

farm financial performance

investing in the future

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- > *Increased winter rainfall across much of Australia's grain producing regions in 2005 increased overall crop production. This lifted incomes for most southern state grain farms in 2005-06 despite increases in farm costs.*
- > *In 2005-06, incomes for broadacre sheep producers are expected to increase only slightly. This reflects lower wool prices and increased farm costs almost offsetting continued strong sheep and lamb prices and increased sheep, lamb and wool production.*
- > *Reduced beef cattle turnoff, particularly in Queensland, is expected to result in lower incomes for beef farms, but beef cattle numbers are projected to rise.*
- > *Improved seasonal conditions and higher milk prices are forecast to encourage increased milk production and result in a rise in incomes for dairy farms in 2005-06.*
- > *Demand for broadacre agricultural land grew more slowly in 2004-05 than in recent years. However, overall land values increased, strengthening farm equity.*
- > *Farm debt increased significantly in 2004-05, mainly to finance farm expansion and new investment. Net farm investment has remaining high in each of the past three years, despite the impact of drought.*

Farm incomes increase

In this paper, the current financial performance of Australia's broadacre and dairy farms is presented. ABARE's farm survey data are used to gain insights into the performance of Australian farms in the period since 2003-04 and to analyse projected farm financial performance in 2005-06. The data are also used to discuss recent developments in farm investment and exceptional circumstances assistance provided to these industries.

The financial performance of Australian farms has improved in the past three years as the drought that was most severe and widespread in 2002-03 has receded. Through this period, prices for livestock remained high in historical terms, assisting farms to manage cash flow during a time of reduced production. High beef cattle prices over the past four years have been particularly important in improving farm incomes as more Australian farms are engaged in beef cattle production than in any other enterprise.

Strong demand for rural land resulted in rising capital values that strengthened farm equity positions. The benefits of rising land values was partially offset by the impact of higher working capital debt, as producers borrowed to minimise the impact of reduced cash flow during the drought. At the end of the 2004-05 financial year the average equity ratio estimated for Australian broadacre farms was as high as it has been in any year since the 1980s.

Financial performance of Australian farms

Each year ABARE surveys a large number of producers in the broadacre and dairy sectors of Australian agriculture through the Australian agricultural and grazing industries survey (AAGIS) and the Australian dairy industry survey (ADIS). These surveys provide detailed financial and physical information on farm businesses and the socioeconomic circumstances of their operators.

Information provided by farmers in the surveys in November and December 2005 in combination with preliminary data collected earlier in the year have been used to project farm financial performance estimates for the 2005-06 financial year. The information collected provides a basis for analysing the current financial position of broadacre and dairy industries and expected changes in the short term.

Projections of farm performance reflect producers' plans and expectations as at November 2005. In some areas of Australia, seasonal conditions may have improved by more than anticipated in November, while in others, seasonal conditions may have deteriorated. In addition, producers' expectations of commodity prices may vary significantly from those finally received.

Estimates for 2005-06 will be progressively updated in future data releases as additional information is incorporated.

Farm receipts

After a late start to the winter grain crop growing season in the eastern states, above average winter rainfall in most grain producing regions of Australia resulted in winter crop production in 2005-06 being the second highest on record.

Improved seasonal conditions through summer relative to 2004-05, and the availability of more irrigation water in northern New South Wales, is estimated to have resulted in an

Major financial performance indicators

Farm cash income = total cash receipts – total cash costs

Total revenues received by the farm business during the financial year

Payments made by the farm business for materials and services and for permanent and casual hired labor (excluding owner manager, partner and family labor)

Farm business profit = farm cash income + changes in trading stock – depreciation – imputed labor costs

Profit at full equity = farm business profit + rent + interest and finance lease payments + depreciation on leased terms
(Return produced by all the resources used in the farm business)

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

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

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increase in the area planted to sorghum, cotton and other summer crops. Yield prospects for the summer crops appear to be good.

In addition to increased production, wheat producers are expected to benefit from slightly higher wheat prices in 2005-06. However, prices for all of the other major grains, oilseeds and pulses are forecast to fall in 2005-06. Overall, receipts from crops are projected to increase by around 10 per cent for broadacre farms in 2005-06.

At the national level, wool production is projected to increase slightly in 2005-06, but weaker demand is expected to result in lower wool prices and a reduction in farm receipts for wool.

The number of lambs marked and calves branded is projected to increase in 2005-06. After a prolonged period of high beef cattle turnoff, turnoff is projected to fall in 2005-06 as numbers are rebuilt in most states, despite the strong incentives of high sale prices. The reduction is expected to be most pronounced in the northern cattle producing areas where the high volume of beef cattle turnoff in recent years has significantly reduced the availability of suitable slaughter stock for 2005-06.

At the national level, average farm cash receipts are expected to rise by around 3 per cent, as increased production boosts cropping receipts. However, livestock receipts are forecast to fall as turnoff eases.

Milk receipts are also projected to increase in 2005-06, reflecting a combination of slightly higher milk production and stronger milk prices. A number of factors are expected to

1 Financial performance Average per farm All broadacre industries

		2003-04	2004-05 ^p	2005-06 ^s
Total cash receipts	\$	294 989	289 750 (4)	300 700
Total cash costs	\$	229 968	234 730 (4)	240 300
Farm cash income	\$	65 021	55 020 (9)	60 400
Farms with negative farm cash income	%	28	34 (5)	34
Farm business profit	\$	4 537	-9 450 (48)	1 800
Farms with negative farm business profit	%	62	67 (2)	60
Profit at full equity				
– excl. capital appreciation	\$	30 443	14 720 (32)	30 300
– incl. capital appreciation	\$	243 411	182 060 (7)	na
Farm capital at 30 June ^a	\$	2 521 061	2 736 320 (3)	na
Net capital additions	\$	41 822	29 340 (50)	na
Farm debt at 30 June ^b	\$	238 121	272 150 (5)	239 800
Equity at 30 June ^{bc}	\$	2 149 085	2 352 200 (3)	na
Equity ratio ^{bd}	%	90	90 (1)	na
Harvest loans at 30 June ^e	\$	8 559	8 590 (14)	na
Farm liquid assets at 30 June ^b	\$	136 393	110 710 (7)	na
Farm management deposits (FMDs) at 30 June ^b	\$	24 779	22 140 (8)	na
Share of farms with FMDs at 30 June ^b	\$	22	20 (7)	na
Rate of return ^f				
– excl. capital appreciation	%	1.3	0.6 (31)	1.2
– incl. capital appreciation	%	10.8	7.2 (7)	na
Off-farm income of owner manager and spouse ^b	\$	27 003	30 560 (6)	na

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

contribute to the higher milk production, including improved seasonal conditions, reduced grain and fodder prices and increased water availability in the major dairy areas.

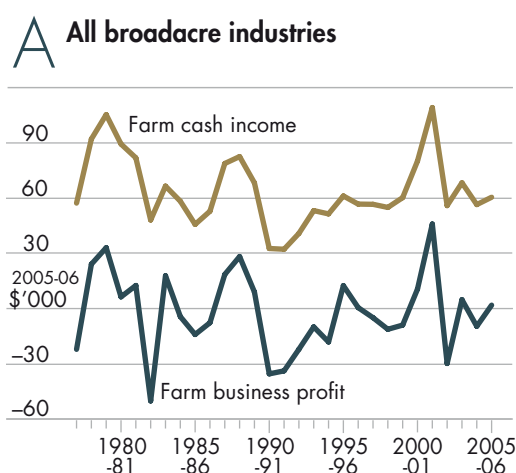
Farm costs

Broadacre and dairy farm expenditure was relatively high in 2004-05, largely driven by increased expenditure on livestock purchases and continued expenditure on livestock feeding in many regions. Overall, broadacre farm costs are forecast to rise by around 2 per cent in 2005-06, mainly because of increased expenditure on fuel, fertiliser and freight costs. Increased plantings and size of grain crops is also expected to result in higher crop harvesting and marketing costs. Dairy farm costs are also estimated to rise, by 3 per cent. As feed costs are lower than in 2004-05, producers are expected to make greater use of purchased feed to lift milk production. This is a major contributor to the increase in dairy farm costs.

Farm cash income and farm business profit

In 2004-05, farm cash income for the broadacre industries as a group fell by about 15 per cent to around \$55 000 (table 1, figure A). In 2004-05, increased livestock sales receipts were more than offset by the impact of weaker crop and wool receipts and higher farm costs. Farm cash income for broadacre farms is expected to rise by around 10 per cent in 2005-06 to just below the long term average, in real terms, as increases in farm cash receipts slightly exceed increases in farm cash costs.

Farm cash income is a measure of the cash funds available for farm investment and consumption after paying all costs incurred in production, including interest payments, but excluding capital payments and payments to family workers. It is a short term measure of farm performance because it takes no account of depreciation or changes in farm inventories.



2 Financial performance , by state Average per farm Broadacre industries

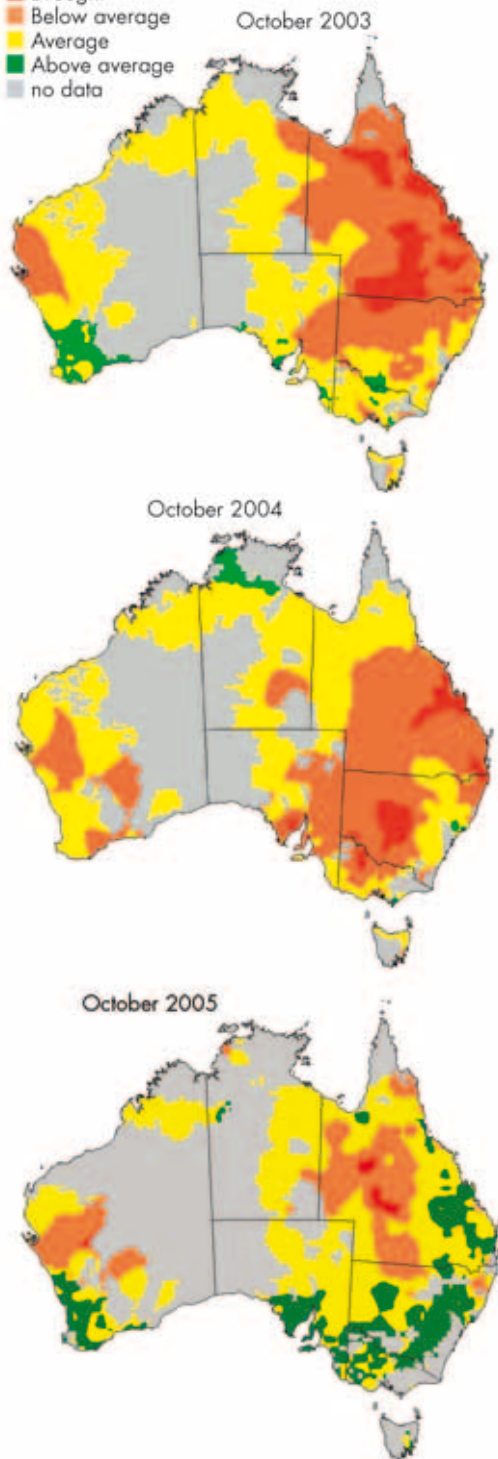
	Farm cash income			Farm business profit ^a			Rate of return ^b		
	2003-04	2004-05 ^p	2005-06 ^s	2003-04	2004-05 ^p	2005-06 ^s	2003-04	2004-05 ^p	2005-06 ^s
	\$	\$	\$	\$	\$	\$	%	%	%
New South Wales	31 140	49 860	52 700	-25 843	-7 800	3 200	0.2	0.6	1.4
Victoria	50 197	36 190	55 300	4 685	-19 810	-6 900	1.2	-0.2	0.6
Queensland	47 214	53 210	32 300	-19 011	-10 050	-15 800	0.3	0.6	0.7
Western Australia	159 704	87 870	96 100	88 682	4 960	6 600	4.3	1.5	1.4
South Australia	117 607	67 200	96 100	44 171	-20 150	34 800	2.8	0.0	2.2
Tasmania	44 674	70 300	42 000	-1 061	35 010	-8 600	0.8	2.1	0.3
Northern Territory	607 295	301 460	332 000	144 787	149 370	170 000	2.3	1.8	2.4
Australia	65 021	55 020	60 400	4 537	-9 450	1 800	1.3	0.6	1.2

^a Defined as farm cash income plus buildup in trading stocks, less depreciation and the imputed value of operator partner and family labor. ^b Defined as profit at full equity, excluding capital appreciation, as a percentage of total opening capital. Profit at full equity is defined as farm business profit plus rent, interest and lease payments less depreciation on leased items. ^p Preliminary. ^s Provisional estimate.

farm performance

Seasonal conditions

- Drought
- Below average
- Average
- Above average
- no data



A longer term measure of profitability is farm business profit, which takes account of capital depreciation and changes in on-farm inventories of things such as livestock, fodder, grain and wool. Farm business profit for the broadacre industries is estimated to increase in 2005-06 and by substantially more than the increase in farm cash income (table 1). While significant increases are projected in the value of inventories of livestock, particularly beef cattle on farm, wool and grain stocks held on farms are also expected to rise. Increases in inventories enhance a producer's ability to generate cash flow beyond 2005-06.

Rates of return

Rates of return to total farm capital are projected to rise for crop industry farms in 2005-06 after having been relatively low in 2004-05. Rates of return for the broadacre livestock industries are expected to remain relatively unchanged. Strong demand for rural land in the past three years has resulted in increased land values in most regions. Consequently, the total capital value of farms in Australia is expected to increase further in 2005-06.

Rates of return presented in the tables are calculated by dividing farm business profit adjusted to a full equity basis by opening total farm capital. That is, farm business profits have been adjusted by adding on interest and leasing costs. This removes the effects of the financing arrangements on profit. Two rates of return are estimated: the rate of return excluding capital appreciation (operational rate of return) and the rate of return including capital appreciation (full economic rate of return). In recent years, operational rates of return for broadacre farms have fallen as the average growth in farm profitability has not kept pace with growth in the capital value of the farm. However, the full economic rate of return realised by the average broadacre farm business has been at historically high levels (table 1).

Performance, by state

Broadacre farm cash income in 2005-06 is projected to rise in New South Wales, Victoria, Western Australia and South Australia, states where there is a substantial proportion of cropping farms. Farm cash income is also expected to increase in the Northern Territory but to fall in Queensland and Tasmania.

Farm business profit is projected to improve significantly in all states except Queensland and Tasmania in 2005-06 (table 2), as a consequence of higher farm cash income and an increase in the value of trading stocks as beef cattle and sheep numbers are rebuilt. The proportion of farms recording

business losses is projected to decline in all states except Tasmania and the Northern Territory. It is also expected that there will be a small reduction in average debt.

In New South Wales, increased winter crop production in all cropping regions is projected to lead to a modest increase in average farm cash income. This is despite increased crop related costs, reductions in beef cattle and sheep turnoff and lower wool prices.

Farm cash incomes in Victoria, South Australia and Western Australia are also projected to rise on the back of increased winter crop production. The strongest increase is forecast for Victoria and South Australia, where the increase in winter crop production has been largest.

Poor winter crop production in South Australia and Victoria in 2004-05 will result in relatively small payments from 2004-05 coming through to the 2005-06 year. In contrast, payments for Western Australian farmers will be much more substantial following the relatively

3 Financial performance of broadacre farms, by industry

Average per farm

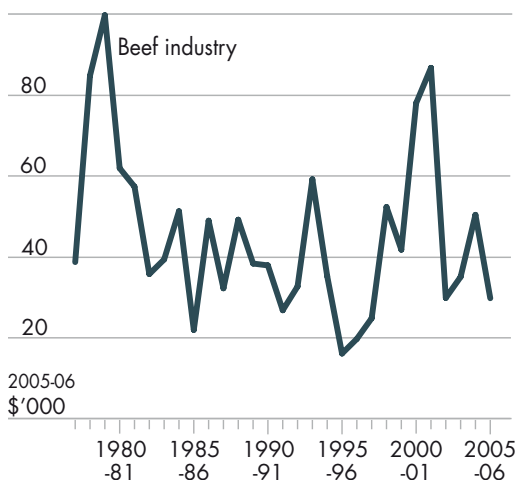
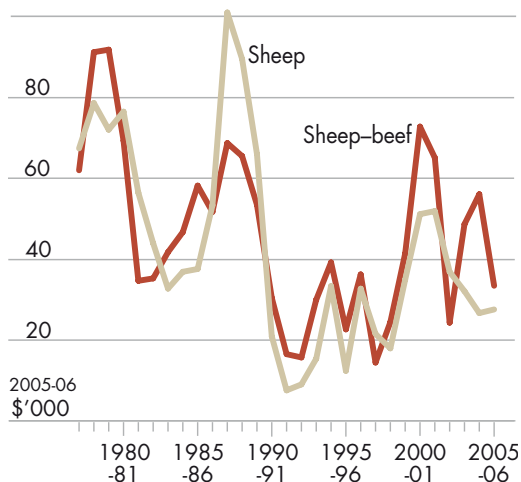
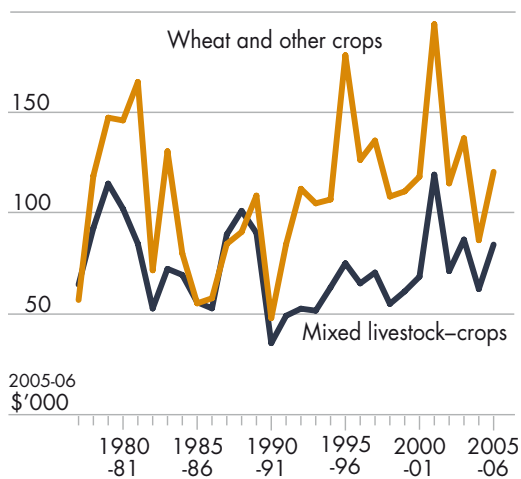
	Farm cash income			Farm business profit p		
	2003-04	2004-05 p	2005-06 s	2003-04	2004-05 p	2005-06 s
	\$	\$	\$	\$	\$	\$
Wheat and other crops	130 370	84 310	120 200	51 990	-2 440	33 200
Mixed livestock crops	82 640	60 750	84 300	19 700	-13 000	14 600
Beef industry	33 330	49 100	29 700	-18 880	-6 270	-14 000
– farms with less than 300 beef cattle	800	-320	-7 800	-33 000	-35 890	-40 200
– farms with more than 300 beef cattle	71 140	101 100	63 200	-3 700	24 900	9 200
Sheep	30 500	25 950	27 500	-23 410	-21 310	-19 500
– farms with less than 3000 sheep	13 810	13 570	19 500	-36 360	-29 240	-24 700
– farms with more than 3000 sheep	63 780	63 450	67 800	2 430	2 690	-2 500
Sheep beef	46 260	54 610	33 400	-8 270	-2 290	-7 500
All broadacre industries	65 020	55 020	60 400	4 540	-9 450	1 800
Dairy	99 770	83 270	99 800	-14 160	19 890	23 800

	Rate of return – excluding capital appreciation a			Rate of return – including capital appreciation a	
	2003-04	2004-05 p	2005-06 s	2003-04	2004-05 p
	%	%	%	%	%
Wheat and other crops	3.7	1.3	2.7	12.9	7.3
Mixed livestock crops	2.3	0.6	1.9	12.7	6.6
Beef industry	-0.1	0.5	0.3	8.2	9.3
– farms with less than 300 beef cattle	-3.3	-2.9	-3.0	8.2	6.6
– farms with more than 300 beef cattle	0.6	1.3	1.1	8.2	10.0
Sheep	-0.4	-0.4	-0.1	8.6	5.5
– farms with less than 3000 sheep	-2.5	-1.7	-1.1	10.4	4.3
– farms with more than 3000 sheep	1.0	1.0	1.1	7.4	6.9
Sheep beef	0.7	0.6	0.6	12.2	4.7
All broadacre industries	1.3	0.6	1.2	10.8	7.2
Dairy	0.9	2.3	2.5	9.9	8.4

a Defined as profit at full equity, excluding capital appreciation, as a percentage of total opening capital. Profit at full equity is defined as farm business profit plus rent, interest and lease payments less depreciation on leased items. p Preliminary. s Provisional estimate.

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B Farm cash income



large 2004-05 crop. As a consequence, average farm cash incomes for cropping farms in Victoria and South Australia in 2005-06 are projected to be lower than would be expected based on the increase in crop production.

Farm cash income for Queensland broadacre farms in 2005-06 is forecast to fall following a reduction in turnoff of beef cattle. Also, the impact of a projected increase in summer grain production is expected to be partially offset by continued low winter grain production and weaker grain prices. While overall cattle numbers are also expected to increase from increased calvings, turnoff of slaughter cattle is expected to fall after several years of relatively high turnoff. The increase in beef cattle numbers will largely mitigate the effect of lower farm cash income on farm business profit as trading stocks are rebuilt.

Performance, by industry

Summary information on financial performance in Australian broadacre and dairy industries is given in table 3 and figure B, while detailed estimates are provided in table 4.

Wheat and other crops industry

Farm cash income for the wheat and other crops industry fell sharply in 2004-05 as both grain production and prices fell from the relatively high levels of 2003-04. In 2005-06, farm cash income is projected to increase strongly on the basis of an increase of almost 30 per cent in winter grain production and a small increase in wheat prices. This is despite lower prices for many other grains and an increase in farm cash costs. In addition, a larger than usual proportion of feed grain production has been retained on farms because of the low feed grain prices on offer.

Overall, cash costs for wheat and other crops industry farms are projected to increase by 5 per cent with increased expenditure on fuel, fertiliser and freight. Increased grain production is also expected to result in higher outlays on harvesting and grain marketing.

Business profit for wheat and other crops industry farms in 2005-06 is projected to increase significantly to be similar to those of the late 1990s but below the levels in 2001-02 and 2003-04.

Mixed livestock-crops industry

In 2004-05, livestock receipts, particularly beef cattle receipts, increased as a result of higher turnoff and strong prices. However, the increase was insufficient to offset the impact of lower winter crop production and reduced grain

and wool prices on farm receipts. Consequently, average farm cash income for mixed-livestock crops farms fell in 2004-05.

Lower wool prices in 2005-06 are expected to significantly reduce wool receipts despite a small increase in wool production. However, increased receipts from both winter and summer crops are projected to raise total crop receipts in 2005-06. This is despite lower feed grain prices and the retention of an increased proportion of feed grains production on farm in eastern states. The impact of higher lamb turnoff on receipts in 2005-06 is expected to be mostly countered by a reduction in lamb prices. Meanwhile, sheep turnoff is expected to fall and beef cattle turnoff is expected to increase only slightly.

Overall, total cash receipts for mixed livestock-crops farms is expected to increase by around 12 per cent in 2005-06 and to be partly offset by a projected increase of around 5 per cent in total cash costs. Expenditure on items such as fuel, fertiliser, freight, handling and marketing is projected to contribute to the increase in costs. However, expenditure on fodder and livestock purchases is projected to fall. Overall, farm cash income is projected to increase by 39 per cent to just below the longer term average. Farm business profit is estimated to increase by slightly more on the back of higher on-farm inventories of grain, wool and livestock.

Sheep industry

Farm cash income for sheep industry farms fell in 2004-05 because of reduced receipts from wool (figure B), and despite increases in receipts from sheep and lambs and a reduction in farm costs, particularly expenditure on fodder.

Relatively low sheep numbers combined with strong export demand resulted in rising real lamb and mutton prices over this period. Sheep industry producers have responded to this by increasing the production of lambs and sheep for slaughter. Consequently, producers in this industry have become increasingly more reliant on income from lamb and sheep sales. Receipts from sheep and lambs have risen from 14 per cent of average farm receipts in 1990-91 to over 40 per cent in 2004-05. For more information on the performance of lamb producing farms see box 'Slaughter lamb industry'.

In 2005-06, receipts from wool are projected to fall further, although the reduction for sheep industry farms is expected to be less than in the other industries with sheep. Wool cut per head is projected to rise as is the number of sheep shorn, cushioning some of the reduction in wool prices. Sheep industry incomes will also continue to be underpinned by receipts from sheep and lambs. However, only a small increase is expected in sheep and lamb receipts as turnoff is constrained by flock rebuilding in 2005-06. Receipts from crops and beef cattle are expected to also increase on farms with these options.

At the national level a small increase is projected in sheep industry cash receipts, offset to some extent by an

Broadacre industries

The broadacre sector of Australian agriculture is defined to include five industry types:

Wheat and other crops industry

The wheat and other crops industry represents the more specialist producers of cereal grains, coarse grains, pulses and oilseeds.

Mixed livestock-crops industry

The mixed livestock-crops industry covers farms engaged in the production of sheep and/or beef cattle in conjunction with substantial activity in broadacre crops such as wheat, coarse grains, oilseeds and pulses.

Sheep industry

The sheep industry represents the more specialised producers of sheep and wool. However, the number of properties classified to the industry, along with the industry's contribution to wool production, has declined substantially since the early 1990s as producers have diversified enterprises. Currently, sheep industry farms account for only around a third of Australia's wool production. The majority of both wool and sheep meat production occurs on mixed enterprise farms, particularly on mixed livestock-crops industry farms.

Beef industry

The beef industry covers properties engaged mainly in running beef cattle and accounts for around 60 per cent of Australia's beef production. The beef industry contains a large number of small farms.

Sheep-beef industry

The sheep-beef industry covers properties engaged in running sheep and beef cattle. As for the sheep and beef industry, this industry also contains a large number of small farms.

farm performance

4 Financial performance, by industry Average per farm Broadacre and dairy industries

	Wheat and other crops industry			Mixed livestock-crops industry		
	2003-04	2004-05 ^p	2005-06 ^s	2003-04	2004-05 ^p	2005-06 ^s
Total cash receipts	\$ 449 530	421 090 (7)	475 500	340 850	307 320 (5)	343 600
Total cash costs	\$ 319 161	336 780 (5)	355 300	258 207	246 570 (6)	259 300
Farm cash income	\$ 130 368	84 310 (19)	120 200	82 643	60 750 (13)	84 300
Farms with negative farm cash income	% 14	31 (12)	26	27	31 (16)	30
Farm business profit	\$ 51 988	-2 440 (640)	33 200	19 699	-13 000 (52)	14 600
Farms with negative farm business profit	% 42	61 (7)	49	52	67 (7)	54
Profit at full equity						
- excl. capital appreciation	\$ 93 997	37 230 (44)	74 900	51 573	14 690 (17)	48 300
- incl. capital appreciation	\$ 324 332	200 690 (18)	na	285 343	164 710 (10)	na
Farm capital at 30 June ^a	\$ 2 850 691	2 977 450 (5)	na	2 540 889	2 696 620 (5)	na
Net capital additions	\$ 82 447	51 240 (37)	na	33 629	39 330 (76)	na
Farm debt at 30 June ^b	\$ 346 770	449 590 (8)	309 000	292 715	309 910 (9)	296 100
Equity at 30 June ^{bc}	\$ 2 392 308	2 427 840 (6)	na	2 137 367	2 332 240 (5)	na
Equity ratio ^{bd}	% 87	84 (11)	na	88	88 (11)	na
Harvest loans at 30 June ^e	\$ 28 971	35 610 (16)	na	7 978	6 820 (30)	na
Farm liquid assets at 30 June ^b	\$ 165 590	159 780 (13)	na	152 978	117 070 (13)	na
Farm management deposits (FMDs) at 30 June ^b	\$ 47 675	43 470 (13)	na	24 364	19 880 (16)	na
Share of farms with FMDs at 30 June ^b	% 30	28 (11)	na	22	22 (13)	na
Rate of return ^g						
- excl. capital appreciation	% 3.7	1.3 (42)	2.7	2.3	0.6 (18)	1.9
- incl. capital appreciation	% 12.9	7.3 (16)	na	12.7	6.6 (10)	na
Off-farm income of owner manager and spouse ^b	\$ 24 000	28 860 (10)	na	31 210	28 440 (32)	na
	Sheep industry			Beef industry		
	2003-04	2004-05 ^p	2005-06 ^s	2003-04	2004-05 ^p	2005-06 ^s
Total cash receipts	\$ 174 864	156 490 (11)	160 300	239 535	279 690 (10)	253 300
Total cash costs	\$ 144 367	130 540 (11)	132 800	206 209	230 590 (12)	223 600
Farm cash income	\$ 30 497	25 950 (24)	27 500	33 325	49 100 (24)	29 700
Farms with negative farm cash income	% 37	41 (13)	38	35	37 (15)	38
Farm business profit	\$ -23 410	-21 310 (31)	-19 500	-18 883	-6 270 (30)	-14 000
Farms with negative farm business profit	% 74	74 (5)	66	73	70 (6)	68
Profit at full equity						
- excl. capital appreciation	\$ -7 178	-7 290 (104)	-2 200	-2 767	12 590 (202)	9 300
- incl. capital appreciation	\$ 145 822	99 490 (23)	na	192 161	250 160 (12)	na
Farm capital at 30 June ^a	\$ 1 867 873	1 910 400 (8)	na	2 579 430	2 950 630 (6)	na
Net capital additions	\$ 5 500	8 370 (255)	na	33 991	3 640 (79)	na
Farm debt at 30 June ^b	\$ 160 026	149 360 (20)	150 300	158 785	214 120 (10)	211 300

continued ...

4 Financial performance, by industry *Average per farm continued*

Broadacre and dairy industries

	Sheep industry <i>cont'd</i>			Beef industry <i>cont'd</i>		
	2003-04	2004-05 p	2005-06 s	2003-04	2004-05 p	2005-06 s
Equity at 30 June bc	\$ 1 674 326	1 681 150 (8)	na	2 186 793	2 585 300 (7)	na
Equity ratio bd	% 91	92 (1)	na	93	92 (1)	na
Harvest loans at 30 June e	\$ 298	440 (75)	na	239	90 (78)	na
Farm liquid assets at 30 June b	\$ 97 871	82 780 (21)	na	137 887	94 920 (27)	na
Farm management deposits (FMDs) at 30 June b	\$ 13 814	15 370 (26)	na	16 191	16 410 (24)	na
Share of farms with FMDs at 30 June b	% 18	20 (21)	na	18	15 (27)	na
Rate of return g						
– excl. capital appreciation	% –0.4	–0.4 (109)	–0.1	–0.1	0.5 (202)	0.3
– incl. capital appreciation	% 8.6	5.5 (22)	na	8.2	9.3 (11)	na
Off-farm income of owner manager and spouse b	\$ 23 509	30 290 (12)	na	26 825	35 110 (12)	v
	Sheep–beef industry			Dairy industry		
	2003-04	2004-05 p	2005-06 s	2003-04	2004-05 p	2005-06 s
Total cash receipts	\$ 253 786	266 330 (6)	244 100	321 709	352 940 (4)	378 000
Total cash costs	\$ 207 525	211 720 (6)	210 700	260 983	269 670 (4)	278 300
Farm cash income	\$ 46 261	54 610 (14)	33 400	60 726	83 270 (6)	99 800
Farms with negative farm cash income	% 25	31 (16)	37	11	7 (22)	9
Farm business profit	\$ –8 267	–2 290 (446)	–7 500	–14 158	19 890 (30)	23 800
Farms with negative farm business profit	% 69	59 (9)	64	62	42 (11)	42
Profit at full equity						
– excl. capital appreciation	\$ 16 732	17 540 (59)	18 100	15 848	49 360 (13)	58 800
– incl. capital appreciation	\$ 299 758	142 820 (17)	na	184 714	181 870 (9)	na
Farm capital at 30 June a	\$ 2 785 569	3 221 860 (6)	na	2 047 379	2 321 730 (3)	na
Net capital additions	\$ 63 643	73 200 (52)	na	18 146	34 960 (26)	na
Farm debt at 30 June b	\$ 260 964	227 430 (15)	204 900	334 699	313 430 (7)	317 900
Equity at 30 June bc	\$ 2 419 504	2 817 930 (6)	na	1 676 688	1 935 630 (3)	na
Equity ratio bd	% 90	93 (1)	na	83	86 (1)	na
Harvest loans at 30 June e	\$ 7 551	60 (106)	na	0	0 (?)	na
Farm liquid assets at 30 June b	\$ 103 305	98 550 (16)	na	88 057	77 410 (33)	na
Farm management deposits (FMDs) at 30 June b	\$ 20 306	15 590 (45)	na	11 240	10 630 (20)	na
Share of farms with FMDs at 30 June b	% 27	18 (26)	na	16	18 (22)	na
Annual payment from DSAP and SDAS f	\$			15 634	15 321 (45)	na
Rate of return g						
– excl. capital appreciation	% 0.7	0.6 (57)	0.6	0.9	2.3 (13)	2.5
– incl. capital appreciation	% 12.2	4.7 (18)	na	9.9	8.5 (9)	na
Off-farm income of owner manager and spouse b	\$ 28 413	26 460 (9)	na	22 903	19 350 (15)	na

a Excludes leased plant and equipment. **b** Average per responding farm. **c** Farm capital minus farm debt. **d** Equity expressed as a percentage of farm capital. **e** Harvest loans are not included in farm debt. **f** Dairy Structural Adjustment Program and Supplementary Dairy Assistance Scheme. **g** Rate of return to farm capital at 1 July. **p** Preliminary estimates. **s** Provisional estimates. **na** Not available.

Slaughter lamb industry

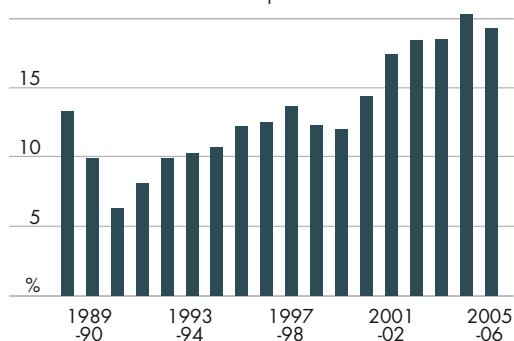
Over the past decade, Australian sheep producers (farms with more than 200 sheep) have responded to higher lamb and mutton prices by increasing the production of lambs and adult sheep for slaughter. Consequently, the proportion of total cash receipts accounted for by sheep and lamb sales has steadily increased from an average of 5 per cent of farm receipts in 1990-91 to around 20 per cent in 2005-06.

In 2004-05, around 39 000 broadacre farms had more than 200 sheep and these farms accounted for over 90 per cent of the Australian sheep flock. Of these, around half received some revenue from the sale of lambs for slaughter. Around a third these producers consistently receive more than 20 per cent of their on-farm broadacre agricultural receipts from the sale of lambs, and for the purposes of this report are considered to be 'specialist' lamb producers.

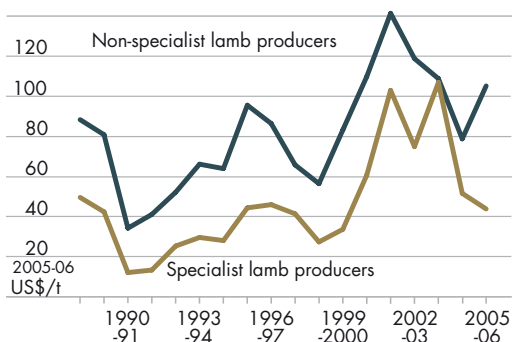
Average farm cash income for specialist lamb producers is generally lower than that of nonspecialist producers, as specialist producers typically operate markedly smaller farms.

Proportion of receipts from sheep and lamb sales

Farms with more than 200 sheep



Farm cash income



In 2005-06, reduced turnoff of lambs in combination with lower wool, lamb and grain prices is expected to result in average farm cash income of specialist producers falling. In contrast, sheep and lamb turnoff is expected to increase for nonspecialist lamb producers as they continue to change the emphasis of their enterprise toward cropping. High turnoff and a marked increase in crop production are projected to result in a higher average farm cash income for nonspecialist lamb producers.

Physical and financial performance indicators, slaughter lamb producers Average per farm

	Specialist producers			Nonspecialist producers			All producers			
	2003-04	2004-05	2005-06	2003-04	2004-05	2005-06	2003-04	2004-05	2005-06	
Area operated, 30 June	ha	1 069	1 386	1 155	2 072	2 139	1 939	1 899	1 838	1 638
Number of sheep, 30 June	no.	2 411	2 213	1 876	2 570	2 421	2 392	2 542	2 338	2 194
Number of sheep sold	no.	1 773	1 301	1 234	955	1 054	1 162	1 096	1 152	1 190
Number of lambs sold	no.	1 509	1 059	940	555	564	670	720	761	774
Farm financial performance										
Total cash receipts	\$	323 454	235 750	212 000	365 255	405 220	444 000	358 051	337 650	354 800
– lambs	\$	131 700	84 850	66 600	44 123	43 230	44 800	59 215	59 830	53 100
– adult sheep	\$	14 003	13 000	18 600	23 210	25 270	28 900	21 624	20 380	24 900
Total cash costs	\$	216 683	184 200	168 200	256 506	326 500	338 900	249 643	269 760	273 300
Farm cash income	\$	106 771	51 550	43 800	108 749	78 720	105 100	108 408	67 890	81 600
Farm business profit	\$	49 379	-6 460	-3 300	37 683	-6 560	31 100	39 698	-6 520	17 900
Rate of return										
– excl. capital appreciation	%	2.4	0.5	0.7	2.3	0.9	2.2	2.3	0.8	1.8
– incl. capital appreciation	%	14.2	3.6	na	10.6	6.0	na	11.2	5.3	na
Population	no.		7 410			11 175			18 585	
Sample	no.		146			291			437	

increase in farm costs. Consequently, farm cash income is expected to increase by around 6 per cent in 2005-06.

Sheep–beef industry

Drought in 2002-03 and 2004-05 had a relatively more severe impact on this industry, because of the location of a high proportion of farms in this industry in the regions of New South Wales and Queensland that were most severely affected by drought. The reduction in sheep numbers, particularly in Queensland, was very large. In 2003-04, many Queensland producers did not rebuild sheep numbers and mainly increased beef cattle numbers, effectively moving from the sheep–beef industry to the beef industry. In other states, both sheep and beef cattle numbers increased as turnoff was reduced, subduing increases in farm cash income.

Dry seasonal conditions and high cattle, sheep and lamb prices in 2004-05 encouraged an increase in the turnoff of both sheep and beef cattle and resulted in a marked increase in farm cash income.

However, in 2005-06 turnoff of both beef cattle and sheep is projected to fall as producers rebuild livestock numbers. The reduction in projected beef cattle turnoff is much larger than that expected for sheep as producers continue to increase beef cattle numbers in preference to sheep. In addition, a reduction in wool cut per head is expected, lowering wool production. This combined with further weakening in wool prices is expected to result in wool receipts falling by over 10 per cent in 2005-06.

Livestock purchase costs were historically high in this industry in 2004-05 and are projected to fall slightly in 2005-06. Improved seasonal conditions are also expected to result in a substantial reduction in expenditure on fodder. However, outlays on fuel, fertiliser and freight are expected to increase.

Overall, farm cash income is projected to fall in 2005-06 to below the long term average, in real terms. But, with increases in sheep and beef cattle numbers, farm business profit is expected to remain close to the long term average.

Beef industry

Beef cattle turnoff was relatively high in 2004-05 as producers responded to high cattle prices, but increased fodder expenditure because of drought in many regions resulted in farm cash incomes remaining only just above the longer term average.

In 2005-06, beef cattle turnoff is projected to fall, particularly in Queensland, as herds are rebuilt. Reduced turnoff of cattle in combination with a small reduction in cattle prices is expected to result in beef industry cash receipts falling by around 9 per cent. At the same time, cash costs are projected to stay high, mainly because of continued high expenditure on purchases of beef cattle, fuel and freight.

Hence, beef industry farm cash income is projected to fall significantly, to be below the longer term average. Farm business profit is also expected to fall.

The beef industry is the most widespread agricultural industry in Australia and contains farms with a very wide range of herd sizes. Because a very large proportion of beef industry farms have relatively small herds this results in the average performance of the industry being heavily influenced by the generally poorer performance of small farms.

Table 3 contains farm performance results for the beef industry divided into two groups — those farms with less than 300 beef cattle and those with more than 300. The financial performance of larger herd size farms is more comparable with that of other industries that do not contain so many small farms. Farm performance estimates are also provided for small and

farm performance

large flock size sheep industry farms because the sheep industry also contains many relatively small farms. A similar pattern is also evident in that industry.

Increases in land values in northern pastoral areas of Australia have been particularly large in recent years. These increases have resulted in high rates of return including capital appreciation for larger herd size farms (table 3).

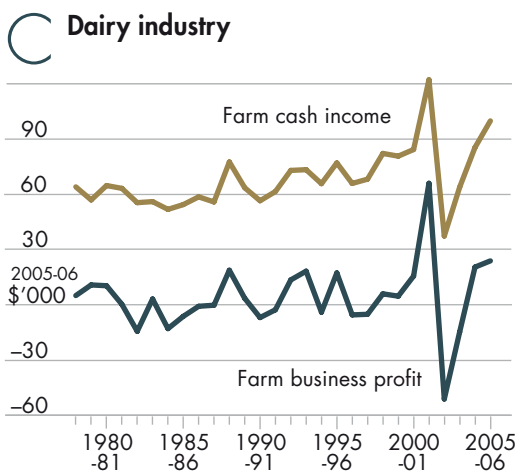
Dairy industry

Average farm cash income for the dairy industry recovered in both 2003-04 and 2004-05 from the low recorded in 2002-03 (figure C). Average farm cash income increased in 2003-04 despite a fall in milk prices. This was largely based on improved grazing conditions and much lower feed costs.

In 2004-05, milk prices and production increased, resulting in higher farm cash receipts. Further improvement to seasonal conditions, lower feed grain prices and increased irrigation water availability kept increases in cash costs relatively small. These factors extended the recovery in average farm cash income for dairy industry farms into 2004-05.

Average farm cash income for dairy industry farms nationally is forecast to increase to be above the long term average in 2005-06 (table 4, figure C). Higher milk prices and further improvement in seasonal conditions is projected to result in an increase in milk production and a strong rise in farm receipts. Farm cash costs are forecast to increase by 3 per cent as producers increase purchased feed use to boost milk production. Outlays on fuel, fertiliser and freight are also expected to increase.

The increase in average dairy farm cash income in recent years is not just the result of improvement in seasonal conditions and increases in prices, but also reflects the exit from the industry of higher cost producers.



Farm investment

In recent years, broadacre agriculture has undertaken considerable investment in farm capital. The main investments undertaken have been the purchase of additional land and plant and machinery to expand farm scale and to strengthen future financial viability. Much of this investment has been financed by borrowing funds, with liquid assets having been reduced to minimise borrowings. While total farm debt has increased markedly in recent years, the average farm's ability to service its debts, as measured by the receipts to debt ratio, has remained manageable as average farm cash receipts have grown and interest rates have remained low. Also, strong capital appreciation in the value of farm land in recent years has resulted in farm equity remaining at historically high levels.

Land transactions

The period 1998–2004 was characterised by a large number of land transactions on rural holdings. More than 5 per cent of Australian broadacre farms expanded their farm area each year between 1997-98 and 2003-04. However, in 2004-05 there was a significant decline in the proportion of broadacre farms expanding (figure D) as rising land values reduced the financial attractiveness of this business strategy. Also, weaker commodity prices and lower turnover of livestock constrained cash flow and farm incomes.

Producers in the beef industry have been particularly strong buyers of land, as incomes have been high for a prolonged period, especially in northern Australia. While beef producers in southern Australia have been net purchasers of land, a significant amount of high value land has also been sold to the nonfarming sector.

Despite the reduction in land trading activity in 2004-05, average land values for broadacre farms continued to increase (figures E, F). The strongest growth occurred in pastoral northern Australia and the high rainfall zone of southern Australia. Average land values for broadacre farms increased by 10 per cent in 2004-05. Between June 2001 and July 2005, average real land values increased by over 70 per cent.

The general increase in land values has resulted from a number of factors including higher farm incomes, historically low interest rates and a positive outlook for future industry returns. Following a sharp fall in land values in 1990-91 (figure E) in response to reduced commodity prices, including the collapse of the wool reserve price scheme, average real land values increased only slightly in the decade between 1990-91 and 2000-01. However, over the same period, real farm cash incomes increased significantly (figure A), particularly in the wheat-sheep zone and pastoral areas of northern Australia.

Another factor stimulating rural land values in recent years has been a steady increase in demand for land by urban Australians seeking a rural lifestyle and investment.

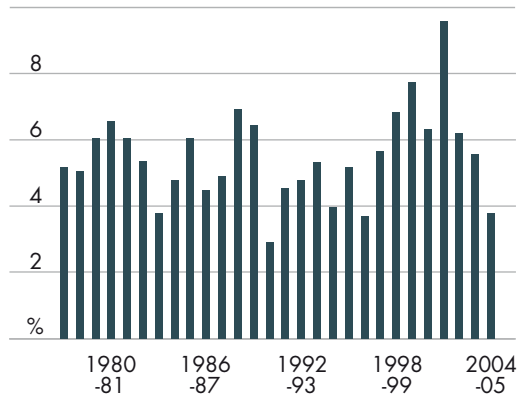
Additions of plant, machinery and other capital

While the number of farm businesses buying land fell in 2004-05, additions of plant, machinery, vehicles and farm improvements remained relatively high (figure G). In line with land transactions, beef industry farms were particularly active buyers of plant and machinery. Conversely, acquisitions fell in the cropping industry as weaker grain prices reduced farm incomes.

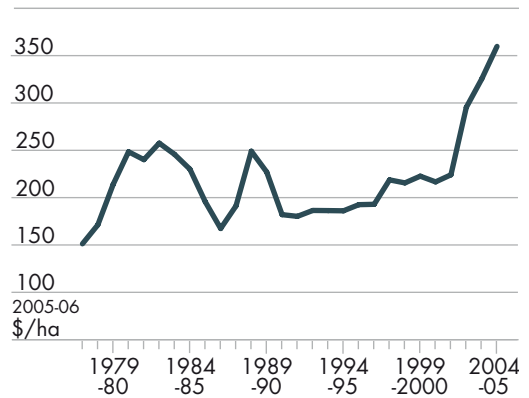
Farm business debt

Since 1990-91, significant capital investment has been undertaken by Australian farmers. Some of this has been financed from farm profits and liquid assets, but the majority via increased borrowings. As these investments have been integrated into the farm production systems, significant growth in average farm cash receipts has been realised (figure H). Consequently, debt servicing ability (as indicated by the receipts to debt ratio) has not deteriorated markedly during this period.

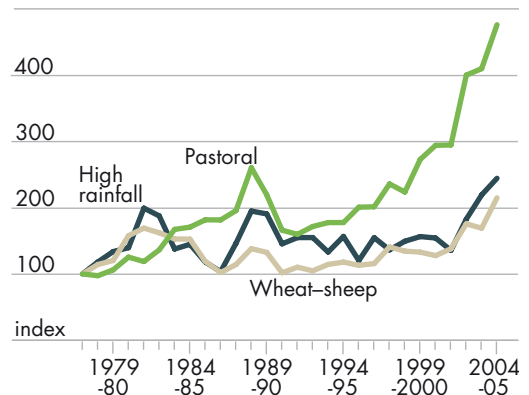
D Proportion of farms acquiring land



E Land prices
Broadacre farms

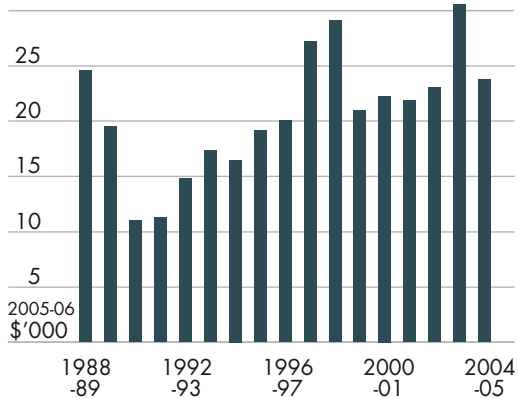


F Land prices
Broadacre farms

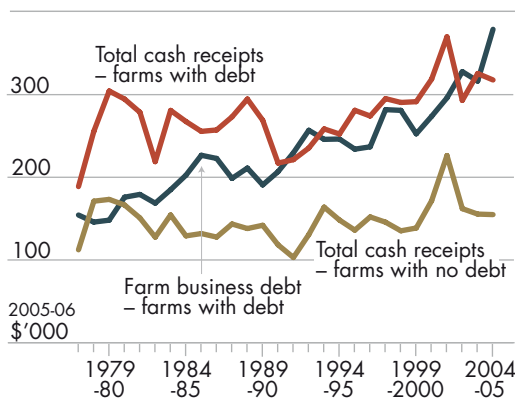


farm performance

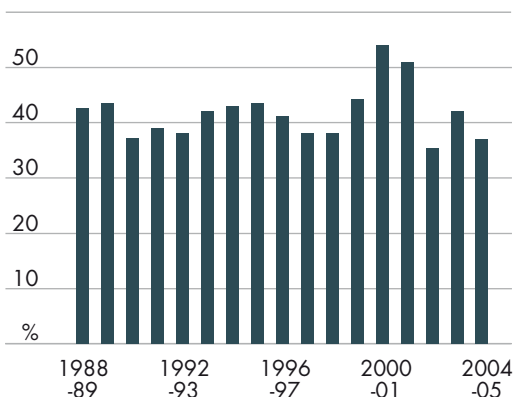
G Net additions of plant, machinery, vehicles and improvements



H Farm business debt and farm receipts Broadacre farms



I Farms increasing debt Broadacre farms



Relative to farms with debt, farms with no debt consistently earned lower average farm cash receipts and were unable to generate significant growth in receipts, in real terms, during the period 1977-78 to 2004-05 (figure H). In 2004-05, the average farm without debt was generally the same size as farms with debt, in terms of the amount of land owned. However, farms free of debt appear to be operated at a much lower level of intensity, as measured by dry sheep equivalents per hectare. There is also a markedly lower emphasis placed on cropping activities. Reflecting the less intensive nature of these operations, cash costs are also much lower, with the result that average farm cash income for farms without debt is similar to farms with debt.

Given their lower capacity to service debt, farms without debt generally invest in new capital by accumulating profits over a number of years. In 2004-05, the average farm without debt had accumulated over \$160 000 in farm liquid assets, almost twice the average of farms with debt. However, the rate of land acquisition by this group is much lower. Only 1.5 per cent of farms without debt acquired additional land in 2004-05, compared with 4.5 per cent of farms with debt.

Farm business debt rose sharply in 2002-03 for broadacre farms, partly because the drought reduced cash flow and forced some producers to borrow to raise working capital. However, another contributing factor was a continued high level of investment in capital to boost the farms production capacity and strengthen longer term financial viability.

While average farm debt increased over the three years since 2001-02, the proportion of farms increasing debt fell markedly (figure I). This largely reflects the decline in the number of farms acquiring additional land (figure D) and the use of liquid assets and cash flow to finance investments in plant and machinery.

In 2004-05, around 37 per cent of broadacre farms increased debt, with over 60 per cent of the funds used to finance new investments, particularly the purchase of land, vehicles and farm machinery. Almost all of the remainder was used to provide working capital.

In this paper, farm business debt excludes debt that is underwritten, including harvest loans and dairy structural adjustment advances. Inclusion of harvest loans in estimates of farm business debt results in substantial falls in farm debt for grain producing farms in drought years as crop production is reduced, masking increases in working capital debt that usually occur. Conversely, debt increases in years of high crop production when cash flow is also high. Harvest loans and dairy structural adjustment payments are reported separately from other farm business debts in the tables in this paper.

Increased farm capital values as a consequence of rising prices for rural land in recent years have offset the impact of increases in farm debt on farm equity, resulting in farm equity ratios being historically high. Broadacre farm equity at 30 June 2005 is estimated at 90 per cent, an average equity ratio last recorded in the late 1980s.

Farm liquid assets

Assets available to farm businesses to meet short term funding needs include bank deposits, farm management deposits, shares and other investments readily convertible to cash. While liquid asset levels are currently high, they are estimated to have been reduced in 2004-05. Much of these funds were used to finance capital investments in place of borrowed funds (figure J). The reduction in liquid assets was largest for farms in the mixed livestock-crops and beef industries.

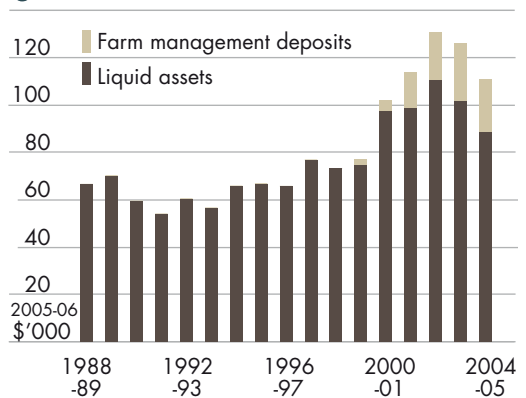
Use of farm management deposits

Farm Management Deposits (FMDs) were introduced by the Australian Government as a cash and risk management tool for Australia's primary producers. FMDs allow farmers to set aside pretax primary production income so they can spread their income between years. Tax benefits normally accrue if the deposits are held for a minimum of twelve months, but from December 2002 farmers in exceptional circumstances declared areas have been able to withdraw deposits within twelve months and still be eligible for tax benefits. Deposits exhibit a strong cyclical pattern, with the June quarter being the strongest period for net deposits and the September quarter the largest for net withdrawals (figure K).

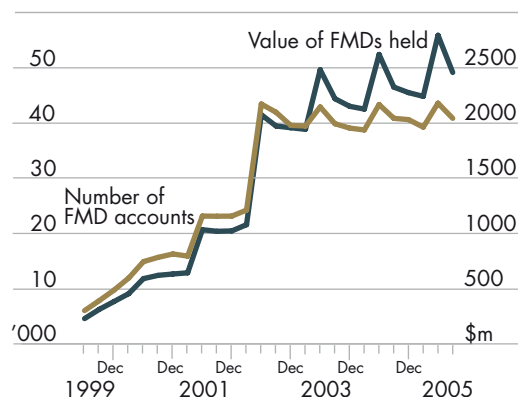
The amount held in FMDs grew steadily until June 2002 when a huge influx of deposits at the close of the 2001-02 financial year boosted deposits by almost \$1 billion to just over \$2 billion (figure K). Average incomes for producers in 2001-02 were at record levels and many producers used FMDs as a tax effective means of retaining profits. However, drought in 2002-03 combined with the subsequent cost of rebuilding livestock numbers and weaker commodity prices has served to significantly subdue the growth in FMDs in more recent years. By June 2005, aggregate statistics on FMD use published by the Department of Agriculture, Fisheries and Forestry indicate deposits of \$2.8 billion with 43 309 FMD accounts. On broadacre farms, these same factors led to a reduction in other liquid assets. FMDs held by broadacre farms have changed little over the past two years (figure J).

Because most farms have more than one individual with a share in the farm's income, the number of farms with deposits is substantially less than the number of accounts. ABARE farm surveys indicate that around 20 per cent of broadacre farms and around 18 per cent of dairy farms held farm management deposits at 30 June 2005. At 30 June 2005, the majority of deposits were relatively small. Around 40 per cent of the farms with an FMD account had less than \$50 000 depos-

J Farm liquid assets and farm management deposits Broadacre farms



K Farm management deposits and number of account holders Quarterly, ended September 2005



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ited. However, around 17 per cent of broadacre farms with an account had deposited more than \$200 000.

According to ABARE's broadacre farm survey data, farms with farm management deposits are larger in terms of their enterprise scale and more profitable than farms that do not hold FMDs. On average, farms holding FMDs have higher farm cash income, higher net assets and higher rates of return. However, they also have higher debt levels and, in 2002-03 and 2003-04, received more government assistance payments (via the exceptional circumstances assistance) than farms without FMDs. Farms with FMDs also have lower off farm income. However, this is likely to be an artefact of the criterion that only producers with less than \$50 000 of off farm income are eligible for FMDs.

Investment returns

Returns on investment in agricultural industries are often low when reported across a whole industry. However, low average returns are partly a consequence of the generally high proportion of small farms in many industries, particularly the beef and sheep industries. The presence of these small farms masks the much higher returns from better performing and larger farms that generate the majority of each industry's output. The average returns from these better performing and larger farm businesses are frequently comparable with investment returns elsewhere in the Australian economy.

Table 5 provides average rates of return for broadacre and dairy farms ranked and classified to classes according to the total capital invested in the farm in the period 2002-03 to 2004-05.

In large part, poorer rates of return for small farms are a consequence of their physical size and resource endowment limiting them to the generation of low farm cash incomes. Also, these producers frequently operate relatively high priced land because of their proximity to regional centres. The location of many of these smaller farms may result in relatively high capital gains periodically, but relatively few generate rates of return (excluding capital appreciation) comparable with the returns of larger farms (table 5).

Generally, larger farms generate higher receipts and have lower costs relative to the amount of capital invested. As a consequence, rates of return are higher. Higher receipts and lower costs per unit of capital used also appear to explain why cropping farms within a particular capital class generally generate higher rates of return than livestock farms with a comparable level of investment.

Many factors contribute to a farm's financial performance exceeding the industry average, including seasonal conditions. Farming practices and the willingness of the farm operator to innovate and adopt new practices is also likely to be significant. Land management and marketing success can be strongly affected by a producer's access to and response to information. Better performing producers invest more time in updating information and in discovering new farming practices by participating in learning activities like conferences, workshops and demonstration and field days. They are also more likely to implement changes to farm management practices.

Drought assistance

Government policy in Australia embodies the principle that farmers should be responsible for the management of their farm business and associated risks such as drought. Accordingly, farmers have been encouraged and assisted to improve farm financial and land use planning, including risk management, particularly through the Australian Government's Agriculture Advancing Australia (AAA) program. This program also includes a mechanism to build cash

5 Rates of return for broadacre and dairy farms, by total farm capital

Average per farm

		Bottom third a		Middle third b		Top third c	
		Average	Top 25% d	Average	Top 25% d	Average	Top 25% d
All broadacre							
Total farm capital at 30 June	\$m	0.8	1.1	1.7	2.1	4.7	5.6
Farm cash income	\$	16 464	67 985	45 437	144 210	115 947	35 3135
Farm business profit	\$	-29 354	30 823	-19 006	94 034	14 043	29 3000
Rate of return e							
- excl. capital appreciation	%	-2.5	3.9	-0.3	5.7	1.2	6.4
- incl. capital appreciation	%	5.8	12.6	7.7	12.9	8.0	13.0
Wheat and other crops							
Farm cash income	\$	43 105	97 868	103 031	210 500	219 546	47 0024
Farm business profit	\$	-9 765	48 204	14 962	137 869	82 724	34 4186
Rate of return e							
- excl. capital appreciation	%	0.2	5.1	1.9	7.3	3.0	7.8
- incl. capital appreciation	%	6.9	12.8	8.8	14.9	8.3	13.6
Mixed livestock crops							
Farm cash income	\$	32 871	72 902	52 436	143 429	137 309	34 5645
Farm business profit	\$	-19 896	29 764	-12 944	82 344	20 240	24 9952
Rate of return e							
- excl. capital appreciation	%	-1.1	3.9	0.4	5.3	1.5	5.9
- incl. capital appreciation	%	8.3	15.1	8.8	12.1	8.0	13.6
Sheep							
Farm cash income	\$	3 197	42 331	33 966	117 504	49 810	19 9632
Farm business profit	\$	-36 810	15 282	-21 722	72 369	-22 875	16 9831
Rate of return e							
- excl. capital appreciation	%	-4.9	2.7	-0.8	5.4	0.2	5.1
- incl. capital appreciation	%	2.6	11.9	7.4	13.4	8.2	13.4
Beef							
Farm cash income	\$	-3 134	23 740	18 063	66 573	93 200	32 6630
Farm business profit	\$	-40 675	12 544	-38 077	64 463	-4 087	37 9199
Rate of return e							
- excl. capital appreciation	%	-5.4	2.8	-2.1	3.9	0.6	6.0
- incl. capital appreciation	%	4.5	9.6	7.1	13.2	8.1	12.2
Sheep-beef							
Farm cash income	\$	8 353	36 386	33 358	93 046	65 974	20 4312
Farm business profit	\$	-43 967	14 610	-28 644	66 881	-4 674	24 8764
Rate of return e							
- excl. capital appreciation	%	-3.3	1.9	-0.5	4.0	0.7	5.0
- incl. capital appreciation	%	4.2	6.8	5.0	7.6	6.9	10.2
Dairy							
Farm cash income	\$	37 287	72 592	56 961	126 846	89 178	19 0078
Farm business profit	\$	-24 401	23 195	-17 655	68 347	-5 562	12 3686
Rate of return e							
- excl. capital appreciation	%	-1.1	3.8	0.5	5.1	1.2	5.2
- incl. capital appreciation	%	4.6	8.2	9.6	13.3	6.9	10.4

a Less than \$1 million at 1 July 2002, less than \$1.2 million at 1 July 2003 and less than \$1.4 million at 1 July 2004. **b** \$1.0–2.0 million at 1 July 2001, \$1.2–2.4 million at 1 July 2002 and \$1.4–2.7 million at 1 July 2003. **c** More than \$2.0 million at 1 July 2001, more than \$2.4 million at 1 July 2002 and more than \$2.7 million at 1 July 2003. **d** Ranked at regional level by rate of return to capital excluding capital appreciation. **e** Calculated as farm business profit plus interest and leasing expenses paid as a percentage of the total value of capital at 1 July.

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reserves for use during drought and other downturns through the Farm Management Deposit (FMD) scheme. In addition, federal, state and territory governments responded to the widespread drought commencing in 2002-03 with a range of measures targeting farm businesses and the welfare needs of farming families.

Federal assistance during recent drought events has been mainly based on the declaration of 'exceptional circumstances' (EC) on a region by region basis. Exceptional circumstances declarations are intended to provide assistance for events whose rarity and severity is such that they are beyond the scope of normal risk management, the type of event that can be expected to occur only once or twice in a lifetime.

Farmers in EC declared areas are eligible to apply for household welfare assistance (termed Exceptional Circumstances Relief Payment [ECRP] and equivalent to Newstart welfare available to all Australians except that farm assets are excluded from eligibility tests) as well as business assistance. Business assistance is offered in the form of interest subsidies on new and existing loans up to a maximum of \$100 000 in any twelve month period, with a cumulative maximum of \$300 000 over the previous five years.

Changes were made to EC drought assistance during 2005 to enable more farmers to qualify for welfare and business assistance in 2005-06. The income test for Exceptional Circumstances Relief Payments has been relaxed so that farmers can earn an extra \$10 000 in off-farm salaries and wages without affecting their relief payment until June 2006.

Interest rate subsidies were increased from 50 per cent to 80 per cent of the interest paid on new and existing loans for those farmers in areas currently EC declared for a second or subsequent year. In addition, the off-farm assets test threshold for interest subsidies was doubled to \$446 000 per farm business.

Characteristics of Exceptional Circumstances assistance recipients

ABARE survey data for the 2004-05 financial year for farms in areas declared for exceptional circumstances assistance by 30 June 2004 (see map) have been used to document the characteristics of recipients of the various forms of EC assistance and the impact of this assistance on the farm and farm household's financial position.

The characteristics of EC recipients to 2003-04 were reported in *Australian Farm Surveys Results 2002-03 to 2004-05* in March 2005. In the following section, preliminary results for farms in EC declared areas obtained from the 2004-05 data collection for broadacre and dairy farms are discussed. All data presented are for farms in areas and specific industries declared for EC assistance for the full 2004-05 year.

Exceptional circumstances declared or interim declared areas at 30 June 2004



Exceptional circumstances interest rate subsidy (ECIRS)

Obviously, the farms that receive the greatest assistance from the ECIRS are farms with the most debt (table 6). Generally, farm businesses with the largest debt are also the largest farms, have the greatest capacity to service debt and have sound long term prospects. The profile of their farm debt indicates that the majority of their farm debt is for farm expansion, farm development and investment in new technology. Often they are also operated by younger farmers in the expansionary phase of their careers. Farms with low or no debt and relatively high levels of liquid assets receive much less assistance from the ECIRS.

However, a small proportion of farms receiving ECIRS have low receipts, low equity, and poorer prospects of long run viability. For these farms, this assistance may provide the opportunity to choose the timing of their decision to leave farming. With a return to better seasonal conditions it is likely that some farmers who have been contemplating the sale of land through the drought period will now list their properties for sale.

Exceptional circumstances relief payment

The second form of assistance is means tested family household support provided through the Exceptional Circumstances Relief Payment (ECRP). Around 50 per cent of farms receiving ECIRS also receive ECRP.

Generally, recipients of either interest subsidies or ECRP recorded lower farm production in 2004-05. Crop yields were lower for farms in EC declared areas in receipt of EC assistance, as was wool cut per head shorn, and sheep and beef cattle turnoff rates. As a consequence, total cash receipts for EC recipients were significantly below the average for nonrecipients,

6 Estimates for broadacre and dairy farms in EC declared areas, 2004-05

Average per farm

		Farms receiving interest subsidy	Farms not receiving interest subsidy	Farms receiving ECRP	Farms not receiving ECRP	Farms receiving any EC assistance	Farms receiving no EC assistance
Wheat yield per hectare sown	tonnes	1.4	1.7	1.4	1.7	1.5	1.7
Total cash receipts	\$	294 800	255 500	207 500	271 000	223 900	269 700
less Total cash costs	\$	256 400	203 900	176 000	216 500	190 800	214 300
Farm cash income	\$	38 400	51 600	31 400	54 600	33 100	55 300
Farm business profit	\$	-15 600	-3 700	-22 600	- 800	-21 500	0
Rate of return							
– excl. capital appreciation	%	1.0	0.7	0.1	0.8	0.2	0.8
– incl. capital appreciation	%	8.8	7.4	7.9	7.5	8.2	7.4
Proportion of farms with negative farm cash income	%	28	33	26	34	27	34
Total capital value	\$	2 511 500	2 479 900	1 989 500	2 594 900	2 132 800	2 585 500
Farm debt at 30 June	\$	476 600	224 000	290 400	239 400	325 500	226 500
Change in farm debt during year	%	4	0.4	3	12	3	13
Change in working capital debt during year	%	40	37	13	6	17	4
Equity ratio at 30 June	%	81	91	85	90	84	91
Liquid assets, including FMDs	\$	30 000	103 000	34 500	110 300	35 400	114 100
Farm management deposits at 30 June	\$	2 600	15 300	3 600	16 400	3 600	17 100
Change in FMDs during year	%	9	36	62	34	45	35
Investment income	\$	6 300	8 300	7 200	8 300	6 800	8 500
Wage and salary income	\$	8 800	19 100	4 800	21 300	6 300	21 800
Exceptional circumstances relief payment	\$	8 800	1 600	11 700	0	9 600	0
Other government sourced income	\$	3 100	1 900	3 000	1 800	3 100	1 600
Total off-farm income	\$	27 000	30 800	26 600	31 400	25 800	31 900
Government assistance payments to business – total	\$	20 400	1 300	9 100	1 800	10 900	900
EC interest subsidy to business	\$	16 800	0	5 100	800	7 200	0
Other government business assistance	\$	2 100	800	2 500	600	2 300	600

Areas declared for EC at 30 June 2004

Source: ABARE Australian agricultural and grazing industries survey and Australian dairy industry survey.

farm performance

even after the receipt of the interest subsidy. However, the margin between total cash receipts and costs was much narrower for EC recipients partly because fodder costs of EC recipients were almost double those of nonrecipients.

Farm cash income for EC recipients, together with farm business profit and rate of return (excluding capital appreciation) were significantly below those of nonrecipients. However, there was little difference in the percentage of farms recording negative farm cash income between the two groups.

While debt levels are higher on farms receiving EC assistance, the overall increase in debt during 2004-05 was less in percentage terms than that on farms not receiving EC assistance. However, the percentage increase in debt for working capital was significantly higher and the overall proportion of total farm debt for working capital on farms receiving EC assistance was much higher than for farms not receiving EC assistance. While the average equity ratio of farms receiving EC assistance was lower than that for farms not receiving assistance, less than 1 per cent had less than 70 per cent equity.

Liquid assets and farm management deposits (FMDs) held by farms receiving EC assistance were, on average, much lower than for farms not receiving assistance. FMDs increased for both farms receiving EC assistance and farms not receiving EC assistance, but the increase was marginally greater for farms receiving EC assistance. Overall, farms appear to have chosen debt financing or a reduction in other liquid assets (see figure J) to fund farm cash operating shortfalls in preference to the withdrawal of FMDs.

The age of the farm operator was not significantly different between those farms that do or do not receive EC assistance. Age is, however, a significant explainer of differences in the composition of farm debt, with a higher proportion of debt for land purchase on farms operated by younger farmers.

Current Productivity - Future Potential: bases for the next major improvements in farm productivity

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Introduction

Farming businesses operate in complex environments, generally producing commodities for complex markets and market pathways. The opportunities for product innovation are generally less than the opportunities for process innovation (i.e. business improvement). In some ways this is a good thing. The benefit of product innovation is generally lost in the marketplace within 3-6 months, mainly because competitors can generate workarounds for the market. The benefits of process innovation are generally more long lasting because they can be captured as improvements within each individual business.

Accordingly, most public investment in R & D is directed towards process innovation within individual businesses. However, the challenge isn't just to invent new ways of doing things, but to see that the process improvements are realized and provide a return on investment to the producer.

Productivity increases are predominantly driven by process and technology innovation. Attribution of productivity changes to sources of innovation is often difficult. That productivity changes (and innovation) occur at the same time as industry structural change, often confuse cause and effect. However, in complex industries it is inevitable that several factors operate simultaneously to spread change throughout that industry.

In this paper, we will briefly explore productivity increases due to technological change using some examples chosen from the extensive grazing industries. We will use several recent examples, describe a work in progress and finally paint a picture of what we believe to be opportunities for innovation in livestock industries over the next decade or so. The two principles are:- a) improved application of existing knowledge and b) focus of future R&D on areas where large increases in productivity and profitability can be expected.

Some recent examples – industry structural changes aided and abetted by technology and innovation

Drawing on experience with the beef industry, it is instructive to see how application of technology has also been associated with industry structural change. Although change in industry structure has been in part driven by market demand, there is no doubt that deliberate R & D investment decisions and long term trends in technological improvement have hastened the change and enabled the industry to make more gains than from response to market alone.

Example 1. Genetic improvement of beef cattle. The beef industry invests in improving its breeding herd through a network of researchers, service providers, breed societies and breeders. This vertically integrated information system has resulted in

development of new traits for carcass and eating quality and efficiency of beef production over the past decade. The information is distributed through a network of breeders through market forces where information about breeding values is one of the elements used for trading superior livestock (or semen). Overall there has been a 47% increase in the \$index of the seedstock sector as a whole over the past 5 years (Table 1).

Table 1 Rate of genetic improvement in the beef seedstock sector. Values are \$indices for relevant production market specifications, weighted by breed and representation in each market.

	1996-2001	2001-2004
Japanese B3 Market	2.81	4.53
Heavy steer	0.99	1.34
Domestic	0.92	1.26
Total	1.33	1.95

Source. A. McDonald – report to National Beef Genetics Advisory Committee (2005)

Associated with this improvement in genetic gain, there has been a significant shift in industry structure. Although it is difficult to get clear figures for the industry as a whole, major changes in breed representation have occurred. In the Angus breed, which today sells almost 35% of all bulls sold in Australia, and where most of the recent increases in breed registrations have occurred, there has been a trend to fewer larger operators, who also have the most impact on genetic gain. More than 50% of Breedplan recorded Angus cows are represented in 10% of herds. There is a trend for those herds with the highest rate of genetic gain to be run by younger more innovative producers, who are making more use of new technologies (computerised mate selection, EBV's, gene markers, embryo transfer and artificial insemination) to further increase their competitive advantage.

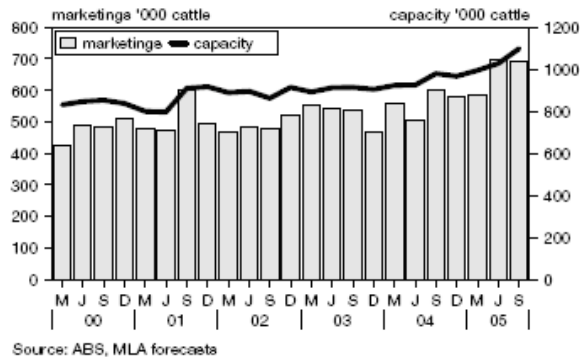
The flow on effects to industry are in part driven by market position arising from improved genetic gain, but also by recognition in the market place of an advantage to Angus derived cattle. In particular the feedlot sector has driven market awareness of the benefits of cattle that suit the B3 (Japanese) market.

Example 2. Development of the feedlot sector. The feedlot sector has been expanding steadily over the past decade, initially driven by growth in Japanese demand, and more recently by strong interest from the domestic retail and foodservice sectors.

“The existence of a large lotfeeding capacity (now over 1.1 million cattle) proved to be a saviour for the industry through the recent severe and prolonged drought (a facility not available in past severe droughts).” Figure 1, Weeks 2006.

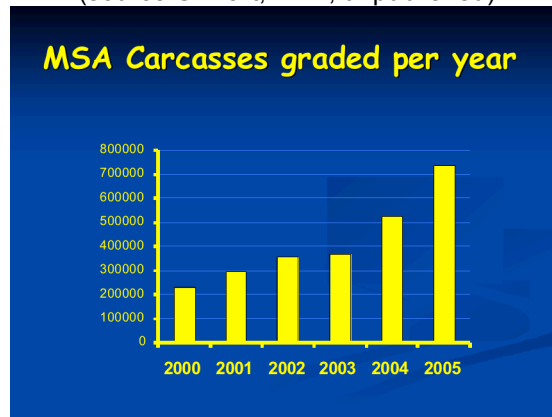
The feedlot industry has used a deliberate growth strategy which included targeted R & D to address major opportunities for improvement in the industry. Starting with alleviation of threats (animal welfare, environmental management, product integrity) as embodied in the National Feedlot Accreditation Scheme which commenced in 1995, to feed security (improved feed use, alternate feedstuffs) and production efficiency to meat quality and market specifications (development of Meat Standards Australia quality scheme, marbling R & D).

Figure 1. Growth of the beef feedlot industry 2000-2005.



With regard to eating quality of beef, R & D to underpin development of a consumer focused product quality assurance scheme commenced in the mid 1990's and resulted in implementation of the Meat Standards Australia (MSA) scheme in the late 1990's. Today more than 700,000 beef carcasses are graded per year, and the rate of increase is between 150 – 200,000 carcasses p.a. (Figure 2). It is estimated that producers receive a premium of \$30 / head for MSA graded carcasses and that the industry as a whole is \$40m p.a. better off through application of MSA (J.M. Thompson pers comm).

Figure 2. Number of beef carcasses graded by the Meat Standards Australia scheme 2000-2005 (source C. Dart, MLA, unpublished)



It is anticipated that these trends will continue. Each example illustrates that concerted application of R & D to industry issues in conjunction with development of whole of industry systems to implement the outcomes of the R & D have lead to overall improvement in industry productivity.

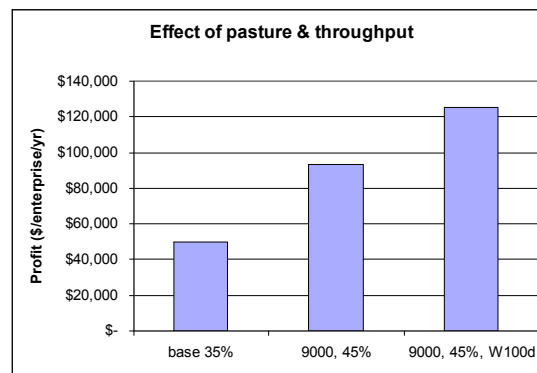
A work in progress, More Beef from Pastures.

The current rate of pasture utilization in grazing industries throughout Southern Australia is less than 40% in an average year (this means that approximately half the potential productivity in a grazing system is actually being realized). Although the rate of pasture utilisation does increase during drought, stocking policies that increase ground cover for environmental purposes, or for risk minimization purposes, lead to reduced overall productivity. This further reduces potential productivity by reducing overall

pasture growth rate. There is substantial variation in pasture productivity per unit rainfall, which affects overall productivity, reducing the point at which stocking rate is optimal.

These findings were an outcome of a major review of the factors affecting productivity in southern beef industry. In that review (Black and Scott, 2002) indicated that the greatest opportunity for improving profitability of beef enterprises in southern Australia was to increase pasture growth and utilization, the next greatest opportunity was from an increase in the throughput of animals for sale, firstly by increasing stocking rate and secondly by increasing cattle fecundity or changing the type of enterprise to include purchasing calves. Considerable improvements in profitability were predicted also from reducing the consumption of high quality pasture by the breeding herd through early weaning and reducing the spread of calving. An example of the effect of increasing pasture utilization and growth and reducing the time calves spend on their dams is shown in Figure 3.

Figure 3. Simulated effect on the profitability of a standard 600 ha enterprise of increasing pasture utilisation by from 35 to 45%, increasing annual pasture growth rate from 8 to 9 t DM/ha and increasing cattle throughput by weaning calves at 100 days of age. (Derived from simulations using GrassGro a CSIRO product).



There is currently an abundance of information available to farmers, but it is not generally structured in a way that can be readily applied. The information is often presented piece-meal, “dumbed down” and not structured in a way that assists or promotes adoption.

To address this issue, a package of production system changes has been delivered to industry through the More Beef from Pastures (MBfP) program run by MLA. A key feature of the MBfP program has been to address the risk aspects that impede uptake of technology. This has been achieved by using a HACCP approach to process improvement on farm (much like the approach widely used in manufacturing and other industries). The aim of the HACCP process has been to develop a structured way to assist producers maximize profit from grazing enterprises while maintaining full control of risks associate with intensification.

In the HACCP process only those steps that have a major effect on productivity and profitability and are considered to be essential to be carried out correctly are identified. The most important steps in the process are:

- (a) Identify only those processes which have a major effect on productivity and profitability. MLA identified only 29 processes that were considered to be

- essential (for maximum profitability) to be carried out ‘correctly’ in the whole of a beef grazing enterprise from strategic planning through pasture growth & utilisation, genetic selection, calf production to sale of the product.
- (b) Identify, for each process, the farm (or market) variables that must be measured to ensure that the process is carried out correctly to maximise profit, environmental sustainability and animal welfare. Establish the required frequency of measurement and set maximum and minimum limits for each measured variable to ensure that the process will be optimised.
 - (c) Apply the most profitable pre-determined corrective action whenever measurements are outside the limits. The process of having predetermined actions when the measurement limits are breached substantially reduces the stress level for the manager because the plan of action and when to apply it has already been established and the consequences known.
 - (d) Establish SOP’s for the enterprise for each process to ensure that, under normal circumstances, the critical measured values will remain within the limits set. Such a process is important so the manager can ‘go on leave’ knowing that each critical process in the enterprise will be measured and carried out correctly by staff.
 - (e) Provide the tools necessary for making the essential measurements, interpreting the measurements and deciding on the most profitable corrective action. These tools are an essential component of the ‘package’ and must be provided as part of any adoption package. There is a need to train users in these tools.

The fact that humans tend to become lax with the application of repetitive tasks is one of the main reasons for failure of systems like that outlined above. Recording and checks of measurements and actions by other people is one way to help overcome the problem. However, current and future advances in the application of the outlined procedure for essential enterprise processes will come from the automated measurement, interpretation and control of these processes which are then overseen by a manager in the office. This process will include automatic alarms etc. A useful example of the type of change needed is the structure of the Australian steel industry in the 1950’s when all tasks were undertaken by humans, compared with today when the whole process is monitored and controlled from within an office environment. This is becoming the case in the cropping industries where computer and GPS aided decision making is enabling much more efficient use of inputs.

Changes in potential, Research to identify “quantum leaps” in productivity and profitability

Within any agricultural enterprise, there are only a small number of areas where a significant change will result in a many-fold (quantum) change in productivity. We believe these can be identified best through a ‘think-tank’ process and then quantified using existing simulation models or spreadsheet calculations. Some are relatively clear such as removing humans from the dairy cow milking process. Others such as several fold increase in winter pasture (fodder) production although recognised as important are often accepted as inevitable, but should not be assumed to be unchangeable.

The areas of agricultural enterprises where, generally, there are the greatest opportunities for quantum changes in productivity and profitability are:

- The supply of inputs to the enterprise – either quantity-quality of essential inputs or cost of those inputs – e.g. fodder production during winter, cost of fencing and watering for small area –short time grazing.
- The quantity of outputs for the enterprise - e.g. pasture-crop yield, animal throughput etc.
- The high cost (and inefficiency) of labour.
- Prices paid for commodities: insurance that the product will consistently meet 'high tolerance' specifications for particular markets.

Almost all 'quantum leap' advances in productivity and profitability involve the application of new technologies. Traditionally, these technologies have been "developed" within the agricultural industries e.g. fertilisers for pastures, new plant species and cultivars, non-till cropping, laser levelling etc..

However, we believe there is a far greater opportunity for making rapid progress by looking for the adaptation of new or existing technologies from other industries including the bio-medical, energy, aerospace, military, packaging-logistics, engineering industries etc. There is a huge opportunity to first identify where within an agricultural enterprise there is an opportunity for a 'quantum leap' in productivity or profitability and then to scour the world for existing or developing technologies that could be adapted to meet the specific needs identified.

The current revolution in electronics and computational science has enormous potential for agriculture and is already starting to be applied. Electronics have a particularly important role in the measurement of critical variables, interpretation of these measurements and control of processes, but there are potentially many other opportunities through the use of bio-nano-, light and laser-technologies etc. Computational sciences have a critical role in integration of knowledge with information that enables rapid and accurate decision making, and will become increasingly important to extract value from agricultural systems. The examples of genetic improvement and MSA cited above were enabled by increases in computational power and accessibility over the past 2 decades.

On the horizon, the genomics (biotechnology) revolution promises even faster progress with both plant and animal breeding, new technologies for improving soil health and new control treatments for parasites and diseases affecting animal and plant productivity. Of course these technologies also present opportunities to develop competing products from the biological systems currently used for farming. The level of investment by the target (agricultural industries) is small compared to the global investment in genomic technologies. The principle of identifying an industry niche, and searching for a solution within the space of possibility available from the total global activity in the field also applies here (and indeed is one of the strategies used by MLA and AWI in the international sheepGENOMICS initiative). It will almost certainly become easier to do this with the increase in computational power required to develop whole of systems understanding arising from outcomes of genomic and post genomic research. However, unless industries invest themselves to build the context within which such understanding can be utilized then it is unlikely that they will obtain the most from new technologies.

Conclusions.

Continued rural industry investment in R & D is probably best directed to developing the context for harnessing the opportunities arising from massive global investments in electronic, biotechnology and computational sciences, while at the same time developing better processes to implement outcomes of past R & D for industry benefit.

However, the time scale for implementation of technologies to industry improvement is difficult to predict. It is not uncommon for uptake of a technology to take from 30-50 years from invention to common place application. Typically, early stage adopters reap the benefits (and carry the risks) of the technology from 10-20 years after first implementation. In rural industries this is a commonplace scenario and will often be influenced most by the alignment of availability of a new technology with a particular age cohort of industry participants.

An important challenge is to speed up this cycle. We believe that this can best be achieved by making the adoption message simpler and clearer. In particular, by promoting only those actions that will have a major impact on productivity and providing the tools and processes to ensure that they are carried out with sufficient accuracy to control the risks associated with intensification, is perhaps the most important innovation yet to be implemented in rural industries.

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