Australian Government
Department of Agriculture, Fisheries and Forestry
ABARES

Australian grains
Financial performance of grain producing farms 2009–10 to 2011–12

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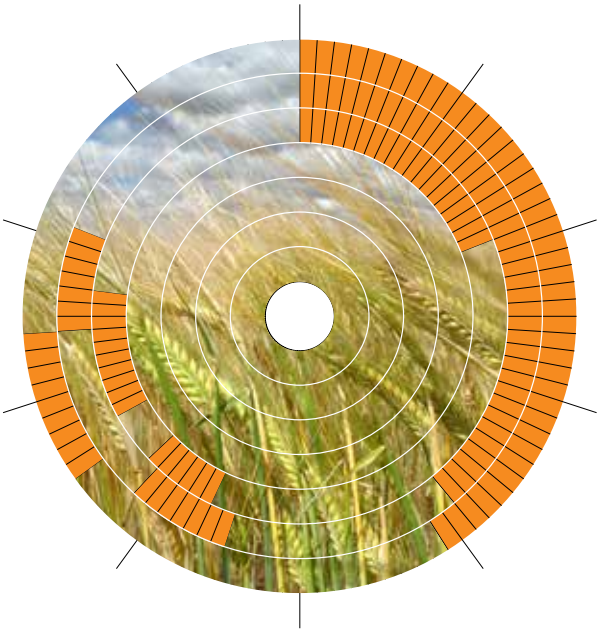
Research by the Australian Bureau of Agricultural and Resource Economics and Sciences

AUGUST 2012



Cataloguing data

Lubulwa, M, Shafron, W, Nossal, K & Valle, H 2012, *Australian grains: Financial performance of grain producing farms, 2009–10 to 2011–12,* ABARES report prepared for the Grains Research and Development Corporation, Canberra, August.

ISBN 978–1–74323–032–9
ABARES project: 43009

Internet

Australian grains: Financial performance of grain producing farms, 2009–10 to 2011–12 is available at: daff.gov.au/abares/publications.

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Chapter 1
Introduction

This report presents results from the ABARES annual Australian agricultural and grazing industries survey (AAGIS) conducted between July and December 2011. The report focuses on the grains industry and draws on information obtained from grain cropping farm businesses included in the AAGIS. This survey provides data on the financial performance of broadacre farm businesses and associated production information, farm management practices and farm households' socioeconomic characteristics. The survey also provides the main means of monitoring and analysing productivity growth in the grains industry sector. Information presented in the report expands on farm survey results published in *Australian farm survey results 2009–10 to 2011–12* (ABARES 2012c) and in *Agricultural commodities: March quarter 2012* (ABARES 2012a) released at the ABARES Outlook 2012 conference.

AAGIS is funded by the Department of Agriculture, Fisheries and Forestry (DAFF), Meat & Livestock Australia (MLA) and the Grains Research and Development Corporation (GRDC). This report was commissioned and funded by the GRDC.

The report contains:

- **Profile and farm financial performance** of grain producing farms (covered in chapters 2 to 12). In these chapters, ABARES farm survey data are used to highlight the most recent financial performance of grain producing farms for 2009–10, 2010–11 and projections for 2011–12. Analysis is presented by grain cropping intensity and by GDRC agroecological region. There is also analysis of supplementary questions added to AAGIS in 2011 to collect detailed grain enterprise cost of production data for grain crops.
- **Productivity growth in the grains industry** (covered in chapter 13)**.** This chapter presents productivity growth and trends in the grains industry.
- **Survey methods and definitions** (covered in chapter 14)**.**

Chapter 2
Profile of Australian grain producing farms

Grain producing farms are defined as those broadacre farm businesses which had at least 40 hectares sown to grains, oilseeds or pulse crops in 2010–11. The cut-off of at least 40 hectares sown to grains, oilseeds or pulse crops was selected to capture all broadacre grain producing farms regardless of their industry classification by the Australian Bureau of Statistics (ABS). As a result grain producing farms are not confined to the 'wheat and other crops' and 'mixed livestock–crop' industries as defined by the ABS. On average, over the past five years (2006–07 to 2010–11) around 26 000 Australian broadacre farms were in this category. Only farms with an estimated value of agricultural operations (EVAO) over $40 000 are covered in the AAGIS, which restricts the analysis to commercial farm businesses.

Grain producing farms operated an average area of around 2420 hectares in 2010–11, similar to the average of the past five years (2006–07 to 2010–11) (Table 1). Wheat was the most dominant grain crop in 2010–11, accounting for an estimated 57 per cent of area planted to grains, oilseeds and pulses. Barley was the next most important grain crop by area, accounting for 15 per cent of total area sown to grain crops. Pulses accounted for 10 per cent and oilseeds accounted for 9 per cent, on average, of the area sown to grain crops. Grain producing farms also kept, on average, around 1500 sheep and 150 beef cattle. Compared with the five-year average, there was a smaller proportion of area sown to barley and a larger area to oilseeds and pulses in 2010–11.

TABLE 1 Size of operations, grain producing farms, 2010–11 and average for 2006–07 to 2010–11 average per grain producing farm **a**

		2010–11p	average over past 5 years
Area operated	ha	2 420	2 423
Area sown to grain crop	ha	771	785
Number of sheep at 30 June	no.	1 519	1 638
Number of beef cattle at 30 June	no.	146	152
Proportion of area sown to grain crops			
Wheat	%	57	57
Oats	%	5	5
Barley	%	15	19
Grain sorghum	%	2	2
Oilseeds	%	9	7
Pulses	%	10	8
Other grain crops	%	1	2
Total grain crops	%	100	100

a Broadacre farms that had at least 40 hectares sown to grains, oilseeds or pulses in 2010–11 and with an EVAO of more than $40 000. p Preliminary estimate.
Source: Australian Agricultural and Grazing Industries Survey (AAGIS)

Chapter 3
Seasonal conditions

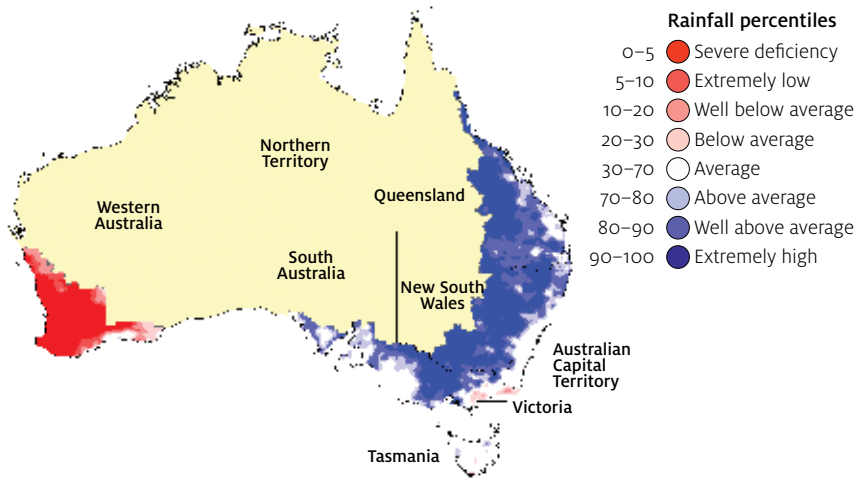
Winter growing season in 2010–11 and 2011–12

2010–11

Almost all the major cropping regions in the eastern states recorded average to well above average rainfall between April and November 2010 (the winter crop growing season) (Map 1). This widespread rainfall boosted winter crop production in 2010–11.

In contrast, most cropping regions in Western Australia remained dry throughout the winter crop growing season of 2010–11. Between April and November 2010 there were serious to severe rainfall deficiencies across most winter cropping regions of Western Australia, which resulted in low production across the state.

MAP 1 Australian rainfall percentiles: 1 April 2010 to 30 November 2010 (winter growing season) a

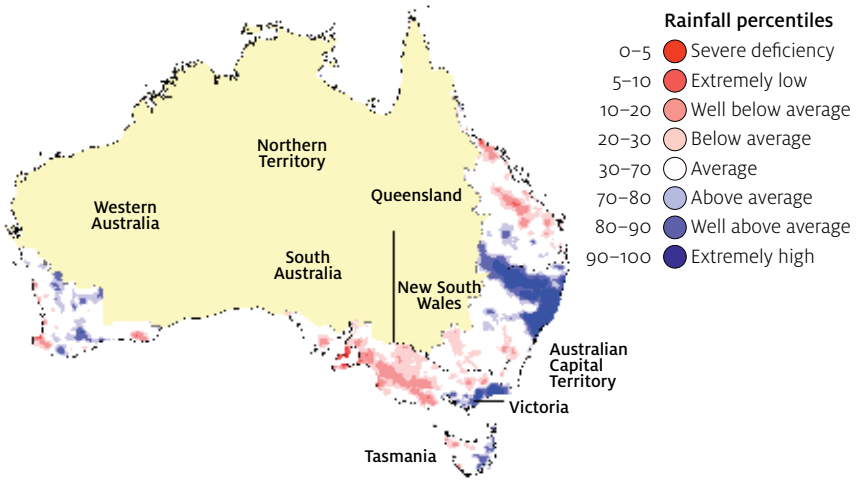


a Percentiles for the pastoral zone are not included.
Source: Bureau of Meteorology

2011–12

Most major winter cropping regions recorded average to above average rainfall between April and November 2011 (Map 2). High rainfall in the months leading to the winter planting window provided favourable conditions for winter crop germination because it replenished soil moisture ahead of the 2011–12 winter crop season. Growing conditions were favourable across Australia, with many areas of the eastern states recording favourable conditions two seasons in a row. As a result, national winter grain production is estimated to have been the highest on record (ABARES 2012b). In Western Australia's cropping region, winter and spring rainfall in 2011 resulted in a turnaround of seasonal conditions from dry conditions to average and well above average rainfall.

MAP 2 Australian rainfall percentiles: 1 April 2011 to 30 November 2011 (winter growing season) a



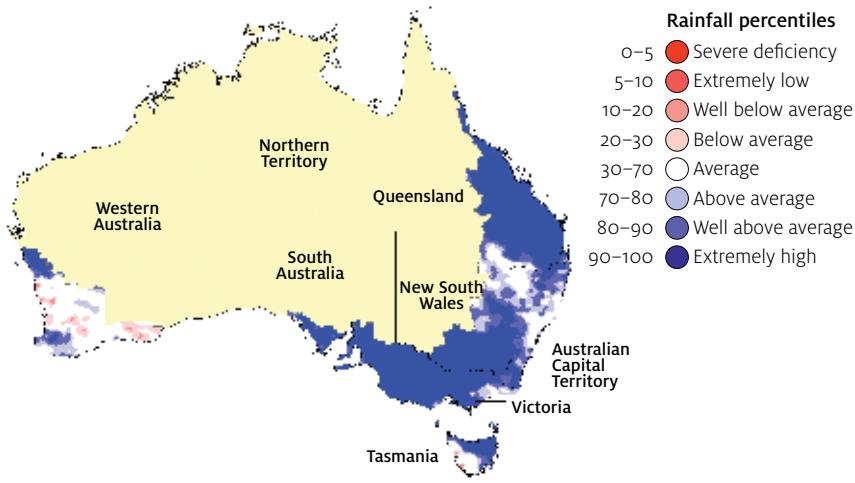
a Percentiles for the pastoral zone are not included.
Source: Bureau of Meteorology

Summer growing season in 2010–11 and 2011–12

2010–11

Summer crops are mainly grown in New South Wales and Queensland. Nearly all summer cropping regions received average to extremely high rainfall between November 2010 and April 2011 (Map 3). Well above average rainfall over spring and summer replenished irrigation dams and boosted soil moisture for summer crops.

MAP 3 Australian rainfall percentiles: 1 November 2010 to 30 April 2011 (summer growing season) a

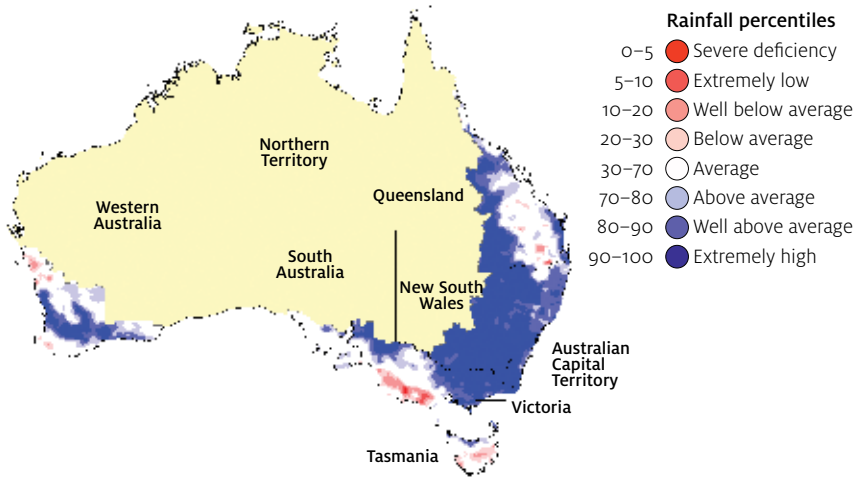


a Percentiles for the pastoral zone are not included.
Source: Bureau of Meteorology

2011–12

Nearly all summer cropping regions received average to extremely high rainfall between November 2011 and April 2012 (Map 4). During January 2012 heavy rainfall resulted in flooding to low-lying areas in parts of northern New South and southern Queensland. The central north and north-west regions of New South Wales and south-west region of Queensland experienced the most severe flooding. Some damage occurred to summer crops in these regions. In areas not affected by flooding, the rainfall provided favourable conditions for finishing summer crops (ABARES 2012b).

MAP 4 Australian rainfall percentiles: 1 November 2011 to 30 April 2012 (summer growing season) a



a Percentiles for the pastoral zone are not included.
Source: Bureau of Meteorology

Seasonal conditions reported by farmers in 2011

As part of AAGIS interviews (conducted between July and November 2011), farmers were asked to describe the seasonal conditions that prevailed throughout 2010–11. Overall, a higher percentage of grain producing farms reported better seasonal conditions in 2010–11 than in 2009–10. In 2010–11, 75 per cent of grain producing farms reported average to above average seasonal conditions compared with 39 per cent in 2009–10 (Table 2). The percentage of grain producing farms reporting below average or drought conditions decreased from 61 per cent in 2009–10 to 26 per cent in 2010–11. The percentage of farms reporting average to above average conditions increased in all states except Western Australia. In contrast to the other states, the majority of grain producers in Western Australia reported below average or drought seasonal conditions (84 per cent of grain producing farms).

Table 2 Seasonal conditions, by state, 2009-10 and 2010-11

	2009–10	2010–11p
Australia		
Drought	21	9
Below average	40	17
Average	30	22
Above average	9	53
New South Wales		
Drought	47	0
Below average	26	12
Average	18	20
Above average	9	68
Victoria		
Drought	12	0
Below average	58	11
Average	27	47
Above average	4	42
Queensland		
Drought	8	0
Below average	45	21
Average	40	12
Above average	8	67
South Australia		
Drought	5	0
Below average	25	2
Average	53	14
Above average	16	84
Western Australia		
Drought	1	43
Below average	56	41
Average	32	15
Above average	11	1
Tasmania		
Drought	13	0
Below average	7	20
Average	20	24
Above average	59	55
Northern Territory		
Drought	0	0
Below average	0	0
Average	100	0
Above average	0	100

p Preliminary estimate.
Source: AAGIS

Chapter 4
Grain production

2009–10

In 2009–10, the total area sown to winter grain, oilseed and pulse crops increased by around 18 per cent from 2008–09. Overall yield remained the same, although there were regional variations (Lubulwa et al. 2011).

Yields in the major cropping regions of South Australia and Victoria were much higher than in 2008–09 as a result of above average rainfall in spring, and consequently total winter crop production increased by 50 per cent in Victoria and by 45 per cent in South Australia. In contrast, winter crop production in Queensland and New South Wales reduced by 20 per cent and 30 per cent, respectively, in 2009–10 because of dry seasonal conditions in spring. In Western Australia, a dry finish to the season, particularly in the southern wheat belt, reduced yields, and overall winter crop production was around 6 per cent lower than in 2008–09.

Nationally, production of the major winter crops of wheat and barley increased in 2009–10 on grain producing farms in Australia, with wheat production estimated to have been around 20 per cent higher and barley production around 30 per cent higher.

Low rainfall in early summer in northern New South Wales and Queensland, combined with a reduction in the area available for summer crops because of large winter crop plantings, led to a reduction in the area of grain sorghum in 2009–10. This, as well as late autumn rain that delayed the harvest, resulted in total grain sorghum production decreasing by 8 per cent from 2008–09.

2010–11

The total area sown to winter grain, oilseed and pulse crops decreased by 10 per cent per farm in 2010–11 from 2009–10. The area planted to wheat was around 12 per cent lower, and the area planted to barley decreased by around 25 per cent (Table 3). Areas planted to canola and lupins also declined (ABARES 2012c); however, there was a small increase in the area sown to oilseeds and pulses.

Good late summer rainfall in the eastern states was followed by widespread above average autumn rainfall, resulting in a strong start to the 2010–11 winter cropping season. Average to above average rainfall for July, August and September further boosted high winter crop yield expectations. In contrast, following on from a dry autumn, most cropping regions in Western Australia remained dry throughout winter, and consequently yield was low.

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, it is estimated that yields were near record in the eastern states. Total winter crop production was estimated to be around 42.1 million tonnes, 19 per cent higher than in 2009–10 despite a high proportion of the grain harvested in eastern states being downgraded in quality because of weather damage (ABARES 2012c). Total grain production increased by 12 per cent to an average of 1495 tonnes per grain producing farm. The price received also increased by 20 per cent to $265 a tonne (Table 3).

Winter crop production in New South Wales in 2010–11 was estimated to be almost double 2009–10 production and in Victoria and South Australia was estimated to be 34 per cent and 38 per cent higher, respectively. In Queensland, where crop damage from rain and flooding was most severe, total winter crop production was estimated to be around 2 per cent lower than in 2009–10. In Western Australia drought persisted throughout 2010 and total winter crop production was estimated to be around 40 per cent lower than in 2009–10.

In states where summer crops are grown, well above average rainfall over spring and summer replenished irrigation dams and boosted soil moisture for summer crops. As a result, the total area planted to summer crops increased from 2009–10. The area planted to grain sorghum increased despite plantings being restricted by continual rain in central Queensland, and the loss of some earlier planted areas. Yields were well above average.

2011–12

The total area sown to winter grain, oilseed and pulse crops was marginally higher in 2011–12 than in 2010–11. The area planted to wheat is estimated to have increased by around 3 per cent per grain producing farm and the area planted to barley by 4 per cent, while the area planted to canola and lupins declined.

Growing conditions over winter and spring in 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 was reported to have lowered the quality of crops in some regions (ABARES 2012c).

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 45.5 million tonnes in 2011–12. This is the largest winter crop on record. 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 18 per cent (ABARES 2012b).

In 2011–12, grain producing farms were projected to produce, on average, 1019 tonnes of wheat per farm, 9 per cent higher than the average for 2010–11. Barley production is estimated to have increased by 12 per cent (Table 3).

TABLE 3 Area sown, quantity harvested, yield and price received, grain producing farms average per farm

		2009–10	2010–11p	2011–12y
Area sown				
Wheat	ha	503	442	461
Oats	ha	36	37	30
Barley	ha	159	119	124
Grain sorghum	ha	13	13	12
Oilseeds	ha	67	73	na
Pulses	ha	70	76	na
Other grain crops	ha	12	11	na
Total grain crops	ha	860	771	na
Quantity harvested				
Wheat	t	788	937	1 019
Oats	t	28	36	42
Barley	t	298	261	293
Grain sorghum	t	46	44	43
Oilseeds	t	74	92	na
Pulses	t	75	82	na
Other grain crops	t	22	43	na
Total grain crops	t	1 331	1 495	na
Yield				
Wheat	t/ha	1.6	2.1	2.2
Oats	t/ha	0.8	1.0	1.4
Barley	t/ha	1.9	2.2	2.4
Grain sorghum	t/ha	3.6	3.4	3.5
Oilseeds	t/ha	1.1	1.3	na
Pulses	t/ha	1.1	1.1	na
Other grain crops	t/ha	1.8	3.9	na
Total grain crops	t/ha	1.5	1.9	na
Price received				
Wheat	$/t	210	247	na
Oats	$/t	213	235	na
Barley	$/t	160	225	na
Grain sorghum	$/t	184	220	na
Oilseeds	$/t	433	531	na
Pulses	$/t	381	341	na
Other grain crops	$/t	308	213	na
Total grain crops	$/t	220	265	na

p Preliminary estimate. **y** Provisional estimate. **na** Not available.
Source: AAGIS

The total summer crop area is estimated to have been largely unchanged in 2011–12 at 1.5 million hectares. However, grain sorghum plantings are estimated to have decreased by around 6 per cent.

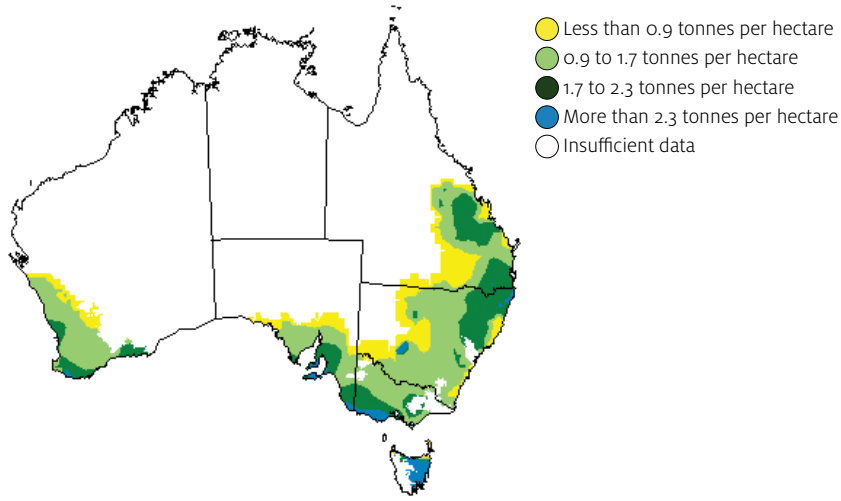
Flooding during late summer caused damage to some summer crops in southern Queensland and northern New South Wales. The most severe flooding occurred in the central north and north-west regions of New South Wales and the south-west region of Queensland. However, since flooding generally affects low-lying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

Chapter 5
Wheat yields

On average, wheat yields are estimated to have increased from 1.6 tonnes a hectare per grain producing farm in 2009–10 to around 2.1 tonnes a hectare per farm in 2010–11, and to 2.2 tonnes a hectare per farm in 2011–12 (Table 3).

Wheat yields over the past five years have been, on average, highest for grain producing farms in the high rainfall zone, especially in eastern parts of New South Wales and Queensland and southern regions of Victoria and South Australia (Map 5). Wheat yields generally decline for grain producing farms close to the pastoral zone.

MAP 5 Wheat yields, 2006–07 to 2010–11 smoothed average

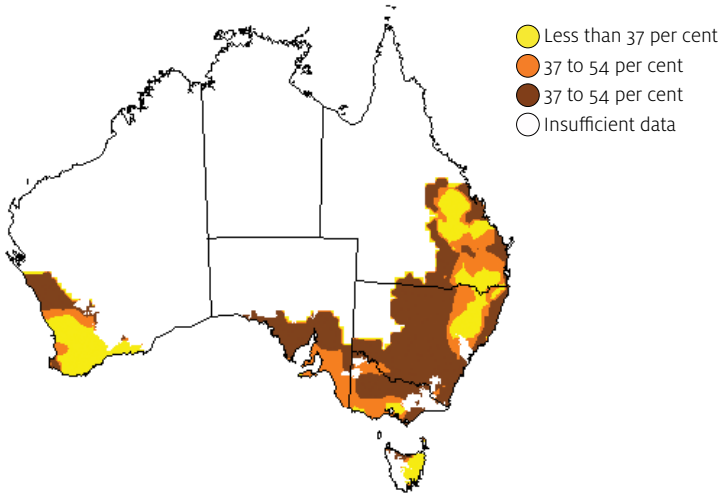


Source: AAGIS

Variability in grain yields over the five years ending 2010–11 has been calculated using the coefficient of variation—a statistical measure that describes the degree of divergence from the average. The larger the value, the more variation there was in wheat yields over the five-year period.

Wheat yields have been highly variable over the period 2006–07 to 2010–11 across much of southern and western New South Wales and northern Victoria (Map 6). Variability has also been high in regions on the northern margin of the wheat–sheep zone bordering pastoral areas of South Australia and Western Australia. The variability has largely been caused by varying seasonal conditions and, in some areas, the drought conditions which persisted. In contrast, wheat yields across the central and southern Western Australian wheat belt, parts of northern New South Wales and Queensland were less variable.

MAP 6 Wheat yield coefficient of variation, 2006–07 to 2010–11 smoothed average



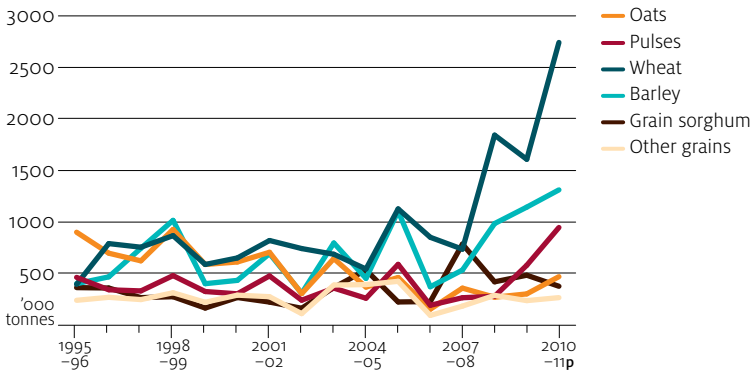
Source: AAGIS

Chapter 6
Grain stocks

The level of grain stocks held on farm varies with grain prices, seed and livestock feeding requirements, marketing arrangements and timing of harvest. At 30 June 2011, grain producing farms are estimated to have held an aggregate of around 6.1 million tonnes of grain stocks on farm. Grain stocks held on farms in 2010–11 increased by around 40 per cent from stocks of 2009–10, mainly as a result of increased grain production (Figure 1).

At 30 June 2010, grain producing farms had an average of 172 tonnes of grain on hand per farm, an increase of 16 per cent from the average stocks held at 30 June 2009. At 30 June 2011, grain producing farms stored, on average, 241 tonnes of grain stocks per farm. Wheat stocks were, on average, 108 tonnes per farm accounting for around 45 per cent of total grain stocks. Barley stocks were, on average, 52 tonnes per farm (22 per cent) and pulses 37 tonnes per farm (15 per cent) (Table 4).

FIGURE 1 Aggregate grain stocks at 30 June, 1996 to 2011 grain producing farms



p Preliminary estimate.

TABLE 4 Grain stocks at 30 June average per farm

		2009	2010	2011p
Wheat	t	66	63	108
Oats	t	10	12	19
Barley	t	36	45	52
Grain sorghum	t	15	19	15
Oilseeds	t	4	3	3
Pulses	t	11	23	37
Other grain crops	t	6	7	8
Total grain	t	148	172	241

p Preliminary estimate.
Source: AAGIS

Chapter 7
Farm financial performance

2010–11

Average farm cash income for grain producing farms improved significantly in 2010–11 from 2009–10 because of large increases in grain and oilseed production in most states, combined with higher prices. New South Wales, Victoria, Queensland and South Australia had large increases in grain and oilseed production in 2010–11. The exception was Western Australia, which had a substantial reduction in grain production as a result of drought. In the eastern states, the quality of some crops was downgraded and some crops were lost because of high rainfall and flooding. However, grain and oilseed yields in New South Wales, Victoria, Queensland and South Australia were high and feed grain prices held up, resulting in better than expected receipts for weather-damaged crops. Total cash receipts rose by 24 per cent, from $496 640 in 2009–10 to $615 310 in 2010–11 (Table 5).

At the same time, there was only a small rise in total cash costs resulting mainly from higher expenditure on fertiliser, fuel, crop chemicals and interest payments—costs associated with harvesting a larger crop than in 2009–10—and higher repairs and maintenance costs, particularly for flood-affected farms. Total cash costs for grain growing farms rose to $433 230 in 2010–11—an increase of 5 per cent from the average total cash costs of $411 440 in 2009–10.

Farm cash income for grain growing farms averaged $182 000 per farm in 2010–11, more than double the value for the previous financial year (Table 5, Figure 2). Grain producing farms recorded a positive farm business profit of around $109 150 per farm and a rate of return excluding capital appreciation of 4 per cent. This was much higher than the 1 per cent rate of return for the previous financial year. Grain producing farms realised the highest farm cash income among the surveyed industries in 2010–11 (Figure 3), although there was substantial variation across the states.

2011–12

Despite record grain production estimated in 2011–12, lower prices for most grains together with increases in farm costs were projected to result in a fall in overall farm cash income for grain producing farms. Average farm cash income was projected to be $161 400 per grain producing farm, compared with $182 000 for 2010–11 (Table 5).

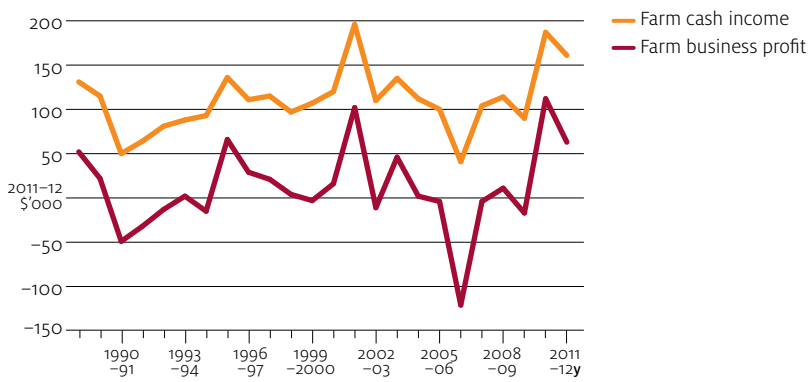
Overall, average cash costs for grain producing farms nationally in 2011–12 were projected to remain similar to that recorded in 2010–11. Small increases in most categories of farm costs in 2011–12 were offset by reduced expenditure on interest payments and fodder.

TABLE 5 Financial performance of grain producing farms average per farm

		all grain producing farms			
		2009–10	2010–11p		2011–12y
Cash receipts					
Total grain crop receipts	$	262 803	352 303	(4)	na
Wheat receipts	$	155 165	213 957	(4)	196 693
Oats receipts	$	2 740	3 258	(22)	5 273
Barley receipts	$	41 312	51 226	(6)	49 530
Sorghum receipts	$	8 201	7 577	(14)	7 373
Oilseeds receipts	$	29 553	48 468	(8)	59 174
Pulses receipts	$	20 388	19 350	(10)	23 534
Other crop receipts	$	10 885	18 243	(20)	30 054
Sheep and lamb receipts	$	65 540	81 015	(5)	76 520
Beef cattle receipts	$	59 210	57 773	(20)	50 353
Wool receipts	$	36 023	46 677	(6)	46 624
Other receipts	$	73 062	77 541	(23)	50 477
Total cash receipts	$	496 639	615 308	(5)	595 603
Receipts from crops	%	53	57	(4)	62
Cash costs					
Contracts	$	20 029	24 749	(8)	22 618
Crop and pasture chemicals	$	44 310	45 764	(4)	48 235
Fertiliser	$	52 998	56 881	(4)	59 483
Fodder	$	7 870	8 084	(142)	3 323
Seed	$	5 172	6 175	(6)	5 890
Fuel oil and grease	$	34 220	35 643	(4)	37 970
Interest	$	50 084	51 032	(6)	47 356
Repairs and maintenance	$	36 291	36 712	(3)	41 550
Rates	$	12 142	12 479	(7)	12 404
Other cash costs **a**	$	148 322	155 709	(7)	155 384
Total cash costs	$	411 437	433 227	(5)	434 211
Farm financial performance					
Farm cash income	$	85 202	182 081	(6)	161 392
Farms with negative farm cash income	%	33	18	(12)	20
Farm business profit	$	–16 009	109 152	(10)	62 843
Farms with negative farm business profit	%	64	44	(5)	49
Rate of return					
– excluding capital appreciation	%	1	4	(6)	3
– including capital appreciation	%	0	3	(22)	3

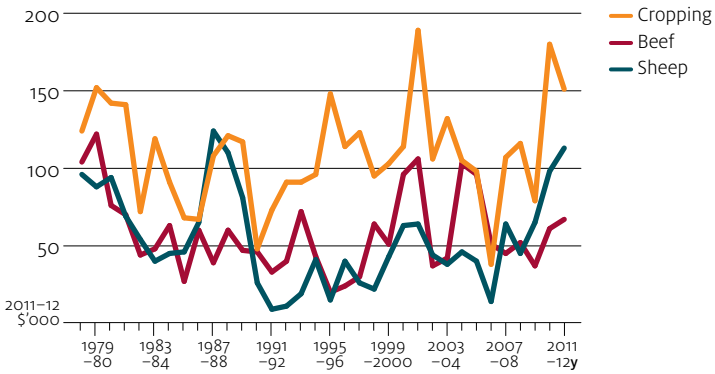
a Other cost items include livestock purchases, labour, rent, insurance, administration costs, among others.
p Preliminary estimate. **y** Provisional estimate. **na** Not available.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: AAGIS

FIGURE 2 Financial performance of grain producing farms average per farm



y Provisional estimate.

FIGURE 3 Farm cash income, by industry average per farm



y Provisional estimate.

Box 1 Major financial performance indicators

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

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

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

Farm business profit:

farm cash income + change in trading stocks – depreciation – imputed labour costs

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

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

Rate of return: return to all capital used $\frac{\textit{profit at full equity}}{\textit{total opening capital}}$ x100

Chapter 8
Performance by grain cropping intensity

Profile by grain cropping intensity

To further investigate the physical characteristics and financial performance of grain producing farms, farms surveyed in the AAGIS have been classified into four groups based on the proportion of the total area operated that was planted to grain crops:

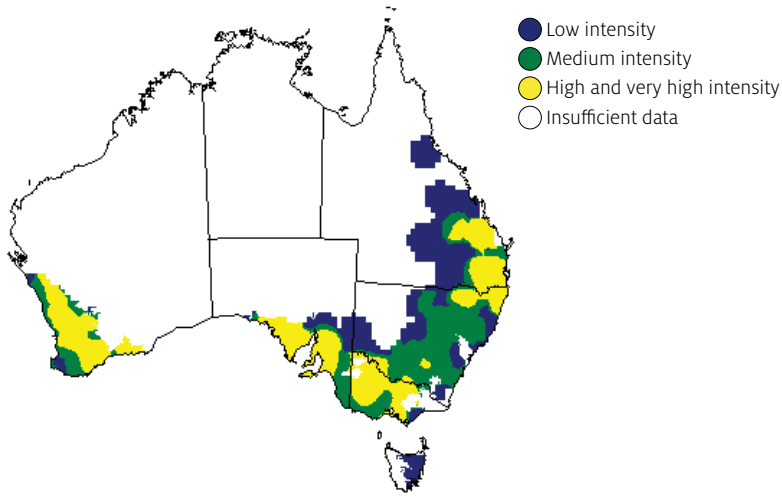
- **low intensity** grain producing farms—less than 20 per cent of the farm area operated is sown to grain crops
- **medium intensity** grain producing farms—20 to 40 per cent of the farm area operated is sown to grain crops
- **high intensity** grain producing farms—40 to 70 per cent of the farm area operated is sown to grain crops
- **very high intensity** grain producing farms—more than 70 per cent of the farm area operated is sown to grain crops.

Data from the AAGIS show that the proportion of farm area sown to broadacre grain crops in any one year is a good measure of grain cropping intensity across time. Farms generally remain in the same intensity classification over several years because factors such as fluctuating yields or receipts do not directly affect this measure.

In 2010–11, 88 per cent of high and very high intensity cropping farms were located in the wheat–sheep zone. A few grain producing farms are located on the margins of Australia's pastoral zone—for example, in western New South Wales, western Queensland, the northern margins of the South Australian wheat–sheep zone and the north-eastern wheat–sheep zone of Western Australia (Map 7). Most of these farms are low intensity farms and many of these areas have had high variability in wheat yields over the past five years, which reflects the opportunistic nature of grain growing in these areas.

An estimated 46 per cent of grain producing farms were classified as high or very high intensity (Table 6). High and very high intensity grain producing farms accounted for an estimated 72 per cent of area sown to grain crops and 78 per cent of the value of total grain crop sales by grain producing farms. In contrast, around 28 per cent of grain producing farms were low intensity, accounting for 9 per cent of total area sown to grain crops and 6 per cent of total revenue received from the sale of grain crops.

MAP 7 Grain cropping intensity, grain producing farms, 2010–11



Note: Some farms have been excluded from the map because of confidentiality issues.
Source: AAGIS

TABLE 6 Share of grain crops and revenue, by grain cropping intensity, 2006–07 to 2010–11 average per farm

	average number of farms	share of producers	share of area sown to grain crops	share of cropping revenue
		%	%	%
Low intensity	7 243	28	9	6
Medium intensity	6 850	26	18	17
High intensity	7 736	30	44	45
Very high intensity	4 181	16	28	33
Total	26 010	100	100	100

Source: AAGIS

During 2010–11, low intensity grain producing farms operated, on average, almost 3700 hectares compared with 2400 hectares for all grain producing farms (Table 7). Despite their relatively large size with respect to area operated, low intensity grain producing farms had, on average, fewer hectares sown to grain crops and more sheep and beef cattle than higher intensity grain producing farms.

Overall, most farms in all intensity groups reported good seasonal conditions in 2010–11. More than 68 per cent of grain producing farms in each intensity group reported average to above average seasonal conditions in 2010–11 (Table 8). However, a higher percentage of farms in the high intensity group reported drought conditions, reflecting the high percentage of farms located in Western Australia in this group.

TABLE 7 Size of operations, by grain cropping intensity, 2010–11p average per farm

		cropping intensity				
		low	medium	high	very high	all cropping farms
Area operated	ha	3 736	1 652	2 232	1 600	2 420
Area sown to grain crop	ha	264	494	1 208	1 356	771
At 30 June, number of sheep	no	2 054	1 608	1 661	258	1 519
At 30 June, number of beef cattle	no	324	114	61	20	146
Proportion of area sown to grain crops						
Wheat	%	57	59	59	54	57
Oats	%	19	7	3	1	5
Barley	%	10	15	15	17	15
Sorghum	%	2	2	1	2	2
Oilseeds	%	3	7	10	12	9
Pulses	%	7	8	9	13	10
Other grain crops	%	2	2	1	1	1
Total grain crops	%	100	100	100	100	100

p Preliminary estimate.
Source: AAGIS

TABLE 8 Seasonal conditions, by grain cropping intensity, 2010–11 percentage of farms

	cropping intensity				
	low	medium	high	very high	all cropping farms
Drought	7	7	13	7	9
Below average	16	19	19	13	17
Average	24	20	19	25	22
Above average	53	54	49	55	53

Source: AAGIS

Area sown, yield and price received by grain cropping intensity are set out in Table 9. Area sown and quantity harvested rise with grain cropping intensity with the exception of oats. Grain yields are more variable as grain intensity increases.

TABLE 9 Area sown, quantity harvested, yield and price received, by grain cropping intensity, 2010–11p average per farm

		cropping intensity				
		low	medium	high	very high	all cropping farms
Area sown						
Wheat	ha	151.8	291.6	712.8	734.5	442.2
Oats	ha	50.3	36.2	41.6	10.1	37.3
Barley	ha	26.2	76.4	186.4	233.1	118.8
Grain sorghum	ha	6	7.4	13.7	31.1	12.9
Oilseeds	ha	7.1	32.8	124.8	160	72.5
Pulses	ha	17.2	38.3	113.7	174.5	76.4
Other grain crops	ha	5.8	11.8	15.3	12.2	11
Total grain crops	ha	264.4	494.5	1 208.3	1 355.5	771.1
Quantity harvested						
Wheat	t	279.3	667.4	1 387.7	1 746.7	937
Oats	t	39.9	39.5	44.2	10.2	35.8
Barley	t	45.4	173.5	371.3	584.4	261.1
Grain sorghum	t	17.6	25.3	49.5	106.6	43.8
Oilseeds	t	9.5	40.2	149.9	215.1	91.6
Pulses	t	14.7	40.1	122.7	194.1	82
Other grain crops	t	11.1	60.4	55.8	54	43.4
Total grain crops	t	417.6	1 046.6	2 181	2 911.3	1 494.7
Yield						
Wheat	t/ha	1.8	2.3	1.9	2.4	2.1
Oats	t/ha	0.8	1.1	1.1	1	1
Barley	t/ha	1.7	2.3	2	2.5	2.2
Grain sorghum	t/ha	2.9	3.4	3.6	3.4	3.4
Oilseeds	t/ha	1.3	1.2	1.2	1.3	1.3
Pulses	t/ha	0.9	1	1.1	1.1	1.1
Other grain crops	t/ha	1.9	5.1	3.6	4.4	3.9
Total grain crops	t/ha	1.6	2.1	1.8	2.1	1.9
Price received						
Wheat	$/t	206.2	228.2	265.8	242.8	246.6
Oats	$/t	240.8	185.7	277.1	242.9	234.5
Barley	$/t	209	203.9	231.8	228.6	225.4
Grain sorghum	$/t	193	205.9	241.2	212.9	219.7
Oilseeds	$/t	676.3	565.2	521.8	519.6	530.5
Pulses	$/t	341.3	301.8	314.3	383.9	340.9
Other grain crops	$/t	274.9	189.4	240.3	184	212.8
Total grain crops	$/t	228.7	238	279.8	267.9	264.6

p Preliminary estimate.
Source: AAGIS

Financial performance by grain cropping intensity

2010–11

In 2010–11, farm cash incomes for grain producing farms in all intensity groups increased. Total receipts rose for all intensity groups, mainly because of higher crop receipts. Cash costs also increased in 2010–11 from the previous year. The increase in total costs was offset by higher receipts and, as a consequence, higher positive farm cash incomes were realised for grain producing farms in all intensity groups. Farms in all intensity groups also realised higher rates of return to capital excluding capital appreciation in 2010–11 than in 2009–10 (Table 10).

Total grain crop receipts and the proportion of grain receipts to total receipts increased with cropping intensity in 2010–11 (Table 10). Total grain crop receipts were, on average, $74 000 per farm for low intensity grain cropping farms (18 per cent of total receipts), compared with $565 000 for high intensity grain producing farms (67 per cent of total receipts) and $687 000 for very high intensity grain producing farms (83 per cent of total receipts).

Grain producing farms in the low intensity group received an average of $273 600 per farm from the sale of livestock and livestock products (sheep, lamb, wool and beef cattle) in 2010–11, reflecting the large sheep flocks and beef cattle herds on farms in this group (Table 10). On average, receipts from livestock and livestock products accounted for 67 per cent of total receipts. In contrast, receipts from livestock and livestock products accounted for only 5 per cent of total receipts for very high intensity grain producing farms.

2011–12

Higher total crop receipts were projected for grain producing farms in low, high and very high intensity groups in 2011–12 because increases in total crop production were estimated to have more than offset lower grain and oilseed prices. The increase in total grain crop receipts was not expected to have led to increases in total farm cash receipts for grain producing farms in these intensity groups. Total cash receipts were estimated to have been lower for low, high and very high intensity grain producing farms. Low intensity farms were estimated to have had reduced beef cattle receipts, and high and very high grain producing farms to have had reduced receipts from sources other than crops and livestock. These other receipts were from contracting, off-farm share-farming and rebates. The medium group of grain producing farms on average had lower crop receipts but higher total receipts as a result of increased livestock and livestock receipts in 2011–12.

On average, total cash costs were estimated to have increased for medium, high and very high intensity groups, which reflects the increased costs associated with high grain production. In contrast, low intensity grain producing farms were estimated to have had lower total costs in 2011–12 than in 2010–11.

Farm cash incomes for high and very high intensity grain producing farms were estimated to have been lower because of higher total cash costs and a reduction in total cash receipts. The projected reduction in farm cash income for the medium intensity grain producing farms was because of an increase in total cash costs.

The lower total cash receipts for low intensity grain producing farms were estimated to have been offset by lower costs, leading to an increased farm cash income in 2011–12 from 2010–11 (Table 10).

TABLE 10 Financial performance of grain producing farms, by grain cropping intensity average per farm

		low				medium			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Cash receipts									
Total grain crop receipts	$	51 833	74 403	(24)	na	142 607	219 968	(10)	na
Wheat receipts	$	29 805	50 344	(26)	50 794	93 111	143 065	(13)	125 689
Oats receipts	$	1 774	1 718	(30)	4 139	4 055	3 864	(35)	4 968
Barley receipts	$	3 110	68 44	(24)	7 927	18 192	26 772	(20)	27 093
Sorghum receipts	$	5 083	2 128	(89)	875	1 980	4 079	(41)	3 362
Oilseeds receipts	$	6 356	6 398	(25)	7 832	14 481	22 844	(20)	27 383
Pulses receipts	$	2 410	4 199	(80)	2 084	6 235	8 737	(27)	11 027
Other crop receipts	$	8 658	10 907	(90)	17 680	13 576	26 101	(49)	33 796
Sheep and lamb receipts	$	68 185	94 087	(8)	94 727	77 889	88 552	(15)	90 098
Beef cattle receipts	$	141 307	115 632	(27)	94 999	35 749	52 751	(57)	55 730
Wool receipts	$	43 127	63 849	(8)	63 926	41 442	48 039	(10)	50 792
Other receipts	$	65 091	62 976	(43)	28 246	46 455	60 722	(27)	43 409
Total cash receipts	$	369 543	410 948	(15)	373 229	344 142	470 032	(12)	473 348
Receipts from grain crops	%	14	18	(23)	25	41	47	(8)	49
Cash costs									
Contracts	$	15 054	19 484	(32)	13 502	17 817	22 008	(19)	21 213
Crop and pasture chemicals	$	10 366	13 699	(31)	11 259	23 969	29 299	(17)	32 279
Fertiliser	$	18 293	18 670	(16)	19 590	32 453	34 858	(12)	37 742
Fodder	$	15 186	13 119	(92)	3 492	3 736	5 001	(38)	3 832
Seed	$	3 661	3 505	(19)	3 911	3 551	4 486	(19)	4 139
Fuel oil and grease	$	21 431	20 378	(16)	19 062	24 965	27 347	(13)	30 103
Interest	$	37 198	39 931	(25)	30 069	35 416	35 492	(14)	35 053
Repairs and maintenance	$	26 668	27 061	(9)	29 332	29 080	28 788	(11)	33 594
Rates	$	11 382	10 016	(14)	9 422	9 970	11 458	(24)	10 918
Other cash costs **a**	$	137 070	144 152	(21)	114 163	112 104	144 138	(22)	144 090
Total cash costs	$	296 310	310 015	(18)	253 802	293 060	342 876	(13)	352 964
Farm financial performance									
Farm cash income	$	73 233	100 933	(22)	119 427	51 082	127 156	(16)	120 384
Farms with negative farm cash income	%	24	23	(15)	18	42	23	(20)	22
Farm business profit	$	–9 042	44 674	(47)	61 890	–35 798	61 760	(38)	39 547
Farms with negative farm business profit	%	63	51	(8)	45	73	55	(8)	56
Rate of return									
–excluding capital appreciation	%	1	2.1	(22)	2	0	3	(22)	2
–including capital appreciation	%	1	–1.0	(243)	3	0	4	(30)	3

continued...

TABLE 10 Financial performance of grain producing farms, by grain cropping intensity average per farm

...continued

		high				very high			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Cash receipts									
Total grain crop receipts	$	390 418	564 960	(5)	na	551 765	686 765	(7)	na
Wheat receipts	$	243 340	351 413	(6)	314 475	294 127	381 504	(8)	346 178
Oats receipts	$	3 579	5 700	(39)	9 245	927	1 182	(38)	1 360
Barley receipts	$	61 207	78 143	(9)	79 676	100 565	120 477	(12)	100 494
Sorghum receipts	$	5 117	11 114	(20)	10 956	26 645	16 441	(19)	17 774
Oilseeds receipts	$	44 724	77 220	(14)	94 654	62 302	112 639	(12)	130 369
Pulses receipts	$	24 620	28 912	(18)	31 443	60 969	45 720	(17)	62 927
Other crop receipts	$	11 691	23 323	(31)	39 240	8 946	11 310	(36)	30 563
Sheep and lamb receipts	$	78 199	94 555	(6)	82 627	24 063	26 661	(24)	19 146
Beef cattle receipts	$	36 284	30 409	(24)	27 327	8 948	9 388	(34)	6 899
Wool receipts	$	42 640	50 847	(8)	49 770	7 506	8 984	(24)	8 217
Other receipts	$	83 250	96 878	(14)	70 420	108 179	96 748	(22)	65 009
Total cash receipts	$	630 790	837 650	(4)	809 832	700 460	828 545	(7)	788 936
Receipts from grain crops	%	62	67	(2)	72	79	83	(3)	87
Cash costs									
Contracts	$	27 426	29 879	(12)	26 870	19 186	29 711	(15)	32 608
Crop and pasture chemicals	$	63 996	70 654	(5)	73 285	93 575	85 551	(9)	90 757
Fertiliser	$	78 669	92 086	(6)	92 081	94 477	99 166	(8)	102 944
Fodder	$	8 802	9 177	(72)	3 429	1 823	2 326	(112)	2 185
Seed	$	6 470	8 435	(9)	7 241	7 771	9 662	(13)	9 382
Fuel oil and grease	$	44 451	50 097	(4)	53 301	50 797	51 192	(6)	55 405
Interest	$	65 291	65 302	(8)	61 360	67 116	70 377	(10)	70 335
Repairs and maintenance	$	42 742	48 334	(5)	53 328	51 042	46 588	(7)	53 859
Rates	$	14 909	14 934	(7)	15 779	12 194	14 328	(10)	14 010
Other cash costs **a**	$	182 101	178 598	(5)	195 750	166 110	156 594	(9)	174 587
Total cash costs	$	534 856	567 494	(5)	582 424	564 089	565 495	(7)	606 073
Farm financial performance									
Farm cash income	$	95 934	270 156	(7)	227 408	136 371	263 050	(10)	182 863
Farms with negative farm cash income	%	33	14	(20)	20	34	7	(41)	22
Farm business profit	$	–22 760	157 335	(12)	97 024	13 278	212 951	(14)	43 408
Farms with negative farm business profit	%	64	37	(9)	45	52	29	(18)	55
Rate of return									
–excluding capital appreciation	%	1	5	(8)	3	2	6	(11)	3
–including capital appreciation	%	–2	5	(13)	4	3	7	(12)	3

a Other cost items include livestock purchases, labour, rent, insurance, administration costs, among others.
p Preliminary estimate. **y** Provisional estimate. **na** Not available.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: AAGIS

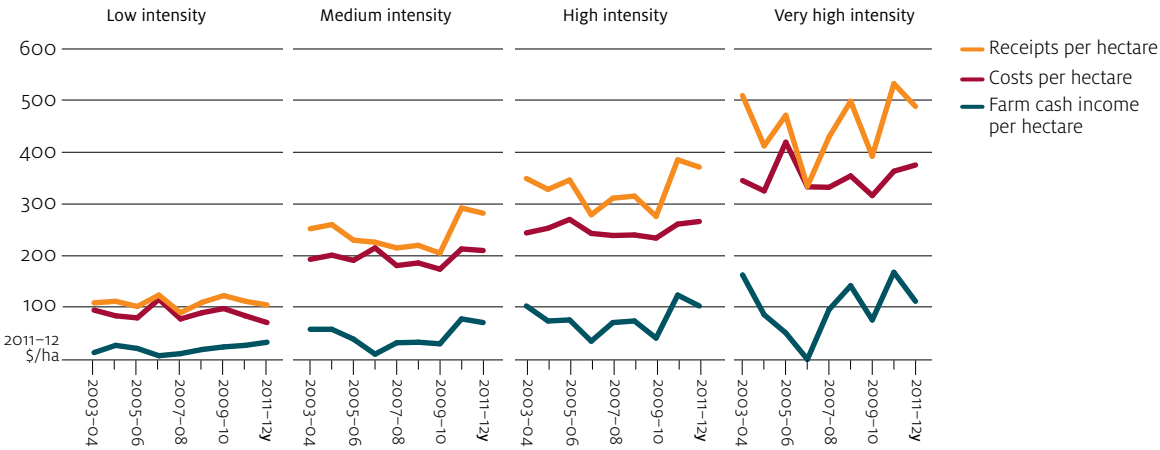
Chapter 9
Financial performance per hectare operated

Expressing farm cash income on a 'per hectare operated' basis enables a more direct comparison of the financial performance of farms of differing scales of operation. Farm cash income per hectare operated increases with grain cropping intensity because the margin of receipts over cash costs is higher, on average, for crops than for livestock. As cropping intensity increases, the proportion of farm receipts from cropping increases and farm cash income per hectare rises. While cropping activities generate higher average farm cash incomes, particularly over several years, farm cash income from cropping activity is usually more sensitive to adverse seasonal conditions within an individual year than farm cash income from livestock activities. Therefore, the volatility of farm cash income per hectare increases with grain cropping intensity (Figure 4).

Despite an estimated increase in grain production, incomes per hectare operated were projected to have decreased for high and very high intensity grain producing farms as a result of lower prices for most grains and oilseeds and an increase in farm costs in 2011–12. Specifically, costs per hectare were estimated to have been higher for high and very high intensity grain producing farms. Higher costs per hectare, combined with lower receipts in 2011–12 than in 2010–11, were estimated to have resulted in lower farm cash income per hectare.

The estimated decrease in farm cash income per hectare for medium intensity farms in 2011–12 was due to lower grain receipts per hectare, while costs per hectare remained nearly the same in 2010–11 and 2011–12. Low intensity farms were estimated to have realised, on average, lower costs per hectare and a small reduction in receipts per hectare. This resulted in higher projected farm cash income per hectare for this group (Figure 4).

FIGURE 4 Financial performance per hectare operated, by grain cropping intensity average per farm



y Provisional estimate.

Chapter 10

Capacity for future expansion

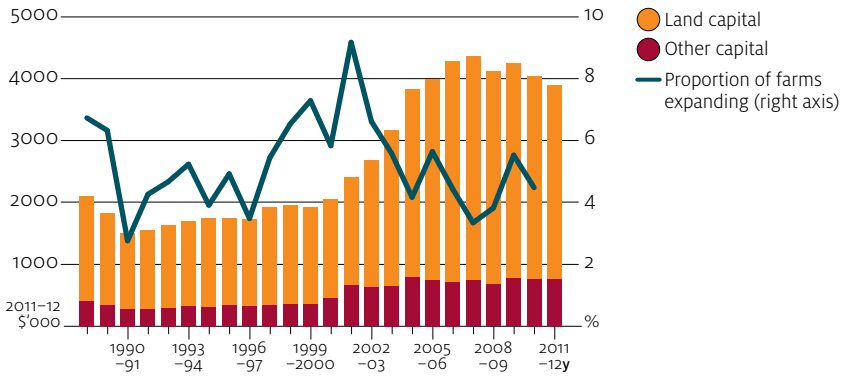
Capital investments

Capital investments, including the extension or improvement of buildings, structures, plant and machinery, and the expansion of operating area of farmland are important ways to boost farm incomes and productivity in the longer term. Productivity growth enables grain producers to maintain or increase the profitability of their farm business.

The average capital value of grain producing farms grew during most of the period from 1999–2000 to 2007–08, but has fluctuated around a declining trend since then (Figure 5). In 2010–11, grain producing farms had an average capital value of $4.0 million, a decrease of 5 per cent from 2009–10 but more than double the capital value in real terms in 1999–2000. The overall growth in capital value over the past 12 years was driven by growth in land values and net additions of plant, machinery, vehicles, improvements and land.

FIGURE 5 Capital value and proportion of farms increasing area operated

average per farm



y Provisional estimate.

Investment in land

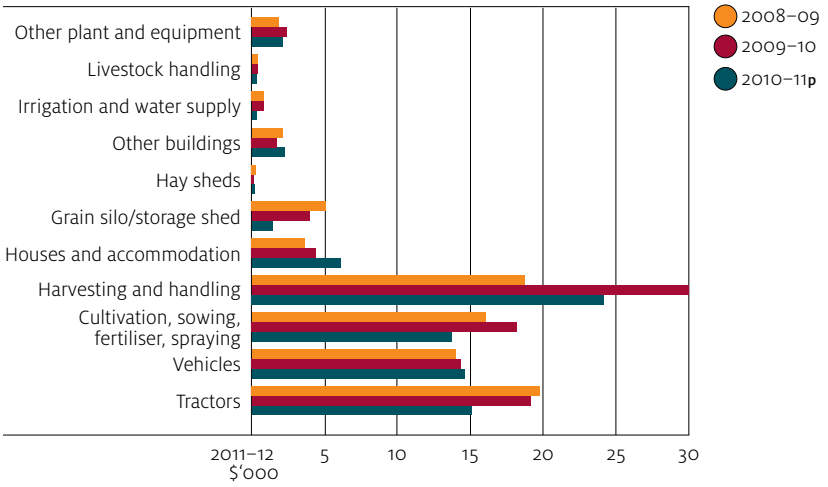
Between 1997–98 and 2001–02, a relatively large proportion of grain producers acquired additional land to expand their operations. The peak was in 2001–02, when an estimated 9 per cent of grain producing farms acquired additional land. However, since then, the proportion of producers expanding their land area has declined, in part as a result of increased land prices and established farmers paying greater attention to farm profitability and risks than to expectations of long-term capital gain (ABARES 2012c). The proportion of grain producing farms that acquired land in 2010–11 was 4.5 per cent—a decrease from 5.5 per cent in 2009–10. The average capital value of grain producing farms was projected to have decreased slightly in 2011–12 because of a reduction in non-land capital items.

Farm investment in non-land capital

Investment in non-land capital including vehicles, plant, machinery and farm improvements has generally increased since 1999–2000. As part of the Australian Government's Nation Building and Jobs Plan to support economic activity during the global financial crisis, an investment allowance was offered to businesses between December 2008 and December 2009. This allowance is likely to have contributed to increased investment in plant, machinery, farm improvements and other things in 2008–09 and 2009–10. Continued relatively high levels of investment in non-land capital in 2010–11 can be attributed to factors such as improved capital flow for many farms following improved financial performance, lower interest rates, and lower prices for imported machinery, vehicles and plant as a result of the high Australian dollar.

ABARES surveys indicate that the largest category of new capital expenditure on grain producing farms in 2009–10 and 2010–11 was harvesting and handling machinery. Other major items of expenditure were tractors, vehicles and cultivation, sowing, fertiliser and spraying machinery (Figure 6).

FIGURE 6 Non-land capital additions, grain producing farms 2008–09 to 2010–11
average per farm

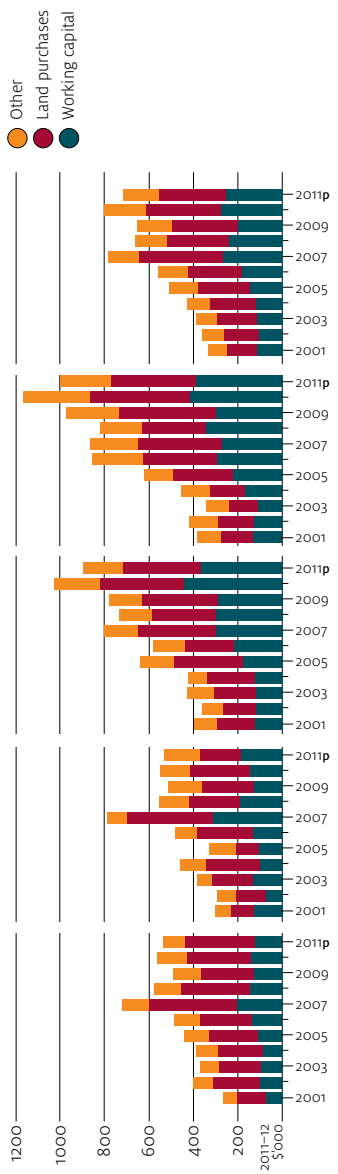


p Preliminary estimate.

Nationally, farm debt decreased in 2010–11 for grain producing farms, reflecting the higher incomes received by producers in that year. Total farm debt as at 30 June 2011 averaged around $719 000 per grain producing farm. For most intensity groups, debt for land purchases and working capital decreased in 2010–11. Reduction in debt was larger for high and very high intensity grain producing farms than for low and medium intensity farms (Figure 7).

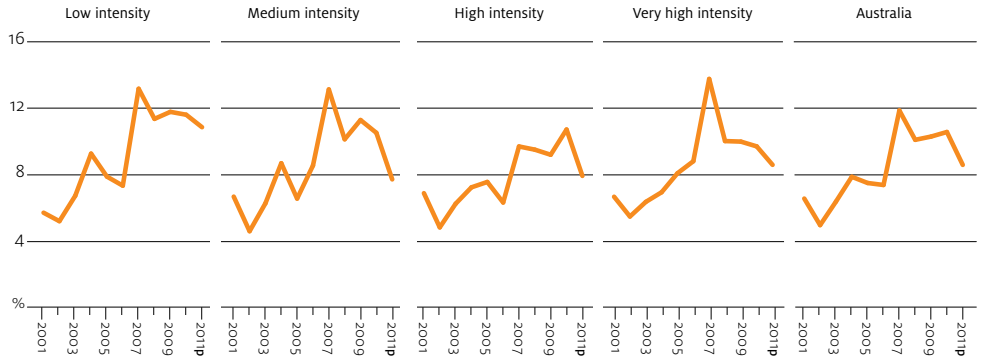
Large increases in debt over the past decade have resulted in the proportion of farm receipts required to service interest payments rising markedly. This has remained high despite lower interest rates in 2008–09 and 2009–10. The proportion of farm receipts needed to meet interest payments in 2010–11 is estimated to be lower than in 2009–10, but remains relatively high compared with the proportion recorded in the early 2000s (Figure 8).

FIGURE 7 Composition of farm debt, by grain cropping intensity average per farm



p Preliminary estimate.
Note: Each year represents a financial year. For example, 2001 represents the 2000–01 financial year.

FIGURE 8 Interest to receipts ratio, by grain cropping intensity average per farm

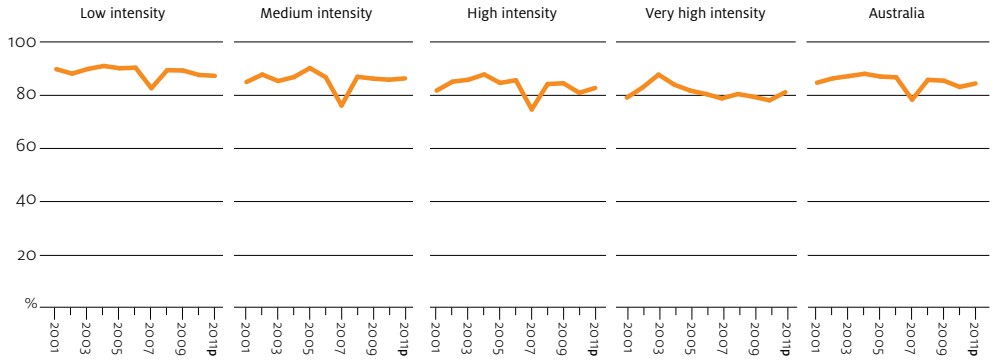


p Preliminary estimate.
Note: Each year represents a financial year. For example, 2001 represents the 2000–01 financial year.

In recent years, increases in farm debt and decreases in land capital values resulted in some reduction in farm equity ratios (Figure 9). However, overall equity ratios remain high and, in recent years, reductions in equity ratios have mainly been for high and very high intensity producers that have high recorded levels of investment and a strong capacity to service debt. Equity ratios were higher in 2010–11 than in 2009–10 mainly because of higher incomes in 2010–11, which helped grain producers reduce their debt. Investments in land and capital over the past 10 years have also enabled producers to expand production and boost productivity.

The proportion of grain producing farms with negative farm cash incomes and low equity (less than 70 per cent as a proportion of total farm capital) reduced to 4 per cent in 2010–11 from 7 per cent in 2009–10 (Table 11). The financial performance of these farms may limit their ability to acquire further debt to expand production in the near future.

FIGURE 9 Equity ratio, by grain cropping intensity average per farm



p Preliminary estimate.
Note: Each year represents a financial year. For example, 2001 represents the 2000–01 financial year.

TABLE 11 Equity position for grain cropping farms, 2010–11 percentage of farms

	positive farm cash income		negative farm cash income		
	high equity	low equity	high equity	low equity	total
Low intensity	74	4	19	3	100
Medium intensity	64	12	19	4	100
High intensity	73	13	8	6	100
Very high intensity	75	19	3	4	100
All cropping farms	71	11	13	4	100

a Farms with an equity ratio of less than 70 per cent are defined as having low farm equity.
Source: AAGIS

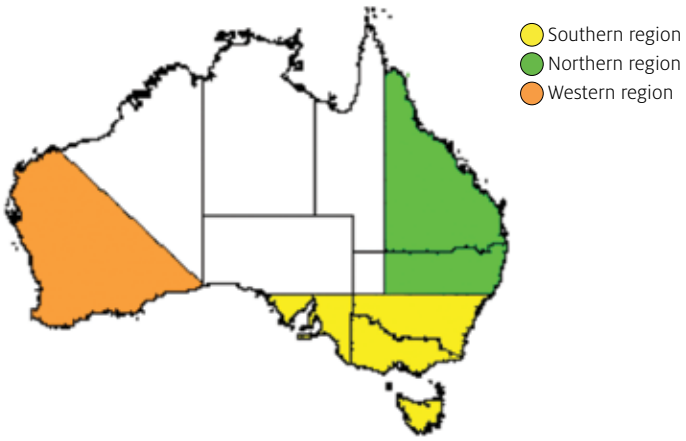
Chapter 11
Financial performance by GRDC agroecological region

To recognise variations in growing conditions, the GRDC distinguishes three agroecological grain growing regions (Map 8) (GRDC 2009).

- The **northern region** is characterised by tropical and subtropical climate, high inherent soil fertility, diversity of crop choice and high-potential yields. Yield depends on conservation of soil moisture from subtropical rainfall.
- The **southern region** is characterised by a temperate climate, relatively low soil fertility and diverse production patterns, including cropping and livestock production. Yield depends on reliable spring rainfall.
- The **western region** is characterised by a Mediterranean climate, low soil fertility and a small range of crop growing options. Yield depends on good winter rains because spring rainfall is generally unreliable.

The financial performance of grain producing farms varies across these regions (Table 12).

MAP 8 GRDC regions



Source: GRDC

Northern agroecological region

Overall, receipts from both winter and summer grain and oilseed crops were projected to have declined in 2011–12 in the northern agroecological region, but receipts from pulses were estimated to have increased. Increases in wheat and barley production were offset by lower prices. Receipts from grain sorghum and oilseeds were also projected to have declined slightly from 2010–11 because of 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. This flooding is likely to have damaged some summer crops (ABARES 2012c). For farms in New South Wales in the northern agroecological region, crop receipts were projected to have decreased, mainly because of lower production and lower prices than last season.

Between 2010–11 and 2011–12 receipts from beef cattle were projected to have decreased by around 24 per cent for grain producing farms in the northern agroecological region owing to a decrease in the number of cattle sold, despite a small increase in sale prices. In 2011–12 receipts from livestock accounted for around 36 per cent of the total receipts for grain producing farms in the northern agroecological region.

Average total cash costs were projected to have fallen by around 20 per cent in 2011–12, mainly because of a large decrease in livestock purchases and lower fodder expenditure.

Farm cash income for grain producing farms in the northern agroecological region was projected to have fallen by around 30 per cent in 2011–12 to average $79 000 per grain producing farm. Deviations from this average are expected across grain producing farms depending on their enterprise mix.

Southern agroecological region

In 2011–12, farm cash incomes for grain producing farms in the southern agroecological region were projected to have declined. Less favourable seasonal conditions led to reduced grain production, and the effect of this on receipts was accentuated by a fall in wheat and oilseed prices. On average, receipts from crops were projected to have decreased from 2010–11, but receipts from beef cattle were projected to have increased slightly as a result of higher beef prices and an increase in cattle sale weights. Receipts from sheep, lambs and wool were projected to have been higher because of higher wool prices, an increase in wool production and an increase in the number of lambs sold (Table 12).

Farm cash costs were projected to have risen by around 3 per cent, reflecting increased expenditure on crop and pasture chemicals, fertiliser, higher fuel and increased expenditure on repairs and maintenance.

On average, farm cash income for grain producing farms in the southern agroecological region was projected to have declined by 17 per cent to $171 500 per farm in 2011–12 (Table 12).

Table 12 Financial performance of grain producing farms, by GRDC agroecological region average per farm

		north				south			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Cash receipts									
Total grain crop receipts	$	250 782	227 861	(11)	na	174 998	350 450	(4)	na
Wheat receipts	$	128 183	134 878	(14)	80 249	100 112	212 827	(5)	176 281
Oats receipts	$	758	399	(56)	362	1 867	3 262	(25)	3 319
Barley receipts	$	20 591	14 407	(23)	9 038	34 186	56 770	(7)	48 370
Sorghum receipts	$	38 481	31 045	(14)	29 013	20	0	na	525
Oilseeds receipts	$	15 735	11 818	(21)	8 944	19 471	51 395	(9)	64 098
Pulses receipts	$	40 339	29 408	(19)	35 185	12 776	14 074	(14)	19 398
Other crop receipts	$	28 560	41 491	(30)	44 545	7 542	13 606	(27)	31 434
Sheep and lamb receipts	$	34 568	29 573	(17)	27 201	70 125	91 606	(6)	91 534
Beef cattle receipts	$	155 952	135 419	(24)	103 377	341 09	33 967	(41)	35 116
Wool receipts	$	16 931	16 722	(22)	16 568	32 827	47 889	(8)	49 427
Other receipts	$	103 274	114 982	(64)	52 386	63 289	67 448	(8)	49 826
Total cash receipts	$	561 507	524 556	(18)	406 869	375 348	591 360	(4)	569 328
Receipts from crops	%	45	43	(18)	51	47	59	(3)	60
Cash costs									
Contracts	$	34 428	39 314	(17)	29 180	14 223	21 409	(8)	21 960
Crop and pasture chemicals	$	44 022	36 358	(14)	28 492	31 471	41 028	(5)	45 775
Fertiliser	$	24 170	19 453	(13)	18 905	37 345	51 553	(5)	55 640
Fodder	$	17305	18 879	(248)	4 120	5 191	3 018	(62)	2 421
Seed	$	10 191	8 826	(12)	7 995	3 459	5 376	(8)	5 410
Fuel, oil and grease	$	36 933	3 1611	(12)	28 635	27 769	33 433	(4)	37 194
Interest	$	64 016	54 389	(18)	42 697	39 398	42 251	(5)	42 547
Repairs and maintenance	$	42 962	36 617	(9)	36 389	27 306	34 001	(4)	38 410
Rates	$	11 063	9 470	(16)	8 375	11 670	13 734	(9)	13 523
Other cash costs **a**	$	184 923	156 306	(20)	122 618	107 054	138 998	(9)	134 940
Total cash costs	$	470 015	411 224	(20)	327 407	304 886	384 801	(5)	397 821
Farm financial performance									
Farm cash income	$	91 492	113 332	(24)	79 462	70 462	206 560	(5)	171 508
Farms with negative farm cash income	%	32	28	(21)	28	34	12	(17)	18
Farm business profit	$	–21 490	47 376	(54)	2 237	-7 193	164 981	(8)	76 870
Farms with negative farm business profit	%	69	68	(6)	67	62	29	(10)	46
Rate of return									
– excluding capital appreciation	%	1.0	2.5	(22)	1.3	1.1	5.6	(6)	3.2
– including capital appreciation	%	1.0	–0.1	(1 813)	1.6	0.9	5.6	(8)	3.6

continued...

Table 12 Financial performance of grain producing farms, by GRDC agroecological region average per farm
...continued

		west				all grain producing farms			
		2009–10	2010–11p		2011–12y	2009–10	2010–11p		2011–12y
Cash receipts									
Total grain crop receipts	$	558 699	527 000	(8)	na	262 803	352 303	(4)	na
Wheat receipts	$	364 526	327 098	(10)	425 105	155 165	213 957	(4)	196 693
Oats receipts	$	7 812	7 067	(41)	18 272	2 740	3 258	(22)	5 273
Barley receipts	$	87 971	83 547	(14)	109 146	41 312	51 226	(6)	49 530
Sorghum receipts	$	0	0	na	0	8 201	7 577	(14)	7 373
Oilseeds receipts	$	75 792	85 832	(17)	110 889	29 553	48 468	(8)	59 174
Pulses receipts	$	22 302	22 681	(26)	21 478	20 388	19 350	(10)	23 534
Other crop receipts	$	296	1 006	(64)	3 065	10 885	18 243	(20)	30 054
Sheep and lamb receipts	$	84 347	113 334	(7)	92 359	65 540	81 015	(5)	76 520
Beef cattle receipts	$	28 961	26 407	(23)	24 982	59 210	57 773	(19)	50 353
Wool receipts	$	65 977	79 197	(9)	74 732	36 023	46 677	(6)	46 624
Other receipts	$	67 026	57 187	(14)	49 152	73 062	77 541	(24)	50 477
Total cash receipts	$	805 010	803 124	(6)	929 180	496 639	615 308	(5)	595 603
Receipts from crops	%	69	66	(3)	74	53	57	(4)	62
Cash costs									
Contracts	$	21 652	15 217	(15)	15 364	20 029	24 749	(8)	22 618
Crop and pasture chemicals	$	85 738	73 053	(8)	83 272	44 310	45 764	(4)	48 235
Fertiliser	$	136 012	122 434	(7)	126 688	52 998	56 881	(4)	59 483
Fodder	$	5 786	9 503	(21)	5 143	7 870	8 084	(142)	3 323
Seed	$	4 757	4 989	(15)	4 509	5 172	6 175	(6)	5 890
Fuel, oil and grease	$	51 596	47 832	(6)	53 181	34 220	35 643	(4)	37 970
Interest	$	68 109	73 145	(11)	67 537	50 084	51 032	(6)	47 356
Repairs and maintenance	$	56 929	44 765	(7)	58 118	36 291	36 712	(4)	41 550
Rates	$	14 922	12 607	(6)	14 308	12 142	12 479	(7)	12 404
Other cash costs **a**	$	236 013	203 567	(6)	262 844	148 322	155 709	(7)	155 384
Total cash costs	$	681 514	607 112	(6)	690 963	411 437	433 227	(5)	43 4211
Farm financial performance									
Farm cash income	$	123 496	196 012	(12)	238 217	85 202	182 081	(6)	161 392
Farms with negative farm cash income	%	32	22	(24)	18	33	18	(12)	20
Farm business profit	$	–41 114	16 546	(142)	95 943	–16 009	109 152	(10)	62 843
Farms with negative farm business profit	%	65	62	(8)	38	64	44	(5)	49
Rate of return									
– excluding capital appreciation	%	0.7	1.8	(21)	2.9	1.0	3.8	(6)	2.7
– including capital appreciation	%	–1.9	1.7	(35)	3.3	0.2	3.2	(22)	3.1

a Other cost items include livestock purchases, labour, rent, insurance, administration costs, among others. **p** Preliminary estimate. **y** Provisional estimate. **na** Not available.
Note: Figures in parentheses are standard errors expressed as a percentage of the estimate.
Source: AAGIS

Western agroecological region

In 2011–12, a return to closer to average rainfall and seasonal conditions across most of southern Western Australia was estimated to have resulted in a marked increase in grain production and grain receipts, despite lower grain prices. Receipts were estimated to have increased by around 16 per cent to $930 000 per grain producing farm. For farms with livestock, average receipts for sheep, lambs, wool and beef cattle were projected to have declined in 2011–12 as turn-off reduced and farmers commenced rebuilding flocks and herds.

Total cash costs were projected to have increased by around 14 per cent on grain producing farms in the western agroecological region in 2011–12, resulting mainly from an increase in the cost of harvesting and marketing because of increased grain production. Cash costs were also estimated to have increased as a result of higher repairs and maintenance expenditure, increased chemical expenditure, and higher fertiliser and fuel costs. Expenditure on interest payments and fodder was estimated to be lower.

Farm cash income for grain producing farms in the western agroecological region was projected to have rebounded to an average of $238 200 per farm in 2011–12, around 22 per cent above the average for 2010–11.

Chapter 12
Grain cost of production

The GRDC commissioned ABARES to collect data about producers' expenditure on inputs specifically used to produce grain crops over the period for 2010–11 to 2012–13. This analysis builds on research on grain cash costs of production undertaken by ABARES on behalf of the GRDC in 2010 (Hooper 2010). The objective of the study is to investigate the cost characteristics of grain producers, and to identify any evidence of economies of size in the production of grain crops. A summary of preliminary results from the analysis of the data collected in 2011–12 is presented in this section.

Cash costs per tonne

Data on cash costs were collected for aggregated grain crops on each farm rather than for individual crops. In 2010–11 there was considerable difference in the average unit cash cost of grain production between GRDC agroecological regions (excluding grain handling, marketing and freight cost) (Table 13). In 2010–11, the southern agroecological region had the lowest average cost of grain produced, estimated at $124 per tonne. The average cost of grain produced in the western agroecological region was estimated to have been $257 per tonne. This higher estimate was partly the result of drought affecting crop yields. Overall, fertilisers (21 per cent) and chemicals (17 per cent) contributed the most to total costs for grain production across all farms in 2010–11.

Average cost of grain production by farm size

To explore the relationship between grain producers' average unit cost of production and scale of grain production, the farms surveyed by ABARES were allocated to one of ten groups based on the land area sown to grain in 2010–11 (Figure 10). The groups were chosen so that 10 per cent of the population of farms were within each group.

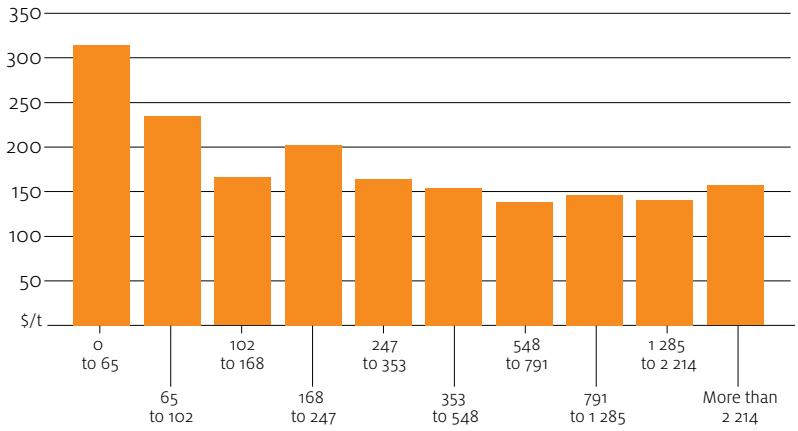
Table 13 On–farm cost of grain production, by GRDC agroecological region, 2010–11a

	Units	Northern		Southern		Western		National	
Total cash costs to grains	$	221 946	(11)	229 342	(4)	398 123	(7)	263 947	(4)
Total grain produced	t	1 497	(10)	1 843	(4)	1 551	(8)	1 717	(4)
Average costs	$/t	148	(7)	124	(3)	257	(4)	154	(2)
Fertilisers	$/t	14	(15)	27	(4)	68	(5)	33	(3)
Chemicals	$/t	26	(8)	22	(4)	44	(5)	27	(3)
Fuel, oil and grease	$/t	19	(8)	15	(3)	26	(5)	18	(3)
Repairs and maintenance	$/t	17	(10)	14	(5)	24	(6)	16	(4)
Contracts paid	$/t	26	(11)	11	(8)	7	(16)	13	(7)
Administration	$/t	3	(17)	3	(7)	9	(14)	4	(7)
Hired labour	$/t	9	(12)	5	(10)	13	(9)	7	(6)
Water rates and charges	$/t	0	(51)	2	(41)	0	(37)	1	(39)
Other	$/t	34	(13)	26	(6)	65	(7)	35	(5)
Receipts	$/t	244	(3)	243	(1)	317	(2)	258	(1)
Net returns	$/t	96	(11)	118	(4)	60	(8)	104	(4)

a Excludes grain handling, marketing and freight cost.

FIGURE 10 Average costs of grain farms, by area (hectare) of grain crop sown

average per farm



The preliminary analysis presented here suggests evidence of economies of size in Australian grain production in 2010–11. Initially, the cost of grain production falls as area harvested increases, but the reduction in cost diminishes for large farms. ABARES is currently undertaking more detailed analysis of these data to better understand the drivers of economies of size for grain producers and the implications for grains industry performance.

Box 2 Definition of cash costs to grains

The total cost of grain production in 2010–11 was estimated using data collected from the ABARES supplementary survey of grain producers. To be eligible for the survey, farmers must have sown more than 40 hectares of grain in 2010–11 and be classified as either a crop producer or mixed crop–livestock producer. Farmers were asked to nominate the proportion of cash costs that were spent on the following inputs in producing grains:

- fertilisers
- crop and pasture chemicals
- fuel, oil and grease
- repairs and maintenance
- contracts paid (including for spraying, sowing and cultivating)
- hired labour (excludes shearing costs as well as family and partner labour)
- water charges (includes rates and water allocation purchases but excludes purchase of permanent water access entitlements)
- freight
- administration
- handling and marketing
- other cash costs (including for seed, electricity and interest paid).

Chapter 13
Productivity growth

Importance of agricultural productivity

Productivity growth is an important driver of industry expansion and is the main contributor to growth in farm incomes over the longer term (PC 2005). Agricultural productivity is driven largely by research and development (R&D) and the adoption of innovations on farm, including new crop varieties, equipment and farm management practices. In addition, changes in industry structure and composition contribute to productivity growth.

Total factor productivity (TFP) is the key indicator used by ABARES to measure agricultural productivity. TFP is an index that compares the total quantity of outputs (crops and livestock) with the total quantity of inputs used in production (land, labour, capital, materials and services). In agriculture, long-term trends in TFP are the most appropriate indicators of underlying technological progress because, among other things, they moderate fluctuations associated with changing seasonal conditions and short-run responses to fluctuating market conditions (Nossal & Sheng 2010).

Trends in grains industry productivity

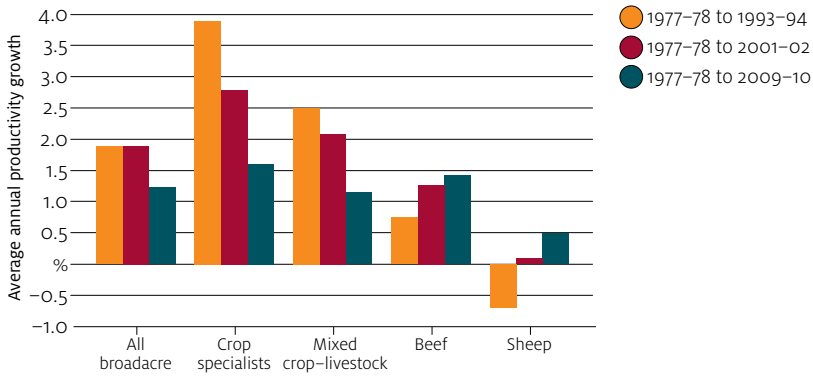
The long-term productivity gains achieved by the grains industry have exceeded those of other broadacre industries. Between 1977–78 and 2009–10, cropping specialists (those farms engaged mainly in growing grains, oilseeds, pulses and rice) achieved average annual TFP growth of 1.6 per cent, compared with the broadacre industry average of 1.2 per cent. These productivity gains enabled cropping specialists to increase output by 2.8 per cent a year, while only increasing input use by 1.2 per cent a year, on average.

However, the productivity growth rates of cropping and livestock industries have been converging in recent years. Productivity growth among cropping specialists has slowed, whereas the productivity growth among broadacre livestock industries (beef and sheep) has, to a lesser extent, increased (Table 14 and Figure 11). One explanation is that the high-input, high-yield cropping systems that became prevalent in the 1980s and 1990s did not suit the drier, more variable climate that prevailed in the 2000s (Stephens et al. 2011).

Table 14 Average annual TFP growth, by broadacre industry, 1977–78 to 2009–10

	All broadacre	Cropping	Mixed crop–livestock	Beef	Sheep
Total factor productivity	1.2	1.6	1.1	1.4	0.5
Inputs	–0.8	1.2	–1.7	0.0	–2.4
Outputs	0.4	2.8	–0.5	1.5	–1.9

FIGURE 11 Trends in broadacre productivity growth, by broadacre industry, 1977–78 to 2009–10



While a number of poor seasons reduced cropping productivity growth during the 2000s, it was not the only factor affecting productivity. It appears that the technological gains of leading grain growers have, on average, diminished and the rate of catch-up by other grain growers has declined (Hughes et al. 2011).

A range of factors could constrain innovation on farm, and subsequent outcomes for productivity. At the farm level, innovation could be inhibited by a lack of farmer capacity (business acumen, financial resources, operating scale, skilled labour or access to extension services) or willingness to innovate (including risk aversion, personal goals or past experience with innovation). More broadly, the opportunities for innovation can be influenced by R&D investment patterns, regulatory constraints, technology availability, public infrastructure and agro-climatic conditions (Nossal & Lim 2011).

Some of these factors are region-specific and may have contributed to differences in productivity growth between GRDC agroecological regions. Cropping specialists in the western region have, on average, achieved the highest average annual rates of productivity growth (2 per cent), compared with those in the northern (1.7 per cent) and southern (1.5 per cent) regions (Table 15). In general, western region growers face less variable climate and topography and manage larger, more homogenous cropping systems (Llewellyn & D'Emden 2010; Nossal & Lim 2011).

Table 15 Average annual cropping productivity growth, by region, 1977–78 to 2009–10

	Western	Northern	Southern	All regions
TFP	2.0	1.7	1.5	1.6
Inputs	2.3	−0.4	1.6	1.2
Outputs	4.3	1.3	3.1	2.8

Industry and governments have a strong interest in promoting agricultural productivity for a variety of reasons. Agricultural productivity growth can generate economy-wide benefits, including higher wages, lower prices for consumers and the release of labour, capital and other resources for use elsewhere. In addition, it can also improve environmental outcomes so that land, water and chemicals are used more efficiently (PC 2008).

Government and industry seeking to influence agricultural productivity can do so through a range of initiatives that improve farmers' capacity and incentives to innovate. These include investing in R&D and extension, building farmers' knowledge and skills, facilitating structural adjustment and reducing regulatory burdens (Gray et al. 2012).

Chapter 14
Survey methods and definitions

ABARES has conducted surveys of selected Australian agricultural industries since the 1940s. These surveys provide a broad range of information on the economic performance of farm business units in the rural sector. This comprehensive information is widely used for research and analysis that 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).

Target populations

The AAGIS is designed from a population list drawn from the Australian Business Register and maintained by the Australian Bureau of Statistics (ABS). The Australian Business Register comprises businesses registered with the Australian Taxation Office. The Australian Business Register-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 deliveries, sourced from the Levies Revenue Service. Dairy Australia provides the list, which 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 recent surveys 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. Before 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 and 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 address specific current issues.

Sample weighting

ABARES survey estimates are calculated by appropriately weighting the data collected from each sample farm and using this data to calculate population estimates. Sample weights are calculated so 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 agricultural census and survey data. The weighting methodology for AAGIS and ADIS uses a model-based approach, with a linear regression model linking survey variables and estimation benchmark variables (see Bardsley & Chambers 1984).

For AAGIS, the benchmark variables ABS provide 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 Dairy Australia provide are:

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

Generally, larger farms have smaller weightings and smaller farms have larger weightings, 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 number of large farms.

Reliability of estimates

Reliability of the estimates of population characteristics published by ABARES depends on the design of the sample and 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 through on-farm interviews and telephone interviews from October to December, as well as from the preliminary estimates. Projection estimates include crop and livestock production, receipts and expenditure up to the date of interview together with expected production, and receipts and expenditure for the remainder of the projection year. Modifications are made to expected receipts and expenditure where significant production and price change has occurred post interview. Projection estimates are necessarily subject to greater uncertainty than preliminary and final estimates.

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

Sampling errors

Only a subset of 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 survey design and estimation procedures, as well as sample size and the variability of farms in the population. The larger the sample size, the lower the sampling error is likely to be. Hence, national estimates are likely to have lower sampling errors than industry and state estimates.

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

Calculating confidence intervals using relative standard errors

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

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

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

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

A 95 per cent confidence interval for the difference is:

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

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

Glossary

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

Physical items

Hired labour	Excludes the farm business manager, partners and family labour, and work done by contractors. Expenditure on contract services appears as a cash cost.
Labour	Measured in work weeks, as estimated by the owner–manager or manager. 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.
Total area operated	Includes all land operated by the farm business, whether owned or rented by the business, but excludes land share farmed on another farm.

Financial items

Capital	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 share farmed off the sample farm. Residences on the farm are included in the valuations. Livestock are valued at estimated market prices for the land use zones within each state. These values are based on recorded sales and purchases by sample farms. Before 2001–02 ABARES maintained an inventory of plant and machinery for each sample farm. Individual items were valued at replacement cost, depreciated for age. Each year, the replacement cost was indexed to allow for changes in that cost. Since 2001–02 total value of plant and machinery is based on market valuations provided by the owner–manager for broad categories of capital, such as tractors, vehicles and irrigation plant. The total value of items purchased or sold during the survey year was added to or subtracted from farm capital at 31 December of the relevant financial year, irrespective of the actual date of purchase or sale.

Change in debt	Estimated as the difference between debt at 1 July and the following 30 June within the survey year, rather than between debt at 30 June in consecutive years. It is an estimate of the change in indebtedness of a given population of farms during the financial year and is thus unaffected by changes in sample or population between years.
Farm business debt	Estimated as all debts attributable to the farm business, but excluding personal debt, lease financed debt and underwritten loans, including harvest loans. Information is collected at the survey interview and supplemented by information contained in the farm accounts.
Farm liquid assets	Assets owned by the farm business that can be readily converted to cash. They include savings bank deposits, interest bearing deposits, debentures and shares but exclude 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 'farm gate' 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 share farming, employing labour and capital equipment also used in normal on-farm activities. Since it is not possible to accurately allocate costs between off-farm and on-farm operations, the income and expenditure attributable to such off-farm operations are included in the receipts and costs of the sample farm business.

Total cash costs	Payments made by the farm business for materials and services and for permanent and casual hired labour (excluding owner–manager, partner and other family labour). It includes the value of livestock transfers onto the property as well as any lease payments on capital, produce purchased for resale, rent, interest, livestock purchases and payments to sharefarmers. Capital and household expenditures are excluded from total cash costs. Handling and marketing expenses include commission, yard dues, and levies for farm produce sold. Administration costs include accountancy fees, banking and legal expenses, postage, stationery, subscriptions and telephone. Contracts paid, refers to expenditure on contracts such as harvesting. Capital and land development contracts are not included. Other cash costs include stores and rations, seed purchased, electricity, artificial insemination and herd testing fees, advisory services, motor vehicle expenses, travelling expenses and insurance. While 'other cash costs' may comprise a relatively large proportion of total cash costs, individually the components are relatively small overall and, as such, have not been listed.
Total cash receipts	Total of revenues received by the farm business during the financial year, including revenues from 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, share farming, insurance claims and compensation, and government assistance payments to the farm business.

Financial performance measures

Build-up in trading stocks	The closing value of all changes in the inventories of trading stocks during the financial year. It includes the value of any change in herd or flock size or in stocks of wool, fruit and grains held on the farm. It is negative if inventories are run down.
Depreciation of farm improvements	Estimated by the diminishing value method, based on replacement cost and age of each item. The rates applied are standard rates allowed by the Commissioner of Taxation.
Farm business equity	The value of owned capital, less farm business debt at 30 June. The estimate is based on those sample farms for which complete data on farm debt are available.

Farm business profit	Farm cash income plus build-up in trading stocks, less depreciation and the imputed value of the owner–manager, partner(s) and family labour.
Farm cash income	The difference between total cash receipts and total cash costs.
Farm equity ratio	Calculated as farm business equity as a percentage of owned capital at 30 June.
Imputed labour cost	Payments for owner–manager and family labour may bear little relationship to the actual work input. An estimate of the labour input of the owner–manager, partners and their families is calculated in work weeks and a value is imputed at the relevant Federal Pastoral Industry Award rates.
Off-farm income	Collected for the owner–manager and spouse only, including income from wages, other businesses, investment, and government assistance to the farm household and social welfare payments.
Plant and equipment	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.
Profit at full equity	Farm business profit, plus rent, interest and finance lease payments, less depreciation on leased items. It is the return produced by all the resources used in the farm business.
Rates of return	Calculated by expressing profit at full equity as a percentage of total opening capital. Rate of return represents the ability of the business to generate a return to all capital used by the business, including that which is borrowed or leased. The following rates of return are estimated: rate of return, excluding capital appreciation; and rate of return, including capital appreciation.

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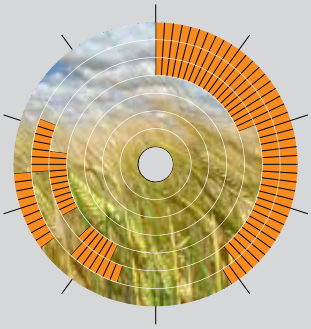
The 'Biosphere' Graphic Element
The biosphere is a key part of the department's visual identity. Individual biospheres are used to visually describe the diverse nature of the work we do as a department, in Australia and internationally.



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