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Australian beef

Financial performance of beef cattle producing farms, 2012–13 to 2014–15

Peter Martin

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Key points

Farm cash income

- Farm cash incomes of beef cattle producing farms increased strongly in 2014–15 as a result of increased cattle prices and the highest beef cattle turn-off in 36 years.
- In 2014–15 high cattle turn-off, which commenced in mid 2013, continued in major beef cattle producing regions in eastern Australia as a result of dry seasonal conditions.
- Depreciation of the Australian dollar and strong export demand for Australian beef and live cattle resulted in a 24 per cent increase in beef cattle prices and further encouraged turn-off.
- In northern Australia, farm cash income for beef cattle producing farms is estimated to have increased from an average of \$74 700 a farm in 2013–14 to an average of \$148 000 a farm in 2014–15. This is around 50 per cent above the average for the previous 10 years, in real terms.
- In southern Australia, farm cash income of specialist beef cattle producing farms, those farms mainly reliant on beef cattle production, is estimated to have increased from an average of \$38 100 a farm in 2013–14 to \$64 000 a farm in 2014–15. This was a result of higher cattle prices and an increase in the number of cattle sold. Estimated farm cash income in 2014–15 is around 35 per cent above the average for the 10 years ending 2013–14, in real terms.
- Average farm cash income of all beef cattle producing farms in southern Australia, including mixed enterprise farms, is estimated to have increased from \$87 000 a farm in 2013–14 to average \$108 000 a farm in 2014–15. Farm cash incomes of southern Australian beef cattle producing farms are also dependent on crop receipts and receipts from sheep, lambs and wool. Receipts from crops generally declined in 2014–15.

Farm business profit

- Part of the increase in farm cash incomes has been achieved through reduced cattle herds as cattle turn-off increased in response to dry seasonal conditions and higher cattle prices.
- Farm business profit is estimated to have increased in northern Australia from an average loss of \$76 900 a farm in 2013–14 to a loss of \$19 000 in 2014–15. The reduced value of beef cattle inventories on farms resulted in farm business profit remaining below the average for the 10 years ending 2013–14 of \$22 600 a farm.
- Reductions in cattle numbers on farms in southern Australia are estimated to have been smaller than in northern Australia. Farm business profit is estimated to improve in 2014–15, but reduction in beef cattle numbers is estimated to result in business profit for specialist beef producers in southern Australia remaining below the average for the previous 10 years, in real terms.

Drought

- Drought conditions affected an estimated 30 per cent of Australian beef cattle producing farms in 2014–15, particularly farms in Queensland and northern New South Wales. Most of these farms were also affected by drought in 2013–14.
- Farm cash incomes of farms subject to drought in 2013–14 declined by an average of 29 per cent compared with 2012–13 to average \$63 400 a farm, as a result of low prices received for cattle sold and reduced crop receipts. Cattle numbers on these farms are estimated to have declined by an average of 7 per cent in 2013–14 as a result of high turn-off and low branding rates.

- In 2014–15 higher cattle prices are estimated to have resulted in an increase in farm cash income for drought-affected farms. This is despite reduced turn-off of beef cattle and further reductions in crop, sheep and wool production. Farm cash income is estimated to have increased to average \$108 000 a farm in 2014–15.
- Cattle numbers on farms subject to drought in 2014–15 are estimated to have declined by a further 9 per cent as a result of continuing relatively high turn-off and low branding rates.

Live cattle exports

- Increases in cattle sold for live export and higher cattle prices resulted in farm cash income in the northern live cattle export region (north-west Queensland, upper Northern Territory, Kimberley and Pilbara) increasing from an average of \$143 000 a farm in 2013–14 to \$277 000 a farm in 2014–15. Increased live cattle exports in 2013–14 and 2014–15 resulted in many cattle for live export being sourced from outside this region.

Rate of return

- There is a strong positive relationship between herd size and financial performance. Generally, farm cash incomes, business profits and rates of return are higher for larger herd size producers.
- In northern Australia in 2014–15 rates of return on total capital used (excluding capital appreciation) are estimated to average –2.1 per cent for farms with a herd size between 100 and 400 head; –0.6 per cent for farms with a herd size between 400 and 1 600 head; 1.9 per cent for farms with a herd size between 1 600 and 5 400 head; and 3.2 per cent for farms with a herd size exceeding 5 400 head.

Small beef farms

- Around 39 per cent of specialist beef producers carry less than 400 head of cattle and produce less than 15 per cent of the total value of beef cattle production. These small farms have low productivity, low farm cash incomes and low rates of return because they produce relatively little output given their input use. Operators of small specialist beef farms earn most of their household disposable income off-farm.
- Average farm cash incomes, rates of return and other performance measures for the beef industry are typically lower than for most other Australian agricultural industries, mainly because of the high proportion of small specialist beef farms.

Cost of production and operating margin

- The on-farm cost of beef production expressed on a per kilogram live weight basis declined between 2008–09 and 2013–14, as producers pared back farm expenditure in an attempt to maintain operating margins in response to reductions in prices received for beef cattle over this period. The largest reduction in costs was in expenditure on beef cattle purchases, with lower cattle prices and reduced numbers of cattle bought, and in interest payments, mainly as a result of lower interest rates. Despite these efforts, operating margins declined from 2008–09 to 2013–14.
- Farms with a higher operating margin per kilogram of live weight produced have larger herd sizes, are more likely to be located in the wheat–sheep or pastoral zone, sold cattle at a higher average live weight, sold a higher proportion of cattle direct to processors, had relatively lower debt, were operated by younger farmers and had less household income earned off-farm. In southern Australia these farms are more likely to be mixed enterprise farms and in northern Australia had higher branding rates, lower death rates and were more likely to sell cattle for live export.

Productivity growth

- Beef industry productivity grew at an average of 1.3 per cent a year between 1977–78 and 2012–13. Northern Australia achieved productivity growth of 1.4 per cent a year and southern Australia growth of 0.5 per cent a year.
- Exclusion of the smallest beef farms (farms with less than \$200 000 in farm receipts) results in the estimate of beef industry productivity rising to average 2.0 per cent a year, a higher rate of productivity growth than the 1.5 per cent estimated for grain growing farms from 1977–78 to 2012–13.

Debt

- Debt is an important source of funding for farm investment and ongoing working capital. The largest contribution to increases in farm debt in recent years has been borrowing to fund new investment, particularly purchase of land, vehicles and machinery, and to develop land and farm improvements.
- In northern Australia, farm debt for beef cattle producing farms increased by 2 per cent in 2013–14 to average \$647 000 a farm at 30 June 2014.
- In southern Australia, farm debt for beef cattle producing farms is estimated to have remained largely unchanged in 2013–14 at an average of \$365 000 a farm at 30 June 2014.
- In 2014–15 average farm debt is expected to increase by around 4 per cent for beef cattle producing farms in northern Australia and by around 2 per cent for farms in southern Australia.
- Increased borrowing is expected, to fund new investment as farm cash incomes rise and to fund cash shortfalls, particularly for farms subject to drought in 2014–15.

Impact of drought in 2013–14 on farm debt

- Around 28 per cent of beef cattle producing farms were subject to drought in 2013–14. Overall, debt increased by an average of 4 per cent for these farms in 2013–14. However, this average masks substantial variation across farms.
- Debt increased for 31 per cent of farms subject to drought, by an average of 16 per cent. Cash flow shortfall (business losses) accounted for 54 per cent of the increase in principal owed. A further 34 per cent went to the purchase of land; 7 per cent to the purchase of farm machinery and vehicles; 3 per cent to farm development, including provision of watering facilities; and 2 per cent to other purposes.
- Around 34 per cent of drought-affected farms recorded little or no change in farm debt. Debt decreased for 36 per cent of drought-affected farms, by an average of 11 per cent. The main contributor to reduced farm debt was increased cash flow, mainly from sale of cattle.
- Drought affects farm businesses in many ways in addition to debt. Cattle numbers, stocks of grain and fodder and, typically, available liquid assets are reduced to fund cash outlays. The combined effect was a decline in farm business equity for 54 per cent of drought-affected farms, averaging \$110 000 a farm.

Debt for farms not subject to drought in 2013–14

- The majority of beef cattle producing farms (72 per cent) were not subject to drought in 2013–14. For these farms debt decreased by an average of 1 per cent. Around 40 per cent of farms not affected by drought recorded little or no change in farm debt.
- Debt decreased for 35 per cent of farms not affected by drought, by an average of 22 per cent. The main contributor to reductions in farm debt was the sale of farm and non-farm

assets and reductions in farm liquid assets. This accounted for 60 per cent of the reduction in principal owed. Cash flow surplus accounted for another 30 per cent of the reduction.

- Debt increased for 25 per cent of farms not affected by drought, by an average of 23 per cent. Investment in land, vehicles, machinery and livestock accounted for 55 per cent of the increase in principal owed. A further 30 per cent went to cover cash flow shortfalls.

Debt servicing

- The proportion of farm receipts needed to fund interest payments has declined in both northern Australia and southern Australia between 2009–10 and 2014–15.
- In northern Australia, the proportion of beef cattle producing farm businesses with relatively low additional borrowing capacity (equity ratios below 70 per cent) and relatively high debt servicing commitments (interest-to-receipts ratios exceeding 15 per cent) increased from 4 per cent in 2007–08 to an estimated 10 per cent in 2013–14. It is estimated to have declined to 9 per cent in 2014–15, which is well below the 14 per cent recorded in 1996–97 when beef cattle prices were historically low.
- In southern Australia, the proportion of beef cattle producing farms with relatively low borrowing capacity and relatively high debt servicing commitments has declined from 6 per cent in 2009–10 to around 3 per cent in 2014–15. This is similar to the low proportion recorded from 2003–04 to 2005–06.

1 Introduction

Around 57 per cent of all Australian farms carry beef cattle (ABS 2015), 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.

This report presents the detailed financial performance of beef cattle producing farms from 2012–13 to 2014–15 and discusses recent farm financial performance and productivity in a historical context.

The report draws on data from the ABARES annual Australian Agricultural and Grazing Industries Survey (AAGIS) to provide an overview of production, financial performance and productivity growth of the Australian beef cattle industry. Meat & Livestock Australia funded the preparation of this report and contributed to the funding of AAGIS.

ABARES uses the latest data to produce estimates for this report, ensuring that estimates are revised as new information becomes available. The latest AAGIS data were collected between July and December 2014.

Beef cattle producing farms

Farm businesses with fewer than 100 head of beef cattle are excluded from the analysis in this report. Farm businesses with fewer than 100 head of cattle represent just 2 per cent of the national beef cattle herd and contribute around 3 per cent to the total value of beef cattle sales (Table 1).

Around 27 300 Australian broadacre farms each run more than 100 beef cattle. This report classifies these farms as beef cattle producing farms.

Specialist feedlots are mainly involved in feeding cattle in a confined area, with feed mostly purchased from other producers. Unlike the farm businesses included in this report, specialist feedlots have minimal involvement in cattle grazing or cattle breeding. Farm businesses finishing more than 5 000 cattle on grain for more than 70 days have been excluded from this report to remove specialist feedlots and ensure a consistent definition of beef producers over the period for which AAGIS data are available. Since 2006 specialised feedlots have been listed in a separate Australian and New Zealand Standard Industrial Classification (ANZSIC06) in Australian Bureau of Statistics collections. These farms are no longer included in the broadacre group of industries surveyed in AAGIS.

Specialist beef cattle producers

Around two-thirds of beef cattle producing farms derive most of their farm receipts from sales of beef cattle. In this report, beef cattle producing farms are classified as specialist beef cattle producing farms if they earned, on average, more than 50 per cent of total farm receipts from the sale of beef cattle in the previous three years. Between 2011–12 and 2013–14 an average of 18 800 farms were classified as specialist beef cattle producers.

The remaining one-third of beef cattle producing farms are mixed enterprises, deriving a large proportion of their receipts from cropping, sheep, lambs and wool as well as from the sale of beef cattle.

Table 1 Distribution of broadacre beef cattle farms, by number of cattle, at 30 June

average between 2011–12 and 2013–14

Herd size	Average number of farms (no.)	Share of farms (%)	Share of beef cattle (%)	Share of value of cattle sales (%)
Southern Australia				
Less than 100 head	5 830	24	4	6
100 to 200 head	6 230	25	12	12
200 to 400 head	7 010	29	25	23
400 to 800 head	3 880	16	26	25
800 to 1 600 head	1 170	5	15	15
1 600 to 5 400 head	430	2	15	13
More than 5 400 head	30	0	4	6
Total	24 580	100	100	100
Northern Australia				
Less than 100 head	510	6	0	1
100 to 200 head	1 260	14	1	2
200 to 400 head	1 730	19	4	4
400 to 800 head	2 100	23	9	11
800 to 1 600 head	1 430	16	13	13
1 600 to 5 400 head	1 590	18	33	34
More than 5 400 head	340	4	40	35
Total	8 960	100	100	100
Australia				
Less than 100 head	6 340	19	2	3
100 to 200 head	7 490	22	5	7
200 to 400 head	8 740	26	12	13
400 to 800 head	5 980	18	16	18
800 to 1 600 head	2 600	8	14	14
1 600 to 5 400 head	2 020	6	26	24
More than 5 400 head	370	1	26	21
Total	33 540	100	100	100

Note: Excludes major feedlots.

Source: ABARES Australian Agricultural and Grazing Industries Survey

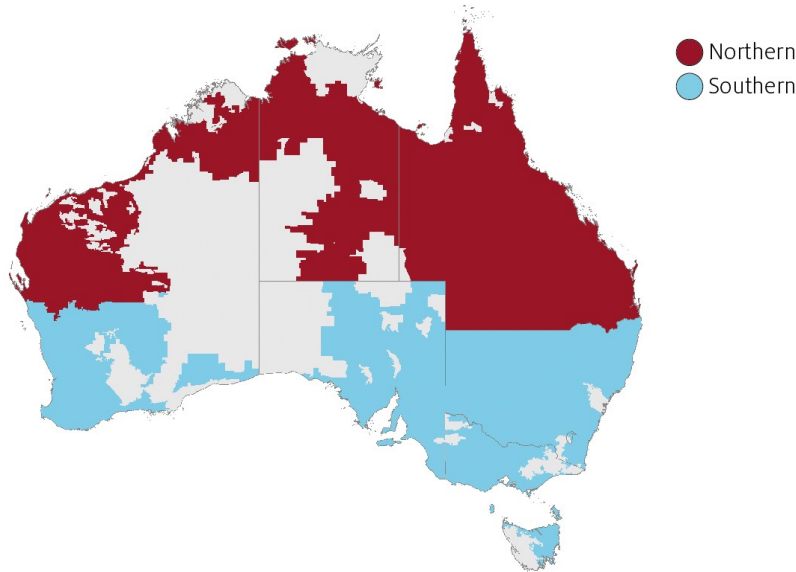
Northern and southern Australia

This report presents the performance of beef cattle producing farms in northern Australia and southern Australia separately. Northern Australia is defined as northern Western Australia, the Northern Territory and Queensland. The remainder of Australia, including southern Western Australia, South Australia, New South Wales, Victoria and Tasmania, is defined as southern Australia (Map 1).

In the three years ending 2013–14, northern Australia had more than 8 500 beef cattle producing farms. Around 97 per cent of these farm businesses were in Queensland, 2 per cent in the Northern Territory and 1 per cent in Western Australia.

Farm businesses with the greatest reliance on the sale of live export cattle are in the far northern and western extremes of northern Australia.

Map 1 Australian beef cattle industry



Note: Regions based on aggregations of ABS statistical local areas.

Northern Australia and southern Australia have marked differences in climate, pastures, industry infrastructure and proximity to markets. This has affected the development and nature of the beef industry and associated farm businesses in each region over the past 20 years.

The beef cattle industry in Queensland focuses primarily on beef export markets, whereas farm businesses in the upper Northern Territory and northern Western Australia focus on the live cattle export trade. In contrast, production in the southern states is spread more evenly between the beef export market and the domestic beef market (Gleeson, Martin & Mifsud 2012).

Rainfall in northern Australia is dominated by monsoon systems that create a distinct wet season (usually September to March) and dry season (usually April to October). This limits the growing season for pastures and, unlike southern Australia, makes it difficult to finish cattle for markets in one production year. Rainfall is not uniform. The intensity of wet and dry seasons varies depending on latitude, topography and distance from the coast.

More variable quantity and lower quality of pasture in most northern areas results in lower stocking rates and more extensive production systems than in southern Australia, on average (Table 2).

Improved pastures in many southern beef cattle producing areas and the production of fodder crops allow for much higher stocking rates. Remote locations in the north make some management practices (such as short-term supplementary feeding to deal with poor seasonal conditions) less cost-effective than in southern Australia.

An important part of normal management practice and response to differing seasonal conditions across northern Australia is the transfer of beef cattle between the individual landholdings of large family-owned and corporate farm businesses. Transferring cattle between holdings in different regions often provides significant flexibility in managing variable seasonal and market conditions. Data tables in this report include transfers into and out of farm businesses.

Table 2 Selected physical characteristics, beef cattle producing farms, by region

average per farm

Physical characteristics	unit	Northern Australia			Southern Australia				
		2012–13	2013–14p	2014–15y	2012–13	2013–14p	2014–15y		
Area operated at 30 June	ha	21 260	23 340	(7)	23 436	5 678	5 231	(8)	5 561
Beef cattle numbers at 30 June	no.	1 490	1 515	(4)	1 453	415	404	(4)	400
Calves branded	no.	432	454	(4)	459	163	159	(4)	163
Beef cattle purchases	no.	53	50	(19)	42	26	29	(30)	30
Branding rate	%	71	70	(2)	na	89	86	(1)	na
Beef cattle sold	no.	398	471	(5)	508	167	184	(5)	197
Within-year change in cattle numbers	%	1	-4	(24)	-5	4	-2	(57)	-1
Area planted to crops	ha	105	112	(16)	65	213	198	(13)	130
Sheep numbers at 30 June	no.	173	226	(43)	223	1 106	1 132	(7)	1 056
Stocking rate—hectares per large stock unit	ha	13	14	(7)	na	7	7	(9)	na
Cattle turn-on rate	%	5	5	(16)	4	7	7	(29)	7
Cattle turn-off rate	%	31	34	(4)	38	41	46	(4)	47

p Preliminary estimate. **y** Provisional estimate. **na** Not available.

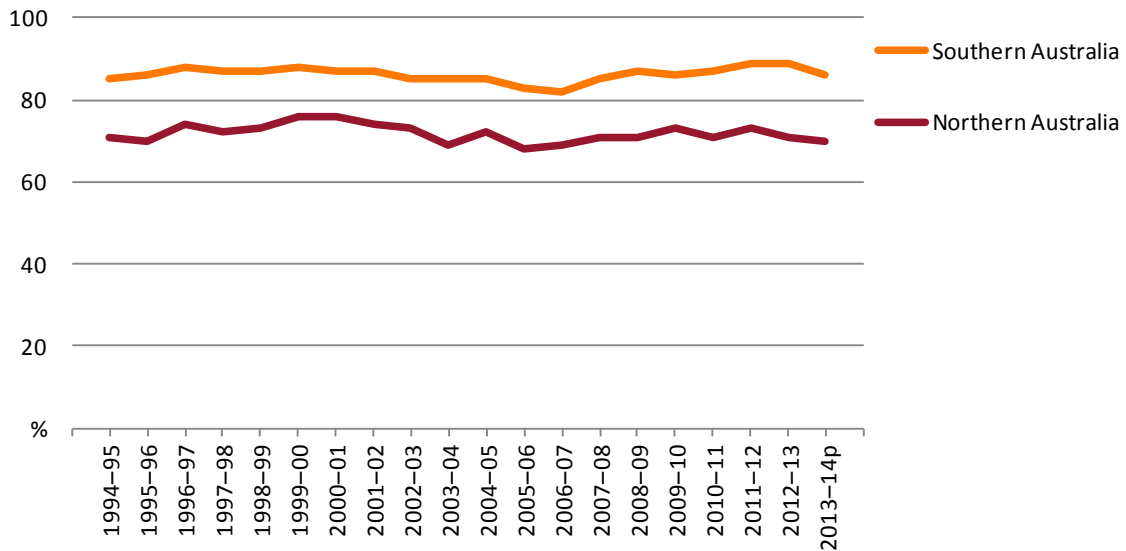
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Branding rates (calves branded as a percentage of cows mated) are typically lower and more variable in the north than in southern Australia, reflecting less favourable pasture conditions. According to AAGIS data, branding rates in northern Australia averaged 71 per cent for the 10 years ending 2013–14, compared with 86 per cent in southern Australia (Figure 1).

Figure 1 Beef cattle branding rate, 1994–95 to 2013–14p

average per farm



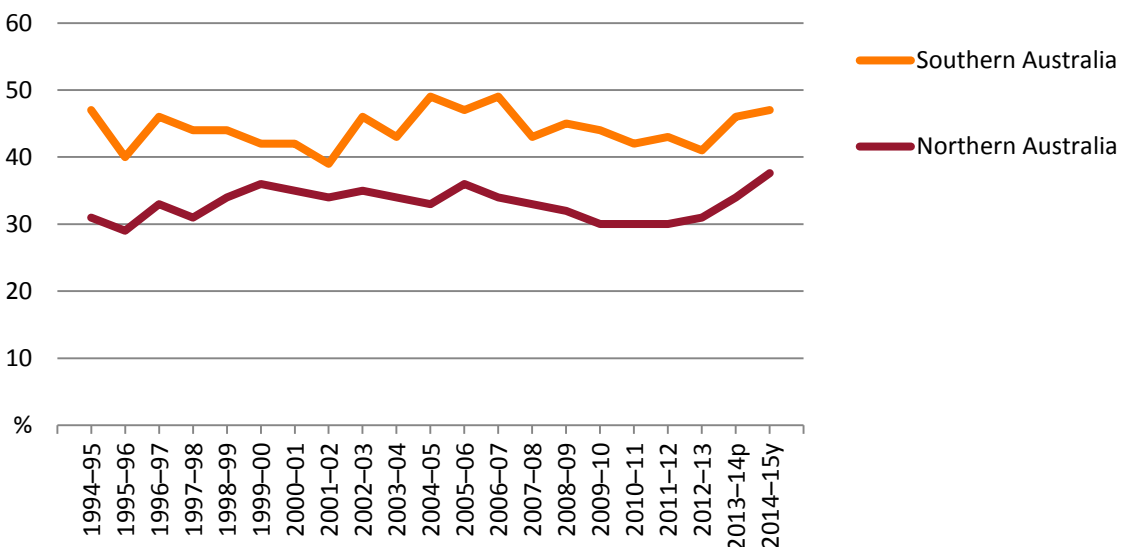
p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Slower growth rates and lower branding percentages for cattle in northern Australia result in lower average turn-off rates. According to AAGIS data, turn-off rates (cattle sold or transferred off-farm as a percentage of the average herd size) averaged 33 per cent in northern Australia for the 10 years ending 2013–14, compared with 44 per cent in southern Australia (Figure 2).

Figure 2 Beef cattle turn-off, 1994–95 to 2014–15y

average per farm



p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

To be economically viable northern properties tend to have much larger average herd sizes and area of land operated than properties in the south. For example, in northern Australia 86 per cent of the beef cattle herd is on properties with more than 800 head of beef cattle, while in southern Australia only 34 per cent of the beef cattle herd is on properties with more than 800 head of beef cattle (Table 1).

The main breeds of cattle in northern Australia are *Bos indicus*. Over recent decades, the proportion of *Bos indicus* in the region has increased as producers introduced and selected cattle better suited for beef production in tropical conditions. In southern Australia, British and European *Bos taurus* breeds, such as Angus and Hereford, are dominant.

To provide an insight into the performance of the beef cattle industry, ABARES divides farm businesses with different scales of operation into four groups—small, medium, large and very large—based on the size of their beef cattle herd in each year the farm business was surveyed. Beef cattle producers operate significantly larger properties in northern Australia than their counterparts in southern Australia. For this reason, different sized groups have been used in these regions to enable meaningful analysis of financial performance by scale (Table 3).

Table 3 Beef cattle herd group, by number of head

Herd size	Northern Australia	Southern Australia
Small	100 to 400	100 to 200
Medium	400 to 1 600	200 to 400
Large	1 600 to 5 400	400 to 800
Very large	More than 5 400	More than 800

Between 2011–12 and 2013–14, 87 per cent of beef cattle producing farms in northern Australia were classified as specialist beef cattle producers. In southern Australia, the number of specialist beef cattle producers and mixed enterprise producers is more even; between 2011–12 and 2013–14 around 60 per cent of beef cattle producing farms were classified as specialist producers. For this reason, some separate tabulation and analysis of financial performance is provided for specialist beef cattle producers in southern Australia.

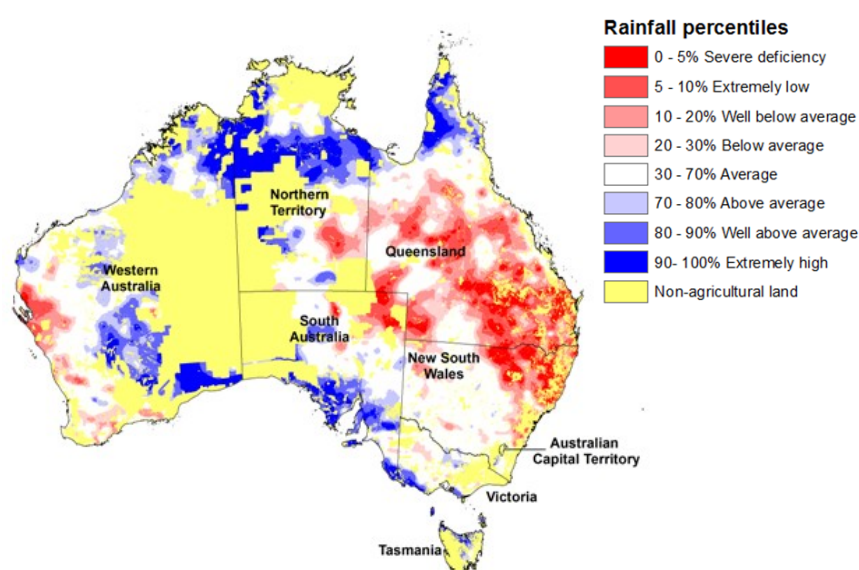
2 Cattle production

Seasonal conditions in 2013–14 and 2014–15

Below average rainfall in 2012–13 reduced pasture and crop growth in all states. In northern Australia, the wet season failed and by April 2013 dry conditions extended across most of the continental interior.

In 2013–14 relatively low summer rainfall led to dry seasonal conditions for most beef cattle producing farms. Drought conditions expanded further in Queensland and northern New South Wales and extended into northern pastoral South Australia (Map 2). In the second half of 2013–14 seasonal conditions improved slightly in the Northern Territory, northern Western Australia, Cape York, southern New South Wales, Victoria, Tasmania and South Australia.

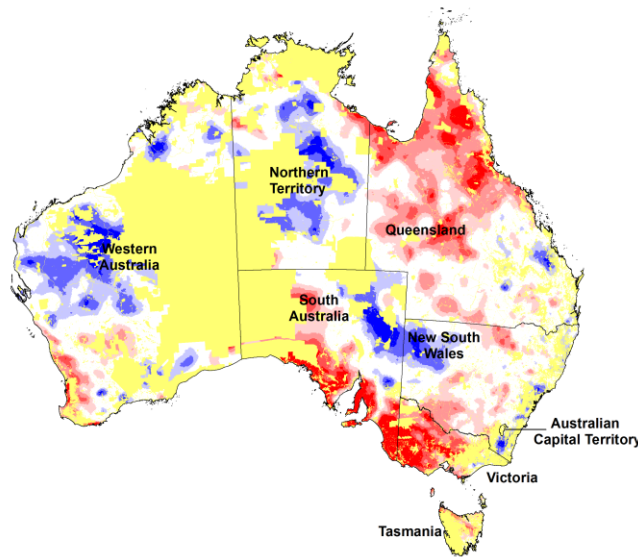
Map 2 Australian rainfall percentiles, 1 July 2013 to 30 June 2014



Note: Percentiles is a way of dividing sorted data (in this case rainfall data) into 100 equal parts. The 10th percentile represents the lowest 10 per cent of the data and the 90th percentile represents the top 10 per cent of the data.
Source: Bureau of Meteorology

In 2014–15 summer rainfall in northern Australia, particularly in northern Queensland, was below average. Drought conditions continued in western and south-western Queensland and north-western New South Wales and returned to north Queensland. There were dry seasonal conditions in northern and western Victoria from spring 2014 extending to parts of South Australia and Tasmania in autumn 2015. A high proportion of beef cattle producing farms in eastern and northern Australia were subject to dry seasonal conditions in 2014–15 (Map 3).

Map 3 Australian rainfall percentiles, 1 July 2014 to 30 June 2015



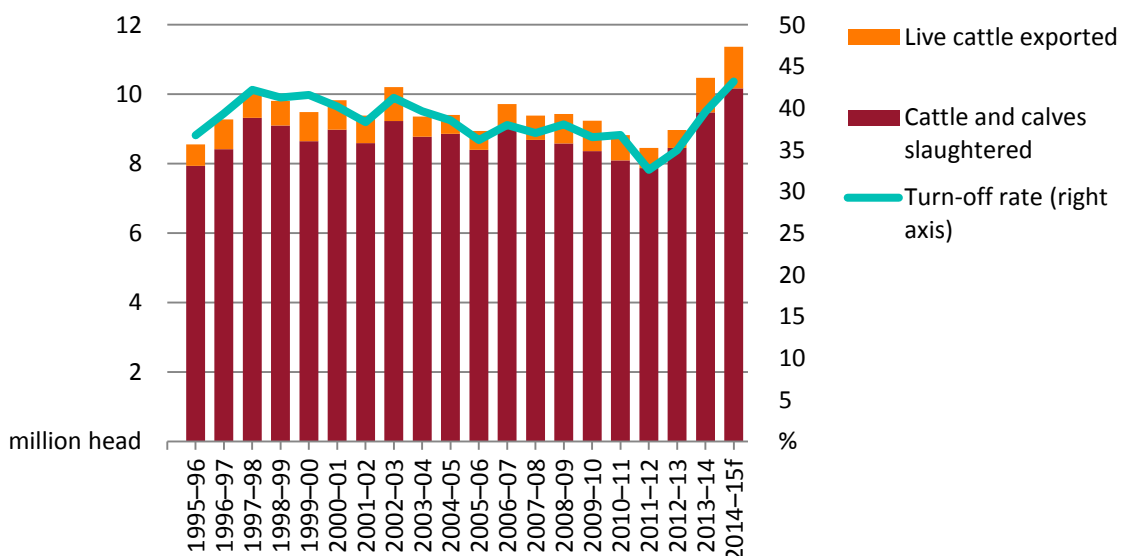
Note: Percentiles is a way of dividing sorted data (in this case rainfall data) into 100 equal parts. The 10th percentile represents the lowest 10 per cent of the data and the 90th percentile represents the top 10 per cent of the data.
 Source: Bureau of Meteorology

Beef cattle turn-off

Widespread above average grazing conditions in 2010–11 resulted in an increase in saleyard prices of beef cattle because of strong restocker demand as available cattle were redistributed between farms and regions with abundant grazing. Turn-off of cattle for slaughter slowed sharply in 2010–11 as rebuilding of cattle herds commenced in southern Australia (Figure 2 and Figure 3) and branding rates rose (Figure 1).

With continued above average grazing conditions in 2011–12, transactions of cattle between farms slowed, calf brandings rose, turn-off rates declined further and cattle numbers on farms continued to build.

Figure 3 Beef cattle turn-off, Australia, 1995–96 to 2014–15f



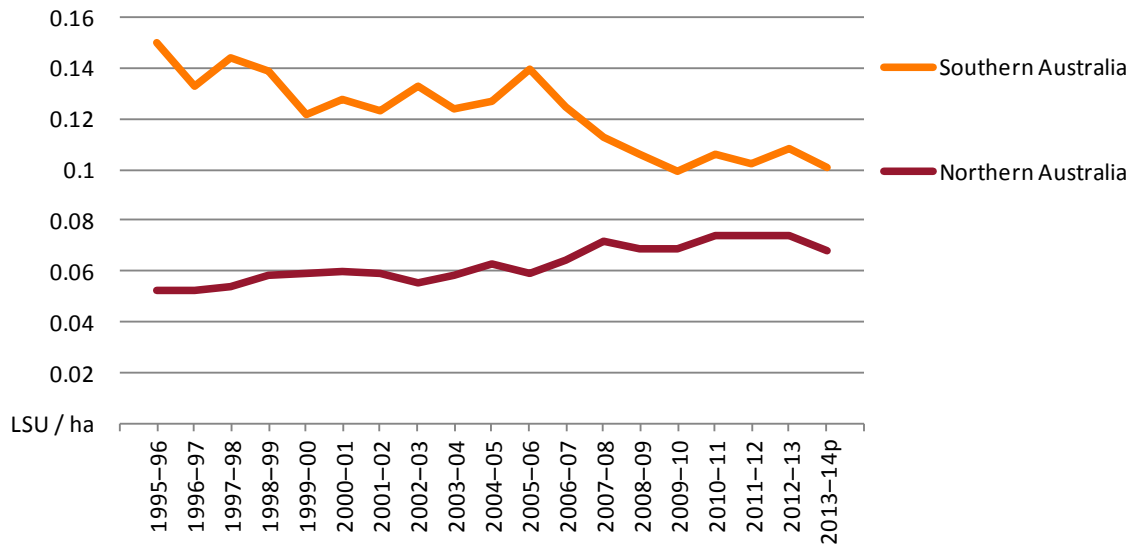
f ABARES forecast.

Source: Australian Bureau of Statistics

According to AAGIS data, between 2009–10 and 2011–12 stocking on beef cattle producing farms in northern Australia was the highest in more than 20 years (Figure 4).

Figure 4 Beef cattle stocking rates, 1995–96 to 2013–14p

average per farm



p Preliminary estimate. Stocking rate is calculated as large stock units (LSU), the equivalent of a 400 kilogram steer, per hectare.

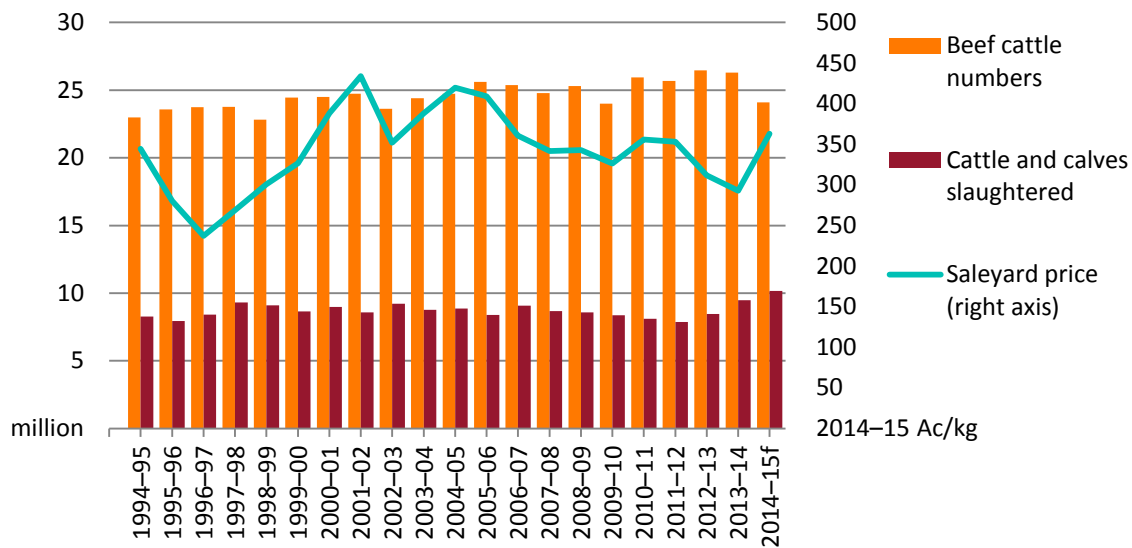
Source: ABARES Australian Agricultural and Grazing Industries Survey

Beef cattle turn-off increased when the northern wet season failed in 2012–13 reducing pasture availability across a large area of northern and western Queensland (Figure 3). Saleyard throughput and cattle slaughter surged across the eastern states, leading to a fall in prices of slaughter age cattle.

Continued dry seasonal conditions together with an increase in exports of live cattle resulted in a 17 per cent increase in beef cattle turn-off in 2013–14 (Figure 3). Saleyard prices for all classes of cattle continued to fall during 2013–14 and the weighted average saleyard prices for 2013–14 declined to the lowest recorded since 1997–98; 16 per cent below the 10-year average to 2012–13, in real terms (Figure 5). Increases in cows in total sales and the poorer condition of animals offered for sale contributed to lower saleyard prices. Few producers in 2013–14 were in a position to restock, resulting in lower demand for younger store cattle.

In 2014–15 the continuation of dry seasonal conditions in many major cattle producing regions resulted in continued high cattle turn-off, particularly in eastern Australia. Strong export demand for Australian beef and a depreciation of the Australian dollar resulted in an increase in cattle prices of around 24 per cent, further encouraging turn-off (Figure 5).

Figure 5 Beef cattle numbers, slaughter numbers and saleyard prices, Australia, 1994–95 to 2014–15f



f ABARES forecast.

Sources: ABARES; Australian Bureau of Statistics

Slaughter and cattle numbers

Australian cattle and calf slaughter increased further in 2014–15 to 10.2 million head, the highest since 1978–79 (Figure 5). In addition to dry seasonal conditions, higher cattle prices and increased demand for live export cattle prompted cattle turn-off to increase by a further 9 per cent. The number of cattle slaughtered or sold for live export in 2014–15 as a proportion of the total herd is forecast to be 43 per cent, the highest since 1978–79.

The beef cattle herd is estimated to have fallen by 8 per cent in 2014–15 to around 24.1 million head, reflecting increased cattle slaughter, increased live exports and lower calving.

Beef cattle selling methods

Australian beef cattle producers sell cattle primarily through auction, in the paddock and over the hooks. AAGIS data indicate significant differences between the preferred method of sale for northern and southern Australian producers.

In southern Australia, the auction system remained the main method of sale in 2013–14, representing 64 per cent of total beef cattle sales (Figure 6). Auction sales are most favoured by producers who have smaller herds and who sell in small lot sizes. These producers are generally located closer to settled areas so distances to saleyards and freight costs are relatively small. These areas also produce and trade a range of cattle types, including store, finished and stud, which can be sold at auction.

Box 1 Beef cattle selling methods

Methods used for selling beef cattle and calves vary depending on the type of stock, the market outlet for stock and the farm location.

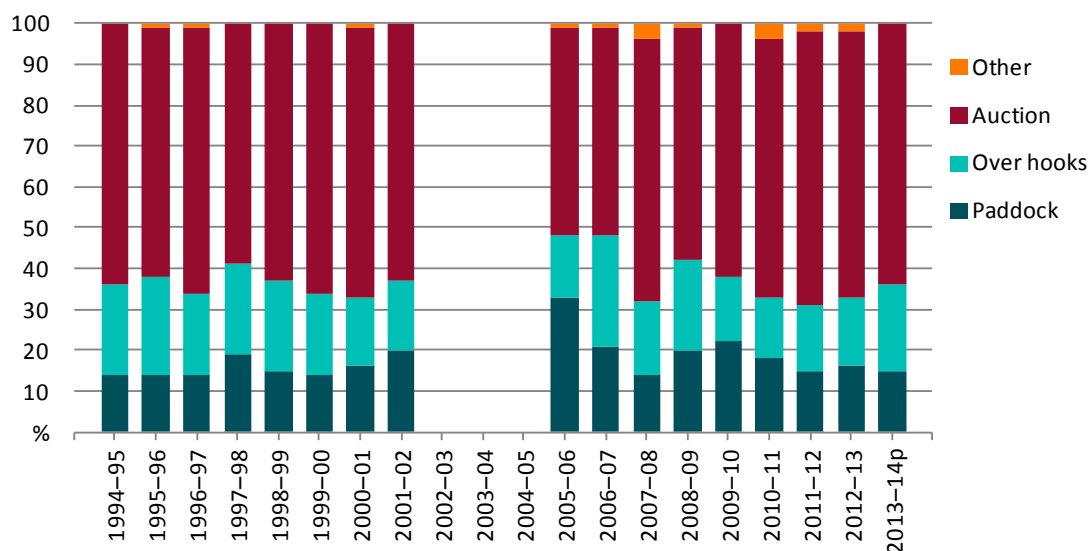
Paddock sales: Buyers inspect stock on the producer’s property; price is negotiated on a dollar per head basis or cents per kilogram live weight basis and ownership is generally transferred at the farm gate. This method is often favoured for producer-to-producer sales of store or breeding stock and is also common for purchase of cattle for live export.

Over the hooks: Stock are delivered directly to the abattoir. Price is negotiated on cents per kilogram carcass weight basis, with ownership usually transferred at the point of slaughter. Hot standard carcass weight is usually the basis of payment, sometimes with adjustment for carcass quality. Direct delivery to the abattoir can reduce damage to the carcass caused by bruising and meat quality problems caused by stress resulting from handling, transport and time off feed. Producers are provided with feedback on carcasses weight, fat measurement and other quality characteristics, providing clear market price signals about carcass quality.

Auction sales: Stock are sold by open auction on either a dollar per head basis or, if stock are weighed, on a cents per kilogram live weight basis. Auction allows for multiple buyers and sellers to interact and all stock types and lots of any size can be sold. Auction sales are usually conducted off-farm at saleyards, although they may be held on-farm. Ownership is generally transferred at the point of sale. Auction selling involves additional costs and stock handling and can mask the quality–price relationship.

Other: Include AuctionsPlus and other electronic online auction of livestock by description. AuctionsPlus uses accredited assessors to assess cattle on-farm. The description of cattle is then entered into an online catalogue. Sale takes place on-farm and cattle can be sold on a dollar per head basis, cents per kilogram live weight basis or cents per kilogram carcass weight and quality basis. Producers retain full control of livestock and are able to set a reserve price. This sale method combines the features of the saleyard system with a range of buyers and direct consignment to the abattoir or buyer.

Figure 6 Method of selling beef cattle, southern Australia, 1994–95 to 2013–14p



p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Producers with larger herd sizes are more likely to sell over the hooks or in the paddock because they can generate larger sale numbers. Direct methods of sale, such as over the hooks, can also reduce carcass damage and loss of meat quality caused by the additional handling involved in saleyard and auction sales.

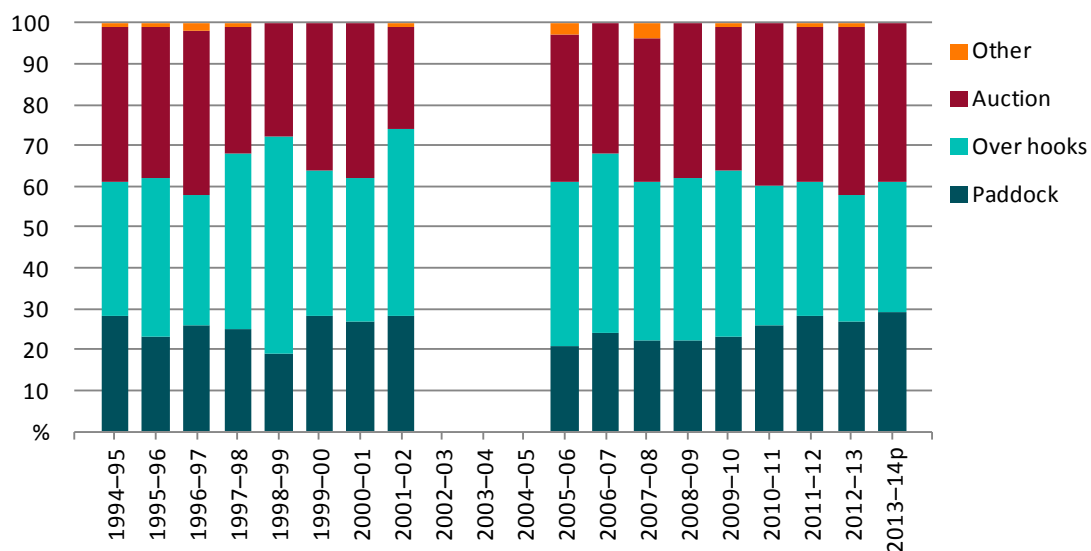
In southern Australia, the proportion of cattle sold over the hooks increased in 2012–13 and again in 2013–14 to 21 per cent (Figure 6).

In northern Australia, the proportion of cattle sold at auction increased to 41 per cent in 2012–13, because of high cattle turn-off, and remained high in 2013–14 at 39 per cent. The proportion sold over the hooks remained around 32 per cent.

In northern Australia, the proportion of cattle sold over the hooks has typically exceeded the proportion sold through auction over the long term. However, since 2010–11 the proportion of cattle sold at auction has exceeded the proportion sold over the hooks. This change has mainly resulted from an increase in the proportion of total beef cattle turn-off from farms in the grain growing regions of Queensland. Farms in the Queensland grain growing regions (wheat–sheep zone) account for 42 per cent of total cattle turn-off in northern Australia. Increase in the share of auction sales is also likely to reflect a larger number of cattle sold to major feedlots for finishing since 2011–12 and limits to abattoirs’ capacity to provide over the hooks sales with high cattle slaughter in northern Australia in 2012–13 and 2013–14.

In northern Australia, the proportion of cattle sold in the paddock increased to 29 per cent in 2013–14, the highest proportion recorded in the past 20 years (Figure 7). In part this is likely to reflect increases in sales of cattle for live export in 2013–14, with many live export cattle sold on-farm on a live weight basis.

Figure 7 Method of selling beef cattle, northern Australia, 1994–95 to 2013–14p



p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

3 Financial performance

Impact of drought

Dry seasonal conditions had a large impact on beef production and the financial performance of beef cattle producing farms in 2013–14 and 2014–15. In 2012–13, 7 per cent of Australian beef cattle producing farms in the AAGIS reported drought conditions, with most of these farms located in Queensland and north-west New South Wales. In 2013–14 the proportion increased to 28 per cent, then increased further to 31 per cent midway through 2014–15 as around 60 per cent of Queensland beef cattle producing farms reported drought conditions.

On farms subject to drought, cattle turn-off rates were high from mid 2012–13. Turn-off rates remained high and, in many cases, increased further in 2013–14. Cattle death rates increased and branding rates declined. Beef cattle numbers declined by an average of 7 per cent on farms subject to drought in 2013–14 and are estimated to have declined by a further 9 per cent in 2014–15 (Table 4).

Table 4 Impact of drought on production beef cattle producing farms

average per farm/percentage of farms

Estimate	unit	Not in drought		Drought affected			
		2013–14p	2014–15y	2013–14p	2014–15y		
Estimated number of farms	no.	19 700	-	18 800	7 800	-	7 400
Producer type							
Specialist producers	%	66	(4)	-	78	(3)	-
Mixed enterprise producers	%	34	(8)	-	22	(9)	-
Cattle production							
Cattle price	\$/hd	719	(4)	830	656	(4)	769
Branding rate	%	80	(1)	na	71	(4)	na
Death rate	%	3	(6)	na	6	(12)	na
Average sale weight (live weight)	kg/hd	478	(2)	na	463	(5)	na
Average price per kg live weight	cents	148	(4)	na	138	(5)	na
Beef cattle sold—total	no.	226	(5)	277	407	(11)	342
Beef cattle sold—live export	no.	20	(24)	31	17	(23)	18
Farms selling cattle for live export	%	4	(25)	5	3	(22)	5
Net turn-off rate	%	32	(3)	35	34	(6)	37
Beef cattle numbers at 30 June	no.	612	(4)	600	1 155	(16)	987
Percentage change in cattle numbers during year	%	0	(99)	-2	-7	(19)	-8
Other enterprises							
Area planted to crops	ha	201	(10)	183	69	(19)	42
Sheep numbers at 30 June	no.	932	(7)	918	655	(16)	600

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 Agricultural and Grazing Industries Survey

The average price received per kilogram of live weight for drought-affected farms was lower than for farms not subject to drought (Table 4). The average live weight of cattle sold by farms subject to drought was also slightly lower. Drought also reduced the area planted to crops, crop yields and sheep numbers on mixed enterprise farms.

The number of cattle sold for live export by farms affected by drought increased by 22 per cent in 2013–14 and prices received for live export cattle were slightly higher. However, despite the increase in live cattle exports and high beef cattle turn-off rates, lower prices received for other cattle sold resulted in overall receipts from the sale of beef cattle declining by an average of 7 per cent in 2013–14 for farms affected by drought. In addition, crop receipts for mixed enterprise farms declined by 70 per cent in 2013–14.

In contrast, receipts from beef cattle increased by an average of 6 per cent for farms not affected by drought as increased cattle turn-off more than offset lower prices received for cattle sold.

Total cash receipts declined by 12 per cent in 2013–14 for farms affected by drought. Despite an increase of 80 per cent in fodder expenditure for farms affected by drought in 2013–14, total cash costs declined by 8 per cent as farms reduced expenditure across a broad range of other farm inputs. Livestock purchases and repairs and maintenance were sharply reduced.

As a result of the large reduction in total cash receipts and smaller reduction in total cash costs, farm cash income declined by 29 per cent to average \$63 400 for farms affected by drought in 2013–14 (Table 5). Farm cash income for farms not affected by drought increased by an average of 8 per cent.

New investment on farms affected by drought declined by around 40 per cent to average \$12 300 a farm, around half the investment recorded for farms not affected by drought.

Around 34 per cent of farms affected by drought in 2013–14 are estimated to have recorded negative farm cash incomes. This shortfall in cash flow was the main contributor to an increase in average farm business debt of around 4 per cent ([Chapter 5](#)). In addition to reduced farm cash income, reduction in beef cattle numbers on farms affected by drought contributed to farm business profit declining further to an average loss of \$110 900 a farm in 2013–14.

In 2014–15 total cash receipts for farms continuing to be affected by drought increased by 10 per cent as increases in cattle prices more than offset reductions in cattle turn-off and further reductions in crop production and sheep and wool production, on average. Farm expenditure is estimated to have remained similar to 2013–14 and average farm cash income is estimated to have increased to average \$108 000 a farm in 2014–15. This average is likely to include substantial variation across farms depending on their specific circumstances. Overall, a further small increase is expected in farm business debt for drought-affected farms in 2014–15 (Table 5).

Table 5 Impact of drought on financial performance, beef cattle producing farms

average per farm/percentage of farms

Cash receipts	unit	Not in drought		Drought affected			
		2013–14 ^p	2014–15 ^y	2013–14 ^p	2014–15 ^y		
Beef cattle sales—total	\$	159 200	(7)	221 000	265 000	(13)	311 000
Beef cattle sales—live export	\$	11 200	(21)	17 000	9 000	(23)	10 000
Value of cattle transferred out	\$	5 000	(26)	5 000	18 000	(82)	17 000
Sheep, lamb and wool sales	\$	70 500	(7)	69 000	39 200	(13)	36 000
Total crop receipts	\$	96 500	(12)	79 000	11 100	(26)	12 000
Total cash receipts	\$	356 700	(5)	399 000	360 400	(13)	397 700
Cash costs							
Interest paid	\$	24 600	(9)	24 000	40 300	(8)	39 500
Total cash costs	\$	264 700	(5)	262 000	297 000	(10)	289 000
Financial performance							
Farm cash income	\$	91 900	(7)	136 000	63 400	(31)	108 000
Farms with negative farm cash income	%	24	(12)	16	34	(11)	22
Cash operating margin	%	26	(5)	34	18	(20)	27
Farm business profit	\$	-2 300	(269)	33 000	-110 900	(17)	-59 000
Capital expenditure							
Net capital additions (excluding land)	\$	25 000	(11)	na	12 300	(20)	na
Farm business debt							
Farm business debt at 30 June a	\$	385 100	(10)	391 000	633 600	(8)	660 000
Change in debt over year a	%	-3 800	(330)	6 000	26 000	(45)	26 000
Percentage change in debt a	%	-1	(10)	2	4	(8)	4
Equity ratio at 30 June a	%	90	(1)	89	88	(1)	85
Interest paid to receipts ratio	%	8	(8)	7	11	(9)	10

a Excludes some large corporately owned farms. **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 Agricultural and Grazing Industries Survey

Financial performance of northern Australian beef cattle producers

Farm cash income

In 2013–14 continued dry seasonal conditions led to the number of beef cattle sold increasing by 18 per cent. Lower average sale prices for beef cattle partly offset the higher turn-off, resulting in average beef cattle receipts only increasing by around 10 per cent. Grain receipts for mixed enterprise farms in Queensland also declined and average farm cash receipts increased by only 1 per cent (Table 6 and Figure 8). Despite further reductions in expenditure on beef cattle, average farm cash costs increased by 8 per cent as a result of higher expenditure on fodder, freight, labour and interest payments. Increases in cash costs more than offset higher cash receipts to result in average farm cash income of beef cattle producing farms in northern Australia declining to \$74 700 a farm in 2013–14.

Table 6 Financial performance, beef cattle producing farms, northern Australia

average per farm

Farm cash receipts	unit	2012–13	2013–14^p	2014–15^y	
Beef cattle sales—total	\$	284 760	312 400	(5)	382 000
Beef cattle sales—live export	\$	10 100	30 400	(18)	40 000
Value of cattle transferred out	\$	28 580	23 000	(17)	25 000
Sheep, lambs and wool sales	\$	6 650	9 500	(36)	9 000
Total crop receipts	\$	48 660	26 900	(27)	29 000
Total cash receipts	\$	395 030	400 300	(5)	466 000
Farm cash costs					
Beef cattle purchases	\$	33 880	29 000	(17)	24 000
Beef cattle transferred in	\$	11 070	8 700	(24)	15 000
Wages for hired labour	\$	17 580	20 200	(10)	20 000
Fodder	\$	19 970	34 500	(13)	34 000
Fuel, oil and lubricants	\$	23 380	25 000	(6)	22 000
Repairs and maintenance	\$	33 220	34 700	(7)	34 000
Contracts	\$	16 160	14 900	(9)	14 000
Freight, handling and marketing	\$	26 150	28 400	(9)	na
Interest paid	\$	38 350	40 100	(9)	39 000
Total cash costs	\$	300 540	325 600	(6)	319 000
Farm capital and debt					
Farm capital at 30 June	\$	5 701 290	5 885 400	(3)	na
Farm debt at 30 June	\$	554 390	646 800	(10)	645 000
Equity ratio	%	89	87	(2)	na
Farm financial performance					
Farm cash income	\$	94 490	74 700	(15)	148 000
Farm business profit	\$	-2 990	-76 900	(19)	-19 000
Profit at full equity	\$	38 580	-33 200	(41)	24 000
Rate of return					
– excluding capital appreciation	%	0.7	-0.6	(41)	0.5
– including capital appreciation	%	-1.0	-2.0	(26)	na

^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 Agricultural and Grazing Industries Survey

Box 2 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*

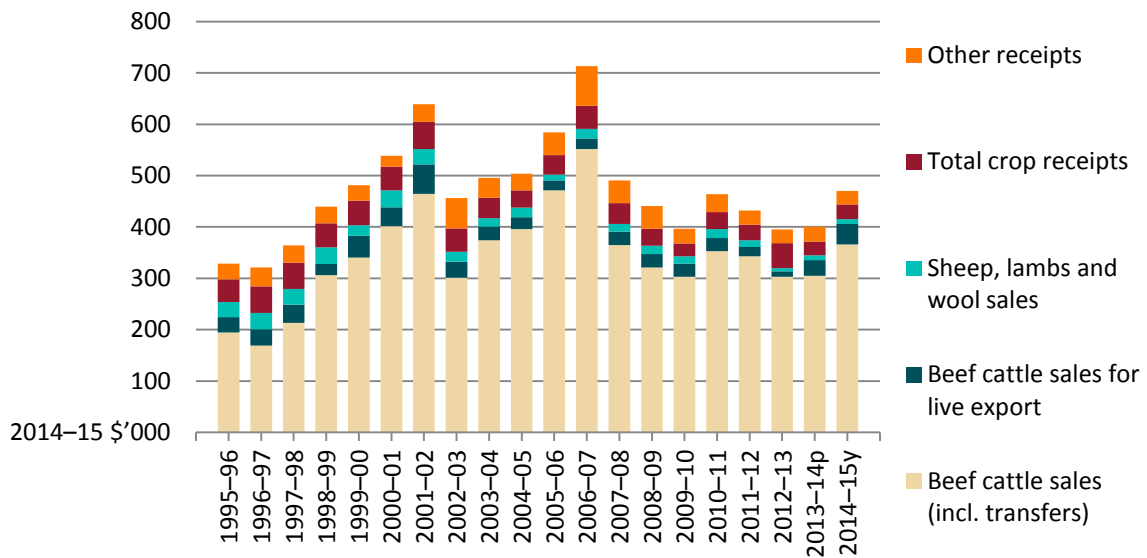
Profit at full equity: return produced by all the resources used in the business

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

Rate of return to total capital used: efficiency of businesses in generating returns from all resources used
(profit at full equity/total opening capital) x 100

Figure 8 Farm receipts, northern beef cattle producing farms, 1995–96 to 2014–15y

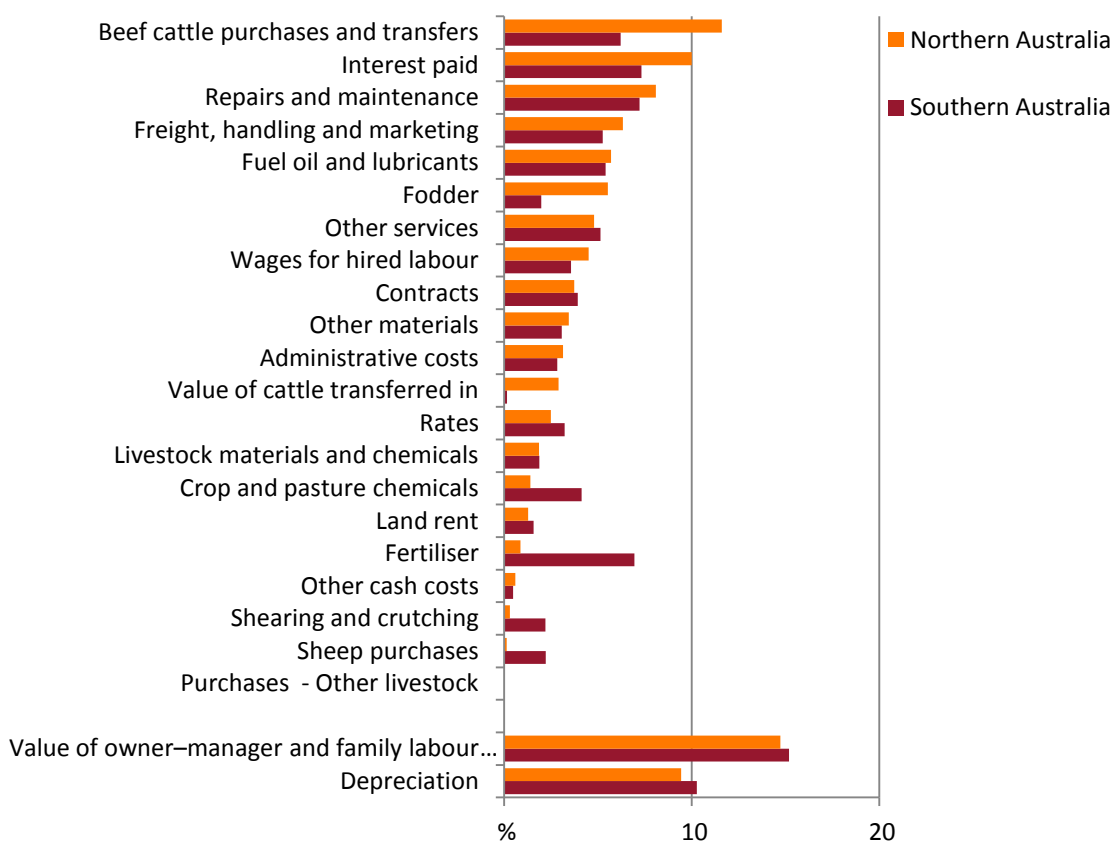
average per farm



p Preliminary estimate. **y** Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 9 Composition of farm costs, beef cattle producing farms, 2011–12 to 2013–14p

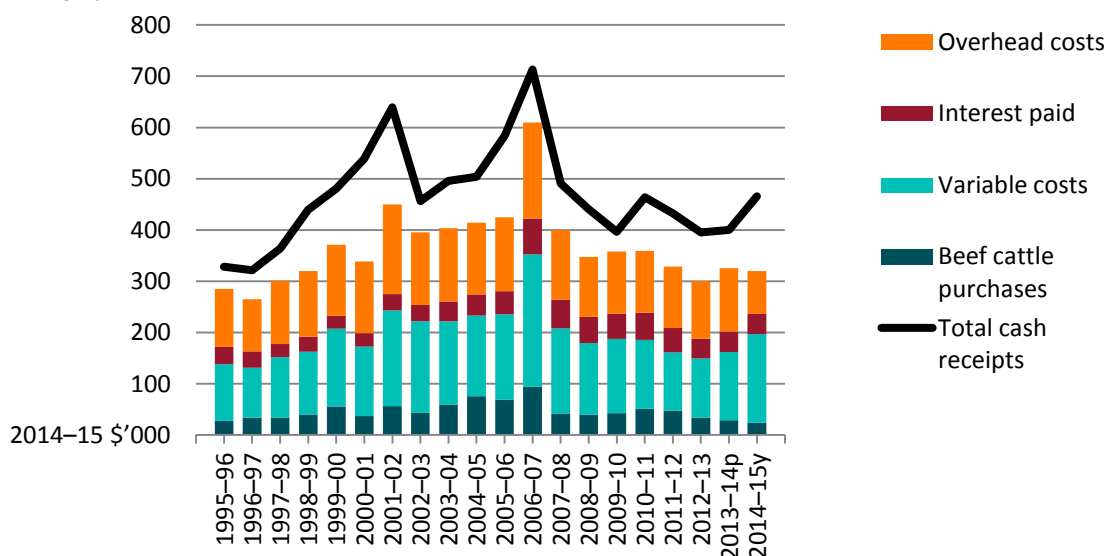


p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 10 Cash costs, beef cattle producers, northern Australia, 1995–96 to 2014–15^y

average per farm



p Preliminary estimate. **y** Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

On average, beef cattle purchases and transfers in are the largest cash cost of beef cattle producing farms in northern Australia. As a consequence of increases in farm debt over the decade to 2009–10, interest payments are now the second largest cash cost of beef cattle producing farms in northern Australia and the largest cost in southern Australia (Figure 9).

Average total cash costs were reduced between 2011–12 and 2014–15 as producers responded to lower cattle prices. During this period, total cash costs more closely resembled those recorded in the late 1990s, in real terms. The late 1990s was a period when beef cattle prices and average cash receipts were historically low (Figure 10).

In 2014–15 average farm cash receipts for northern Australian beef cattle producers are estimated to have increased by 16 per cent (Figure 8) because of increased cattle turn-off for slaughter and live export and increased prices for cattle sold. Average live export receipts are estimated to have increased by 32 per cent in northern Australia.

Expenditure on purchased fodder remained high in 2014–15, but overall farm cash costs are estimated to have declined because of further reductions in beef cattle purchases as dry conditions continued and reduced expenditure on fuel and interest payments because of lower fuel prices and lower interest rates.

In 2014–15 average farm cash income of northern Australian beef cattle producing farms is estimated to have increased to an average of \$148 000 a farm (Table 6 and Figure 11). This is around 50 per cent above the average for the previous 10 years, in real terms.

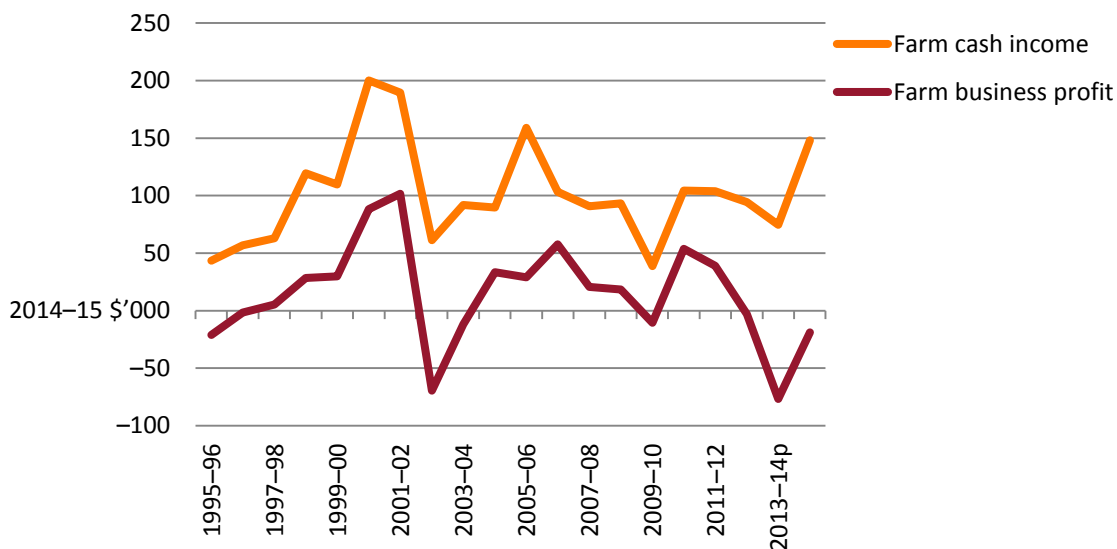
Farm business profit and rates of return

Farm cash income is a measure of cash funds generated by the farm business for farm investment and consumption after paying all costs incurred in production, including interest payments, but excluding capital payments and payments to family workers. It is a measure of short-term farm performance because it does not take into account depreciation or changes in farm inventories. A measure of longer term profitability is farm business profit, as it takes into account capital depreciation and changes in inventories of livestock, fodder, grain and wool.

A large portion of the increase in average farm cash income of beef producing farms in northern Australia has been because of a reduction in herd size on many farms in northern Australia as a result of increased cattle turn-off and reduced branding rates in 2013–14 and 2014–15. This results in a reduction in the value of cattle inventories. As a consequence, while farm business profit of beef cattle producing farms in northern Australia is estimated to improve in 2014–15, the improvement is much less than the increase in farm cash income. Farm business profit is estimated to improve from an average loss of \$76 900 a farm in 2013–14 to a loss of \$19 000 a farm in 2014–15 (Figure 11). This is well below the average of \$22 600 a farm for the 10 years ending 2013–14.

Figure 11 Financial performance, beef producing farms, northern Australia, 1995–96 to 2014–15y

average per farm



p Preliminary estimate. **y** Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Profit at full equity, also referred to as earnings before interest and taxes, adjusts farm business profit by adding back interest and leasing expenditure so that the performance of all farms can be compared regardless of the financing arrangements in place. For northern beef cattle producing farms, profit at full equity averaged \$38 580 in 2012–13, declined to -\$33 200 in 2013–14 and is estimated to have improved to \$24 000 in 2014–15.

Rate of return on total capital used (profit at full equity expressed as a percentage of total capital) averaged 0.7 per cent in 2012–13, -0.6 per cent in 2013–14 and is estimated to have improved to 0.5 per cent in 2014–15.

Reductions in land values in many northern regions resulted in negative average rates of return on total capital used when capital appreciation is included in both 2012–13 and 2013–14.

Financial performance by herd size

Farm financial performance varies between producers with different herd sizes. Generally, farm cash incomes, farm business profits and rates of return are higher for producers with larger herd sizes (Table 7).

Substantial increases in farm cash income are estimated for all herd size groups in 2014–15.

In 2014–15 small herd size farms are estimated to have the lowest average rate of return (excluding capital appreciation) at –2.1 per cent, followed by medium herd size producers at –0.6 per cent, large herd size producers 1.9 per cent and very large herd size producers 3.2 per cent.

Table 7 Financial performance, beef cattle producing farms, northern Australia, by herd size

average per farm

Farm cash receipts	unit				Small			Medium		
		2012–13	2013–14p	(16)	2014–15y	2012–13	2013–14p	(8)	2014–15y	
Beef cattle sales—total	\$	52 190	62 800	(16)	86 000	173 100	202 400	(8)	244 000	
Beef cattle sales—live export	\$	110	1 500	(69)	1 000	130	2 700	(41)	4 000	
Value of cattle transferred out	\$	0	0	–	0	0	220	(109)	0	
Sheep, lambs and wool sales	\$	6 270	11 900	(76)	13 000	8 150	10 400	(36)	7 000	
Total crop receipts	\$	47 930	16 700	(56)	32 000	40 460	39 000	(21)	25 000	
Total cash receipts	\$	117 120	106 500	(19)	142 000	248 720	281 800	(7)	307 000	
Farm cash costs										
Beef cattle purchases	\$	10 770	8 300	(38)	10 000	25 240	24 300	(24)	14 000	
Beef cattle transferred in	\$	0	0	–	1 000	1 090	700	(108)	2 000	
Wages for hired labour	\$	1 490	1 800	(53)	4 000	5 170	8 400	(24)	6 000	
Interest paid	\$	8 770	9 300	(25)	9 000	28 060	34 000	(14)	32 000	
Total cash costs	\$	96 440	95 400	(15)	104 000	198 570	242 900	(9)	222 000	
Farm capital and debt										
Farm capital at 30 June	\$	2 008 820	2 214 500	(9)	2 347 000	4 371 890	4 632 000	(5)	4 413 000	
Farm debt at 30 June	\$	132 860	139 400	(25)	157 000	411 940	545 600	(13)	527 000	
Equity ratio	%	93	94	(2)	na	91	88	(4)	na	
Farm financial performance										
Farm cash income	\$	20 680	11 000	(88)	39 000	50 150	38 900	(36)	84 000	
Farm business profit	\$	–41 620	–78 000	(10)	–52 000	–18 620	–87 900	(19)	–58 000	
Profit at full equity	\$	–32 220	–67 800	(11)	–42 000	12 530	–50 300	(30)	–22 000	
Rate of return										
– excluding capital appreciation	%	–2.0	–3.0	(14)	–2.1	0.3	–1.0	(31)	–0.6	
– including capital appreciation	%	–3.0	–3.0	(20)	na	–1	–2.0	(33)	na	
Other										
Off-farm income a	\$	38 960	45 200	(23)	na	33 810	36 000	(20)	na	

continued...

Table 7 Financial performance, beef cattle producing farms, northern Australia, by herd size (continued)

average per farm									
Farm cash receipts	unit				Large			Very large	
		2012–13	2013–14p		2014–15y	2012–13	2013–14p		2014–15y
Beef cattle sales—total	\$	580 140	588 500	(7)	752 000	2 142 730	2 371 200	(11)	3 264 000
Beef cattle sales—live export	\$	7 240	31 500	(23)	34 000	230 080	561 200	(13)	880 000
Value of cattle transferred out	\$	5 170	13 900	(88)	10 000	737 570	498 900	(17)	629 000
Sheep, lambs and wool sales	\$	3 190	3 800	(123)	4 000	10 650	7 100	(73)	8 000
Total crop receipts	\$	72 700	23 900	(39)	17 000	25 800	9 300	(11)	15 000
Total cash receipts	\$	704 070	671 700	(7)	818 000	2 991 320	2 960 000	(9)	4 005 000
Farm cash costs									
Beef cattle purchases	\$	55 610	37 200	(21)	35 000	229 660	222 400	(47)	228 000
Beef cattle transferred in	\$	550	6 100	(84)	12 300	280 480	178 800	(25)	318 000
Wages for hired labour	\$	30 180	29 800	(17)	30 000	240 900	257 500	(7)	294 000
Interest paid	\$	80 580	77 900	(14)	77 000	205 350	203 500	(15)	245 000
Total cash costs	\$	511 650	506 700	(8)	511 000	2 225 940	2 373 600	(9)	2 735 000
Farm capital and debt									
Farm capital at 30 June	\$	10 570 900	10 129 600	(5)	10 033 000	29 140 790	31 685 600	(4)	30 926 000
Farm debt at 30 June	\$	1 103 030	1 268 400	(14)	1 193 000	4 705 110	5 535 300	(16)	5 209 000
Equity ratio	%	90	87	(4)	na	79	78	(8)	na
Farm financial performance									
Farm cash income	\$	192 430	165 000	(17)	307 000	765 380	586 400	(17)	1 270 000
Farm business profit	\$	18 880	-88 200	(36)	67 000	412 540	96 000	(146)	391 000
Profit at full equity	\$	106 730	-3 200	(875)	152 000	624 870	308 500	(44)	647 000
Rate of return									
- excluding capital appreciation	%	1.0	0.0	(874)	1.9	2.1	1.0	(45)	3.2
- including capital appreciation	%	-0.6	-2	(46)	na	-2.0	-0.4	(242)	na
Other									
Off-farm income a	\$	40 700	27 500	(21)	na	19 460	17 800	(40)	na

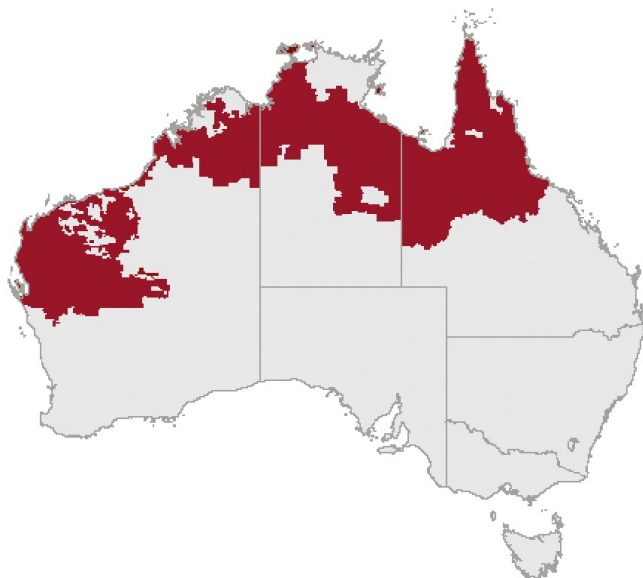
a Average per responding farm. p Preliminary estimate. y Provisional estimate. na Not available. Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Financial performance of live cattle export region

Most of the cattle exported live from northern Australia over the past decade have been sourced from the northern live export region (Map 4). This region contains around 1 600 farm businesses with greater than 100 head of beef cattle.

Many farm businesses in the upper west of the Northern Territory and in the Kimberley, Pilbara and Murchison–Gascoyne regions of Western Australia derive more than 50 per cent of their total beef cattle receipts from sale of cattle for live export. Businesses in the south of the northern live export region and in Queensland are generally far less reliant on live export sales.

Map 4 Northern Australian live cattle export region



Note: Regions based on aggregations of ABS statistical local areas.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Turn-off of cattle for live export declined between 2010–11 and 2012–13 because of a reduction in the number of farms selling cattle for live export and the average number of cattle sold for live export per farm.

In 2013–14 turn-off of cattle for live export increased by 94 per cent, with the number of farm businesses selling beef cattle for live export and the average number of cattle sold for live export per farm increasing. According to AAGIS data, in 2012–13 around 15 per cent of businesses in the northern live export region derived more than 50 per cent of their beef cattle receipts from live export sales. In 2013–14 this proportion is estimated to have increased to 25 per cent, then increased further to 33 per cent in 2014–15.

The large increase in cattle sold for live export, combined with an average price increase of around 4 per cent, resulted in receipts from live export sales in the northern live export region increasing by 137 per cent in 2013–14 compared with 2012–13. Overall turn-off of beef cattle increased by 10 per cent in the region in 2013–14, but with more cattle directed to live export the number of cattle sold to domestic markets declined by 11 per cent. Average prices received for cattle sold to domestic markets also declined by 10 per cent, partly reflecting sale of unfinished cattle from areas affected by dry conditions in Queensland. Overall receipts from cattle sold to domestic markets declined by 19 per cent. In 2013–14 average total cash receipts in the northern live export region declined and farm cash income decreased to an average of \$143 000 at farm (Table 8).

Table 8 Financial performance, beef cattle producing farms, northern live cattle export region

average per farm

	unit	2012–13 ^p	2013–14 ^p		2014–15 ^y
Farm cash receipts					
Beef cattle sales—total	\$	553 670	557 800	(11)	682 000
Beef cattle sales—live export	\$	69 910	165 900	(17)	221 000
Value of cattle transferred out	\$	129 750	108 600	(20)	124 000
Total cash receipts	\$	767 620	737 200	(9)	898 000
Farm cash costs					
Beef cattle purchases	\$	59 680	31 900	(22)	33 000
Beef cattle transferred in	\$	51 900	35 700	(26)	65 000
Interest paid	\$	63 290	58 600	(19)	58 000
Total cash costs	\$	601 000	594 200	(11)	622 000
Farm capital and debt					
Farm capital at 30 June	\$	9 434 090	9 406 700	(7)	na
Farm debt at 30 June	\$	1 059 670	1 050 000	(21)	1 104 000
Equity ratio	%	85	84	(7)	na
Farm financial performance					
Farm cash income	\$	166 630	143 000	(36)	277 000
Farm business profit	\$	37 230	-113 100	(78)	14 000
Profit at full equity	\$	104 770	-53 000	(1480)	76 000
Rate of return					
– excluding capital appreciation	%	1.1	-0.6	(1477)	1.3
– including capital appreciation	%	-1.9	-2.3	(100)	na

^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 Agricultural and Grazing Industries Survey

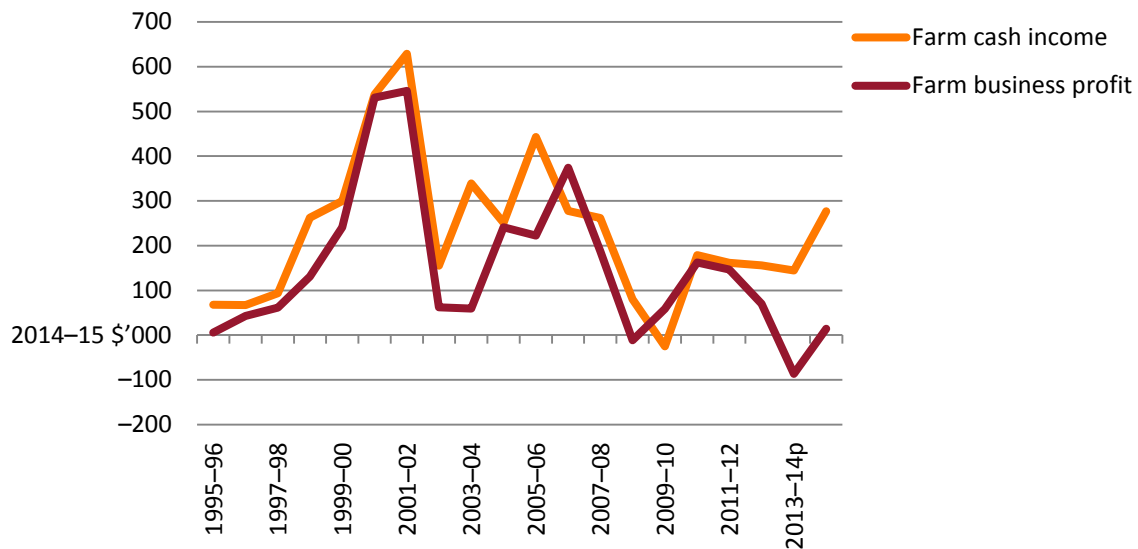
In 2014–15 turn-off of cattle in the northern live export region increased by a further 5 per cent. The average number of cattle sold for live export increased by 40 per cent and sale of cattle for domestic markets declined by 3 per cent. With higher beef cattle prices, overall beef cattle receipts are estimated to have increased by 22 per cent in the northern live export region in 2014–15. Average total cash costs are also estimated to have increased as a result of higher expenditure on beef cattle purchases, increased transfer of cattle onto corporately owned properties in the Northern Territory and continued high expenditure on fodder (including supplements) during 2014–15.

Farm cash income is estimated to have averaged \$277 000 a farm in 2014–15, around 40 per cent above the average for the 10 years ending 2013–14.

Farm business profit is estimated to average \$14 000 a farm in 2014–15 (Figure 12 and Table 8), well below the average for the 10 years ending 2013–14 of \$137 000 a farm. This is because high cattle turn-off is expected to result in a further small reduction in beef cattle numbers.

Figure 12 Financial performance, beef cattle producing farms, northern live cattle export region, 1995–96 to 2014–15^y

average per farm



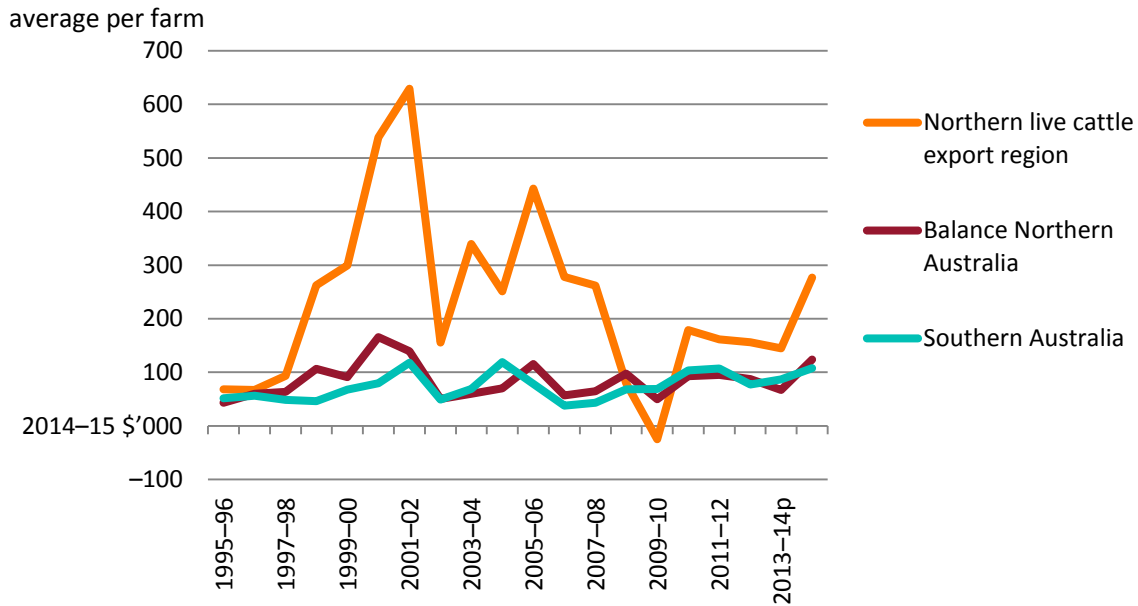
p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Farm businesses operating in the northern live cattle export region have an average herd size almost four times larger than the average herd size in the balance of northern Australia (remainder of the Northern Territory and Queensland) and around 10 times the average herd size in southern Australia. As a result, average farm cash income of the northern live cattle export region has historically been well above that of the balance of northern Australia and southern Australia (Figure 13).

Many of the largest herd size farms in the northern live cattle export region are corporate entities. These farms dominate turn-off and performance estimates and typically have financial performance well above the average for other smaller herd size businesses in the region. Transfer of cattle between corporate group properties in the northern live export region and associated properties outside the region in response to grazing conditions and marketing opportunities contributes to the high variability in average farm cash incomes for this region. Despite this variability, average farm cash income has historically been relatively high.

Figure 13 Farm cash income, beef cattle producing farms, 1995–96 to 2014–15y



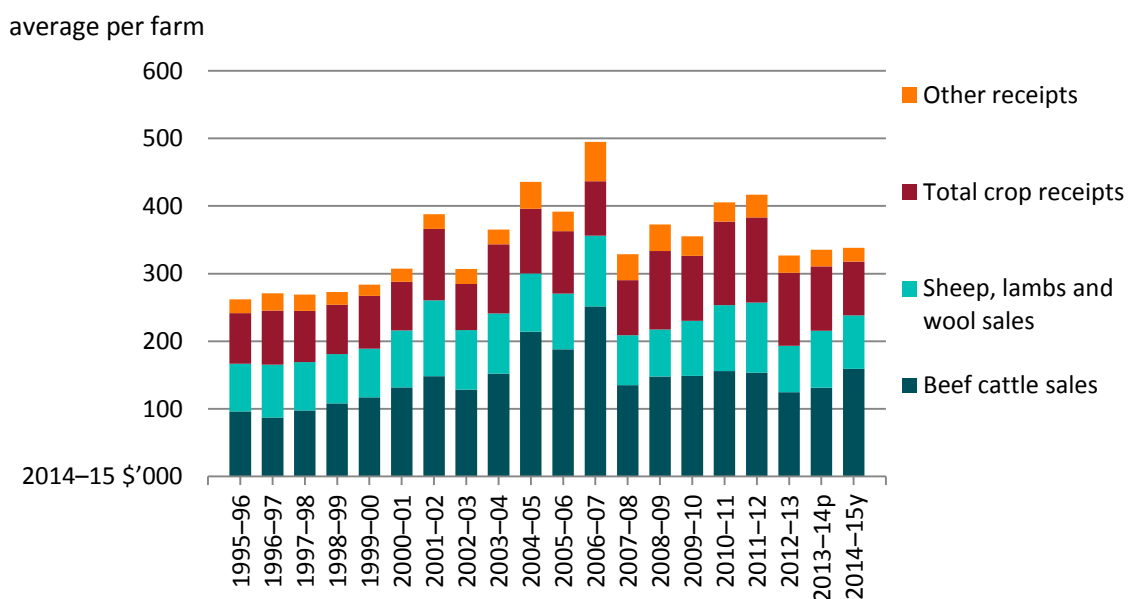
p Preliminary estimate. y Provisional estimate.
 Source: ABARES Australian Agricultural and Grazing Industries Survey

Financial performance of southern Australian beef cattle producers

Farm cash income

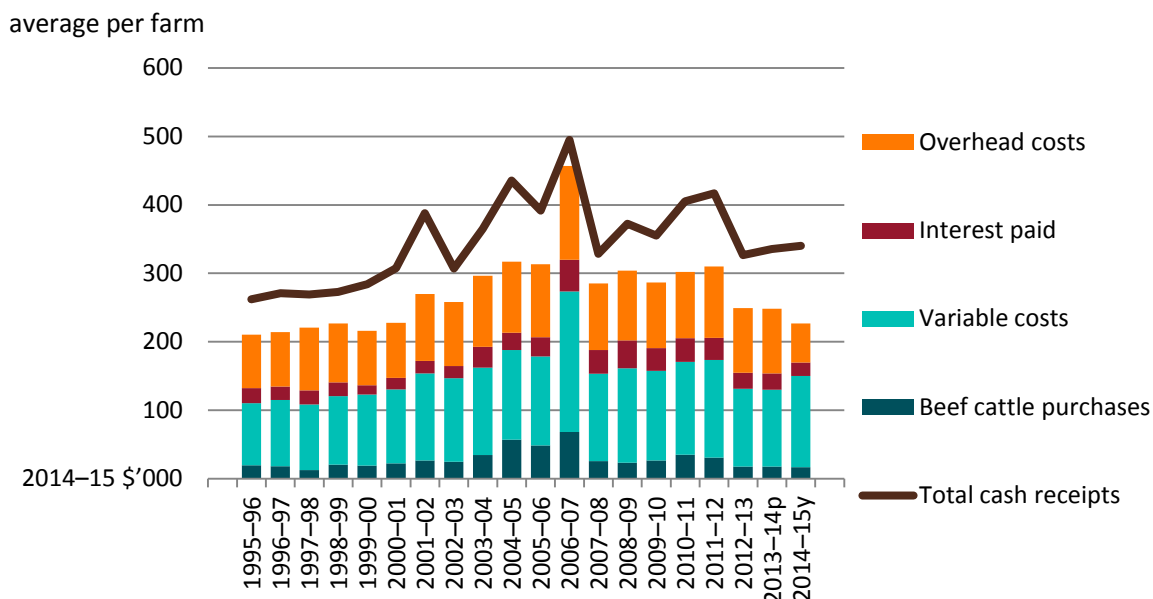
In 2013–14 average farm cash receipts for southern Australian beef cattle producers increased by 3 per cent as a result of increased beef cattle turn-off and higher prices for lambs and sheep and despite reduced crop receipts (Figure 14). Little change was recorded in average total cash costs (Figure 15) and average farm cash income of southern Australian beef cattle producing farms increased by 12 per cent to an average of \$87 000 a farm in 2013–14 (Table 9).

Figure 14 Farm cash receipts, southern beef cattle producing farms 1995–96 to 2014–15y



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

Figure 15 Composition of cash costs, beef cattle producers, southern Australia, 1995–96 to 2014–15y



p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

In 2014–15 a further increase in cattle turn-off and much higher average sale prices for beef cattle are estimated to have resulted in beef cattle receipts increasing by an average of 23 per cent. However, receipts from grain, sheep, lambs and wool are estimated to have declined, resulting in average total cash receipts increasing only slightly (Table 9).

Because of reductions in expenditure on crop growing and handling and interest payments, average farm cash income of beef cattle producing farms in southern Australia is estimated to have increased to average \$108 000 a farm in 2014–15. This is around 30 per cent above the average for the previous 10 years, in real terms. However, farm cash incomes of many southern Australian beef cattle producing farms were low through most of the 2000s because of the effects of drought, particularly on crop receipts.

Farm business profit and rates of return

Farm business profit of beef cattle producing farms in southern Australia is estimated to have increased from an average of -\$15 300 a farm in 2013–14 to \$12 000 a farm in 2014–15 (Figure 16). In contrast with the situation in northern Australia, this is above the average for the 10 years ending 2013–14 (-\$5 000 a farm). This is because of the reduction in herd size in southern Australia was relatively small.

For southern beef cattle producing farms, profit at full equity averaged \$25 220 in 2012–13, declined to \$13 500 in 2013–14 and is estimated to have increased to \$38 000 a farm in 2014–15 (Table 9).

Table 9 Financial performance, beef cattle producing farms, Southern Australia

average per farm

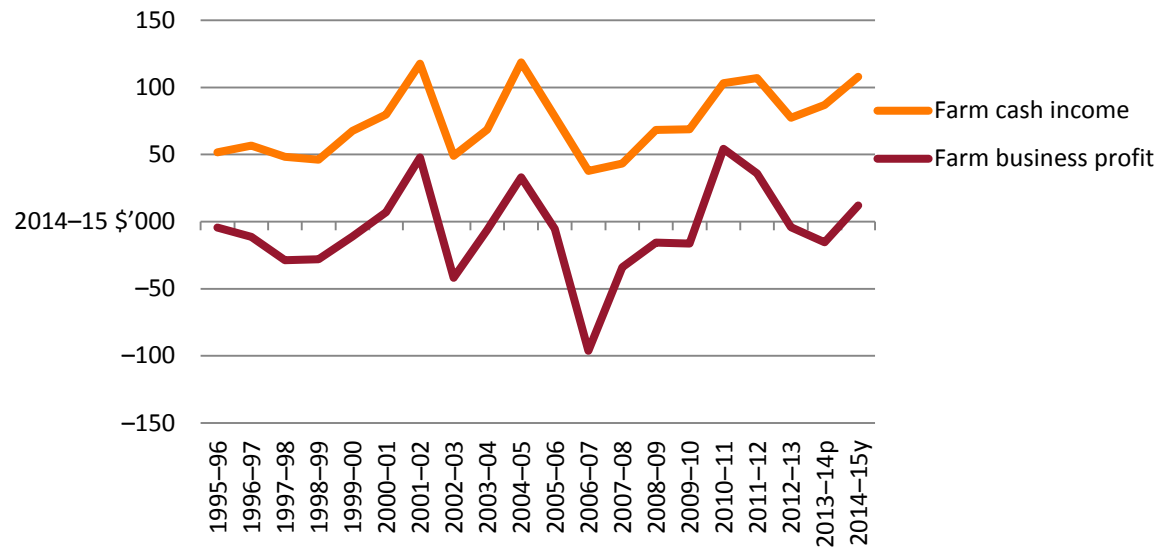
Farm cash receipts	unit	Specialist beef cattle producers			All beef cattle producing farms				
		2012–13	2013–14p	2014–15y	2012–13	2013–14p	2014–15y		
Beef cattle sales	\$	129 000	136 600	(10)	180 000	123 990	129 700	(8)	159 000
Sheep, lambs and wool sales	\$	6 870	8 400	(27)	11 000	69 010	84 300	(7)	79 000
Total crop receipts	\$	13 170	12 300	(60)	8 000	107 930	95 300	(14)	80 000
Total cash receipts	\$	169 100	172 500	(10)	208 000	326 600	335 600	(5)	340 000
Farm cash costs									
Beef cattle purchases	\$	18 500	17 000	(53)	19 000	17 700	17 700	(33)	17 000
Wages for hired labour	\$	5 910	5 800	(19)	7 000	11 710	12 100	(9)	12 000
Fodder	\$	5 700	6 700	(33)	7 000	7 110	9 300	(16)	9 000
Fuel, oil and lubricants	\$	8 950	9 100	(12)	8 000	18 380	17 800	(6)	15 000
Repairs and maintenance	\$	14 260	13 500	(7)	15 000	24 840	24 000	(5)	23 000
Contracts	\$	6 350	5 500	(17)	5 000	14 200	12 100	(10)	10 000
Freight, handling and marketing	\$	8 900	9 200	(11)	na	17 990	17 200	(7)	na
Interest paid	\$	10 530	11 400	(18)	10 000	23 420	23 700	(10)	20 000
Total cash costs	\$	134 290	134 400	(11)	145 000	249 120	248 600	(6)	231 000
Farm capital and debt									
Farm capital at 30 June	\$	3 049 470	3 004 300	(6)	na	3 955 500	3 853 400	(4)	na
Farm debt at 30 June	\$	156 410	168 000	(18)	160 000	353 500	365 100	(11)	330 000
Equity ratio	%	95	94	(2)	na	91	90	(2)	na
Farm financial performance									
Farm cash income	\$	34 800	38 100	(20)	64 000	77 480	87 000	(8)	108 000
Farm business profit	\$	-25 710	-46 900	(12)	-18 000	-4 110	-15 300	(46)	12 000
Profit at full equity	\$	-12 490	-32 800	(18)	-4 000	25 220	13 500	(59)	38 000
Rate of return									
- excluding capital appreciation	%	-0.4	-1.0	(20)	-0.1	0.6	0.4	(58)	1.2
- including capital appreciation	%	-0.3	-0.9	(48)	na	0.8	0.7	(46)	na

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 Agricultural and Grazing Industries Survey

Figure 16 Financial performance, beef cattle producing farms, southern Australia, 1995–96 to 2014–15y

average per farm



p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Financial performance by herd size

Farm financial performance of southern Australian beef cattle producing farms varies between different herd size groups.

In 2014–15 receipts from the sale of beef cattle increased on all farms (on average) because of increased turn-off and higher sale prices for cattle sold. Farm cash incomes are estimated to have increased for all herd sizes except for large producers, as a result of lower sheep, lamb and crop receipts (Table 10).

Generally, farm cash incomes and farm business profits and rates of return are higher for larger herd size producers. However, in 2014–15 medium herd size farms are estimated to have the lowest average rate of return (excluding capital appreciation) at -0.1 per cent. The financial performance of small and medium herd size beef cattle producing farms depends more on outcomes for cropping, sheep and wool. As a result of a large increase in beef receipts, as well as increased sheep and lamb receipts and a relatively small reduction in crop receipts, small herd size farms are estimated to have rates of return of 0.9 per cent in 2014–15. Large herd size producers are estimated to have an average rate of return of 1.3 per cent and very large herd size producers are estimated to have a rate of return of 3.2 per cent.

Table 10 Financial performance, beef cattle producing farms, southern Australia, by herd size

average per farm

Farm cash receipts	unit				Small			Medium		
		2012–13	2013–14p	2014–15y	2012–13	2013–14p	2014–15y			
Beef cattle sales—total	\$	52 580	50 400	(10)	68 000	83 150	81 400	(8)	110 000	
Sheep, lambs and wool sales	\$	55 050	84 800	(32)	92 000	56 400	54 000	(44)	59 000	
Total crop receipts	\$	86 130	101 300	(59)	90 000	81 350	63 400	(88)	71 000	
Total cash receipts	\$	215 990	258 700	(28)	270 000	238 530	212 500	(37)	249 000	
Farm cash costs										
Beef cattle purchases	\$	8 590	7 100	(41)	8 000	11 420	11 200	(19)	10 000	
Beef cattle transferred in	\$	60	0	(93)	0	0	300	(107)	0	
Wages for hired labour	\$	4 900	5 800	(40)	6 000	4 910	4 400	(42)	6 000	
Interest paid	\$	13 420	12 400	(40)	11 000	16 300	17 400	(37)	15 000	
Total cash costs	\$	168 510	184 200	(28)	174 000	178 860	169 400	(28)	175 000	
Farm capital and debt										
Farm capital at 30 June	\$	2 715 300	2 791 900	(15)	2 788 000	3 084 670	2 756 800	(18)	2 789 000	
Farm debt at 30 June	\$	192 820	219 500	(44)	158 000	253 720	252 300	(39)	239 000	
Equity ratio	%	93	92	(4)	na	92	91	(3)	na	
Farm financial performance										
Farm cash income	\$	47 470	74 500	(31)	96 000	59 670	43 100	(81)	74 000	
Farm business profit	\$	-30 270	-19 500	(94)	7 000	-23 470	-42 400	(61)	-21 000	
Profit at full equity	\$	-11 950	-4 300	(493)	21 000	-2 600	-20 000	(164)	-2 000	
Rate of return										
- excluding capital appreciation	%	-0.4	-0.2	(499)	0.9	-0.1	-0.7	(182)	-0.1	
- including capital appreciation	%	0.3	0.9	(147)	na	0.1	0.2	(356)	na	
Other										
Off-farm income a	\$	64 080	48 800	(18)	na	44 490	50 600	(17)	na	

continued...

Table 10 Financial performance, beef cattle producing farms, southern Australia, by herd size (continued)

average per farm

Farm cash receipts	unit	Large			Very large				
		2012–13	2013–14 ^p	2014–15 ^y	2012–13	2013–14 ^p	2014–15 ^y		
Beef cattle sales—total	\$	154 350	185 300	(7)	207 000	497 840	559 900	(18)	565 000
Sheep, lambs and wool sales	\$	76 210	110 500	(20)	82 000	158 250	172 200	(14)	148 000
Total crop receipts	\$	112 830	122 700	(29)	90 000	291 880	164 700	(29)	80 000
Total cash receipts	\$	369 300	456 900	(11)	384 000	1 020 200	974 400	(12)	872 000
Farm cash costs									
Beef cattle purchases	\$	23 660	30 200	(22)	25 000	64 700	63 200	(102)	63 000
Beef cattle transferred in	\$	0	0	(122)	0	4 390	4 700	(241)	4 000
Wages for hired labour	\$	12 520	16 000	(22)	14 000	64 640	66 600	(13)	57 000
Interest paid	\$	27 970	31 600	(18)	24 000	80 920	82 500	(15)	73 000
Total cash costs	\$	273 100	324 000	(11)	262 000	797 650	726 700	(15)	601 000
Farm capital and debt									
Farm capital at 30 June	\$	4 556 070	5 092 300	(6)	4 377 000	10 941 700	10 686 200	(6)	9 352 000
Farm debt at 30 June	\$	425 470	474 700	(16)	379 000	1 351 710	1 347 700	(13)	1 244 000
Equity ratio	%	91	91	(3)	na	88	87	(6)	na
Farm financial performance									
Farm cash income	\$	96 200	132 800	(17)	121 000	222 550	247 700	(14)	271 000
Farm business profit	\$	11 410	8 700	(225)	14 000	140 300	80 000	(42)	168 000
Profit at full equity	\$	45 190	46 600	(44)	45 000	236 930	174 100	(20)	253 000
Rate of return									
– excluding capital appreciation	%	1.0	0.9	(42)	1.3	2.2	1.6	(20)	3.2
– including capital appreciation	%	1.2	1.1	(62)	na	1.8	0.9	(79)	na
Other									
Off-farm income ^a	\$	57 880	47 600	(20)	na	39 080	31 100	(13)	na

^a Average per responding farm. ^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 Agricultural and Grazing Industries Survey

Financial performance of southern specialist beef cattle producers

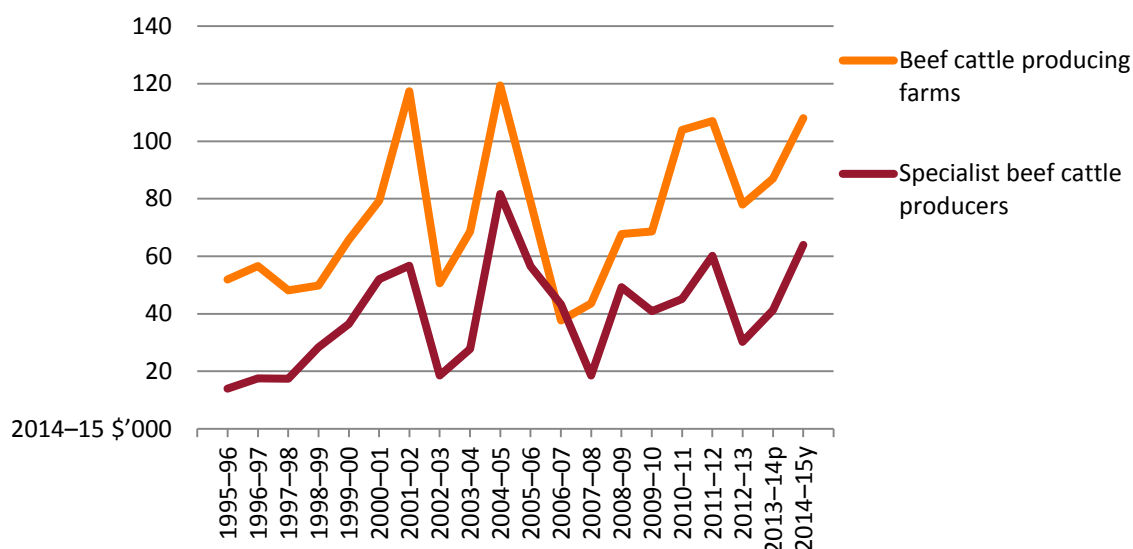
Around 60 per cent of beef cattle producing farms in southern Australia are classified as specialist producers, deriving more than 50 per cent of average farm cash receipts from the sale of beef cattle. Specialist beef cattle producing farms account for the majority of farms in the southern high rainfall zone.

On average, specialist beef cattle producers in southern Australia derived 80 per cent of their average total cash receipts from the sale of beef cattle in the three years ending 2014–15 (Table 9). Over most of the past two decades, average farm cash income of specialist beef cattle producers in southern Australia have been substantially below the average of all beef cattle producing farms in southern Australia (Figure 17). This is mainly because many specialist beef cattle farms in southern Australia have small scales of operation.

In 2013–14 increased cattle turn-off more than offset lower average sale prices for beef cattle, resulting in average beef cattle receipts of southern specialist beef producing farms increasing by 5 per cent and average total cash receipts by 6 per cent. Average cash costs remained largely unchanged and average farm cash income of specialist beef cattle producing farms in southern Australia increased to average \$38 100 a farm in 2013–14.

In 2014–15 increased turn-off and higher prices received for beef cattle are estimated to have resulted in an increase of 32 per cent in beef cattle receipts. Total cash costs are estimated to have increased only slightly and average farm cash income of specialist southern Australian beef cattle producing farms is estimated to increase to \$64 000 a farm in 2014–15 (Table 9). This is around 35 per cent above the average for the 10 years ending 2013–14.

Figure 17 Farm cash income, beef producers, southern Australia, 1995–96 to 2014–15y
average per farm



p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Influence of small specialist beef farms

Average farm cash income of specialist beef farms has been lower than that of other categories of broadacre farms, including cropping specialists and sheep specialists, for most of the past 20 years.

Farm cash income of specialist beef cattle producers in southern Australia averaged \$38 700 a farm for the 20 years ending 2013–14, compared with an average of \$72 600 for all beef cattle producing farms (Figure 17). The average rate of return excluding capital appreciation for specialist beef cattle producers in southern Australia for the 20 years ending 2013–14 was –0.7 per cent, compared with 0.4 per cent for sheep specialists and 3.4 per cent for cropping specialists.

The relatively low average farm cash incomes and rates of return of specialist beef cattle producing farms are largely a consequence of the high proportion of small herd size specialist beef farms in the Australian beef industry (Jackson & Valle 2015). Around 39 per cent of specialist beef producers carry less than 400 head of cattle. These farms account for only 15 per cent of the total value of beef production. Larger specialist beef farms, particularly those carrying greater than 800 head of beef cattle, are generally profitable and generate positive rates of return. Specialist beef farms with greater than 800 head of beef cattle account for the majority of Australian beef production. In 2012–13 and 2013–14 farms with greater than 800 head of beef cattle accounted for 55 per cent of the total gross value of beef cattle sales (Table 11).

Small farms have low productivity, low farm cash incomes and low rates of return because they produce relatively little output given their input use. Two major inputs that are potentially overused on small beef farms are labour and land. Productivity growth in the Australian beef industry averaged 1.3 per cent a year between 1977–78 and 2012–13. Exclusion of the smallest farms (farms with less than \$200 000 in farm receipts) results in the estimate of beef industry productivity rising to average 2.0 per cent a year (Jackson & Valle 2015), a higher rate of productivity growth than the 1.5 per cent estimated for cropping farms over the same period ([Chapter 6](#)).

Two factors in particular explain the high proportion of small, largely unprofitable farms in the beef industry. One is that the amount of labour required to operate a beef enterprise can be relatively low. As such it is well suited to being run on a part-time basis by people with off-farm employment or by people in semi-retirement.

On average, over the two years 2012–13 and 2013–14, all of the disposable income of operators (owner–manager and partner) of specialist beef farms with less than 400 head of cattle was earned off-farm (the farm income was negative) and almost 70 per cent of the disposable income of farms with 400 to 800 head of beef cattle. Around 65 per cent of the off-farm income of farms with less than 400 head of cattle was earned from wages and salaries; total off-farm income was more than double that of farms with herd sizes exceeding 800 head. Although many of the operators of small beef farms work off-farm, or have partners that work off-farm, many are also older and substantially reliant on investment, superannuation or pension income. The presence of these older farmers is reflected in the higher average age of owner–managers of small herd size farms (Table 11).

Table 11 Profile of beef cattle producing farms, by herd size, 2012–13 and 2013–14p

average per farm/percentage of beef cattle producers

Characteristic	unit	Specialist producers			Mixed enterprise producers		
		Less than 400 head	400 to 800 head	More than 800 head	Less than 400 head	400 to 800 head	More than 800 head
Share of beef cattle producing farms	%	39	16	15	21	6	3
Share of value of production	%	15	14	55	6	5	5
Location of farms							
Northern Australia	%	24	40	74	8	24	34
High-rainfall zone	%	62	57	29	42	29	39
Wheat–sheep zone	%	36	37	39	52	55	36
Pastoral zone	%	2	6	33	7	16	24
Physical							
Area of land operated	ha	600	2 200	50 200	4 000	7 500	44 300
Beef cattle	no.	200	600	3 000	200	500	1 500
Sheep	no.	60	170	260	2 090	3 030	5 180
Area or crops	ha	30	50	90	390	610	1 040
Capital structure							
Total capital value	\$m	2.0	3.7	10.1	4.1	6.7	12.8
Composition							
Livestock	%	9	11	20	7	9	12
Plant, vehicles and machinery	%	7	6	4	12	12	8
Land, fixed improvements and water rights	%	84	82	75	81	79	80
Farm financial performance							
Farm cash income	\$	9 100	43 400	176 300	120 700	215 800	301 100
Farms with negative farm cash income	%	40	29	23	15	18	18
Return on total capital	%	-2.6	-0.7	0.8	1.1	2.3	2.4

continued...

Table 11 Profile of beef cattle producing farms, by herd size, 2012–13 and 2013–14p (continued)

average per farm/percentage of beef cattle producers

Finance a	unit	Specialist producers			Mixed enterprise producers		
		Less than 400 head	400 to 800 head	More than 800 head	Less than 400 head	400 to 800 head	More than 800 head
Farm business debt	\$	65 000	241 000	1 122 000	489 000	927 000	2 202 000
Equity ratio	%	97	93	88	88	86	81
Median age of owner–managers	years	63	63	59	58	58	58
Disposable income of owner–manager and partner a							
Farm income	\$	–3 000	17 000	80 000	57 000	109 000	135 000
Off-farm income	\$	45 000	38 000	20 000	36 000	32 000	31 000
Composition of off-farm income							
Investment (including other businesses and superannuation)	%	32	54	55	30	40	56
Wages and salaries	%	65	41	34	60	49	34
Government sourced payments	%	4	5	11	10	10	10
Total disposable income	\$	42 000	56 000	100 000	93 000	141 000	166 000
Share of disposable income earned off-farm	%	100	69	20	39	23	19

a Family operated farms only. p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

The second factor explaining the high proportion of small farms is that small beef farms are often located in high rainfall regions and close to population centres, so they have greater access to off-farm employment. They also have land values that are relatively high and influenced by non-agricultural factors, resulting in faster increases in value over time than generally occurs in areas mostly reliant on agriculture. The average rate of return including capital appreciation of specialist beef cattle producers in southern Australia for the 20 years ending 2013–14 was 3.3 per cent. This includes around 4.0 per cent appreciation in land value each year. Capital appreciation represents the return on the ownership of land separate from the return generated by operating the beef enterprise. Capital gains can only be realized by selling farm land so cannot be used to support day-to-day cash flow. Operating a small, low-return beef enterprise on relatively high valued land has been an opportunity for many beef producers to grow or maintain their wealth while enjoying a desirable lifestyle (Jackson & Valle 2015).

The number of small specialist beef farms has changed relatively little over the 20 years to 2013–14 (Jackson & Martin 2014). Future change is also likely to be slow because there is little reason for these farms to adjust and farms seeking to expand are unlikely to purchase the relatively high priced land used by these farms.

Per kilogram live weight cost of beef production and operating margins

The on-farm cost of beef production expressed on a per kilogram live weight basis declined between 2008–09 and 2013–14. Producers pared back farm expenditure to maintain operating margins in response to reduced prices received for beef cattle over this period.

Box 3 Calculation of the per kilogram cost of beef production

Additional questions to enable the calculation of the per kilogram live weight cost of beef production were included in the 2007–08, 2008–09, 2012–13 and 2013–14 AAGIS.

These additional questions included the live weight of cattle and calves sold or transferred off-the farm and the proportion of key variable costs attributable to beef, sheep and cropping enterprises on mixed enterprise farms. These key variable costs included: crop and pasture chemicals, fertiliser, fodder, fuel, repairs and maintenance, contracts paid, veterinary and livestock materials and hired labour and family labour.

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

Total live weight of beef production was derived by adjusting the total live weight sold and transferred off-farm for change 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 standardised 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 costs of production were derived by dividing the beef enterprise share of costs by the total live weight of beef produced.

For the two years 2007–08 and 2008–09 the average price received by beef cattle producing farms for cattle sold was 183 cents per kilogram live weight. This price declined to an average of 148 cents per kilogram for the two years 2012–13 and 2013–14 (19 per cent lower in real terms) (Table 12).

Operating margins declined between the two periods because lower average prices received for cattle sold were only partly offset by producers cutting back farm expenditure and by reductions in interest rates (Table 12). The margin of price received per kilogram over cash, finance and depreciation costs declined from an average of 22 cents per kilogram for 2007–08 and 2008–09 to an average of 20 cents per kilogram for 2012–13 and 2013–14.

Around one-third of the reduction in cost of production over this period was because of reduced expenditure on purchase of cattle, with around 50 per cent of this reduction a result of lower cattle prices and the remaining 50 per cent the result of a decrease in the number of cattle purchased.

Table 12 Per kilogram live weight cost of beef production and operating margins, beef cattle producing farms

average per farm

Cash costs	unit	2007–08 and 2008–09		2012–13 and 2013–14	
Cattle purchases	c/kg	30	(6)	19	(5)
Repairs and maintenance	c/kg	13	(4)	12	(3)
Administration	c/kg	6	(4)	5	(4)
Crop and pasture chemicals	c/kg	3	(6)	2	(6)
Fertiliser	c/kg	5	(7)	4	(6)
Fodder	c/kg	11	(10)	9	(5)
Freight	c/kg	7	(4)	5	(3)
Handling and marketing	c/kg	6	(3)	3	(4)
Fuel, oil and grease	c/kg	9	(3)	8	(2)
Hired labour	c/kg	7	(6)	6	(5)
Livestock materials and veterinary chemicals	c/kg	5	(5)	4	(3)
Contracts paid	c/kg	5	(5)	5	(5)
Rates	c/kg	5	(4)	5	(3)
Other	c/kg	8	(5)	7	(5)
Total cash costs	c/kg	121	(2)	96	(2)
Finance costs					
Interest paid	c/kg	20	(5)	13	(5)
Land rent paid	c/kg	2	(11)	2	(7)
Total finance costs	c/kg	22	(5)	15	(4)
Capital depreciation	c/kg	18	(4)	17	(3)
Value of unpaid owner–manager, partner and family labour	c/kg	32	(4)	34	(3)
Total cost of production excluding unpaid labour	c/kg	161	(2)	128	(2)
Total cost of production	c/kg	193	(2)	162	(2)
Price received	c/kg	183	(2)	148	(2)
Operating margin					
– over cash costs	c/kg	62	(6)	52	(4)
– over cash and finance costs	c/kg	40	(10)	37	(6)
– over cash, finance and depreciation costs	c/kg	22	(19)	20	(12)
– over cash, finance, depreciation and the value of unpaid labour costs	c/kg	–10	(47)	–14	(20)

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 2014–15 dollars.

Source: ABARES Australian Agricultural and Grazing Industries Survey

The other large cost reduction was in interest payments on farm debt. Lower interest payments accounted for 21 per cent of the reduction in the cost of production. Around 80 per cent of this reduction was because of a decrease in interest rates paid on farm debt and around 20 per cent

was because of a reduction in average debt per farm. Reductions also occurred in expenditure across most other cost categories, except shire rates and land rents.

When the value of unpaid owner–manager, partners and other family labour is included in the costs of production, the operating margin achieved by beef cattle producing farms in the period 2007–08 to 2008–09 and 2012–13 to 2013–14 was negative. A large amount of unpaid labour is used in family operated beef cattle producing farms, particularly smaller specialist beef farms.

The reductions made in farm expenditure in response to low cattle prices in 2012–13 and 2013–14 are unlikely to represent a sustainable cost of production over the longer term, as they result in a run-down in farm productive capital and declines in herd size.

Farms with high operating margins

Farms in the AAGIS in 2007–08, 2008–09, 2012–13 and 2013–14 were ranked using the margin of price received per kilogram of live weight sold over total costs per kilogram of live weight produced. Farms were classified into two groups—the third of producers with the highest operating margin and all other farms.

The value of unpaid family labour was included in calculating total cost to enable comparison of production cost across all farms regardless of whether they use mainly unpaid family labour or hired labour. However, since the value of unpaid family labour is not a monetary cost paid by farm businesses, it is not always considered by these farms when making production and business management decisions.

Averaged over the two time periods, farms with high operating margins were predominantly farms with low costs of production, carried larger herds and sold cattle at higher live weights (Table 12).

Table 13 Characteristics of high operating margin beef producers, 2007–08, 2008–09, 2012–13 and 2013–14^a

average per farm/percentage of beef cattle producers

Characteristics	unit	Southern Australia					Northern Australia				
		High margin producers	All other producers	High margin producers	All other producers						
Low cost of production farms b	%	70 (5)	14 (12)	**	63 (6)	9 (21)	**				
Average beef cattle number	no.	642 (4)	324 (2)	**	2 564 (4)	959 (5)	**				
Farms in high-rainfall zone	%	51 (1)	57 (1)	**	22 (1)	36 (2)	**				
Farms in wheat–sheep zone	%	42 (1)	41 (1)	–	50 (1)	43 (1)	**				
Farms in pastoral zone	%	3 (1)	4 (1)	–	28 (1)	20 (3)	**				
Specialist producers	%	51 (6)	65 (3)	**	82 (3)	85 (2)	–				
Mixed enterprise producers	%	49 (6)	35 (5)	**	18 (16)	15 (11)	–				
Farms selling cattle for live export	%	4 (25)	1 (26)	–	7 (15)	3 (21)	**				
Branding rate	%	88 (2)	87 (1)	–	74 (1)	68 (2)	**				
Death rate	%	2 (6)	2 (5)	–	2 (6)	4 (9)	**				
Net turn-off rate	%	37 (3)	34 (3)	–	27 (4)	26 (3)	–				
Average sale weight	kg	490 (2)	455 (1)	**	519 (3)	429 (2)	**				
Average price per kg live weight sold	\$	160 (2)	157 (2)	–	151 (3)	157 (2)	–				
Cattle sold over hooks	%	25 (9)	17 (10)	**	45 (6)	34 (7)	**				
Equity ratio at 30 June	%	91 (1)	89 (1)	–	90 (1)	88 (1)	–				
Debt to receipts ratio	%	99 (6)	146 (5)	**	159 (7)	219 (5)	**				
Age of owner–manager	years	57 (1)	61 (1)	**	56 (2)	62 (1)	**				
Proportion of owner–manager and spouse disposable income earned off-farm	%	29 (9)	86 (9)	**	13 (13)	96 (24)	**				

a Farms classified to the third of producers with highest margin of price received over total costs per kilogram of live weight produced. **b** Farms classified to the third of producers with lowest total cost per kilogram of live weight produced.

** Differences between estimates are significant from zero at the 95 per cent confidence level.

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 2014–15 dollars.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Farms with high operating margins were more likely to be located in the wheat–sheep or pastoral zones than in the high rainfall zone. These farms also sold a higher proportion of their cattle direct to processors (over the hooks) and carried less debt relative to their business size, consuming a smaller proportion of their farm receipts to service borrowing. High operating margin farms were also operated by younger farmers, on average.

In southern Australia, farms with high operating margins were more likely to be mixed enterprise farms. In northern Australia, they had higher herd productivity with higher branding rates and lower death rates (post branding).

The operators of high margin farms also earned less of their household disposable income off-farm. In addition to farm business expenditure, total costs include some of the private expenditure of the operating family (such as use of electricity, motor vehicle expenses, shire

rates and insurance). These costs account for a larger share of the total costs of production for small beef farms; the share is largest for small farms operated by families with substantial off-farm income.

4 Farm investment

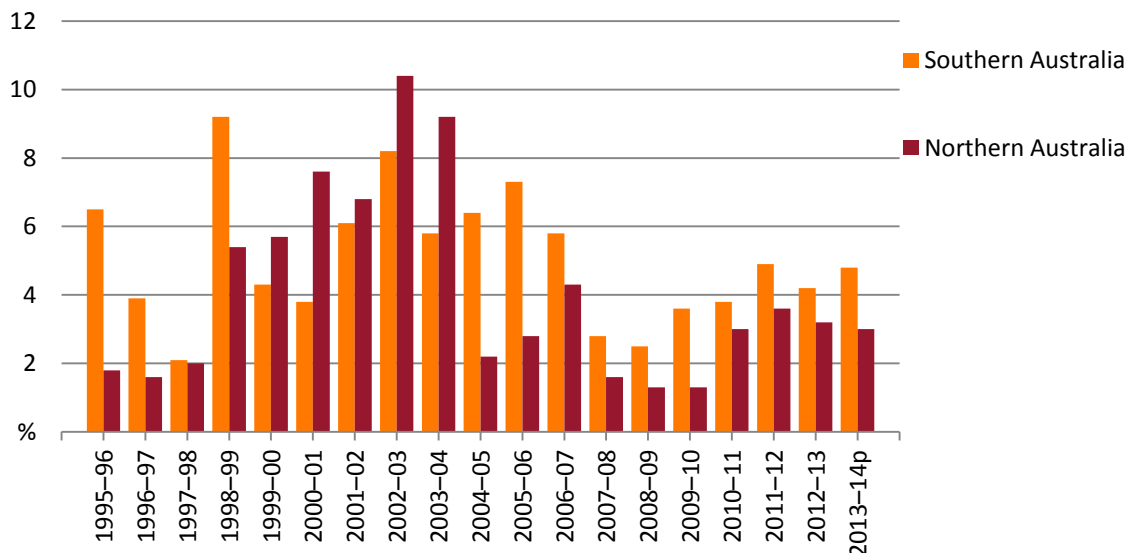
Producers’ capacity to generate farm income is influenced by their past investments in additional land to expand the scale of their farming activities and in new infrastructure, plant and machinery to boost productivity in the longer term.

Between 2003–04 and 2013–14 beef cattle producers have undertaken considerable new investments in land, plant and machinery.

The proportion of beef cattle producing farms acquiring land was high in northern and southern Australia between 1999–2000 and 2006–07 (Figure 18). The proportion dropped sharply in 2007–08 and has been lower since, particularly in northern Australia. Although still low relative to its peak, land acquisition has increased since 2008–09.

Figure 18 Proportion of beef producing farms acquiring land, Australia, 1995–96 to 2013–14p

average per farm

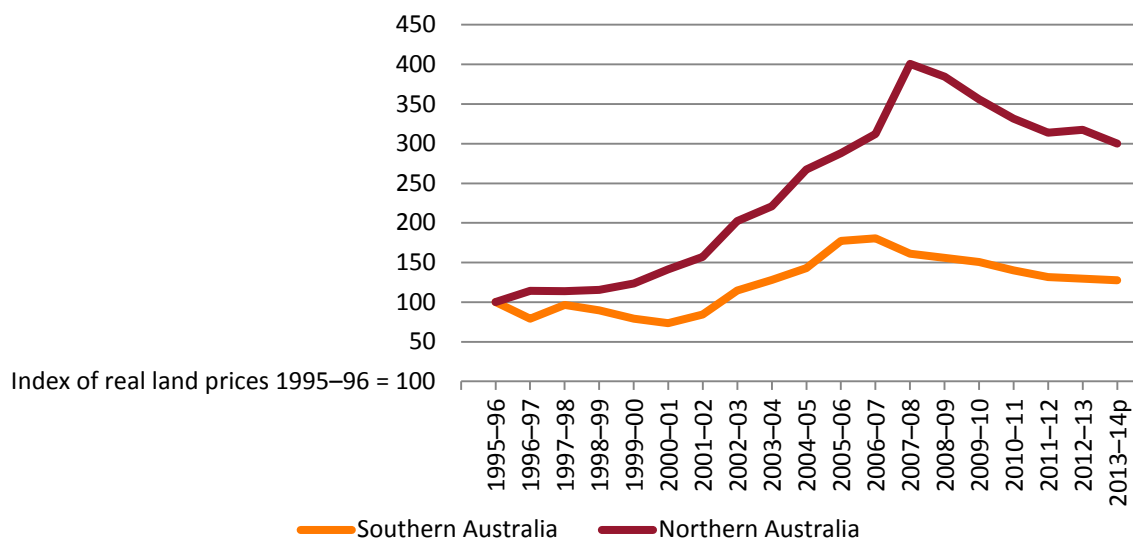


p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Land values of beef cattle producing farms declined between 2007–08 and 2013–14. In some regions of northern Australia, values reported in 2013–14 were as much as 30 per cent below those reported in 2007–08 (in nominal terms). Much smaller reductions in land values occurred in high rainfall and grain growing regions in southern Australia, where most southern beef cattle producing farms are located.

Increases in land values in northern Australia between 1997–98 and 2007–08 were very large compared with the increases recorded in southern Australia (Figure 19). Increase in land values in northern Australia were also very large compared with only a small trend increase in farm cash income per hectare over this period.

Figure 19 Change in land values, beef cattle producing farms, 1995–96 to 2013–14p

p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Only a relatively small proportion of beef cattle producing farms buy land in any one year, but most producers make some investment in plant, vehicles, machinery and/or infrastructure each year. Because of the much larger average value of land transactions, the value of land purchases dominates total investment.

Net investment in plant, vehicles, machinery and farm infrastructure has been relatively high for beef cattle producing farms since 2006–07, but declined in 2013–14 (Figure 20 and Figure 21) particularly for farms subject to drought.

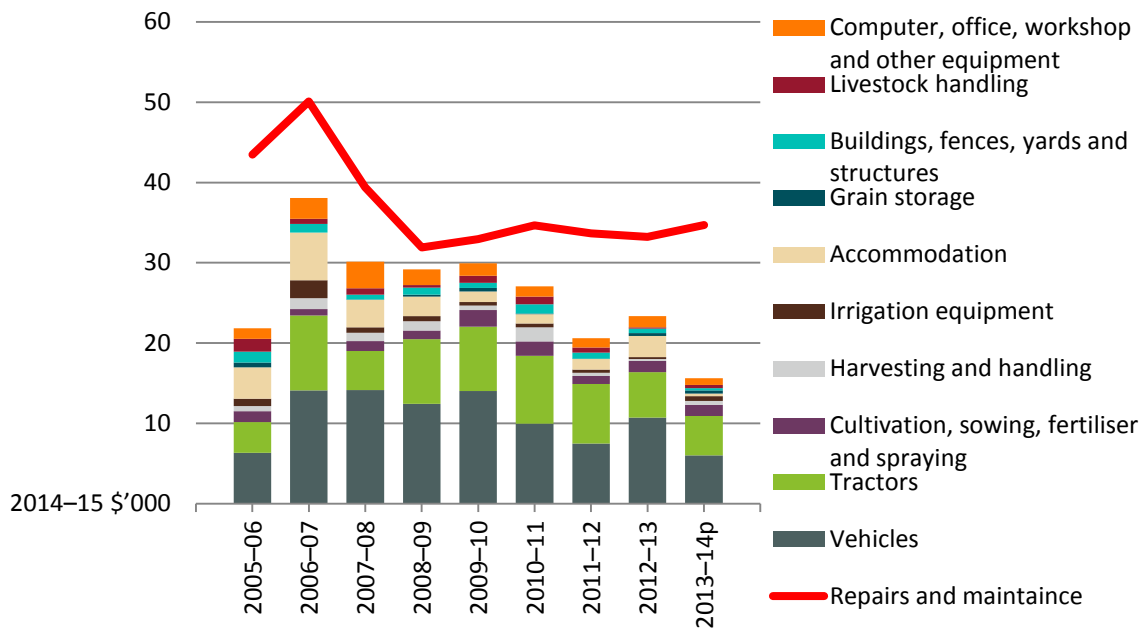
Net investment is the difference between the total value of plant, vehicles, machinery and farm infrastructure purchased and the total value of those items sold or disposed of. In addition to acquiring new capital items and replacing old items, farmers invest in ongoing maintenance and repair of existing plant, vehicles, machinery and farm infrastructure. This expenditure is recorded in ABARES surveys as the cash cost of repairs and maintenance. A significant proportion of reported annual expenditure on repairs and maintenance is the capital cost of replacing and upgrading items of farm capital, such as fencing, stockyards and watering facilities. Annual expenditure on repairs and maintenance is strongly correlated with farm income. Expenditure on repairs and maintenance rises in years of high farm cash income and decreases in years of lower farm cash incomes.

In northern Australia, fencing, stockyards and watering facilities account for a high proportion of total farm capital value. Expenditure on repair and maintenance of this infrastructure, together with plant machinery and vehicle repairs, typically exceeds net capital additions (Figure 20). Since 2008–09 expenditure on repairs and maintenance has remained steady and net capital additions has trended downward as total farm cash receipts have declined.

In the five years ending 2013–14 motor vehicles accounted for around 41 per cent of average total net capital additions for northern beef cattle producing farms and for 28 per cent of average total net capital additions of southern beef cattle producing farms (Figure 21). The greater reliance of many southern beef cattle producers on crop production is reflected in higher net investment each year in tractors, crop harvesting equipment and cultivation and planting equipment.

Figure 20 Composition of non-land net capital additions, northern Australian beef producing farms, 2005-06 to 2013-14p

average per farm

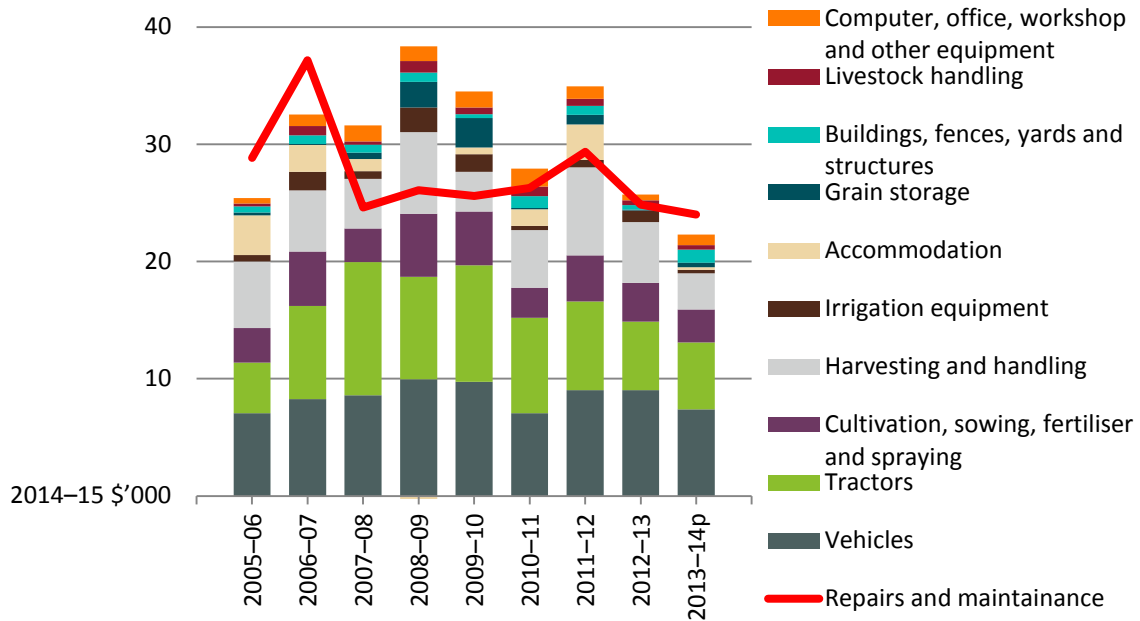


p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 21 Composition of non-land net capital additions, southern Australian beef producing farms, 2005–06 to 2013–14p

average per farm



p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

5 Farm debt

More than 95 per cent of beef cattle producing farms are family-owned and operated. For family farms, funding for farm expansion and improvement is limited to the funds available to the family, the profits the farm business can generate and the funds it can borrow. Debt is an important source of funds for farm investment and ongoing working capital.

Average debt per farm business almost doubled in real terms for beef cattle producing farms between 2000–01 and 2008–09 in both northern Australia and southern Australia (Figure 22 and Figure 23).

Several factors contributed to the growth in debt over this period, including:

- lower interest rates
- large increases in land values raising borrowing capacity
- increases in farm size
- changes in commodities produced
- reduced farm cash incomes because of widespread and extended drought conditions.

The largest contribution to increases in farm debt in the past two decades has been borrowing to fund new investment, particularly purchase of land, machinery and vehicles, and to develop land and farm improvements. Debt to fund land purchase accounts for the largest share of debt on beef cattle producing farms, accounting for an estimated 54 per cent of average debt in northern Australia and 48 per cent of average debt in southern Australia in 2013–14.

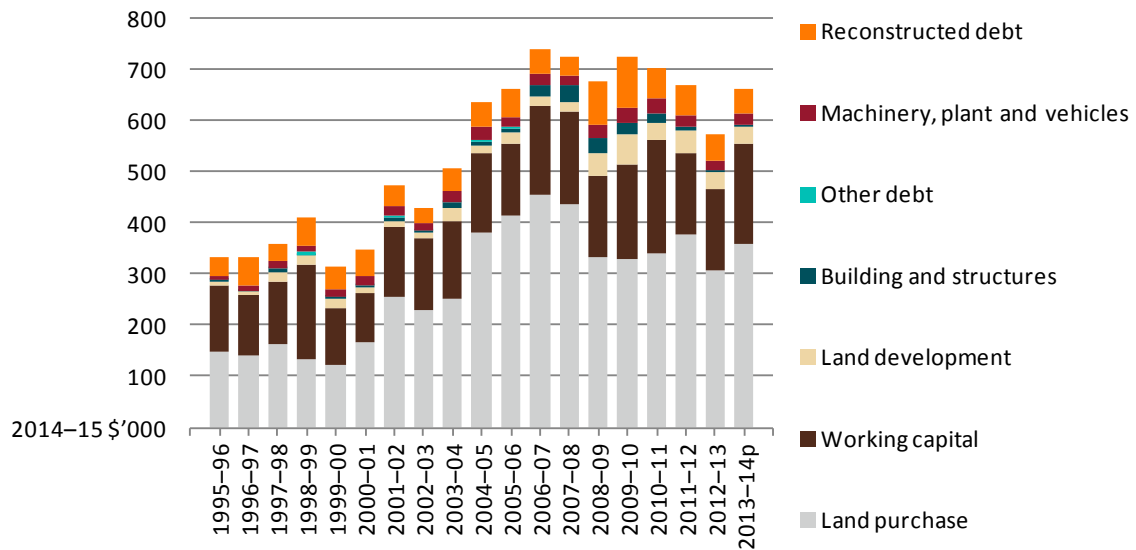
Increased size of farm enterprises over the past decade resulted in higher borrowing for ongoing working capital. Additionally, borrowing to meet working capital requirements increased for producers subject to drought during the 2000s and again in northern Australia in 2012–13 and 2013–14. Wet seasonal conditions in 2010–11 and 2011–12 and the reduction in exports of live cattle between 2010 and 2013 resulted in low cattle turn-off and reduced farm receipts in northern Australia. Working capital debt was second only to land purchase debt, accounting for 30 per cent of average farm debt in northern Australia in 2013–14 and 36 per cent of average debt in southern Australia.

According to AAGIS data, average farm debt of beef cattle producing farms has declined slightly since 2008–09 as a result of a reduction in new borrowing and continued debt repayments, particularly in southern Australia (Figure 22 and Figure 23).

The proportion of farms increasing debt declined in 2010–11 to close to the historical lows recorded in 2000–01. However, the proportion of northern Australian farms borrowing additional funds increased again in 2012–13 and 2013–14 (Figure 24) as farm cash incomes declined for northern farms subject to drought.

Figure 22 Composition of farm business debt, northern Australian beef cattle producing farms, 1995–96 to 2013–14p

average per farm

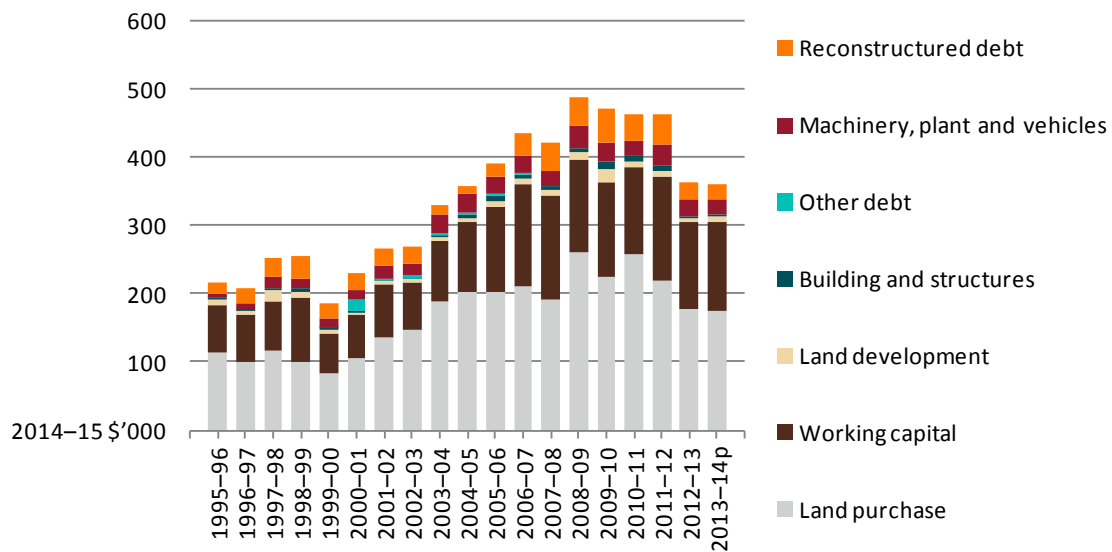


p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 23 Composition of farm business debt, southern Australian beef cattle producing farms, 1995–96 to 2013–14p

average per farm

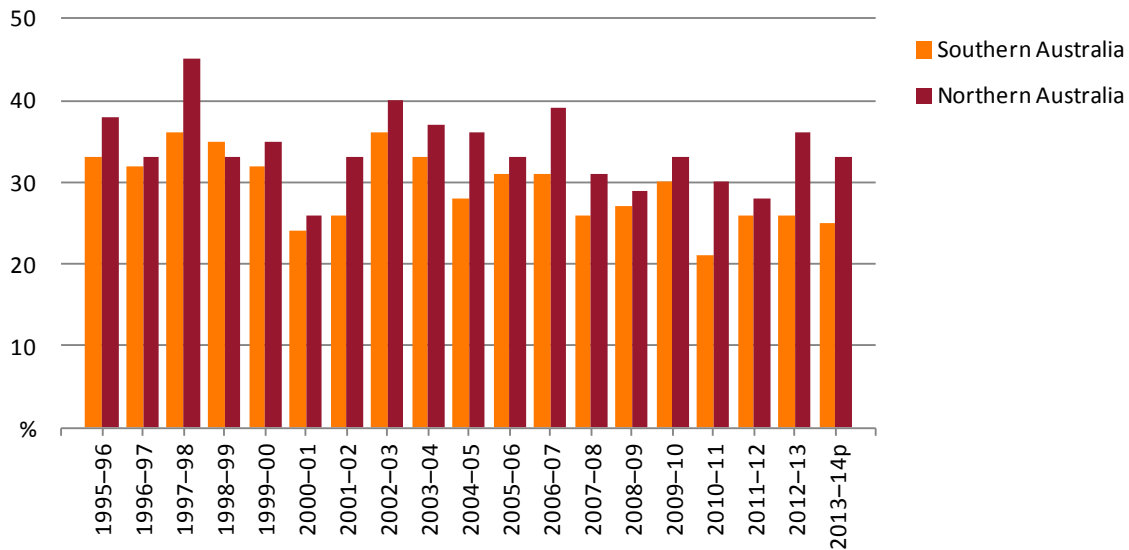


p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 24 Proportion of beef cattle producing farms increasing farm business debt, 1995–96 to 2013–14p

average per farm



p Preliminary estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Change in farm debt and the effect of drought in 2013–14

Average farm business debt increased by around 2 per cent for beef cattle producing farms in northern Australia during 2013–14 to average \$647 000 a farm. In southern Australia, debt is estimated to have remained largely unchanged at an average of \$365 000 a farm at 30 June 2014.

In 2014–15 an increase in average farm debt of around 4 per cent is expected for beef cattle producing farms in northern Australia and an increase of around 2 per cent is expected in southern Australia. Increases are expected in borrowing to fund new investment as farm cash incomes rise and borrowing to fund cash shortfalls, particularly for farms experiencing drought.

Farms subject to drought in 2013–14

In 2013–14, 28 per cent of beef cattle producing farms were subject to drought conditions, mostly farms located in Queensland and northern New South Wales. Debt increased by an average of 4 per cent for drought-affected farms in 2013–14, but this average masks substantial variation.

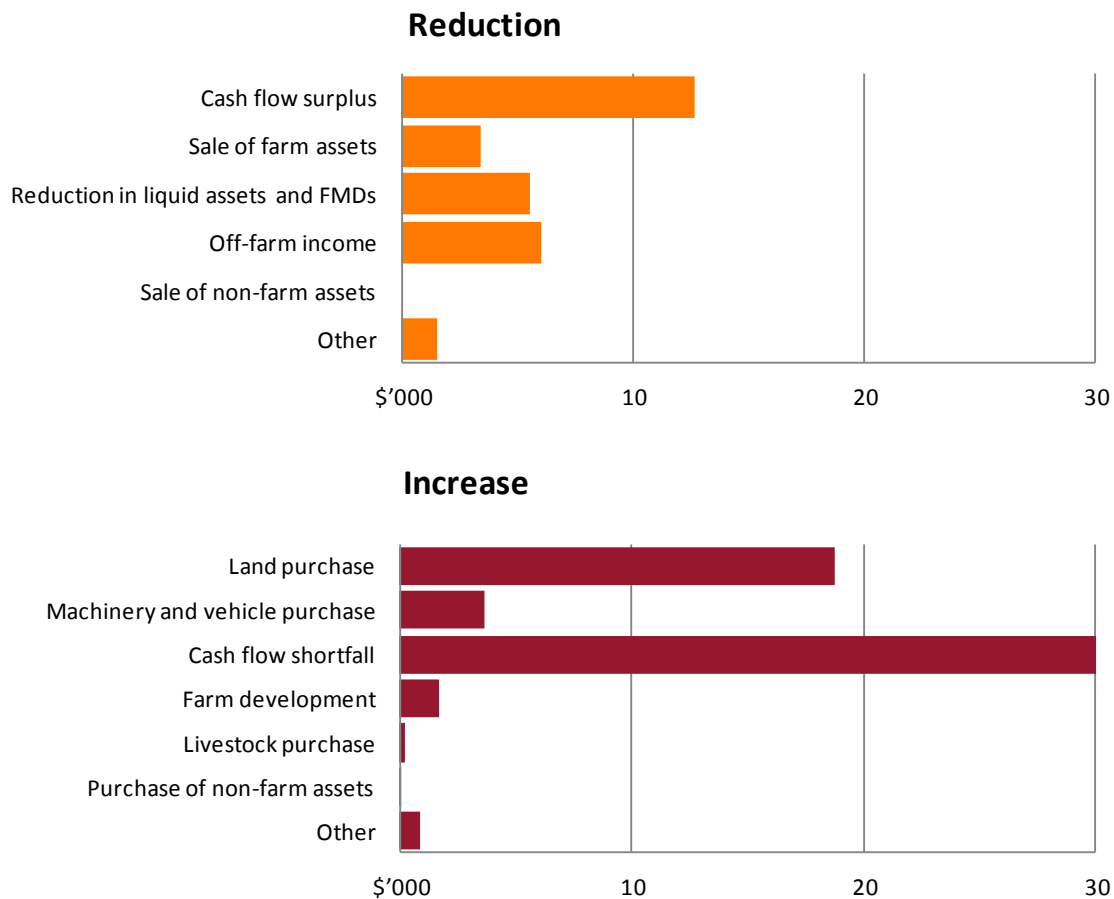
Debt increased for 31 per cent of farms subject to drought, by an average of 16 per cent. Cash flow shortfall (business losses) accounted for 54 per cent of the increase in principal owed by drought-affected farms in 2013–14. A further 34 per cent went to the purchase of land; 7 per cent to the purchase of farm machinery and vehicles; 3 per cent to farm development, including provision of watering facilities; and 2 per cent to other purposes (Figure 24).

Around 34 per cent of farms subject to drought recorded little or no change in farm debt in 2013–14.

Debt decreased for 36 per cent of farms subject to drought, by an average of 11 per cent. The main contributor to reductions in farm debt was cash flow, mainly from sale of cattle. This accounted for 43 per cent of the reduction in principal owed. A further 21 per cent of the reduction was achieved using off-farm income; 19 per cent using liquid assets, including bank

deposits and farm management deposits; 12 per cent from the sale of farm assets; and 5 per cent from other sources.

Figure 25 Change in debt of beef cattle producing farms subject to drought, 2013–14^p
average per farm

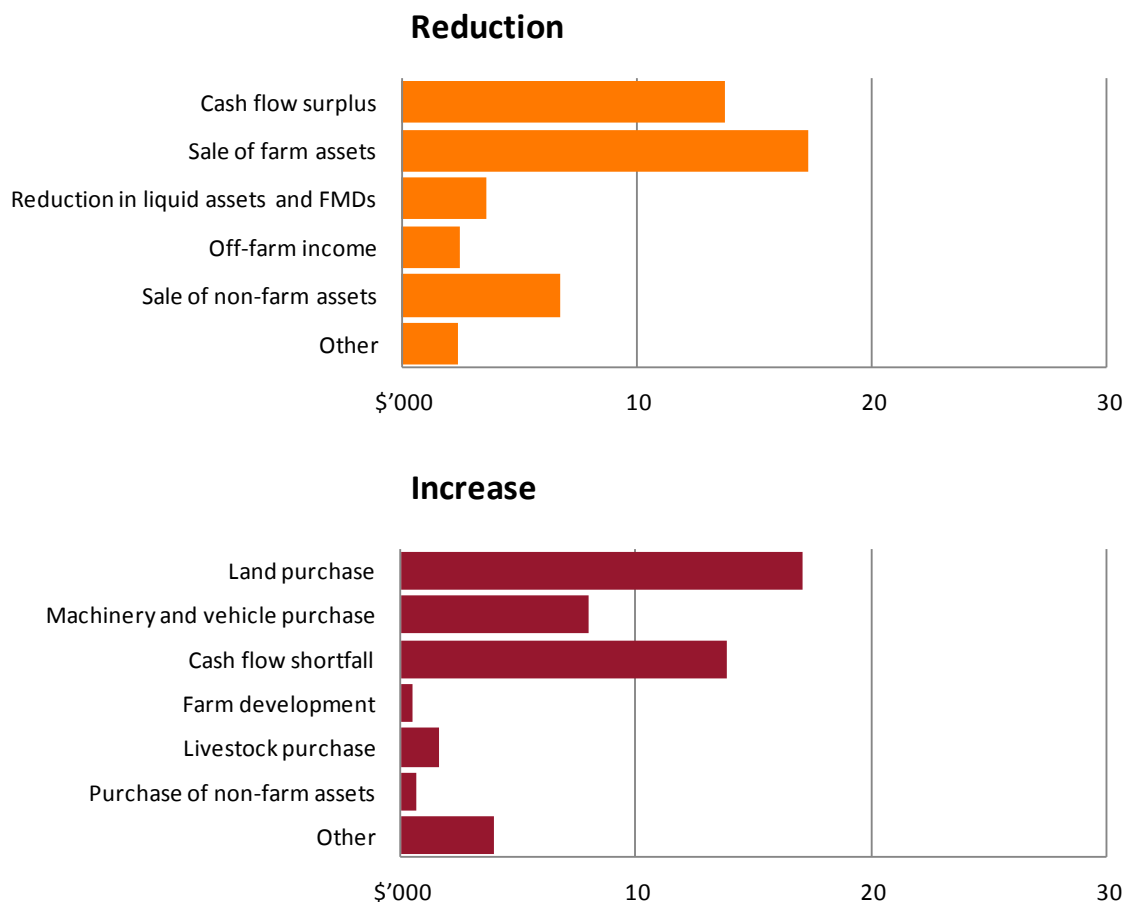


FMDs Farm management deposits. **p** Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Drought affects farm businesses in many ways in addition to debt. Cattle numbers, stocks of grain and fodder and, typically, liquid assets available are reduced to fund cash outlays. The combined effect in 2013–14 was that farm business equity declined for 54 per cent of drought-affected farms. On average, farm business equity declined by \$110 000 and farm equity ratio declined by 1 per cent for drought-affected farms.

For drought-affected farms with greater than 800 head of cattle, farm business debt increased by more, an average of 5 per cent, and farm business equity declined by an average of \$300 000 in 2013–14. The average farm equity ratio declined from 86 per cent to 84 per cent. Larger farm businesses generally operate with lower equity ratios and beef cattle account for more than 20 per cent of farm assets (Table 14). As a result, during drought these farms incur larger reductions in equity compared with smaller farms, as cattle numbers are reduced.

Figure 26 Change in debt of beef cattle producing farms not subject to drought, 2013–14p
average per farm



FMDs Farm management deposits. **p** Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Farms not subject to drought in 2013–14

The majority of beef cattle producing farms (72 per cent of farms) were not subject to drought in 2013–14. For these farms debt decreased by an average of 1 per cent.

Around 40 per cent of farms not affected by drought in 2013–14 recorded little or no change in farm debt.

Debt increased for 25 per cent of farms not affected by drought, by an average of 23 per cent in 2013–14. Land purchase accounted for 37 per cent of the increase in principal owed. A further 30 per cent went to cover cash flow shortfalls; 17 per cent to the purchase of farm machinery and vehicles; 4 per cent to livestock purchase; 2 per cent to purchase non-farm assets; 1 per cent to farm development; and 9 per cent to other purposes. Most of the ‘other’ category went to funding change in business ownership or partnership arrangements (Figure 24).

Debt decreased for 35 per cent of farms not affected by drought, by an average of 22 per cent. The main contributor to reductions in farm debt was the sale of farm assets. This accounted for 37 per cent of the reduction in principal owed. Cash flow surplus accounted for 30 per cent of the reduction; 15 per cent from the sale of non-farm assets; 8 per cent from reduction in liquid assets; 5 per cent from off-farm income; and 5 per cent from other sources.

Distribution of farms by debt and equity

The proportion of beef cattle producing farms with relatively high debt varies across regions and herd sizes (Table 14 and Table 15). Around 11 per cent of farms in southern Australia, 16 per cent of farms in northern Australia (Map 1) and 19 per cent of farms in the northern live cattle export region (Map 4) carried in excess of \$1 million in debt at 30 June 2014. The higher proportion of such farms in northern Australia and the northern live cattle export region largely reflects the higher proportion of large and very large herd size businesses in those regions (Table 1).

In contrast, around 60 per cent of beef cattle producing farms in southern Australia and 51 per cent in northern Australia were recorded as having less than \$100 000 in debt at 30 June 2013. A high proportion of these businesses are small and medium herd size farms, but 19 per cent of very large herd size businesses were also recorded as having less than \$100 000 in debt at 30 June 2014.

The general increase in land values to 2008 boosted the equity most farmers have in their businesses. For some farms, reductions in farm debt, increases in capital investment and increased livestock numbers have resulted in further improvement in farm equity. However, in several regions farm equity is estimated to have fallen significantly over the past three years as a result of reductions in reported land values and lower cattle inventory values (reduced cattle numbers).

On average, farm business equity remains strong for most beef cattle producing farms. The average equity ratio for beef cattle producing farms at 30 June 2014 was estimated to be 87 per cent for northern Australian farms and 90 per cent for southern Australian farms.

Ten per cent of beef cattle producing farms in northern Australia, 6 per cent in southern Australia and around 16 per cent in the northern live cattle export region were estimated to have equity ratios below 70 per cent in 2013–14. In contrast, 68 per cent of beef cattle producing farms in northern Australia and 75 per cent in southern Australia were estimated to have equity ratios exceeding 90 per cent at 30 June 2014. Equity ratios are typically lower for larger herd size farms because they are able to service larger debts.

Table 14 Distribution of northern beef cattle producing farms, by farm business debt and equity ratio, at 30 June 2014 ap

percentage of farms

Farm business debt	unit	Small		Medium		Large		Herd size Very large		Northern Australian live cattle export region		Northern Australia	
<\$100 000	%	77	(7)	36	(17)	31	(24)	19	(35)	43	(23)	51	(7)
\$100 000 and <\$250 000	%	9	(41)	10	(38)	8	(41)	na	-	17	(52)	10	(24)
\$250 000 and <\$500 000	%	7	(50)	11	(37)	15	(33)	1	(95)	8	(54)	10	(23)
\$500 000 and <\$1m	%	4	(79)	29	(19)	10	(35)	4	(83)	14	(39)	14	(17)
\$1m and <\$2m	%	3	(74)	7	(45)	16	(31)	2	(56)	5	(47)	8	(26)
≥\$2m	%	0	-	7	(31)	19	(19)	74	(10)	14	(24)	8	(13)
Total	%	100	-	100	-	100	-	100	-	100	-	100	-
Average farm debt at 30 June	\$	139 000	(25)	546 000	(13)	1 268 000	(13)	5 390 000	(16)	1 050 000	(22)	647 000	(8)
Farm business equity ratio													
≥90 per cent	%	84	(5)	57	(11)	60	(10)	30	(26)	65	(18)	68	(5)
80 and <90 per cent	%	10	(40)	21	(25)	21	(24)	20	(31)	14	(36)	17	(17)
70 and <80 per cent	%	1	(83)	9	(38)	9	(27)	24	(32)	5	(52)	6	(24)
60 and <70 per cent	%	2	(135)	10	(30)	5	(55)	9	(48)	10	(71)	6	(27)
<60 per cent	%	3	(79)	3	(73)	4	(43)	18	(36)	6	(32)	4	(36)
Total	%	100	-	100	-	100	-	100	-	100	-	100	-
Average farm business equity ratio at 30 June	%	94	(2)	88	(2)	87	(2)	78	(4)	84	(4)	87	(1)
Population of farms	no.	3 080	-	3 460	-	1 590	-	345	-	1590	-	8 470	-

a Excludes debt for large corporate farms. **p** Preliminary estimate.. **na** Not available.

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 15 Distribution of southern beef cattle producing farms, by farm business debt and equity ratio, at 30 June 2014 ap

percentage of farms

Farm business debt	unit	Herd size						Southern Australia			
		Small	Medium	Large	Very large						
<\$100 000	%	71	(10)	65	(9)	44	(16)	28	(26)	60	(6)
\$100 000 and <\$250 000	%	8	(37)	18	(29)	25	(27)	10	(41)	16	(17)
\$250 000 and <\$500 000	%	11	(33)	7	(31)	7	(38)	5	(46)	8	(19)
\$500 000 and <\$1m	%	4	(111)	4	(40)	8	(37)	11	(48)	5	(31)
\$1m and <\$2m	%	4	(49)	4	(36)	9	(30)	28	(26)	7	(17)
≥\$2m	%	2	(108)	2	(71)	6	(36)	18	(23)	4	(26)
Total	%	100	-	100	-	100	-	100	-	100	-
Average farm debt at 30 June	\$	220 000	(44)	253 000	(40)	479 000	(17)	1 347 000	(16)	365 000	(15)
Farm business equity ratio											
≥90 per cent	%	79	(5)	77	(7)	74	(6)	47	(17)	75	(4)
80 and <90 per cent	%	12	(26)	15	(35)	13	(29)	24	(27)	14	(18)
70 and <80 per cent	%	5	(33)	5	(39)	5	(43)	13	(36)	5	(19)
60 and <70 per cent	%	3	(91)	1	(89)	5	(42)	11	(42)	3	(33)
<60 per cent	%	1	(74)	3	(46)	3	(58)	5	(65)	3	(29)
Total	%	100	-	100	-	100	-	100	-	100	-
Average farm business equity ratio at 30 June	%	92	(3)	91	(2)	90	(2)	87	(3)	90	(1)
Population of farms	no.	6 160	-	7 670	-	3 710	-	1 520	-	19 060	-

a Excludes debt for large corporate farms. **p** Preliminary estimate. **na** Not available.

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

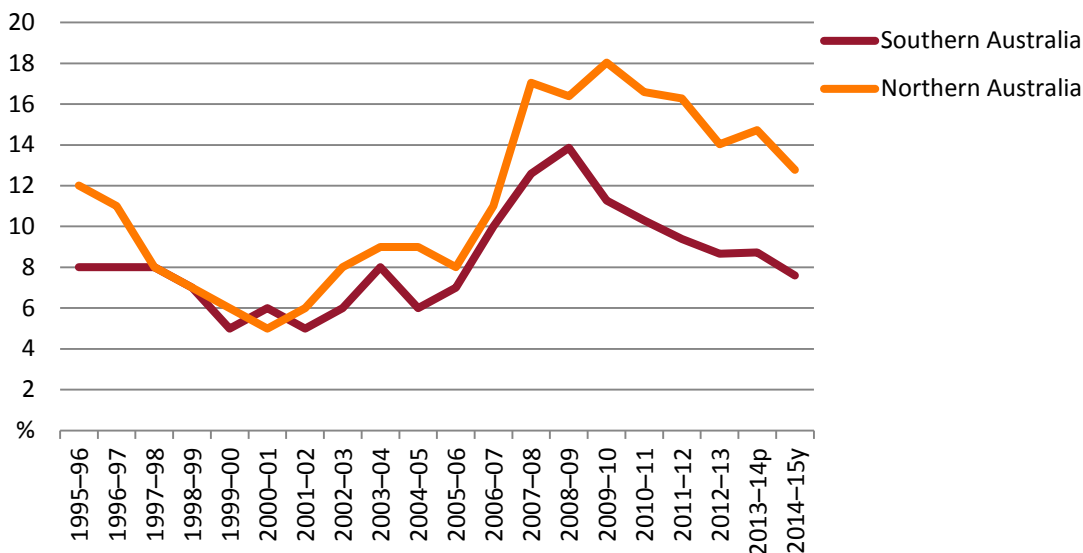
Debt servicing

The proportion of farm receipts needed to fund interest payments rose substantially between 2000–01 and 2009–10. This was because extended drought conditions led to large increases in farm debt and reduced farm receipts. Interest rate subsidies paid to farm businesses (as drought assistance) partially offset the increase in interest paid between 2001–02 and 2007–08.

Lower interest rates in 2011–12, 2012–13 and 2013–14 resulted in a decline in farm receipts needed to fund interest payments. In southern Australia, in 2014–15 the ratio of interest payments to farm receipts is estimated to decline further to 8 per cent. In northern Australia, the ratio is expected to decrease to 13 per cent (Figure 27). The proportion of farm receipts needed to meet interest payments in 2014–15 in northern Australia and southern Australia is similar to that recorded in the mid 1990s.

Figure 27 Ratio of interest payments to total cash receipts, beef cattle producing farms, 1995–96 to 2014–15y

average per farm



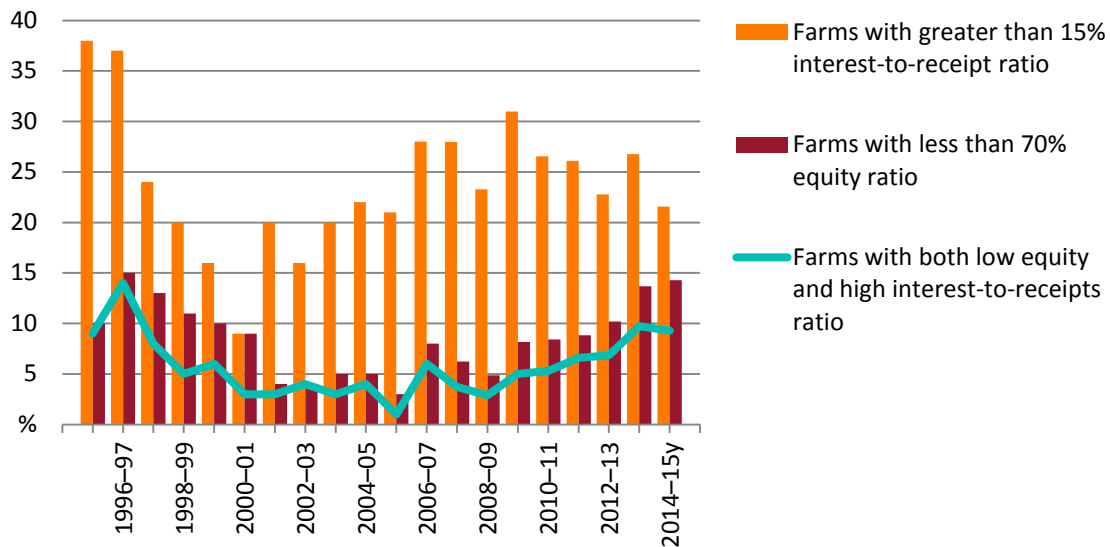
p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Farm businesses’ capacity to undertake further borrowing depends on the equity or security farmers have in their businesses and their capacity to service increased debt from farm receipts. The proportion of beef cattle producing farm businesses in northern Australia that have relatively low additional borrowing capacity (equity ratio of less than 70 per cent) and relatively high debt servicing commitments (interest-to-receipts ratios exceeding 15 per cent) has increased significantly since 2007–08 to an estimated 10 per cent in 2013–14 and is estimated to have declined to 9 per cent in 2014–15. The 2014–15 estimate is well below the high of 14 per cent recorded in 1996–97, when beef cattle prices were historically low (Figure 28).

Figure 28 Debt servicing and borrowing capacity, northern Australian beef cattle producing farms, 1995–96 to 2014–15y

percentage of farms



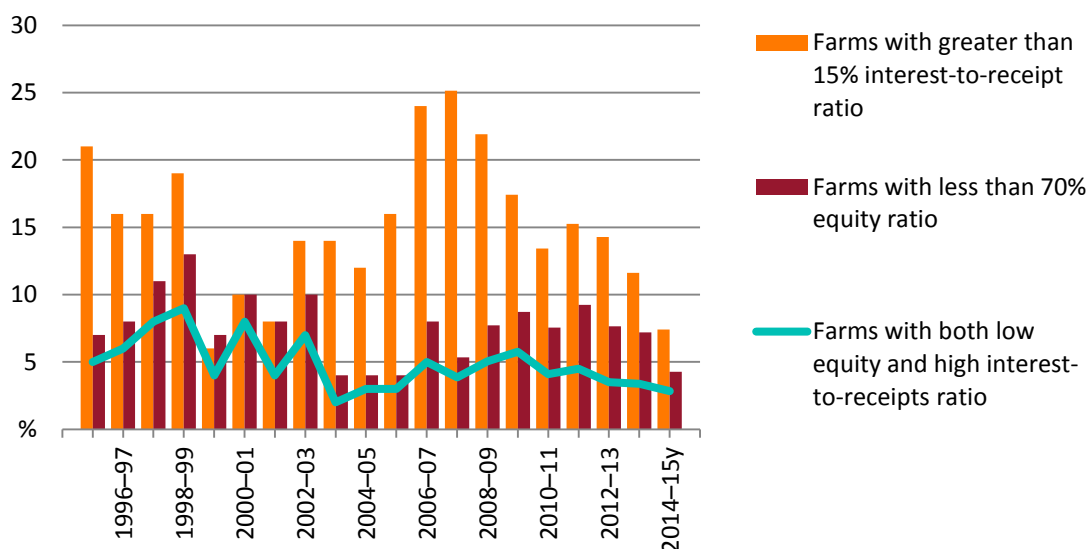
p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

The proportion of beef cattle producing farm businesses in southern Australia that have relatively low borrowing capacity and relatively high debt servicing commitments declined from 6 per cent in 2009–10 to around 3 per cent in 2013–14 and is estimated to have remained at 3 per cent in 2014–15. This is similar to the low proportion recorded from 2003–04 to 2005–06 (Figure 29).

Figure 29 Debt servicing and borrowing capacity, southern Australian beef cattle producing farms, 1995–96 to 2014–15y

percentage of farms



p Preliminary estimate. y Provisional estimate.

Source: ABARES Australian Agricultural and Grazing Industries Survey

6 Productivity

ABARES produces a number of productivity estimates relating to the Australian broadacre and dairy industries (Box 4). The principal measure is total factor productivity (TFP), defined as the ratio of total market outputs to total market inputs. TFP growth is a useful indicator of trends in the efficiency of agricultural production as it captures the overall effect of changes in multiple inputs and outputs. Partial factor productivity (PFP)—also measured by ABARES—captures changes in total output relative to single inputs, such as output per hectare of land.

Box 4 Productivity statistics produced by ABARES

The ABARES preferred estimate of productivity is total factor productivity (TFP), which is the ratio of a quantity index of market outputs relative to a quantity index of market inputs. To achieve annual industry-level TFP estimates, ABARES aggregates multiple outputs and inputs across farms using the Fisher index. Average annual TFP growth rates are estimated by fitting an exponential trend line. A detailed description of ABARES TFP methodology is in Zhao, Sheng & Gray (2012).

Data used to estimate the productivity of Australia's broadacre (non-irrigated cropping and grazing) and dairy industries are collected annually through the ABARES national farm survey programme. A consistent methodology has been applied to broadacre farms since 1977–78 and to dairy farms since 1978–79.

The broadacre and dairy industries are defined by the Australian and New Zealand Standard Industrial Classification (ANZSIC), described in the [Surveys methods and definitions](#) section of this report.

Together, the broadacre and dairy industries accounted for 73 per cent of commercial-scale Australian farm businesses and for an estimated 60 per cent of the total gross value of Australian agricultural production in 2013–14. In addition, these farms managed more than 90 per cent of the total area of agricultural land in Australia and accounted for most of Australia's family owned and operated farms (ABARES 2014).

Productivity growth is generally measured over the long term because it is usually treated as an indicator of technological progress, which can involve significant time lags in both on-farm implementation and realised benefits. Short-term variability in productivity can be dominated by seasonal conditions rather than reflecting shifts in underlying technology or efficiency.

Beef industry productivity grew at an average rate of 1.3 per cent a year between 1977–78 and 2012–13, reflecting growth in industry output of 1.1 per cent a year and a decline in aggregate input use of 0.2 per cent a year (Table 16). Productivity growth was supported by improved pastures, herd genetics and disease management, which increased branding rates (calves marked as a percentage of cows mated) and lower mortalities (ABARE 2006).

Table 16 Average annual beef total factor productivity growth by region, 1977–78 to 2012–13

Category	Productivity growth	Output growth	Input growth
All beef specialists	1.3	1.1	-0.2
Southern region	0.5	1.2	0.7
Northern region	1.4	1.0	-0.4

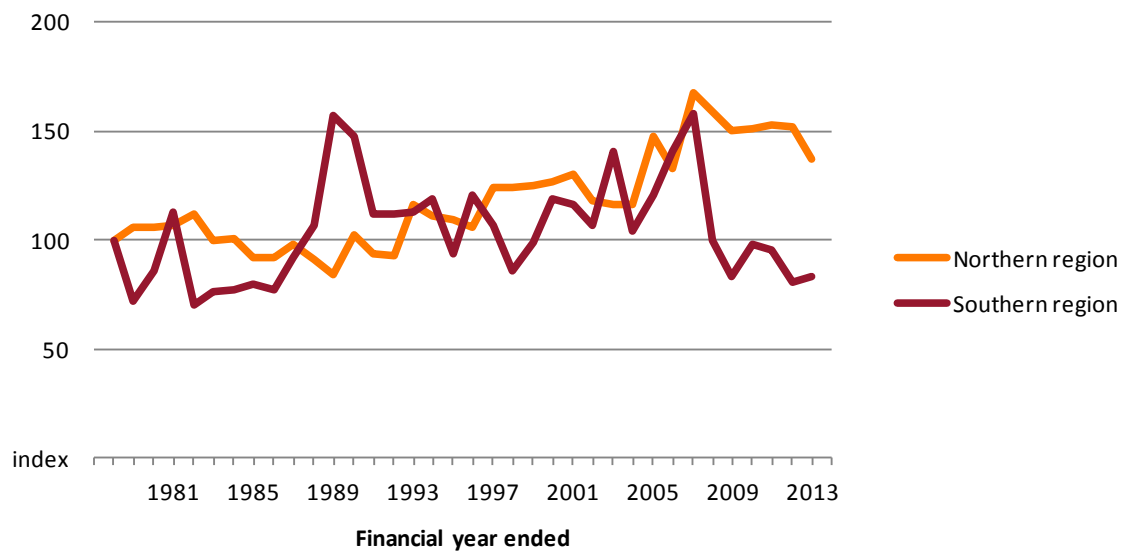
Source: ABARES

The northern beef region achieved average productivity growth of 1.4 per cent a year, driving output growth of 1.0 per cent a year and a decrease in input use of 0.4 per cent a year. The disciplines of the Brucellosis and Tuberculosis Eradication Campaign of the 1980s led to improved reproductive performance and reduced death rates, which yielded significant productivity gains in later years. Managers culled poor performing stock and invested significantly in fences, on-farm infrastructure and cattle management systems. Expansion of the

feedlot sector and the live export trade during the 1990s drove shifts in herd structure and greater use of hardy *Bos indicus* breeds (Gleeson, Martin & Mifsud 2012).

In contrast, productivity growth in the southern region was significantly lower at 0.5 per cent a year. This was a consequence of substantially higher input growth (0.7 per cent a year), particularly in land, fertiliser and chemicals, without commensurate output growth. Productivity growth was also more variable, largely because of climate factors (Figure 30). Southern beef farms tend to be more intensive and diversified than those in the northern region. As a result, productivity growth in the southern region is relatively more sensitive to drought conditions, which increase consumption of purchased feed and drive significant destocking and restocking cycles that hamper output growth.

Figure 30 Trends in total factor productivity in northern and southern beef industries, 1977–78 to 2012–13



Source: ABARES Australian Agricultural and Grazing Industry Survey

Beef properties in the southern region are smaller on average than those in the northern region. Smaller beef producers tend to be less profitable and realise lower productivity growth than larger producers. The greater prevalence of smaller scale beef properties in the south, with less capacity to invest in on-farm improvements, may be a factor in constraining productivity growth in that region. More information about the determinants of profitability and productivity in the beef industry is presented in Jackson and Valle (2015).

Survey methods and definitions

ABARES has conducted surveys of selected Australian agricultural industries since the 1940s. These surveys provide a broad range of information on the economic performance of farm business units in the rural sector. This comprehensive dataset is used for research and analysis that forms the basis of many publications, briefing material and industry reports. Since 1977–78 ABARES has conducted the annual Australian Agricultural and Grazing Industries Survey (AAGIS) to provide a set of data that are collected nationally using a consistent methodology.

Definitions of industries

Industry definitions are based on the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC06). This classification is in line with an international standard applied comprehensively across Australian industry, permitting comparisons between industries, both within Australia and internationally. Farms assigned to a particular ANZSIC have a high proportion of their total output characterised by that class. Further information on ANZSIC and on farming activities included in each of these industries is provided in Australian and New Zealand Standard Industrial Classification (ABS 2006).

The five broadacre industries covered by AAGIS are:

- Wheat and other crops industry (ANZSIC06 Class 0146 and 0149)
 - farms engaged mainly in growing rice, other cereal grains, coarse grains, oilseeds and/or pulses
- Mixed livestock–crops industry (ANZSIC06 Class 0145)
 - farms engaged mainly in running sheep and/or beef cattle and growing cereal grains, coarse grains, oilseeds and/or pulses
- Sheep industry (ANZSIC06 Class 0141)
 - farms engaged mainly in running sheep
- Beef industry (ANZSIC06 Class 0142)
 - farms engaged mainly in running beef cattle
- Sheep–beef industry (ANZSIC06 Class 0144)
 - farms engaged mainly in running both sheep and beef cattle.

Target populations

AAGIS is designed from a population list drawn from the Australian Business Register (ABR) and maintained by the Australian Bureau of Statistics (ABS). The ABR comprises businesses registered with the Australian Taxation Office. The ABR-based population list provided to ABARES consists of agricultural establishments with their corresponding geography code (currently Australian Statistical Geography Standard), ANZSIC, and a size of operation variable.

ABARES surveys target farming establishments that make a significant contribution to the total value of agricultural output (commercial farms). Farms excluded from ABARES surveys will be

the smallest units and in aggregate will contribute less than 2 per cent to the total value of agricultural production for the industries covered by the surveys.

The size of operation variable used in ABARES survey designs is usually ‘estimated value of agricultural operations’ (EVAO). However, in some surveys in recent years other measures of agricultural production have also been used. EVAO is a standardised dollar measure of the level of agricultural output. A definition of EVAO is given in *Agricultural industries: financial statistics* (ABS 2001). Since 2004–05 the ABARES survey has included establishments classified as having an EVAO of \$40 000 or more. Between 1991–92 and 2003–04 the survey included establishments with an EVAO of \$22 500 or more. Between 1987–88 and 1990–91 the survey included establishments with an EVAO of \$20 000 or more. Before 1987–88 the survey included establishments with an EVAO of \$10 000 or more.

Survey design

The target population is grouped into strata defined by ABARES region, ANZSIC and size of operation. The sample allocation 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.

A large proportion of sample farms is retained from the previous year’s survey. The sample chosen each year maintains a high proportion of the sample between years to accurately measure change while meeting the requirement to introduce new sample farms. New farms are introduced to account for changes in the target population, as well as to reduce the burden on survey respondents.

The sample size for AAGIS is usually around 1 600 farms.

The main method of collecting data is face-to-face interviews with the owner–manager of the farm business. Detailed physical and financial information is collected on the operations of the farm business during the preceding financial year. Respondents to AAGIS are also contacted by telephone in October each year to obtain estimates of projected production and expected receipts and costs for the current financial year. ABARES surveys also allow supplementary questionnaires to be attached to the main or to the telephone surveys. These additional questions help address specific industry issues—such as grain cost of production, livestock management practices and adoption of new technologies on dairy farms.

Sample weighting

ABARES survey estimates are calculated by appropriately weighting the data collected from each sample farm and then using the weighted data to calculate population estimates. Sample weights are calculated so that population estimates from the sample for numbers of farms, areas of crops and numbers of livestock correspond as closely as possible to the most recently available Australian Bureau of Statistics (ABS) estimates from its Agricultural Census and surveys.

The weighting methodology for AAGIS uses a model-based approach, with a linear regression model linking the survey variables and the estimation benchmark variables. The details of this method are described in Bardsley and Chambers (1984).

For AAGIS, the benchmark variables provided by the ABS include:

- total number of farms in scope
- area planted to wheat, rice, other cereals, grain legumes (pulses) and oilseeds
- closing numbers of beef and sheep.

Generally, larger farms have smaller weights and smaller farms have larger weights. This reflects both the strategy of sampling a higher fraction of the larger farms than smaller farms and the relatively lower numbers of large farms. Large farms have a wider range of variability of key characteristics and account for a much larger proportion of total output.

Reliability of estimates

The reliability of the estimates of population characteristics published by ABARES depends on the design of the sample and the accuracy of the measurement of characteristics for the individual sample farms.

Preliminary estimates and projections

Estimates for 2012–13 and all earlier years are final. All data from farmers, including accounting information, have been reconciled; final production and population information from the ABS has been included and no further change is expected in these estimates.

The 2013–14 estimates are preliminary, based on full production and accounting information from farmers. However, editing and addition of sample farms may be undertaken and ABS production and population benchmarks may also change.

The 2014–15 estimates are projections developed from the data collected through on-farm and telephone interviews from October to December, as well as from the preliminary estimates. Projection estimates include crop and livestock production, receipts and expenditure up to the date of interview together with expected production, and receipts and expenditure for the remainder of the projection year. Modifications are made to expected receipts and expenditure where significant production and price change has occurred post interview. Projection estimates are necessarily subject to greater uncertainty than preliminary and final estimates.

Preliminary and projection estimates of farm financial performance are produced within a few weeks of the completion of survey collections. However, these may be updated several times at later dates. These subsequent versions will be more accurate, as they will be based on upgraded information and slightly more accurate input datasets.

Sampling errors

Only a subset of farms out of the total number of farms in a particular industry is surveyed. The data collected from each sample farm 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 influenced by the survey design and the estimation procedures, as well as the sample size and the variability of farms in the population. The larger the sample size, the lower the sampling error is likely to be. Hence, national estimates are likely to have lower sampling errors than industry and state estimates.

To give a guide to the reliability of the survey estimates, standard errors are calculated for all estimates published by ABARES. These estimated errors are expressed as percentages of the survey estimates and termed ‘relative standard errors’.

Calculating confidence intervals using relative standard errors

Relative standard errors can be used to calculate ‘confidence intervals’ that give an indication of how close the actual population value is likely to be to the survey estimate.

To obtain the standard error, multiply the relative standard error by the survey estimate and divide by 100. For example, if average total cash receipts are estimated to be \$100 000 with a relative standard error of 6 per cent, the standard error for this estimate is \$6 000. This is one standard error. Two standard errors equal \$12 000.

There is roughly a two-in-three chance that the ‘census value’ (the value that would have been obtained if all farms in the target population had been surveyed) is within one standard error of the survey estimate. This range of one standard error is described as the 66 per cent confidence interval. In this example, there is an approximately two-in-three chance that the census value is between \$94 000 and \$106 000 (\$100 000 plus or minus \$6 000).

There is roughly a 19-in-20 chance that the census value is within two standard errors of the survey estimate (the 95 per cent confidence interval). In this example, there is an approximately 19-in-20 chance that the census value lies between \$88 000 and \$112 000 (\$100 000 plus or minus \$12 000).

Comparing estimates

When comparing estimates between two groups, it is important to recognise that the differences are also subject to sampling error. As a rule of thumb, 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 taking the square root of the result.

For example, suppose the estimates of total cash receipts were \$100 000 in the beef industry and \$125 000 in the sheep industry—a difference of \$25 000—and the relative standard error is given as 6 per cent for each estimate. The standard error of the difference can be estimated as:

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

A 95 per cent confidence interval for the difference is:

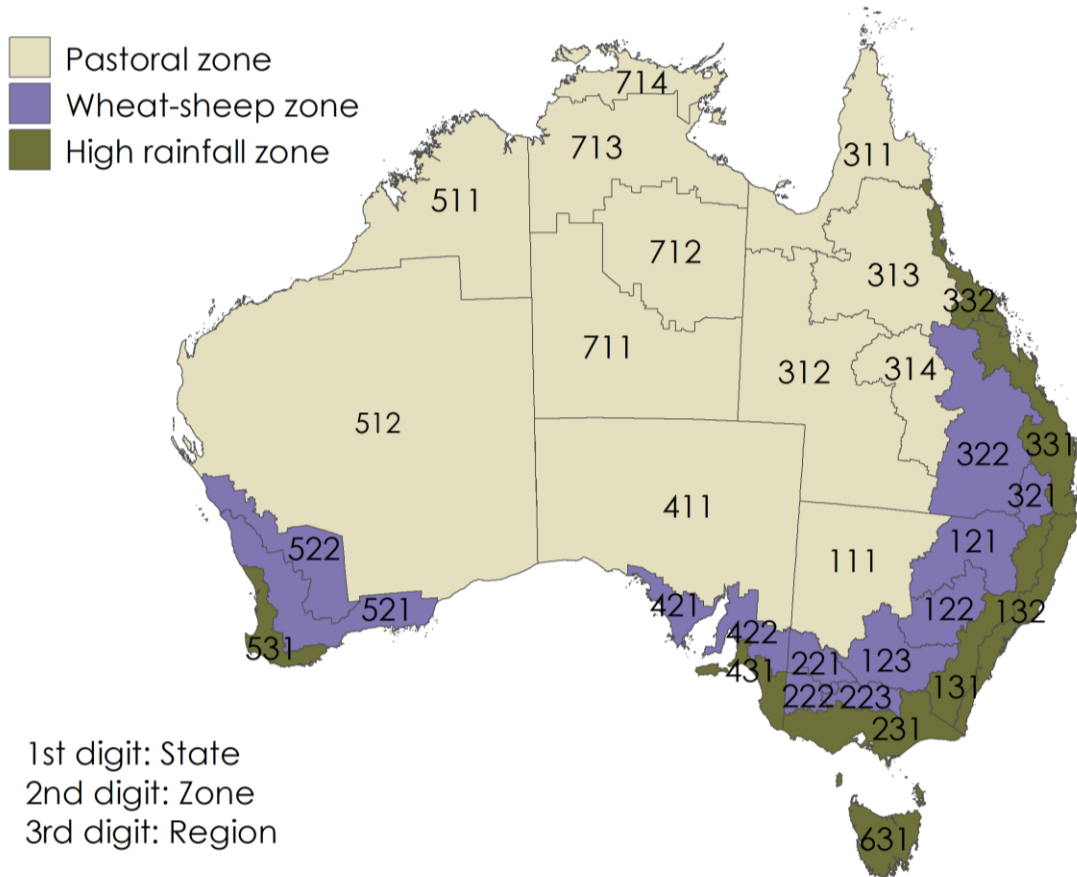
$$\$25\,000 \pm 1.96 \times \$9\,605 = (\$6\,174, \$43\,826)$$

Hence, if a large number (towards infinity) of different samples are taken, in approximately 95 per cent of them, the difference between these two estimates will lie 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.

Regions

Broadacre statistics are also available by region (Map 5). These regions represent the finest level of geographical aggregation for which the survey is designed to produce reliable estimates.

Map 5 ABARES Australian broadacre zones and regions



Note: Each region is identified by a unique code of three digits. The first digit identifies the state or territory, the second digit identifies the zone and the third digit identifies the region.
Source: ABARES

Glossary

Owner–manager The 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 the production of meat, irrespective of breed.

dairy cattle Cattle kept or intended mainly for the production of milk or cream.

hired labour Excludes the farm business manager, partners and family labour and work by contractors. Expenditure on contract services appears as a cash cost.

labour Measured in work weeks, as estimated by the owner–manager or manager. It includes all work on the farm by the owner–manager, partners, family, hired permanent and casual workers and sharefarmers but excludes work by contractors.

total area operated Includes all land operated by the farm business, whether owned or rented by the business, but excludes land sharefarmed on another farm.

Large stock unit (LSU) 400 kilogram dry cow or steer

Financial items

capital The 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.

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 sharefarmed off the sample farm. Residences on the farm are included in the valuations.

Livestock are valued at estimated market prices for the land use zones within each state. These values are based on recorded sales and purchases by sample farms.

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 the replacement cost was indexed to allow for changes in that cost.

Since 2001–02 total value of plant and machinery has been based on market valuations provided by the owner–manager for broad

categories of capital, such as tractors, vehicles and irrigation plant.

The 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. It is an estimate of the change in indebtedness of a given population of farms during the financial year and is thus unaffected by changes in sample or population between years.
farm business debt	Estimated as all debts attributable to the farm business but excluding personal debt, lease financed debt and underwritten loans, including harvest loans. Information is collected at the interview, supplemented by information contained in the farm accounts.
farm liquid assets	Assets owned by the farm business that can be readily converted to cash. They include savings bank deposits, interest bearing deposits, debentures and shares. Excluded are items such as real estate, life assurance policies and other farms or businesses.
receipts and costs	<p>Receipts for livestock and livestock products sold are determined at the point of sale. Selling charges and charges for transport to the point of sale are included in the costs of sample farms.</p> <p>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.</p> <p>Farm receipts and costs relate to the whole area operated, including areas operated by on-farm sharefarmers. Thus, cash receipts include receipts from the 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.</p> <p>Some sample farm businesses engage in off-farm contracting or sharefarming, employing labour and capital equipment also used in normal on-farm activities. Since it is not possible to accurately allocate costs between off-farm and on-farm operations, the income and expenditure attributable to such off-farm operations are included in the receipts and costs of the sample farm business.</p>
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). It includes the value of livestock transfers onto the property as well as 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.

Contracts paid refers to expenditure on contracts such as harvesting. Capital and land development contracts are not included.

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. While other cash costs may comprise a relatively large proportion of total cash costs, individually the components are relatively small overall and, as such, have not been listed.

total cash receipts Total of revenues received by the farm business during the financial year, including revenues from the sale of livestock, livestock products and crops, plus the value of livestock transfers off a property. It includes revenue received from agistment, royalties, rebates, refunds, plant hire, contracts, sharefarming, insurance claims and compensation, and government assistance payments to the farm business.

Financial performance measures

build-up in trading stocks The closing value of all changes in the inventories of trading stocks during the financial year. It includes the 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, plant and equipment Estimated by the diminishing value method, based on the replacement cost and age of each item. The rates applied are the standard rates allowed by the Commissioner of Taxation. For items purchased or sold during the financial year, depreciation is assessed as if the transaction had taken place at the midpoint of the year. Calculation of farm business profit does not account for depreciation on items subject to a finance lease because cash costs already include finance lease payments.

disposable income of owner–manager and partner Owner–manager and partner’s share of net farm income (farm cash income less depreciation) plus off-farm income.

farm business equity The value of owned capital, less farm business debt, at 30 June. The estimate is based on those sample farms for which complete data on farm debt are available.

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	The 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 bear little relationship to the actual work input. An estimate of the labour input of the owner–manager, partners and their families is calculated in work weeks and a value is imputed at the relevant Federal Pastoral Industry Award rates.
off-farm income	Collected for the owner–manager and spouse only, including income from wages, other businesses, investment, government assistance to the farm household and social welfare payments.
profit at full equity	Farm business profit, plus rent, interest and finance lease payments, less depreciation on leased items. It is the return produced by all the resources used in the farm business.
rates of return	Calculated by expressing profit at full equity as a percentage of total opening capital. Rate of return represents the ability of the business to generate a return to all capital used by the business, including that which is borrowed or leased. The following rates of return are estimated: rate of return excluding capital appreciation; and rate of return including capital appreciation.

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