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Horticulture Innovation Australia

# Australian vegetable growing farm businesses

## An economic survey, 2013–14 and 2014–15

Clay Mifsud and Haydn Valle

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**Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)**

Postal address GPO Box 858 Canberra ACT 2601
Switchboard +61 2 6272 3933
Email info.abares@agriculture.gov.au
Web agriculture.gov.au/abares



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# Contents



# Tables

# Figures

# Maps



# Boxes

# Key points

## The vegetable growing industry

- The Australian vegetable growing industry is an important part of Australian agriculture, contributing around 7 per cent ($3.8 billion) to the gross value of agricultural production in 2014–15 (ABARES 2015).
- The industry's gross value of production has grown at an average annual rate of 2.4 per cent in real terms between the early 1980s and 2014–15. Since 2006–07 the average annual rate of growth has slowed to below 1 per cent a year (in real terms).

## Farm cash income

- Between 2005–06 and 2013–14, the estimated average farm cash income of Australian vegetable growers remained relatively constant. Over this period, increased estimated average total cash receipts were matched by increased estimated average total cash costs. This reflects an increase in the size of vegetable growing farms and a shift towards high-value, high-cost vegetable crops.
- In 2014–15 (the most recent survey year) average farm cash income of Australian vegetable growing farms is estimated to have remained steady at around $186 000 a farm. In real terms, estimated average farm cash income increased or remained similar to 2013–14 across most states. The exception was Western Australia, where production was lost at farms around Carnarvon as a result of Cyclone Olwyn in March.

## Rate of return

- The average rate of return to farm capital of Australian vegetable growing farms remained largely unchanged between 2013–14 and 2014–15 at around 2.6 per cent. Between 2005–06 and 2009–10, the estimated average rate of return on capital (excluding capital appreciation) across Australian vegetable growing farms was higher than the grains, dairy and broadacre livestock industries surveyed by ABARES. However, between 2010–11 and 2013–14, rates of return (excluding capital appreciation) across Australian vegetable growing farms declined.
- The estimated average rate of return (excluding capital appreciation) for top performing vegetable growing farms (that is, the top 25 per cent of farms ranked by their rate of return on capital) was greater than 10 per cent in 2014–15. These farms were typically large and had a high level of capital investment. Top performing vegetable growing farms are also high-cost, high-return producers compared with bottom performing farms.
- The estimated average rate of return (excluding capital appreciation) for bottom performing vegetable growing farms (that is, the bottom 25 per of farms ranked by their rate of return on capital) was –11 per cent in 2014–15. These farms were typically small and reported below average seasonal conditions, and farmers were more likely to retire or leave the industry in the next five years.

## Debt

- The majority of debt held by Australian vegetable growing farms is for land purchases and working capital management. Nationally, farm debt fell by 15 per cent during 2013–14 to an average of $474 700 (in 2014–15 dollar terms). Estimated average farm debt held by vegetable growing farms declined across all states except Tasmania.
- Around 35 per cent of Australian vegetable growing farms reduced overall farm debt in 2013–14, mostly as a result of a cash flow surplus (that is, profit). In comparison, 22 per cent of farms increased debt—mostly for the purpose of purchasing land.

# 1 Introduction

The Australian vegetable growing sector is an important source of food. It supplies most of the fresh vegetables consumed in Australia and provides inputs for a large proportion of the processed vegetable products consumed in Australia and exported.

Horticulture Innovation Australia Limited (Hort Innovation), formerly known as Horticulture Australia Limited, commissioned ABARES to conduct annual surveys of Australian vegetable growers to monitor the performance of vegetable growing farms. Since 2007 ABARES has conducted an annual survey of vegetable growing farm businesses to provide industry and government with information about farm-level production and the financial situation of vegetable growers.

These surveys provide comprehensive information on the physical, financial and socioeconomic characteristics of vegetable growing farms in each state. The information in these survey reports provides a unique time series that can be used to make evidence-based decisions and monitor changes in the industry. The results are used to inform industry and government decision-makers about key trends and drivers of vegetable industry farm performance.

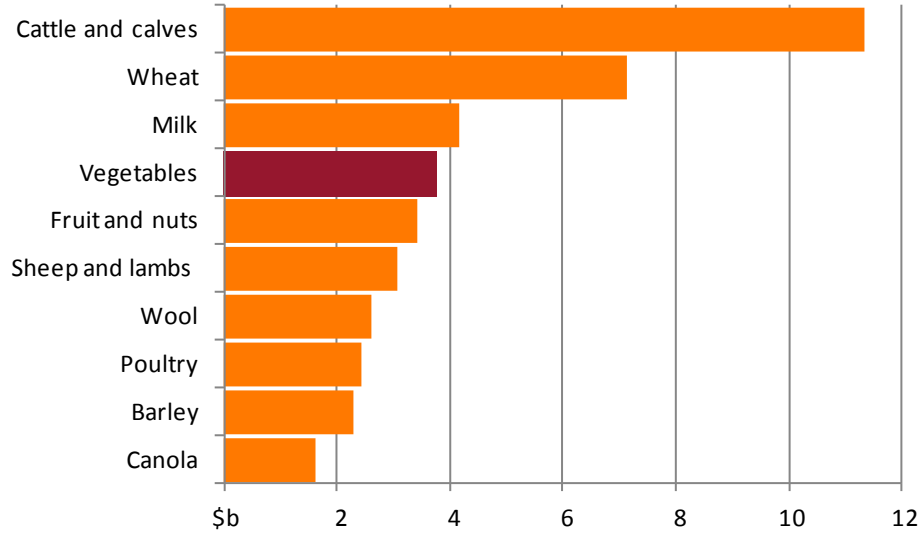
ABARES conducted the surveys in cooperation with the vegetable industry. The latest Australian vegetable survey was the ninth conducted by ABARES on behalf of Hort Innovation.

This report contains results from the ABARES survey of vegetable growing farms conducted from March to May 2015, which collected data on the characteristics of vegetable farms in 2013–14 and 2014–15. Financial performance results in this report are shown at the whole farm level and include income and expenditure from all activities, not just vegetable growing (see Appendix A: Survey methods and definitions). The report also draws on data from previous ABARES surveys of vegetable growing farms to show trends where appropriate. All survey variables and ABS data are available up to and including 2013–14. Results for 2014–15 are only available for key physical and financial performance measures, because these were largely based on projections made by farmers at the time of the survey rather than recorded outcomes.

# 2 Overview of the vegetable industry

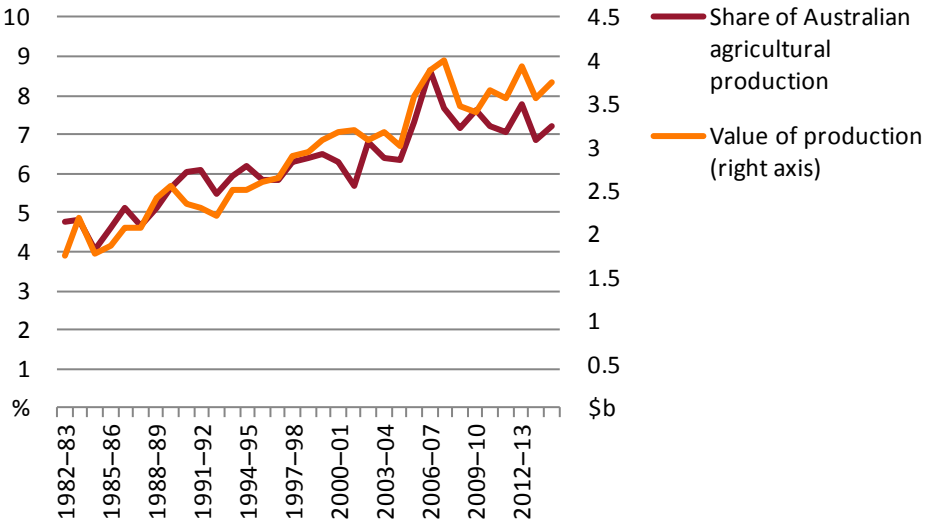
Vegetable growing is the fourth highest value agricultural industry in Australia. It was estimated to be worth around $3.8 billion at the farm gate in 2014–15 (Figure 1) (ABARES 2015). From the early 1980s, the value of vegetable production increased in real terms at an average annual rate of 2.4 per cent (Figure 2). Vegetables as a proportion of the total value of Australian agricultural production increased from 4.8 per cent to 8.6 per cent in 2006–07. From 2007–08 to 2014–15 the value of vegetable production in Australia fluctuated between $3.4 billion and $4 billion, accounting for around 7.4 per cent of the gross value of agricultural production over this period.

**Figure 1 Top 10 Australian agricultural industries, by gross value of production, 2014–15**




Note: Financial results are presented in 2014–15 dollars.
Source: ABARES 2015

**Figure 2 Gross value of Australian vegetable production, 1982–83 to 2014–15**




Note: The 2014–15 value is an ABARES estimate. For all other years ABS data are used. Gross value of production results are presented in 2014–15 dollars. Results are derived from the population of Australian farms that planted vegetables.
Source: ABARES 2015, ABS 2015a, ABS 2015b

Several factors have contributed to the increased gross value of vegetable production in Australia, including substantial structural adjustment. Historically, a large number of small farms accounted for the majority of the population. However, between 2011–12 and 2013–14 13 per cent of farms accounted for around 71 per cent of the total value of vegetables produced. The increase in average farm size, and ongoing capital investment in new technologies, has contributed to increased productivity on vegetable farms. Productivity growth is key to agricultural industries remaining competitive and farmers maintaining profitability to ensure long-term viability.

In 2013–14 the number of Australian vegetable growing farms with an estimated value of agricultural operations (EVAO) greater than $40 000 decreased by 3 per cent to 2 595 farms (Table 1). The majority of this change was attributable to changes in the number of small farms (farms that planted less than 5 hectares of vegetables), which decreased by 25 per cent to 805 farms. Unlike larger farms, the population of small farms changes markedly from year to year in response to seasonal and market conditions. Farmers can enter and exit vegetable production relatively easily compared with other agricultural industries because of the lower capital requirements.

**Table 1 Area planted to vegetables, sample and population, Australian vegetable growing farms, 2012–13 and 2013–14**

| **2012–13** | **Units** | **<5 hectares** | **5–20 hectares** | **20–70 hectares** | **>70 hectares** |
|---|---|---|---|---|---|
| Area planted to vegetables **a** | ha | 2 | 11 | 38 | 190 |
| Realised sample | no. | 91 | 71 | 79 | 68 |
| No. of growers | no. | 1 072 | 801 | 535 | 269 |
| **2013–14 p** | | | | | |
| Area planted to vegetables **a** | ha | 2 | 10 | 37 | 200 |
| Realised sample | no. | 80 | 73 | 81 | 64 |
| No. of growers | no. | 805 | 859 | 598 | 333 |

**a** Average per farm. **p** Preliminary estimate.
Note: ABARES surveys vegetable growing farm businesses with an estimated value of agricultural operations of $40 000 or greater.
Source: ABARES Australian vegetable growing farms survey

The vegetable growing industry makes an important contribution to regional economies. The wide range of climates and soils in Australia enables many types of vegetables to be grown in various parts of the country. The main vegetable producing regions include:

- parts of the Murray–Darling Basin
- close to Brisbane, in south-east Queensland
- Bundaberg, north of Brisbane
- Bowen, in north Queensland
- the Mornington Peninsula, Bacchus Marsh, the Clyde and Werribee regions close to Melbourne
- Lindenow, in the far east of Victoria
- south-east South Australia and Virginia, close to Adelaide
- northern Tasmania

- south-west Western Australia
- areas close to Perth, including Gingin.

In 2013–14 the latest year for which estimates from the ABS are available, Queensland and Victoria were the two largest vegetable growing states. They collectively accounted for 56 per cent of the value of vegetable production.

The average proportion of a farm's total area sown to vegetables varies considerably between states (Table 2). Vegetable cropping intensity was highest in Victoria and Queensland, with 30 per cent and 26 per cent of the total area operated sown to vegetables.

**Table 2 Selected farm physical characteristics, Australian vegetable growing farms, by state, 2013–14**

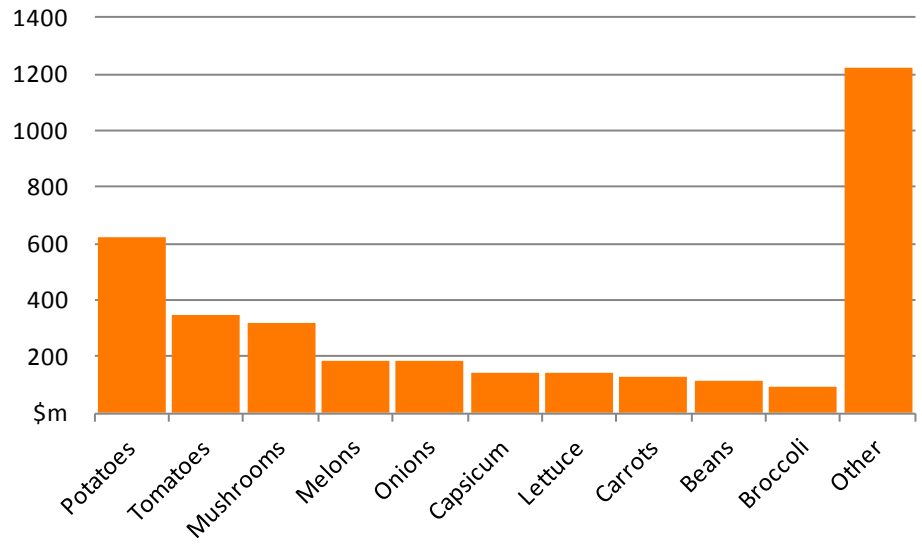
average per farm

| Selected physical characteristics | Units | NSW | Vic. | Qld | SA | WA | Tas. |
|---|---|---|---|---|---|---|---|
| Area sown to vegetables | ha | 23 | 58 | 48 | 36 | 28 | 29 |
| Total area planted to crops | ha | 44 | 88 | 77 | 64 | 44 | 100 |
| Total area operated | ha | 126 | 191 | 184 | 289 | 207 | 304 |
| Total volume of irrigated water | ML | 142 | 189 | 157 | 231 | 187 | 155 |
| Beef cattle on hand 30 June | no. | 35 | 58 | 35 | 21 | 71 | 174 |
| Sheep on hand 30 June | no. | 163 | 117 | na | 75 | 190 | 442 |

**na** Not available.
Source: ABARES Australian vegetable growing farms survey

The range of vegetables grown in Australia is diverse, with more than 35 individual vegetable commodities contributing to the industry value of around $3.6 billion in 2013–14. The 10 largest crops by value of production made up 65 per cent of the total value of vegetable production in 2013–14 (Figure 3). The remaining value is the sum of less commonly grown vegetables. These include beetroot, brussels sprouts, eggplant, leek and radish.

**Figure 3 Value of Australian vegetable production, by commodity, 2013–14**




Note: Values in 2014–15 dollars.
Source: ABS 2015b

Many vegetable growing farms in Australia grow more than one vegetable commodity. In 2013–14 around 54 per cent of vegetable growing businesses produced two or more types of vegetables (Table 3). Diversifying the mix of vegetables produced can help manage risk of variation in market prices of different vegetables but can also reflect natural resource endowments, capital requirements and technical ability of farm managers.

Cultivating crops outdoors remains the most common method of growing vegetables. In 2013–14 an estimated 84 per cent of Australian vegetable growing farm businesses had exclusively outdoor vegetable operations. Some farms grew vegetables using hydroponic (4 per cent) or cover (14 per cent) such as glass or shade cloth.

Artificial environments often generate higher crop yields, give farmers more control over output quality and can ensure a more reliable supply. However, these production systems are more input-intensive, so vegetable growing farms using them need higher returns to cover their higher costs. A range of vegetable types are grown under cover, but ABARES surveys show that mostly tomatoes and cucumbers are grown in these environments.

**Table 3 Farm characteristics, Australian vegetable growing farms, 2011–12 to 2013–14**

| **Area planted to vegetables** | **2011–12** | **(%)** | **2012–13** | **(%)** | **2013–14p** | **(%)** |
|---|---|---|---|---|---|---|
| <5 hectares | 35 | (10) | 40 | (10) | 32 | (12) |
| 5–20 | 33 | (13) | 30 | (13) | 32 | (13) |
| 20–70 | 22 | (12) | 20 | (13) | 23 | (13) |
| >70 hectares | 10 | (11) | 10 | (14) | 13 | (7) |
| **Number of vegetable types planted** | | | | | | |
| 1 | 56 | (7) | 48 | (8) | 46 | (8) |
| 2 | 18 | (17) | 25 | (17) | 22 | (16) |
| 3 or more | 26 | (11) | 27 | (15) | 32 | (11) |
| **Growing environment** | | | | | | |
| Outdoors only | 84 | (2) | 80 | (2) | 84 | (3) |
| Use hydroponics | 6 | (24) | 7 | (28) | 4 | (34) |
| Use other cover (for example, glass or shade cloth) | 9 | (19) | 13 | (17) | 12 | (19) |

**p** Preliminary estimate.
Note: Percentages have been rounded to nearest whole number. Detailed farm characteristics are not available for the projection year 2014–15. Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian vegetable growing farms survey

## Box 1 Recent changes in prices and production of vegetables

Changes in quantity of vegetables produced and prices received for them account for most changes observed in farm cash income in the vegetable growing industry. As a result, the financial performance results outlined in this report should be viewed in the context of realised production quantities and market prices faced by vegetable growers at the farm gate.

Australian vegetable farms mostly produce for the domestic market (Table 4). Changes in vegetable prices tend to vary inversely with domestic production. However, some vegetable commodity prices are more sensitive than others. The relationship between prices and production is more pronounced for vegetables than many other agricultural commodities produced in Australia, particularly those that are more export oriented—including beef and grains.

### Table 4 Markets for vegetable produce, Australian vegetable growing farms, 2013–14

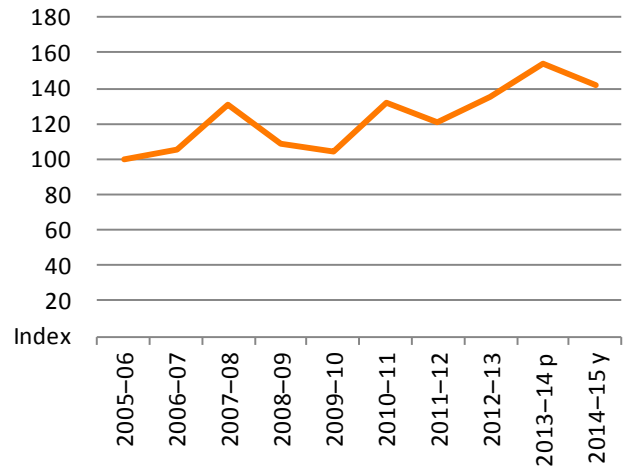
percentage of farms

| Vegetables sold | 2013–14 p (%) | |
|---|---|---|
| For export | 3 | (33) |
| Direct to food services | 1 | (58) |
| Interstate | 21 | (14) |
| State capital wholesale | 59 | (7) |
| Local market | 18 | (21) |
| Direct to processor | 32 | (11) |
| Direct to retail | 14 | (17) |

**p** Preliminary estimate.
Note: Percentages have been rounded to the nearest whole number. Percentages will not equal 100 because farms can sell vegetables to multiple markets. Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian vegetable growing farms survey

The weighted index of farmgate prices received for the main vegetables produced by Australian vegetable growing farm businesses declined by 6 per cent in 2014–15 (Figure 4). Changes in supply, rather than demand, accounted for the majority of changes in vegetable prices. Consumer demand for vegetables is relatively steady but supply changes more frequently because growers have flexibility in enterprise mix, especially compared with other agricultural industries such as cattle grazing or dairy farming.

### Figure 4 Farmgate price index, vegetable commodities, Australian vegetable growing farms, 2005–06 to 2014–15




**p** Preliminary estimate. **y** Provisional estimate.
Note: The financial year 2005–06 equals 100.
Source: ABARES Australian vegetable growing farms survey

## Box 2 Seasonal conditions and production outcomes in 2014–15

Seasonal conditions and water availability have a considerable influence on the financial performance of vegetable growing farms. Seasonal conditions and rainfall typically vary across the main vegetable producing regions, both within and between years. During times of above average rainfall, storage allows farms to collect surplus water and water crops during periods of low rainfall to ensure maintenance of acceptable yields.

Vegetable growing farms source water using a combination of irrigation schemes, groundwater and on-farm storage such as dams (Table 5). When rainfall is higher than average, the proportion of water sourced from groundwater usually rises as producers take advantage of favourable soil moisture profiles. Conversely, when rainfall is below average, producers usually supplement low soil moisture with irrigated water.

### Table 5 Water sources, Australian vegetable growing farms, 2013–14

percentage of farms

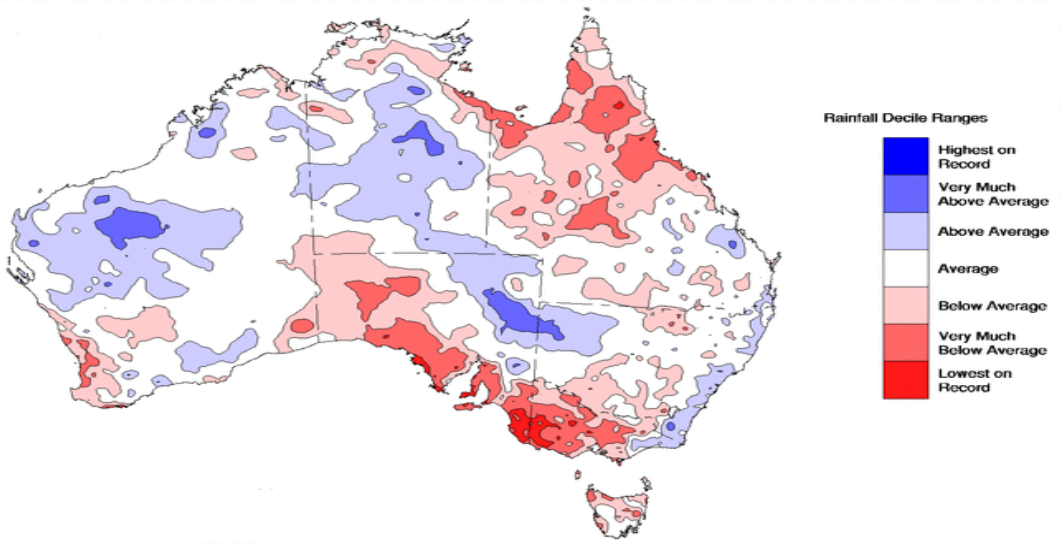
| Water source | 2013–14 p | (%) |
|---|---|---|
| Irrigation scheme | 15 | (19) |
| Ground water | 39 | (9) |
| On-farm storage | 33 | (11) |
| Other | 18 | (15) |

**p** Preliminary estimate.
Note: Percentages will not equal 100 because farms can source their water from multiple water sources. Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian vegetable growing farms survey

Seasonal conditions in 2013–14 varied considerably across the main vegetable growing regions. In coastal regions of New South Wales and Queensland, rainfall was mostly below average and in some regions was the lowest on record. In the main growing regions of Victoria and Western Australia, rainfall was generally around average. Conversely, rainfall in South Australia and Tasmania was above average and in some regions was very much above average. However, high rainfall in these regions resulted in some crop losses because rain washed away or damaged crops.

In 2014–15 rainfall in the coastal vegetable growing regions of New South Wales and southern Queensland was average to above average. This ensured adequate water availability in these regions (Map 1). In most other vegetable growing regions, seasonal conditions were generally less favourable because of below average rainfall and some localised extreme weather events. In Carnarvon (north-west Western Australia), extreme winds from Cyclone Olwyn in March 2015 caused widespread damage to vegetable crops.

### Map 1 Australian rainfall deciles, 1 July 2014 to 30 June 2015



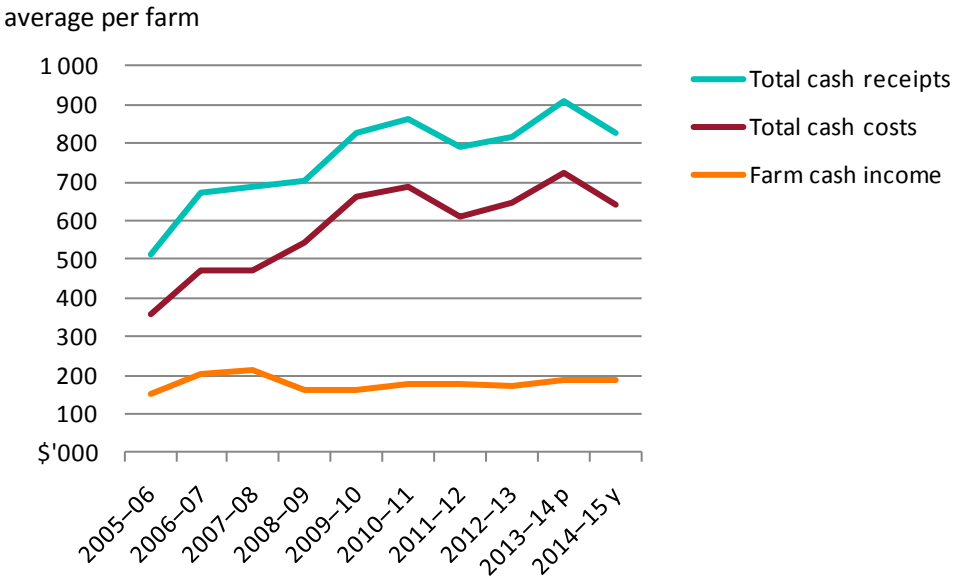

Source: Bureau of Meteorology

# 3 Financial performance of the vegetable growing industry

## Farm cash income

Between 2005–06 and 2013–14, estimated average farm cash income of Australian vegetable growing farms remained relatively stable (Figure 5). Estimated average total cash costs increased in line with increases in estimated average total cash receipts.

**Figure 5 Total cash receipts, total cash costs and farm cash income, Australian vegetable growing farms, 2005–06 to 2014–15**




**p** Preliminary estimate. **y** Provisional estimate.
Note: Financial results are expressed in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

In 2013–14 estimated average farm cash income of vegetable growing farms increased by 15 per cent to $185 500 (Table 6). Vegetable cash receipts increased as a result of higher vegetable production from an increase in the average area planted to vegetables and higher yields. Farmgate prices were also generally higher. Average total cash costs increased by 16 per cent to $712 400, reflecting increased expenditure required to plant and harvest a much larger vegetable crop.

Overall, estimated farm cash income across Australian vegetable growing farms in 2014–15 remained similar to 2013–14, averaging $186 000 (Table 6). Estimated average area planted to vegetables was 35 hectares in 2014–15, 10 per cent lower than in 2013–14. However, yields for most vegetable commodities were higher in 2014–15 than in 2013–14 and estimated average vegetable production remained about the same.

Lower prices for most vegetables offset increased production, reducing estimated average vegetable receipts. In addition, receipts from other agricultural activities (such as livestock, grain cropping and some dairy production) declined by 9 per cent to $112 000. Estimated average total cash costs also declined—particularly for fuel, oil and grease; interest paid; and packing charges and materials. Lower estimated average total cash costs offset lower estimated average total cash receipts, resulting in a small increase in farm cash income.

**Table 6 Financial performance, Australian vegetable growing farms, 2012–13 to 2014–15**

average per farm

| Financial estimates | Units | 2012–13 | 2013–14 p | | 2014–15 y |
|---|---|---|---|---|---|
| Realised sample | no. | 309 | 298 | – | 298 |
| No. of growers | no. | 2 677 | 2 595 | – | 2 595 |
| **Cash receipts** | | | | | |
| Vegetable cash receipts | $ | 641 510 | 774 900 | (10) | 714 000 |
| Other cash receipts | $ | 134 390 | 123 000 | (11) | 112 000 |
| Total cash receipts | $ | 775 900 | 897 900 | (9) | 826 000 |
| % cash receipts from vegetables | % | 83 | 86 | (2) | 86 |
| **Cash costs** | | | | | |
| Hired labour | $ | 105 700 | 116 200 | (11) | 109 000 |
| Fertiliser | $ | 50 820 | 55 500 | (7) | 54 000 |
| Contracts paid | $ | 59 530 | 78 300 | (18) | 69 000 |
| Seed | $ | 43 380 | 56 900 | (10) | 52 000 |
| Fuel, oil and grease | $ | 38 510 | 41 400 | (12) | 33 000 |
| Crop and pasture chemicals | $ | 30 830 | 31 700 | (10) | 31 000 |
| Repairs and maintenance – buildings | $ | 14 940 | 14 800 | (13) | 13 000 |
| Interest | $ | 37 990 | 32 300 | (17) | 27 000 |
| Electricity | $ | 21 150 | 22 100 | (10) | 19 000 |
| Administration | $ | 15 010 | 15 200 | (11) | 15 000 |
| Land rent | $ | 6 640 | 9 800 | (17) | 9 000 |
| Packing charges and materials | $ | 43 010 | 63 800 | (23) | 51 000 |
| Rates | $ | 10 010 | 10 800 | (7) | 11 000 |
| Freight | $ | 37 000 | 41 400 | (14) | 37 000 |
| Vehicles, plant and equipment maintenance | $ | 32 890 | 38 700 | (11) | 33 000 |
| Total cash costs | $ | 614 090 | 712 400 | (9) | 640 000 |
| **Farm financial performance** | | | | | |
| Farm cash income | $ | 161 810 | 185 500 | (13) | 186 000 |
| Farm business profit | $ | 48 180 | 61 200 | (36) | 62 000 |
| **Rate of return a** | | | | | |
| – excluding capital appreciation | % | 2.3 | 2.7 | (22) | 2.6 |
| – including capital appreciation | % | 2.7 | 5.6 | (28) | na |
| Farm capital at 30 June **b** | $ | 4 050 880 | 4 046 200 | (9) | na |
| Farm debt at 30 June **c** | $ | 561 450 | 474 700 | (11) | na |
| Equity ratio **cd** | % | 86 | 85 | (2) | na |

**a** Rate of return to farm capital at 1 July. **b** Excludes leased plant and equipment. **c** Average per responding farm. **d** Equity expressed as a percentage of farm capital. **p** Preliminary estimate. **y** Provisional estimate. **na** Not available.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian vegetable growing farms survey

### Box 3 Major financial performance indicators

**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

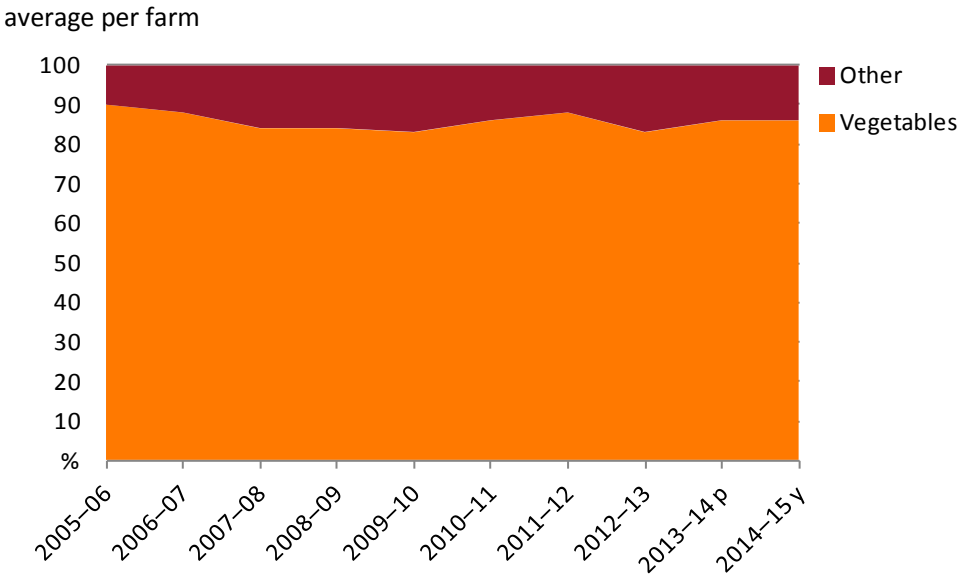
*farm business profit + rent + interest + finance lease payments – depreciation on leased items*

**Rate of return:** return to all capital used (*profit at full equity/total opening capital*) x 100

## Total cash receipts

Farms are classified to the vegetable growing industry if they derive more than 50 per cent of their total cash receipts from the sale of vegetables. In 2014–15 receipts from the sale of vegetables accounted for, on average, 86 per cent of the total receipts of Australian vegetable growing farms (Figure 6). Sales of potatoes, tomatoes, cauliflowers, carrots and onions contributed most to cash receipts from the sale of vegetables.

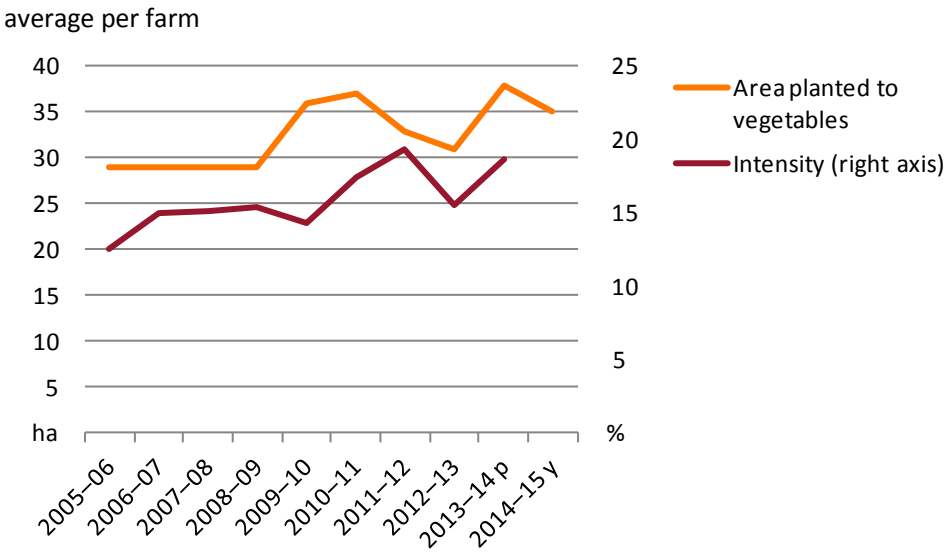
### Figure 6 Composition of cash receipts, Australian vegetable growing farms, 2005–06 to 2014–15




**p** Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian vegetable growing farms survey

Increasing estimated average total cash receipts can be explained partly by a shift towards larger farms (Figure 7). Average area planted to vegetables between 2005–06 and 2007–08 was 29 hectares, compared with 37 hectares in 2010–11. In 2013–14 average area planted to vegetables was 39 hectares, the highest recorded since 2005–06. Additionally, intensity of vegetable production (area sown to vegetables as a proportion of total area operated) increased.

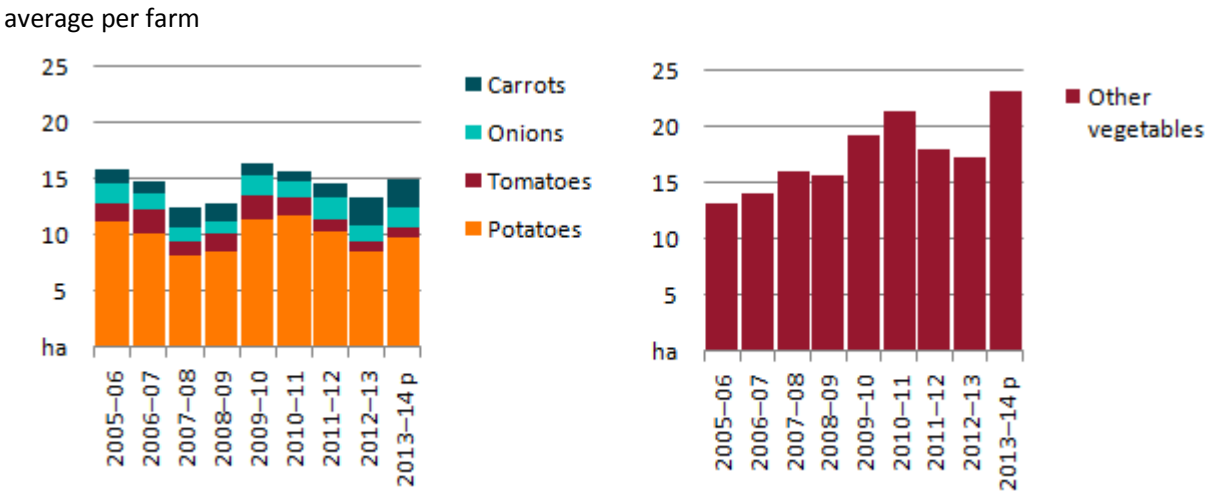
**Figure 7 Area planted to vegetables and intensity of vegetable production, Australian vegetable growing farms, 2005–06 to 2014–15**




**p** Preliminary estimate. **y** Provisional estimate.
Note: Estimates for total area operated at 30 June for projection year are not available.
Source: ABARES Australian vegetable growing farms survey

Furthermore, the mix of vegetables grown shifted towards high-value vegetable crops (for example, broccoli and green beans, green peas and lettuce) and away from high-volume vegetable crops (for example, carrots, onions, potatoes, tomatoes). Between 2007–08 and 2013–14, average area planted to carrots, onions, potatoes and tomatoes remained relatively constant and average area planted to other vegetables increased (Figure 8). Average unit value of high-return vegetables also increased between 2007–08 and 2013–14 while for low-cost, high-volume vegetables it remained constant (Figure 9). Consequently, less commonly grown vegetables accounted for an increasing proportion of total cropping receipts (Figure 9).

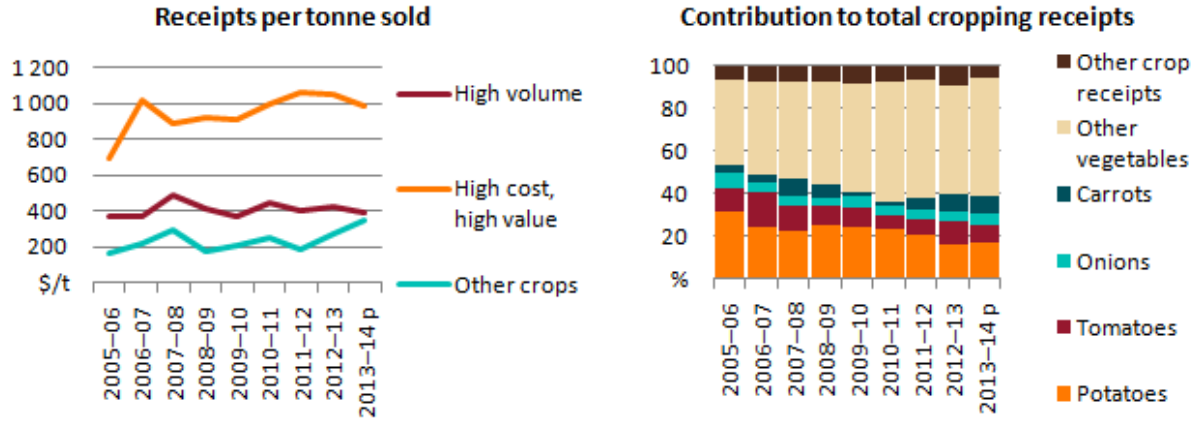
**Figure 8 Area planted to vegetables, Australian vegetable growing farms, 2005–06 to 2013–14**




**p** Preliminary estimate.
Source: ABARES Australian vegetable growing farms survey

**Figure 9 Crop receipts per tonne sold and contribution to total cropping receipts, Australian vegetable growing farms, 2005–06 to 2013–14**

average per farm




**p** Preliminary estimate.
Note: Financial results are presented in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

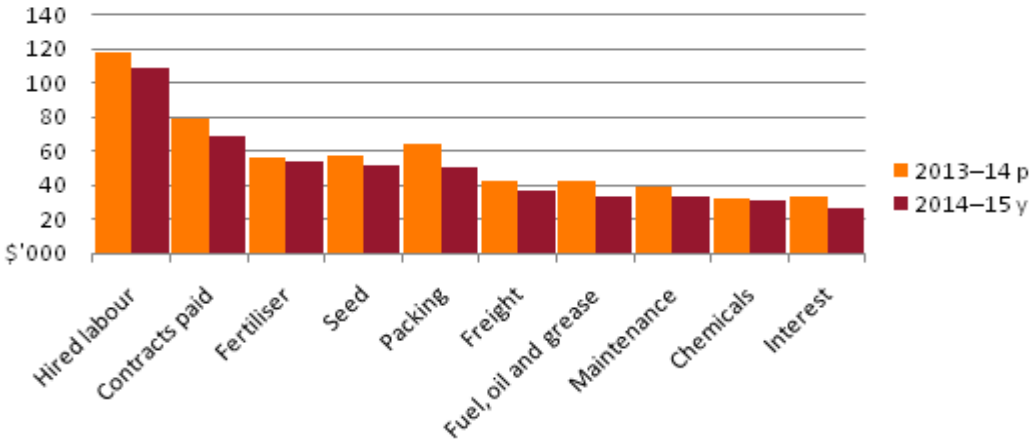
## Total cash costs

Vegetable growing farms incur various costs in vegetable production. Cash costs for Australian vegetable growing farms are closely linked with changes in area sown to vegetables. These reflect costs of planting, maintaining and harvesting a crop.

Nationally, average cash costs decreased by 10 per cent in 2014–15 to $640 000 a farm. This followed a 16 per cent increase in 2013–14 to average $712 400 a farm. Average total cash costs followed a similar pattern to average area sown to vegetables and average total cash receipts over the 10 years to 2014–15.The largest components of cash costs of Australian vegetable growers are typically labour, contracts paid, fertiliser, packing charges and materials and seed (Figure 10).

**Figure 10 Top 10 components of cash costs, Australian vegetable growing farms, 2013–14 and 2014–15**

average per farm

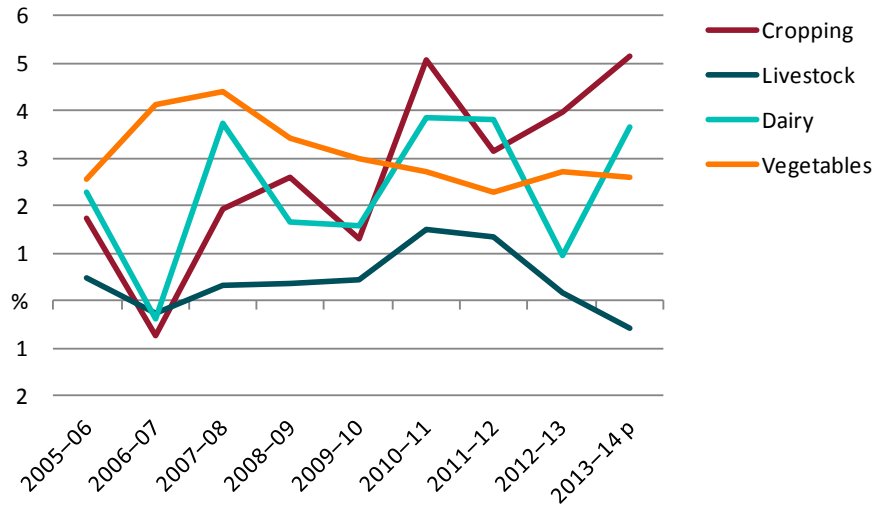



**p** Preliminary estimate. **y** Provisional estimate.
Note: Financial results are expressed in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

## Rate of return

Estimated average rate of return (excluding capital appreciation) across Australian vegetable growing farms increased between 2005–06 and 2007–08 but declined afterwards (Figure 11). In contrast, average rate of return across Australian broadacre cropping and dairy farms increased. However, average rates of return were more variable in these other agricultural industries.

**Figure 11 Rate of return, by selected industries, 2005–06 to 2013–14**




**p** Preliminary estimate.

Note: Rate of return excluding capital appreciation.

Source: ABARES Australian vegetable growing farms survey; ABARES Australian Agricultural Grazing Industries Survey; ABARES Australian Dairy Industry Survey

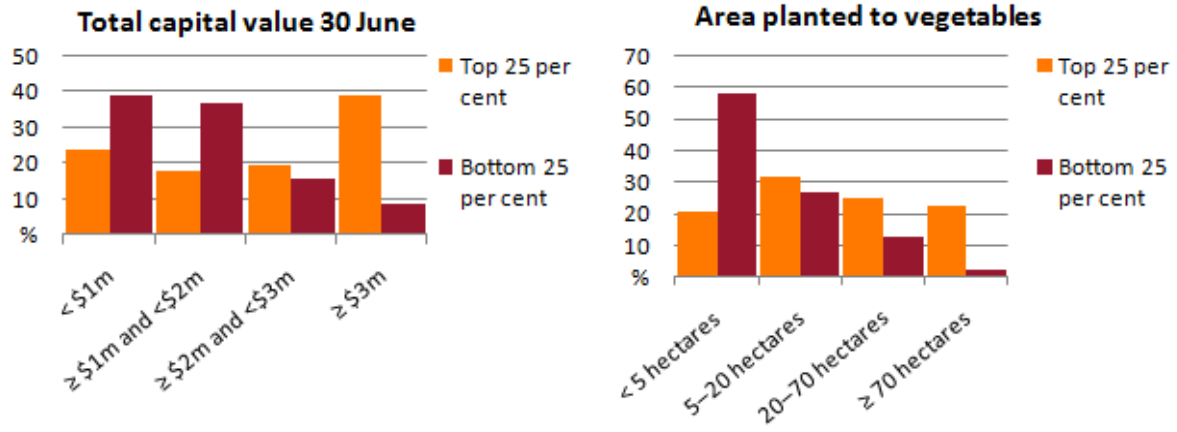
From 2005–06 to 2009–10, the vegetable growing industry had the highest rate of return of any agricultural industry surveyed by ABARES. This in part reflected vegetable producers' greater control over inputs to production and flexibility to deal with variable seasonal and market conditions. Greater use of irrigation meant producers were less exposed to poorer returns brought on by widespread drought during the mid to late 2000s.

ABARES has ranked vegetable growing farms by their rate of return (excluding capital appreciation) to compare the characteristics of top performing farms with those of other farms. Farms are allocated to one of three categories: top 25 per cent, middle 50 per cent and bottom 25 per cent. Rate of return to capital (excluding capital appreciation) is a relatively complete measure of farm economic performance that values all farm inputs and outputs and is not as strongly correlated with farm size as other measures, such as total cash receipts or total cash costs. To reduce year-specific effects on farm performance such as extreme weather events, a three-year moving average for each farm has been calculated.

Top performing vegetable growing farms are classified as the top 25 per cent of farms, measured by rates of return excluding capital appreciation. These farms made an estimated average rate of return (excluding capital appreciation) of more than 10 per cent in 2014–15. Top performing farms were characterised by high levels of capital investment but were not necessarily larger when measured by average area planted to vegetables (Figure 12). Some top performing vegetable growing farms produced vegetables under cover or by using hydroponics. This meant they used a small physical area but required large capital items. At 30 June from 2011–12 to 2013–14, 39 per cent of top performing vegetable growing farms had more than $3 million in total capital compared with 9 per cent of bottom performing farms.

**Figure 12 Total capital value and area planted to vegetables, Australian vegetable growing farms, 2011–12 to 2013–14**

percentage of farms



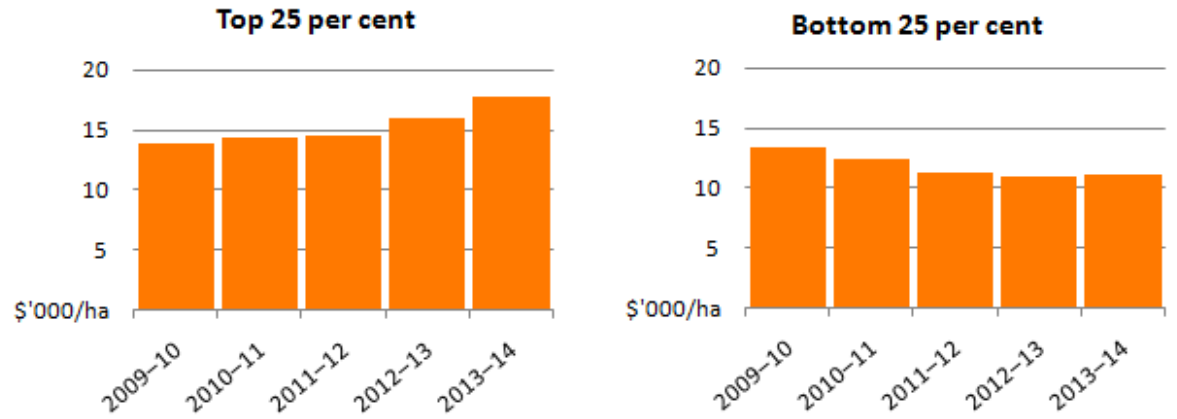

Note: Farms ranked by rate of return excluding capital appreciation.
Source: ABARES Australian vegetable growing farms survey

The area planted to vegetables was relatively uniform across top performing vegetable growing farms. Between 2011–12 and 2013–14, 23 per cent of top performing vegetable growing farms planted at least 70 hectares to vegetables while 21 per cent planted less than 5 hectares. In comparison, 3 per cent of bottom performing vegetable growing farms planted at least 70 hectares of vegetables and 58 per cent planted less than 5 hectares.

Generally, top performing vegetable farms were not low cost producers but achieved much higher receipts from vegetables a hectare than bottom performing farms (Figure 13). Estimated cash costs of vegetable production include only those costs reported by farmers associated with planting and harvesting a vegetable crop (Box 4).

**Figure 13 Cash costs of vegetable production, Australian vegetable growing farms, ranked by return on capital, 2009–10 to 2013–14**

average per farm




Note: Three-year moving average. Farms ranked by rate of return excluding capital appreciation. Financial results are presented in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

### Box 4 Definition of cash costs of vegetable production

Many vegetable growing farm businesses do more than grow vegetables. Some grow other crops and manage livestock, which contributes to total cash costs reported on the farm's profit and loss statement.

To estimate costs specific to vegetable production, ABARES asked vegetable growers to nominate the proportion of cash costs they spent in the production of vegetables on:

- fertiliser
- crop and pasture chemicals
- fuel, oil and grease
- repairs and maintenance
- contracts paid (for example, spraying, sowing and cultivating)
- hired labour (excluding shearing costs and family and partner labour).

ABARES used these data to estimate the cash costs of vegetable production.

Top performing vegetable growing farms were also substantially larger than bottom performing farms. Between 2011–12 and 2013–14, estimated average total cash receipts of top performing vegetable growing farms were around $2 million compared with $153 000 for bottom performing vegetable growing farms (Figure 14). Total cash receipts are volatile because of variation in seasonal conditions and prices but capture all the ways farmers increase the size of their business. These include farm area, intensification and switching to production of higher-value outputs.

Bottom performing vegetable growing farms were classified as the bottom 25 per cent of farms measured by rates of return on capital excluding capital appreciation. These farms made an average rate of return (excluding capital appreciation) of –11 per cent in 2014–15. Bottom performing farms were affected by below-average seasonal conditions and market prices and were generally smaller in scale of operation, and farmers were more likely to retire or leave vegetable production.

Between 2011–12 and 2013–14, 29 per cent of bottom performing farms reported that the overall season was poor—compared with 14 per cent of top performing vegetable growing farms. Seasonal conditions reported by farmers capture their experiences of crop growing conditions. Irrigated and undercover vegetable growing farms can manage hot and dry conditions, but outdoor and non-irrigated vegetable growing farms are susceptible to one-off extreme events such as flooding or disease.

The market price for some vegetables can fluctuate significantly over the year and returns generated from the sale of vegetables can be influenced by the timing of harvest. Most vegetables (unlike grains) cannot be stored on-farm until prices improve.

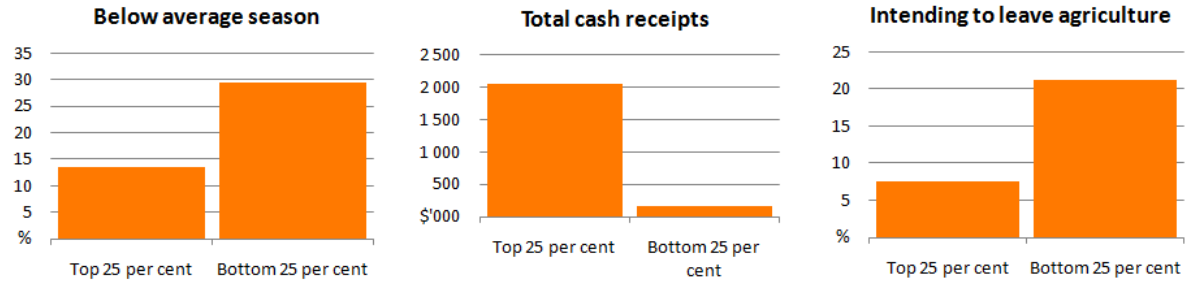
Many bottom performing vegetable growing farms rely on off-farm income to offset low or negative farm cash income. Between 2011–12 and 2013–14, estimated average off-farm income of bottom performing vegetable growing farms was $38 600 compared with $17 800 for top performing farms.

Vegetable growers were asked whether they intended to continue vegetable production, leave agriculture or pursue other agricultural activities in the next five years. Between 2011–12 and 2013–14, 21 per cent of growers in the bottom performing vegetable growing farms intended to leave agricultural production compared with 7 per cent of those in the top performing farms (Figure 14). Thirteen per cent of bottom performing farms intended to pursue other agricultural

activities compared with 4 per cent of top performing farms. Farmers who did not have a long-term plan for their vegetable growing business were unlikely to make any large, up-front fixed capital expenditure to improve productivity of their business.

**Figure 14 Selected characteristics of top and bottom performing farms, Australian vegetable growing farms, 2011–12 to 2013–14**

percentage of farms/average per farm




Note: Farms ranked by rate of return excluding capital appreciation. Financial results are presented in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

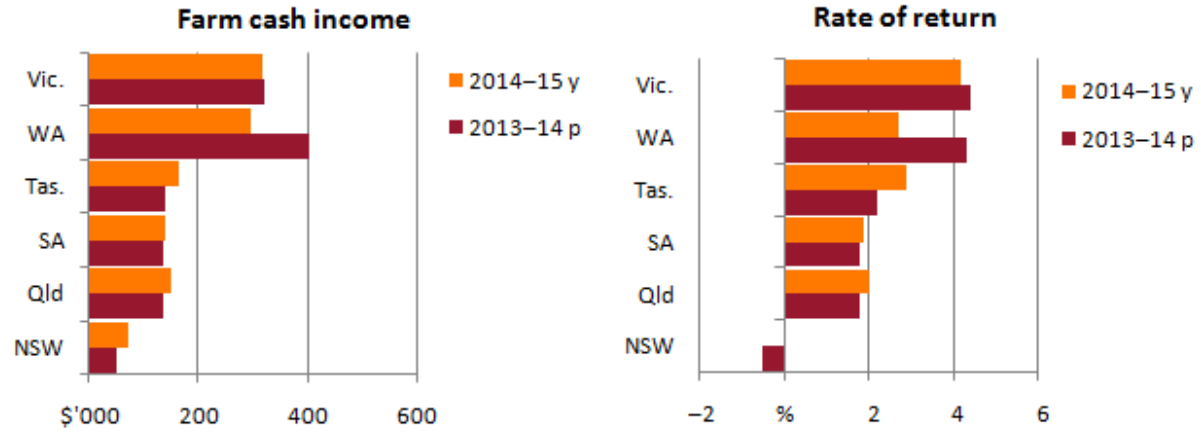
## Financial performance by state

In 2014–15 the financial performance of vegetable farmers in each state was generally about the same or higher (in real terms) as in 2013–14. The exception was Western Australia, where estimated farm cash income declined between 2013–14 and 2014–15, particularly for vegetable growing farms around Carnarvon.

Farms in Victoria and Western Australia generated the highest farm cash income in 2014–15, at $317 000 and $298 000 respectively (Figure 15). Average farm cash income was lowest for New South Wales farms at $73 000. Rates of return were also generally higher across Australian states in 2014–15 (Figure 15).

**Figure 15 Farm cash income and rate of return, vegetable growing farms, by state, 2013–14 and 2014–15**

average per farm




**p** Preliminary estimate. **y** Provisional estimate.
Note: Financial results are expressed in 2014–15 dollars. Rate of return excludes capital appreciation.
Source: ABARES Australian vegetable growing farms survey

## New South Wales

There were 574 vegetable growing farms in New South Wales in 2014–15, accounting for around 22 per cent of Australian vegetable growing farms. Most farms were located in Greater Sydney, the Murrumbidgee Irrigation Area and the Far North Coast. Average area of vegetable farms in New South Wales in 2013–14 was around 126 hectares, of which 23 hectares was sown to vegetables. Vegetable production accounts for 4 per cent of the gross value of agricultural production in New South Wales, compared with 7 per cent nationally (ABS 2015b).

Farm cash income is estimated to have increased in 2014–15 to an average of $73 000 (Table 7), 22 per cent lower than the 10-year average farm cash income (in real terms) to 2014–15. Vegetable production increased because yields for most vegetables increased, despite the decline in average area planted. On average, farms shifted production towards cabbages, pumpkins and tomatoes and away from carrots, onions and cauliflower. Increased vegetable production did not offset lower vegetable prices, reducing vegetable cash receipts. However, estimated average total cash costs declined more than estimated average total cash receipts.

## Victoria

There were 537 vegetable growing farms in Victoria in 2014–15, accounting for around 21 per cent of Australian vegetable growing farms. Most farms were located around Melbourne, extending east through the Gippsland region and into the irrigated regions along the Murray River. Average area of vegetable growing farms in Victoria in 2013–14 was around 191 hectares, of which 58 hectares was sown to vegetables. Vegetable production accounts for 8 per cent of the gross value of agricultural production in Victoria, compared with 7 per cent nationally (ABS 2015b).

Estimated farm cash income in 2014–15 remained similar to 2013–14, averaging $317 000 (Table 7). This was 38 per cent higher than the 10-year average farm cash income (in real terms) for Victoria to 2014–15. Area planted to vegetables and yields remained about the same between 2013–14 and 2014–15. Vegetable prices decreased for lettuce, pumpkins and tomatoes, but increased for cabbages, carrots, and cauliflowers. Higher estimated average expenditure on hired labour, fertiliser and contracts paid was offset by lower average expenditure on fuel, oil and grease and packing charges and materials.

## Queensland

There were 526 vegetable growing farms in Queensland in 2014–15, accounting for around 20 per cent of Australian vegetable growing farms. Most farms were located in the Darling Downs, around Bundaberg and Bowen, and in the Burdekin delta. Average area of vegetable farms in Queensland in 2013–14 was around 184 hectares, of which 48 hectares was sown to vegetables. Vegetable production accounts for 9 per cent of the gross value of agricultural production in Queensland, compared with 7 per cent nationally (ABS 2015b).

Average farm cash income is estimated to have increased in 2014–15 to $151 000 (Table 7), still 18 per cent lower than the 10-year average farm cash income (in real terms) for Queensland to 2014–15. This is despite a large decline in estimated average vegetable cash receipts. Lower estimated average total cash costs—particularly expenditure on hired labour, contracts paid and seed—offset lower estimated average total cash receipts.

Production and prices differed across types of vegetables. Crop yields increased for carrots, cauliflower, lettuce, potatoes and tomatoes but declined for broccoli, cabbages and pumpkins.

Prices for broccoli, cauliflowers, lettuce, potatoes and pumpkins increased but declined for carrots and onions.

**Table 7 Selected physical and financial results, Australian vegetable growing farms, by state, 2013–14 and 2014–15**

average per farm

| Vegetable cash receipts | Units | 2013–14 p | | % change from 2012–13 | 2014–15 y | | % change from 2013–14 |
|---|---|---|---|---|---|---|---|
| New South Wales | $ | 265 600 | (33) | 25 | 224 000 | (21) | –16 |
| Victoria | $ | 1 210 200 | (21) | 12 | 1 196 000 | (28) | –1 |
| Queensland | $ | 833 700 | (24) | 18 | 686 000 | (26) | –18 |
| South Australia | $ | 654 900 | (17) | 2 | 712 000 | (26) | 9 |
| Western Australia | $ | 1 237 800 | (17) | 18 | 1 107 000 | (26) | –11 |
| Tasmania | $ | 395 700 | (20) | 23 | 321 000 | (24) | –19 |
| Australia | $ | 774 900 | (10) | 21 | 714 000 | (12) | –7 |
| **Area sown to vegetables** | | | | | | | |
| New South Wales | ha | 23 | (10) | 64 | 21 | (40) | –9 |
| Victoria | ha | 58 | (16) | 4 | 58 | (30) | 0 |
| Queensland | ha | 48 | (13) | 45 | 35 | (25) | –27 |
| South Australia | ha | 36 | (17) | 13 | 35 | (26) | –3 |
| Western Australia | ha | 28 | (15) | –3 | 26 | (26) | –7 |
| Tasmania | ha | 29 | (9) | 7 | 24 | (23) | –17 |
| Australia | ha | 39 | (7) | 23 | 35 | (13) | –10 |
| **Quantity of vegetables produced** | | | | | | | |
| New South Wales | t | 525 | (13) | 40 | 558 | (40) | 6 |
| Victoria | t | 1 538 | (23) | 5 | 1 543 | (26) | <1 |
| Queensland | t | 827 | (19) | 39 | 704 | (26) | –15 |
| South Australia | t | 1 288 | (20) | –3 | 1 415 | (27) | 10 |
| Western Australia | t | 1 129 | (14) | –5 | 1 186 | (31) | 5 |
| Tasmania | t | 1 238 | (12) | 9 | 1 074 | (23) | –13 |
| Australia | t | 1 050 | (9) | 18 | 1 053 | (12) | 1 |
| **Farm cash income** | | | | | | | |
| New South Wales | $ | 51 200 | (21) | –19 | 73 000 | (38) | 43 |
| Victoria | $ | 312 300 | (28) | 43 | 317 000 | (29) | 2 |
| Queensland | $ | 133 800 | (29) | –19 | 151 000 | (32) | 13 |
| South Australia | $ | 133 300 | (30) | –32 | 139 000 | (37) | 4 |
| Western Australia | $ | 392 600 | (19) | 44 | 298 000 | (34) | –24 |
| Tasmania | $ | 136 900 | (17) | 1 | 164 000 | (27) | 20 |
| Australia | $ | 185 500 | (13) | 15 | 186 000 | (14) | < 1 |

**p** Preliminary estimate. **y** Provisional estimate.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian vegetable growing farms survey

## South Australia

There were 406 vegetable growing farms in South Australia in 2014–15, accounting for around 16 per cent of Australian vegetable growing farms. Most farms were located in the Mallee, the Riverland and the Adelaide plains to the north of the city. Average area of vegetable farms in South Australia in 2013–14 was around 289 hectares, of which 36 hectares was sown to vegetables.

Estimated average farm cash income increased in 2014–15 to $139 000 (Table 7), still 32 per cent lower than the 10-year average (in real terms) for South Australia to 2014–15. Average area planted was slightly lower, but higher estimated average yields for all vegetables increased total vegetable production. Reduced expenditure on seed and fuel, oil and grease contributed to a decline in estimated average total cash costs between 2013–14 and 2014–15.

## Western Australia

There were 322 vegetable growing farms in Western Australia in 2014–15, accounting for around 12 per cent of Australian vegetable growing farms. Most farms were located along the coast extending north and south from Perth, around Carnarvon along the Gascoigne River and in the far north of the state in the Ord River irrigation area. Average area of vegetable farms in Western Australia in 2013–14 was around 207 hectares, of which 28 hectares was planted to vegetables. Vegetable production accounts for 4 per cent of the gross value of agricultural production in Western Australia, compared with 7 per cent nationally (ABS 2015b).

Estimated average farm cash income declined by 24 per cent in 2014–15 to $298 000 (Table 7), 8 per cent higher than the estimated average farm cash income (in real terms) for vegetable growing farms in the state over the 10 years to 2014–15. The estimated average area planted to vegetables declined, but vegetable production remained the same in 2014–15 as a result of increased yields for most vegetables. Prices for cabbages, cauliflowers and lettuce increased but this was offset by lower prices for broccoli, potatoes and tomatoes, resulting in lower estimated average vegetable cash receipts. Average total cash costs decreased as a result of reduced expenditure on contracts paid, fuel, packing charges and materials.

## Tasmania

There were 231 vegetable growing farms in Tasmania in 2014–15. Most were located in the north of the state along the coastal fringe and through the northern midlands. Average area of vegetable farms in Tasmania in 2013–14 was around 304 hectares, of which 29 hectares was planted to vegetables. Vegetable production as a share of the total value of agricultural production in Tasmania is the highest of all states at around 17 per cent in 2013–14, compared with 7 per cent nationally (ABS 2015b).

Average farm cash income is estimated to have increased in 2014–15 to $164 000 (Table 7). This is the highest estimated average farm cash income for vegetable growing farms (in real terms) since ABARES began surveying vegetable growing farms in 2007. However, vegetable cash receipts declined for vegetable growing farms between 2013–14 and 2014–15, mostly as a result of lower prices for potatoes, green peas and green beans. Lower estimated average total cash receipts were offset by lower estimated average total cash costs.

# 4 Investment

Investment in farm capital (land, fixed structures, plant and equipment) is important to all aspects of farm business management—including financial performance, production efficiency and farm productivity.

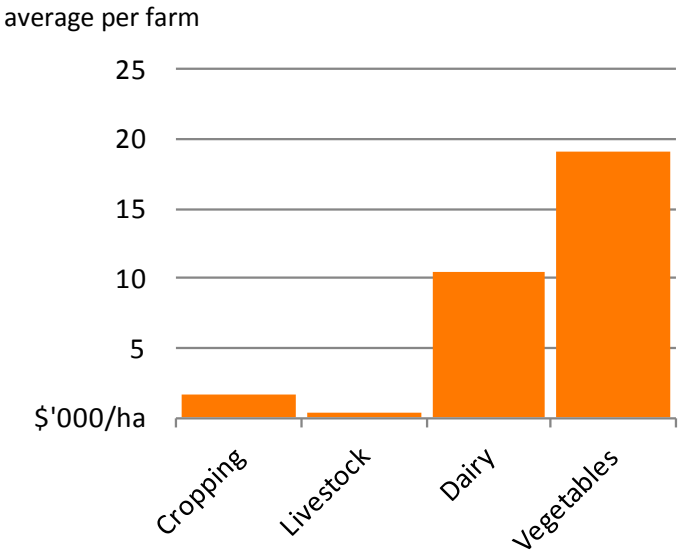
Vegetable growers are motivated to make new investments by factors affecting relative net returns from the alternative options available and by their expectations of future profitability, existing debt and debt servicing requirements, farm business liquidity and access to non-farm income. Investment in land to increase scale, and in capital additions to increase productivity, is a significant determinant of producers' capacity to generate future farm income.

The size and composition of investment flows each year reflect the nature of vegetable production. Vegetable production typically occurs on small parcels of high-value land, is labour intensive, requires high input use and has several crop cycles a year with a short turnaround between each. As a result, a large proportion of investments made by vegetable growing farms is in land and labour-saving technology. In the past, investment flows in the vegetable industry have also been responsive to government investment incentives.

## Land values

The value of land owned and operated by vegetable growing farms is higher on average than for other agricultural industries. Between 2011–12 and 2013–14, the estimated average value of land owned by vegetable farmers was $19 100 a hectare, compared with $10 500 a hectare for dairy farmers, $1 600 for cropping farmers and $300 for livestock farmers (Figure 16). This reflects highly productive soils, a high proportion of farms in close proximity to metropolitan areas and pressures from urbanisation. Encroaching residential development often results in land used for vegetable production being rezoned to facilitate housing expansion. As a result, land value comes to reflect potential value from housing rather than vegetable production.

**Figure 16 Land values, by selected industries, 2011–12 to 2013–14**




Note: Financial results are in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey; ABARES Australian Agricultural and Grazing Industries Survey; ABARES Australian Dairy Industry Survey.

## Capital additions

Capital additions are costs incurred by businesses for adding new assets or improving existing assets. The difference between the total value of plant, vehicles, machinery and farm infrastructure purchased and the total value of those items sold is net capital additions. Vegetable growers make new investment in capital additions when they purchase new items to replace capital items that have deteriorated and/or outlived their useful life.

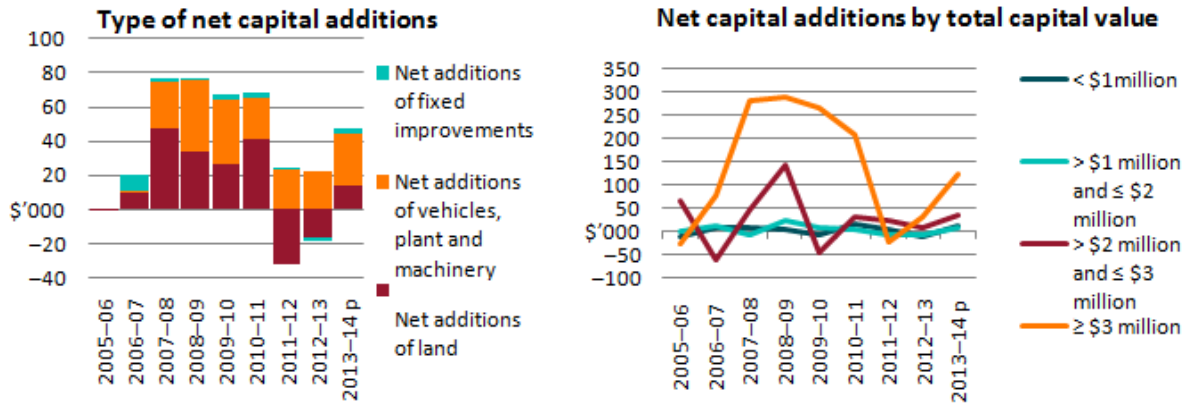
Net capital additions between 2007–08 and 2010–11 were relatively high. This partly reflects the availability of the Australian Government's Temporary Investment Allowance, an economic stimulus measure made available in response to the global financial crisis. The allowance encouraged investment in capital equipment and farm infrastructure.

Typically, net additions of land account for most of the value of acquired capital by vegetable growing farms. However, since 2010–11, estimated average net capital additions of land have declined and vehicles, plant and machinery have accounted for most capital additions (Figure 17). Since 2012–13 estimated net capital additions of land have been negative, with value of land disposed of greater than value of land added. The majority of net capital additions in 2012–13 and 2013–14 were made by vegetable growers who already had large amounts of capital invested in their businesses (Figure 17).

The proportion of vegetable growing farms changing the area they operate in any one year is relatively small. In 2013–14 around 4 per cent of farms increased total area operated either by purchasing or leasing additional land. For many vegetable producers it is more cost-effective to lease than purchase land if they need only a short-term change in area (such as to respond to short-term price fluctuations). However, they prefer to buy for long-term increase in land area. In 2013–14 around 1 per cent of farms reduced the area of their farms, by either leasing out or selling land.

**Figure 17 Net capital additions, Australian vegetable growing farms, 2005–06 to 2013–14**

average per farm




**p** Preliminary estimate.
Note: Financial results are expressed in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

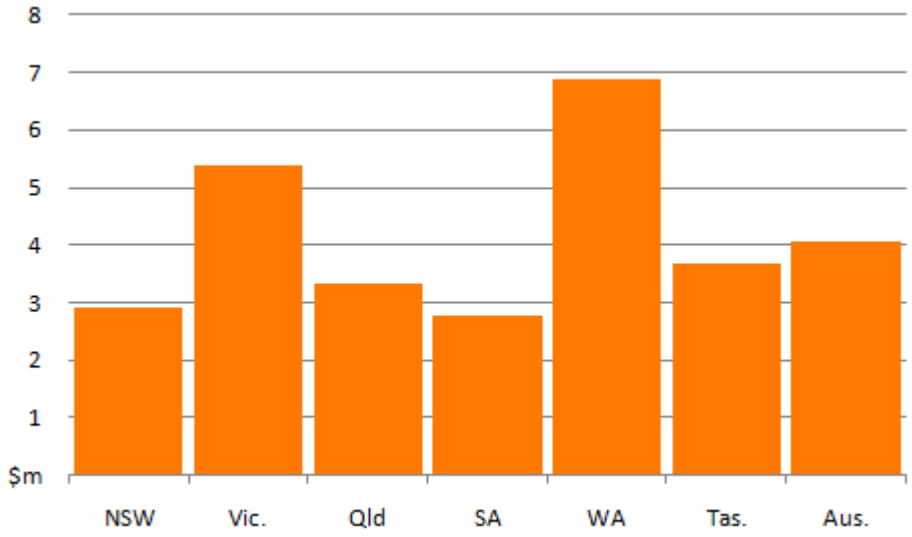
# 5 Sources of capital

Most farms have two principle ways of funding capital investment: reinvested income (equity) from farm and off-farm earnings; and debt. Some large, publicly listed corporate farms can also derive capital from offering shares, but most vegetable growing farms are family owned and operated businesses.

Average capital value of Australian vegetable growing farms is estimated to have been around $4.0 million at the end of 2013–14 (Figure 18). Vegetable farms in Western Australia and Victoria had the highest average capital values at $6.9 million and $5.4 million respectively, while those in New South Wales and South Australia had the lowest at under $3 million.

**Figure 18 Total capital value at 30 June, vegetable growing farms, by state, 2013–14**

average per farm




Note: Preliminary estimates.
Source: ABARES Australian vegetable growing farms survey

## Equity

Average equity ratio of Australian vegetable growing farms has remained relatively high since ABARES began surveying the vegetable industry in 2005–06, fluctuating between 83 per cent and 94 per cent. Vegetable growing farms in New South Wales had the highest equity ratio of all the states in each of the five years to 2013–14 (Table 8). Average equity ratio of vegetable growing farms in Victoria, South Australia and Western Australia was also relatively high, while farms in Queensland and Tasmania usually had the lowest equity ratios.

A farm business's equity ratio is a major determinant of the amount of debt finance it can access. Generally, a farm business must have an equity ratio greater than 70 per cent to access additional debt finance. Institutional lenders generally only allow large operations that mostly generate high farm cash incomes or have access to substantial off-farm assets or income to operate with an equity ratio of less than 70 per cent. The proportion of Australian vegetable growing farms holding less than 70 per cent of their business as equity fluctuated between 4 per cent and 16 per cent between 2005–06 and 2013–14 (Figure 19).

**Table 8 Equity ratio, vegetable growing farms, by state, 2009–10 to 2013–14**

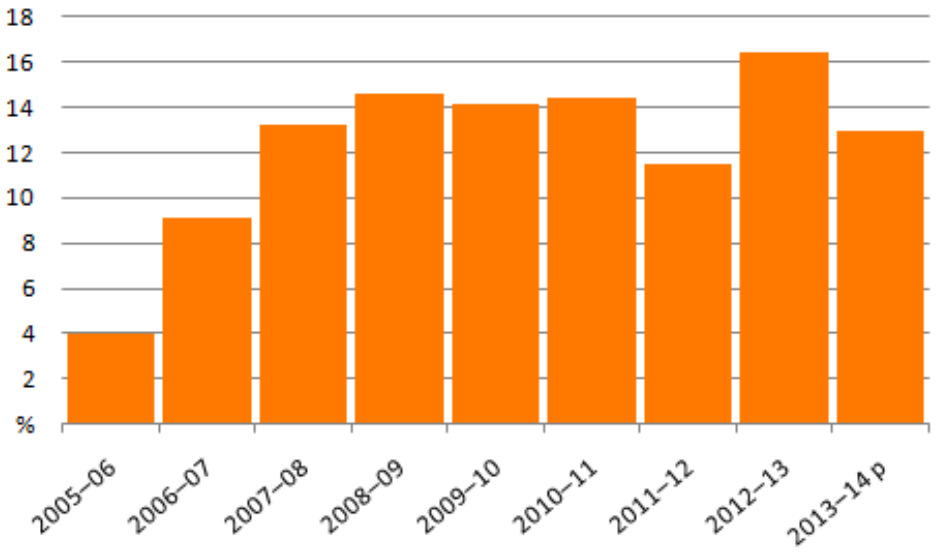
average per farm

| State | 2009–10 | (%) | 2010–11 | (%) | 2011–12 | (%) | 2012–13 | (%) | 2013–14 | (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| New South Wales | 88 | (4) | 90 | (3) | 94 | (2) | 95 | (2) | 97 | (1) |
| Victoria | 83 | (3) | 83 | (4) | 85 | (3) | 81 | (4) | 86 | (3) |
| Queensland | 78 | (3) | 80 | (4) | 82 | (5) | 77 | (4) | 77 | (6) |
| South Australia | 87 | (3) | 82 | (4) | 90 | (2) | 90 | (4) | 88 | (3) |
| Western Australia | 85 | (5) | 86 | (9) | 91 | (4) | 89 | (5) | 85 | (5) |
| Tasmania | 85 | (4) | 84 | (3) | 80 | (4) | 84 | (4) | 83 | (4) |
| Australia | 84 | (2) | 83 | (2) | 87 | (2) | 86 | (2) | 85 | (2) |

Note: The equity ratio is expressed as a percentage of farm capital, and it is an average per responding farms. Results are not available for the 2014–15 projection year.
Source: ABARES Australian vegetable growing farms survey

**Figure 19 Farms with less than 70 per cent equity, Australian vegetable growing farms, 2005–06 to 2013–14**

percent of farms




**p** Preliminary estimate.
Note: The equity ratio is expressed as a percentage of farm capital, and it is an average per responding farms. Results are not available for the 2014–15 projection year.
Source: ABARES Australian vegetable growing farms survey

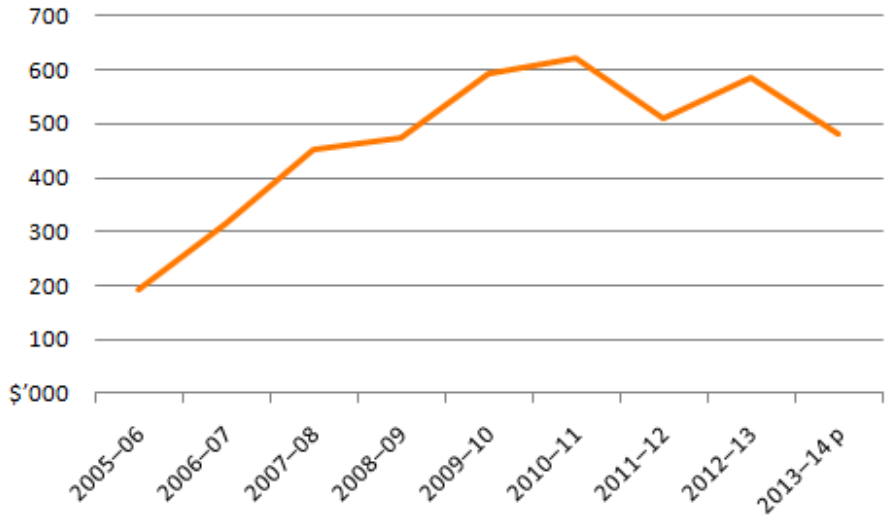
## Debt

Debt is necessary for farmers to operate and improve the productive value of their farm. It is an important source of funds for on-farm investment and working capital management.

Estimated average debt of Australian vegetable growing farms increased (in real terms) between 2005–06 and 2009–10 but declined slightly afterwards (Figure 20). In 2013–14 the estimated average debt of Australian vegetable growing farms at 30 June was $474 700, 15 per cent lower than in 2012–13.

**Figure 20 Total debt at 30 June, Australian vegetable growing farms, 2005–06 to 2013–14**

average per farm

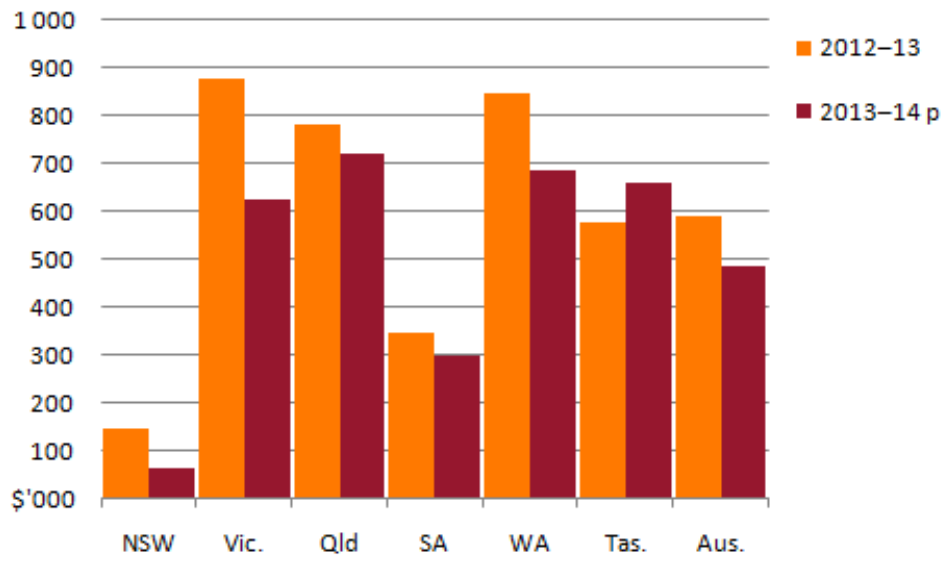



**p** Preliminary estimate.
Note: Preliminary estimates. Farm debt results are not available for the 2014–15 projection year. Financial results are expressed in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

Distribution of farm debt across the states varies in line with the average size of vegetable businesses. Between 2012–13 and 2013–14, estimated average farm debt fell by 6 per cent, 11 per cent and 17 per cent in Queensland, South Australia and Western Australia to $701 900, $292 500 and $669 300 respectively. There were more substantial declines in Victoria and New South Wales of 27 per cent and 57 per cent, to $609 200 and $60 800 respectively. Average debt held by vegetable growing farms in Tasmania increased in 2013–14 by 16 per cent to $640 900.

**Figure 21 Total debt at 30 June, vegetable growing farms, by state, 2012–13 and 2013–14**

average per farm

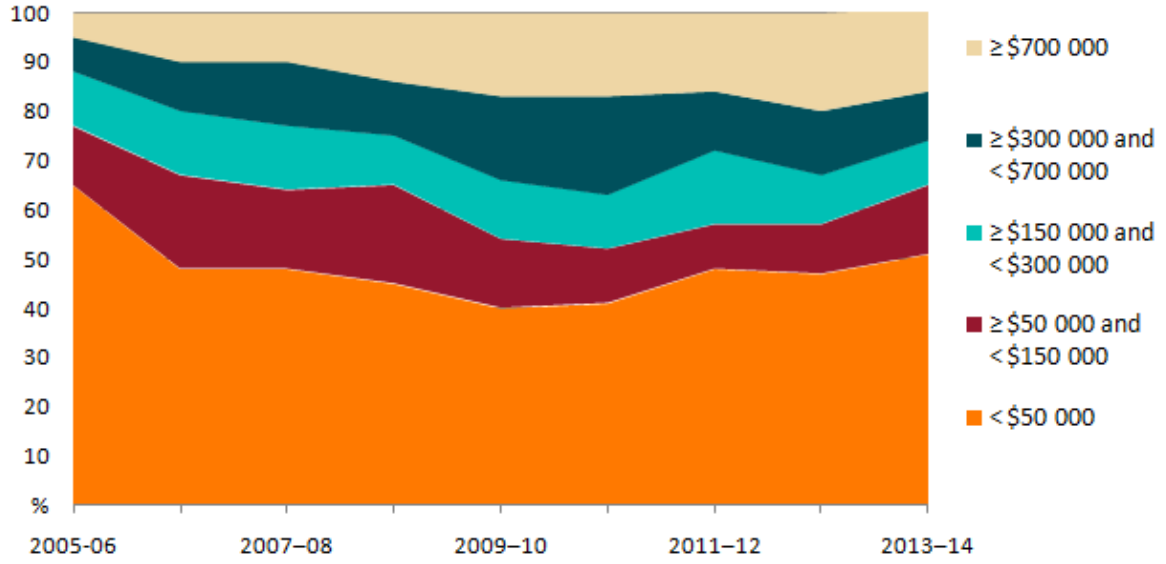



**p** Preliminary estimates.
Note: Farm debt results are not available for the 2014–15 projection year.
Financial results are expressed in 2014–15 dollars.
Source: ABARES Australian vegetable growing farms survey

Debt held by most vegetable growing farms in Australia was less than $50 000 in 2013–14 (Figure 22). The proportion of Australian vegetable growing farms with debt of less than $50 000 fell from 65 per cent in 2005–06 to 40 per cent in 2009–10, before increasing to 51 per cent in 2013–14. Around one-third of farms in 2013–14 had debts of between $50 000 and $700 000, largely unchanged from 2005–06. The increase in the proportion of farms with debt exceeding $700 000 reflects the increased size of farm operations and contributed to increases in estimated average debt between 2005–06 and 2013–14.

**Figure 22 Distribution of debt, Australian vegetable growing farms, 2005–06 to 2013–14**

percentage of farms




**p** Preliminary estimate.
Note: Farm debt results are not available for the 2014–15 projection year.
Source: ABARES Australian vegetable growing farms survey

The distribution of debt among Australian vegetable growing farms varied considerably between states (Table 9). In New South Wales, around 76 per cent of vegetable growing farms had debts of less than $50 000. Around 15 per cent of vegetable growing farms in New South Wales had debts of between $50 000 and $150 000, and only 9 per cent had debts of greater than $150 000. In all other states the proportion of farms with high levels of debt was much greater. In Tasmania, around 27 per cent of farms had debts of greater than $700 000 as at 30 June 2014.

The ratio of debt-to-receipts can be used to compare average farm debt by state, adjusted for farm size. Farm cash receipts are volatile because of variations in seasonal conditions and prices but capture all the ways farmers increase the size of their businesses. These include farm area, intensification and switching to production of higher value outputs. Between 2011–12 and 2013–14, estimated average ratio of debt-to-receipts was 71 per cent across all Australian vegetable growing farms. Over the same period, the state with the highest estimated average debt-to-receipts ratio was Tasmania (100 per cent) and the lowest was New South Wales (41 per cent) (Figure 23).

**Table 9 Distribution of total debt at 30 June, vegetable growing farms, by state, 2013–14**

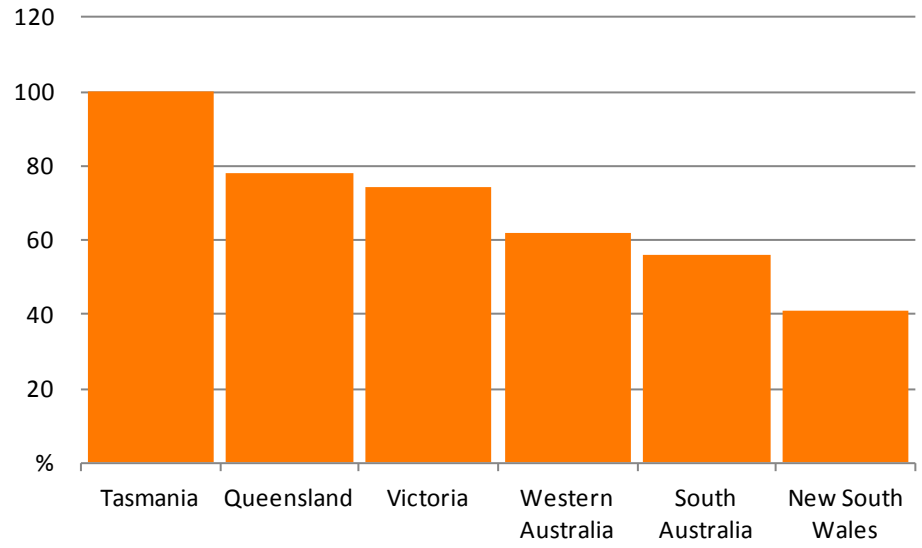
percentage of farms

| State | <$50 000 | | ≥$50 000 and <$150 000 | | ≥$150 000 and <$300 000 | | ≥$300 000 and <$700 000 | | ≥$700 000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | RSE | % | RSE | % | RSE | % | RSE | % | RSE |
| NSW | 76 | (13) | 15 | (56) | 4 | (84) | 2 | (99) | 3 | (70) |
| Vic. | 39 | (25) | 14 | (61) | 5 | (59) | 17 | (49) | 24 | (25) |
| Qld | 48 | (17) | 12 | (42) | 8 | (52) | 9 | (48) | 22 | (19) |
| SA | 45 | (32) | 19 | (60) | 18 | (54) | 8 | (75) | 11 | (24) |
| WA | 48 | (19) | 9 | (64) | 13 | (35) | 8 | (67) | 21 | (26) |
| Tas. | 42 | (24) | 7 | (78) | 8 | (59) | 16 | (39) | 27 | (26) |
| Aus | 51 | (8) | 14 | (25) | 9 | (24) | 10 | (25) | 17 | (11) |

Note: Preliminary estimates. Farm debt results are not available for the 2013–14 projection year. **RSE** Relative Standard Error. Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian vegetable growing farms survey

**Figure 23 Debt-to-receipts ratio, vegetable growing farms, by state, 2011–12 to 2013–14**

average per farm




**p** Preliminary estimate.
Source: ABARES Australian vegetable growing farms survey

The majority of debt held by vegetable growing farms is for working capital. In 2013–14, 40 per cent of debt was held as working capital and 29 per cent for land purchases. Debt for buildings and structures, land development, reconstructed debt, machinery, plant and vehicles accounted for the remaining 31 per cent.

## Reasons for changes in farm debt in 2013–14

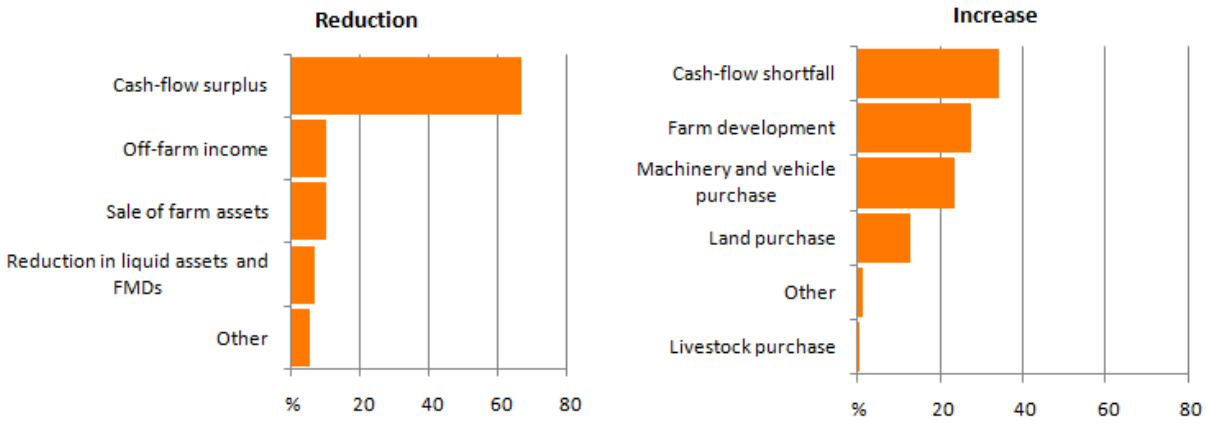
The annual change in average farm business debt is the balance between the amount of principal repaid over the year and the increase in principal owed (new borrowing). Around 35 per cent of Australian vegetable growing farms reduced overall farm debt in 2013–14, particularly in New South Wales (42 per cent) and Queensland (32 per cent). In contrast, debt increased across 22 per cent of vegetable growing farms in 2013–14, particularly in Western Australia (39 per cent) and Tasmania (37 per cent).

Cash-flow surplus (profit) was the main source of funds used to reduce farm debt in 2013–14, accounting for 67 per cent of the reduction in principal owed by vegetable producing farms. A further 10 per cent was repaid from the sale of farm assets; 10 per cent from off-farm income; 7 per cent from a reduction in liquid assets and farm management deposits; and 6 per cent from other sources (Figure 24).

Cash-flow shortfalls (business losses) accounted for most of the increase in principal owed by vegetable growing farms in 2013–14. A further 27 per cent went towards farm development; 23 per cent to the purchase of farm machinery and vehicles; 13 per cent to land purchases; and around 2 per cent to livestock purchases and other purposes (Figure 24).

**Figure 24 Reason for change in farm business debt, vegetable growing farms, 2013–14**

average per farm

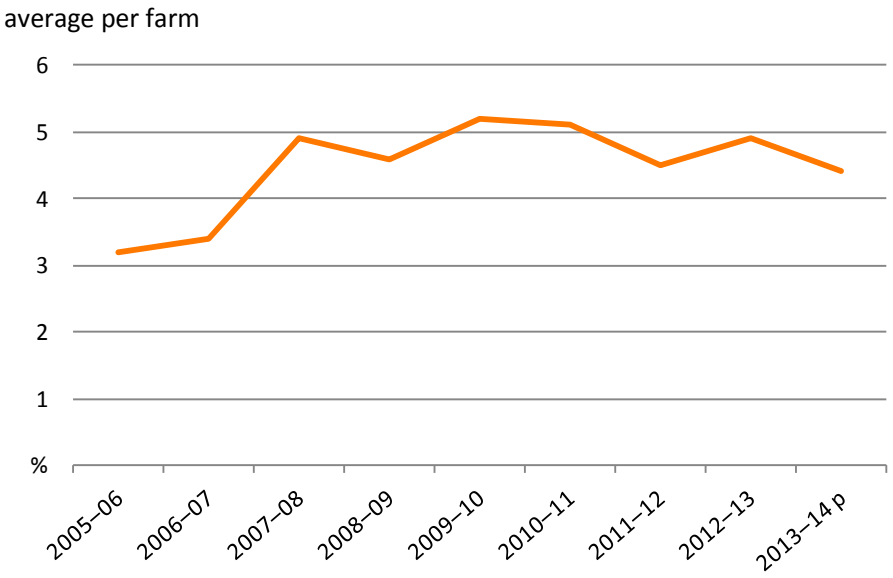



Note: Preliminary estimate. **FMD** Farm Management Deposit.
Source: ABARES Australian vegetable growing farms survey

## Debt servicing

The interest-to-receipts ratio is the ratio of interest payments on farm debt to total cash receipts and is a measure of ability to service debt from farm revenue. The ratio has been relatively stable since 2007–08, fluctuating between 4.4 per cent and 5.2 per cent (Figure 25). This reflects declining growth in the rate of borrowings and declines in interest rates. In comparison, the proportion of vegetable farm receipts used to meet interest payments from 2005–06 to 2007–08 increased from 3.2 per cent to 5.0 per cent, largely because of growth in farm debt.

**Figure 25 Ratio of interest paid to total cash receipts, Australian vegetable growing farm businesses, 2005–06 to 2013–14**




**p** Preliminary estimate.
Source: ABARES Australian vegetable growing farms survey

# 6 Farms growing vegetables under the National Vegetable Levy

This report was funded from the proceeds of the National Vegetable Levy (NVL), which is managed by Hort Innovation.

The NVL is applied to broccoli, capsicum, carrots, cauliflower, lettuce, peas and beans, pumpkins, sweet corn and other vegetables. The analysis in this chapter excludes growers that did not produce any vegetables covered by the NVL (Table 10). In June 2014 ABARES published a report specifically about farms that produce vegetables covered by the NVL (Valle 2014).

**Table 10 Vegetables included and excluded from the National Vegetable Levy**

| Vegetables covered by the NVL | Vegetables not covered by the NVL a |
|---|---|
| Carrot | Potatoes |
| Pumpkin | Onions |
| Sweet corn | Tomatoes |
| Peas and beans | Asparagus |
| Lettuce | Mushrooms |
| Broccoli | – |
| Cauliflower | – |
| Capsicum | – |
| Other vegetables | – |

**a** Statutory R&D levies apply to mushrooms, onions and potatoes.

Note: The ABARES Australian vegetable growing farms survey does not collect information on asparagus and mushrooms as individual vegetable commodities.

Source: AUSVEG 2012

Farms paying the NVL on eligible vegetable crops accounted for an estimated 69 per cent of vegetable growing farms in 2013–14 (Table 11). Many of those farms also produced vegetables not covered by the levy.

**Table 11 Population of Australian vegetable growing farms, by area planted to vegetables, 2013–14**

| Area planted to vegetables | All vegetable growing farm businesses (no.) | Proportion of farms that pay NVL a |
|---|---|---|
| <5 hectares | 805 | 72 |
| 5–20 hectares | 859 | 68 |
| 20–70 hectares | 598 | 63 |
| >70 hectares | 333 | 71 |
| All farms | 2 595 | 69 |

**a** Population excludes farms that are specialist asparagus, mushroom, onion, potato and tomato growers.

Note: Preliminary estimates.

Source: Australian Bureau of Statistics

NVL-paying farms are on average smaller than the average for the whole population. In 2013–14 average area operated by NVL-paying farms was estimated at around 162 hectares, compared with 201 hectares for the whole population. NVL-paying farms also tend to be more diversified

than the average, growing various vegetable crops and running non-vegetable enterprises such as livestock. In comparison, non-NVL farms tend to be larger and more specialised in only one or two vegetable enterprises.

The physical and financial performance of NVL-paying vegetable growing farms closely matches that of all vegetable growing farm businesses. Changes in estimated farm cash income results between 2013–14 and 2014–15 were about the same for both populations—except in Victoria, where estimated average farm cash income declined between 2013–14 and 2014–15 for NVL-paying farms (Table 12).

**Table 12 Farm cash income, vegetable growing farms, by state, 2014–15**

average per farm

| State | All vegetable growing farm businesses | | | NVL-paying farms | | |
|---|---|---|---|---|---|---|
| | Farm cash income ($) | | Change from 2013–14 (%) | Farm cash income ($) | | Change from 2013–14 (%) |
| New South Wales | 73 000 | (38) | 43 | 88 000 | (33) | 55 |
| Victoria | 317 000 | (29) | 2 | 471 000 | (43) | –6 |
| Queensland | 151 000 | (32) | 13 | 176 000 | (32) | 71 |
| South Australia | 139 000 | (37) | 4 | 121 000 | (50) | 14 |
| Western Australia | 298 000 | (34) | –24 | 312 000 | (44) | –30 |
| Tasmania | 164 000 | (27) | 20 | 256 000 | (22) | 41 |
| Australia | 186 000 | (14) | <1 | 209 000 | (17) | 3 |

Note: Population excludes farms that are specialist asparagus, mushroom, onion, potato and tomato growers. All estimates are provisional.
Source: ABARES Australian vegetable growing farms survey

Estimated average farm cash income of NVL-paying vegetable farms was $203 900 in 2013–14 (Table 13), 23 per cent higher than the nine-year average (in real terms) to 2013–14. The quantity of vegetables produced increased despite a decline in average vegetable yields, because average area planted to vegetables increased by more than a third to 40 hectares. Estimated average farmgate prices increased for broccoli, carrots, green beans and green peas but declined for cabbages, cauliflower, lettuce and pumpkins. Overall, higher estimated average receipts from the sale of vegetables offset increased expenditure associated with planting and harvesting a larger vegetable crop.

Estimated average farm cash income of NVL-paying vegetable farms increased slightly in 2014–15 to $209 000 (Table 13), 20 per cent higher than the 10-year average (in real terms) to 2014–15. Estimated area planted to vegetables and the average yield of most vegetables contributed to increased vegetable production between 2013–14 and 2014–15. However, estimated average price of vegetables grown under the NVL was lower; however, broccoli prices increased while prices for carrots remained the same. A reduction in estimated average vegetable receipts was offset by reduced overall total cash costs, particularly expenditure on fuel, oil and grease; interest paid; freight; and vehicle, plant and equipment maintenance.

**Table 13 Financial performance, National Vegetable Levy paying farms, 2012–13 to 2014–15**

average per farm

| **Financial estimates** | | **2012–13** | **2013–14 p** | | **2014–15 y** |
|---|---|---|---|---|---|
| Realised sample | no. | 215 | 203 | – | 197 |
| No. of growers | no. | 1993 | 1712 | – | 1755 |
| **Cash receipts** | | | | | |
| Vegetable cash receipts | $ | 660 490 | 881 800 | (14) | 861 000 |
| Other cash receipts | $ | 104 120 | 93 000 | (13) | 91 000 |
| Total cash receipts | $ | 764 610 | 974 800 | (13) | 953 000 |
| % cash receipts from vegetables | % | 86 | 90 | (2) | 90 |
| **Cash costs** | | | | | |
| Hired labour | $ | 114 250 | 137 400 | (13) | 135 000 |
| Fertiliser | $ | 44 770 | 52 300 | (11) | 52 000 |
| Contracts paid | $ | 61 470 | 92 600 | (19) | 90 000 |
| Seed | $ | 42 970 | 57 000 | (12) | 54 000 |
| Fuel, oil and grease | $ | 33 960 | 39 600 | (25) | 33 000 |
| Crop and pasture chemicals | $ | 28 650 | 32 800 | (13) | 34 000 |
| Repairs and maintenance—buildings | $ | 13 340 | 15 200 | (16) | 14 000 |
| Interest | $ | 33 460 | 32 800 | (21) | 29 000 |
| Electricity | $ | 21 920 | 23 600 | (14) | 21 000 |
| Administration | $ | 14 210 | 15 900 | (19) | 15 000 |
| Land rent | $ | 4 970 | 10 200 | (23) | 10 000 |
| Packing charges and materials | $ | 49 400 | 83 400 | (28) | 85 000 |
| Rates | $ | 9 790 | 10 500 | (11) | 11 000 |
| Freight | $ | 36 030 | 46 300 | (15) | 43 000 |
| Vehicles, plant and equipment maintenance | $ | 32 120 | 41 500 | (17) | 39 000 |
| Total cash costs | $ | 603 050 | 770 800 | (13) | 743 000 |
| **Farm financial performance** | | | | | |
| Farm cash income | $ | 161 560 | 203 900 | (17) | 209 000 |
| Farm business profit | $ | 53 210 | 79 700 | (40) | 87 000 |
| **Rate of return a** | | | | | |
| – excluding capital appreciation | % | 2.5 | 3.4 | (27) | 3.5 |
| – including capital appreciation | % | 2.7 | 4.5 | (31) | na |
| Farm capital at 30 June **b** | $ | 3 652 230 | 3 741 500 | (8) | na |
| Farm debt at 30 June **c** | $ | 457 170 | 492 100 | (28) | na |
| Equity ratio **cd** | % | 74 | 65 | (11) | na |

**a** Rate of return to farm capital at 1 July. **b** Excludes leased plant and equipment. **c** Average per responding farm. **d** Equity expressed as a percentage of farm capital. **p** Preliminary estimate. **y** Provisional estimate. **na** Not available.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate. Population excludes farms that are specialist asparagus, mushroom, onion, potato and tomato growers.
Source: ABARES Australian vegetable growing farms survey

# Appendix A: Survey methods and definitions

## Target population

The vegetable survey is designed from a frame (population list) drawn from the Australian Business Register (ABR) and maintained by the Australian Bureau of Statistics (ABS). The ABR-based frame provided to ABARES consists of agricultural businesses registered with the Australian Taxation Office together with their corresponding statistical local area, industry classification and size of operation variable. The size variable is an indicator of the extent of agricultural activity.

ABARES surveys target vegetable establishments that make a significant contribution to the total value of agricultural output (commercial farms). Farms excluded from ABARES surveys are the smallest units, which in aggregate would contribute little to the total value of vegetable production.

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 applied comprehensively across Australian industry, which permits 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. The Australian and New Zealand Standard Industrial Classification (ABS 2006) provides further information on ANZSIC and the vegetable growing industry.

For this survey, ABARES selected vegetable farms in the sample from units classified in ANZSIC 0122 (Vegetable growing, under cover) and 0123 (Vegetable growing, outdoors). These classes consist of units engaged mainly in growing vegetables, with primary activities including the production of capsicum, cucumbers, herbs, lettuce, tomatoes, asparagus, beans, carrots, garlic, zucchinis, onions, peas and potatoes.

## Survey design and sample weighting

The target population is grouped into strata defined by state and size of operation. The size of each stratum was determined using the Dalenius-Hodges method (Lehtonen & Pahkinen 2004). The sample allocation to each stratum is a compromise between allocating a higher proportion of the sample to strata with high variability in the size variable and an allocation proportional to the population of the stratum.

In 2013–14 there were an estimated 2 677 vegetable farm businesses in Australia (those with an estimated value of agricultural operations of at least $40 000) (Table A1). These farms accounted for 49 per cent of all vegetable growing farms (ABS 2014a). Results are based on the 297 vegetable farms that responded to the survey. New South Wales, Victoria and Queensland had the largest numbers of commercial vegetable farms, accounting for around two-thirds of vegetable farms across Australia. The Northern Territory has been excluded from the survey since 2009–10 because of the small number of commercial vegetable farms and the associated confidentiality requirements.

Farm-level estimates published in the report are calculated by appropriately weighting the data collected from each sample farm and using that data to calculate population estimates. Sample weights are calculated so that population estimates from the sample for numbers of farms and

areas of vegetables planted correspond as closely as possible (by state and by groups of farms by area of vegetables planted) to the most recently available ABS estimates from data collected in the Agricultural Census and the Agricultural Survey. This weighting process ensures estimates are applicable for all commercial vegetable growing farms rather than just those in the sample.

**Table A1 Population and sample numbers, Australian vegetable growing farm businesses, 2012–13 and 2013–14**

| State | Unit | 2012–13 | | 2013–14 | |
|---|---|---|---|---|---|
| | | Realised sample | No. of growers | Realised sample | No. of growers |
| New South Wales | no. | 54 | 713 | 51 | 574 |
| Victoria | no. | 56 | 468 | 54 | 537 |
| Queensland | no. | 71 | 627 | 63 | 526 |
| South Australia | no. | 58 | 322 | 51 | 406 |
| Western Australia | no. | 37 | 323 | 40 | 322 |
| Tasmania | no. | 33 | 224 | 39 | 231 |
| Australia | no. | 309 | 2 677 | 298 | 2 595 |

Note: ABARES surveys vegetable growing farm businesses with an estimated value of agricultural operations of at least $40 000.
Source: Australian Bureau of Statistics

The weighting methodology for the vegetable survey uses a model-based approach with a linear regression model linking the survey variables and the estimation benchmark variables. Bardsley and Chambers (1984) detail this method. Benchmark variables used to weight the ABS data include:

- total numbers of farms in scope
- total area planted to vegetables for human consumption.

Generally, larger farms have smaller weights and smaller farms have larger weights, reflecting the strategy of sampling a higher proportion of larger farms than smaller farms and the relatively lower number of large farms. Larger farms have greater variability of key characteristics and account for a much larger proportion of total output.

ABARES collects information on all vegetable commodities but does not weight the sample of farms collected by type of vegetables produced. Consequently, some vegetable commodities may be over- or under-represented in the survey compared with their relative contribution to the overall gross value of vegetable production.

Survey samples of specific vegetable commodities are sometimes too small to report physical and financial information. To protect confidentiality, commodity specific results collected from the ABARES survey of vegetable growing farm businesses are only reported for Australia overall and limited to the main vegetable commodities sampled.

## Survey questionnaire

The survey of vegetable growing enterprise included 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.

The survey covered:

- production
  - vegetable-related production for the survey year
  - quantity produced, sales, transfers and stocks on hand for each product
- labour
  - family and hired labour
  - workers' status in the operation, hours worked and wages paid
  - questions about operators' 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
  - farm debt
- income and expenses
  - all costs and income associated with the vegetable business.

The survey concluded with supplementary questions on:

- irrigation water and chemical usage
- pests and diseases
- farm sale outlets
- sources of information
- future intentions
- constraints
- growers' relationship with main buyers.

## Reliability of estimates

Reliability of the estimates of population characteristics presented in this report depends on design of the sample and accuracy of the measurement of characteristics for individual sample farms.

## Preliminary estimates and provisional projections

Estimates for 2013–14 and all earlier years are final. All farmer data, including accounting information, have been reconciled and final production and population information from the ABS has been included. No further change is expected in the estimates.

The 2014–15 estimates are provisional projections developed from the data collected through on-farm interviews undertaken between March and May. Projection estimates include:

- crop and livestock production

- receipts and expenditure up to date of interview
- expected production receipts and expenditure for the remainder of the projection year.

ABARES modifies expected receipts and expenditure where significant production and price change has occurred post-interview. Provisional projection estimates are subject to greater uncertainty than final estimates.

Projection estimates of farm financial performance are produced within a few weeks of completing survey collections. However, ABARES may update these several times at later dates. Subsequent versions are more accurate because they are based on upgraded information and slightly more accurate input datasets.

## Sampling errors

Only a subset of the total number of farms in a particular industry is surveyed. Data collected from each sample are weighted to calculate population estimates. Estimates derived from these farms are likely to be different from those that would have been obtained if information had been collected from a census of all farms. Any such differences are called 'sampling errors'.

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

As a guide to reliability of survey estimates, standard errors are calculated for selected estimates. These estimated errors are expressed as percentages of the survey estimates and termed relative standard errors (RSEs).

## Comparing estimates

When comparing estimates between two groups, it is important to recognise that the differences are also subject to sampling error. A conservative estimate 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.

For example, suppose the estimates of total cash receipts were $100 000 in Victoria and $125 000 in Tasmania—a difference of $25 000—and the RSE was given as 6 per cent for each estimate. The standard error of the difference could be estimated as:

$$\sqrt{(6 \times \$100\,000/100)^2 + (6 \times \$125\,000/100)^2} = \$9605$$

A 95 per cent confidence interval for the difference is:

$$\$25\,000 \pm 1.96 \times \$9605 = (\$6174, \$43\,826)$$

Therefore, if a larger number (towards infinity) of different samples are taken, approximately 95 per cent of the time the difference between the two estimates will be between $6 174 and $43 826. Also, since zero is not in this confidence interval, it is possible to say that the difference between the estimates is statistically significantly different from zero at the 95 per cent confidence level.

# 7 Glossary

| | |
|---|---|
| Owner–manager | Primary decision maker for the farm business. This person is usually responsible for day-to-day operation of the farm and may own or have a share in the farm business. |

**Physical items**

| | |
|---|---|
| Beef cattle | Cattle kept primarily for producing meat, irrespective of breed. |
| Dairy cattle | Cattle kept or intended mainly for producing milk or cream. |
| Hired labour | Excludes the farm business manager, partners and family labour, and work done by contractors. Expenditure on contract services appears as a cash cost. |
| Labour | Measured in work weeks, as estimated by the owner–manager or manager. Includes all work on the farm by the owner–manager, partners, family, hired permanent and casual workers and sharefarmers but excludes work done by contractors. |
| Total area operated | Includes all land operated by the farm business, whether owned or rented by the business, but excludes land share farmed on another farm. |

**Financial items**

| | |
|---|---|
| Capital | Value of farm capital is the value of all the assets used on a farm, including the value of leased items but excluding machinery and equipment either hired or used by contractors. The value of 'owned' capital is the value of farm capital excluding the value of leased machinery and equipment.<br><br>ABARES uses the owner–manager's valuation of the farm property. The valuation includes the value of land and fixed improvements used by each farm business in the survey, excluding land share farmed off the sample farm. Residences on the farm are included in the valuations.<br><br>Livestock are valued at estimated market prices for the land use zones in each state. These values are based on recorded sales and purchases by sample farms.<br><br>Before 2001–02 ABARES maintained an inventory of plant and machinery for each sample farm. Individual items were valued at replacement cost, depreciated for age. Each year, replacement cost was indexed to allow for changes in that cost.<br><br>Since 2001–02 total value of plant and machinery is based on market valuations provided by the owner–manager for broad categories of capital, such as tractors, vehicles and irrigation plant.<br><br>Total value of items purchased or sold during the survey year was added to or subtracted from farm capital at 31 December of the relevant |

financial year, irrespective of the actual date of purchase or sale.

Change in debt — Estimated as the difference between debt at 1 July and the following 30 June within the survey year, rather than between debt at 30 June in consecutive years. This is an estimate of the change in indebtedness of a given population of farms during the financial year, so it is not affected by changes in sample or population between years.

Farm business debt — Estimated as all debts attributable to the farm business, excluding personal debt, lease financed debt and underwritten loans (including harvest loans). Information is collected at the survey interview and supplemented by information contained in the farm accounts.

Farm liquid assets — Assets owned by the farm business that can be readily converted to cash. Includes savings bank deposits, interest bearing deposits, debentures and shares but excludes real estate, life assurance policies and other farms or businesses.

Receipts and costs — Receipts for livestock and livestock products sold are determined at point of sale. Selling charges and charges for transport to point of sale are included in costs of sample farms.

Receipts for crops sold during the survey year are gross of deductions made by marketing authorities for freight and selling charges. These deductions are included in farm costs. Receipts for other farm products are determined on a farmgate basis. All cash receipt items are the revenue received in the financial year.

Farm receipts and costs relate to whole area operated, including that operated by on-farm sharefarmers. Cash receipts include receipts from sale of products produced by sharefarmers. If possible, on-farm sharefarmers' costs are amalgamated with those of the sample farm. Otherwise, the total sum paid to sharefarmers is treated as a cash cost.

Some sample farm businesses engage in off-farm contracting or sharefarming, employing labour and capital equipment also used in normal on-farm activities. It is not possible to accurately allocate costs between off-farm and on-farm operations, so income and expenditure attributable to such off-farm operations are included in receipts and costs of sample farm business.

Total cash costs — Payments made by the farm business for materials and services and for permanent and casual hired labour (excluding owner–manager, partner and other family labour). Includes value of livestock transfers onto the property and any lease payments on capital, produce purchased for resale, rent, interest, livestock purchases and payments to sharefarmers. Capital and household expenditures are excluded from total cash costs.

Handling and marketing expenses include commission, yard dues and levies for farm produce sold.

Administration costs include accountancy fees, banking and legal

| | |
|---|---|
| | expenses, postage, stationery, subscriptions and telephone.<br><br>Contracts paid refers to expenditure on contracts such as harvesting. Capital and land development contracts are not included.<br><br>Other cash costs include stores and rations, seed purchased, electricity, artificial insemination and herd testing fees, advisory services, motor vehicle expenses, travelling expenses and insurance. 'Other cash costs' may comprise a large proportion of total cash costs, but individually the components are small overall and are not listed. |
| Total cash receipts | Total of revenues received by the farm business during the financial year, including from sale of livestock, livestock products and crops and value of livestock transfers off a property. Includes revenue received from agistment, compensation, contracts, government assistance payments, insurance claims, plant hire, rebates, refunds, royalties and share farming. |

**Financial performance measures**

| | |
|---|---|
| Build-up in trading stocks | Closing value of all changes in inventories of trading stocks during the financial year. Includes value of any change in herd or flock size or in stocks of wool, fruit and grains held on the farm. It is negative if inventories are run down. |
| Depreciation of farm improvements | Estimated by the diminishing value method, based on replacement cost and age of each item. Rates applied are standard rates allowed by the Commissioner of Taxation. |
| Farm business equity | Value of owned capital less farm business debt at 30 June. Estimate is based on those sample farms that have complete data on farm debt. |
| Farm business profit | Farm cash income plus build-up in trading stocks, less depreciation and the imputed value of the owner–manager, partner(s) and family labour. |
| Farm cash income | Difference between total cash receipts and total cash costs. |
| Farm equity ratio | Calculated as farm business equity as a percentage of owned capital at 30 June. |
| Imputed labour cost | Payments for owner–manager and family labour may not indicate 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. |

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Unless otherwise indicated, ABARES publications listed here are available at agriculture.gov.au/abares/publications.

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