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Australian beef

Financial performance of beef farms, 2015–16 to 2017–18

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Contents

Tables

Figures

Maps

Boxes

Industry overview

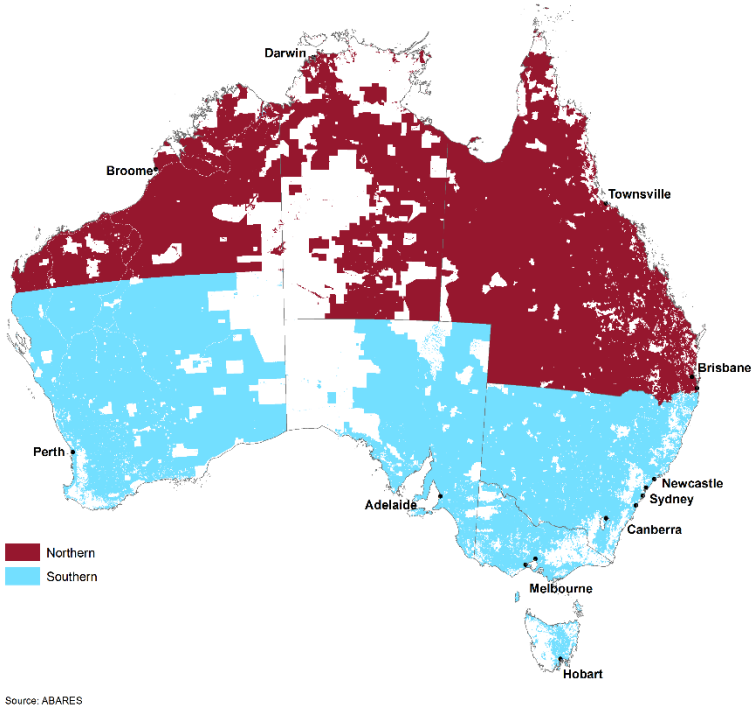
The beef cattle industry makes an important contribution to the Australian economy. In 2015–16 it accounted for around 23 per cent ($13.1 billion) of the total gross value of farm production and around 22 per cent of the total value of farm export income.

Around 57 per cent of all Australian farms carry beef cattle (ABS 2016), making this the most common and widely dispersed agricultural activity in Australia. Beef cattle farms are an important part of the rural economy in almost all regions of Australia. Farms running beef cattle manage more than 75 per cent of the total area of agricultural land in Australia.

The results below are for farms included in the Australian Agricultural and Grazing Industries (AAGIS) survey that had at least 100 head of beef cattle on hand at 30 June. Farm businesses with fewer than 100 head of cattle represent just 2 per cent of the national beef herd and contribute around 3 per cent to the total value of beef cattle sales.

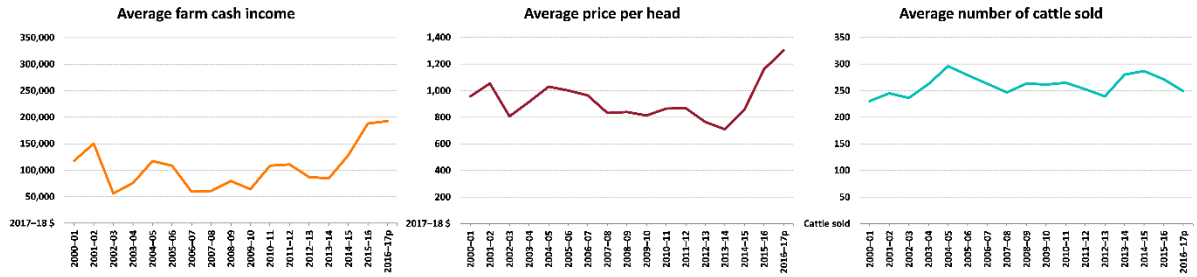
The AAGIS is funded by the Department of Agriculture and Water Resources, Meat & Livestock Australia (MLA) and the Grains Research and Development Corporation. MLA commissioned and funded the analysis of grains industry farm performance. Data are provided at national and regional scales, with regions based on those used by MLA—the Northern and Southern regions.

Map 1 MLA beef regions



Note: Northern Australia is defined as Northern Territory, Queensland and Western Australia north of the Tropic of Capricorn. The map excludes areas of Nature conservation, Managed resource protection, Production native forests and Plantation forests based on the Land use of Australia 2010-11.

Key drivers of farm income



Source: ABARES Australian Agricultural and Grazing Industries Survey

1 Farm financial performance

Farm cash income and profit

Average farm cash income of Australian beef farms increased by an estimated 2 per cent in 2016–17 to around $188,800 per farm (Table 1). Total cash receipts increased because of increased cattle sales and higher prices. Increased receipts were partly offset by an increase in total cash costs. In 2017–18 average farm cash income is projected to increase by 3 per cent because total cash costs are expected to fall by more than the decline in total cash receipts. Despite an increase in cattle turn-off numbers, total cash receipts are projected to decline because of lower beef cattle prices. In real terms, farm cash income in 2017–18 is projected to be the highest in over 20 years (Figure 1).

Table 1 Farm financial performance, beef farms, 2015–16 to 2017–18

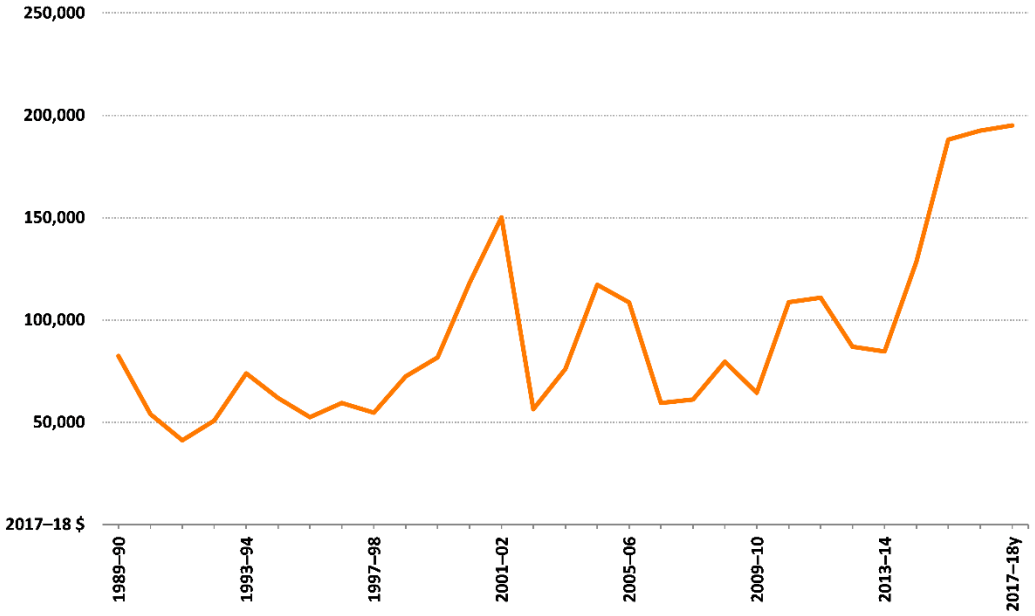
average per farm

Performance measure	Unit	2015–16	2016–17p	2017–18y
Australia				
Total cash receipts	$	485,270	519,700	461,000
Total cash costs	$	303,930	330,900	266,000
Farm cash income	$	181,350	188,800	195,000
Farm business profit	$	72,970	116,600	113,000
Rate of return a	%	2.1	2.7	2.5
Northern region				
Total cash receipts	$	568,770	655,100	516,000
Total cash costs	$	342,210	406,600	255,000
Farm cash income	$	226,560	248,500	261,000
Farm business profit	$	84,630	146,500	164,000
Rate of return a	%	2.2	2.7	2.8
Southern region				
Total cash receipts	$	445,880	461,100	430,000
Total cash costs	$	285,860	298,100	273,000
Farm cash income	$	160,020	163,000	157,000
Farm business profit	$	67,460	103,600	85,000
Rate of return a	%	2.1	2.7	2.3

a Rate of return excluding capital appreciation. **p** Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 1 Farm cash income, beef farms, Australia, 1989–90 to 2017–18

average per farm



y Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

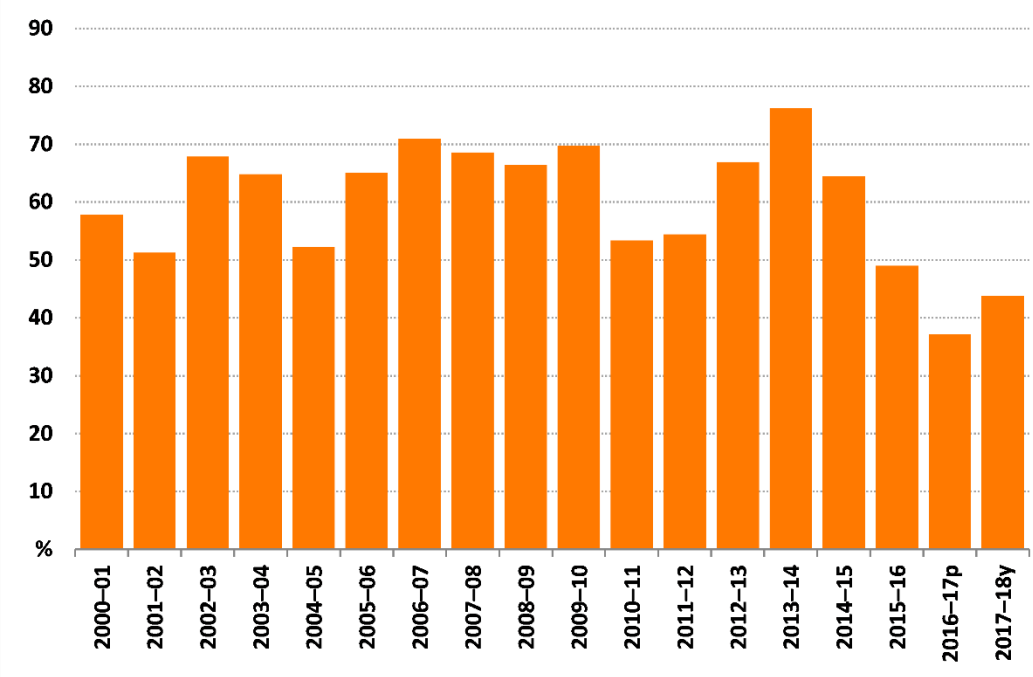
Farm business profit is a measure of long-term profitability. It accounts for capital depreciation, payments for family labour and changes in inventories of livestock, fodder and grain held on farm.

In 2017–18 farm business profit is projected to decrease by 3 per cent as a result of a fall in prices for beef cattle and consequent reductions in the value of livestock on hand. Farm business profit of beef farms is projected to average $113,000 per farm in 2017–18, the second highest in the past 20 years in real terms.

Over the 10 years to 2016–17, the proportion of beef farms recording negative farm business profits averaged around 61 per cent a year (Figure 2). In 2016–17 around 37 per cent of beef farms recorded negative farm business profits. This proportion is projected to increase to around 44 per cent in 2017–18.

Negative farm business profit means a farm has not covered the costs of unpaid family labour or set aside funds to replace depreciating farm assets. Many farms occasionally record negative farm business profit when their income fluctuates. However, ongoing low or negative profit affects long-term viability because farms have reduced capacity to invest in newer and more efficient technologies.

Figure 2 Proportion of beef farms with negative farm business profit, Australia, 2000–01 to 2017–18



p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Total cash receipts

In 2016–17 average total cash receipts for beef farms increased by 7 per cent to around $519,700 per farm, as a result of increased cash receipts for beef cattle, wool, sheep, lambs and crops (Table 1). High beef, wool and sheep prices and above average crop production in many areas resulted in the highest average total cash receipts for beef farmers since 2006–07, in real terms. In 2016–17 beef cattle accounted for around 61 per cent of total cash receipts, followed by crops (around 15 per cent) and wool and sheep (each less than 10 per cent).

In 2017–18 total cash receipts are projected to decrease by around 11 per cent to $461,000 per farm as a result of lower beef cattle prices and decreased receipts from crops. Receipts from wool and sheep are projected to remain relatively unchanged. Beef cattle turn-off is projected to increase in 2017–18 as a result of a dry winter and spring in the second half of 2017. Increased turn-off will partly offset the decline in cash receipts resulting from lower cattle prices.

Total cash costs

In 2016–17 average total cash costs of Australian beef farms increased by 7 per cent to around $330,900 per farm, mainly as a result of increases in expenditure on hired labour and livestock purchases (Table 1). In 2017–18 average total cash costs are projected to fall by around 20 per cent because of lower expenditure on most major cost items.

Performance, by region and herd size

Average farm cash income varies significantly between the Northern and Southern regions and by scale of operations. In 2016–17 average farm cash income increased in the Northern and Southern regions, but increases in the Northern region were much larger proportionally and in

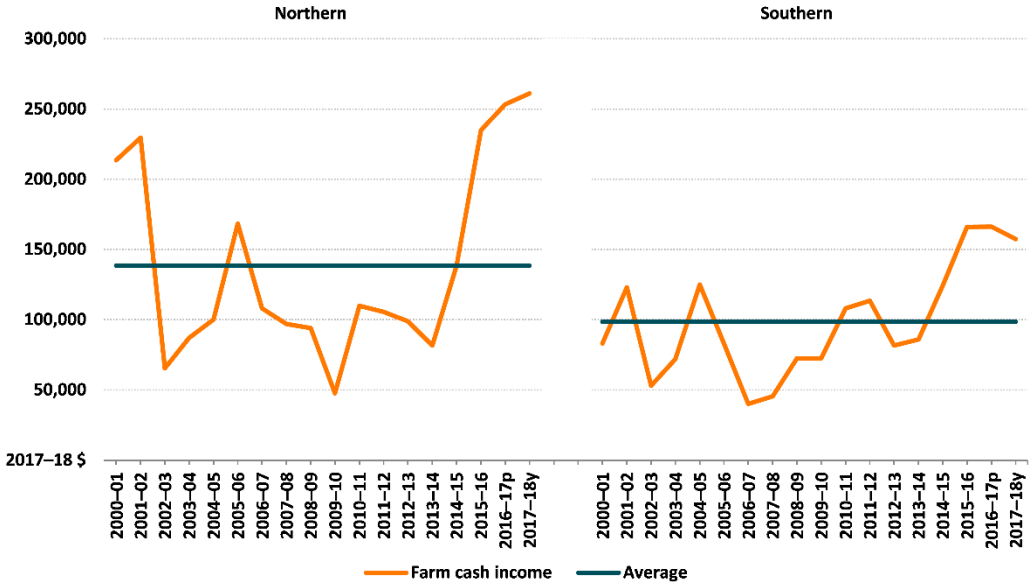
absolute terms. In 2016–17 average farm cash income of beef farms was $248,500 per farm in the Northern region and $163,000 per farm in the Southern region (Figure 3).

In the Northern region, farm cash income is projected to increase by 5 per cent to $261,000 per farm in 2017–18, the highest average income recorded in over 20 years. In real terms, farm cash income in the region since 2000–01 is estimated to have averaged around $139,000 per farm. In 2009–10 low beef prices and reduced turn-off because of restocking activities resulted in the lowest average farm cash income over the 17 years to 2016–17.

In the Southern region, farm cash income is projected to fall by 4 per cent in 2017–18 to an average of $157,000 per farm. In real terms, average farm cash income in the region since 2000–01 is estimated to have been around $98,000 per farm. Extended drought conditions in 2006–07 resulted in the lowest recorded average farm cash income over the 17 years to 2016–17.

Figure 3 Farm cash income, beef farms, by region, 2000–01 to 2017–18

average per farm



y Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Farm cash income of beef-producing farms across all size groups except small farms fell in 2016–17 but is projected to increase slightly in 2017–18 (Table 2). Despite the year-on-year changes, average farm cash income for all sizes of farm is significantly higher than the average since 2000–01, in real terms.

On average, farm cash income of very large beef farms (more than 5,400 head of cattle) decreased by around 13 per cent in 2016–17 and is projected to increase by 2 per cent in 2017–18 (Figure 4). Income of large beef farms (1,600–5,400 head) fell by around 1 per cent in 2016–17 but is projected to increase by around 4 per cent in 2017–18. Farm cash income of medium beef farms (400–1,600 head) fell by less than 1 per cent in 2016–17 and is projected to increase by around 8 per cent in 2017–18. Farm cash income of small beef farms increased by 9 per cent

in 2016–17 but is projected to fall by around 18 per cent in 2017–18 because of lower cropping receipts.

Table 2 Farm financial performance, beef farms, by herd size, 2015–16 to 2017–18

average per farm

Performance measure	Unit	2015–16	2016–17p	2017–18y
Small (100–400 head)				
Farm cash income	$	88,770	98,600	82,000
Farm business profit	$	2,050	29,000	7,000
Rate of return **a**	%	0.6	1.3	0.6
Medium (400–1,600 head)				
Farm cash income	$	203,140	206,200	227,000
Farm business profit	$	104,730	136,700	139,000
Rate of return **a**	%	2.5	2.9	2.7
Large (1,600–5,400 head)				
Farm cash income	$	501,570	503,700	535,000
Farm business profit	$	243,730	344,000	438,000
Rate of return **a**	%	2.7	3.2	3.7
Very large (>5,400 head)				
Farm cash income	$	1,994,070	1,765,900	1,838,000
Farm business profit	$	1,494,920	1,941,200	1,713,000
Rate of return **a**	%	5.6	5.5	5.7

p Preliminary estimate. **y** Provisional estimate. **a** Excluding capital appreciation.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 4 Farm cash income, by herd size, Australia, 2000–01 to 2017–18

average per farm

p Preliminary estimate**. y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Total cash receipts

In the Northern region, total cash receipts increased by around 15 per cent to $655,100 per farm in 2016–17. In the Southern region, total cash receipts increased by around

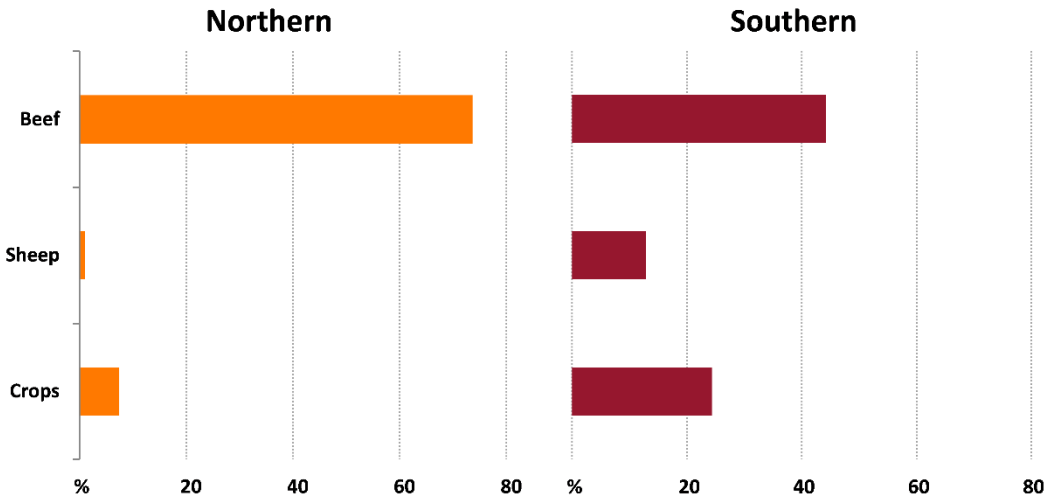
3 per cent to an estimated $461,100 per farm in the same year. In 2017–18 total cash receipts are projected to fall by around 21 per cent in the Northern region and around 7 per cent in the Southern region.

In the Northern region, beef cattle receipts accounted for an average of 74 per cent of total receipts between 2000–01 and 2017–18 (Figure 5). In 2016–17 receipts from all sources increased in the Northern region (Figure 6). In 2017–18 receipts from beef and crops are projected to decrease, but receipts from sheep will increase.

In the Southern region, beef cattle receipts accounted for an average of 44 per cent of total receipts between 2000–01 and 2017–18. In 2016–17 receipts from beef and crops decreased slightly in the Southern region, but receipts from sheep increased. In 2017–18 receipts from all sources are projected to decrease.

Figure 5 Contribution of receipts, by enterprise, by region, 2000–01 to 2017–18

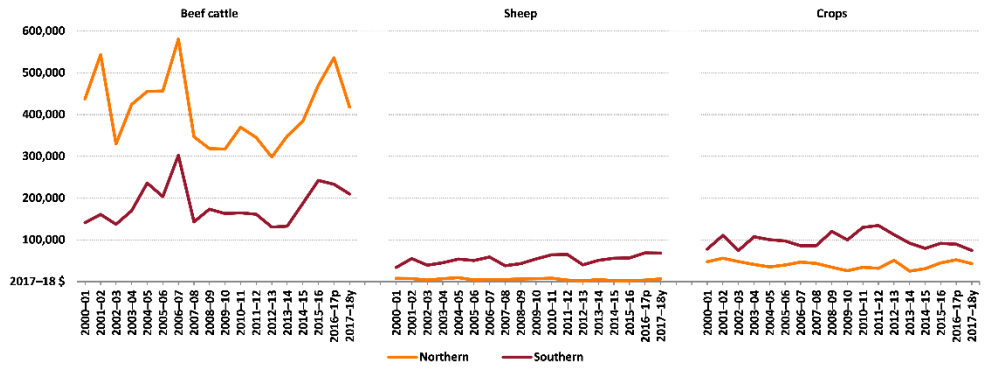
average per farm



Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 6 Cash receipts, by source, by region, 2000–01 to 2017–18

average per farm



p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

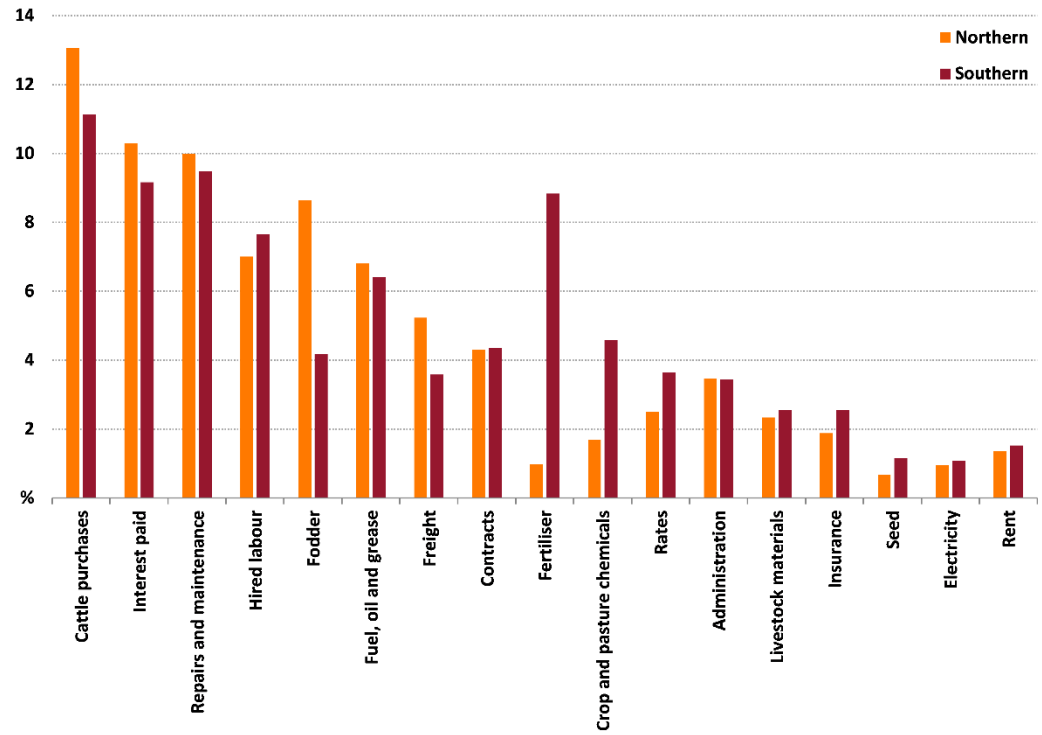
Total cash costs

Between 2000–01 and 2017–18 cattle purchases, interest paid and repairs and maintenance accounted for the largest share of total cash costs in both the Northern and Southern regions (Figure 7). In the Northern region, hired labour, fodder, fuel, oil and grease, and freight costs each accounted for over 5 per cent of total cash costs. In the Southern region, fertiliser, hired labour, and fuel, oil and grease each accounted for more than 5 per cent of total cash costs.

In the Northern region, total cash costs rose by 17 per cent in 2016–17 and are projected to fall by around 39 per cent in 2017–18. In the Southern region, total cash costs rose by 3 per cent in 2016–17 and are projected to fall by around 10 per cent in 2017–18.

Figure 7 Components of total cash costs, beef farms, by region, 2000–01 to 2017–18

average per farm



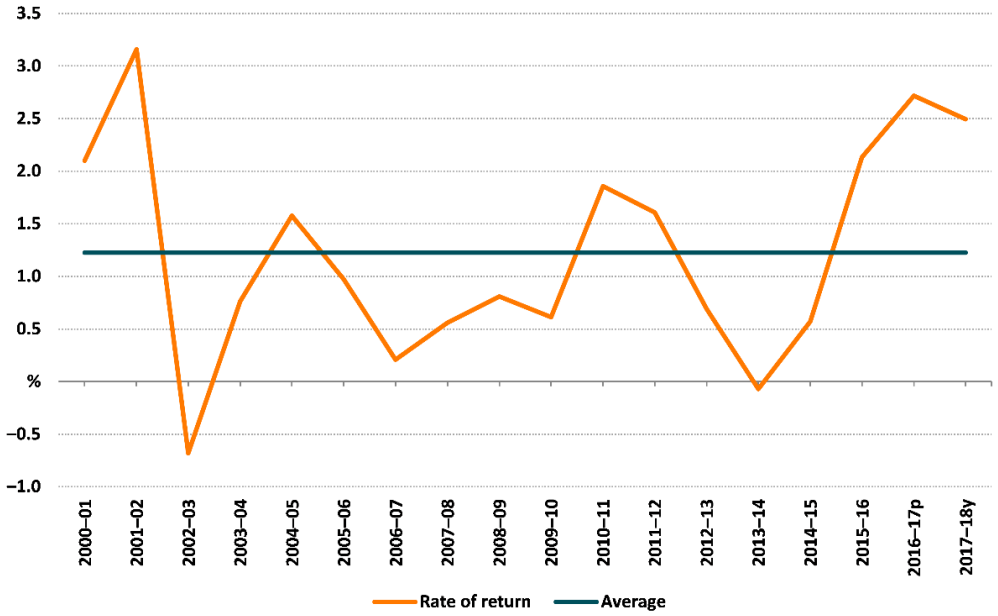
Source: ABARES Australian Agricultural and Grazing Industries Survey

Rate of return

The average rate of return (excluding capital appreciation) of Australian beef cattle farms increased from 2.1 per cent in 2015–16 to 2.7 per cent in 2016–17 (Figure 8). The average rate of return is projected to decrease slightly to 2.5 per cent in 2017–18 as a result of lower beef prices and reduced crop production. The rate of return is projected to decline but will still be above the average rate of return of 1.2 per cent recorded between 2000–01 and 2016–17.

Figure 8 Rate of return, beef farms, Australia, 2000–01 to 2017–18

average per farm

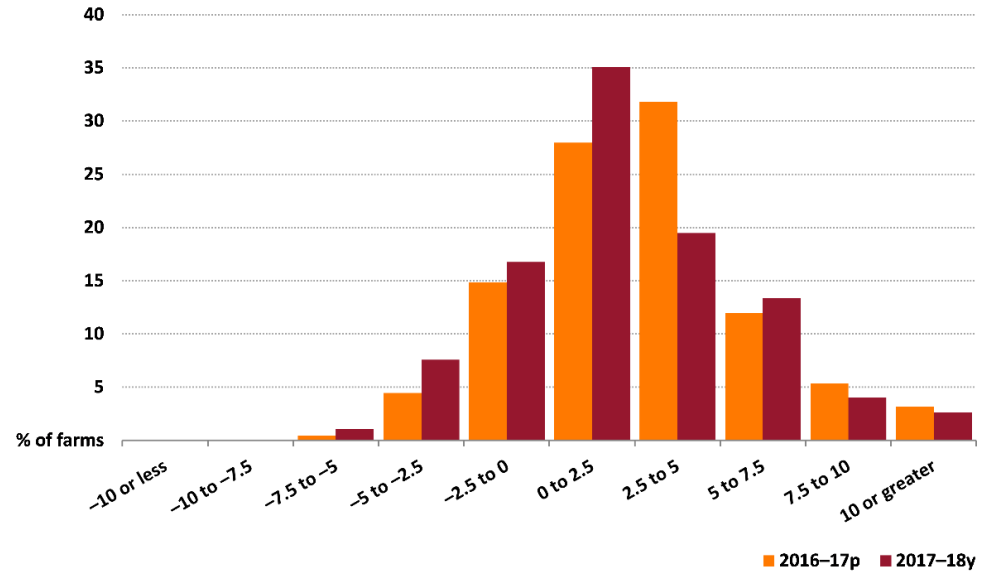


p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

The performance of beef cattle farms varied widely in 2016–17 and 2017–18 (Figure 9). In 2016–17 around 80 per cent of beef farms recorded a rate of return (excluding capital appreciation) greater than 0. Around 20 per cent of beef farms recorded rates of return greater than 5 per cent.

In 2017–18, 75 per cent of beef farms are projected to have a rate of return greater than 0. Around 20 per cent of beef farms are expected to have rates of return greater than 5 per cent.

Figure 9 Distribution of beef farms, by rate of return, 2016–17 and 2017–18



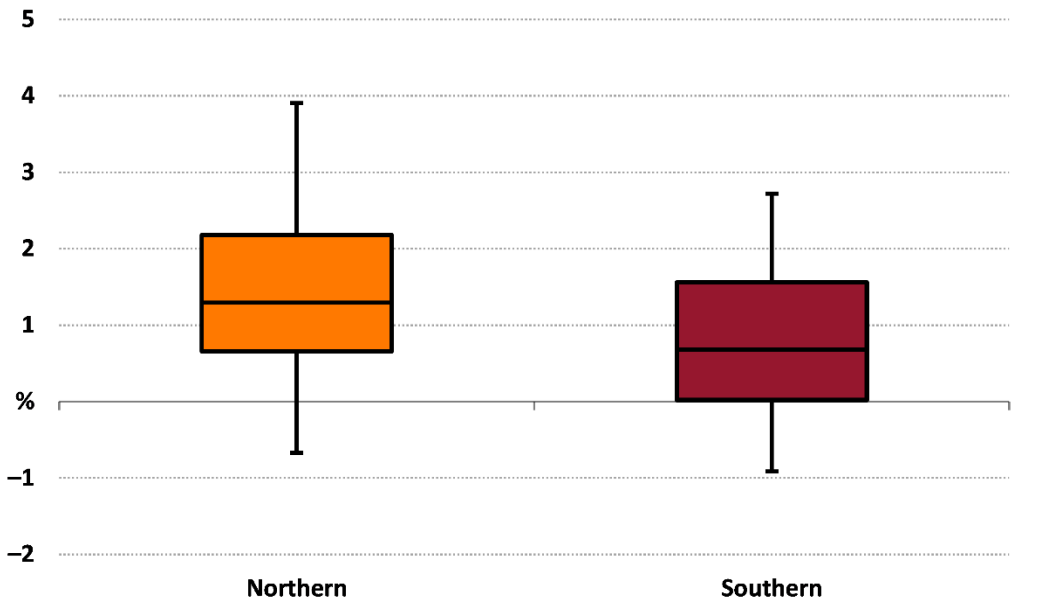
p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Variation in rates of return

The long-term performance of farm businesses is determined by the level and variability of profits. Variations in the rate of return reflect changes over time in average seasonal conditions, commodity prices and the cost of farm inputs recorded in each region. Individual farms are likely to have experienced different variations in the rate of return over the period. These are a result of seasonal conditions and commodity prices, and farm-specific factors such as enterprise mix and the skills of the manager.

Beef producers in the Northern region have generally performed better than their counterparts in the Southern region, recording higher average rates of return without much greater volatility in the averages (Figure 10). Variations may be a result of different enterprise mixes in each region—Northern region beef farms are generally larger and more specialised.

Figure 10 Rate of return variability, by region, 1989–90 to 2017–18



Note: Boxes represent 50 per cent of years. Vertical lines represent the rates of return in the 25 per cent best and worst years. Horizontal line in each box is the median.
Source: ABARES Australian Agricultural and Grazing Industries Survey

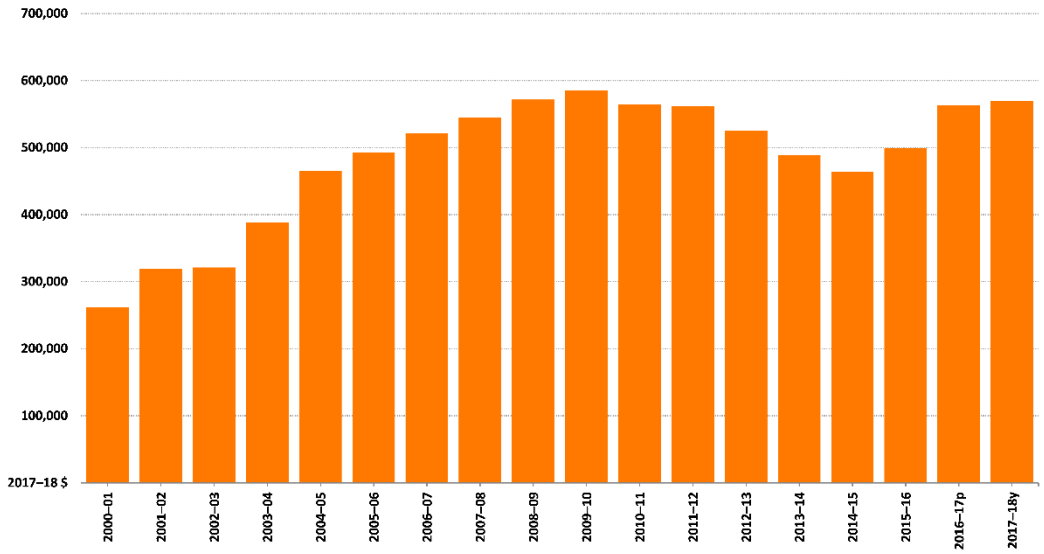
2 Farm debt and equity

Trends in average debt per farm

Debt is an important source of funds for investment and ongoing working capital for many beef farms. At the national level, between 2000–01 and 2009–10 average debt of beef farms at 30 June rose significantly in real terms before falling in the years to 2014–15 (Figure 11). From 2015–16 to 2016–17 average debt per farm increased by around 13 per cent to $562,800, in real terms. This can largely be attributed to increased debt due to land purchases. Average debt of beef farms is projected to increase slightly in 2017–18 to an estimated $569,000 per farm

Figure 11 Total farm debt at 30 June, beef farms, Australia 2000–01 to 2017–18

average per farm



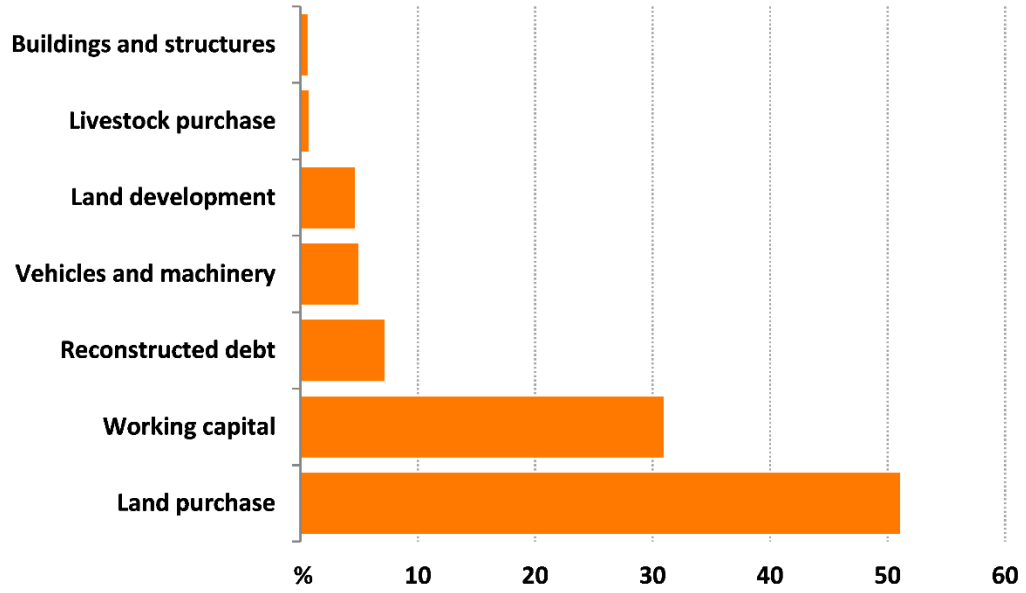
p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

In ABARES farm surveys, debt is recorded by its main purpose. However, because some loans cover a range of purposes, estimates of debt by main purpose provide a guide only.

Over the 3 years to 2016–17 land purchases accounted for the largest proportion of total farm debt, at 51 per cent on average (Figure 12). A further 31 per cent of debt was for working capital. The remaining debt was for a range of purposes such as vehicles and machinery, and buildings and structures.

Figure 12 Main purpose of farm debt, beef farms, Australia, 2014–15 to 2016–17

average proportion per farm



Source: ABARES Australian Agricultural and Grazing Industries Survey

Equity ratio

Changes in average debt per farm over the medium to longer term were largely matched by changes in total farm equity. As a consequence, the average equity ratio of beef farms at the national level remained steady between 2000–01 and 2016–17 at an average of around 90 per cent. A decline in land values in 2008–09 reduced beef farm equity in some regions and the average equity ratio declined slightly, to less than 90 per cent.

In 2016–17 an estimated 78 per cent of beef farms had an equity ratio of 90 per cent or more (Table 3). On average, these farms were relatively small and most were in the Southern region. They focused primarily on beef cattle production, receiving a relatively high proportion of total cash receipts from sales of beef cattle. Those farms with an equity ratio of less than 70 per cent make up 5 per cent of all beef farms. These farms are relatively large and more diversified than the higher-equity farms.

Table 3 Farm performance, by equity ratio, beef farms, Australia, 2016–17

average per farm

Equity ratio	Units	More than 90%	70% to 90%	Less than 70%
Proportion of farms	%	78	17	5
Total area operated	ha	6,700	11,600	11,800
Beef receipts as a proportion of total receipts	%	70	50	50
Proportion in Northern region	%	29	31	38
Proportion in Southern region	%	71	69	62

Source: ABARES Australian Agricultural and Grazing Industries Survey

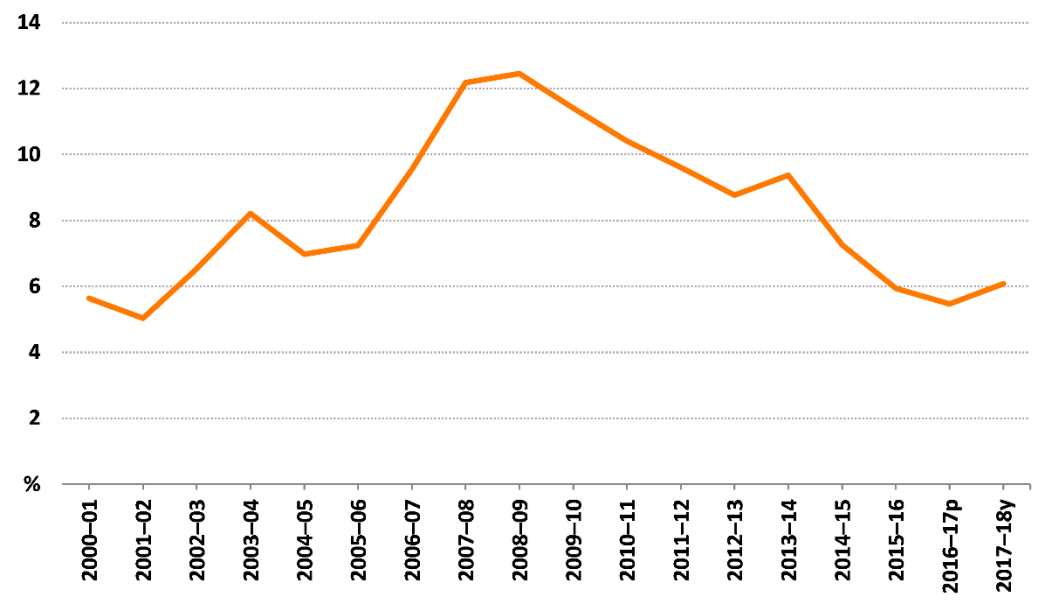
Debt-servicing capacity

The long-term viability of a farm is affected by its capacity to service debt. The servicing of debt consists of making interest payments and paying down the principal. The proportion of farm receipts spent on interest payments is a useful indicator of short-term capacity to service debt.

Between 2000–01 and 2017–18 the proportion of farm receipts needed to fund interest payments fluctuated around an average of 8 per cent (Figure 13). In 2017–18 interest paid is projected to be around 6 per cent of total cash receipts. Increases in cash receipts and reduced interest rates over the 8 years to 2017–18 resulted in a large decrease in the ratio of interest paid to total cash receipts.

Figure 13 Ratio of interest paid to total cash receipts, beef farms, Australia, 2000–01 to 2017–18

average per farm

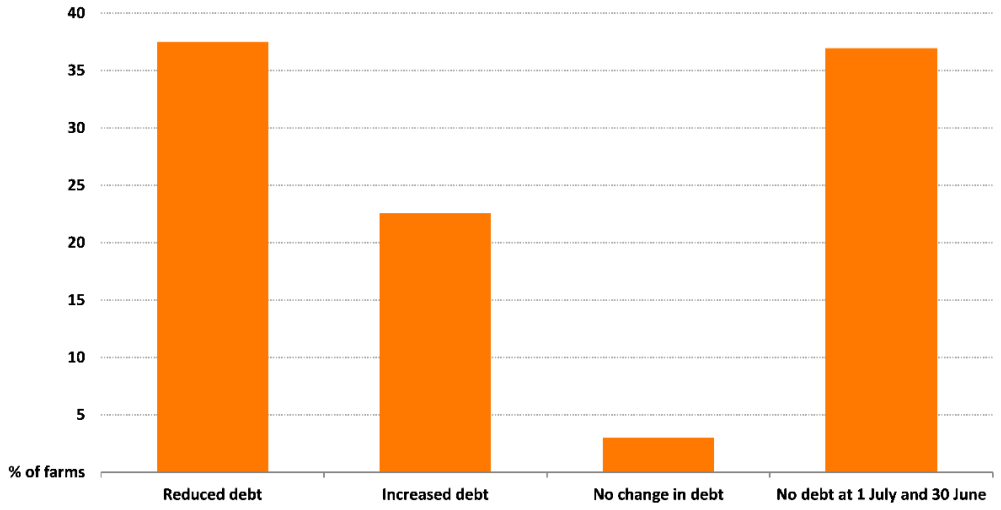


p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

At the national level, around 37 per cent of beef farms reduced their total debt in 2016–17 (Figure 14). An estimated 23 per cent of beef farms increased their debt, and around 3 per cent of beef farms had no change in debt. The remaining 37 per cent of beef farms had no debt at 1 July 2016 and 30 June 2017.

Figure 14 Distribution of farms, by change in debt, beef farms, Australia 2016–17

proportion of farms



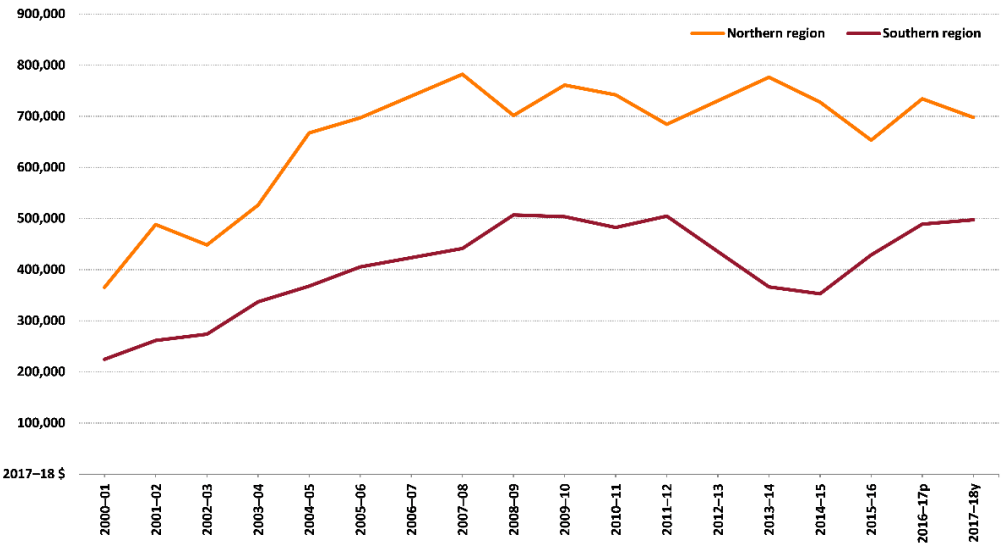
Note: Change in debt from 1 July 2016 to 30 June 2017.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Debt and equity, by region

Debt and equity of beef farms varied significantly by region and scale of cattle production. Beef farms in the Northern region had higher average debt and lower farm equity ratios than those in the Southern region, mainly because the Northern region had a higher proportion of large farms. In 2016–17 around 21 per cent of beef farms in the Northern region had more than 1,600 head of cattle, compared with around 3 per cent in the Southern region. Despite differences in average debt per farm, between 2000–01 and 2017–18 trends in farm debt were similar in both regions (Figure 15).

Figure 15 Total farm debt, beef farms, by region, 2000–01 to 2017–18

average per farm



p Preliminary estimate. **y** Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Between 2000–01 and 2016–17 the average equity ratio of beef farms in the Northern region was around 89 per cent and 90 per cent in the Southern region.

Debt and equity, by size

Between 2000–01 and 2017–18 small (100–400 head) and medium (400–1,600 head) beef farms accounted for most of the change in national average farm debt. Combined, these sized farms accounted for a projected 63 per cent of total farm debt in 2017–18. Between 2000–01 and 2017–18, the average debt of all size groups rose, however from 2011–12 the debt of very large beef farms trended downwards, before rising again in 2014–15.

Large farms tend to have lower equity ratios than smaller farms (Table 4). This is because larger farms usually have higher turnover and are better able to service debt. Larger beef farms also often have access to non-farm equity, whereas smaller farms are mostly family-owned businesses that rely heavily on the farmer's own capital. Since the early 2000s, the equity ratio of medium and very large farms has declined. The fall is most pronounced for very large farms, where the average equity ratio fell from over 93 per cent in 2005–06 to around 80 per cent in 2016–17. This can be attributed to very large farms having higher debt and being more affected by falling land values than smaller farms (Martin 2013). The equity ratio of large farms also trended downwards until 2010–11 to around 85 per cent.

Table 4 Equity ratio and total farm debt, beef farms, by size, 2014–15 to 2016–17

average per farm

Size	Equity ratio (%)			Total farm debt ($)		
	2014–15	2015–16	2016–17p	2014–15	2015–16	2016–17p
Small 100–400 head	92	92	92	220,910	220,510	245,400
Medium 400–1,600 head	89	89	89	545,150	634,370	665,900
Large 1,600–5,400 head	88	89	86	1,366,270	1,389,870	1,947,000
Very large > 5,400 head	80	79	80	4,920,010	5,260,230	5,741,800

p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Distribution of farms, by debt and equity

Table 5 shows the distribution of beef farms by debt and equity ratio at 30 June 2017. An estimated 42 per cent of beef farms held no debt at 30 June 2017. A further 18 per cent of farms held less than $100,000 in debt. An estimated 14 per cent of farms had debt in excess of $1 million. Around 78 per cent of beef farms had an equity ratio of more than 90 per cent in 2016–17.

Table 5 Distribution of farms, by farm business debt and equity ratio, beef farms, Australia, 30 June 2017

Equity ratio	No debt	Less than $100,000	$100,000 to less than $250,000	$250,000 to less than $500,000	$500,000 to less than $1m	$1m to less than $2m	More than $2m	Total
More than 90%	42	18	10	5	3	1	0	78
80% to less than 90%	0	0	0	4	3	2	2	12
70% to less than 80%	0	0	0	0	2	1	2	5
60% to less than 70%	0	0	0	0	0	1	2	3
Less than 60%	0	0	0	0	0	1	1	2
Total	42	18	10	9	8	6	8	100

Note: Row and column totals may not sum to 100 due to rounding.
Source: ABARES Australian Agricultural and Grazing Industries Survey

3 Farm capital and investment

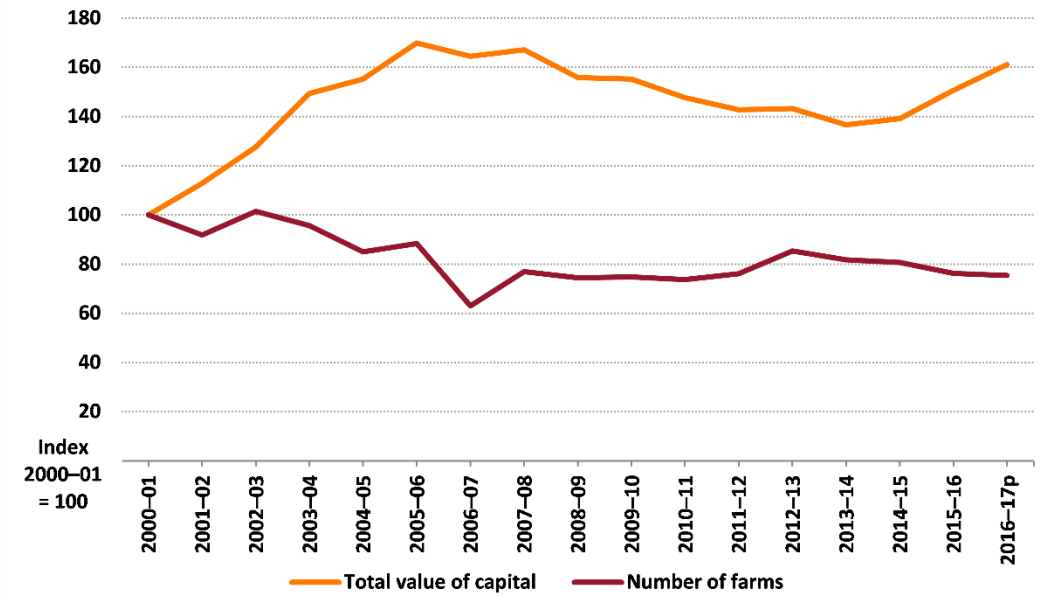
Total farm capital

From 2000–01 to 2016–17 the gross value of Australian cattle and calf production increased by around 24 per cent in real terms to an estimated $12 billion. Over the same period the number of beef farms declined by 25 per cent and, consequently, the gross value of production per farm increased.

Investment in farm capital is important for the ongoing development of the Australian beef industry. New and more efficient technologies are important for farm productivity, and investments in land, fixed improvements, and plant and equipment are key drivers of beef farmers' capacity to generate farm outputs.

The total value of capital for Australian beef farms increased by around 61 per cent in real terms from 2000–01 to 2016–17, although the number of beef farms declined (Figure 16). On a per farm basis, total capital increased by 114 per cent to an estimated $6 million per farm in 2016–17, largely as a result of appreciation in land values.

Figure 16 Total value of capital and number of farms, beef farms, Australia, 2000–01 to 2016–17

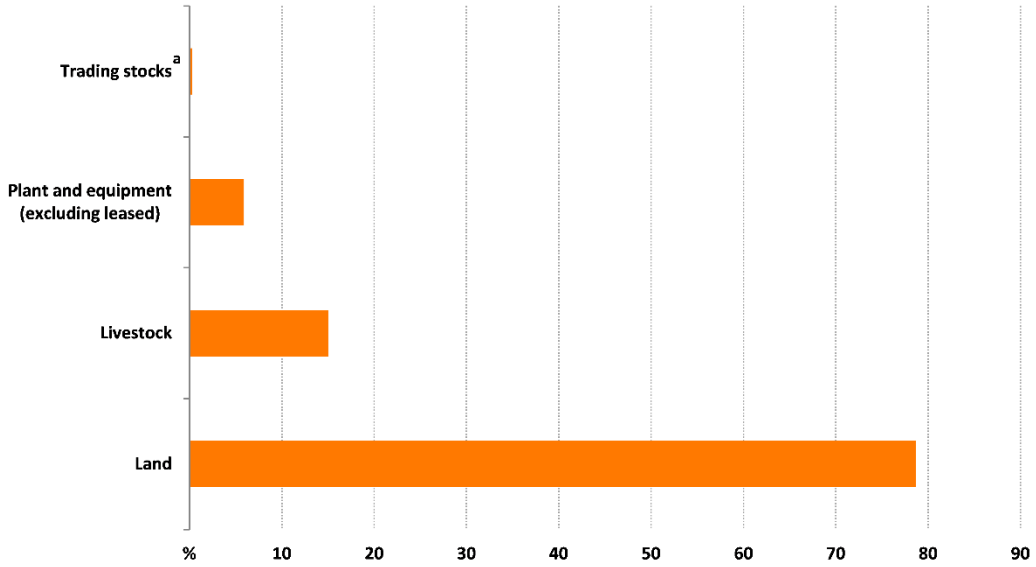


p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Land accounted for an average of 79 per cent of total capital per farm between 2012–13 and 2016–17 (Figure 17). Livestock accounted for a further 15 per cent of total capital, and plant and equipment accounted for about 6 per cent. From 2014–15 higher beef prices have raised the value of livestock on hand. The resulting increase in the capital value of livestock has been partly offset by falling herd sizes on average as beef producers sold cattle in response to higher prices and dry conditions in some areas.

Figure 17 Components of capital, beef farms, Australia, 2012–13 to 2016–17

average per farm



a The value of all inventories including herd, flock, stocks of wool, fruit and grains held on the farm at 30 June.
Source: ABARES Australian Agricultural and Grazing Industries Survey

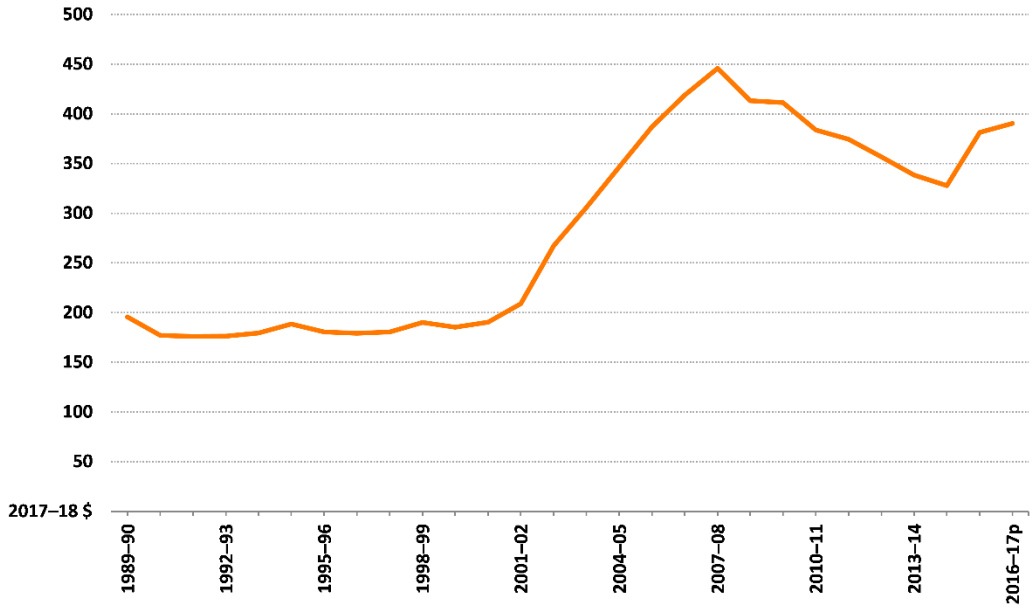
Return on land

ABARES uses two rates of return to farm capital—rate of return excluding capital appreciation and rate of return including capital appreciation. Rate of return is defined as farm profit expressed as a percentage of total capital. Because land is the largest component of total farm capital, it plays a key role in determining changes to total farm returns over the medium to longer term.

Figure 18 shows the average value of land and fixed improvements per hectare. The average annual return from land appreciation from 2000–01 to 2016–17 was 4.9 per cent per year. From 1990–91 to 1999–2000 the average annual return from land appreciation was negative, at –0.5 per cent per year before stronger demand for farm land led to sharp increases in land values. From 2000–01 to 2006–07 the average annual return from land appreciation was 12.6 per cent per year before declining to an average of –0.5 per cent per year for 2007–08 to 2016–17.

Figure 18 Value of land and fixed improvements per hectare, beef farms, Australia, 1989–90 to 2016–17

average per farm



p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

New farm investment

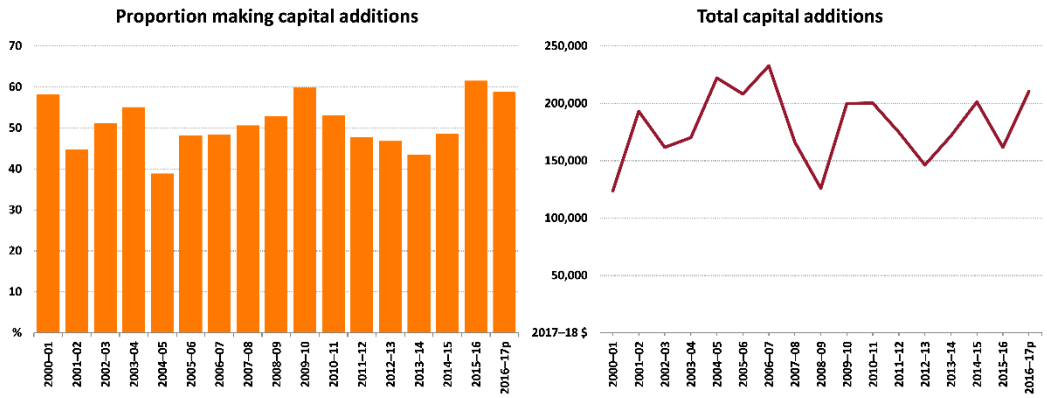
Most farmers make new investments each year to add to the existing capital stock or to replace capital items that have reached the end of their useful life. Farm investments are usually made with longer-term outcomes in mind and based on expected returns over the life of the investment.

On average, 52 per cent of beef farms each year made additions to their total capital over the 10 years to 2016–17 (Figure 19). The average amount invested each year by those making capital additions fluctuated around an average of $176,000, broadly in line with movements in farm cash incomes.

In 2016–17 an estimated 59 per cent of beef farms made capital additions at an average of $210,000 per farm.

Figure 19 Total capital additions, beef farms, Australia, 2000-01 to 2016–17

proportion of farms and average per farm



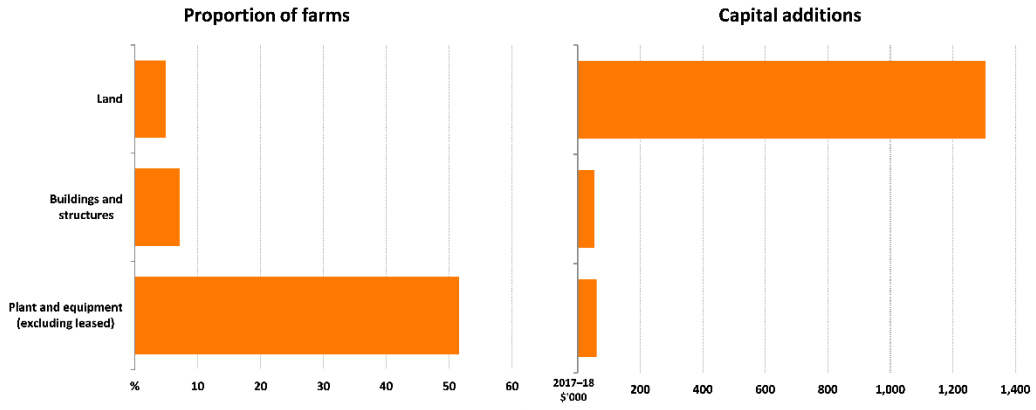
p Preliminary estimate.
Note: Total capital additions is the average of those farms making capital additions.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 20 shows the average proportion of beef producers that made capital additions each year from 2012–13 to 2016–17 and the average capital addition in three categories—land purchases, plant and equipment, and buildings and structures. Land is the biggest component of capital additions each year, although only 5 per cent of beef producers bought land each year on average between 2012–13 and 2016–17. Average expenditure on land for those making purchases was around $1.3 million per farm.

Around 52 per cent of all beef producers made additions to plant and equipment on average each year over the period, at an average of around $61,000 per farm. Around 7 per cent of beef producers made additions to buildings and structures. Expenditure on these capital additions averaged around $54,000 per farm.

Figure 20 Components of capital additions, beef farms, Australia, 2012–13 to 2016–17

proportion of farms and average per farm in category



Note: Capital additions is the average of those farms making capital additions.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Farm capital and investment by region

Trends in the total value of farm capital were similar in the Northern and Southern regions from 2000–01 to 2016–17. In each region, the total value of capital increased and the number of farms decreased.

The Northern region has fewer farms but larger land area and higher capital per farm than the Southern region. In the Northern region, the total value of capital of all beef farms increased by 67 per cent in real terms from 2000–01 to 2016–17. The number of farms declined by around 15 per cent and the average capital per farm increased by 96 per cent. The Northern region accounted for 37 per cent of total Australian beef farm capital in 2000–01 and 38 per cent in 2016–17.

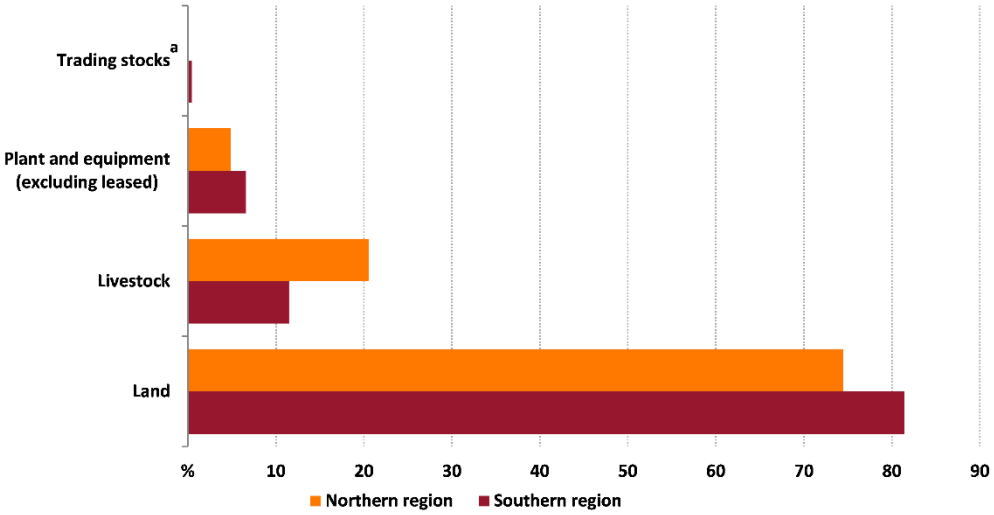
In the Southern region, the total value of capital of all beef farms increased by 58 per cent in real terms from 2000–01 to 2016–17. The number of farms declined by an estimated 28 per cent and average capital per farm increased by 119 per cent. The Southern region accounted for 63 per cent of total beef farm capital in 2000–01 and 62 per cent in 2016–17.

From 2012–13 to 2016–17 beef farms in the Southern region had a higher proportion of farm capital in land (81 per cent) (Figure 21). This is partly attributable to the higher average unit value of land in the Southern region, which is more than double the per hectare value in the Northern region (Figure 22), despite farms in the Northern region operating larger areas on average.

Because of the mixed nature of many beef farms in the Southern region, livestock accounted for a smaller proportion of total capital in that region than in the Northern region.

Figure 21 Components of capital, beef farms, by region, 2012–13 to 2016–17

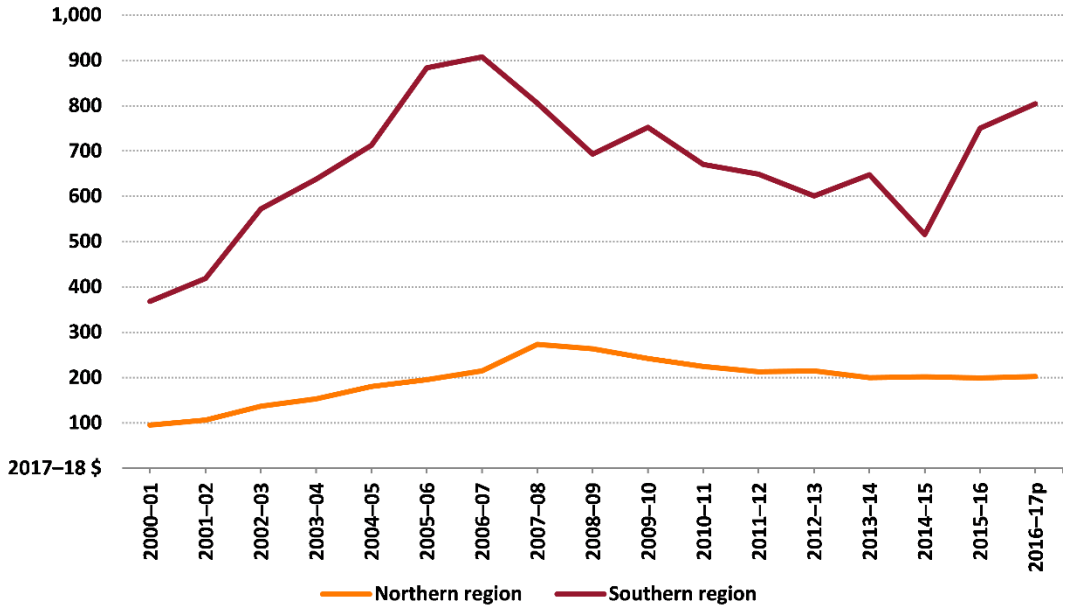
average per farm



a The value of all inventories including stocks of wool and grains held on farm at 30 June.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 22 Value of land and fixed improvements per hectare, beef farms, by region, 2000–01 to 2016–17

average per farm



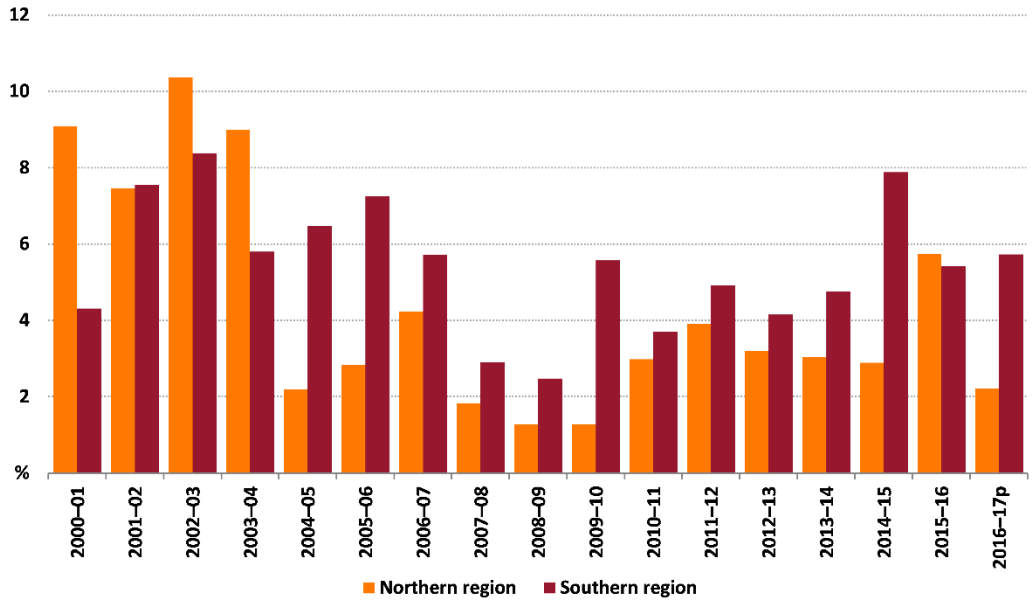
p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

The proportion of beef farms making additions to total capital varies in each region from year to year depending on farm incomes, although the average over the 10 years to 2016–17 was similar in both regions.

In most years the proportion of beef farms purchasing land is higher in the Southern region than in the Northern region (Figure 23). However, average land expenditure of those making land additions in the Northern region is around double that in the Southern region as a result of the significantly larger average farm size in the Northern region.

Figure 23 Proportion of farms making land additions, beef farms, by region, 2000–01 to 2016–17

proportion of farms



p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

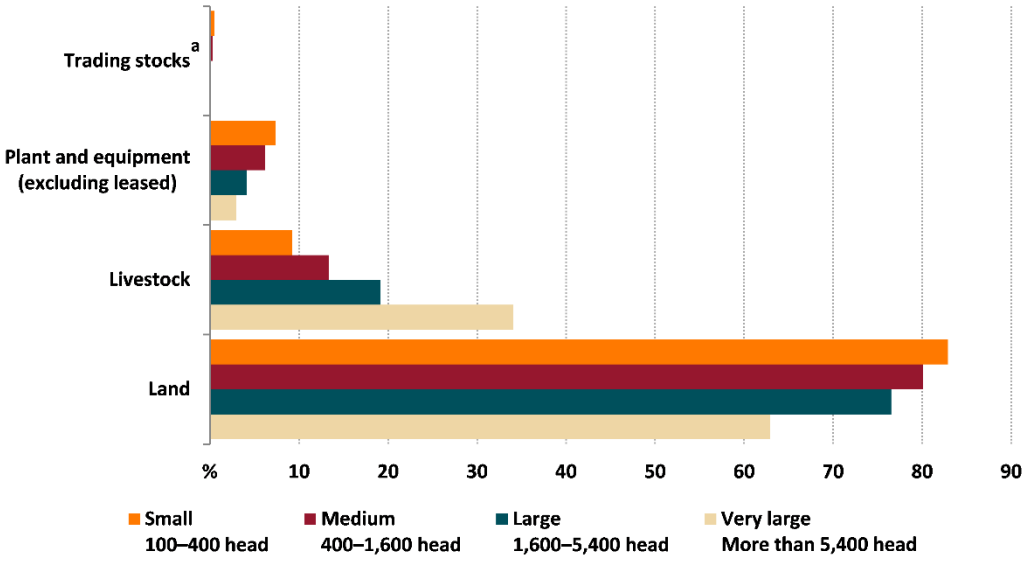
Farm capital and investment by farm size

Beef farms in all size groups became more capital intensive between 2000–01 and 2016–17. The average amount of labour used per farm declined over the period, which resulted in an increase in the proportion of non-land capital used per unit of labour.

Small beef farms (100–400 head) owned the largest proportion of national beef farm capital in 2016–17 (34 per cent) and made up 60 per cent of beef farms. From 2000–01 to 2016–17 the aggregate value of small beef farms rose by around 33 per cent despite a 30 per cent decline in the number of small beef farms.

Figure 24 Components of capital, beef farms, by size, 2012–13 to 2016–17

average per farm



a The value of all inventories including stocks of wool and grains held on farm at 30 June.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Medium beef farms (400–1,600 head) owned about 33 per cent of Australian beef farm capital stock in 2016–17 and made up 30 per cent of the number of beef farms. The aggregate value of capital of medium-sized beef farms rose around 55 per cent between 2000–01 and 2016–17, despite the number of farms decreasing by about 19 per cent.

The aggregate value of capital of large beef farms (1,600–5,400 head) represented 21 per cent of Australian beef farm capital in 2016–17 and these farms made up 8 per cent of Australian beef farms. The aggregate value of capital rose by about 127 per cent from 2000–01 to 2016–17, and the number of farms increased by 12 per cent.

Very large beef farms (more than 5,400 head) owned around 11 per cent of Australian beef farm capital in 2016–17 and made up 2 per cent of the total number of beef farms. The aggregate value of very large beef farm capital rose by 108 per cent from 2000–01 to 2016–17, although the number of farms fell by around 4 per cent.

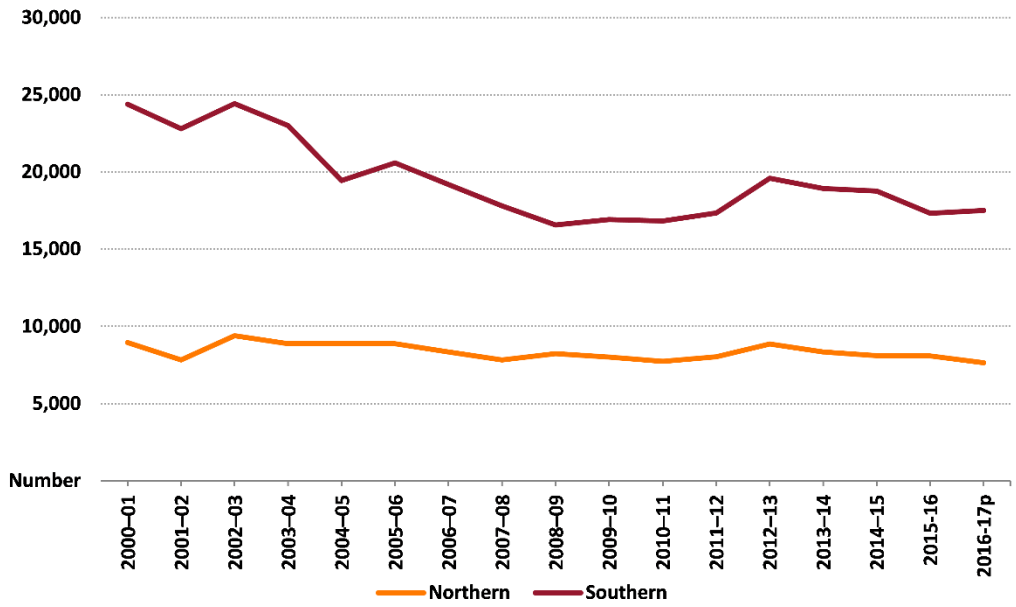
Very large beef farms are generally pastorally focused and have a greater quantity of less fertile land with a lower average value per hectare than other size groups. Combined with the greater number of cattle on hand, this results in very large farms having a significantly lower proportion of total capital held in land and a greater proportion embodied in the cattle stock (Figure 24).

4 Physical characteristics

In 2016–17 an estimated 25,000 Australian farms had at least 100 head of beef cattle at 30 June. Around 70 per cent of these farms were in the Southern region and the remaining 30 per cent were in the Northern region (Map 1).

From 2000–01 to 2015–16 the total number of Australian beef farms fell by around 25 per cent. Most of this decline was in the Southern region, where the number of beef farms fell by 28 per cent (Figure 25). The number of beef farms in the Northern region remained relatively unchanged.

Figure 25 Number of beef farms, by region, 2000–01 to 2016–17



p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

In 2016–17 around 60 per cent of beef farms were classified as small (100 to 400 head), accounting for 16 per cent of the national beef herd (Table 6). Medium beef farms (400 to 1,600 head) made up 30 per cent of Australian beef farms and accounted for about 27 per cent of the beef herd. Around 8 per cent of beef farms were in the large category (1,600 to 5,400 head), accounting for 27 per cent of the beef herd. Only 2 per cent of beef farms were very large (more than 5,400 head), but they accounted for 29 per cent of the national beef herd.

Table 6 Proportions of farms and cattle, by herd size, Australia, 2016–17

Farm size	Number of farms (no.)	Share of farms (%)	Share of beef cattle (%)	Share of area operated (%)
Small (100 to 400 head)	15,960	61	17	7
Medium (400 to 1,600 head)	8,000	31	30	17
Large (1,600 to 5,400 head)	1,800	7	25	31
Very large (More than 5,400 head)	400	2	28	45
Total head	26,160	100	100	100

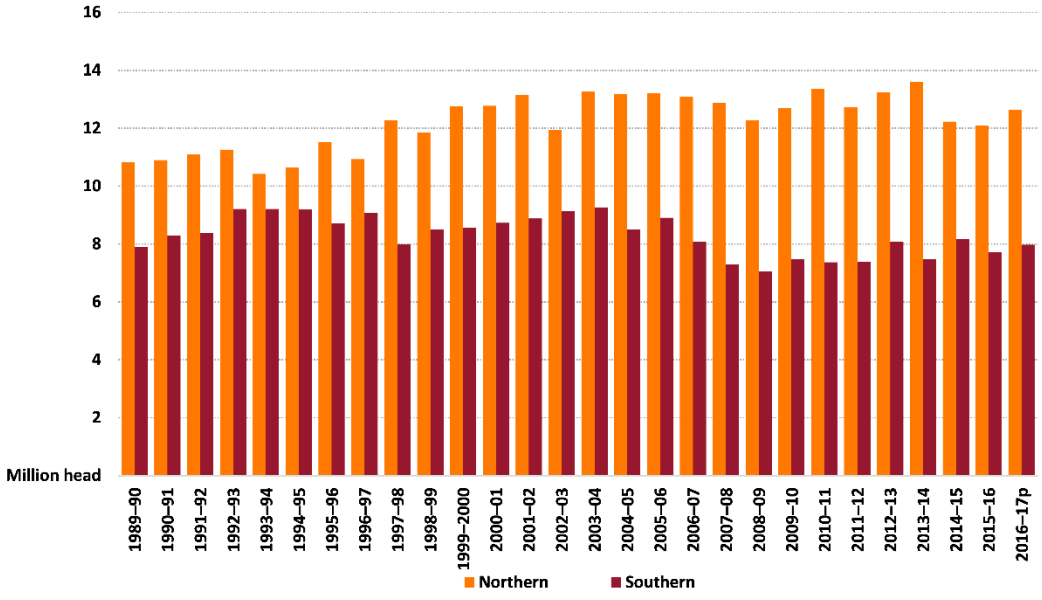
Note: Row and column totals may not sum to 100 due to rounding.
Source: ABS; ABARES Australian Agricultural and Grazing Industries Survey

Trends in physical characteristics, by region

Climate, pastures, industry infrastructure and proximity to markets differ markedly between the Northern and Southern regions and within each region. These factors have affected the development and nature of the beef industry and associated farm businesses in each region.

From 1989–90 to 2016–17 the total size of the Australian beef herd (excluding feedlots and dairy) fluctuated between around 19 million and 21 million head. Overall, in the same period the proportion of the Australian beef herd held on farms in the Northern region trended upwards slightly (Figure 26).

Figure 26 Total herd size, beef farms, by region, 1989–90 to 2016–17



p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

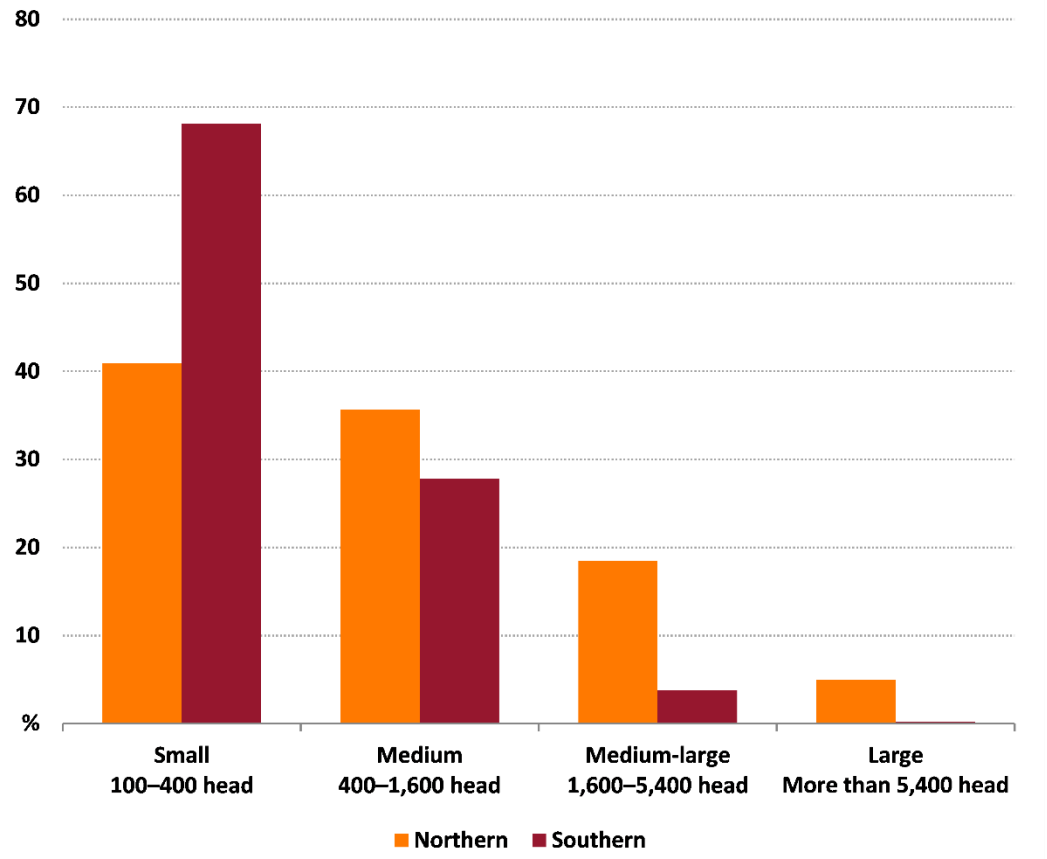
Northern region

From 2000–01 to 2016–17 the Northern region accounted for around 61 per cent of the Australian beef herd each year, on average. The Northern region beef herd varies widely from

year to year depending on prevailing seasonal and market conditions. In 2014–15, following a 10-year peak in total turn-off in 2013–14, producers began rebuilding herds in response to improved seasonal conditions.

In 2016–17 around 18 per cent of Northern region beef farms had an average herd of between 1,600 and 5,400 head and 5 per cent of farms had more than 5,400 head (Figure 27). An estimated 41 per cent of Northern region beef farms had 100 to 400 head of cattle.

Figure 27 Proportion of farms in each size group, beef farms, by region, 2016–17

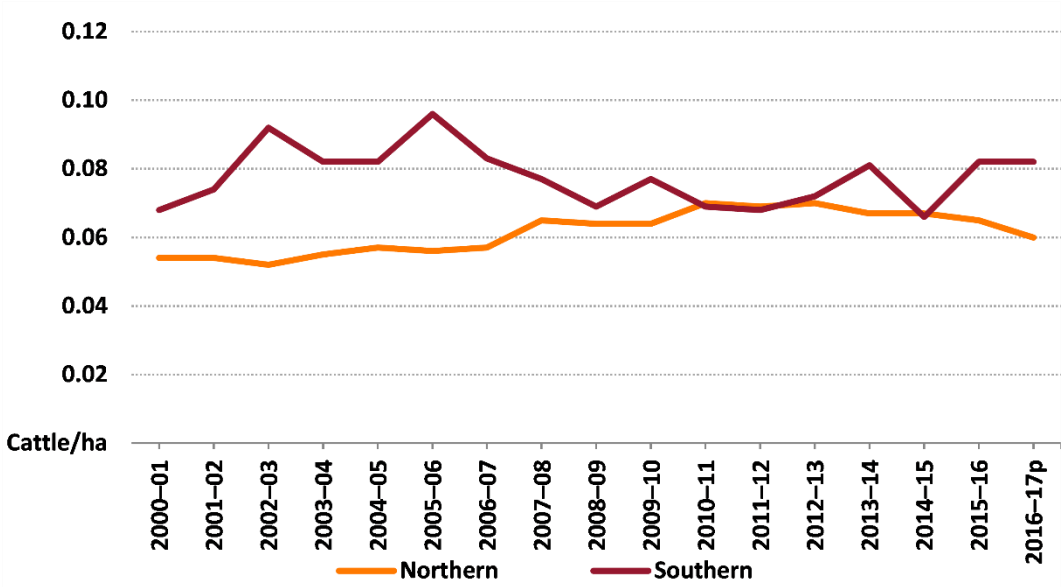


Source: ABARES Australian Agricultural and Grazing Industries Survey

In the Northern region, during the 2000s average stocking rates per hectare operated for beef farms increased slightly (Figure 28). In 2016–17 the average number of beef cattle per hectare operated was 11 per cent higher than in 2000–01. The average stocking rate in the Northern region includes a number of relatively smaller farms in southeast Queensland and much larger beef farms in the rest of the region.

Figure 28 Beef cattle per hectare operated, beef farms, by region, 2000–01 to 2016–17

average per farm

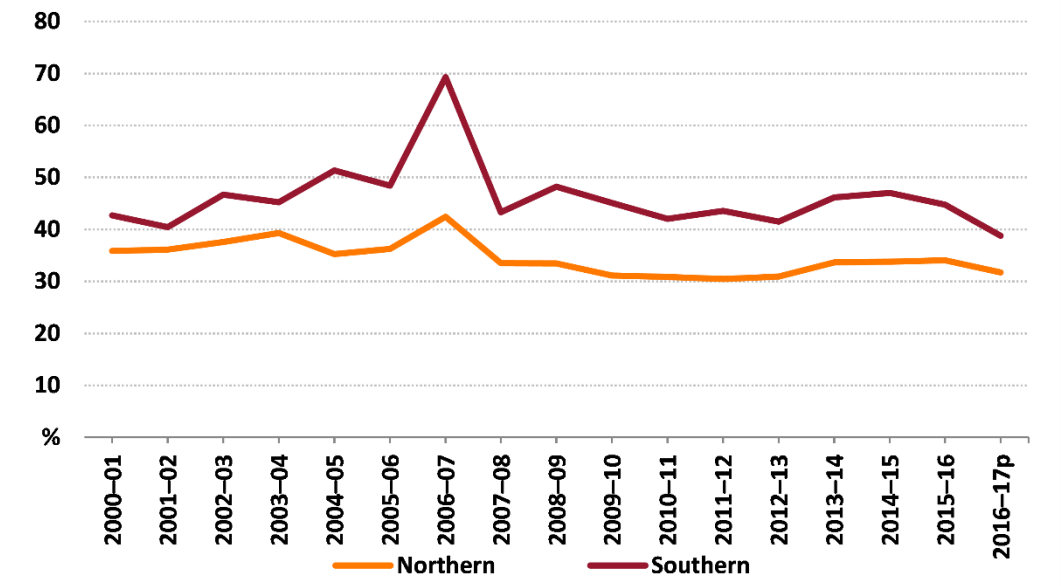


p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Despite increases in average stocking rates, the rate of turn-off (sales and transfers off farm as a proportion of opening cattle numbers) has fluctuated from year to year and shows no apparent trend (Figure 29). Turn-off rate (cattle sold or transferred off-farm as a percentage of the average herd size) averaged 32 per cent in northern Australia for the 10 years between 2007–08 and 2016–17.

Figure 29 Turn-off rate, beef farms, by region, 2000–01 to 2016–17

average per farm



p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Branding rates (calves branded as a percentage of cows mated) are also typically lower and more variable in the Northern region than in the Southern region, reflecting less favourable pasture conditions. Branding rates in the Northern region averaged 70 per cent over the 10 years to 2016–17.

Southern region

The total number of beef cattle in the Southern region is less variable from year to year than in the Northern region (Figure 2). More favourable pasture conditions, higher and less variable branding rates, and higher cattle growth rates in the Southern region contribute to more stable production.

In 2016–17 around 68 per cent of Southern region beef farms had between 100 and 400 head of beef cattle (Figure 27). Only 4 per cent of beef farms in the Southern region had a herd of between 1,600 and 5,400 head and less than 1 per cent had more than 5,400 head.

Average stocking rates per hectare for beef farms in the Southern region have fluctuated since the early 2000s (Figure 28). In 2016–17 the average number of beef cattle per hectare operated was 21 per cent higher than in 2000–01. Branding rates in the Southern region averaged 87 per cent over the 10 years to 2016–17.

5 Cost of production

Cost of beef production

Between 2008–09 and 2013–14 prices for beef cattle declined and producers reduced expenditure on beef inputs to a minimum in an attempt to maintain operating margins (Martin 2015).

Higher prices for beef cattle in 2015–16 led to increased cashflow. In response, producers in both northern and southern Australia increased expenditure on farm inputs. Expenditure on repairs and maintenance increased by 24 per cent in southern Australia and 15 per cent in northern Australia, in real terms. Expenditure on hired labour and contracts increased by 28 per cent in southern Australia and 13 per cent in northern Australia.

In 2016–17, there was a small decrease in the total on-farm per kilogram live weight cost of beef production in southern Australia and a slightly larger reduction in northern Australia (Table 7). Both reductions resulted from reduced expenditure on fodder and hired labour from high expenditure in 2015–16, together with a small reduction in total labour input. The reduction in total cost of production was larger in northern Australia due to a relatively larger reduction in fodder expenditure (Figure 30) and (Figure 31).

Table 7 Per kilogram live weight cost of beef production and operating margins for beef cattle–producing farms, 2014–15 to 2016–17

average per farm

Production and price	unit	Southern Australia						Northern Australia					
		2014–15		2015–16		2016–17		2014–15		2015–16		2016–17	
Total live weight of cattle produced	tonnes	75	(6)	83	(5)	79	(5)	227	(5)	179	(4)	172	(5)
Average price received	c/kg	146	(2)	184	(2)	249	(2)	153	(3)	183	(3)	253	(3)
Production costs													
Total cash costs excluding finance costs	c/kg	126	(3)	145	(3)	147	(4)	130	(3)	138	(4)	134	(4)
Total cash costs including finance costs	c/kg	136	(3)	156	(3)	159	(4)	148	(3)	154	(4)	149	(4)
Total cash, finance and depreciation costs	c/kg	156	(3)	178	(3)	178	(4)	167	(3)	173	(4)	167	(4)
Total costs (all cash costs, finance, depreciation and the value of unpaid labour)	c/kg	196	(3)	222	(3)	219	(4)	199	(3)	205	(3)	194	(4)
Operating margin over:													
Cash costs	c/kg	60	(6)	111	(5)	136	(5)	57	(9)	125	(7)	127	(6)
Cash and finance costs	c/kg	50	(8)	100	(5)	125	(5)	38	(14)	109	(8)	112	(8)
Cash, finance and depreciation costs	c/kg	30	(15)	78	(7)	106	(6)	19	(29)	90	(10)	94	(9)
All costs including unpaid labour costs	c/kg	–10	(54)	34	(18)	64	(12)	–13	(48)	58	(16)	67	(13)

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate. Estimates have been rounded to the nearest whole number and are presented in 2016–17 dollars. Cash costs include all expenditure on materials, interest, rent, services and labour such as fodder, rates, irrigation water, fuel, fertiliser, accountancy, electricity, veterinary chemicals and repairs incurred in the production of farm income. Cash costs do not include expenditure on items of farm capital such as purchase of vehicles, machinery, land, structures or improvements or value of labour and other inputs where no direct cash expenditure is made.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Box 1 Calculation of the per kilogram live weight cost of beef production

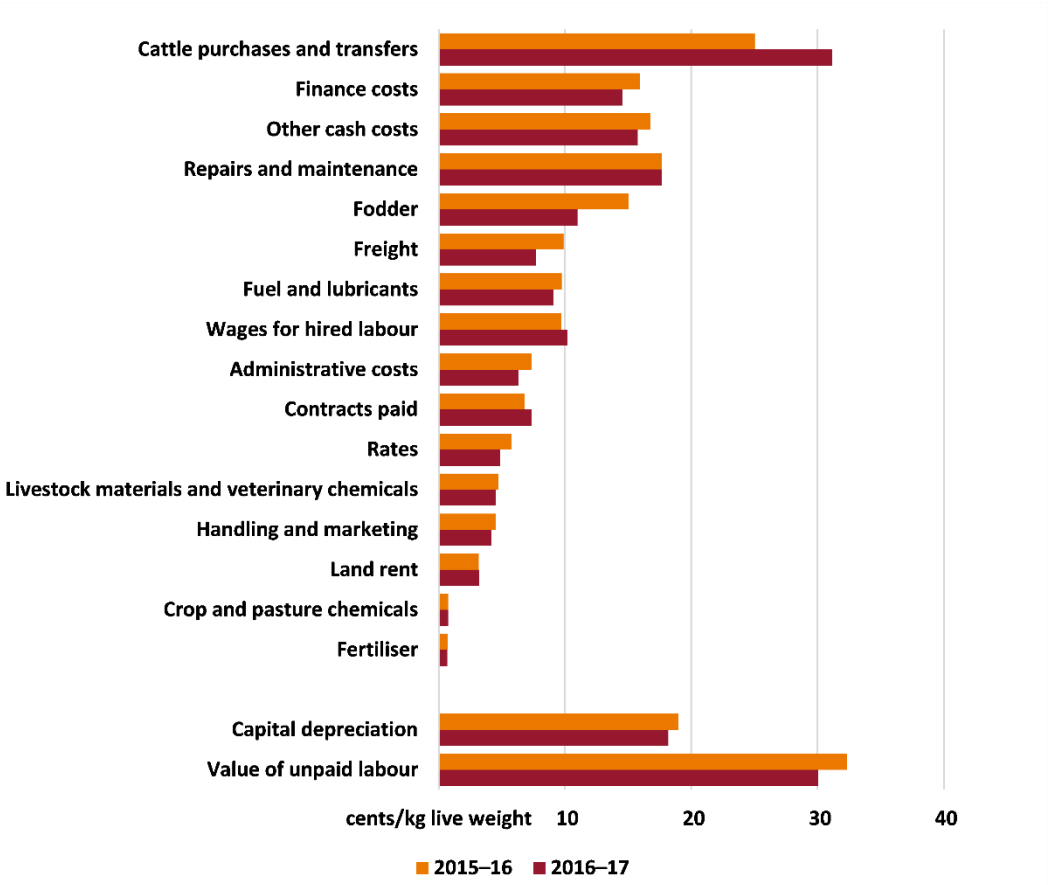
The Australian Agricultural and Grazing Industries Survey of Australian broadacre farms collects detailed financial, physical and production data. ABARES included additional questions in 2007–08, 2008–09 and 2012–13 to 2016–17 surveys so it could calculate the per kilogram live weight cost of beef cattle and sheep production. These additional questions covered the live weight of cattle, calves, sheep and lambs sold or transferred off-farm and the proportion of key variable costs attributable to beef, sheep and cropping enterprises on mixed enterprise farms. Key variable costs included crop and pasture chemicals, fertiliser, fodder, fuel, repairs and maintenance, contracts paid, veterinary and livestock materials, and hired and family labour.

Fixed (overhead) costs such as accountancy, telephone, insurance and capital depreciation were attributed to enterprises on the basis of their share of total farm cash receipts.

ABARES calculated total live weight of beef production as the total live weight sold and transferred off-farm, adjusting for changes in total live weight of the herd at the beginning and end of each financial year. Total live weight of the herd at the beginning and end of each financial year was calculated by applying average live weights to the categories of cattle on hand (calves, heifers, cows, bulls and steers) at the beginning and end of each financial year.

Per kilogram live weight costs of production were calculated by dividing the beef enterprise share of costs by the total live weight of beef produced.

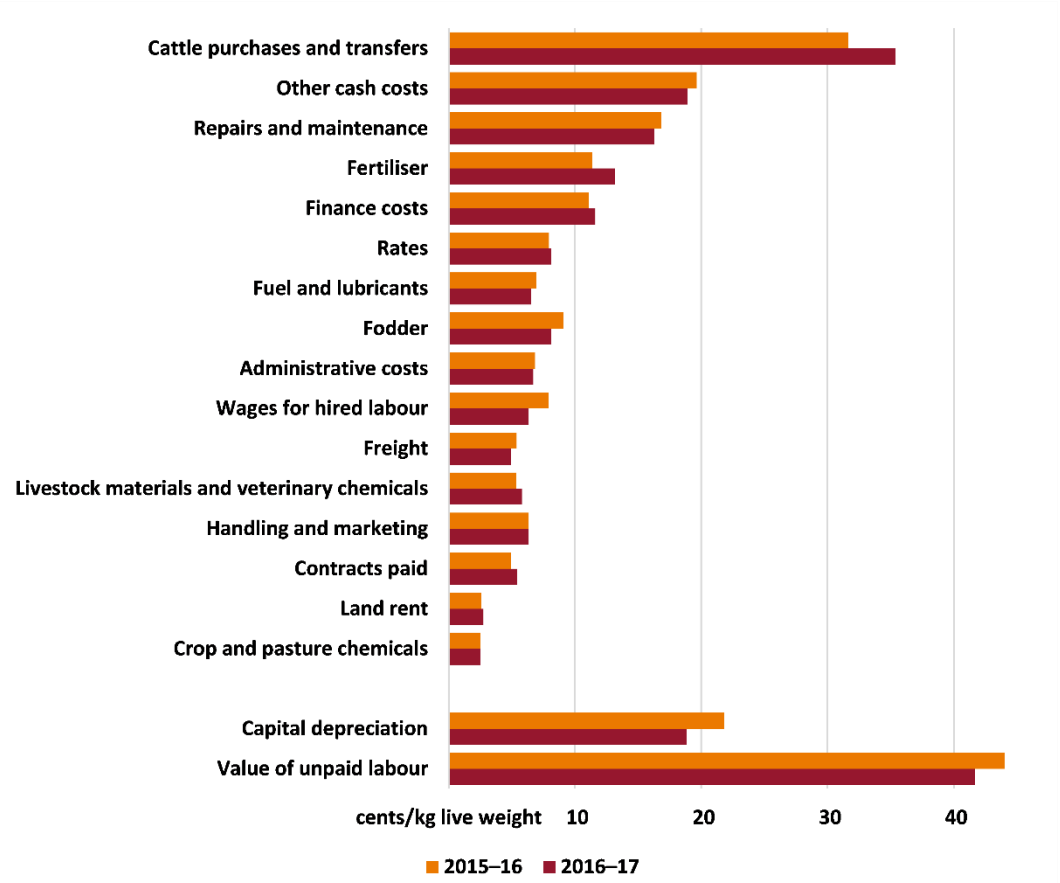
Figure 30 Production costs, beef cattle producers, northern Australia, 2015–16 and 2016–17



Source: ABARES Australian Agricultural and Grazing Industries Survey

Higher beef cattle prices resulted in expenditure on cattle purchases increasing by 12 per cent in southern and 24 per cent in northern Australia.

Figure 31 Production costs, beef cattle producers, northern Australia, 2015–16 and 2016–17



Source: ABARES Australian Agricultural and Grazing Industries Survey

The on-farm costs of beef production vary across farm businesses depending on herd size, the farm's location, the quality of farm management and climatic and other production conditions during the year.

In the short term, to continue operating an enterprise, farm businesses need to generate only sufficient receipts to cover cash operating costs. This enables them to avoid drawing on receipts from other enterprises or borrowing or using financial assets to cover cash shortfalls.

Over a longer period, farm businesses need to replace farm capital (such as vehicles, machinery, plant, sheds and fencing) to maintain productivity as capital wears out. This cost is mostly captured in capital depreciation, but repairs and maintenance included in cash costs also include replacement and upgrade of some farm capital. Farms often vary their expenditure on capital items depending on need, available cashflow and access to finance. In some years, farms invest more than the calculated depreciation and in other years much less. A farm business that continually invests less than the calculated depreciation will lose production capacity over the medium to long term.

ABARES includes the value of unpaid labour in its measurement of farm financial performance. In 2016–17 more than 95 per cent of Australian beef cattle–producing farms were family operated. Family-operated farms use a large amount of owner–manager, partner and family labour. These farms generally do not pay wages or salaries to family and partners who provide labour for the farm's operation. Valuation of this labour input enables ABARES to compare the performance of all farm businesses equally regardless of the (paid or unpaid) labour arrangements in place. Valuation of unpaid labour also captures the requirement for the farm's operators to receive a fair return for their labour input. ABARES values unpaid labour inputs at standard industry award wage rates.

Over the three years to 2016–17, on average, the smallest herd size producers had much higher cash costs of production per kilogram live weight produced than farms with larger herd sizes (Table 8, Table 9, Figure 32 and Figure 33). On average, these small herd size farms had higher fixed (overhead) cash costs and higher variable costs per kilogram live weight produced.

Table 8 Per kilogram live weight cost of beef production and operating margins for beef cattle–producing farms, by herd size, northern Australia, 2014–15 to 2016–17

average per farm

Production and price	unit	100 to 400 head		400 to 1,600 head		1,600 to 5,400 head		More than 5,400 head		Average	
Total live weight of cattle produced	tonnes	38	(7)	113	(4)	359	(3)	1652	(4)	192	(2)
Average price received	c/kg	223	(4)	241	(2)	262	(3)	221	(3)	238	(2)
Production costs											
Cattle purchases	c/kg	40	(19)	24	(12)	23	(10)	27	(10)	26	(6)
Repairs and maintenance	c/kg	25	(9)	20	(6)	18	(6)	12	(6)	17	(3)
Fodder	c/kg	20	(13)	16	(8)	15	(7)	10	(6)	14	(4)
Fuel and lubricants	c/kg	2	(30)	4	(15)	8	(8)	16	(4)	10	(4)
Freight	c/kg	15	(8)	10	(6)	9	(4)	9	(4)	10	(2)
Hired labour	c/kg	5	(14)	6	(6)	9	(5)	12	(6)	9	(3)
Administration	c/kg	5	(21)	6	(10)	8	(10)	7	(6)	7	(5)
Contracts paid	c/kg	12	(9)	8	(6)	6	(6)	5	(13)	7	(5)
Rates	c/kg	11	(7)	7	(8)	6	(9)	3	(13)	5	(5)
Livestock materials and veterinary chemicals	c/kg	7	(10)	5	(8)	5	(8)	4	(12)	5	(5)
Handling and marketing	c/kg	4	(16)	5	(7)	4	(8)	4	(9)	4	(5)
Land rent	c/kg	2	(22)	4	(13)	4	(19)	3	(10)	3	(8)
Crop and pasture chemicals	c/kg	2	(17)	1	(21)	1	(25)	0	(38)	1	(13)
Fertiliser	c/kg	2	(16)	1	(24)	1	(38)	0	(23)	1	(15)

Production and price	unit	100 to 400 head		400 to 1,600 head		1,600 to 5,400 head		More than 5,400 head		Average	
Other cash costs	c/kg	30	(8)	19	(5)	17	(6)	12	(9)	17	(4)
Finance costs	c/kg	13	(13)	19	(7)	21	(8)	12	(12)	16	(5)
Capital depreciation	c/kg	34	(7)	26	(4)	20	(3)	10	(4)	19	(2)
Value of unpaid owner–manager, partner and family labour	c/kg	120	(6)	53	(4)	24	(4)	4	(7)	30	(3)
Total cash costs excluding finance	c/kg	182	(5)	135	(4)	132	(4)	125	(3)	134	(2)
Total cash costs including finance costs	c/kg	195	(5)	154	(4)	153	(4)	137	(3)	150	(2)
Total cash, finance and depreciation costs	c/kg	229	(5)	180	(4)	173	(3)	147	(3)	169	(2)
Total costs (all cash costs, finance, depreciation and the value of unpaid labour)	c/kg	349	(4)	233	(3)	196	(3)	152	(3)	199	(2)
Operating margin over:											
Cash costs	c/kg	42	(21)	106	(7)	130	(7)	96	(6)	104	(4)
Cash and finance costs	c/kg	29	(32)	87	(9)	109	(9)	84	(7)	88	(5)
Cash, finance and depreciation costs	c/kg	–5	(179)	61	(13)	89	(11)	74	(8)	69	(6)
All costs including unpaid labour costs	c/kg	–125	(10)	8	(104)	66	(15)	69	(9)	39	(11)

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate. Estimates have been rounded to the nearest whole number and are presented in 2016–17 dollars. Cash costs include all expenditure on materials, interest, rent, services and labour such as fodder, rates, irrigation water, fuel, fertiliser, accountancy, electricity, veterinary chemicals and repairs incurred in the production of farm income. Cash costs do not include expenditure on items of farm capital such as purchase of vehicles, machinery, land, structures or improvements or value of labour and other inputs where no direct cash expenditure is made.
Source: ABARES Australian Agricultural and Grazing Industries Survey

On average, over the three years to 2016–17 producers in all herd size categories in northern and southern Australia covered cash costs of production. However, producers in both southern and northern Australia with fewer than 400 head of cattle did not fully cover all costs including the value of unpaid labour. The value of unpaid labour substantially adds to estimated total beef production costs, particularly for small herd size producers. The total cost per kilogram live weight produced for farms with fewer than 400 head of beef cattle in both southern and northern Australia is estimated over the three years to 2016–17 to have been above the price received per kilogram of beef live weight sold. In addition, some small herd size farms in northern Australia did not cover all depreciation costs.

Table 9 Per kilogram live weight cost of beef production and operating margins for beef cattle–producing farms, by herd size, southern Australia, 2014–15 to 2016–17

average per farm

Production and price	unit	100 to 200 head		200 to 400 head		400 to 800 head		More than 800 head		average	
Total live weight of cattle produced	tonnes	27	(4)	58	(3)	119	(3)	327	(3)	81	(2)
Average price received	c/kg	222	(3)	232	(3)	233	(2)	252	(2)	239	(1)
Production cost											
Cattle purchases	c/kg	32	(10)	31	(12)	28	(15)	32	(10)	31	(6)
Repairs and maintenance	c/kg	22	(9)	18	(8)	14	(6)	13	(5)	15	(3)
Fodder	c/kg	11	(14)	10	(10)	11	(8)	13	(6)	12	(4)
Fuel and lubricants	c/kg	10	(13)	8	(14)	8	(12)	8	(13)	8	(7)
Freight	c/kg	13	(7)	11	(6)	6	(6)	5	(4)	8	(3)
Hired labour	c/kg	11	(7)	8	(7)	7	(5)	5	(5)	7	(3)
Administration	c/kg	2	(18)	3	(18)	6	(16)	11	(7)	7	(6)
Contracts paid	c/kg	10	(8)	8	(6)	6	(8)	5	(5)	7	(3)
Rates	c/kg	6	(12)	6	(11)	6	(9)	6	(6)	6	(4)
Livestock materials and veterinary chemicals	c/kg	8	(9)	5	(9)	6	(7)	5	(6)	6	(4)
Handling and marketing	c/kg	5	(8)	4	(7)	4	(6)	7	(6)	5	(4)
Land rent	c/kg	7	(20)	4	(12)	3	(14)	5	(12)	5	(8)
Crop and pasture chemicals	c/kg	3	(15)	2	(22)	2	(20)	3	(13)	2	(9)
Fertiliser	c/kg	3	(16)	3	(14)	2	(17)	2	(9)	2	(7)
Other cash costs	c/kg	25	(5)	19	(9)	17	(7)	16	(6)	18	(4)

Production and price	unit	100 to 200 head		200 to 400 head		400 to 800 head		More than 800 head		average	
Finance costs	c/kg	8	(11)	10	(12)	11	(11)	12	(9)	11	(6)
Capital depreciation	c/kg	32	(6)	26	(6)	18	(4)	14	(3)	20	(3)
Value of unpaid owner–manager, partner and family labour	c/kg	85	(5)	64	(7)	38	(6)	16	(5)	42	(3)
Total cash costs excluding finance costs	c/kg	167	(4)	137	(4)	128	(4)	137	(3)	139	(2)
Total cash costs including finance costs	c/kg	175	(4)	148	(4)	138	(4)	149	(3)	150	(2)
Total cash, finance and depreciation costs	c/kg	206	(4)	174	(4)	157	(4)	163	(3)	170	(2)
Total costs (all cash costs, finance, depreciation and the value of unpaid labour)	c/kg	291	(4)	238	(4)	195	(3)	179	(3)	212	(2)
Operating margin over:											
Cash costs	c/kg	55	(13)	95	(6)	106	(6)	115	(4)	100	(3)
Cash and finance costs	c/kg	47	(16)	85	(7)	95	(6)	102	(5)	89	(3)
Cash, finance and depreciation costs	c/kg	15	(51)	59	(11)	77	(8)	89	(6)	69	(5)
All costs including unpaid labour costs	c/kg	–69	(14)	–6	(133)	39	(17)	73	(7)	27	(13)

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate. Estimates have been rounded to the nearest whole number and are presented in 2016–17 dollars. Cash costs include all expenditure on materials, interest, rent, services and labour such as fodder, rates, irrigation water, fuel, fertiliser, accountancy, electricity, veterinary chemicals and repairs incurred in the production of farm income. Cash costs do not include expenditure on items of farm capital such as purchase of vehicles, machinery, land, structures or improvements or value of labour and other inputs where no direct cash expenditure is made.

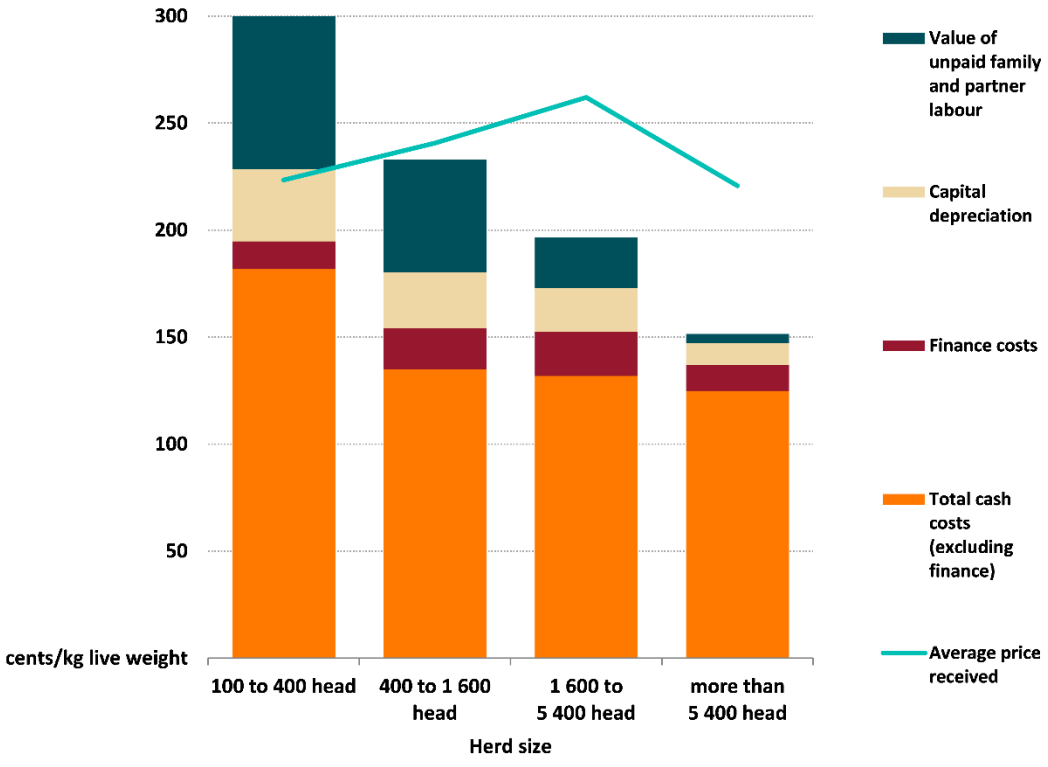
Source: ABARES Australian Agricultural and Grazing Industries Survey

Many small herd size farms use income from other farm enterprises and off-farm sources to help meet operator living expenses. Small herd size producers, particularly small specialist beef producers (farms deriving more than 50 per cent of their farm receipts from sales of beef cattle) with no other farm enterprise, have high per kilogram production costs. Unpaid labour costs are particularly high for these farms. The costs of farm vehicles, plant and machinery, shire rates, maintenance and insurance of farm buildings, improvements and any included household expenditure are spread over relatively little output.

For larger herd size farms (those with more than 400 head of beef cattle), the price received for beef cattle was sufficient to cover all costs of production including the value of unpaid labour (Figure 32 and Figure 33).

The average price received per kilogram of beef was slightly lower for the largest herd size farms in northern Australia (Figure 32). This partly reflects the impact of dry seasonal conditions in parts of northern Australia between 2013–14 and 2016–17, together with a higher proportion of younger cattle turned off for live export and or transferred to other farms for finishing.

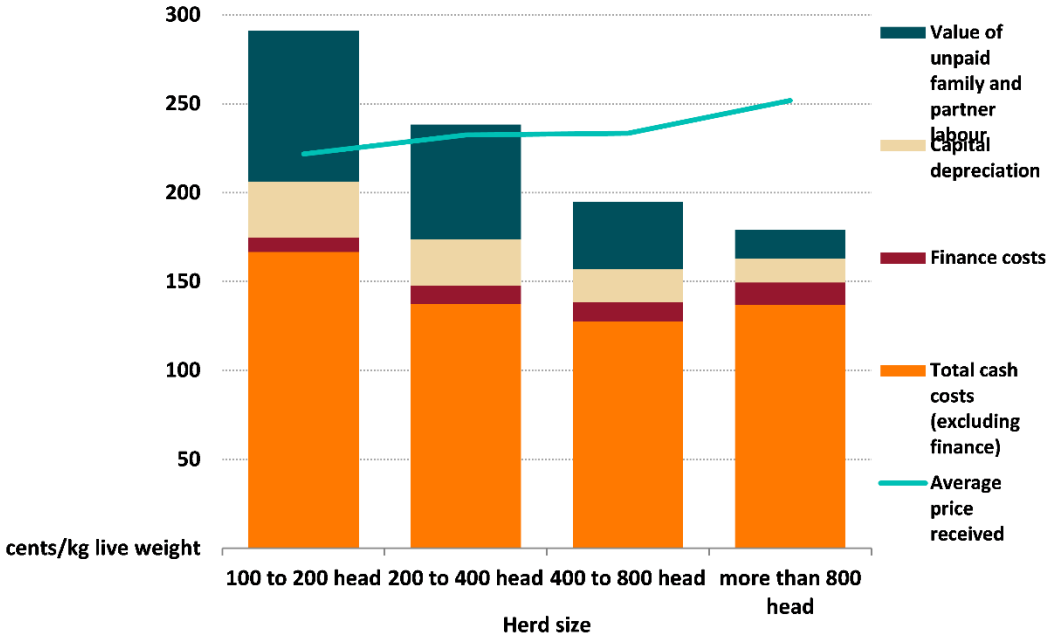
Figure 32 Production costs, beef cattle–producing farms, by herd size, northern Australia, average 2014–15 to 2016–17



Source: ABARES Australian Agricultural and Grazing Industries Survey

In southern Australia, between 2014–15 and 2016–17 the average price received per kilogram of beef produced increased slightly with herd size (Figure 33). This may indicate that farms with larger herd sizes in southern Australia produced better quality or better finished beef cattle during this period.

Figure 33 Production costs, beef cattle–producing farms, by herd size, southern Australia, average 2014–15 to 2016–17



Source: ABARES Australian Agricultural and Grazing Industries Survey

These results suggest that beef production in northern and southern Australia benefit from economies of size. The average cost of production declines consistently with increased herd size.

Over the three years to 2016–17, total costs of production averaged 199 cents per kilogram live weight in northern Australia (Table 8) and 212 cents in southern Australia (Table 9).

Average costs of beef production in each state and the Northern Territory partly reflect the distribution of farms by herd size. Victoria has the highest proportion of small herd size farms (Martin 2015) and the highest average total cost of production, at 229 cents per kilogram for the three years to 2016–17 (Table 10). In contrast, the Northern Territory has a high proportion of very large herd sizes and the lowest total cost of production, at 144 cents per kilogram. A higher proportion of cattle in the Northern Territory were turned off for live export. Costs of production for cattle sold for live export are generally lower. This is because cattle are sold for live export at a younger age and at lighter weights than they are for domestic slaughter (Gleeson, Martin & Mifsud 2012).

Table 10 Per kilogram live weight cost of production and operating margins for beef cattle–producing farms, by state and territory, 2014–15 to 2016–17

average per farm

Production and price	unit	New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania		Northern Territory	
Total live weight of cattle produced	tonnes	79	(4)	66	(5)	164	(3)	93	(9)	149	(6)	125	(6)	1253	(8)
Average price received	c/kg	255	(2)	228	(3)	241	(2)	214	(5)	216	(3)	224	(3)	224	(3)
Production costs															
Total cash costs excluding finance costs	c/kg	146	(3)	139	(4)	135	(2)	134	(5)	124	(6)	137	(5)	123	(4)
Total cash costs including finance costs	c/kg	159	(3)	147	(4)	153	(2)	142	(5)	131	(6)	148	(5)	130	(4)
Total cash, finance and depreciation costs	c/kg	179	(2)	169	(4)	174	(2)	162	(5)	148	(6)	163	(4)	139	(4)
Total costs (all cash costs, finance, depreciation and the value of unpaid labour)	c/kg	219	(2)	229	(4)	209	(2)	189	(5)	171	(5)	194	(4)	144	(4)
Operating margin over:															
Cash costs	c/kg	110	(4)	89	(8)	106	(5)	80	(13)	93	(8)	87	(7)	101	(7)
Cash and finance costs	c/kg	96	(4)	81	(8)	88	(6)	72	(15)	86	(9)	76	(8)	94	(7)
Cash, finance and depreciation costs	c/kg	76	(6)	59	(12)	67	(8)	52	(22)	69	(12)	61	(11)	84	(8)
All costs including unpaid labour costs	c/kg	36	(14)	–1	(999)	32	(18)	25	(50)	45	(19)	30	(23)	79	(8)

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate. Estimates have been rounded to the nearest whole number and are presented in 2016–17 dollars. Cash costs include all expenditure on materials, interest, rent, services and labour such as fodder, rates, irrigation water, fuel, fertiliser, accountancy, electricity, veterinary chemicals and repairs incurred in the production of farm income. Cash costs do not include expenditure on items of farm capital such as purchase of vehicles, machinery, land, structures or improvements or value of labour and other inputs where no direct cash expenditure is made.

Source: ABARES Australian Agricultural and Grazing Industries Survey

The total cost of beef production for Queensland was relatively high, averaging 209 cents per kilogram for the three years ending 2016–17. Several factors contributed to relatively high production costs in Queensland during this period:

- Queensland has many large herd size farms and a large proportion of relatively small beef herd farms, particularly near coastal and cropping areas. Many of the small farms have high cash costs relative to the quantity of beef they produce.
- A high proportion of Queensland beef producers experienced dry seasonal conditions between 2014–15 and 2016–17. This resulted in increased cash costs, particularly for fodder and freight.
- Many beef farms in Queensland have relatively high debt levels. Finance costs (interest payments on debt) accounted for 9 per cent of the total costs of beef production in Queensland (or 19 cents per kilogram), averaged over the three years from 2014–15 to 2016–17. This proportion was higher than all other states and the Northern Territory.

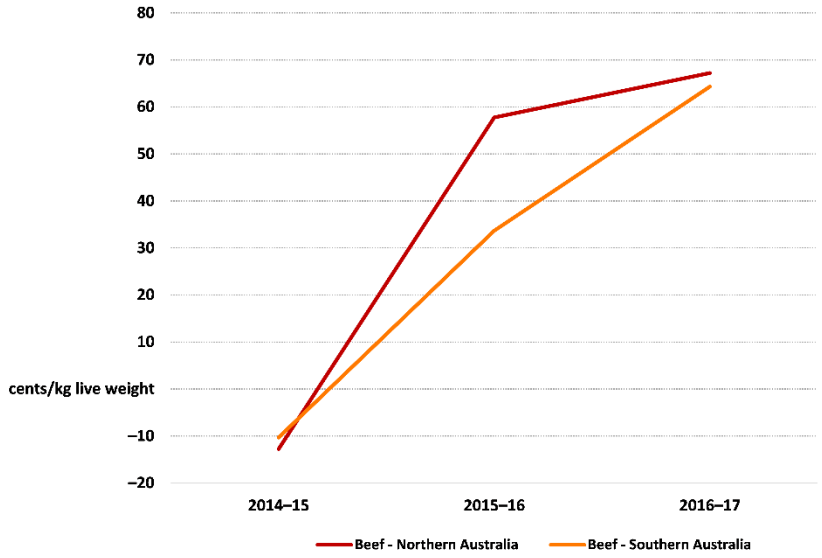
Operating margins

Operating margins (receipts per kilogram less costs of production) increased in 2014–15, 2015–16 and again in 2016–17 from the very low margins recorded in 2013–14. Prices for beef cattle declined between 2008–09 and 2013–14. In response, producers tried to maintain operating margins by reducing expenditure on beef inputs to below the longer term cost of production resulted in a run-down in farm productive capital and declines in herd size (Martin 2015).

In 2014–15 and 2015–16 average prices for beef cattle increased significantly, resulting in increased operating margins (Figure 34). This was despite an increase in farm expenditure. In 2015–16 the operating margin for northern Australia averaged 58 cents per kilogram live weight produced, and in southern Australia 34 cents per kilogram.

Further increase in prices received for beef cattle in 2016–17 resulted in these margins increasing to 67 and 64 cents per kilogram live weight for northern and southern Australia respectively.

Figure 34 Operating margins, for beef cattle producers, 2014–15 to 2016–17



Note: Operating margins after accounting for cash, finance, depreciation and unpaid labour costs.
Source: ABARES Australian Agricultural and Grazing Industries Survey

6 References

Gleeson, T, Martin, P & Mifsud, C 2012, Northern Australian beef industry: assessment of risks and opportunities, ABARES report to client for the Northern Australia Ministerial Forum, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Martin, P 2013, 'Farm debt: farm level analysis', Agricultural commodities: September quarter 2013, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Martin, P 2015, Australian beef: financial performance of beef cattle producing farms, 2012–13 to 2014–15, ABARES research report prepared for Meat & Livestock Australia, Canberra, August.