Chapter 3 Update – Impact of higher petroleum, diesel and gas prices on rural Australia

Update of Chapter 3 from ABARE's October 2008 Submission to the Senate Select Committee on Fuel and Energy

ABARE's farm surveys provide a broad range of information on the current and historical economic performance of farm business units in the rural sector. Each year ABARE interviews producers from the broadacre and dairy sectors of Australian agriculture. The information collected provides a basis for analysing the current financial position of farmers in those industries and expected changes in the short term. Data from ABARE's Australian agricultural and grazing industry survey (AAGIS) and Australian dairy industry survey (ADIS) are used in this analysis to determine the contribution of expenditure on fuel to total farm costs up to 2007-08, the latest year for which survey results are available. The price of fertiliser is also influenced by energy prices, given natural gas is an important input into the manufacture of fertilisers, so farm expenditure on fertiliser as a proportion of total cash costs is also examined. To reflect more recent changes in fuel and fertiliser prices, ABARE indexes of prices paid by farmers are analysed later in this section to estimate farm costs for the Australian agriculture sector as a whole.

Farm expenditure on fuel

Farm survey results show that the share of total cash costs per farm outlaid for fuel and lubricants has been relatively stable over the ten year period from 1998-99 to 2007-08, ranging in the order of 7 per cent to 9 per cent (figure 1).

In 2007-08, average expenditure per farm on fuel accounted for 8 per cent of total cash costs (table 1).

Expenditure on fuel as a proportion of total cash costs varies considerably, however, between different agricultural industries. Fuel as a proportion of total cash costs is highest for grain producers as diesel fuel is a major input into the planting, spraying, harvesting and transportation processes. In 2007-08, fuel accounted for 10.7 per cent of total cash costs for the wheat and other crops industry and 8.9 per cent for the mixed livestock–crops industry. For livestock producers, a smaller share of their costs was accounted for by fuel and lubricants with sheep specialists allocating 6.4 per cent of their total cash costs on fuel, beef specialists only 5.8 per cent and sheep–beef producers just 5 per cent. Dairy farmers on average allocated only 3.9 per cent of their total farm input expenditure to fuel and lubricants (table 1).

Figure 1 Farm cash costs, average per farm

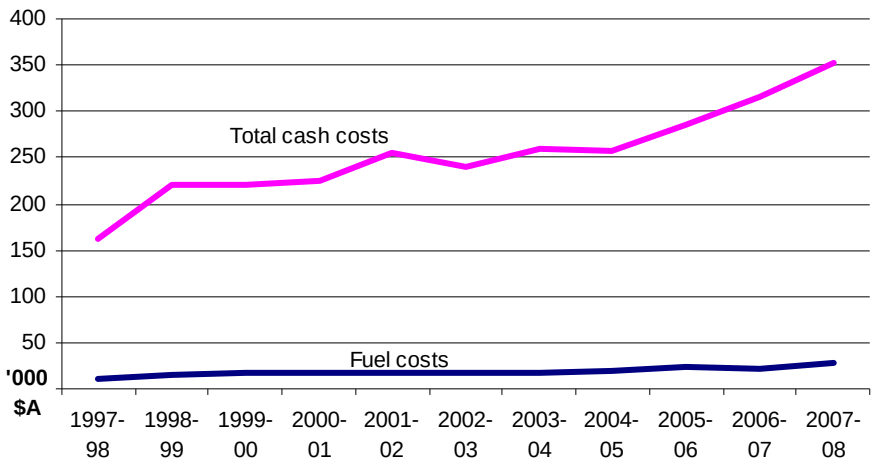

Table 1 Average cash costs per farm and expenditure on fuel, by industry, 2007-08

	Fuel, oil and grease	Total cash costs	Fuel as a share of total cash costs
	$	$	%
All broadacre	28 340	352 750	8.0
wheat and other crops	56 830	529 470	10.7
mixed livestock–crops	33 790	379 470	8.9
sheep industry	15 300	237 230	6.4
beef industry	16 510	283 650	5.8
sheep–beef industry	15 360	308 980	5.0
Dairy	13 680	351 460	3.9

Farm expenditure on fertiliser

One factor that has affected fertiliser production costs, and therefore prices of fertiliser globally, is higher natural gas prices. The price of natural gas accounts for 70 per cent to 90 per cent of the cost of producing ammonia, which is either applied directly to crops or used as an input to other nitrogenous fertilisers such as urea, ammonium nitrate, ammonium sulphate and water-based liquid nitrogenous fertilisers.

Producers with the highest exposure to changes in fertiliser prices are wheat and other crops and mixed livestock–crops producers for which fertilisers accounted for around 18 per cent and 14 per cent of total cash costs in 2007-08, respectively (table 2). For the livestock industries, the share of fertiliser costs as a proportion of total cash costs was greater in the sheep and dairy industries than in the beef industry, with a proportion of beef producers more likely to graze cattle on unimproved or native pastures.

Table 2 Average cash costs per farm and expenditure on fertiliser, by industry, 2007-08

	Fertiliser	Total cash costs	Fertiliser as a share of total cash costs
	$	$	%
All broadacre	39 260	352 750	11.1
wheat and other crops	96 310	529 470	18.2
mixed livestock–crops	53 600	379 470	14.1
sheep industry	20 170	237 230	8.5
beef industry	8 980	283 650	3.2
sheep–beef industry	19 890	308 980	6.4
Dairy	22 580	351 460	6.4

Index of prices paid and total farm costs

While the farm survey provides useful information on the proportion of average per farm expenditure allocated to fuel and fertiliser and the variances across the different agricultural industries, it does not provide an indication of the effects of the more recent fuel price rises. ABARE's index of prices paid by farmers takes into account estimates of current year fuel prices and forecasts for future years. Over the five years to 2006-07, ABARE's index of fuel and lubricant prices showed an average annual growth rate of 11 per cent. In 2007-08 the index increased by 17 per cent. In 2008-09 the fuel prices paid by farmers are estimated to have fallen, the index falling 14 per cent. In 2009-10 the fuel price index is forecast to rise again by 2 per cent. For fertiliser, prices paid over the five years to 2006-07 rose by 3 per cent a year on average. In 2007-08 the fertiliser price index jumped by more than 80 per cent and is estimated to have stabilised in 2008-09, rising by 5 per cent (figure 2). In 2009-10, the fertiliser price index is forecast to fall by 20 per cent.

Figure 2 Indexes of prices paid by farmers for fuel and fertiliser

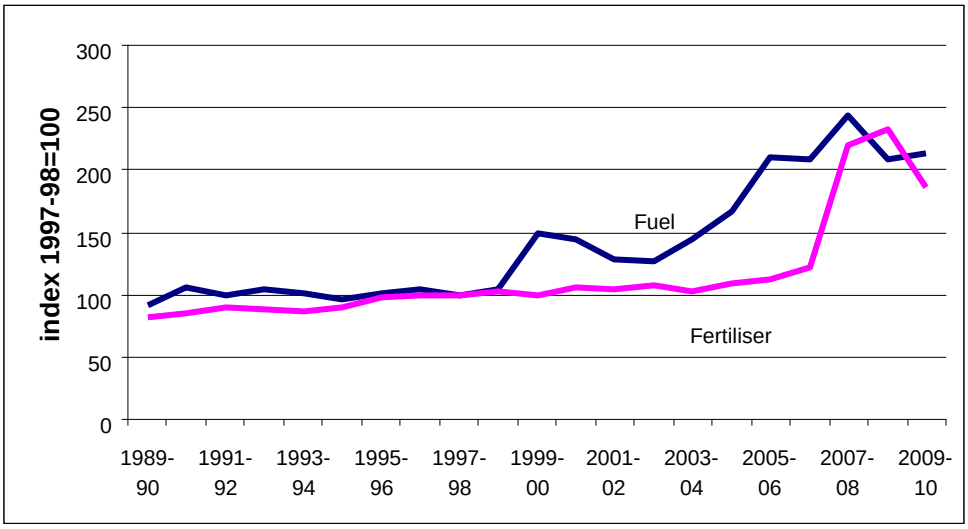

Table 3 Farm costs, Australia ($ million)

	2004-05	2005-06	2006-07	2007-08	2008-09 s	2009-10 f
Costs						
Materials and services						
chemicals	1 691	1 749	1 545	1 861	1 651	1 534
fertiliser	1 851	1 843	1 659	2 986	3 175	2 565
fuel and lubricants	1 765	2 223	2 199	2 518	2 179	2 253
marketing	3 433	3 612	2 748	3 214	3 758	3 858
repairs and maintenance	2 493	2 602	2 466	3 162	3 323	3 388
seed and fodder	4 267	3 827	4 921	6 005	5 378	5 323
other	3 473	3 692	3 543	3 753	3 887	3 964
total	18 974	19 548	19 081	23 497	23 351	22 886
Labor	3 410	3 778	3 654	3 577	3 676	3 777
Overheads						
interest paid	2 306	3 249	3 848	4 901	4 125	3 712
rent and third party insurance	432	446	447	462	470	479
Total	6 148	7 473	7 950	8 940	8 271	7 968
Total cash costs	25 122	27 021	27 031	32 438	31 622	30 854

In 2007-08, higher fuel prices increased farm costs for the Australian agricultural sector as a whole by $319 million (table 3). Despite this increase, fuel as a proportion of total cash costs remained at 7 per cent in 2007-08 with other input costs such as fertiliser, seed, fodder, marketing and interest payments accounting for larger shares of total cash costs than fuel. In 2008-09, fuel costs as a proportion of total farm costs are estimated to have fallen to 6 per cent of total farm costs and are forecast to remain around 6 per cent of total farm costs in 2009-10.

In 2007-08, higher fertiliser prices increased total farm cash costs by around $1.3 billion (table 3). The increase lifted the proportion of total cash fertiliser cost from 5 per cent in 2006-07, to 8 per cent in 2007-08. In 2008-09, fertiliser prices stabilised and the share of total cash costs of fertiliser is estimated to be just under 9 per cent, higher than fuel but still lower than that for seed, fodder and interest payments. In 2009-10, fertiliser costs are forecast to decline to 7 per cent of total farm cash costs.

It is important to recognise the ability of farmers to adjust their farming practices in response to significant changes in the price of farm inputs. Precision farming and conservation tillage, for example, provide opportunities for both direct and indirect energy conservation, with reduced tillage involving less fuel consumption and reduced fertiliser requirements. Low rainfall over the past couple of years and failed crops may have also resulted in fertiliser remaining in the ground to be utilised for future crops. In such situations farmers may reduce the amount of fertiliser they apply, therefore reducing fertiliser costs.

ABARE's most recent farm survey results show that expenditure on fertiliser on broadacre farms increased by 50 per cent on average in 2007-08 compared with the 182 per cent increase in the ABARE index of prices paid for fertiliser in 2007-08. With the average area planted to crops increasing by around 7 per cent, this indicates substantial changes were made to fertiliser use in 2007-08.