Before Hearing Commissioners at Christchurch

under: the Resource Management Act 1991

in the matter of: Submissions on the Proposed Hurunui and Waiau River Regional Plan

between: **Fonterra Co-operative Group Limited**
Submitter

and: **Dairy NZ**
Submitter

and: **Canterbury Regional Council**
Local Authority

Statement of evidence of **Geoffrey Vernon Butcher** for Fonterra Co-operative Group Limited and Dairy NZ

Dated: 12 October 2012

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STATEMENT OF EVIDENCE OF GEOFFREY VERNON BUTCHER

INTRODUCTION

1 My full name is **Geoffrey Vernon Butcher**. I am a Director of Butcher Partners Ltd, an economic consulting company in Christchurch.

2 I have the following qualifications and experience relevant to the evidence I shall give:

2.1 I gained an MA (Hons) in Economics from Canterbury University in 1978, and have 30 years of experience as an economist, including periods of employment at the New Zealand Institute of Economic Research and Lincoln University where I lectured in the areas of business economics, cost benefit analysis (*CBA*) and economic impact analysis;

2.2 I have published a manual on regional economic impact analysis in New Zealand and run workshops for government and council policy analysts on how to undertake analysis and interpret results;

2.3 Over the last 20 years I have developed regional economic models for many New Zealand regions and these are used by various councils and other economic consultancies such as BERL and Infometrics;

2.4 I have undertaken numerous economic impact analyses for a wide range of industries and in a large number of regions. I have undertaken CBA and / or Economic Impact Analysis of numerous irrigation schemes including Central Otago, North Otago (Downlands), Hunter Downs, Canterbury (Central Plains), Hurunui (Hurunui Water Project) and Hawkes Bay (Ruataniwha). I have also undertaken *ex post* analysis of the economic impacts of Opuha and Waitaki irrigation schemes; and

2.5 I have appeared as an expert witness on economic impacts and economic efficiency in a number of hearings before councils, commissioners and the Environment Court on Resource Management Act (*RMA*)-related matters.

3 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise, except where I state I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

4 I am familiar with the Proposed Hurunui and Waiau River Regional Plan (*the Proposed Plan*) to which these proceedings relate, and have undertaken an Economic Impact Analysis, a CBA and an Affordability Analysis of Irrigation in Hurunui district for the Hurunui Water Project.

SCOPE OF EVIDENCE

5 My evidence will deal with the following:

5.1 The role of economics under the RMA;

5.2 The current economic role of dairying in the Hurunui District (*the Catchments)*, the Canterbury Region and nationally;

5.3 Economic growth and potential/predicted growth;

5.4 The relationship of growth with existing and new dairy investment;

5.5 CBA; and

5.6 The potential for nutrient load limits to impact on future economic development.

SUMMARY OF EVIDENCE

6 Economic analysis is relevant under the RMA in terms of section 5 (enabling the community to provide for its social and economic well being), section 7b (the efficient use and development of resources), and section 32 (efficiency and effectiveness of policies and rules).

7 Growth of the dairy industry in recent decades has been a significant source of growth in the New Zealand economy. Continued growth will provide more jobs and income to support the social and economic well-being of New Zealand communities. Increased irrigation will help support this continued growth.

8 Efficient use of resources requires decision-makers to take into account all potential costs and benefits of their decisions. In this context my evidence provides information on the degree to which increased agricultural production provides a net commercial benefit to the community. In the first instance this benefit is estimated using CBA, to give a net annual benefit. It is this benefit which needs to be compared to any social and environmental costs arising from higher nutrient loads in water, which are identified by other witnesses.

9 Additional farm production will also lead to increased employment in the district and the region. In a perfect market there is no

unemployment, and hence growth in farming employment will be at the expense of employment elsewhere in New Zealand and will not affect national employment. Likewise, in a perfect market the location of jobs has no bearing on economic and social well-being.

10 To the extent that markets are imperfect (as in the present case), and national employment will be increased by additional farm production, there will be a national benefit over and above that calculated in a financial CBA. It is for this reason that I have presented information on the likely income and employment effects on Hurunui District arising from additional farm production.

11 Even if there is no increase in national employment, the distribution of employment, and hence population, will be towards the rural and peripheral areas. This contributes significantly to the well-being of these areas by increasing the range of social and economic services that are available to the existing population (everything from sports teams to a greater range of retail, to better education and medical services). It is unlikely that the distribution of people away from larger urban centres will reduce the well-being of others in those centres. Hence rural re-population has a national benefit which is also not reflected in the CBA. This is a further reason why I have presented information on the likely income and employment effects on Hurunui District.

12 Proposed regulatory limits to nutrient loads will potentially prevent additional irrigation and farming in the Hurunui basin, and may even restrict current farming activity. I have estimated the financial benefits and the employment and income impacts of increasing farming by 5,000, 15,000 and 30,000 Ha in the Hurunui basin assuming typical farm budgets for the area and assuming a mix of land uses. I have assumed that the first 5,000 Ha of additional irrigation will be dairying, and the balance of additional irrigation will 40% dairy; 20% dairy support; 30% intensive sheep and beef and 10% arable. The assumption reflects a number of factors including the soil types and slopes of the land to be irrigated, information from farmers on the mix of land uses they think is likely[1], and discussions with Dr McCall.

13 As is shown in Table 1 below, I conclude that irrigation under the various scenarios will yield very significant financial benefits of between $140 - 500 million at a 5 % discount rate and over a 50 year life time, which in my opinion is the appropriate time frame and discount rate for a project of this sort. These values are equivalent to annual benefits of $8 - 28 million/year.

[1] Provided by the Hurunui Water Project in 2010-11.

Table 1 Summary of Economic Impacts and Benefits

	5,000 Ha		15,000 Ha		30,000 Ha	
NPV (50 years @ 5 %) ($m)		141		288		509
Annual Equivalent ($m/yr)		8		16		28
NPV (35 years @ 8 %) ($m)		59		121		213
Annual Equivalent ($m/yr)		5		10		18
District Impacts – Direct and Total						
	Direct farm	Total District	Direct farm	Total District	Direct farm	Total District
Output ($m/yr)	40	53	86	120	155	210
Employment	110	180	210	360	370	630
Value Added – GDP ($m/yr)	19	26	39	55	69	98
Household Income ($m/yr)	5	8	10	16	17	29
REGIONAL IMPACTS - TOTAL						
Output ($m/yr)	40	170	86	340	155	600
Employment	110	420	210	880	370	1,600
Value Added – GDP ($m/yr)	19	56	39	120	69	210
Household Income ($m/yr)	5	24	10	50	17	90

14 In addition to that are the additional jobs; 180 – 630 created in the district, and 420 – 1,660 jobs likely to be created in the region (including the district), depending on the scale of additional irrigation. Associated with that extra activity is an additional $26 - $98 million / year in district GDP and $56 – 210 million / yr in regional GPD, of which 30 – 45 % is household income.

ECONOMICS AND THE RMA

15 An objective of the RMA (s5) is to enable resources to be used in an efficient manner. A CBA attempts to help decision makers to decide whether a particular project is an efficient use of resources. By quantifying all costs and benefits in monetary terms, and discounting to get a Net Present Value (*NPV*), it is possible to determine the net benefits (or costs) of a proposal in today's dollars. A positive NPV means that, to the extent that all resources used and outcomes produced by the project have been valued, the project is an efficient use of resources.

16 In principle, a CBA will include not only market costs and benefits but also non-market costs and benefits such as effects on the environment. In practice it has proved extremely difficult to place reliable values on many non-market outcomes, and I am not able to provide advice on the economic benefits of influencing water quality by limiting nitrates and phosphates. The result is that the decision makers (in this case the commissioners) need to weigh up the NPV against any non-market costs and benefits not included in the CBA, and to make a decision as to whether the project is, overall, an efficient use of resources.

17 In a perfect market the generation of jobs is presumed not to constitute a net benefit because use of labour in one area (e.g. farming and support industries) will mean that it is not available for use in some project or in some other region where it would have otherwise generated similar economic impacts. However, markets are not perfect, and in times of under-employment, or in regions that will benefit from a larger economic mass, an increase in jobs will generate a social benefit over and above that implied by the commercial market analysis. Decision makers have to weigh up various non-market factors (externalities) when deciding whether expansion of irrigation will overall be an efficient use of resources, and the information I present later in this evidence on employment and income effects is relevant in this assessment.

18 The effects of increased rural employment on the local communities has been described in many reports,[2] and the information I present here on district income and employment is important when determining whether increased irrigation will enable "people and communities to provide for their social, economic and cultural wellbeing", which is part of the meaning of sustainable management (section 5(2) of the RMA). Of course the commissioners have to place this in the context of any other impacts arising from increased irrigation and farming by reference to s5(2) (a) – (c).

THE ROLE OF DAIRYING

19 In recent years dairy farming has been a significant contributor to both economic activity and economic growth. The 2001 census showed that there were 2,379 people employed in dairy farming in Canterbury. By 2006 this had increased to 3,100, which included 2,480 full time and 624 part time employees. The 2011 census was delayed, but Business Demography[3] data shows that between 2006 and 2011 the number of employees increased by an estimated 1,250 to a total of 4,350[4] people out of a total employed workforce of 252,000.

20 I estimate[5] that for every 1 person employed directly on dairy farms in 2006-07 there are a further 1.2 employed directly and indirectly in providing support services to farming businesses and the households that work on them. In addition to that there are a

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2 For example Taylor N, McClintock W, & McCrostie H. 2003.

3 Statistics New Zealand. Annual Enterprise Survey. Business Demography.

4 Statistics NZ. Business Demography. The coverage of this data set has historically not been as complete as the census, particularly with regard to agriculture. The Business Demography total in 2011 was 4,200 people. Business Demography includes only employees, and hence excludes a significant number of self-employed dairy farmers.

5 With the use or regional input-output models – see later discussion.

further 0.8 people employed in dairy factories and the businesses that directly and indirectly support them. The implication is that by 2011 there were some 12,600[6] people in Canterbury whose jobs depended directly or indirectly on dairy farming, with this number having grown by 3,750[7] since 2006. This is in contrast to the balance of the economy where the total number employed actually declined by 1,600.[8]

21 At a national level the impacts are rather different. The 2001 census showed that there were 35,000 people employed in dairy farming, but by 2006 this figure had dropped to 33,500. The Business Demography data[9] shows that from 2006 – 2011 direct employment in dairy farming increased by 3,600[10] to approximately 37,000. I estimate[11] that for every 1 person employed directly there are a further 1.6 employed directly and indirectly in providing support services to farming businesses and the households that work on them. In addition there are a further 0.9[12] people employed in dairy factories and the businesses that directly and indirectly support them. The implication is that by 2011 there were some 130,000[13] people in New Zealand whose jobs depended directly or indirectly on dairy farming, with this number having grown by 13,000 since 2006.[14] This is in contrast to the balance of the economy where the total number employed grew by only 17,000 jobs from 1,892,000 to 1,909,000.

22 These figures demonstrate the significance of dairy farming to the New Zealand economy, both in terms of absolute levels of activity and contribution to growth in the last five years.

COST BENEFIT ANALYSIS

23 I have calculated the net commercial benefits of irrigation assuming that the cost of supplying water to the farms is $9,000 / Ha, and

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6 4,200 x (1+1.2+0.8) = 12,600.

7 1,250 x (1+1.2+0.8) = 3,750.

8 From 253,800 to 252,200.

9 Statistics New Zealand. Business Demography data series.

10 From 20,900 to 24,500. There is a very large difference between the business demography figures and the census figures, reflecting the exclusion of self-employed from business demography data.

11 Market Economics, *National input output model 2006-07* (unpublished). Based on Statistics New Zealand Supply – Use tables 2006-07, and census employment data.

12 There were 4.5 jobs in dairy factories and supporting industries to process every $1 million of output from dairy farms. Production of $1 million of milk employed 5.1 people on dairy farms. So every 1 job on dairy farms drives 0.9 jobs in dairy processing and support industries.

13 37,000 x (1+1.6+0.9) = 130,000.

14 3,600 x (1+1.6+0.9) = 13,000.

that scheme operating and maintenance costs are $35 / Ha / year. There is considerable uncertainty about these costs, but they are consistent with the costs of irrigation systems which have been proposed recently.[15] [16] These costs have been converted to annual costs assuming real interest costs and scheme lifetimes. It is my view that use of a 50 year lifetime and a 5 % real cost of capital are consistent both with farmer decision making and observable real interest rates.[17]

Table 2 Costs* of Water Delivered to Farm Gate ($/ Ha/ yr)

Capital Cost / Ha	$8,000 / Ha	$9,000 / Ha	$10,000 / Ha
Real Interest 5 %; Lifetime 50 years	470	530	580
Real Interest 8 %; Lifetime 30 years	720	810	890

* Assumes $35 / Ha / yr OPEX – Hurunui Water project. See *Harris Consulting* 2012.

24 I have used dryland irrigated farm budgets and irrigated farm budgets to assess the increase in profitability per Ha of converting from dryland sheep farming to irrigated farming (after allowing for additional drawings, increased economic[18] depreciation, and a $530 / Ha cost of providing water to the farm gate). The results are shown in Table 3. The increases in farm income range from $360 / ha / year to $2,560 / Ha / year.

Table 3 Economic Surplus* by Farm Type - $/Ha/yr

	Dairy	Arable	Sheep	Dairy Support
Dryland		350	190	400
Irrigated	2,750	550	830	620
Increase**	2,560	360	640	430

* After drawings, economic depreciation[19] and an annual charge of $530[20] / Ha for water to the farm gate.

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15 Ruataniwha Plains $240 million for 25,000 Ha, Butcher Partners Ltd. 2012.

Hurunui Water Project $7,000 / Ha. Harris Resource Consulting. August 2012.

16 In the case of the first 5,000 Ha, the effective capital cost is the cost of converting existing irrigated farms from border-dyke to spray irrigation, which costs approximately $3,500 / Ha (including the NPV of increased electricity costs to run the irrigators). It is expected that between 2 and 3 Ha converted from border dyke to spray will enable one additional Ha of spray irrigation. Hence the cost of providing water via such savings is comparable to the off-farm capital costs of supplying water from new sources.

17 Farmers' decisions are consistent with discount rates of 5 % or even less; Current real rates of interest are of the order of 4 %. Treasury recommends the use of an 8 per cent discount rate. While water rights are commonly given for 35 years, the general experience and community expectation is that they will be renewed. For a discussion of the issues see NZIER *Insight* no. 32/2011.

18 Actual loss of capital value as opposed to amount allowable for tax purposes.

19 Actual loss of capital value, as opposed to amount allowable for tax purposes.

20 At a capital cost of $9,000 @ assuming a return of 5 % and a project lifetime of 50 years. Decreasing the lifetime to 35 years, and increasing the annual cost of capital to 8 % increases the annual cost to $8,000.

** Assuming land was previously dryland sheep.

Source: Farm Budgets provided by AgriBusiness Group for Hurunui Irrigation Project. See Table 11 at end of Evidence.

25 However, to gain this increase in income requires capital investment, and the total benefit needs to reflect this capital cost and the time taken between investment and on-farm returns. This cost is shown against Year 1 in Table 4 below. The Table also shows the NPV of the investment per Ha, and the annual benefit which is equivalent to this NPV after deducting the interest and write-off of capital over the project lifetime. So, for example, the increase in income from converting dryland sheep farming to irrigated dairy farming has NPV of $28,000 per Ha, assuming irrigation continues for 50 years and using a 5 per cent discount rate. This is equivalent to a net benefit of $1,500 / year after allowing for interest and depreciation on the additional investment.

Table 4 Net Present Value Benefits of Irrigation ($ / Ha)*

	Dairy	Arable	Sheep	Dairy Support	Mixed Use**
Years					
1 Investment)	-17,000	-2,900	-4,400	-2,200	-8,800
2 Increased Surplus	+ 2,560	+ 360	+ 640	+430	+ 1,340
3 +	+2,560	+ 360	+ 640	+430	+1,340
NPV 5 % 50 years	28,000	3,400	6,800	5,300	14,700
Equivalent annual	1,500	190	370	290	810
NPV 8 % 35 years	12,000	1,100	2,700	2,500	6,200
Equivalent annual	1,000	100	240	220	530

* Assuming conversion from Dryland Sheep Farming.
** Assuming 40 % dairy, 30 % sheep finishing, 20 % dairy support and 10 % arable.

26 Grossing this impact up over 5,000 Ha of dairying implies a total NPV benefit of $140 million (see first column of Table 5), assuming a 5 per cent discount rate and a 50 year lifetime, which is equivalent to $7.5 million per year.

27 Increasing the irrigated area to 15,000 Ha by adding an additional 10,000 Ha of mixed use increases the benefit by a further $147 million, or $8.1 million per year to give a total of $288 million or $16 million per year (see second column of Table 5).

28 Increasing the irrigated area to 30,000 by adding a further 15,000 Ha of mixed use increase the benefit still further to a total of $509 million or $28 million per year.

29 If it is considered that a higher discount rate / real interest rate and a shorter life are appropriate, then the figures decline as shown in the lower part of Table 5. While this higher rate is consistent with the Treasury-recommended rate for public infrastructure projects, this is not consistent with the rates of return which are accepted by

farmers in making other investment decisions, and it is not consistent with a community which is taking a long view of its interests. A 35 year lifetime may be consistent with the length of time for which a water consent is granted, but I think that most members of the community expect such a right to be renewed, and would want to base investment decisions on that expectation. For a discussion of the issues see NZIER Insight no. 32/2011.

Table 5 NPV of Increased Irrigation ($m)

	5,000 Ha	15,000 Ha	30,000 Ha
NPV 5 % 50 years	141	288	509
Equivalent annual*	8	16	28
NPV 8 % 35 years	59	121	213
Equivalent annual*	5	10	18

5,000 Ha is all dairy.
15,000 Ha is 5000 Ha dairy and 10,000 mixed use being 40 % dairy, 30 % sheep finishing, 20 % dairy support and 10 % arable.
30,000 Ha is 5000 Ha dairy and 25,000 mixed use being 40 % dairy, 30 % sheep finishing, 20 % dairy support and 10 % arable.
* After writing off all capital and interest over project life.

30 Note that these are purely commercial benefits which accrue to farmers. They do not reflect any social and community benefits which may arise as a result of increased national employment and increased employment in rural areas. The following section addresses the potential scale of these impacts.

Economic Impacts

31 Farms generate direct output, income and employment at a level which depends on the land use as shown in Table 6[21] below. The impacts are expressed in terms of jobs and value added, with one component of value added being household income. Value added[22] is the return to land, labour and capital and is equivalent to regional GDP.

Table 6 Direct Economic Impacts per 000 Ha Farmed by Land Use

	Dryland	**Irrigated**				
	Sheep	Dairy	Arable	Sheep	Dairy Support	Mixed Use*
Output ($m)	0.87	8.9	3.8	3.4	2.7	5.5
Employment	2.7	24	8.5	6.2	3.8	13.1
Value Added ($m/yr)	0.4	4.3	1.3	1.2	0.9	2.4
Household Income ($m/yr)	0.14	1.14	0.48	0.29	0.19	0.63

* See footnote Table 5.

32 Farm spending generates wider economic impacts throughout the local and regional economy as farm businesses purchase extra inputs to generate their increased income, and as farming households spend their increased household income. These impacts

[21] Source: Table 11. Budgets from S Ford, The Agribusiness Group.

[22] From an accounting perspective it can be thought of as EBITDA plus wages and salaries.

occur first in the industries which provide goods and services to farm businesses and their employees, but further ripples of spending spread the impacts more widely. There may also be flow-on effects through additional processing of meat, milk and process crops.[23]

33 These impacts, commonly called multiplier effects, can be calculated by incorporating farm and household spending patterns into a district and a regional input output model to estimate the total district and regional economic impacts.[24]

Table 7 Total Hurunui District Economic Impacts per 000 Ha Farmed by Land Use

	Dryland	**Irrigated**				
	Sheep	Dairy	Arable	Sheep	Dairy Support	Mixed Use*
Output ($m)	1.1	11.7	5.5	5.0	4.2	7.5
Employment	4.2	39	14	12	8.8	22
Value Added ($m/yr)	0.5	5.7	2.1	1.9	1.6	3.4
Household Income ($m/yr)	0.20	1.8	0.81	0.58	0.46	1.1

* See footnote Table 5.

34 Ex post analysis[25] of irrigation schemes suggests that the impacts in rural communities will be realised in fact as well as in theory. Whether there is an overall increase in total regional or national employment is related more to the status of the wider employment market at the time.

35 Effects at the regional level are significantly larger. Not only is there a significantly larger economic base to supply a greater proportion of farm and household inputs but increased meat and milk production is expected to be processed within the region.

Table 8 Total Canterbury Region Economic Impacts per 000 Ha Farmed by Land Use

	Dryland	**Irrigated**				
	Sheep	Dairy	Arable	Sheep	Dairy Support	Mixed Use*
Output ($m)	4.3	39	9.9	16.8	5.2	21
Employment	15	100	31	52	14	60
Value Added ($m/yr)	1.7	13	3.8	6.3	2.1	7.6
Household Income ($m/yr)	0.8	5.6	1.8	2.9	0.8	3.4

[23] See for example Harris *et al* 2003 See also Butcher Ford 2003.

[24] Hurunui district and Canterbury region economic models were generated for this analysis, and the farm budgets shown in Table 11 were incorporated into them to estimate total impacts.

[25] E.g. Butcher and Ford 2003. Comparison of Economic Impacts of farming on South banks of Waitaki River (with community irrigation scheme) and Rangitata River (no community irrigation scheme).

* See footnote Table 5.

36 Total net economic impacts over 5,000, 15,000 and 30,000 Ha are calculated by deducting the impacts of existing dryland farming on the area being converted to irrigation, and adding the impacts of increased irrigated farming on that area. As is shown in Table 9, irrigation of an additional 5,000 Ha could increase employment opportunities in the district by 180 jobs, and in the region by more than 600 jobs (see Table 10), assuming all the extra land is used for dairying.

Table 9 Total Hurunui District Economic Impacts for various Increases in Irrigated Area

	5,000 Ha		**15,000 Ha**		**30,000 Ha**	
	Direct farm	Total District	Direct farm	Total District	Direct farm	Total District
Output ($m)	40	53	86	120	155	210
Employment	110	180	210	360	370	630
Value Added ($m/yr)	19	26	39	55	69	98
Household Income ($m/yr)	5	8	10	16	17	29

* See footnote Table 5.

37 If an extra 30,000 Ha is irrigated, employment in the district could increase by more than 600 jobs, and in the region by up to 2,400 jobs.

Table 10 Total Canterbury Economic Impacts for various Increases in Irrigated Area

	5,000 Ha		**15,000 Ha**		**30,000 Ha**	
	Direct farm	Total Region	Direct farm	Total Region	Direct farm	Total Region
Output ($m)	40	170	86	340	155	600
Employment	110	420	210	880	370	1,600
Value Added ($m/yr)	19	56	39	120	69	210
Household Income ($m/yr)	5	24	10	50	17	90

ECONOMIC IMPACT ANALYSIS, AND THE POTENTIAL EFFECTS OF LIMITING NUTRIENT LOADS

38 My understanding based on the evidence of Dr McCall and Ms Hayward for Fonterra and DairyNZ and Mr Norton for Environment Council, is that limiting maximum in-river nutrient loads could significantly limit the level of new irrigated farming that could be undertaken in the Hurunui Basin.

39 In deciding what maximum levels should be accepted, the effects of these limits on pure commercial benefits need to be taken into account (noting that a significant proportion of these benefits accrues to central government via taxes on profits and that there

are also significant effects on local government income). The effects on district and regional household income and employment also need to be taken into account.

40 I caution that the economic impacts I have estimated and reported here are potential impacts and should be seen as upper limits to the net impacts that will occur in fact. The actual net impacts will depend on the degree to which these new jobs substitute for other jobs that would otherwise be created elsewhere in the district and regional economy. Nonetheless, I expect that at a district level in particular, these impacts are a realistic indication of what will come to pass.

CONCLUSIONS

41 Irrigation has very substantial economic benefits to farmers measured in financial terms. Irrigation also generates very substantial opportunities for increased employment and income in Hurunui district and Canterbury region, and this is likely to be seen as an economic benefit. The benefit is not only to those who gain additional employment and income, but also to those in smaller rural communities who enjoy the benefits of an increased social and economic base.

42 Irrigation of an additional 30,000 Ha could generate up to 370 on-farm jobs and 630 jobs in total in Hurunui District, and 1,600 jobs in total in Canterbury (including Hurunui).

43 The Resource Management Act requires that these benefits be weighed up against any potential costs in deciding whether increased irrigation and farming is an efficient use of resources and enables the community to provide for its social, economic and cultural wellbeing while meeting the requirements of s5(2)(a) – (c).

Table 11 Farm Budgets per 1,000 Ha

		Irrigated			Dryland
	Dairy	**Arable**	**Sheep**	**Dairy Support**	**Sheep**
GROSS FARM REVENUE	8,893,183	3,758,000	3,361,232	2,664,750	872,875
FARM WORKING EXPENSES					
Livestock Purchases	26,736	335,167	425,000	-	85,041
Wages	922,405	168,000	155,410	50,000	36,073
Animal Health	253,995	14,000	72,395	45,000	30,121
Breeding	133,682	-	-	-	-
Shed Expenses	66,841	-	-	-	-
Electricity	294,100	96,000	52,887	40,000	22,004
Feed	1,818,073	32,000	110,759	400,000	22,996
Fertiliser	681,777	372,000	236,258	236,000	75,753
Freight	26,736	66,000	46,385	13,000	9,018
Seeds	40,105	101,000	54,188	54,000	22,545
Shearing	-	15,000	114,661	-	47,706
Weed and Pest	26,736	315,000	62,424	62,000	25,972
Fuel	106,945	98,000	74,129	45,000	30,842
Vehicle	120,314	75,000	62,641	38,000	26,063
Repairs & Maint	280,732	116,000	108,158	108,000	37,876
Rates	68,000	40,000	19,000	19,000	12,000
Communication	24,000	13,000	10,000	10,000	5,000
Insurance	56,000	46,000	18,000	12,000	9,000
Acct, Legal,Cons	49,000	30,000	13,000	13,000	11,000
Administration	53,000	15,000	6,000	6,000	4,000
Other	50,000	60,000	4,000	4,000	2,000
Irrigation - Water Charges	283,831	527,991	527,991	527,991	-
Other	120,000	120,000	120,000	120,000	-
	-	-	-	-	-
CASH FARM EXPENDITURE	5,503,008	2,655,157	2,293,283	1,802,991	515,012
CASH FARM SURPLUS	3,390,175	1,102,843	1,067,950	861,759	357,863
Drawings	278,723	319,048	147,425	147,425	103,198
Depreciation	88,714	235,000	95,000	95,000	65,000
FTEs	24	8	6	4	3
Operating Surplus	3,022,737	548,795	825,524	619,334	189,665

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