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Australian farm survey results 2009–10 to 2011–12

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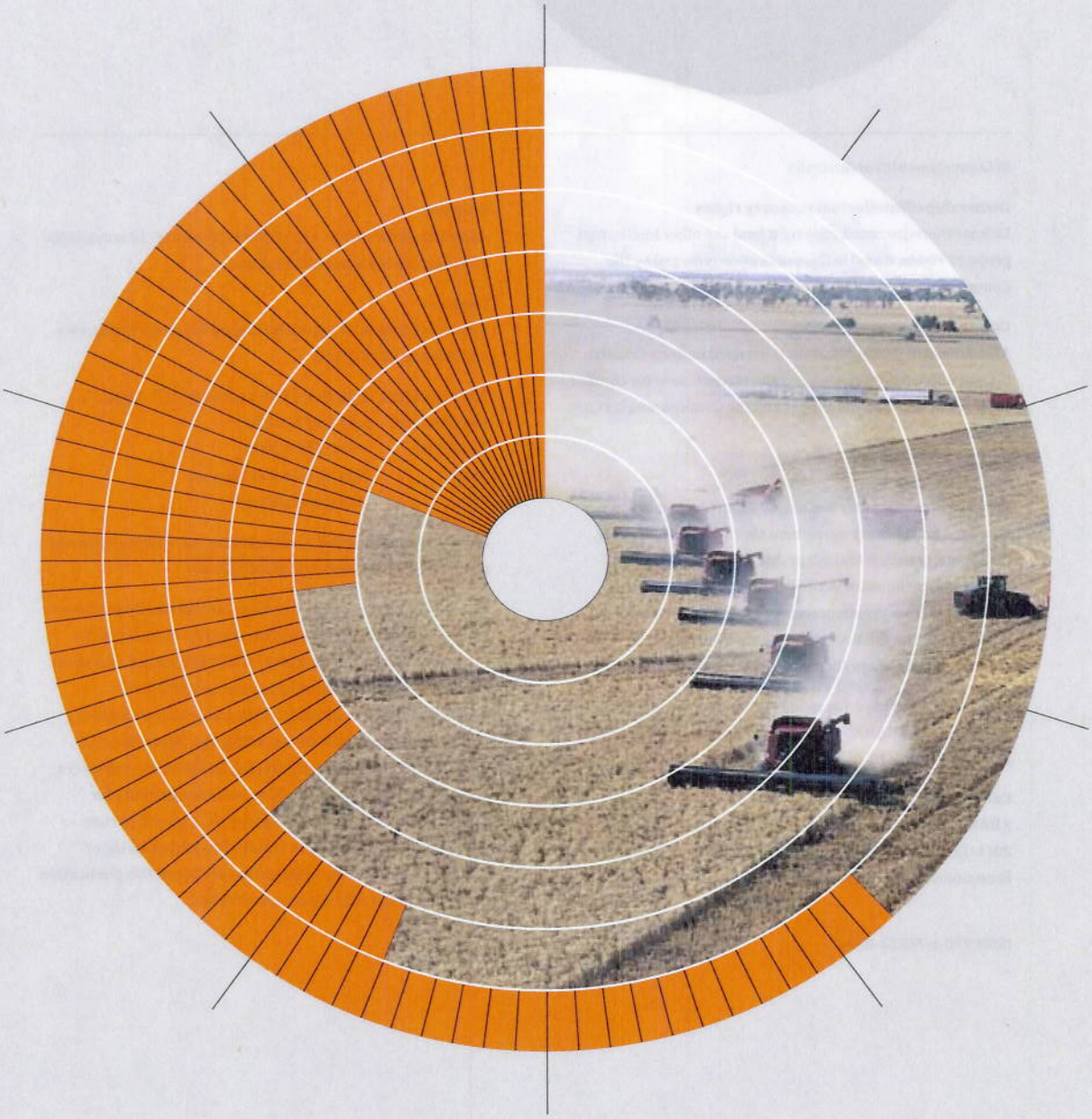

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New South Wales	Bega	29 August
Tasmania	Burnie	26 September
Queensland	Toowoomba	25 October

Farm performance: broadacre and dairy farms, 2009–10 to 2011–12

Peter Martin, Therese Thompson, Paul Phillips and Bruce Bowen

Summary

- The average financial performance of Australian broadacre farms is expected to remain strong in 2011–12. At the national level, average farm cash income for broadacre farms is projected to decrease only slightly from an average of $117 300 per farm in 2010–11 to $116 000 per farm in 2011–12.
- Positive farm business profits and rates of return are projected on average for broadacre farms in all states and all industries in 2011–12, for the first time in over 30 years.
- Farm cash incomes are projected to increase in Western Australia, Queensland and Tasmania in 2011–12. The largest projected increase in farm cash income is in Western Australia, driven by record winter crop production.
- In contrast, reduced farm cash incomes are expected for broadacre farms in New South Wales, Victoria and South Australia in 2011–12 as a consequence of lower grain and oilseed prices and a reduction in crop production from the record in 2010–11.
- Abundant pasture growth and higher wool prices have increased cash incomes for sheep farms in 2011–12. Farm cash income for sheep industry farms are projected to average $113 000 per farm, the highest farm cash income recorded since 1988–89, in real terms.
- Beef industry incomes and business profits are projected to increase in almost all regions in 2011–12 on the back of above average seasonal conditions, increased cattle prices and a reduction in beef cattle purchases.
- Farm cash income is projected to decline for most dairy farms in 2011–12 as milk prices are reduced, but incomes are expected to remain relatively high in historical terms.

Overview

This report reproduces two articles presented in the March quarter 2012 edition of *Agricultural Commodities*. The report also contains two additional tables which provide details of the financial performance for each broadacre industry and the dairy industry.

Incomes for broadacre farms are expected to remain high in 2011–12, according to preliminary estimates from the ABARES Australian agricultural and grazing industries survey.

This outcome builds on a strong farm financial performance in 2010–11, when average farm cash income increased markedly due to increased crop and livestock production combined with higher prices.

In 2011–12, average to above average seasonal conditions for most Australian broadacre farms sustained high grain and livestock production and as a result average farm cash incomes are projected to be among the highest recorded (in real terms) since 2001–02. For broadacre farms, farm cash income is projected to average $116 000 a farm in 2011–12, while for dairy farms, farm cash income is projected to average $136 000 a farm.

The financial performance of broadacre farms in 2011–12 is characterised by uniformly high financial performance across all industries and states. For the first time in more than 30 years, all states and all industries are expected to record positive farm business profits and rates of return.

In the eastern states, crop production is expected to be above average while excellent pasture growth is expected to support increased livestock numbers. Although grain prices are expected to be lower this financial year compared with 2010–11, farm cash incomes in eastern states in 2011–12 are projected to remain high, in historical terms.

Western Australia experienced a marked turnaround in seasonal conditions in 2011–12. Increased rainfall over winter and spring resulted in record winter crop production and as a consequence, average Western Australian farm cash income is projected to substantially improve compared with 2010–11.

Broadacre and dairy farms account for 68 per cent of commercial scale Australian farm businesses (ABS 2011). These farms are also responsible for managing more than 90 per cent of the total area of agricultural land in Australia and account for the majority of Australia's family owned and operated farms. Located in all regions across Australia, these farms form a vital part of rural communities and local economies.

Each year ABARES interviews the operators of around 1600 broadacre farm businesses in its Australian agricultural and grazing industries survey (AAGIS) and 300 dairy farm businesses in the Australian dairy industry survey (ADIS), as part of its annual farm survey program. The AAGIS is targeted at commercial scale broadacre farms—farms that grow grains or oilseeds, or run sheep or beef cattle and that have an estimated value of agricultural output exceeding $40 000. Broadacre industries covered in this survey include wheat and other crops, mixed livestock–crops, sheep, and beef and sheep–beef industries (Box 1). The ADIS is targeted at commercial-scale milk producing farms.

The information collected provides a basis for analysing the current financial position of farmers in these industries and the expected changes in the short-term. Data from the AAGIS and ADIS were analysed to gain insights into the performance of Australian broadacre and dairy farms over the period from 2009–10, including projected farm financial performance in 2011–12 (Table 1).

ABARES uses the latest data available in producing estimates from its surveys. This means estimates are revised as new information becomes available. Preliminary estimates previously published are recalculated to reflect updated benchmark information obtained from the Australian Bureau of Statistics (ABS).

Box 1 **The broadacre sector of Australian agriculture is defined to include five industry types**

Wheat and other crops industry: representing the more specialised producers of cereal grains, coarse grains, pulses and oilseeds.

Mixed livestock–crops industry: representing those farms engaged in the production of sheep and/or beef cattle in conjunction with substantial activity in broadacre crops such as wheat, coarse grains, oilseeds and pulses.

Sheep industry: representing the more specialised producers of sheep and wool. Currently, sheep industry farms account for only 30 per cent of Australia's wool production. The majority of both wool and sheep meat production occurs on mixed enterprise farms, particularly on mixed livestock–crops industry farms.

Beef industry: representing properties engaged mainly in running beef cattle and which currently accounts for around 65 per cent of Australia's beef production. The beef industry contains a large number of small farms.

Sheep–beef industry: representing properties engaged in running sheep and beef cattle. As for the sheep and beef industries, this industry also contains a large number of small farms.

Farm production

2010–11

The total area sown to winter grain, oilseed and pulse crops decreased in 2010–11 compared with the area planted in 2009–10. The area planted to wheat and barley declined; however, there was a small increase in the area sown to oilseeds and pulses.

In the eastern states, the spring was the wettest on record and was followed by widespread heavy rainfall in December 2010 and January 2011, particularly in eastern Queensland, western New South Wales and Victoria. Rain delayed the harvest, lowered the quality of grain harvested and resulted in crop losses through flooding and disease. Nevertheless, yields were near record in eastern states. Total winter crop production was around 42.5 million tonnes, 20 per cent higher than in 2009–10.

Winter crop production in New South Wales was almost double 2009–10 production, Victorian production was 32 per cent higher, South Australian production 35 per cent higher, and Queensland total winter crop production was around 17 per cent higher. A high proportion of the grain harvested in eastern states was downgraded in quality because of weather damage. In Western Australia drought persisted throughout 2010 and total winter crop production was around 38 per cent less than 2009–10 production.

Well above average rainfall over spring and summer replenished irrigation dams and boosted soil moisture for summer crops. The total area planted to summer crops increased by around 67 per cent compared with 2009–10. The area planted to grain sorghum increased by 35 per cent, despite plantings being restricted by continual rain in central Queensland and the loss of some areas to flooding, and yields were well above average. In addition, the area of cotton harvested increased by 280 per cent despite the effects of flooding in Queensland, and lint production increased by 230 per cent in 2010–11. The area planted to rice was around four times the area planted in 2009–10.

Well above average rainfall in eastern and northern Australia resulted in abundant pasture growth and encouraged farmers in these areas to retain beef cattle and sheep and to build herd and flock numbers. Excess pasture created strong demand for livestock from restockers and higher saleyard prices. In contrast, poor seasonal conditions in Western Australia led to increased turn-off of beef cattle and sheep and a decrease in herd and flock sizes.

Despite improvement in grazing conditions and increased availability of irrigation water, milk production remained similar to 2009–10. A production increase in Western Australia and Victoria was offset by lower production in Queensland, Tasmania and New South Wales.

2011–12

The total area sown to winter grain, oilseed and pulse crops increased marginally in 2011–12 compared with the area planted in 2010–11. The area planted to wheat increased by around 3 per cent and the area planted to barley also increased, while the area planted to canola and lupins declined.

Growing conditions over winter and spring 2011–12 were generally favourable in the major winter cropping regions. Favourable winter and spring rainfall over Western Australia's cropping regions boosted yields resulting in winter crop production more than doubling in 2011–12, making this the highest winter crop harvest on record. However, the rain also slowed the harvest, and lowered the quality of crops in some regions.

Major winter cropping regions in South Australia, Victoria and southern New South Wales recorded below average September rainfall. However, average to above average rainfall in October and November improved crops before harvest. In northern New South Wales and southern Queensland, above average rainfall during harvest also delayed harvest and affected crop quality in some regions.

Total winter crop production is estimated to have been around 45.1 million tonnes in 2011–12. Wheat production is estimated to have increased by 6 per cent in 2011–12; barley production is estimated to have risen by 5 per cent; and canola production is estimated to have increased by 16 per cent.

The total summer crop area is estimated to have been largely unchanged in 2011–12 at 1.5 million hectares. Increased availability of irrigation water resulted in higher cotton and rice plantings; however, grain sorghum plantings are estimated to have decreased by around 6 per cent.

Cotton production is forecast to increase by 27 per cent in 2011–12 to a record 1.1 million tonnes. This increase is due to expected better returns relative to alternative crops, improved supplies of irrigation water and favourable soil moisture profiles in most of the cotton growing regions in New South Wales and Queensland.

Flooding during late summer caused damage to some summer crops in southern Queensland and northern New South Wales. The most severe flooding occurred in the central north and north-west regions of New South Wales and the south-west region of Queensland. However, since flooding generally affects low-lying areas that comprise a small proportion of crop area, the effects of flooding on summer crop production tend to be localised and above average yields are expected in areas not inundated by floods.

Average to above average seasonal conditions for most broadacre farms resulted in excellent pasture growth and cattle and sheep numbers are expected to continue increasing, with herd and flock sizes increasing in all states. Lambing and calving rates are projected to rise, together with sale weights for livestock increasing. Wool production is also expected to increase due to an increase in sheep and lambs shorn.

Improvement in grazing conditions, increased availability of irrigation water and low fodder prices are estimated to have contributed to an expected increase in milk production of around 3 per cent in 2011–12. A small increase is expected in the southern dairying region of New South Wales and in Victoria, while a relatively larger increase is expected in Tasmania. In Queensland, milk production is expected to be reduced in response to lower farmgate prices for milk in 2011–12.

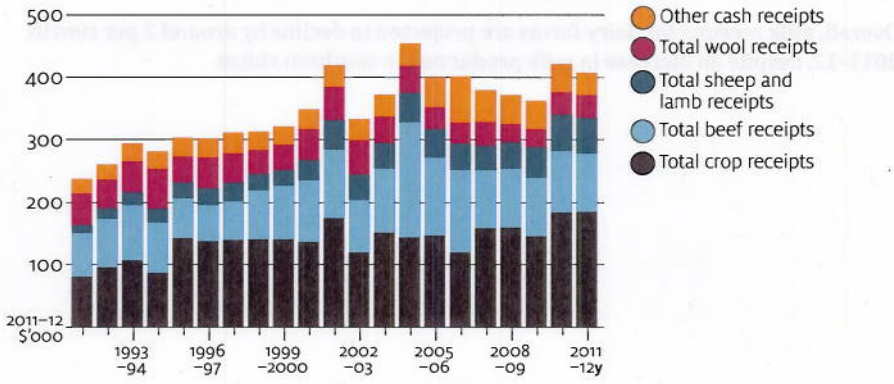
Farm receipts

2010–11

Average total cash receipts for broadacre farms increased by 20 per cent nationally in 2010–11, with increases in crop, sheep, lamb, wool and beef cattle receipts (Figure 1).

In 2010–11, average crop receipts per farm increased by 30 per cent compared with 2009–10. Yields for harvested crops were high and total production of grains, oilseeds and pulses is estimated to have increased as a result. Despite some downgrading of wheat and barley in eastern states, prices remained strong. Increased production, in combination with an increase in price in 2010–11 compared with 2009–10, resulted in higher crop receipts in 2010–11.

FIGURE 1 Farm cash receipts, broadacre industries



y ABARES provisional estimate.

Despite a decrease in the number of sheep and lambs sold, higher saleyard prices for sheep and lambs resulted in an increase of around 21 per cent in average sheep and lamb receipts per farm.

Higher wool prices resulted in average wool receipts per farm rising by 29 per cent in 2010–11, despite a small reduction of around 1 per cent in wool sold per farm.

Higher saleyard prices resulted in an increase in beef cattle receipts, despite a reduction in the number of beef cattle sold from broadacre farms of around 2 per cent in 2010–11.

Average total cash receipts for dairy farms increased by 13 per cent in 2010–11 as higher prices were paid for milk in southern regions producing mainly manufacturing milk, together with a small increase in milk production.

2011–12

Overall, average total cash receipts for broadacre farms are projected to remain largely unchanged in 2011–12 compared with 2010–11 (Figure 1).

In 2011–12, average crop receipts are projected to increase by 3 per cent with increases in total crop production expected to more than offset lower grain and oilseed prices. Receipts from canola increased and rice and cotton receipts are also expected to increase due to higher production.

Saleyard prices for sheep and lambs are expected to remain high in 2011–12 and combined with a small increase in numbers of lambs sold is projected to result in an increase of around 1 per cent in average sheep and lamb receipts per farm.

Higher wool prices together with an increase in wool produced and sold per farm are projected to result in an increase in wool receipts of around 3 per cent. Wool sold per farm is expected to increase as a result of an increase in the number of sheep to be shorn in 2011–12.

An expected reduction in the number of beef cattle sold per farm in 2011–12 is projected to more than offset a small increase in beef cattle prices and result in a small decrease in beef cattle receipts.

Overall, milk receipts for dairy farms are projected to decline by around 2 per cent in 2011–12, despite an increase in milk production in southern states.

Box 2 Major financial performance indicators

Farm cash income	= total cash receipts		– total cash costs
	total revenues received by the farm business during the financial year		*payments made by the farm business for materials and services and for permanent and casual hired labour (excluding owner manager, partner and family labour)*

Farm business profit	=	farm cash income	+	changes in trading stocks	–	depreciation	– Imputed labour costs

Farm business profit = farm cash income + changes in trading stock – depreciation – imputed labour costs *(return produced by all the resources used in the farm business)*

Profit at full equity = farm business profit + rent + interest and finance lease payments – depreciation on leased items

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

Off-farm income = wages off-farm + other business income + investment + social welfare payments *(owner manager and spouse only)*

Methodology

The ABARES survey methodology is discussed in detail in the Survey methods and definitions section (page 60).

ABARES surveys are designed, and samples selected, on the basis of a framework drawn from the Business Register maintained by the Australian Bureau of Statistics. This framework includes agricultural establishments in each statistical local area classified by size and major industry.

Data provided in this paper have been collected through on-farm interviews and incorporate detailed farm financial accounting information.

The estimates presented have been calculated by appropriately weighting the data collected from each sample farm. Sample weights are calculated so estimates of numbers of farms, areas of crops and numbers of livestock in various geographic regions and industries correspond as closely as possible to the most recently available ABS data, as collected in the Agricultural Censuses and updated annually with data collected in agricultural commodity surveys.

Estimates for 2009–10 and all earlier years are final. All data from farmers, including accounting information, have been reconciled. Final production and population information from the Australian Bureau of Statistics has been included and no further change is expected in the estimates.

The 2010–11 estimates are preliminary, based on full production and accounting information from farmers. However, editing and addition of sample farms may be undertaken and Australian Bureau of Statistics production benchmarks may also change.

The 2011–12 projections are based on data collected through on-farm interviews and telephone interviews between October and December 2011. The estimates include crop and livestock production, receipts and expenditure up to the date of interview, together with expected production, receipts and expenditure for the remainder of the financial year. Modifications have been made to expected receipts and expenditure for the remainder of 2011–12 where significant price change has occurred post interview.

Farm costs

2010–11

For broadacre farms, average total cash costs increased by around 3 per cent in 2010–11, mainly as a result of increased expenditure on livestock purchases, contracts, handling and marketing charges and fertiliser. These increases were partially offset by a reduction in expenditure on fodder.

For dairy industry farms in all regions, except Western Australia, fodder costs were lower as less fodder was purchased because of improved seasonal conditions and increased allocations of irrigation water; in Western Australia fodder costs increased. Small increases were experienced in most other categories of farm cash costs including interest payments, and overall average total cash costs for the Australian dairy industry remained largely unchanged in 2010–11 compared with 2009–10.

2011–12

Overall, at the national level, average total cash costs per farm are projected to remain similar to that recorded in 2010–11. Purchases of both beef cattle and sheep are expected to slow markedly in all states except Western Australia in 2011–12 (Figure 2). Sheep and beef cattle numbers were substantially rebuilt on many eastern state properties in the past two years. Improved pasture availability and lower feed grain prices are expected to result in a further small reduction in fodder expenditure on broadacre farms. In addition, a small reduction in farm debt together with slightly lower interest rates is projected to result in reduced interest payments. Overall, reductions in these cost items are expected to be mostly offset by increased expenditure on fuel, fertiliser, chemicals, repairs and maintenance.

For dairy industry farms, fodder costs for farms in all states, except Tasmania, are expected to be significantly lower as less fodder is purchased because of improved seasonal conditions combined with lower prices for purchased fodder. Fertiliser costs are expected to increase as dairy farms produce more feed on-farm. Small increases are expected in most other categories of farm cash costs, and overall average total cash costs at the national level are projected to remain largely unchanged in 2011–12 compared with 2010–11.

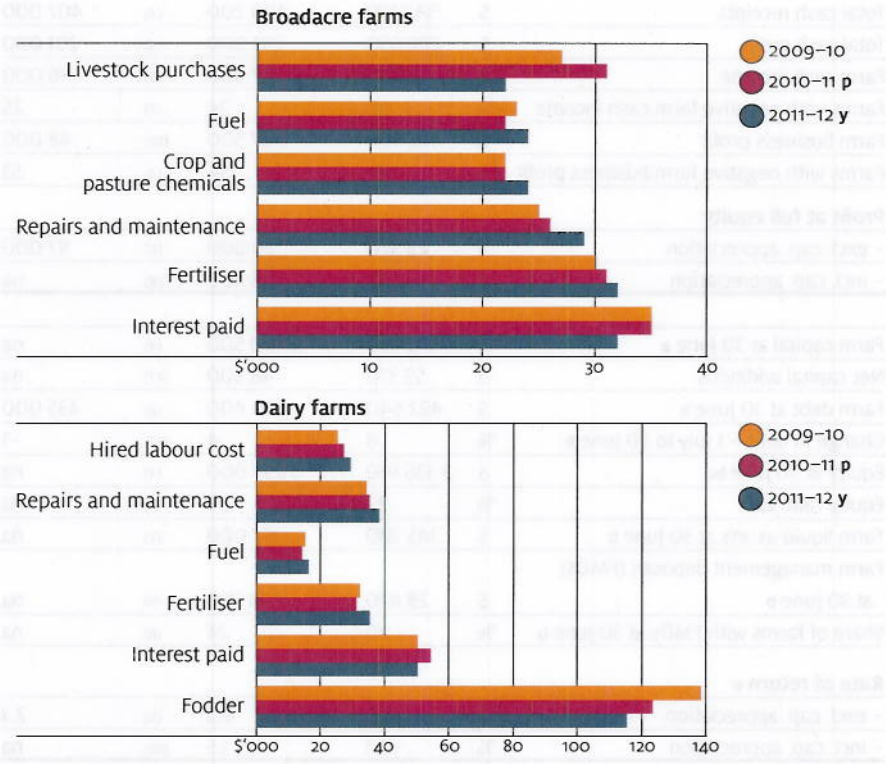
Farm incomes and profits

The financial performance of Australian broadacre farms is projected to remain strong, on average, in 2011–12.

Nationally, average farm cash income for broadacre farms increased from $59 470 in 2009–10 to $117 300 in 2010–11 and is projected to remain high at $116 000 in 2011–12 (Table 1), which is around 39 per cent above the average for the 10 years to 2010–11 of $83 000 (in real terms) (Figure 3, Table 1).

For the dairy industry, farm financial performance is projected to decline in 2011–12 because of lower milk prices. Nationally, average farm cash income for dairy farms was $75 110 a farm in 2009–10, increased to $141 000 a farm in 2010–11 and is projected to decline to $136 000 in 2011–12 (Table 5). Projected farm cash income in 2011–12 is still expected to be around 37 per cent above the average for the 10 years to 2010–11 of $98 600 (in real terms) (Figure 6).

FIGURE 2 Major cash costs



p ABARES preliminary estimate. y ABARES provisional estimate.

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.

In 2010–11, large increases occurred in on-farm inventories of grain in eastern states, resulting in higher average farm business profit because of a build-up in the value of trading stocks. For 2011–12, a much smaller increase in grain inventories is expected overall. However, cattle and sheep numbers are expected to increase in all states, which is expected to largely offset reductions in the value of grain stocks.

With a slightly smaller value of farm inventories in 2011–12, combined with a small reduction in projected farm cash incomes in some states, average farm business profit for Australian broadacre farms is expected to decline to around $48 000 a farm. If achieved, this would rank as the third highest farm business profit recorded for the broadacre industries in the past 20 years. In addition, farm business profit in 2011–12 is expected to be positive, on average, in all states for the first time since 2001–02.

TABLE 1 Financial performance, all broadacre industries average per farm

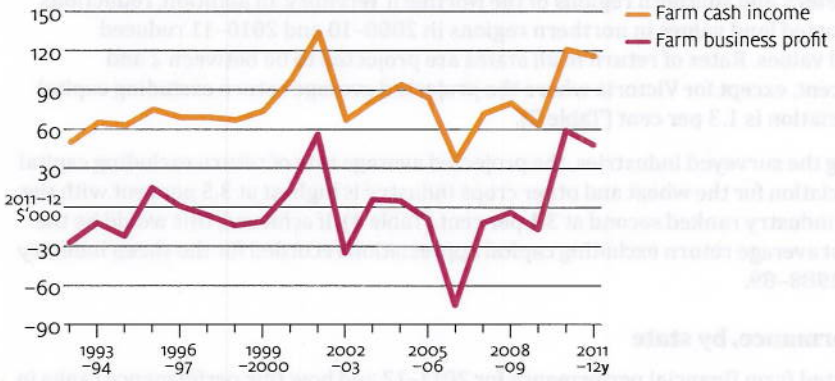
		2009–10	2010–11p		2011–12y
Total cash receipts	$	342 120	409 200	(4)	407 000
Total cash costs	$	282 650	291 900	(5)	291 000
Farm cash income	$	59 470	117 300	(5)	116 000
Farms with negative farm cash income	%	30	24	(7)	25
Farm business profit	$	–16 460	57 500	(10)	48 000
Farms with negative farm business profit	%	69	54	(4)	53
Profit at full equity					
– excl. cap. appreciation	$	23 920	98 600	(6)	87 000
– incl. cap. appreciation	$	–3 550	58 300	(28)	na
Farm capital at 30 June **a**	$	4 015 550	3 923 500	(4)	na
Net capital additions	$	55 370	48 500	(47)	na
Farm debt at 30 June **b**	$	492 540	460 400	(8)	435 000
Change in debt – 1 July to 30 June **b**	%	8	4	(32)	–1
Equity at 30 June **bc**	$	3 336 910	3 297 000	(4)	na
Equity ratio **bd**	%	87	88	(1)	na
Farm liquid assets at 30 June **b**	$	145 380	157 000	(7)	na
Farm management deposits (FMDs) at 30 June **b**	$	28 620	34 100	(9)	na
Share of farms with FMDs at 30 June **b**	%	20	24	(8)	na
Rate of return e					
– excl. cap. appreciation	%	0.6	2.5	(6)	2.3
– incl. cap. appreciation	%	–0.1	1.5	(28)	na
Off–farm income of owner manager and spouse **b**	$	32 270	32 300	(6)	na

a Excludes leased plant and equipment. **b** Average per responding farm. **c** Farm capital minus farm debt. **d** Equity expressed as a percentage of farm capital. **e** Rate of return to farm capital at 1 July. **p** ABARES preliminary estimates. **y** ABARES provisional estimates. **na** Not available.

Rates of return

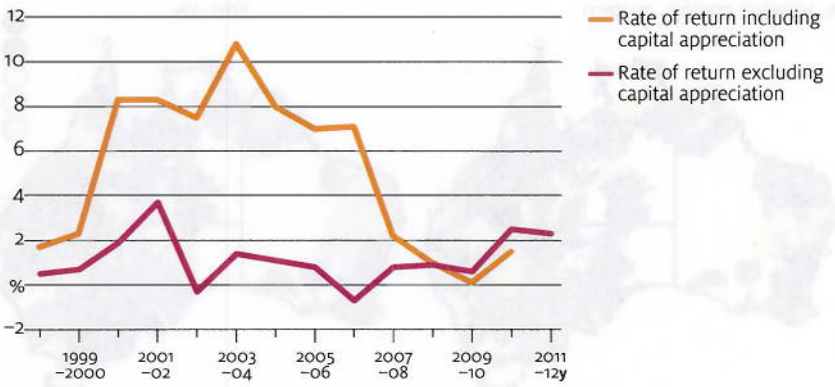
The average rate of return to total farm capital including capital appreciation for broadacre farms was relatively high between 2000–01 and 2006–07 but declined after 2007–08 (Figure 4). Strong demand for rural land during most of the 2000s resulted in a sharp increase in land values in most agricultural regions, which raised the total capital value of farms. Rapidly rising farm capital values resulted in high rates of return when including capital appreciation. However, from 2007–08 increases in land values have been much smaller and reported values declined in some pastoral and high-rainfall regions in 2009–10 and 2010–11. The reduction in land values in 2009–10 and 2010–11 resulted in lower estimates of average rate of return to total farm capital including capital appreciation for broadacre farms.

FIGURE 3 Financial performance, all broadacre industries



y ABARES provisional estimate.

FIGURE 4 Return on capital



y ABARES provisional estimate.

Rises in total farm capital values as a consequence of increases in land values during the 2000s have also acted to reduce rates of return excluding capital appreciation.

Average rates of return excluding capital appreciation increased in 2010–11 as farm business profits increased for broadacre farms in many regions. Rates of return excluding capital appreciation are expected to fall slightly from 2.5 per cent in 2010–11 to 2.3 per cent in 2011–12 (Figure 4) and, while still being relatively high in historical terms (Figure 4), are also expected to be more even across the states and the Northern Territory.

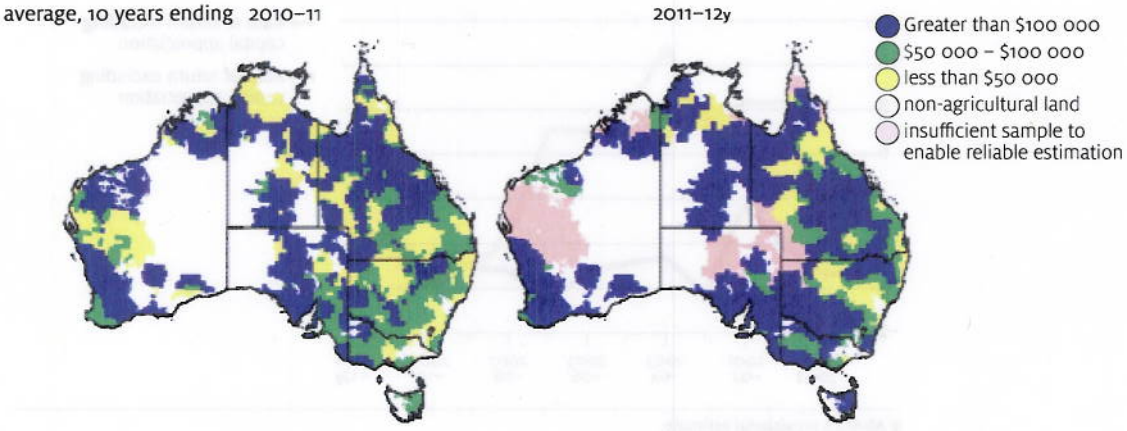
In 2011–12, the highest average rate of return excluding capital appreciation is projected for the Northern Territory at 5.8 per cent. This high rate of return is mainly due to an increase in beef cattle numbers and high farm cash incomes in the eastern and southern regions of the Northern Territory. In addition, reductions in reported land values in northern regions in 2008–10 and 2010–11 reduced capital values. Rates of return in all states are projected to be between 2 and 3 per cent, except for Victoria where the projected average return excluding capital appreciation is 1.3 per cent (Table 2).

Among the surveyed industries, the projected average rate of return excluding capital appreciation for the wheat and other crops industry is highest at 3.5 per cent with the sheep industry ranked second at 3.1 per cent (Table 4). If achieved, this would be the highest average return excluding capital appreciation recorded for the sheep industry since 1988–89.

Performance, by state

Projected farm financial performance for 2011–12 and how this performance ranks in historical terms varies markedly across states and regions (Tables 2 and 3, together with map 1).

MAP 1 Farm cash income broadacre and dairy farms



y ABARES provisional estimate.

TABLE 2 Financial performance , broadacre industries, by state average per farm

	Farm cash income				Farm business profit a				Rate of return excluding capital appreciation b				Rate of return including capital appreciation b			
	2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
	$	$		$	$	$		$	%	%		%	%	%		%
Broadacre industries																
New South Wales	45 840	100 500	(9)	100 000	−41 250	63 400	(15)	43 000	0.0	3.1	(9)	2.4	−2.1	2.6	(45)	na
Victoria	46 470	97 400	(11)	85 000	−8 220	50 200	(22)	18 000	0.5	2.5	(15)	1.3	5.1	3.2	(35)	na
Queensland	53 260	89 100	(16)	103 000	−6 150	33 000	(31)	54 000	0.7	1.6	(13)	2.1	−1.4	−1.8	(45)	na
Western Australia	106 050	151 800	(12)	180 000	−38 700	−9 500	(192)	65 000	0.5	1.2	(29)	2.4	−1.2	0.9	(60)	na
South Australia	93 450	205 100	(10)	168 000	33 610	157 900	(13)	73 000	2.2	5.6	(9)	3.3	3.1	5.0	(11)	na
Tasmania	53 240	100 600	(10)	105 000	11 250	54 000	(21)	71 000	0.8	1.8	(18)	2.2	1.6	1.6	(50)	na
Northern Territory	−138 280	460 700	(38)	451 000	211 960	359 200	(41)	790 000	1.9	2.6	(25)	5.8	−4.5	−4.8	(36)	na
Australia	59 470	117 300	(5)	116 000	−16 460	57 500	(10)	48 000	0.6	2.5	(6)	2.3	−0.1	1.5	(28)	na

a Defined as farm cash income plus buildup in trading stocks, less depreciation and the imputed value of operator partner and family labor. p ABARES preliminary estimates. y ABARES provisional estimates.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate provided.

TABLE 3 Financial performance, all broadacre industries, by state average per farm

		New South Wales				Victoria			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	311 730	364 400	(7)	349 000	201 300	289 200	(16)	290 000
Total cash costs	$	265 890	263 900	(8)	250 000	154 830	191 800	(25)	205 000
Farm cash income	$	45 840	100 500	(9)	100 000	46 470	97 400	(11)	85 000
Farms with negative farm cash income	%	37	28	(12)	31	27	17	(19)	25
Farm business profit	$	–41 250	63 400	(15)	43 000	–8 220	50 200	(22)	18 000
Farms with negative farm business profit	%	73	51	(7)	57	70	52	(9)	54
Profit at full equity									
–excl. cap. appreciation	$	–420	100 400	(9)	76 000	13 430	74 700	(19)	41 000
–incl. cap. appreciation	$	–74 970	85 400	(44)	na	133 170	94 600	(23)	na
Farm capital at 30 June **a**	$	3 503 810	3 328 000	(5)	na	2 832 260	2 988 300	(19)	na
Net capital additions	$	32 180	64 900	(81)	na	81 860	–2 400	(999)	na
Farm debt at 30 June **b**	$	511 430	438 600	(12)	388 000	249 980	237 200	(54)	237 000
Change in debt – 1 July to 30 June **b**	%	5	3	(83)	0	14	0	(999)	–4
Equity at 30 June **bc**	$	2 924 140	2 791 800	(5)	na	2 537 290	2 709 600	(18)	na
Equity ratio **bd**	%	85	86	(1)	na	91	92	(3)	na
Farm liquid assets at 30 June **b**	$	114 390	104 300	(13)	na	166 530	183 300	(14)	na
Farm management deposits (FMDs) at 30 June **b**	$	17 410	24 900	(16)	na	25 840	30 900	(25)	na
Share of farms with FMDs at 30 June **b**	%	13	20	(15)	na	24	26	(19)	na
Rate of return e									
–excl. cap. appreciation	%	0.0	3.1	(9)	2.4	0.5	2.5	(15)	1.3
–incl. cap. appreciation	%	–2.1	2.6	(45)	na	5.1	3.2	(35)	na
Off-farm income of owner manager and spouse **b**	$	37 970	37 800	(12)	na	36 450	35 900	(11)	na

continued...

New South Wales

In New South Wales, overall average farm cash income for 2011–12 is projected to remain similar to that recorded in 2010–11. Farm cash incomes will be lower for farms predominantly involved in growing grain and oilseeds as crop receipts are reduced by both lower production and lower prices compared with last season. However, an increase in crop receipts and farm cash income is expected for broadacre farms growing cotton or rice as production increases in 2011–12. Farm cash incomes for beef cattle and sheep farms are projected to increase, with higher wool and beef prices as well as an increase in numbers of lambs sold and higher sale weights for livestock.

On average, farm cash income of broadacre farms in New South Wales is projected to average $100 000 a farm in 2011–12, which is around 68 per cent above the average farm cash income recorded for the 10 years to 2010–11.

Farm cash income for broadacre farms in New South Wales and the other eastern states—Victoria and Queensland—is strongly influenced by income from livestock. On average, around 60 per cent of farm receipts are derived from the sale of beef

TABLE 3 Financial performance, all broadacre industries, by state average per farm continued

		Queensland				Western Australia			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	348 800	379 900	(8)	363 000	662 280	632 400	(6)	713 000
Total cash costs	$	295 540	290 900	(10)	261 000	556 230	480 600	(6)	533 000
Farm cash income	$	53 260	89 100	(16)	103 000	106 050	151 800	(12)	180 000
Farms with negative farm cash income	%	26	27	(14)	21	32	23	(20)	21
Farm business profit	$	–6 150	33 000	(31)	54 000	–38 700	–9 500	(192)	65 000
Farms with negative farm business profit	%	74	63	(6)	51	68	69	(6)	49
Profit at full equity									
– excl. cap. appreciation	$	40 330	79 800	(13)	98 000	28 780	62 800	(29)	131 000
– incl. cap. appreciation	$	–77 880	–90 100	(45)	na	–67 060	50 000	(60)	na
Farm capital at 30 June **a**	$	5 492 750	4 995 000	(3)	na	5 662 080	5 433 800	(7)	na
Net capital additions	$	15 300	87 800	(45)	na	75 430	39 200	(163)	na
Farm debt at 30 June **b**	$	602 710	557 600	(9)	541 000	835 110	844 600	(10)	750 000
Change in debt – 1 July to 30 June **b**	%	7	5	(50)	4	10	5	(55)	–6
Equity at 30 June **bc**	$	4 602 720	4 105 600	(4)	na	4 439 980	4 542 700	(7)	na
Equity ratio **bd**	%	88	88	(1)	na	84	85	(2)	na
Farm liquid assets at 30 June **b**	$	119 090	122 100	(12)	na	217 010	247 800	(20)	na
Farm management deposits (FMDs) at 30 June **b**	$	29 060	31 500	(17)	na	63 480	55 600	(22)	na
Share of farms with FMDs at 30 June **b**	%	22	23	(17)	na	25	25	(20)	na
Rate of return e									
– excl. cap. appreciation	%	0.7	1.6	(13)	2.1	0.5	1.2	(29)	2.4
– incl. cap. appreciation	%	–1.4	–1.8	(45)	na	–1.2	0.9	(60)	na
Off-farm income of owner manager and spouse **b**	$	19 520	23 800	(12)	na	26 980	26 800	(11)	na

continued...

cattle, sheep, lambs and wool and 75 per cent of broadacre farms generate less than 20 per cent of their receipts from crops. In contrast, many more South Australian and Western Australian broadacre farms are mainly reliant on receipts from crops rather than those from livestock.

Victoria

Victorian cropping farm cash incomes are projected to decline moderately in 2011–12. Less favourable seasonal conditions led to reduced grain production compared with last season and wheat and oilseed prices were lower. On average, receipts from crops are projected to decrease by around 16 per cent compared with 2010–11.

In contrast, receipts from beef cattle are projected to increase slightly, with higher beef prices as well as an increase in sale weights for cattle. Receipts from sheep, lambs and wool are projected to be higher this season because of higher wool prices, together with an increase in wool production and an increase in the number of lambs sold. As a result, farm cash incomes for producers mainly reliant on sheep are projected to increase further in 2011–12.

TABLE 3 Financial performance, all broadacre industries, by state average per farm continued

		South Australia				Tasmania			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	356 040	549 400	(9)	515 000	242 250	296 700	(7)	312 000
Total cash costs	$	262 590	344 300	(10)	347 000	189 010	196 200	(8)	206 000
Farm cash income	$	93 450	205 100	(10)	168 000	53 240	100 600	(10)	105 000
Farms with negative farm cash income	%	23	21	(26)	18	32	11	(36)	15
Farm business profit	$	33 610	157 900	(13)	73 000	11 250	54 000	(21)	71 000
Farms with negative farm business profit	%	53	35	(18)	48	61	48	(11)	42
Profit at full equity									
– excl. cap. appreciation	$	74 330	199 200	(11)	118 000	31 900	78 100	(15)	102 000
– incl. cap. appreciation	$	106 300	177 800	(14)	na	60 290	70 300	(47)	na
Farm capital at 30 June a	$	3 566 580	3 656 100	(5)	na	3 853 990	4 480 000	(13)	na
Net capital additions	$	106 730	53 900	(76)	na	37 490	23 700	(126)	na
Farm debt at 30 June b	$	428 800	433 600	(10)	432 000	244 170	291 200	(17)	326 000
Change in debt – 1 July to 30 June b	%	11	5	(56)	–3	2	11	(67)	12
Equity at 30 June bc	$	2 988 200	3 110 500	(6)	na	3 497 800	4 011 500	(14)	na
Equity ratio bd	%	88	88	(1)	na	94	93	(1)	na
Farm liquid assets at 30 June b	$	148 680	202 100	(16)	na	177 970	231 000	(24)	na
Farm management deposits (FMDs) at 30 June b	$	28 800	48 700	(22)	na	28 010	32 900	(34)	na
Share of farms with FMDs at 30 June b	%	26	29	(16)	na	16	23	(32)	na
Rate of return e									
– excl. cap. appreciation	%	2.2	5.6	(9)	3.3	0.8	1.8	(18)	2.2
– incl. cap. appreciation	%	3.1	5.0	(11)	na	1.6	1.6	(50)	na
Off-farm income of owner manager and spouse b	$	31 370	26 900	(12)	na	37 380	40 200	(16)	na

continued...

Farm cash costs are also projected to rise by around 7 per cent, reflecting increased expenditure on herbicides and pesticides, fertiliser and repairs and maintenance as well as higher fuel and labour costs.

On average, farm cash income for broadacre farms in Victoria is projected to decline to $85 000 per farm in 2011–12 (Tables 2 and 3), but still be around 20 per cent above the average farm cash income recorded for the 10 years to 2010–11.

Queensland

Overall, receipts from both winter and summer grain and oilseed crops are projected to decline in 2011–12, but receipts from grain legumes are estimated to increase. Increases in production of wheat and barley are expected to be offset by lower prices. Receipts from grain sorghum and oilseeds are projected to decline compared with 2010–11, with slightly lower production and lower prices. High rainfall through summer across most of Queensland's cropping regions increased yield prospects for summer crops but also resulted in significant flooding, particularly in south-west Queensland, which according to ABARES February 2012, *Australian crop report*, is likely to have damaged some summer crops.

TABLE 3 Financial performance, all broadacre industries, by state average per farm continued

		Northern Territory				Australia			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	1 667 720	2 091 800	(18)	1 979 000	342 120	409 200	(4)	407 000
Total cash costs	$	1 805 990	1 631 100	(19)	1 528 000	282 650	291 900	(5)	291 000
Farm cash income	$	–138 280	460 700	(38)	451 000	59 470	117 300	(5)	116 000
Farms with negative farm cash income	%	50	25	(29)	21	30	24	(7)	25
Farm business profit	$	211 960	359 200	(41)	790 000	–16 460	57 500	(10)	48 000
Farms with negative farm business profit	%	59	34	(36)	31	69	54	(4)	53
Profit at full equity									
– excl. cap. appreciation	$	362 730	532 600	(25)	966 000	23 920	98 600	(6)	87 000
– incl. cap. appreciation	$	–883 700	–963 100	(39)	na	–3 550	58 300	(28)	na
Farm capital at 30 June **a**	$	18 839 180	18 713 300	(12)	na	4 015 550	3 923 500	(4)	na
Net capital additions	$	98 230	17 300	(794)	na	55 370	48 500	(47)	na
Farm debt at 30 June **b**	$	2 196 890	2 132 600	(16)	2 179 000	492 540	460 400	(8)	435 000
Change in debt – 1 July to 30 June **b**	%	5	5	(57)	2	8	4	(32)	–1
Equity at 30 June **bc**	$	8 939 320	7 399 800	(11)	na	3 336 910	3 297 000	(4)	na
Equity ratio **bd**	%	80	78	(4)	na	87	88	(1)	na
Farm liquid assets at 30 June **b**	$	72 200	95 100	(35)	na	145 380	157 000	(7)	na
Farm management deposits (FMDs) at 30 June **b**	$	12 900	5 800	(44)	na	28 620	34 100	(9)	na
Share of farms with FMDs at 30 June **b**	%	8	3	(43)	na	20	24	(8)	na
Rate of return e									
– excl. cap. appreciation	%	1.9	2.6	(25)	5.8	0.6	2.5	(6)	2.3
– incl. cap. appreciation	%	–4.5	–4.8	(36)	na	–0.1	1.5	(28)	na
Off–farm income of owner manager and spouse **b**	$	33 020	47 300	(34)	na	32 270	32 300	(6)	na

a Excludes leased plant and equipment. **b** Average per responding farm. **c** Farm capital minus farm debt. **d** Equity expressed as a percentage of farm capital. **e** Rate of return to farm capital at 1 July. **p** ABARES preliminary estimates. **y** ABARES provisional estimates. **na** Not available.

Receipts from beef cattle are projected to decrease by around 3 per cent owing to a decline in the number of cattle sold, despite a small increase in sale prices for cattle. Receipts from beef cattle typically account for around 70 per cent of average total cash receipts in Queensland.

Average total cash costs are projected to fall by around 10 per cent in 2011–12, mainly due to a large decline in livestock purchases expenditure, together with lower fodder expenditure.

Overall, with total cash costs declining by more than the reduction in total cash receipts, farm cash incomes for broadacre farms in Queensland are projected to rise to average $103 000 a farm in 2011–12, up from $89 100 a farm in 2010–11 (Tables 2 and 3) and around 23 per cent above the average farm cash income recorded for the 10 years to 2010–11 of $83 100.

Western Australia

Severe drought in Western Australia sharply reduced grain production in 2010–11. However, the reduction in farm cash incomes was partly cushioned by much higher grain prices in 2010–11, together with pool payments for grain delivered in 2009–10. Livestock numbers on broadacre farms in southern Western Australia were also markedly reduced as farms were destocked, increasing farm cash receipts but decreasing the value of farm inventories.

In 2011–12, a return to more average rainfall and seasonal conditions across most of southern Western Australia is estimated to have resulted in a marked increase in grain production and grain receipts in 2011–12, despite lower grain prices. However, average receipts for sheep, lambs, wool and beef cattle are projected to decline in 2011–12 as turn-off is reduced and farmers commence rebuilding flocks and herds.

Total cash costs are projected to increase by around 10 per cent on Western Australian broadacre farms in 2011–12, resulting mainly from an increase in the cost of harvesting and marketing increased grain production. Cash costs are expected to rise as a result of increased expenditure on repairs and maintenance, fuel, chemicals and fertiliser. Expenditure on interest payments and fodder is expected to decline.

Farm cash income for Western Australian broadacre farms is projected to rebound to average $180 000 per farm in 2011–12, around 29 per cent above the average for the 10 years to 2010–11.

South Australia

South Australian broadacre farm cash incomes are projected to decline to average $168 000 per farm in 2011–12 (Tables 2 and 3), around 45 per cent above the average farm cash income recorded for the 10 years to 2010–11. The decline in farm cash income is mainly driven by reduced wheat production from the record 2010–11 production, combined with lower grain prices in 2011–12. Reductions in crop receipts in 2011–12 would have been larger if substantial pool payments for grain delivered in 2010–11 had not been received. Receipts from sheep and lambs are projected to be higher this season because of an increase in the numbers sold.

Tasmania

After a substantial improvement in 2010–11, Tasmanian broadacre farm cash incomes are projected to further increase to an average of $105 000 per farm in 2011–12 (Tables 2 and 3). This is around 65 per cent above the average farm cash income recorded for the 10 years to 2010–11.

Favourable seasonal conditions in 2011–12 are projected to result in a small increase in beef cattle and lamb turn-off and a small increase in receipts.

Higher farm cash income in 2010–11 and 2011–12 have mainly been in response to increased receipts from livestock and wool, but average receipts from crops including potatoes and oil poppies also significantly increased, particularly in 2010–11.

Northern Territory

After several dry years in which pasture availability was poor and cattle numbers declined, seasonal conditions started to improve from 2008–09. Improved pasture availability allowing cattle numbers to increase through increased brandings, purchase and, in the case of corporately owned farm businesses, transfer from interstate in both 2008–09 and 2009–10.

In 2010–11, many businesses increased turn-off of beef cattle which, in combination with higher beef cattle prices, led to a rise in average farm cash income to $460 700 (Tables 2 and 3).

Many farm businesses in the upper portion of the Northern Territory derive more than 50 per cent of their total cash receipts from selling cattle for live export to Indonesia. Reliance is highest in the Top End–Gulf and Victoria River–Katherine regions and is also relatively high in the Barkly–Tennant Creek region. The number of cattle sold for live export to Indonesia was reduced in 2010–11, relative to the number sold in 2009–10 and is expected to be further reduced in 2011–12.

Around half of broadacre farm businesses in the Northern Territory are estimated to have derived more than 50 per cent of receipts from sale of cattle for live export in 2010–11. For these businesses highly reliant on export of live cattle, farm cash income is projected to decline by almost 50 per cent in 2010–12 from an average of $430 000 per farm in 2010–11 to $210 000 per farm in 2011–12.

In contrast, farm cash incomes are projected to increase by 26 per cent for farm businesses not heavily reliant on live cattle exports. Most of these farms are located in the southern and eastern portion of the Northern Territory closer to slaughter markets. For these farm businesses, farm cash income is projected to increase from $870 000 per farm in 2010–11 to just over $1 million per farm in 2011–12.

Overall in 2011–12, the number of cattle sold is projected to decline by around 6 per cent. Higher prices for cattle sold, partly reflecting higher sale weights, are expected to partially offset the reduction in number of beef cattle sold and beef cattle receipts are projected to decline by around 2 per cent. Overall, total cash costs are also expected to fall for Northern Territory farm businesses mainly because of a reduction in the number and value of cattle transferred to corporately owned properties.

Farm cash income is expected to decline in 2011–12 to average $451 000 per farm. Beef cattle numbers are expected to increase on Northern Territory properties in 2011–12, resulting in a substantial increase in the value of cattle inventories and a rise in farm business profit.

Performance, by industry

Summary information on financial performance in Australian broadacre and dairy industries is provided in Table 4 and Figures 5 and 6.

Wheat and other crops industry

Average farm cash income for the wheat and other crops industry improved significantly in 2010–11 compared with 2009–10 because of large increases in grain and oilseed production in New South Wales, Victoria, Queensland and South Australia, combined with higher grain and oilseed prices (Figure 5.1). At the same time, there was only a relatively small rise in total cash costs resulting mainly from higher expenditure on fertiliser, fuel, crop chemicals, interest payments and costs associated with harvesting a larger crop than in 2009–10.

TABLE 4 Financial performance of broadacre farms, by industry average per farm

	Farm cash income			Farm business profit p		
	2009–10	2010–11p	2011–12y	2009–10	2010–11p	2011–12y
	$	$	$	$	$	$
Wheat and other crops	107 910	241 300	213 000	–14 040	167 000	85 000
Mixed livestock crops	47 340	127 900	107 000	–32 340	56 900	25 000
Beef industry	35 120	59 100	67 000	–16 440	9 500	33 000
Sheep	60 560	95 000	113 000	2 560	44 100	60 000
Sheep beef	79 350	105 400	137 000	–6 710	52 000	80 000
All broadacre industries	59 470	117 300	116 000	–16 460	57 500	48 000
Dairy	75 110	141 000	136 000	–3 660	69 200	44 000

	Rate of return - excluding capital appreciation a			Rate of return - including capital appreciation a	
	2009–10	2010–11p	2011–12y	2009–10	2010–11p
	%	%	%	%	%
Wheat and other crops	1.3	5.4	3.5	-0.8	4.3
Mixed livestock crops	0.2	2.6	1.8	0.4	3.0
Beef industry	0.3	0.9	1.5	0.0	-1.6
Sheep	0.9	2.6	3.1	0.4	2.6
Sheep beef	0.6	2.0	2.6	1.6	1.7
All broadacre industries	0.6	2.5	2.3	–0.1	1.5
Dairy	1.6	3.9	3.1	0.2	0.9

a Defined as profit at full equity, excluding capital appreciation, as a percentage of total opening capital. Profit at full equity is defined as farm business profit plus rent, interest and lease payments less depreciation on leased items. p ABARES preliminary estimates. y ABARES provisional estimates.

Despite record Australian grain and oilseed production in 2011–12, lower prices for most grains and oilseeds together with increases in farm costs are projected to result in a fall in overall average farm cash income for wheat and other crops industry farms.

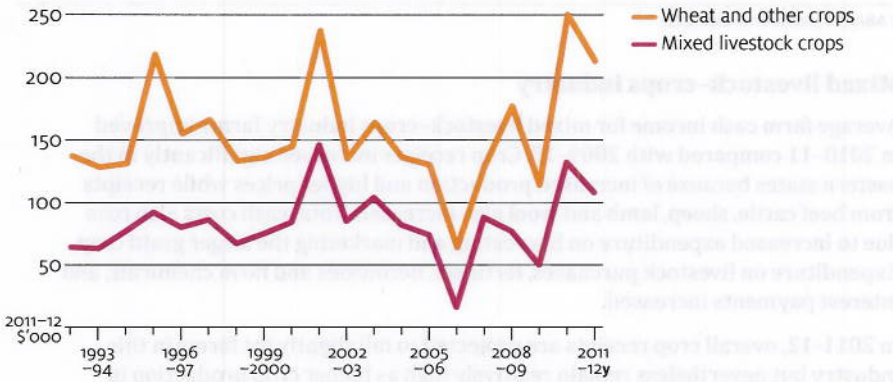
Farm cash income is projected to average $213 000 a farm in 2011–12, significantly below the average farm cash income for 2010–11, but still around 35 per cent above the industry average for the previous 10 years (Tables 4 and 5, Figure 5.1).

However, in Western Australia, average farm cash income for wheat and other crops industry farms is projected to rise significantly as a result of the marked turnaround in winter crop production in 2011–12 compared with the drought-reduced 2010–11 crop. In contrast, average farm cash income for wheat and other crops industry farms is projected to decline in New South Wales, Victoria and South Australia due to lower winter crop production in 2011–12 and lower grain and oilseed prices. However, production of summer crops, including rice, is expected to increase in New South Wales in 2011–12. In both New South Wales and Queensland, income from cotton is projected to contribute to higher incomes for some farms in 2011–12.

Overall, total cash costs for wheat and other crops industry farms are projected to increase by around 2 per cent in 2011–12, mainly due to the higher costs of harvesting and marketing the larger crop in Western Australia and Queensland together with a general increase in expenditure on fertiliser, fuel, crop chemicals and repairs compared with 2010–11. In contrast to these increased costs, it is projected that expenditure on interest payments will be reduced mainly from a small reduction in average debt.

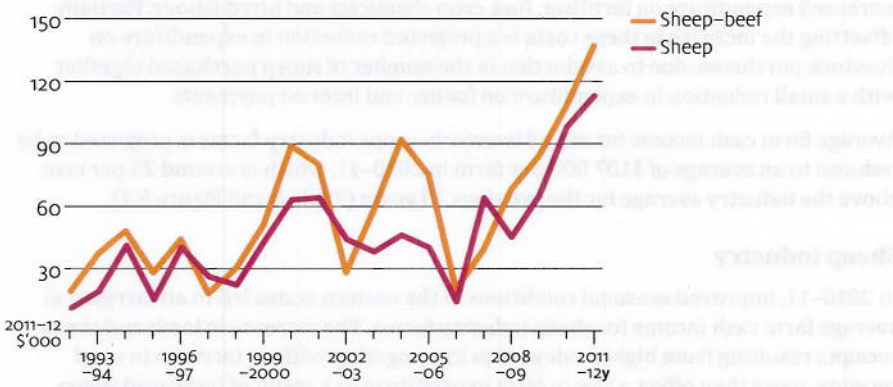
Wheat and other crops industry farms are projected to record the highest rate of return among the surveyed industries in 2011–12 (Table 4), although there is substantial variation across the states. Wheat and other crops industry farms have recorded the highest average rate of return among broadacre industries in 19 of the past 20 years.

FIGURE 5.1 Farm cash income, grains industry



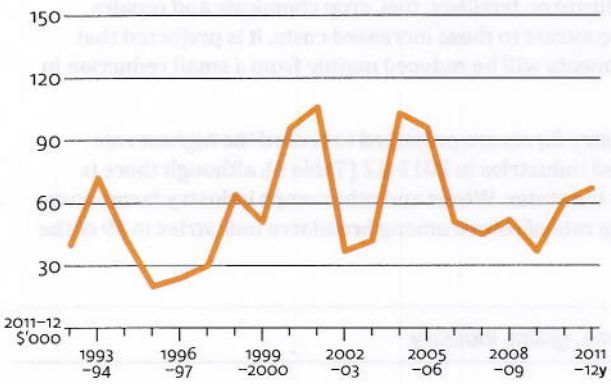
y ABARES provisional estimate.

FIGURE 5.2 Farm cash income, sheep industries



y ABARES provisional estimate.

FIGURE 5.3 Farm cash income beef industry



y ABARES provisional estimate.

Mixed livestock–crops industry

Average farm cash income for mixed livestock–crops industry farms improved in 2010–11 compared with 2009–10. Crop receipts increased significantly in the eastern states because of increased production and higher prices while receipts from beef cattle, sheep, lamb and wool also increased. Total cash costs also rose due to increased expenditure on harvesting and marketing the larger grain crop. Expenditure on livestock purchases, fertiliser, herbicides and farm chemicals, and interest payments increased.

In 2011–12, overall crop receipts are projected to fall slightly for farms in this industry but nevertheless remain relatively high as higher crop production in Western Australia is expected to mostly offset lower grain prices, and lower crop production in other states. Receipts from beef cattle, sheep and lambs are projected to decline slightly as a result of a small reduction in the number of sheep and lambs sold, particularly in Western Australia following particularly high turn-off in 2010–11.

Total cash costs are projected to rise by around 3 per cent due to increased costs of harvesting and marketing the much larger Western Australian crop, together with increased expenditure on fertiliser, fuel, crop chemicals and hired labour. Partially offsetting the increase in these costs is a projected reduction in expenditure on livestock purchases, due to a reduction in the number of sheep purchased together with a small reduction in expenditure on fodder and interest payments.

Average farm cash income for mixed livestock–crops industry farms is projected to be reduced to an average of $107 000 per farm in 2010–11, which is around 25 per cent above the industry average for the previous 10 years (Table 6 and Figure 5.1).

Sheep industry

In 2010–11, improved seasonal conditions in the eastern states led to an increase in average farm cash income for sheep industry farms. The increase in lamb and sheep receipts resulting from higher saleyard prices, together with an increase in wool receipts, more than offset a rise in farm expenditure as a result of increased sheep purchases and higher repair expenditure (Tables 4 and 6, Figure 5.2).

In 2011–12, farm cash income for sheep industry farms is projected to increase to average $113 000 per farm (Tables 4 and 6, Figure 5.2). If achieved, this would be the highest real farm cash income for the sheep industry since 1988–89.

This income is mainly driven by an expected increase in lamb receipts from a greater number of lambs sold, together with increased wool receipts from a greater amount of wool sold and higher wool prices achieved. Higher total cash receipts are projected to be partly offset by an increase in total cash costs of around 6 per cent, with expenditure on hired labour, shearing and crutching, fertiliser, repairs and fuel all expected to increase. In addition, expenditure on sheep purchases is expected to remain high in real terms and similar to that recorded in 2010–11, when turn-off of both sheep and lambs declined as flock rebuilding commenced.

Sheep–beef industry

In 2010–11, beef cattle and sheep turn-off reduced on sheep–beef farms in the eastern states in response to improved seasonal conditions. Despite reduced sales, higher beef, sheep and wool prices resulted in a small increase in total cash receipts. Higher cash receipts combined with a slight reduction in total cash costs resulted in farm cash income rising to average $105 400 per farm in the sheep–beef industry in 2010–11 (Tables 4 and 6).

In contrast, turn-off of both beef cattle and sheep is expected to increase in 2011–12 and lead to a further rise in receipts from sale of beef cattle, sheep and lambs. Wool receipts are also projected to rise as a result of both higher prices and a small increase in quantity of wool sold. At the same time, total cash costs are projected to decline by around 3 per cent, with expenditure on purchase of sheep and beef cattle expected to decline from the high recorded in 2010–11.

Overall, farm cash income for the sheep–beef industry is projected to average $137 000 per farm in 2011–12 (Tables 4 and 6), which in real terms is among the highest recorded for this industry in the past 30 years.

Beef industry

In 2010–11, beef cattle turn-off slowed in eastern states and beef cattle numbers increased. In the Northern Territory herd numbers remained relatively stable despite an increase in turn-off and in Western Australia cattle numbers decreased as dry seasonal conditions resulted in higher turn-off. Overall, the average number of cattle that beef industry farms sold remained similar to 2009–10, but increases in prices received for cattle resulted in total cash receipts for beef industry farms rising by around 8 per cent. Although expenditure on beef cattle purchases increased, total cash costs were reduced, on average, due mainly to improved seasonal conditions leading to a reduction in expenditure on fodder. Overall, with total cash receipts increasing and total cash costs decreasing, farm cash income increased to average $59 100 per farm for beef industry farms.

In 2011–12, the average number of cattle that beef industry farms sold is projected to be reduced and, despite an increase in average sale prices partly resulting from sale of heavier cattle, on average beef cattle receipts are projected to fall by around 2 per cent. An increase in cattle numbers in the past two years, particularly in northern Australia, together with the high cattle prices is projected to result in a marked reduction in the number of cattle that beef industry farms purchase and a sharp reduction in cattle purchase expenditure. With a small reduction in the number of animals sold and a relatively large reduction in the number of cattle purchased net turn-off of cattle for slaughter is expected to be only slightly reduced overall.

Lower expenditure on beef cattle purchases, together with reduced expenditure on fodder and interest payments is projected to result in average total cash costs for beef industry farms declining by around 10 per cent. With only a small reduction in cash receipts and much larger reduction in cash costs, average farm cash income is projected to increase to average $67 000 per farm in 2011–12 (Table 6). If achieved, this would be around 6 per cent above the average for the previous 10 years.

In southern Australia, New South Wales, Victoria, South Australia, Tasmania and southern Western Australia where small herd size farms predominate, farm cash income for beef industry farms is projected to increase from an average of $35 400 per farm in 2010–11 to an average of $45 300 per farm in 2011–12.

In Queensland, the Northern Territory and northern Western Australia, where average herd size is much larger than the rest of Australia, farm cash income for beef industry farms is projected to increase from an average of $91 700 per farm in 2010–11 to an average of $107 000 in 2011–12.

Many farms in the far north of Australia are highly reliant on sale of cattle for live export, particularly to Indonesia. According to AAGIS, around 300 beef industry farms derived more than 50 per cent of receipts from sale of cattle for live export in 2010–11. As a result of further reductions in the number of cattle expected to be sold for live export to Indonesia in 2011–12, farm cash income for these businesses is projected to decline by around 40 per cent from an average of $519 000 per farm in 2010–11 to around $310 000 per farm in 2011–12.

However, overall farm cash income is projected to increase for northern Australian farms from an average of $127 000 per farm business in 2010–11 to an average of $165 000 in 2011–12. Although turn-off of cattle for live export was reduced in 2010–11 and is expected to be further reduced in 2011–12, farms received higher average prices for cattle for slaughter, partly due to higher sale weights for cattle resulting from excellent seasonal conditions in 2011–12, together with a substantial reduction in expenditure on cattle purchased and transferred onto northern properties.

Further, the increase in average farm cash income in the northern live cattle export regions is mainly being driven by improved performance of the largest corporately owned farm businesses. Farm cash income for family operated farm businesses in the northern live cattle export region is expected to average $120 000 per business in 2011–12, similar to the level in 2010–11.

In 2011–12, beef cattle numbers are expected to increase in almost all regions of both northern and southern Australia, resulting in a further boost to the value of inventories of cattle on farms. As a result, farm business profit in most regions is expected to increase in percentage terms by a relatively larger amount than farm cash income.

Dairy industry

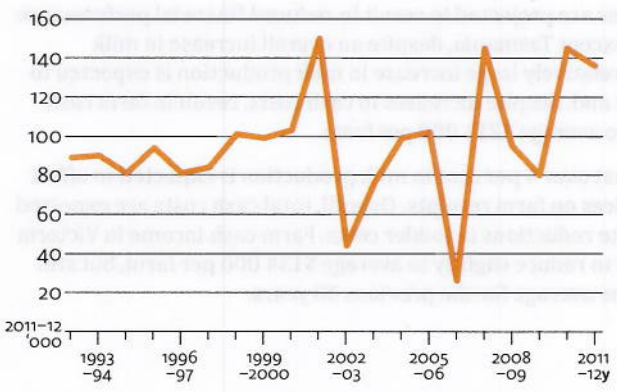
Farm cash income for dairy farms in Victoria, Tasmania, South Australia and the southern dairying regions of New South Wales increased in 2010–11 as a result of higher prices paid for milk in regions producing mainly manufacturing milk, together with a small increase in milk production. Average farm cash income in Victoria rose to $140 200 per farm in 2010–11 and in Tasmania farm cash income increased to average $159 900 per farm. In Queensland average milk prices remained steady and farm cash income remained unchanged compared with 2009–10. In contrast, average farm cash income declined in New South Wales and Western Australia where average milk prices received declined (Table 7).

TABLE 5 Financial performance, dairy industry average per farm

		2009–10	2010–11p		2011–12y
Total cash receipts	$	508 490	575 700	(4)	563 000
Total cash costs	$	433 380	434 700	(4)	427 000
Farm cash income	$	75 110	141 000	(9)	136 000
Farms with negative farm cash income	%	24	11	(42)	12
Farm business profit	$	–3 660	69 200	(17)	44 000
Farms with negative farm business profit	%	59	34	(17)	38
Profit at full equity					
– excl. cap. appreciation	$	57 450	134 100	(9)	107 000
– incl. cap. appreciation	$	7 760	30 500	(108)	na
Farm capital at 30 June **a**	$	3 614 800	3 428 700	(4)	na
Net capital additions	$	73 770	54 100	(43)	na
Farm debt at 30 June **b**	$	666 390	663 800	(7)	660 000
Change in debt – 1 July to 30 June **b**	%	8	1	(402)	7
Equity at 30 June **bc**	$	2 967 960	2 752 400	(5)	na
Equity ratio **bd**	%	82	81	(2)	na
Farm liquid assets at 30 June **b**	$	118 370	123 300	(12)	na
Farm management deposits (FMDs) at 30 June **b**	$	21 210	20 000	(24)	na
Share of farms with FMDs at 30 June **b**	%	18	17	(23)	na
Rate of return e					
– excl. cap. appreciation	%	1.6	3.9	(8)	3.1
– incl. cap. appreciation	%	0.2	0.9	(106)	na
Off-farm income of owner manager and spouse **b**	$	20 330	19 500	(20)	na

a Excludes leased plant and equipment. **b** Average per responding farm. **c** Farm capital minus farm debt. **d** Equity expressed as a percentage of farm capital. **e** Rate of return to farm capital at 1 July. **p** ABARES preliminary estimates. **y** ABARES provisional estimates. **na** Not available.

FIGURE 6 Farm cash income, dairy industry



y ABARES provisional estimate.

TABLE 6 Financial performance, by industry, broadacre industries average per farm

		Wheat and other crops industry				Mixed livestock -crops industry			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	637 150	777 300	(10)	783 000	306 250	442 300	(5)	427 000
Total cash costs	$	529 250	533 800	(10)	569 000	258 910	312 100	(6)	320 000
Farm cash income	$	107 910	241 300	(13)	213 000	47 340	127 900	(8)	107 000
Farms with negative farm cash income	%	34	25	(24)	24	40	23	(21)	27
Farm business profit	$	–14 040	167 000	(15)	85 000	–32 340	56 900	(17)	25 000
Farms with negative farm business profit	%	65	45	(13)	53	71	49	(9)	56
Profit at full equity									
– excl. cap. appreciation	$	65 620	248 700	(11)	161 000	7 480	107 600	(10)	69 000
– incl. cap. appreciation	$	–39 450	193 800	(39)	na	14 450	117 700	(19)	na
Farm capital at 30 June **a**	$	5 098 080	4 717 800	(9)	na	3 482 580	3 980 300	(6)	na
Net capital additions	$	172 220	209 300	(48)	na	87 750	–27 500	(210)	na
Farm debt at 30 June **b**	$	1 012 310	893 800	(13)	806 000	467 990	493 200	(9)	491 000
Change in debt –1 July to 30 June **b**	%	12	6	(58)	–6	6	4	(54)	–1
Equity at 30 June **bc**	$	3 913 760	3 743 500	(9)	na	2 970 260	3 427 100	(6)	na
Equity ratio **bd**	%	79	81	(2)	na	86	87	(1)	na
Farm liquid assets at 30 June **b**	$	184 360	203 400	(14)	na	127 220	141 900	(14)	na
Farm management deposits (FMDs) at 30 June **b**	$	49 180	56 900	(28)	na	21 640	32 100	(20)	na
Share of farms with FMDs at 30 June **b**	%	22	31	(19)	na	20	26	(14)	na
Rate of return g									
– excl. cap. appreciation	%	1.3	5.4	(10)	3.5	0.2	2.6	(11)	1.8
– incl. cap. appreciation	%	–0.8	4.3	(40)	na	0.4	2.6	(20)	na
Off-farm income of owner manager and spouse **b**	$	30 890	29 500	(9)	na	31 380	30 000	(11)	na

continued...

In 2011–12, lower milk prices are projected to result in reduced financial performance of dairy farms in all states except Tasmania, despite an overall increase in milk production. In Tasmania, a relatively large increase in milk production is expected to boost average milk receipts and, despite increases in cash costs, result in farm cash income in that state rising to average $211 000 per farm.

In Victoria, an increase of just over 4 per cent in milk production is expected to offset the impact of lower milk prices on farm receipts. Overall, total cash costs are expected to remain unchanged despite reductions in fodder costs. Farm cash income in Victoria for dairy farms is projected to reduce slightly to average $134 000 per farm, but still around 40 per cent above the average for the previous 10 years.

TABLE 6 Financial performance, by industry, broadacre industries average per farm continued

		Sheep industry				Beef industry			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	229 470	257 800	(10)	308 000	250 340	237 200	(9)	250 000
Total cash costs	$	168 910	169 900	(9)	195 000	215 220	182 800	(10)	184 000
Farm cash income	$	60 560	95 000	(13)	113 000	35 120	59 100	(13)	67 000
Farms with negative farm cash income	%	18	23	(25)	16	30	29	(14)	32
Farm business profit	$	2 560	44 100	(29)	60 000	–16 440	9 500	(988)	33 000
Farms with negative farm business profit	%	61	48	(12)	45	78	67	(5)	61
Profit at full equity									
– excl. cap. appreciation	$	22 660	60 600	(22)	81 000	12 460	28 600	(25)	60 000
– incl. cap. appreciation	$	11 180	63 600	(27)	na	– 430	–64 200	(50)	na
Farm capital at 30 June **a**	$	2 671 410	2 475 400	(6)	na	4 240 220	3 938 800	(6)	na
Net capital additions	$	10 640	24 100	(70)	na	18 440	45 600	(48)	na
Farm debt at 30 June **b**	$	244 930	216 800	(16)	247 000	351 280	326 100	(12)	320 000
Change in debt –1 July to 30 June **b**	%	4	–3	(105)	2	7	3	(95)	4
Equity at 30 June **bc**	$	2 370 240	2 253 600	(6)	na	3 540 490	3 529 800	(6)	na
Equity ratio **bd**	%	91	91	(1)	na	91	92	(1)	na
Farm liquid assets at 30 June **b**	$	115 500	166 400	(22)	na	144 820	143 900	(15)	na
Farm management deposits (FMDs) at 30 June **b**	$	25 570	34 500	(26)	na	23 490	21 300	(18)	na
Share of farms with FMDs at 30 June **b**	%	19	21	(22)	na	19	15	(21)	na
Rate of return g									
– excl. cap. appreciation	%	0.9	2.6	(19)	3.1	0.3	0.9	(23)	1.5
– incl. cap. appreciation	%	0.4	2.5	(25)	na	0.0	–1.2	(50)	na
Off-farm income of owner manager and spouse **b**	$	34 610	37 800	(16)	na	34 130	35 200	(13)	na

continued...

In Queensland, Western Australia and South Australia, lower milk prices, combined with reduced milk production is projected to result in lower farm cash incomes, despite some reduction in total cash costs as a consequence of reduced expenditure on fodder. Farm cash income is projected to average $89 000 per farm in Queensland and around $126 000 per farm in Western Australia.

In New South Wales, increased milk production and lower fodder expenditure is projected to offset reductions in milk prices and result in a farm cash income declining marginally to average $137 000 per farm. Average farm cash income for dairy farms in New South Wales is projected to remain about 30 per cent above the average for the previous 10 years.

When the variations to projected farm cash incomes for dairy farms across Australia are taken into account, the overall average farm cash income for Australian dairy farms is projected to decline slightly to average $136 000 per farm in 2011–12, around 30 per cent above the average for the 10 years to 2010–11 (Table 5, Figure 6).

TABLE 6 Financial performance, by industry, broadacre industries

average per farm continued

		Sheep-beef industry			
		2009–10	2010–11p		2011–12y
Total cash receipts	$	318 340	311 100	(8)	360 000
Total cash costs	$	238 990	210 400	(11)	223 000
Farm cash income	$	79 350	105 400	(12)	137 000
Farms with negative farm cash income	%	17	11	(38)	9
Farm business profit	$	−6 710	52 000	(23)	80 000
Farms with negative farm business profit	%	54	35	(18)	30
Profit at full equity					
– excl. cap. appreciation	$	24 190	70 000	(18)	106 000
– incl. cap. appreciation	$	68 110	63 600	(38)	na
Farm capital at 30 June a	$	4 293 240	3 749 400	(15)	na
Net capital additions	$	−87 730	24 600	(184)	na
Farm debt at 30 June b	$	331 230	265 900	(26)	286 000
Change in debt –1 July to 30 June b	%	1	5	(100)	−4
Equity at 30 June bc	$	3 821 490	3 393 200	(10)	na
Equity ratio bd	%	92	93	(2)	na
Farm liquid assets at 30 June b	$	157 860	174 600	(19)	na
Farm management deposits (FMDs) at 30 June b	$	26 260	45 400	(25)	na
Share of farms with FMDs at 30 June b	%	26	34	(18)	na
Rate of return g					
– excl. cap. appreciation	%	0.6	2.0	(23)	2.6
– incl. cap. appreciation	%	1.6	1.5	(45)	na
Off-farm income of owner manager and spouse b	$	26 400	18 000	(12)	na

a Excludes leased plant and equipment. b Average per responding farm. c Farm capital minus farm debt. d Equity expressed as a percentage of farm capital. e Harvest loans are not included in farm debt. g Rate of return to farm capital at 1 July. p Preliminary estimates. y Provisional estimates. na Not Available.

TABLE 7 Financial performance, by state, dairy industry average per farm

		New South Wales				Victoria			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	699 710	679 300	(4)	660 000	430 640	526 500	(6)	519 000
Total cash costs	$	526 390	541 600	(6)	523 000	380 570	386 400	(7)	386 000
Farm cash income	$	173 330	137 700	(13)	137 000	50 070	140 200	(13)	134 000
Farms with negative farm cash income	%	8	10	(42)	10	29	11	(58)	10
Farm business profit	$	85 660	52 800	(36)	21 000	–22 550	76 700	(22)	52 000
Farms with negative farm business profit	%	29	35	(13)	42	66	32	(26)	32
Profit at full equity									
- excl. cap. appreciation	$	135 510	120 100	(11)	91 000	37 500	135 800	(12)	109 000
- incl. cap. appreciation	$	108 150	87 200	(26)	na	–16 380	17 300	(264)	na
Farm capital at 30 June **a**	$	4 163 070	3 964 900	(5)	na	3 145 670	2 981 800	(6)	na
Net capital additions	$	101 890	32 700	(95)	na	68 500	52 500	(64)	na
Farm debt at 30 June **b**	$	525 390	602 700	(9)	560 000	652 460	601 900	(11)	606 000
Change in debt - 1 July to 30 June **b**	%	11.0	9.0	(53)	–1.0	8.0	–1.0	(241)	10.0
Equity at 30 June **bc**	$	3 549 540	3 291 000	(6)	na	2 520 320	2 371 600	(7)	na
Equity ratio **bd**	%	87	85	(2)	na	79	80	(3)	na
Farm liquid assets at 30 June **b**	$	na	183 100	(22)	na	na	127 300	(16)	na
Farm management deposits (FMDs) at 30 June **b**	$	60 100	43 300	(30)	na	16 810	16 500	(40)	na
Share of farms with FMDs at 30 June **b**	%	38	31	(25)	na	16	14	(38)	na
Rate of return g									
– excl. cap. appreciation	%	3.3	3.0	(11)	2.4	1.2	4.5	(10)	3.5
– incl. cap. appreciation	%	2.6	2.2	(26)	na	-0.5	0.6	(262)	na
Off-farm income of owner manager and spouse **b**	$	19 860	18 100	(17)	na	22 610	22 300	(22)	na

continued...

TABLE 7 Financial performance, by state, dairy industry average per farm continued

		Queensland				Western Australia			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	492 800	476 700	(5)	414 000	862 630	830 600	(9)	772 000
Total cash costs	$	378 740	361 400	(6)	325 000	692 340	690 500	(10)	646 000
Farm cash income	$	114 060	115 400	(14)	89 000	170 280	140 100	(21)	126 000
Farms with negative farm cash income	%	17	5	(87)	18	13	13	(56)	15
Farm business profit	$	30 680	15 300	(138)	–26 000	79 280	7 500	(383)	1 000
Farms with negative farm business profit	%	62	54	(20)	73	30	47	(27)	53
Profit at full equity									
– excl. cap. appreciation	$	54 560	36 200	(56)	–8 000	156 810	87 400	(34)	78 000
– incl. cap. appreciation	$	66 370	–90 500	(134)	na	–261 330	–110 900	(105)	na
Farm capital at 30 June a	$	3 453 430	3 308 000	(9)	na	8 857 790	8 703 600	(11)	na
Net capital additions	$	18 780	33 800	(50)	na	282 540	134 700	(51)	na
Farm debt at 30 June b	$	269 050	220 300	(20)	204 000	768 390	809 600	(20)	724 000
Change in debt - 1 July to 30 June b	%	14.0	6.0	(117)	1.0	4.0	9.0	(48)	3.0
Equity at 30 June bc	$	3 174 110	3 080 200	(9)	na	8 089 400	7 864 100	(12)	na
Equity ratio bd	%	92	93	(1)	na	91	91	(2)	na
Farm liquid assets at 30 June b	$	na	97 600	(35)	na	na	118 300	(29)	na
Farm management deposits (FMDs) at 30 June b	$	11 840	17 100	(45)	na	14 860	21 500	(65)	na
Share of farms with FMDs at 30 June b	%	14	20	(44)	na	13	16	(62)	na
Rate of return g									
– excl. cap. appreciation	%	1.6	1.1	(57)	-0.2	1.7	1.0	(36)	0.9
– incl. cap. appreciation	%	1.9	–2.6	(132)	na	–2.9	–1.3	(101)	na
Off-farm income of owner manager and spouse b	$	14 710	10 700	(32)	na	15 310	11 300	(22)	na

continued...

TABLE 7 Financial performance, by state, dairy industry average per farm continued

		South Australia				Tasmania			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Total cash receipts	$	763 930	866 700	(5)	794 000	702 700	754 500	(13)	817 000
Total cash costs	$	635 560	680 900	(6)	643 000	670 860	594 600	(14)	607 000
Farm cash income	$	128 370	185 800	(16)	152 000	31 840	159 900	(18)	211 000
Farms with negative farm cash income	%	19	21	(42)	31	23	6	(79)	5
Farm business profit	$	9 600	93 100	(31)	21 000	−57 580	100 600	(27)	123 000
Farms with negative farm business profit	%	41	35	(27)	41	70	14	(60)	36
Profit at full equity									
– excl. cap. appreciation	$	80 380	190 700	(14)	112 000	77 740	257 500	(13)	282 000
– incl. cap. appreciation	$	64 740	135 900	(36)	na	95 870	231 000	(16)	na
Farm capital at 1 July a	$	4 266 490	4 179 100	(7)	na	5 291 810	4 775 800	(18)	na
Net capital additions	$	26 380	45 900	(99)	na	98 210	109 700	(41)	na
Farm debt at 30 June b	$	808 410	1 024 200	(13)	987 000	1 527 120	1 756 200	(16)	1 822 000
Change in debt - 1 July to 30 June b	%	2.0	0.0	(933)	2.0	6.0	0.0	(256)	3.0
Equity at 30 June bc	$	3 453 330	3 144 800	(9)	na	3 761 790	3 018 300	(24)	na
Equity ratio bd	%	81	75	(4)	na	71	63	(9)	na
Farm liquid assets at 30 June b	$	na	83 700	(26)	na	na	33 900	(37)	na
Farm management deposits (FMDs) at 30 June b	$	34 950	34 900	(44)	na	440	7 400	(70)	na
Share of farms with FMDs at 30 June b	%	24	23	(36)	na	2	9	(111)	na
Rate of return g									
– excl. cap. appreciation	%	1.9	4.6	(14)	2.7	1.5	5.5	(10)	5.8
– incl. cap. appreciation	%	1.5	3.3	(37)	na	1.8	5.0	(18)	na
Off-farm income of owner manager and spouse b	$	16 580	18 000	(17)	na	8 370	8 700	(31)	na

a Excludes leased plant and equipment. b Average per responding farm. c Farm capital minus farm debt. d Equity expressed as a percentage of farm capital. e Harvest loans are not included in farm debt. g Rate of return to farm capital at 1 July. p Preliminary estimates. y Provisional estimates. na Not Available.

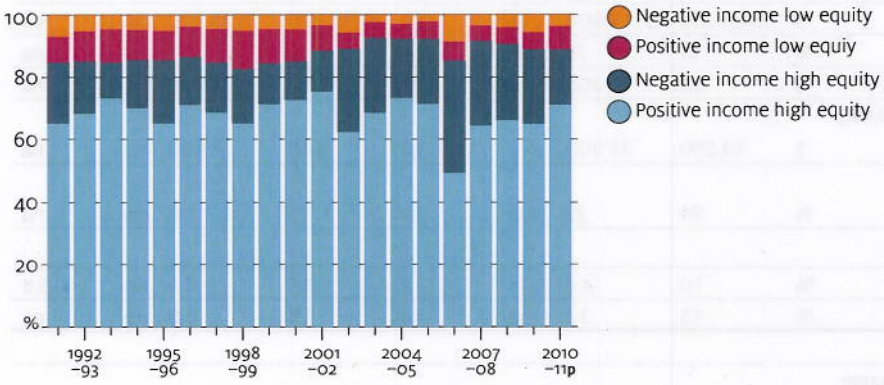
Farm equity

On average, farm business equity remained strong for broadacre and dairy farms. The average equity ratio for broadacre farms, at 30 June 2011, was estimated to be 88 per cent, and the average equity ratio for dairy farms 81 per cent (Tables 1 and 5).

In some regions, farm equity is estimated to have fallen slightly in both 2009–10 and 2010–11 mainly as a consequence of reductions in reported land values. However, in other regions, reductions in farm debt and capital purchases have resulted in increased farm equity.

The proportion of broadacre and dairy farms estimated to have a farm business equity ratio of greater than 70 per cent declined from 91 per cent in 2008–09 to 89 per cent in both 2009–10 and 2010–11. Meanwhile, the proportion of farms recording negative farm cash incomes declined slightly from 30 per cent in 2009–10 to 22 per cent in 2010–11 (Figure 7). The proportion of farms recording both an equity ratio of less than 70 per cent and negative farm cash income declined from 6 per cent in 2009–10 to 4 per cent in 2010–11.

FIGURE 7 Distribution of farms by equity and farm cash income, broadacre and dairy industry



Note: High equity is defined as greater than 70 per cent equity in the farm business at 30 June.
p ABARES preliminary estimate.

The proportion of broadacre farms recording negative farm cash income and therefore potentially needing to borrow working capital is projected to increase slightly from 24 per cent in 2010–11 to 25 per cent in 2011–12. The proportion of broadacre farms in New South Wales, Victoria and Tasmania recording negative farm cash incomes is projected to rise, but a reduction is expected in Queensland, Western Australia, South Australia and the Northern Territory (Table 2). The proportion of dairy industry farms recording negative farm cash income is projected to increase slightly from 11 per cent in 2009–10 to 12 per cent in 2010–11 (Table 5), with most of the increase occurring in Queensland.

Farm debt

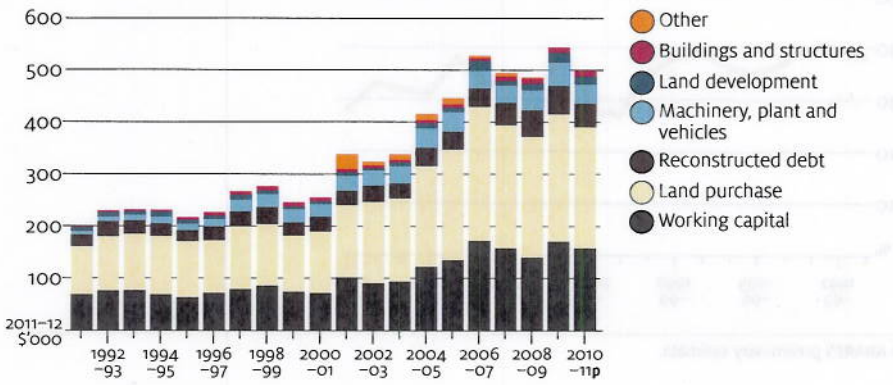
Growth in average debt per farm business in the broadacre and dairy sectors has slowed in the period since 2006–07 (Figure 8).

Average debt per farm business more than doubled between 2000–01 and 2006–07, from an average of $255 000 per farm in 2000–01 to $526 000 per farm in 2006–07 for broadacre and dairy farms. A number of factors contributed to the growth in debt over this period, including the effects of lower interest rates, increases in farm size, changes in commodities produced and reduced farm incomes in the 2000s as a consequence of widespread and extended drought.

Throughout much of the 2000s, interest rates were historically low, reducing the cost of servicing debt and encouraging borrowing for farm investment. Provision of interest rate subsidies as part of drought assistance programs to many farms also supported borrowing.

Structural adjustment has resulted in producers changing the mix of commodities produced and increasing farm size. The largest contribution to increases in farm debt on broadacre and dairy farms has been borrowing to fund new investment, particularly borrowing to fund purchase of land, machinery and vehicles and to develop land and farm improvements. Debt to fund purchase of land accounts for the largest share of debt on broadacre and dairy farms, around 47 per cent in 2010–11 (Figure 8).

FIGURE 8 Composition of farm debt, broadacre and dairy industry



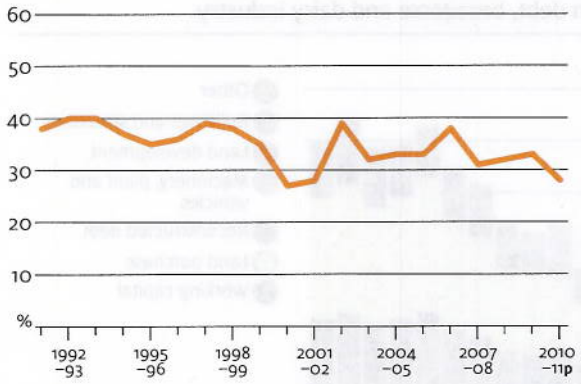
p ABARES preliminary estimate.

Debt to fund land purchases increased by 250 per cent in real terms between 1990–91 and 2010–11. However, borrowing to finance purchase of machinery, plant and vehicles increased most over the past 20 years, rising 500 per cent since 1990–91, in real terms. Over the same period, borrowing to finance farm buildings and structures increased by 450 per cent and borrowing to fund land development by 200 per cent.

During most of this period there was also a significant movement of resources away from less input-intensive wool production to more intensive cropping and prime lamb activities, requiring substantial new investment in machinery and borrowing to purchase inputs. Expansion of cropping activities and increased use of inputs such as herbicides and fertiliser contributed to the increase in farm debt as producers borrowed to purchase annual inputs. In addition, deregulation of grain markets led to increased investment in on-farm grain storage.

During the 2000s, adverse seasonal conditions depressed farm cash incomes in many regions and led to increased borrowing to meet working capital requirements. Working capital debt increased by 230 per cent between 1990–91 and 2010–11, accelerating rapidly after widespread drought began in 2002–03. In 2010–11, working capital debt accounted for 32 per cent of average farm debt, second only to land purchase debt.

FIGURE 9 Farms increasing debt, broadacre and dairy industry



p ABARES preliminary estimate.

Around 18 per cent of farms increased borrowing to fund on-farm investment each year for the 10 years ending 2010–11. This included borrowing to purchase land, vehicles and machinery, plant and farm improvements. Increases in land purchase debt were confined to a relatively small proportion of farms each year, less than 6 per cent, but on average these farms borrowed large amounts.

A much higher proportion of farms, around 27 per cent, increased borrowing to fund working capital in each of the 10 years ending 2010–11 and the average amount borrowed was smaller than that borrowed for investment.

The proportion of restructured debt increased substantially since 2007–08 as relatively low interest rates for some categories of loans and concern about expected future interest rate increases encouraged restructuring and consolidation of farm debt.

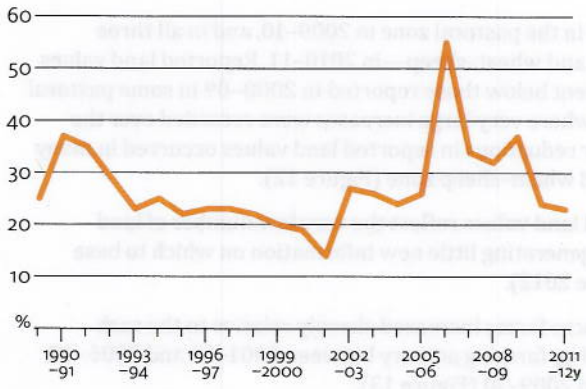
In the period since 2006–07 there appears to have been more restricted access to credit from lending institutions and a diminished appetite for further increases in farm debt by farm business. The proportion of farms increasing debt declined significantly in 2010–11 to be closer to the historical lows recorded in 2000–01 and 2001–02 (Figure 9). In addition, average debt for broadacre farms is projected to decline by a further 1 per cent in 2011–12 (Table 1).

Debt servicing

The proportion of farm cash income (before interest payment) needed to meet interest payments on farm debt (debt servicing ratio) declined in 2010–11 and is projected to further decline in 2011–12.

Debt servicing ratio trended upward from 2001–02 to 2009–10 (Figure 10). Interest rates rose throughout the period 2001–02 to 2007–08, and farm cash incomes were highly variable. They were particularly low in 2002–03 and 2006–07, when the debt servicing ratio rose sharply. Increases in interest rate subsidies paid to farm businesses through drought assistance partially offset the increase in interest paid between 2001–02 and 2007–08. However, most of the increase in the debt servicing ratio between 2001–02 and 2009–10 was due to increases in farm debt, rather than increases in interest rates.

FIGURE 10 Debt servicing ratio, broadacre and dairy industry



y ABARES provisional estimate.

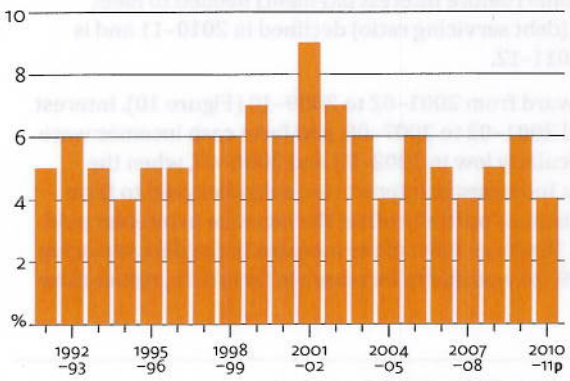
Despite increases in interest rates, in 2010–11 higher farm cash incomes resulted in the debt servicing ratio falling to 24 per cent. In 2011–12, relatively high farm cash incomes and slightly lower interest rates are projected to result in the debt servicing ratio falling to 23 per cent, which is closer to the average debt servicing ratios of the late 1990s.

Land values

The proportion of broadacre and dairy farms acquiring land decreased slightly to 4 per cent in 2010–11, which is below the average for the previous 10 years of 6 per cent (Figure 11).

One explanation for this trend in recent years is that established farmers considering land purchase appear to be paying much greater attention to farm profitability and risks than to expectations of long-term capital gain. A significant proportion of land purchases in the past two years have been by larger corporate and institutional entities.

FIGURE 11 Proportion of farms acquiring land



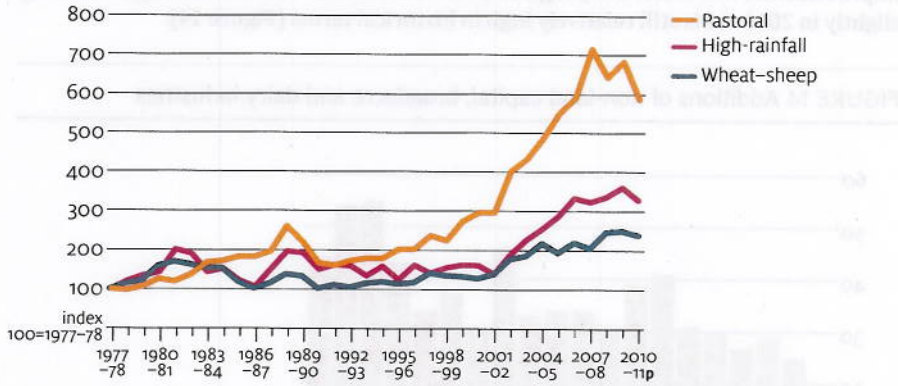
p ABARES preliminary estimate.

Reported land values declined in the pastoral zone in 2009–10, and in all three zones—pastoral, high-rainfall and wheat–sheep—in 2010–11. Reported land values in 2010–11 were up to 20 per cent below those reported in 2008–09 in some pastoral regions of northern Australia where very large increases were recorded over the previous decade. Much smaller reductions in reported land values occurred in many regions in the high-rainfall and wheat–sheep zone (Figure 12).

In part, reductions in reported land values reflect the very low number of land transactions in many regions generating little new information on which to base valuations (Herron Todd White 2012).

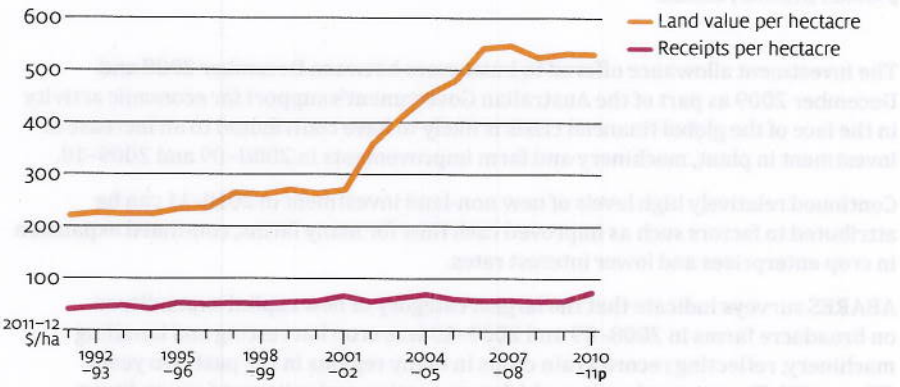
Average land prices for broadacre farms increased sharply relative to the cash receipts per hectare generated by farming activity between 2001–02 and 2006–07, then remained relatively flat to 2009–10 (Figure 13).

FIGURE 12 Land prices for broadacre farms, by zone



p ABARES preliminary estimate.

FIGURE 13 Land prices and receipts per hectare, broadacre farms



p ABARES preliminary estimate.

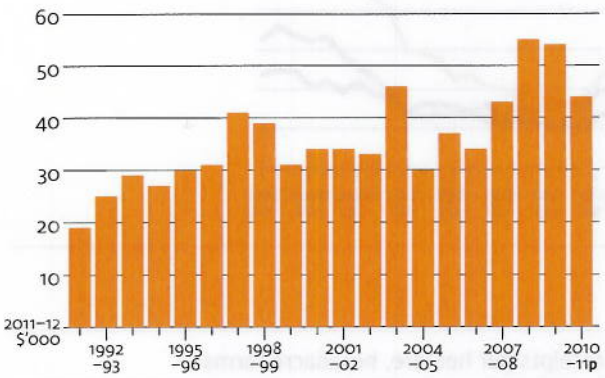
The ratio of average land price per hectare to total cash receipts per hectare more than doubled from around 4:1 before 2001–02 to around 10:1 in 2009–10 for broadacre farms (Figure 13). The ratio increased from 7:1 to 15:1 in the high-rainfall zone, and from 4:1 to 8:1 in the wheat–sheep zone. The largest increase was reported in the pastoral zone where the ratio increased from 4:1 to 10:1.

In 2010–11, average receipts per hectare rose by around 20 per cent in the wheat–sheep zone and the pastoral zone. Receipts per hectare are projected to remain high in 2011–12 slightly reducing the gap between land values and returns per hectare.

Farm investment

Investment in non-land capital, including vehicles, plant, machinery and farm improvements, was historically high in 2008–09 and 2009–10 and although declining slightly in 2010–11 is still relatively high in historical terms (Figure 14).

FIGURE 14 Additions of non-land capital, broadacre and dairy industries



p ABARES preliminary estimate.

The investment allowance offered to businesses between December 2008 and December 2009 as part of the Australian Government's support for economic activity in the face of the global financial crisis is likely to have contributed to an increase in investment in plant, machinery and farm improvements in 2008–09 and 2009–10.

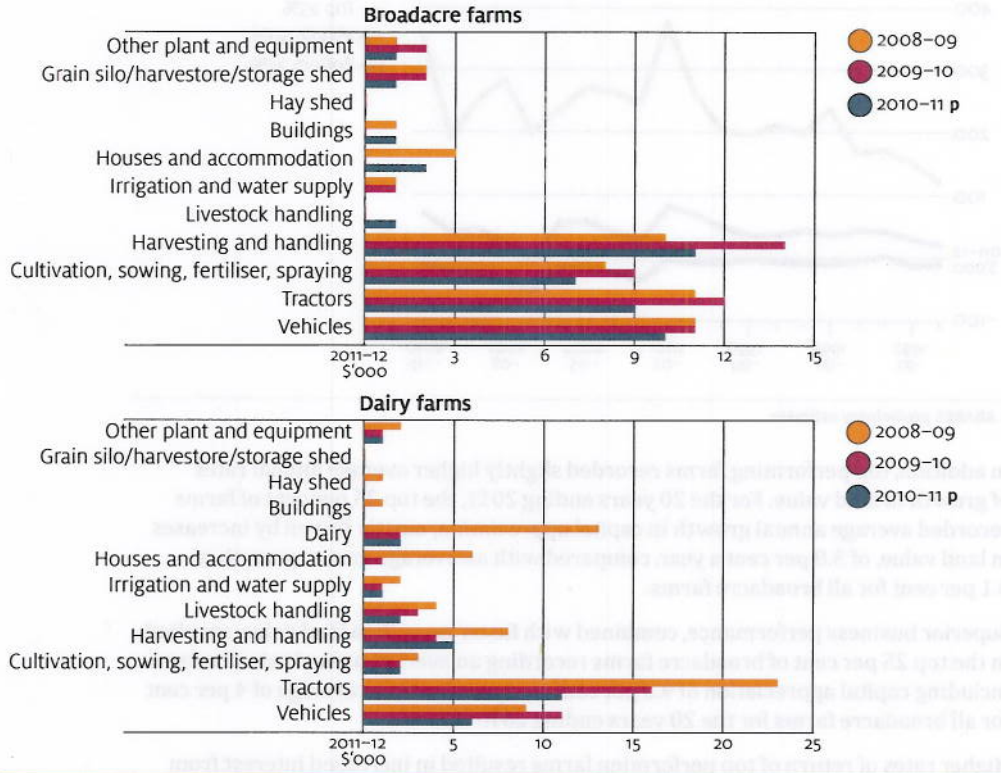
Continued relatively high levels of new non-land investment in 2010–11 can be attributed to factors such as improved cash flow for many farms, continued expansion in crop enterprises and lower interest rates.

ABARES surveys indicate that the largest category of new capital expenditure on broadacre farms in 2008–09 and 2009–10 was crop harvesting and handling machinery, reflecting record grain crops in many regions in the past two years (Figure 15). Tractors and motor vehicles were other major items of expenditure for both broadacre and dairy farms. Expenditure on farm buildings was high in recent years, but generally declined since cessation of the investment allowance in December 2009.

Top performing farms

No single measure accounts for all factors likely to affect the financial performance of an individual farm. ABARES farm surveys collect a comprehensive set of physical and financial performance information enabling generation of a range of measures that capture differing elements of farm financial performance. Rate of return to capital (rate of return excluding capital appreciation) is a relatively complete measure of farm economic performance that values most farm inputs and is not as strongly correlated with farm size as most other measures. Therefore, rate of return is a good measure for comparing farm performance across a range of farm businesses sizes and industry types.

FIGURE 15 Capital additions



p ABARES preliminary estimate.

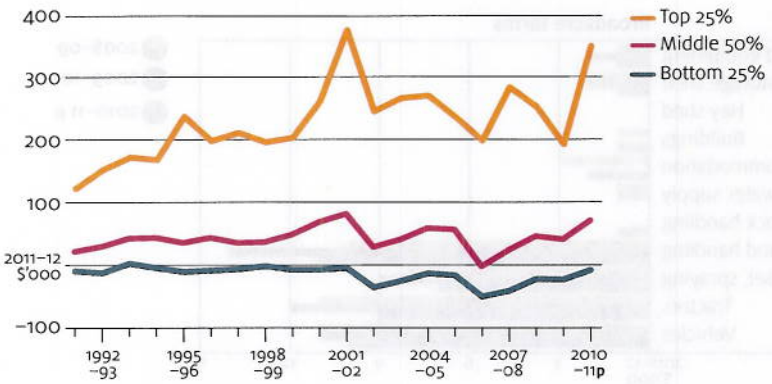
In this section, farm businesses have been allocated to top, middle and bottom performing categories on the basis of their rate of return to capital. Data are presented for the period 1991–92 to 2010–11. During this period commodity prices and seasonal conditions fluctuated significantly. To reduce these and other year-specific effects on farm performance, three-year moving average rates of return have been calculated for each sample farm in the AAGIS database. Farms have then been classified to performance groups on the basis of these averages.

Substantial differences exist for all key performance measures between the average financial performance of top performing farms and that of middle and bottom performing farms. The gap between top and bottom performing farms increased through the 1990s and was maintained through the 2000s (Figure 16). While the bottom 25 per cent of broadacre farms mostly struggled to generate positive farm cash incomes during the past two decades, the top 25 per cent of farms generated cash incomes exceeding $200 000 (in real terms) in 17 of the past 20 years.

Over the three years ending 2010–11, the top 25 per cent of farms recorded average rates of return excluding capital appreciation of 4.5 per cent a year, well above the average annual rate of return of just 1.4 per cent a year for all broadacre farms.

Over the 20 years ending 2010–11, the top 25 per cent of farms recorded average rates of return excluding capital appreciation of 5.5 per cent a year, much higher than the average annual rate of return of just 0.9 per cent a year for all broadacre farms.

FIGURE 16 Farm cash income, broadacre farms



p ABARES preliminary estimate.

In addition, top performing farms recorded slightly higher average annual rates of growth in land value. For the 20 years ending 2011, the top 25 per cent of farms recorded average annual growth in capital appreciation, mostly driven by increases in land value, of 3.8 per cent a year, compared with an average annual growth of 3.1 per cent for all broadacre farms.

Superior business performance, combined with faster growth in land value, resulted in the top 25 per cent of broadacre farms recording an average annual rate of return including capital appreciation of 9.3 per cent compared with an average of 4 per cent for all broadacre farms for the 20 years ending 2010–11.

Higher rates of return of top performing farms resulted in increased interest from agribusiness and institutional investors in recent years.

The superior financial performance of the top performing farms is the result of many factors, including differences in the scale of the farm, the natural resources of the farm land and the quality of management.

Top performing farms are found in most regions of Australia and, despite the impact of seasonal events and price changes, ABARES research indicates that most farms exhibiting high levels of financial performance relative to their peers continue to do so over the medium-term.

Top performing farms dominate new investment in the broadacre sector. Over the three years ending 2010–11, top performing farms accounted for 65 per cent of net capital additions; in contrast, the bottom 25 per cent of farms accounted for just 8 per cent. Productivity growth for Australian broadacre farms appears to be highly reliant on change in production technology (Sheng, Zhao & Nossal 2011) often requiring purchase of more efficient equipment or costly changes to production processes in response to changing external conditions.

Top performing farms account for a large share of the total value of agricultural production. They accounted for 53 per cent of the gross value of broadacre farm production over the three years ending 2010–11; in contrast, the bottom 25 per cent of farms accounted for just 9 per cent. Relatively high rates of new investment on top performing farms are likely to support generation of significant productivity gains to increase farm production and maintain or improve real farm cash incomes over the longer term.

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Agricultural productivity: trends and policies for growth

Emily M Gray, Yu Sheng, Max Oss-Emer and Alistair Davidson

Summary

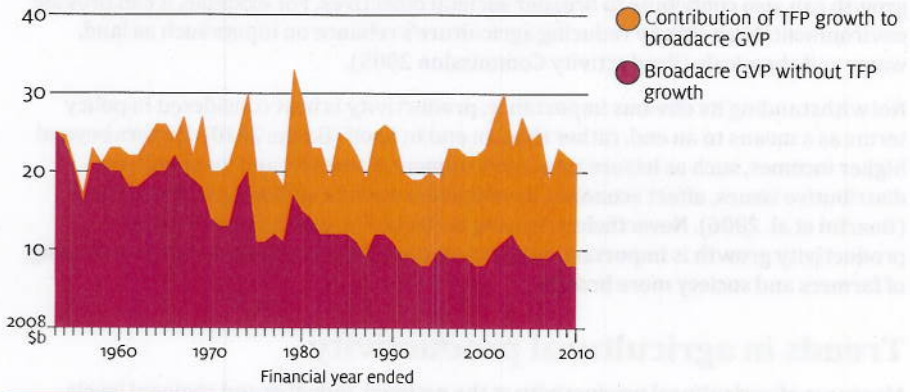
- In agriculture, total factor productivity (TFP) growth reflects improvements in the efficiency with which farmers combine market inputs to produce outputs. It is an important determinant of profitability in the farm sector.
- TFP growth for the broadacre farm sector (non-irrigated crops, beef and sheep) averaged 1.2 per cent a year between 1977–78 and 2009–10. Over this period, TFP growth rates differed between the main farm types: 1.6 per cent a year for cropping; 1.1 per cent a year for mixed crop–livestock; 1.4 per cent a year for beef and 0.5 per cent a year for sheep.
- In recent years, the gap between the TFP growth rates of the cropping and livestock industries has been narrowing. TFP among cropping specialists (and to a lesser extent, mixed cropping–livestock farms) has been growing more slowly whereas the growth rate in the livestock industries has been increasing.
- Dairy industry TFP growth has averaged 0.3 per cent a year since 1978–79. Growth in output has been driven largely by growth in inputs, reflecting a trend toward more intensive dairy production systems.
- There are a number of opportunities for governments and industry to consider in promoting productivity growth. These include investing in R&D and extension, building the knowledge and skills of farmers, facilitating structural adjustment and reducing regulatory burdens.

Importance of productivity growth

Productivity growth is an important determinant of agricultural output. It reflects improvements in the efficiency with which farmers combine market inputs to produce outputs. It is also a key mechanism by which farmers maintain profitability and the competitiveness of the agriculture sector. These motivators, among others, maintain interest in the determinants of agricultural productivity growth.

Over time, ongoing improvements in productivity have enabled Australian farmers to increase output using relatively fewer market inputs. Compared with its value if farmers had access to 1950s production technologies only, almost two-thirds of the gross value of broadacre production in recent years can be attributed to productivity improvements (Figure 17).

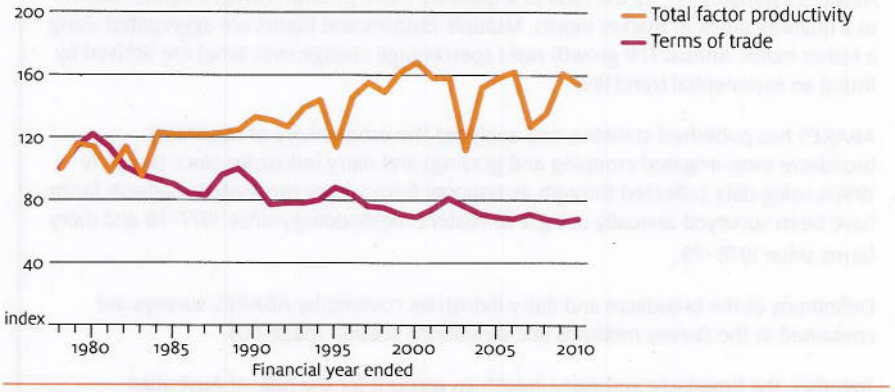
FIGURE 17 Contribution of total factor productivity growth to the gross value of broadacre production, 1952–53 to 2009–10



Note: Given total output growth ($\dot{O}$) equals total input ($\dot{I}$) growth plus TFP growth ($\dot{A}$), relative to a base year, and assuming farmers are price takers, broadacre GVP can be decomposed into two components: the input contribution to broadacre GVP in year t equals $GVP_t \times (\dot{I}_t / \dot{O}_t)$ while the TFP contribution equals $GVP_t \times (\dot{A}_t / \dot{O}_t)$.

For farmers, productivity growth helps maintain profitability in the face of a declining trend in the terms of trade (output prices relative to input prices). Although changes in the terms of trade may induce farmers in profit-maximising to choose combinations of inputs and outputs that reduce their overall productivity (O'Donnell 2010; Productivity Commission 2008), these are often short-run effects only. Consequently, ongoing productivity improvements are generally the predominant way for most farmers to offset ongoing cost pressures and maintain profits in the long run (Figure 18).

FIGURE 18 Broadacre total factor productivity and the farmer terms of trade, 1977–78 to 2009–10



Note: Total factor productivity shown here relates to broadacre (non-irrigated) agriculture only, although the farmer terms of trade covers all Australian agriculture.

For governments concerned with ensuring the ongoing competitiveness and sustainability of the agriculture sector, promoting efforts to increase productivity remains a priority. Productivity growth is important for maintaining farm incomes and is an element of the response to the challenges of climate change. Productivity growth can also contribute to broader societal objectives. For example, it can provide environmental benefits by reducing agriculture's reliance on inputs such as land, water and chemicals (Productivity Commission 2005).

Notwithstanding its obvious importance, productivity is best considered in policy terms as a means to an end, rather than an end in itself (Banks 2010). Factors beyond higher incomes, such as leisure time, environmental amenity and longevity and distributive issues, affect economic development and the wellbeing of Australians (Boarini et al. 2006). Nevertheless, raising material living standards through productivity growth is important insofar as it contributes to improving the wellbeing of farmers and society more broadly.

Trends in agricultural productivity

Measures of agricultural productivity at the national, industry and regional levels are useful for monitoring and evaluating changes in industry performance over time. In turn, they underpin strategic investment decisions and guide policies aimed at improving farm performance. A brief overview of ABARES productivity estimates is in Box 3.

Total factor productivity (TFP) is the key indicator ABARES uses to measure broadacre and dairy productivity. TFP compares the total market outputs produced (crops and livestock) relative to the total market inputs used (land, labour, capital, materials and services). Although common in practice, reliance on a single input or partial factor productivity (PFP) measure (such as crop yield per hectare) may result in a misleading assessment of productivity for policy making. This is because the combined effects of all changes in farm production systems (including productivity, input substitution and quality effects) are incorrectly attributed solely to one input. For this reason, TFP better reflects farmers' overall productivity.

Box 3 ABARES productivity estimates

ABARES estimates TFP as the ratio of a quantity index of total market outputs relative to a quantity index of market inputs. Multiple outputs and inputs are aggregated using a Fisher index. Annual TFP growth rates (percentage change over time) are derived by fitting an exponential trend line.

ABARES has published statistics and analysed the productivity of Australia's broadacre (non-irrigated cropping and grazing) and dairy industries since the early 1990s using data collected through its national farm survey program. Broadacre farms have been surveyed annually using a consistent methodology since 1977–78 and dairy farms since 1978–79.

Definitions of the broadacre and dairy industries covered by ABARES surveys are contained in the Survey methods and definitions section (page 60).

Together, the broadacre and dairy industries account for the bulk of Australian agriculture: almost 68 per cent of the number of commercial-scale farm businesses and more than 90 per cent of the total area of agricultural land. In addition, the broadacre and dairy industries accounted for nearly three-quarters (62 per cent and 9 per cent, respectively) of the gross value of agricultural production in 2009–10.

Broadacre productivity growth

From 1977–78 to 2009–10, TFP growth in broadacre agriculture averaged around 1.2 per cent a year. This is due to the combined effects of output growth (around 0.4 per cent a year) and reduced input use (around 0.8 per cent a year) (Figure 19). However, aggregate estimates mask considerable variation between individual farms. For example, recent research by ABARES indicates that, although productivity is increasing overall, the best performing farms have, on average, achieved a productivity growth rate around 25 per cent higher than that of average farms (Hughes et al. 2011).

Average productivity growth in the cropping industry has exceeded that of the livestock industries (Table 8). TFP growth of cropping specialists averaged 1.6 per cent a year between 1977–78 and 2009–10, higher than beef (1.4 per cent), mixed crop–livestock (1.1 per cent) and sheep (0.5 per cent) farms. Although the precise reasons are not well understood, there may have been fewer opportunities to substitute capital for labour in the livestock industries, and the longer production cycles observed in the livestock industries may slow the rate of technological progress (Mullen 2007).

FIGURE 19 Trends in broadacre total factor productivity, total inputs and total outputs 1977–78 to 2009–10

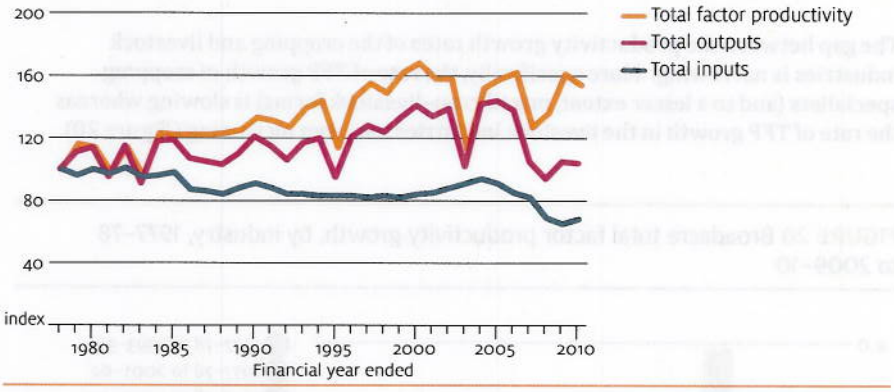
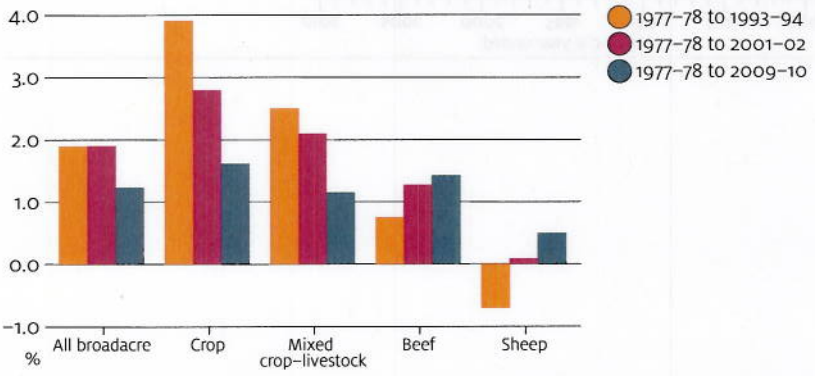


TABLE 8 Average annual broadacre productivity growth by industry, 1977–78 to 2009–10 (%)

	All broadacre	Cropping	Mixed crop–livestock	Beef	Sheep
Total factor productivity					
TFP	1.2	1.6	1.1	1.4	0.5
Inputs	–0.8	1.2	–1.7	0.1	–2.4
Outputs	0.4	2.8	–0.6	1.5	–1.9
Partial factor productivity					
Land	1.4	1.5	0.9	1.8	0.1
Labour	2.4	3.3	2.2	2.2	1.2
Capital	2.0	3.4	2.5	0.9	1.8
Materials	–1.8	–1.6	–1.5	–2.0	–1.7
Services	1.1	1.7	1.0	0.9	0.4
Input use					
Land	–1.0	1.3	–1.5	–0.3	–2.0
Labour	–2.0	–0.5	–2.8	–0.7	–3.1
Capital	–1.6	–0.6	–3.1	0.6	–3.7
Materials	2.2	4.4	0.9	3.5	–0.2
Services	–0.7	1.1	–1.6	0.6	–2.3

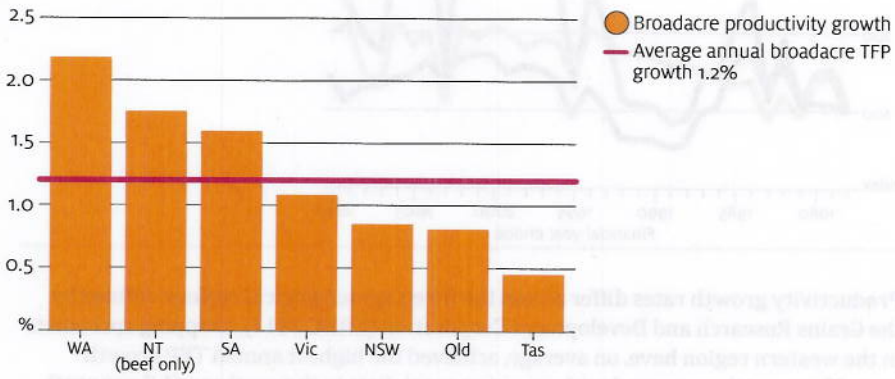
The gap between the productivity growth rates of the cropping and livestock industries is narrowing. More specifically, the rate of TFP growth of cropping specialists (and to a lesser extent, mixed crop–livestock farms) is slowing whereas the rate of TFP growth in the livestock industries has been increasing (Figure 20).

FIGURE 20 Broadacre total factor productivity growth, by industry, 1977–78 to 2009–10



Trends in broadacre productivity growth across the states and territories reflect differences in the structure of the broadacre industry in each jurisdiction, as well as differences in average farm size, natural resource endowments and climate. For example, Western Australia has achieved the highest broadacre TFP growth, reflecting the dominance of large, efficient, cropping enterprises (Figure 21).

FIGURE 21 Broadacre productivity growth, by state, 1977–78 to 2009–10



Cropping industry productivity

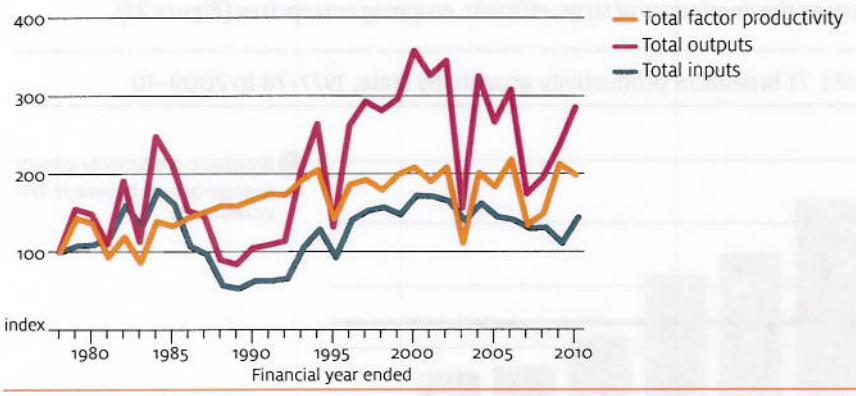
The cropping industry has grown strongly over the 33 years from 1977–78 to 2009–10 (Figure 22). Notwithstanding periods of extreme volatility, total output from specialist cropping farms has, on average, grown at around 2.8 per cent a year over this period (Table 8). Relatively strong input growth (1.2 per cent a year) and TFP growth (1.6 per cent a year) contributed to expanding production between 1977–78 and 2009–10.

The growth in aggregate input use in the cropping industry since the 1990s has largely stemmed from growth in material inputs, such as fertiliser, fuel, crop chemicals and seed (Table 8). Greater understanding of cropping systems, including plant physiology and the determinants of soil fertility, has resulted in increasing use of crop chemicals and fertilisers (especially nitrogen and soil ameliorants such as lime and gypsum).

Technical change, through growers' adoption of new technologies and management practices, has been the main driver of long-run productivity growth of cropping specialists (Hughes et al. 2011). However, the rate of technical change, and in turn productivity growth among cropping specialists, has slowed during the past decade (Figure 22). Recent ABARES research has found that poorer climate conditions between 2000 and 2008 had a significant effect on the cropping industry, reducing the output of cropping specialists by 13 per cent in this period, relative to output for the period 1977–78 to 1999–2000 (Hughes et al. 2011).

Even after controlling for adverse climatic conditions, a slowdown in productivity growth remains evident among cropping specialists in the period (Hughes et al. 2011; Sheng et al. 2011b). While diminished public R&D intensity is likely to have played a role, other factors are also likely to be involved. For example, Stephens et al. (2011) report that, in the four southern mainland states, the high-input high-yield cropping systems of the 1980s and 1990s were vulnerable to the drier and more variable climate in the 2000s.

FIGURE 22 Trends in cropping specialists total factor productivity, total inputs and total outputs 1977–78 to 2009–10



Productivity growth rates differ across the three agroecological regions defined by the Grains Research and Development Corporation (GRDC 2011). Cropping specialists in the western region have, on average, achieved the highest annual TFP growth rates (2 per cent), compared with cropping specialists in the northern (1.7 per cent) and southern (1.5 per cent) regions (Table 9). The agroecological regions reflect differences in climate, soil fertility and water holding properties, and geography which, among other factors, bear on farmers' capacities to improve their production systems. For example, the southern region is more sensitive to climate variability than the western and northern regions, such that climate conditions in the 2000s explain most of the observed decline in productivity in that region (Hughes et al. 2011).

TABLE 9 Average annual cropping total factor productivity growth, by region, 1977–78 to 2009–10 (%)

	Productivity growth	Output growth	Input growth
All cropping specialists	1.6	2.8	1.2
Western region	2.0	4.3	2.3
Northern region	1.7	1.3	−0.4
Southern region	1.5	3.1	1.6

Note: All cropping specialists also include cropping specialists from outside the Grains Research and Development Corporation agroecological regions.

Livestock industry productivity

Livestock industries have continued to lift their productivity, although productivity growth remains at a lower rate than the cropping industry (Table 10 and Table 11).

Several factors have contributed to improvements in beef industry productivity over the past 30 years. Genetic improvement of the beef herd, and improved pasture, herd and disease management have reduced mortalities and increased branding rates (calves marked as a percentage of cows mated) (ABARE 2006).

TABLE 10 Average annual beef total factor productivity growth, by region, 1977–78 to 2009–10 (%)

	Productivity growth	Output growth	Input growth
All beef	1.4	1.5	0.1
Northern region	1.3	1.2	–0.1
Southern region	1.0	1.5	0.5

TABLE 11 Average annual sheep total factor productivity growth, by region, 1977–78 to 2009–10 (%)

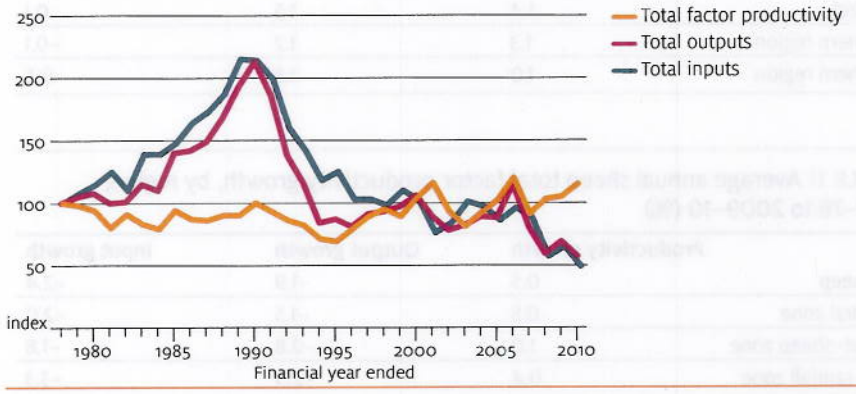
	Productivity growth	Output growth	Input growth
All sheep	0.5	–1.9	–2.4
Pastoral zone	0.5	–1.5	–2.0
Wheat–sheep zone	1.0	–0.8	–1.8
High-rainfall zone	0.4	–2.9	–3.3

Long-run TFP growth in the northern region (1.3 per cent a year) has exceeded that in the southern region (1 per cent a year) (Table 10) (See Map 1 in Thompson & Martin 2011). In the northern region, the brucellosis and tuberculosis eradication campaign of the 1980s led to improvements in cattle management systems, including improved grazing and land management practices and better mustering techniques. In addition, expansion of the feedlot sector and the live export trade led to a shift in herd structure, to a higher proportion of Bos indicus breeds and more breeder operations, to increase turn-off of smaller and younger cattle for the live export market (Gleeson et al. 2003; Martin et al. 2007). Between 1977–78 and 2009–10, these management changes improved productivity, with increased branding rates (from 61 per cent to over 70 per cent) and reduced death rates (from around 8 per cent to around 2 per cent).

Although better pasture and herd management practices have resulted in improved productivity in the southern beef industry, the generally smaller scale of operations may have constrained productivity growth. In addition, drought greatly affected properties in the southern region in the 2000s.

In the sheep industry the low average annual rate of TFP growth between 1977–78 and 2009–10 (0.5 percent) obscures consolidation and subsequent gains achieved by the industry since the partial recovery following the collapse of the Wool Reserve Price Scheme in 1991 (Figure 23). Changes in the composition of the sheep flock and land management practices delivered significant productivity growth. In particular, the strong shift to prime lamb production, characterised by a higher proportion of ewes in flocks and use of non-merino rams (leading to a higher incidence of twinning) have been important developments. In addition, increased use of improved pasture species and fodder crops have improved ewe fertility and reduced lamb mortality, leading to higher lamb turn-off rates and to higher average slaughter weights (ABARE 2007).

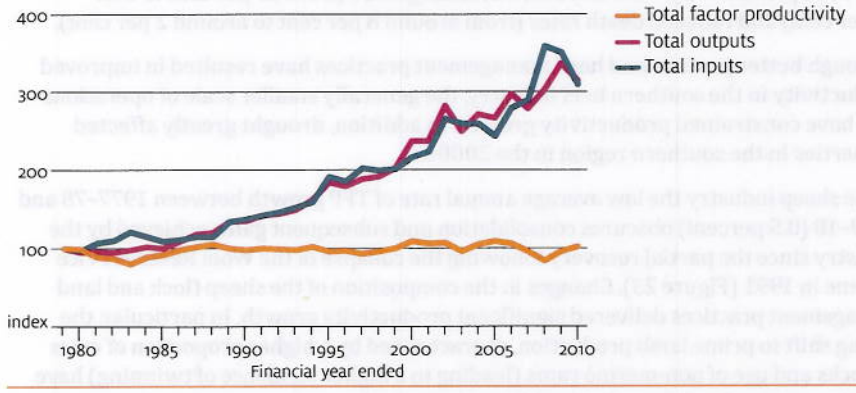
FIGURE 23 Trends in sheep specialists total factor productivity, total inputs and total outputs, 1977–78 to 2009–10



Dairy productivity growth

Between 1978–79 and 2009–10, TFP growth in the dairy industry averaged 0.3 per cent a year. In contrast to broadacre industries, growth in total input use (4.2 per cent a year) and total outputs (4.5 per cent a year) was substantially higher (Figure 24).

FIGURE 24 Trends in dairy total factor productivity, total inputs and total outputs, 1978–79 to 2009–10



In recent decades, dairy farmers have responded to adjustment pressures by increasing the size and intensity of their production systems. Since 1990, milk production per farm increased by around 5.5 per cent a year, due to larger herds and higher stocking rates (ABARES 2011). Improved milking shed design and equipment, genetics, soil and feed testing, artificial insemination and mastitis control programs have also played a role (Mackinnon et al. 2010).

However, it is clear that output growth has largely been driven by growth in inputs, particularly fodder and fertiliser (Table 12). Dairy farmers have made significant changes to maintain and improve their production capacity through greater use of supplementary feeding and improved pastures and fodder crops (Harris 2005; Mackinnon et al. 2010). This has especially been the case in drier years, where low or zero water allocations have necessitated dairy farmers substituting purchased fodder for on-farm feed production. For example, the quantity of grains and concentrates used per cow doubled between 1991–92 and 2006–07, from 0.9 tonnes to 1.8 tonnes (Ashton & Mackinnon 2008).

TABLE 12 Growth in average annual dairy industry partial factor productivity and input use, 1978–79 to 2009–10 (%)

	PFP	Input use
Land	2.6	1.9
Labour	3.6	0.9
Capital	3.5	1.0
Materials	–4.0	8.5
Services	0.4	4.1

Potential policy responses

Governments have a strong interest in promoting productivity growth in all industry sectors because it is the dominant mechanism by which material living standards in an economy are improved in the long term. Growth in labour force participation, capital investment and improvements in the terms of trade will also contribute to growth in per person income. However, in an economy facing resource constraints, clearly evident in agriculture, productivity growth is the only way to grow aggregate income (Productivity Commission 2008).

Beyond the farm sector, agricultural productivity growth has implications for the performance of the economy as a whole, including:

- higher wages, capital returns and profits
- larger tax revenue
- resources that can be released for use elsewhere
- lower prices for consumers
- greater environmental benefits to the extent that farmers use resources such as land, water and chemicals more efficiently (Productivity Commission 2005, 2008).

Evidence of a slowdown in productivity growth in some agricultural industries is cause for concern, not least because productivity growth is also an important element of the solution to the challenges currently facing the agricultural sector, including climate change, declining terms of trade and increasing pressure on the natural resource base. Given limitations to the availability of land, water and other resources, the extent to which the sector responds to these challenges, as well as to the opportunities presented by rising global incomes and population growth, will depend largely on increases in productivity.

Through the Council of Australian Governments' Standing Council of Primary Industries (SCOPI), governments have maintained their commitment to enhancing agricultural productivity. SCOPI seeks to develop and promote sustainable,

innovative and profitable agriculture that would not otherwise be possible because of the limitations imposed by the division of constitutional powers within the Federation of Australia.

This paper concludes by considering opportunities for governments (and industry) to promote productivity through:

- investing in R&D and extension
- building the knowledge and skills of farmers
- facilitating structural adjustment
- reducing regulatory burdens.

Investing in R&D and extension

Public investment in R&D and extension is an effective lever for governments to promote agricultural productivity growth. Many of the technologies and management practices that have driven agricultural productivity growth are the outputs of public investments in R&D; their adoption being accelerated through extension programs. Past investment in R&D and extension by Australian governments has accounted for nearly one-third of annual productivity growth in broadacre agriculture over the past 50 years or so—equivalent to average TFP growth of 0.6 per cent a year (Sheng et al. 2011a).

Notwithstanding a wide spectrum of potential opportunities, the extent to which governments should increase expenditure on R&D and extension has been subject to considerable discussion over many decades (Industries Assistance Commission 1976; Productivity Commission 2011b). Key considerations have included the nature, magnitude and distribution of benefits likely to accrue to society as a whole, and the likelihood of them being realised without government involvement. Although a satisfactory method of determining the optimal level of public R&D and extension has thus far proved elusive, improving the efficiency of the R&D and extension system remains an important goal.

In essence, an efficient system attempts to maximise the payoffs to public investments while minimising the transaction costs across multiple R&D and extension providers and jurisdictions. At an aggregate level, this also requires finding the optimal balance in allocating scarce funds between R&D that generates maximum payoffs over the longer run and extension that brings forward farmers' adoption of currently available innovations. Governments and industry stakeholders are continuing to explore avenues for improving the R&D and extension system's efficiency—a first step being to improve the quality of data necessary to measure its performance.

Building farmers' knowledge and skills

Farmer educational attainment recurs as a factor that has a positive and significant impact on productivity growth (Kokic et al. 2006; Nossal & Lim 2011; Zhao et al. 2009). As well as being directly related to productivity growth, broadly speaking, education positively contributes to farmers' innovativeness, in terms of the number of new practices or technologies implemented by farm businesses that they are likely to continue using. Nossal and Lim (2011) found that grain growers with tertiary qualifications were more likely to be high innovators compared with those with secondary school education.

To the extent these findings apply to established farmers, there may be scope for them to improve their productivity by continuing formal education and training. As agricultural systems become more complex, farmers need more advanced skills to better manage risks and to locate and apply new technologies and management practices. Given constraints on farmers' time and travel, advanced communication technologies may increase their access to more flexible learning opportunities.

Facilitating structural adjustment

Over time, structural adjustment can contribute to industry productivity growth. Exits by less efficient farm businesses release resources for use by more efficient farms, which are able to expand and increase productivity by realising economies of size and implementing new technologies and management practices.

Although structural adjustment has long been a typical feature of agricultural industries, its pace may vary in response to policy settings. While rising productivity has served to counter the persistent downward pressures on farm incomes, governments have, over many decades, provided assistance to mitigate these pressures. However, much of this has not been of great help to the low income marginal farmer, rather, it has tended to inhibit desirable productivity growth within agriculture (Musgrave 1977; Productivity Commission 2009).

Some policy settings can impede structural adjustment insofar as they diminish incentives to pursue efficiency gains, improve risk management or exit farming. Assistance provided to farm businesses during drought can lead to less efficient farmers delaying decisions to leave farming, by creating an expectation that governments will financially support their businesses during drought. Farm support can also constrain more efficient farmers' wanting to expand their scale of operations if it becomes capitalised into, and thus raises, land values.

Reducing regulatory burdens

Governments use a range of regulatory arrangements to achieve various efficiency or equity objectives on behalf of the broader community. Although some regulations benefit farmers, other regulations, which are unnecessarily burdensome, complex or redundant, can constrain productivity growth and impose heavy costs on farm businesses. This might occur where regulations:

- limit opportunities for farmers to employ innovative or lower cost approaches to meet the intended outcomes of the regulation
- discourage innovation if compliance burdens associated with some regulations create a disincentive for farmers to implement innovations
- reduce the value of farmers' property rights or constrain land-use options (Productivity Commission 2007, 2011a).

Where an existing regulatory approach is appropriate, more flexible settings can, in some cases, enable farmers to improve productivity and to meet broader community objectives in ways that minimise costs to society as a whole. This is especially relevant where society expects farmers to perform dual roles; as providers of food and fibre, as well as ecosystem services. For example, more flexible approaches to managing native vegetation on farmland may provide a given level of ecosystem services at lower cost (Davidson et al. 2006).

In 2007, the Productivity Commission reviewed regulatory burdens on businesses in the primary industries, finding that governments impose a heavy burden of regulation on farm businesses (Productivity Commission 2007). While the review identified a range of reforms that would reduce regulatory burdens on farm businesses, the extent to which these gains have been realised is not clear. Consequently, there is an ongoing need to review regulations affecting farm businesses, to ensure previously identified reforms have occurred and to determine whether there may be better, less costly approaches to achieve policy objectives.

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Survey methods and definitions

ABARES (and its predecessor organisations) have 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 set of information is widely used for research and analysis which forms the basis of many publications, briefing material and industry reports.

The annual agricultural surveys currently undertaken are:

- Australian Agricultural and Grazing Industries Survey (AAGIS),
- Australian Dairy Industry Survey (ADIS).

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 the farming activities included in each of these industries is provided in Australian and New Zealand Standard Industrial Classification (ABS 2006, cat. no. 1292.0).

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 or beef cattle, or both 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

The Australian Dairy Industry Survey (ADIS) covers farms that are engaged in dairying.

Target populations

The 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 (ATO). The ABR-based population list provided to ABARES consists of agricultural establishments with their corresponding statistical local area, ANZSIC and a size of operation variable.

The population list for the ADIS is a list of dairy farms that have paid levies based on their milk production. This list is provided by Dairy Australia and consists of dairy businesses with their corresponding region and total milk production.

ABARES surveys target farming establishments that make a significant contribution to the total value of agricultural output (commercial farms). Farms excluded from the ABARES target population 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, cat. no. 7506.0). 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 1991-92 the survey included establishments with an EVAO of $20 000 or more. Prior to 1986-87 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 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 1600 and for ADIS around 300.

The main method of collection for both surveys is face to face interviews with the owner manager of the farm. Detailed physical and financial information is collected on the operations of the farm business during the preceding financial year. Cooperating farms are required to provide detailed accounting information. Respondents to the AAGIS and ADIS 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 to address specific issues.

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 ABS estimates from data collected from Agricultural Census and Surveys. The weighting methodology for AAGIS and ADIS 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 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.

For ADIS, the benchmark variables provided by Dairy Australia are:

- total number of in-scope dairy farms; and
- total milk production.

Generally, larger farms have smaller weights and smaller farms have larger weights, reflecting both the strategy of sampling a higher fraction of the larger farms than smaller farms (the former having greater variability of key characteristics and accounting for a much larger proportion of total output) and the relatively lower numbers of large farms.

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 2009-10 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 2010-11 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 2011-12 estimates are projections developed from the data collected via on-farm interviews and telephone interviews in the period 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, 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 subject to greater uncertainty than the 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 updated 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 most 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 (RSE) 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 $6000. 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 $6000).

There is roughly a nineteen in twenty 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 nineteen in twenty 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 some of the differences are 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. An example is given below.

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:

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

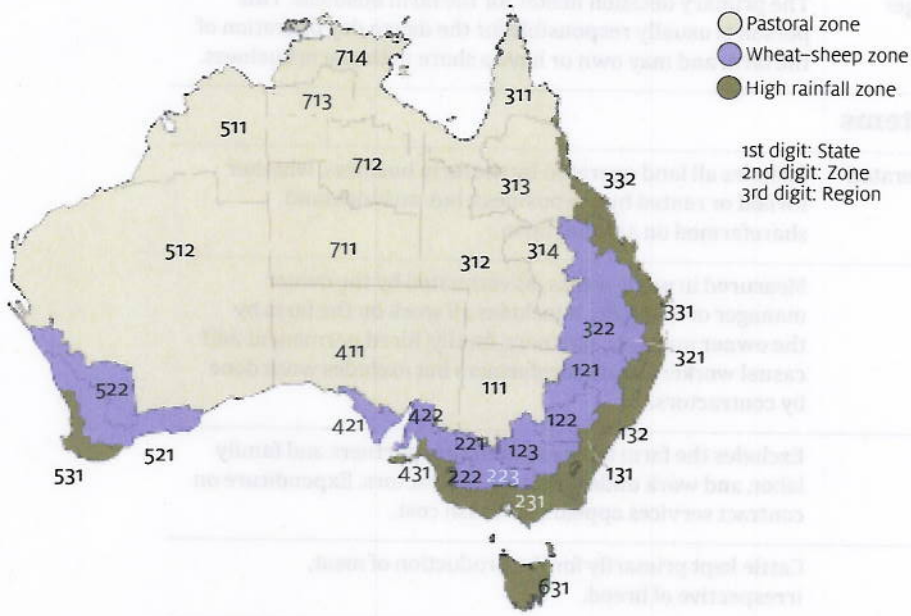
Hence, if a large number (towards infinity) of different samples are taken, in approximately 95 per cent of them, the difference between these two estimates will lie between $6174 and $43 826. Also, since zero is not in this confidence interval, it is possible to say that the difference between the estimates is statistically significantly different from zero at the 95 per cent confidence level.

Regions

Broadacre and dairy statistics are also available by region. These regions, shown in maps 2 and 3, represent the finest level of geographical aggregation for which the survey is designed to produce reliable estimates.

For states other than New South Wales and Victoria, the Australian Dairy Industry Survey regions comprise the entire state.

MAP 2 Australian broadacre zones and regions



MAP 3 Australian Dairy Industry Survey regions of New South Wales and Victoria

Definitions of items

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

Physical items

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

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. Prior to 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.

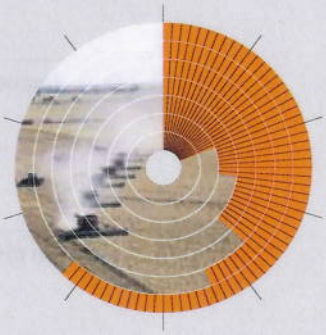
	Since 2001-02 total value of plant and machinery has been based on market valuations provided by the owner manager for broad categories of capital such as tractors, vehicles, irrigation plant etc. The total value of items purchased or sold during the survey year was added to or subtracted from farm capital at 31 December of the relevant financial year, irrespective of the actual date of purchase or sale.
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 survey interview, supplemented by information contained in the farm accounts.
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 liquid	Assets owned by the farm business which 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	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. Receipts for crops sold during the survey year are gross of deductions made by marketing authorities for freight and selling charges. These deductions are included in farm costs. Receipts for other farm products are determined on a 'farmgate' basis. All cash receipt items are the revenue received in the financial year. Farm receipts and costs relate to 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. Some sample farm businesses engage in off-farm contracting or sharefarming, employing labor 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.

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.
Total cash costs	Payments made by the farm business for materials and services and for permanent and casual hired labor (excluding owner manager, partner and other family labor). 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, levies etc. 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, traveling 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.

Financial performance measures

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

Imputed labour cost	Payments for owner manager and family labor may bear little relationship to the actual work input. An estimate of the labor 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.
Farm business profit	Farm cash income plus buildup in trading stocks, less depreciation and the imputed value of the owner manager, partner(s) and family labor.
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.
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 equity ratio	Calculated as farm business equity as a percentage of owned capital at 30 June.
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.



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