	(12)
Proportion of farms with negative farm cash income	%	13	(54)	23	(26)	18	(18)	5	(38)	16	(18)
Build up in trading stocks	$			356	(91)	741	(126)	3 265	(58)	707	(52)
Depreciation	$	11 240	(11)	23 770	(9)	48 911	(6)	140 254	(22)	41 135	(9)
Operator and family imputed labour	$	45 795	(6)	51 287	(4)	61 930	(6)	64 925	(7)	54 275	(3)
Farm business profit	$	16 699	(110)	17 397	(127)	108 319	(24)	843 959	(20)	142 903	(18)
Proportion of farms with negative farm business profit		57	(16)	58	(12)	38	(12)	20	(30)	47	(8)
Profit at full equity											
– excl. capital app.	$	29 744	(73)	33 886	(65)	143 983	(17)	1 012 672	(17)	182 176	(15)
– incl. capital app.	$	92 903	(29)	24 545	(825)	414 297	(12)	1 699 328	(13)	359 067	(19)
Rate of return											
– excl. capital app.	%	3	(71)	2	(63)	4	(18)	13	(22)	6	(15)
– incl. capital app.	%	8	(30)	1	(835)	10	(11)	21	(18)	12	(18)
Change in farm debt during the year	%	18	(34)	3	(143)	–2	(120)	9	(70)	6	(48)
Total farm debt at 30 June	$	147 133	(31)	170 566	(18)	320 713	(13)	1 657 154	(17)	355 768	(10)
Total farm capital at 30 June	$	1 227 382	(12)	1 928 884	(9)	4 100 790	(8)	8 853 180	(11)	3 018 492	(7)
Farm equity ratio	%	88	(5)	91	(2)	92	(1)	81	(5)	88	(2)
Debt servicing ratio	%	5	(24)	4	(22)	4	(17)	2	(24)	3	(15)

A15 Area irrigated and irrigated vegetable production, by area of vegetables sown, 2006-07 average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Area irrigated											
Potatoes	ha	0	(45)	3	(19)	14	(12)	38	(19)	10	(12)
Pumpkins	ha	0	(63)	1	(46)	2	(53)	1	(82)	1	(30)
Green peas	ha	0		0	(60)	1	(53)	3	(31)	1	(28)
Beans	ha	0		1	(32)	2	(33)	4	(62)	1	(39)
Tomatoes	ha	0	(30)	0	(30)	3	(44)	26	(45)	4	(34)
Onions	ha	0	(113)	1	(37)	1	(22)	7	(30)	1	(20)
Carrots	ha	0	(89)	0		2	(36)	5	(38)	1	(28)
Cauliflowers	ha	0	(97)	1	(51)	1	(39)	1	(49)	1	(25)
Lettuce	ha	0	(42)	0	(55)	1	(48)	11	(49)	2	(35)
Broccoli	ha	0	(97)	0	(66)	3	(46)	10	(37)	2	(38)
Cabbage	ha	0		0	(47)	1	(44)	1	(65)	1	(32)
Other vegetables	ha	1	(20)	4	(17)	6	(23)	48	(40)	9	(25)
All vegetables	ha	2	(9)	11	(7)	37	(3)	154	(12)	34	(10)
Production											
Potatoes	t	11	(47)	119	(18)	542	(13)	1 450	(19)	378	(12)
Pumpkins	t	2	(66)	10	(52)	36	(48)	18	(71)	16	(30)
Green peas	t	0		2	(66)	4	(64)	17	(43)	4	(36)
Beans	t	0		6	(38)	16	(32)	55	(72)	13	(53)
Tomatoes	t	29	(47)	22	(44)	176	(48)	2 027	(54)	325	(39)
Onions	t	3	(113)	28	(43)	94	(27)	352	(29)	81	(19)
Carrots	t	7	(75)	0		130	(37)	343	(41)	84	(29)
Cauliflowers	t	1	(97)	12	(52)	33	(43)	21	(58)	16	(28)
Lettuce	t	17	(59)	5	(57)	34	(55)	290	(47)	53	(32)
Broccoli	t	0	(97)	4	(59)	26	(40)	108	(48)	23	(46)
Cabbage	t	0		6	(46)	67	(47)	55	(85)	28	(37)
Other vegetables	t	26	(27)	87	(41)	151	(26)	808	(49)	178	(27)
All vegetables	t	95	(17)	300	(13)	1 311	(8)	5 544	(21)	1 199	(12)

A16 Volume of irrigation water used and use per hectare, by area of vegetables sown, 2006-07

average per farm

		area sown to vegetables									
		less than 5 hectares		5 – 20 hectares		20 – 70 hectares		more than 70 hectares		all farms	
Volume of irrigation water applied											
Potatoes	ML	1	(56)	15	(20)	61	(14)	197	(21)	47	(13)
Pumpkins	ML	1	(77)	2	(36)	8	(59)	4	(71)	3	(33)
Green peas	ML	0		1	(68)	1	(68)	7	(34)	1	(30)
Beans	ML	0		2	(47)	4	(43)	15	(71)	4	(53)
Tomatoes	ML	1	(42)	3	(38)	15	(43)	90	(47)	17	(33)
Onions	ML	0	(113)	2	(46)	6	(26)	34	(27)	6	(20)
Carrots	ML	0	(97)	0		7	(31)	27	(40)	6	(29)
Cauliflowers	ML	0	(97)	2	(48)	4	(40)	1	(45)	2	(28)
Lettuce	ML	1	(49)	1	(58)	5	(48)	42	(48)	7	(32)
Broccoli	ML	0	(97)	2	(65)	9	(50)	30	(44)	7	(37)
Cabbage	ML	0		1	(43)	13	(69)	5	(77)	3	(37)
Other vegetables	ML	3	(20)	21	(19)	20	(29)	141	(29)	30	(20)
All vegetables	ML	8	(12)	51	(9)	152	(7)	594	(8)	136	(8)
Irrigation water per hectare											
Potatoes	Ml/ha	4	(34)	5	(11)	4	(9)	5	(6)	5	(5)
Pumpkins	Ml/ha	4	(34)	2	(35)	4	(14)	3	(14)	4	(13)
Green peas	Ml/ha			3	(32)	2	(50)	2	(10)	2	(14)
Beans	Ml/ha			3	(30)	2	(24)	3	(12)	3	(18)
Tomatoes	Ml/ha	4	(33)	7	(36)	5	(10)	4	(17)	4	(13)
Onions	Ml/ha	3		3	(37)	4	(16)	5	(18)	4	(12)
Carrots	Ml/ha	4	(12)			3	(13)	6	(13)	5	(13)
Cauliflowers	Ml/ha	3		3	(17)	3	(23)	1	(40)	3	(15)
Lettuce	Ml/ha	4	(58)	9	(10)	4	(29)	4	(18)	4	(14)
Broccoli	Ml/ha	10		7	(9)	3	(14)	3	(28)	3	(16)
Cabbage	Ml/ha			4	(48)	9	(61)	3	(16)	5	(12)
Other vegetables	Ml/ha	5	(18)	5	(19)	3	(16)	3	(27)	3	(17)
All vegetables	Ml/ha	4	(13)	5	(9)	4	(7)	4	(10)	4	(6)

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10.08

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