



SHEEP AND BEEF ON-FARM INFLATION 2016-17

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The sheep and beef on-farm inflation report indicates the annual changes in farm input prices and not the annual changes in total farm expenditure. On-farm inflation is different to total farm expenditure, which also takes into account the volume of inputs used on farm.

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1. On-farm inflation

On-farm inflation -0.1% in 2017

Prices for sheep and beef farm inputs decreased 0.1 per cent between March 2016 and March 2017. This compares with a 2.1 per cent decrease in the previous 12-month period. Of the 16 categories of inputs, prices for 11 increased and five decreased. There were significant price decreases in interest on debt; and fertiliser, lime and seeds partly offset by price increases for repairs, maintenance and vehicles; and insurance.

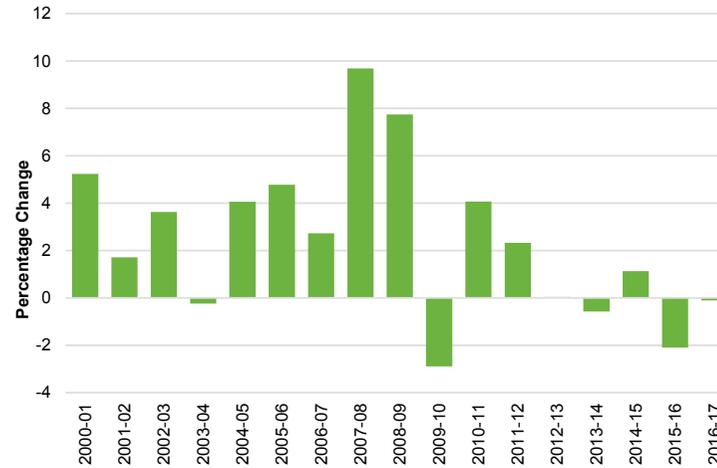
On-farm inflation -1.6% in 5 years +20.2% in 10 years

Prices for sheep and beef farm inputs were down 1.6 per cent over the last five years, but up 20.2 per cent over the last 10 years.

Consumer price inflation exceeded on-farm inflation in 2017

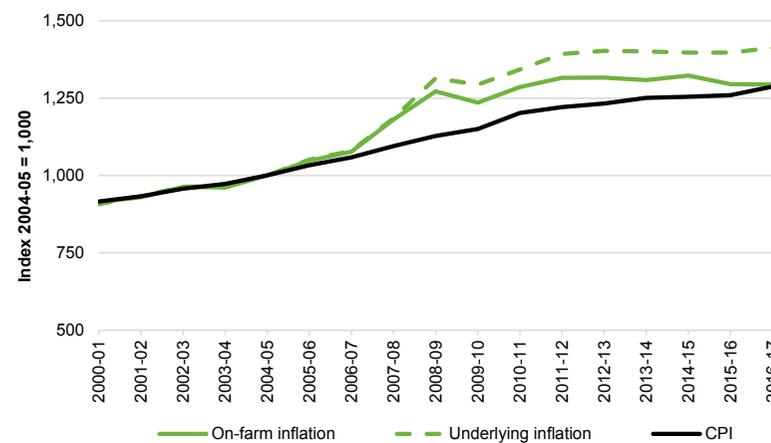
In comparison, consumer prices increased 2.2 per cent between March 2016 and March 2017. Over the last five years, consumer price inflation was 5.4 per cent, which is 7.0 percentage points higher than on-farm inflation, and consumer price inflation was 1.4 percentage points higher than on-farm inflation over the last 10 years.

Figure 1: Sheep and Beef On-Farm Inflation



Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand

Figure 2: Sheep and Beef On-Farm Inflation, Underlying Inflation and CPI



Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand



2. Annual changes in farm input prices

Fertiliser, lime and seeds -3.8%

Between March 2016 and March 2017, the overall price for fertiliser, lime and seeds decreased 3.8 per cent compared to a 0.6 per cent increase reported for the previous 12-month period.

Interest -7.5%

The overall price of interest on debt decreased 7.5 per cent between March 2016 and March 2017. This follows a 14.5 per cent decrease for the previous year. Note that this is not the change in interest rates, but the percentage change in the price paid for interest.

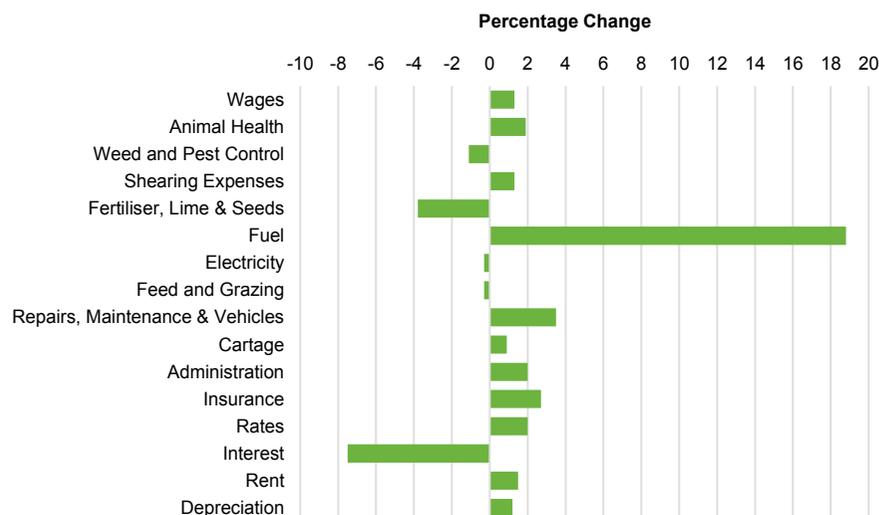
Repairs, maintenance and vehicles +3.5%

Between March 2016 and March 2017, the overall price for repairs, maintenance and vehicles increased 3.5 per cent compared to a 1.7 per cent increase reported for the previous 12-month period.

Fuel +18.8%

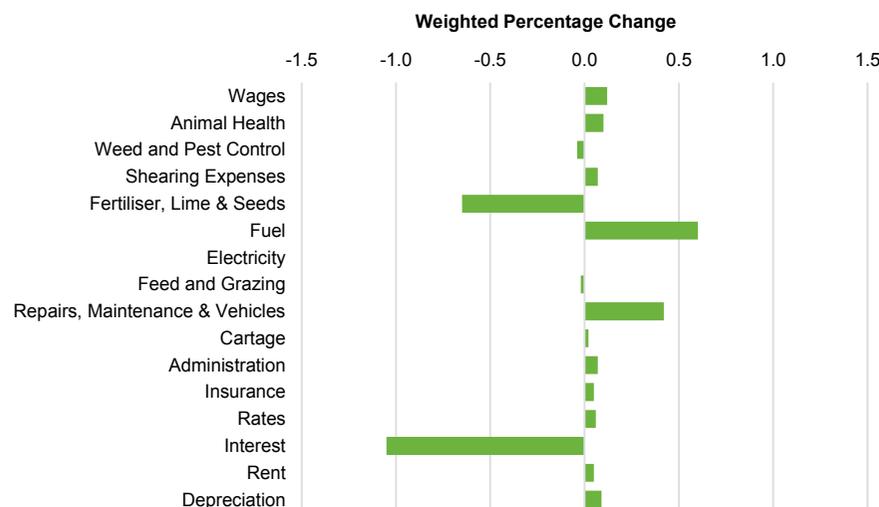
The price of fuel increased 18.8 per cent in the year to March 2017, reflecting the rise in international oil prices. This follows a 12.7 per cent decrease for the previous year.

Figure 3: Sheep and Beef Farm Input Price Changes - March 2016 to March 2017



Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand

Figure 4: Sheep and Beef Farm Weighted Input Price Changes - March 2016 to March 2017



Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand

The major items of expenditure are fertiliser, lime and seeds; interest; and repairs, maintenance and vehicles. They account for approximately 43 per cent of total farm expenditure. Figure 3 shows the change in price of each input while Figure 4 shows the change in price of each input weighted by its proportion of total farm expenditure. The prices of fuel and interest showed quite different annual changes and their contribution to overall on-farm inflation is very different, because the weight of the interest expenditure is higher than that of fuel. A time-series of the percentage weights of expenditure items is shown in Appendix 4.

Table 1: Changes in Sheep and Beef Farm Input Prices - March 2016 to March 2017

Categories of Expenditure	Percentage Change	Percentage Weight ¹	Weighted Percentage Change ²
	Col 1	Col 2	Col 3
Wages	+1.3	8.9	+0.12
Animal Health	+1.9	5.2	+0.10
Weed and Pest Control	-1.1	3.7	-0.04
Shearing Expenses	+1.3	5.3	+0.07
Fertiliser, Lime & Seeds	-3.8	17.1	-0.65
Fuel	+18.8	3.2	+0.60
Electricity	-0.3	0.9	-0.00
Feed and Grazing	-0.3	8.0	-0.02
Repairs, Maintenance & Vehicles	+3.5	12.0	+0.42
Cartage	+0.9	1.7	+0.02
Administration	+2.0	3.7	+0.07
Insurance	+2.7	2.0	+0.05
Rates	+2.0	3.1	+0.06
Interest	-7.5	14.0	-1.05
Rent	+1.5	3.4	+0.05
Depreciation	+1.2	7.8	+0.09
TOTAL		100.0	-0.11

Notes:

1. Average three-year pattern of expenditure for Sheep and Beef Farms (2013-14 to 2015-16p)
2. Col.(3) equals Col.(1) multiplied by Col.(2) divided by 100.
The result is rounded to two decimal places, e.g.
Wages $1.3 \times 8.9 / 100 = 11.57 / 100 = 0.12$

Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand

3. Underlying on-farm inflation

Underlying on-farm inflation +1.1%

When excluding interest from the calculation of the change in sheep and beef farm input prices, underlying on-farm inflation was 1.1 per cent in the year to March 2017, whereas it was unchanged in the previous year.

Table 2 compares on-farm inflation with underlying on-farm inflation for the past 20 years. Underlying on-farm inflation increased moderately after four years of relatively little movement.

Table 2: Sheep and Beef On-Farm Inflation

Year	On-farm inflation (including Interest)		Underlying on-farm inflation (excluding Interest)	
	Percentage Change	Index ¹	Percentage Change	Index ¹
1996-97	+1.4	857	+1.6	831
1997-98	+0.7	862	+0.6	836
1998-99	-2.0	845	+0.9	844
1999-00	+2.8	868	+1.4	856
2000-01	+5.2	914	+6.0	907
2001-02	+1.7	930	+2.8	933
2002-03	+3.6	963	+3.4	964
2003-04	-0.2	961	+0.0	965
2004-05	+4.1	1,000	+3.7	1,000
2005-06	+4.8	1,048	+5.2	1,052
2006-07	+2.7	1,076	+2.7	1,080
2007-08	+9.7	1,181	+9.8	1,185
2008-09	+7.7	1,272	+10.9	1,314
2009-10	-2.9	1,235	-1.5	1,294
2010-11	+4.1	1,286	+3.8	1,343
2011-12	+2.3	1,315	+3.8	1,393
2012-13	+0.0	1,316	+0.7	1,403
2013-14	-0.6	1,308	-0.2	1,401
2014-15	+1.1	1,323	-0.3	1,397
2015-16	-2.1	1,295	+0.0	1,397
2016-17	-0.1	1,294	+1.1	1,412
10 years to 2016-17	+20.2		+30.8	
5 years to 2016-17	+1.6		+1.4	
3 years to 2016-17	-1.1		-0.8	
2 years to 2016-17	-2.2		+1.1	

Note: 1 Index 2004-05 = 1000.

Source: Beef + Lamb New Zealand Economic Service

4. Methodology and sources

The objective in this analysis is to isolate the price changes for the various input categories. An inflation rate (or overall price change) is then derived by weighting the price change for each individual category by its proportion of total farm expenditure. These proportions are based on a three-year moving average.

GST is excluded from the calculation of farm input price changes because this tax is recovered from farm expenditure.

This publication relies heavily on Statistics New Zealand (SNZ) Sheep and Beef Farm Expenses Price Index (FEPI) data. The March quarter data is published by SNZ in May. The SNZ data is published online at www.stats.govt.nz and is provided under the category "Business Price Indexes" (BPI) as downloadable tables.

Beef + Lamb New Zealand Economic Service Sheep and Beef Farm input prices differ from the SNZ data in three areas:

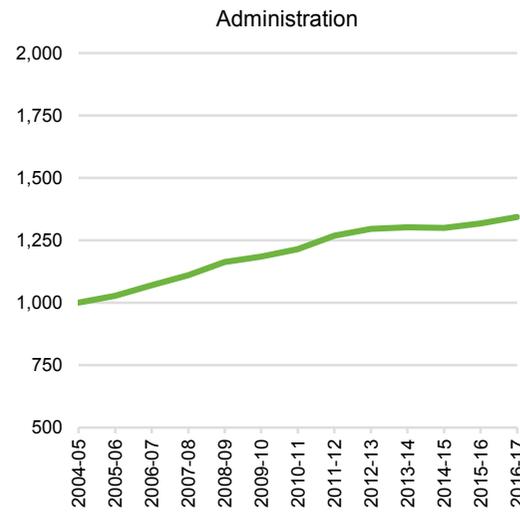
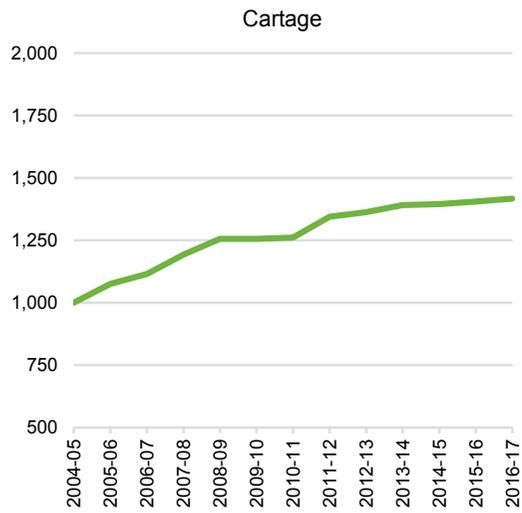
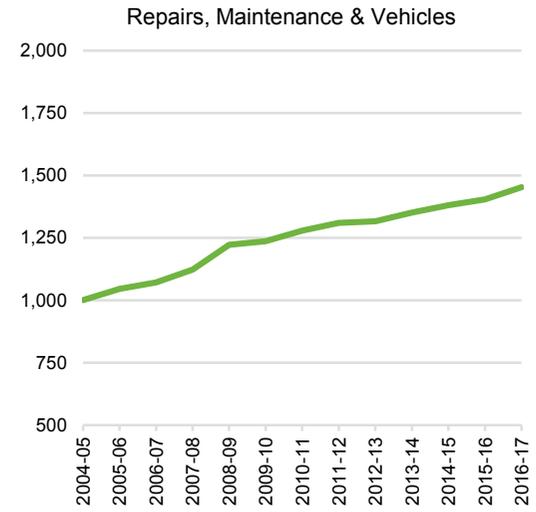
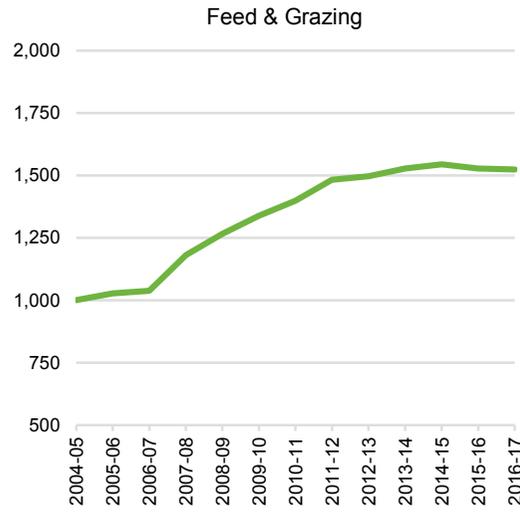
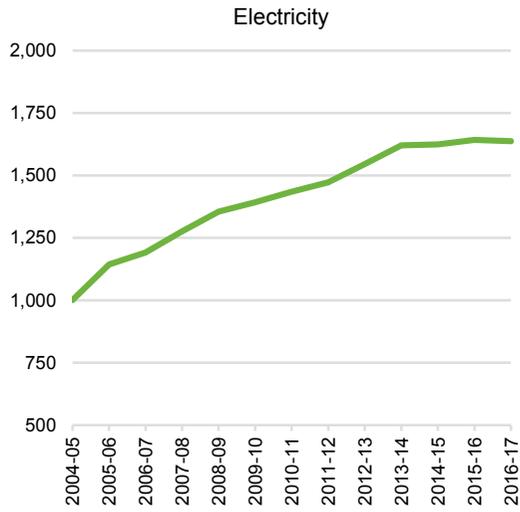
1. Interest charges are calculated independently to take account of both overdraft and mortgage interest rates, including fixed term interest, and are weighted using Beef + Lamb New Zealand Economic Service Sheep and Beef Farm Survey All Classes data.
2. Depreciation is included to measure the price changes for capital replacement. This item correctly lines up the input prices paid index with the on-farm expenditure reported by the Beef + Lamb New Zealand Economic Service Sheep and Beef Farm Survey for All Classes.
3. A three-year moving average of actual on-farm expenditure from the Sheep and Beef Farm Survey is used to weight individual categories to the single overall percentage price change for the year.

5. Appendices

Appendix 1

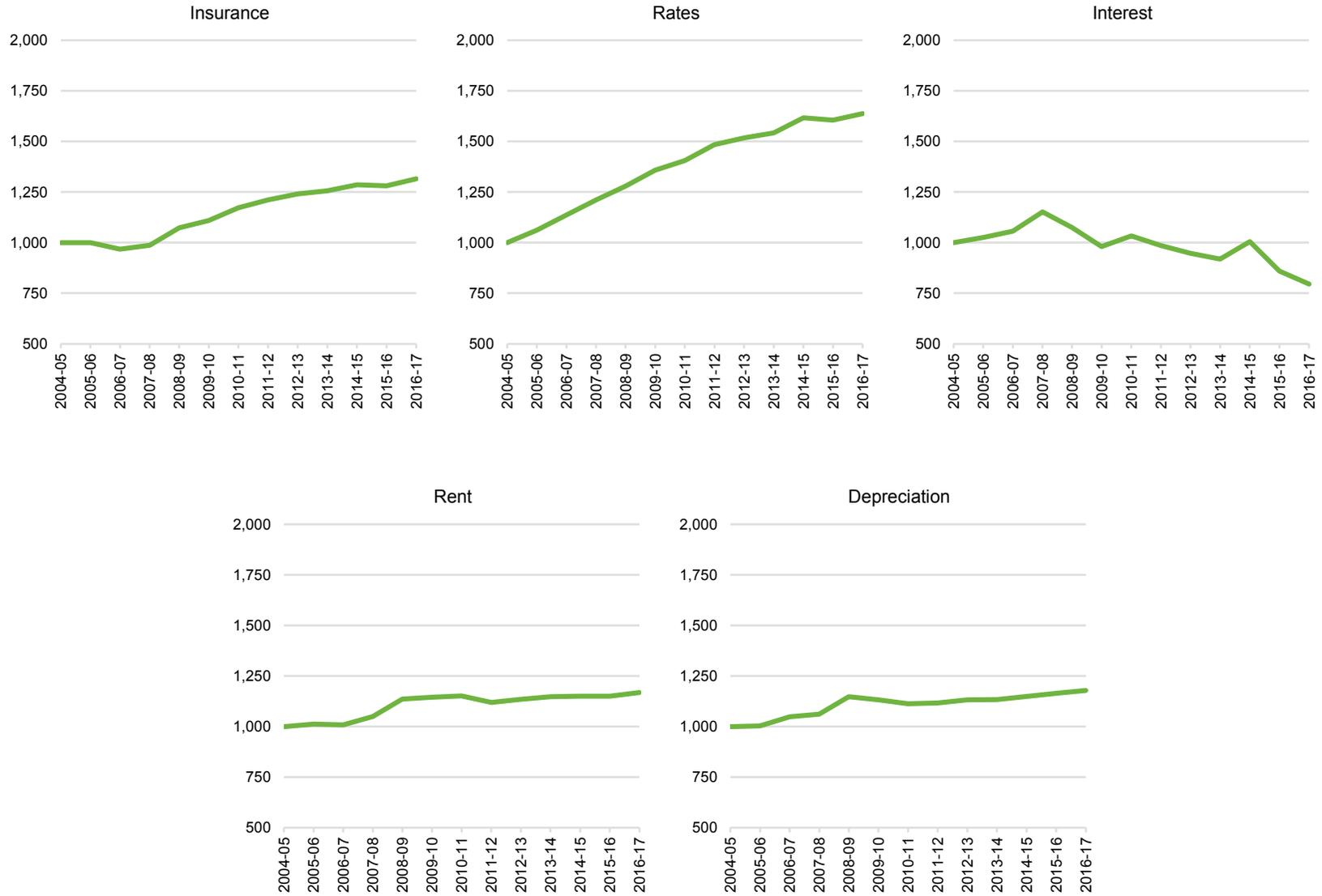
Cumulative On-Farm Inflation Indexes - Farm Working Expenses (2004-05 = 1000)





Appendix 2

Cumulative On-Farm Inflation Indexes – Standing Charges and Depreciation (2004-05 = 1000)



Appendix 3

ANNUAL PERCENTAGE CHANGES IN SHEEP AND BEEF FARM INPUT PRICES March Quarter Prices

FARM EXPENDITURE	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Wages	+2.2	+3.2	+2.3	+0.9	+1.2	+2.5	+1.6	+1.8	+2.0	+1.2	+1.3
Animal Health	+2.5	+4.2	+2.8	+2.0	+4.8	+4.3	+3.0	+2.4	+2.0	+0.3	+1.9
Weed & Pest Control	+1.8	+2.8	+5.8	-5.2	+1.7	+0.1	-1.1	-0.1	-0.6	-0.9	-1.1
Shearing Expenses	+3.2	+2.1	+14.7	+0.8	+2.1	+3.2	+1.7	+1.1	+1.8	+0.3	+1.3
Fertiliser, Lime & Seeds	+2.5	+30.0	+33.8	-16.1	+7.5	+7.0	-1.1	-6.1	-2.3	+0.6	-3.8
Fuel	+2.1	+23.5	-14.2	+9.6	+14.1	+5.4	-2.0	-2.0	-21.7	-12.7	+18.8
Electricity	+4.1	+7.2	+6.1	+2.8	+3.0	+2.6	+5.0	+4.9	+0.2	+1.1	-0.3
Feed & Grazing	+1.0	+13.7	+7.2	+5.7	+4.6	+5.9	+1.0	+2.1	+1.1	-1.1	-0.3
Repairs, Maintenance & Vehicles	+2.4	+4.8	+8.9	+1.1	+3.5	+2.4	+0.5	+2.6	+2.2	+1.7	+3.5
Cartage	+3.7	+7.0	+5.2	+0.0	+0.5	+6.6	+1.3	+2.1	+0.3	+0.7	+0.9
Administration	+4.1	+3.7	+4.8	+1.9	+2.5	+4.4	+2.1	+0.5	-0.2	+1.4	+2.0
Insurance	-3.2	+2.0	+8.7	+3.4	+5.6	+3.4	+2.4	+1.2	+2.4	-0.4	+2.7
Rates	+7.0	+6.6	+5.6	+6.2	+3.5	+5.6	+2.2	+1.6	+4.9	-0.7	+2.0
Interest	+3.1	+9.0	-6.7	-8.8	+5.4	-4.6	-3.9	-3.0	+9.4	-14.5	-7.5
Rent	-0.4	+4.0	+8.3	+0.8	+0.5	-2.7	+1.3	+1.2	+0.2	+0.0	+1.5
Depreciation	+4.5	+1.3	+8.1	-1.3	-1.7	+0.3	+1.4	+0.1	+1.4	+1.3	+1.2
On-Farm Inflation (including Interest)	+2.7	+9.7	+7.7	-2.9	+4.1	+2.3	+0.0	-0.6	+1.1	-2.1	-0.1
Underlying On-Farm Inflation (excluding Interest)	+2.7	+9.8	+10.9	-1.5	+3.8	+3.8	+0.7	-0.2	-0.3	+0.0	+1.1
Consumer Price Index (CPI)	+2.5	+3.4	+3.0	+2.0	+4.5	+1.6	+0.9	+1.5	+0.3	+0.4	+2.2

Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand

Appendix 4

PERCENTAGE ALLOCATION OF SHEEP AND BEEF FARM EXPENDITURE (JUNE YEAR)

FARM EXPENDITURE	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Wages	9.7	9.8	9.6	9.2	8.6	8.4	8.5	8.9	9.0	9.0	8.9
Animal Health	6.0	5.9	5.6	5.3	5.0	4.8	4.6	4.8	5.1	5.1	5.2
Weed & Pest Control	3.4	3.3	3.2	3.0	3.1	3.2	3.4	3.5	3.5	3.7	3.7
Shearing Expenses	6.7	6.7	6.6	6.5	5.9	5.7	5.4	5.4	5.4	5.4	5.3
Fertiliser, Lime & Seeds	16.0	15.3	14.9	14.6	15.0	15.2	16.5	17.5	17.6	17.4	17.1
Fuel	2.9	3.1	3.3	3.5	3.6	3.8	3.6	3.6	3.8	3.8	3.2
Electricity	1.2	1.3	1.3	1.2	1.0	1.0	0.9	0.9	0.9	0.9	0.9
Feed & Grazing	6.3	6.4	6.5	6.7	7.0	7.1	7.3	7.6	7.8	8.0	8.0
Repairs, Maintenance & Vehicles	12.7	12.3	11.6	10.6	10.2	10.3	10.9	11.6	11.7	11.9	12.0
Cartage	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7
Administration	3.7	3.6	3.6	3.6	3.6	3.5	3.5	3.6	3.6	3.6	3.7
Sub-Total Working Expenses	70.9	69.8	68.2	66.1	64.9	64.9	66.5	69.2	70.2	70.6	69.7
Insurance	1.5	1.5	1.4	1.4	1.5	1.6	1.7	1.8	1.9	1.9	2.0
Rates	2.8	2.3	2.9	3.0	3.0	3.1	3.1	3.1	3.0	3.0	3.1
Interest	13.2	14.2	15.7	17.8	18.8	18.6	16.9	15.1	14.5	14.2	14.0
Rent	2.2	2.8	2.4	2.6	3.0	3.1	3.1	2.9	2.9	3.0	3.4
Sub-Total Standing Charges	19.7	20.8	22.4	24.8	26.3	26.4	24.8	22.9	22.3	22.1	22.5
TOTAL CASH EXPENDITURE	90.6	90.6	90.6	90.9	91.2	91.3	91.3	92.1	92.5	92.7	92.2
Depreciation	9.4	9.4	9.4	9.1	8.8	8.7	8.6	7.8	7.5	7.3	7.8
TOTAL FARM EXPENDITURE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Beef + Lamb New Zealand Economic Service



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