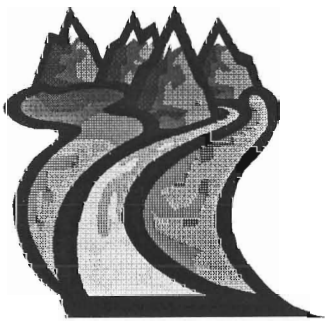
Polson, Ross (1997)

The on farm costs and returns of irrigation development

KELLOGG RURAL LEADERSHIP PROGRAMME

Report on

THE ON FARM COSTS AND RETURNS OF IRRIGATION DEVELOPMENT



Prepared by

Ross Polson

1997

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Acknowledgements

- K.B's Irrigation Services, Ashburton
- Rangitata Diversion Race Management

Summary

Context and Aim

This Report aims to analyse the "on farm" costs and returns of a Proposed Irrigation Development in Mid Canterbury.

The Land and Area is recognised as being suitable for irrigation development.

Approach

Two detailed On Farm Development Programmes are cash flowed over a three-year programme using a case study property of 200 hectares (total).

These Financial Projections are compared with the status quo as well as some other alternatives (being the purchase of additional dryland plus the effect of converting the irrigated land to dairy).

Irrigation in Mid Canterbury

Mid Canterbury has a long history of irrigation dating back to the 1930's when the Rangitata Diversion Race (RDR) was first formed.

The Irrigation Development, which has stemmed from the RDR plus the use of underground wells, puts Mid Canterbury at the leading edge of irrigation knowledge for New Zealand.

There is a proven infrastructure for irrigation development plus an excellent knowledge of how farmers can use irrigation as a profitable economic tool.

There is a trust between farmers and irrigation scheme administrators.

As well there is a trust of irrigation from the financial institutions.

Case Study

Analysis of Development Programme

Table 1

(i) Shows the Increase in the Economic Farm Surplus (E.F.S) with selected options.

(ii) Against this increase in E.F.S. is an associated increase in term debt due to development.

(iii) Shows the effect of the additional interest cost and any + or - of plant purchase compared with the increase in E.F.S.

Table 1

	Dryland Status Quo	**Irrigated 60% Arable 40% Stock**	**Irrigated Arable**	**Dairy Conversion**
*Economic Farm Surplus E.F.S./ha	$115,600 ($578/ha)	$159,200 ($796/ha)	$180,350 ($902/ha)	$269,000 ($1345/ha)
(i) Increase in E.F.S. Over Status Quo p.a.		$43,600	$64,750	$153,400
(ii) Increase in Term Debt Over Status Quo		$332,000	$350,000	$1,470,000
Increase in E.F.S. Increase in term debt as %		13%	18.5%	10.4%
(iii) Net Return over Status Quo after the additional interest & plant		$10,500	$20,000	$19,700

*E.F.S. Total Farm Income less Total Farm Costs = E.F.S.

Irrigation Development

Under irrigation the majority of the existing successful dryland farmers would simply have to intensify their existing farming systems. This would predominantly be a balance of crop/stock or total arable.

As per Table 1 the increase in their E.F.S. compared with the increase in Term Debt (due to development) results in a healthy % ratio of 13 % to 18.5% return.

The additional Net return in total money terms after allowing for additional interest is reduced to $10,000 - $20,000 p.a.

While this is not a lot of money cf total turnover it is the writers opinion that the financial gain and reliability of income from irrigation are sufficient factors for the majority of successful dryland farmers to consider and implement irrigation development.

Ability to Borrow Funds for Irrigation Development

Due to recent land purchase the case study property has a higher than district average debt loading. Even though term debts are extended to over 50% of land asset with irrigation development, many financial institutions would view the irrigation development to have a lower risk than the alternate dryland farming.

It is the writer's opinion that the large majority of dryland farmers would be in a financial position to be able to raise funds for irrigation development.

Cost of Irrigation Water

The water cost used throughout the report is $30/ha p.a. for OFF farm works, plus $10 p.a./1000 m3 of water/ha

On present costs and returns, it is the writer's opinion that farmers will view this figure to be near the maximum that they are prepared to pay.

2.

Introduction

A major irrigation scheme is being proposed in Mid Canterbury.

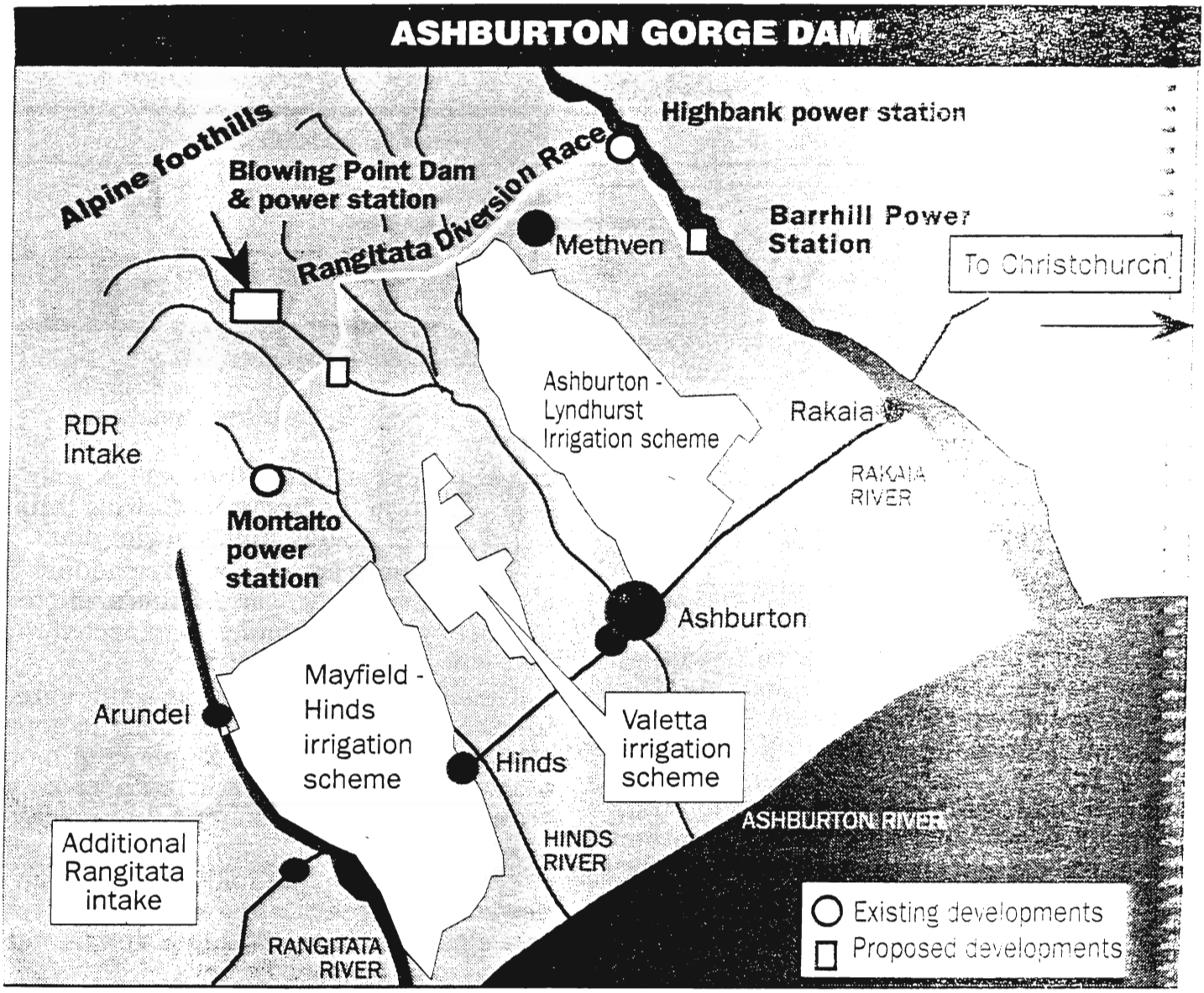
The purpose of this report is to investigate the on farm financial costs and returns of an irrigation development programme using a case study property.

The report makes no attempt to measure actual return on capital

Opinions and comments throughout the report refer to both the case study property and the area in general.

The case study property is in an area where the underground water is very deep (approx. 100 metres) and relatively unproven.

The soil type and climate in this area is very similar to the Pendarves area, which has been successfully irrigated for a number of years.


ASHBURTON GORGE DAM
Alpine foothills
Blowing Point Dam & power station
Rangitata Diversion Race
Highbank power station
Methven
Barrhill Power Station
To Christchurch
Ashburton - Lyndhurst Irrigation scheme
Rakaia
RAKAIA RIVER
RDR Intake
Montalto power station
Ashburton
Mayfield - Hinds irrigation scheme
Arundel
Hinds
Valetta irrigation scheme
ASHBURTON RIVER
HINDS RIVER
Additional Rangitata intake
RANGITATA RIVER
Existing developments
Proposed developments

3.

History of
Irrigation in Mid Canterbury

The Rangitata Diversion Race (RDR) was built in the 1930's.

The aim was to harness water from the Rangitata and Ashburton Rivers for irrigation and power generation.

The RDR is 67 kms in length and irrigates 69,000 ha (33% of Mid Canterbury). The schemes water right is based on 230 litres/sec (8 cusecs) for 12 hours/week/40 hectares.

Water supplied to the RDR can be restricted or cut completely when the Rivers reach a minimum flow. (Conservation requirement)

The RDR also generates power at the Montalto and Highbank Dam sites before the water spills into the Rakaia River

The ownership of the RDR is now

3/8 Farmer Co-ops of the 3 irrigation schemes
3/8 Electricity Corporation
1/8 Ashburton District Council
1/8 Electricity Ashburton

Other Irrigation

In addition to the RDR approx. 60,000 ha are irrigated by wells, streams, dams and ditches. Wells varying in depth from a few metres below the ground to in excess of 100m.

Types of Irrigation

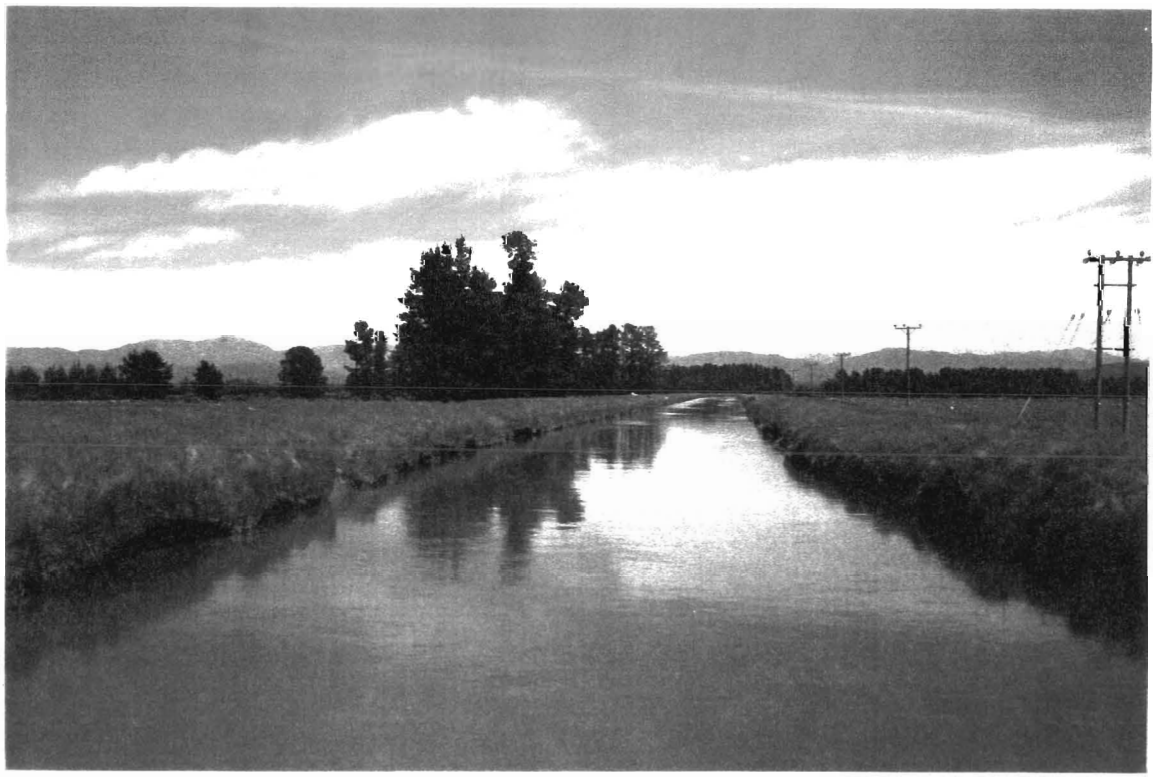
Water supplied from the RDR is largely used with Border Dyke Irrigation while water from other sources is largely used via spray irrigation.

Key Issues

There is locally a lot of information and infrastructure regarding the design and installation of irrigation equipment.

There is also a high degree of farmer knowledge and experience in using irrigation for the differing stock and arable systems.

Essentially there is a trust in the irrigation schemes between the farmers and the administrators for both efficient ongoing running of the schemes plus the supply of water.



RDR supplying Irrigation water to 69,000 ha within Mid Canterbury

4.

New Irrigation Proposal

To create a new 585 ha lake in the Ashburton Gorge storing waters from the spring snowmelt

The projected cost is estimated at $98 million.

Goals of the New Scheme

(i) To build two new power generation dams

(ii) To provide more reliable water for the existing 69,000 ha of irrigated land

(iii) To provide a further 20,000 ha with irrigation water

It has been estimated that for this scheme to be financially viable all three goals must be implemented.

One of the many supply races which take water from the RDR to the farmers property

5.

Case Study of an Irrigation Development Programme

5(1) Present Farming System

Case study dryland property located at Rokeby 200 hectares in total. Hatfield Silt Loam soil type.

Average rainfall approx. 700 mm p.a. with 400 mm falling between October to March.

The area is subject to high evapotranspiration through the October to March period.

The property is predominantly cropped (80-90%) with the balance in pasture for a capital ewe flock. Trading lambs for winter and early spring sale are also carried.

The case study looks at comparing two development programmes with the status quo.

The development programmes are base on

(i) Total irrigation and operating as a 100% Arable unit with trading stock

(ii) Total irrigation – incorporating a capital ewe flock plus crop

It is the writer's opinion that these systems would be the most likely to be carried by the existing farmers under irrigation.

Product Prices

Product prices used for cashflows are in line with what is expected for 1997/98.

These prices are lower than the preceding 2 years especially with regards to the cereal prices.

5(2) Irrigation Development Costs

(i) Off Farm Works

The farmer will be provided water at the farmer's gate and the deliver system will be installed and owned by the Irrigation Society.

The farmer in turn will be charged an annual charge for "off farm works".

This fee is estimated to be a maximum of $30/hectare.

(ii) Annual Water Charges

In addition to the above "off farm works" the farmer will also pay an annual water charge.

Estimated at $10/1000 m3 of water/ha

On this basis the likely range of annual water charges would be:

Case study property	$50/ha p.a.
Better soil types	$30/ha p.a.
Dairy farm	$80/ha p.a.

(iii) On farm Irrigation Development

200 ha property (assumed shape of the property allows for Ringmain Mainline incorporating the total area.

Likely costing:

Pond and Lining	$5,000	
Electricity 3 Phase say	$10,000	
Pump Unit	$15,000	
Mainline & Installation	$100,000	
Travelling irrigators	$110,000	
	$250,000	(1,250/ha)

Approx. Irrigation Cycles

Either 50mm/ha doing 5 ha/irrigator/day being a 20 day return period (22 hour runs)

Or 25mm/ha doing 10 ha/irrigator/day being a 10 day return period (11 hour runs)

(iv) ADDITIONAL ON FARM DEVELOPMENT COSTS

- most properties will require changes to fencing, shelter, access realignment and water supply.
- additional labour will be required
- if cropping emphasis is maintained then bigger machinery may eventually be required for header capacity plus the condensing of crop sown times.
- increased storage capacity plus the possibility of drying facilities

These additional developments can take a number of years to complete after the initial irrigation development.

5(3) Estimated Financial Returns from Irrigation Development

100% ARABLE

(i) Three year Development Programme (Total Irrigation – 100% Arable)

Based on additional borrowings of

Irrigation Costs	$250,000
Plants, Silo's etc	$100,000
Increase in Term Borrowings	$350,000

Table 2 (refer to Appendix I)

The farming system used is 100% arable using traditional crops and winter trading stock.

	Status Quo Year 1	Year 2	Year 3
Total Farm Income (net of stock purchase)	262,100	318,000	433,850
Less farm costs Includes water charges	146,500 (56%)	227,000	253,500 (58%)
Equals Economic Farm Surplus (E.F.S.)	115,600	91,000	180,350
EFS/ha	($578/ha)		($900/ha)
Term *(9%) and seasonal costs *(12%)	47,300	71,400	82,000
Plant requirement	14,000	18,000	24,000
Balance for living, tax surplus	$54,300	**$1600	$74,300

**before increase in produce on hand of $123,000 from opening to closing

- Interest costs used throughout the report
  - 9% Term Debt
  - 12% Seasonal Debt

60% ARABLE, 40% STOCK

(ii) Three year development Programme

(Total Irrigation – 60% Crop, 40% Stock)

Based on additional Borrowings of:

Irrigation Costs	$250,000
Additional Sheep	$ 82,000
Increase in term borrowings	$332,000

Table 3 (refer to Appendix II)

	Status Quo Year 1	**Year 2**	**Year 3**
Total Farm Income (net of stock purchase)	262,100	308,600	345,800
Less farm costs Includes water charges	146,500 (56%)	180,100	186,600 (54%)
Equals Economic Farm Surplus (EFS)	115,600	128,500	159,200
EFS/ha	($578/ha)	($643/ha)	($796/ha)
Less Debts Term (9%) and seasonal cost (12%)	47,300	73,200	80,400
Plant requirement	14,000	14,000	14,000
Balance for living, tax surplus	$54,300	$41,300	$64,800

5 (4) Estimation of Borrowing Ability

BORROWING ABILITY

(i) STATUS QUO

Assets	Land 200ha @ $5,800/ha	$1,160,000
	Stock & Plant	$ 217,000
	Produce on Hand	$ 188,000
	Total Assets	$1,565,000
Less		
Debts	Existing Term	$ 470,000
	Seasonal Opening OD*	$ 78,000
	Total Debts	$ 548,000
	Net Equity	$1,107,000

* In this particular instance opening debt is peak debt for the season.

Ratios

-	Total Debt to Total Assets	35%
-	Term Debt to Land Assets	40%
-	Interest as a % to total income (net of stock purchase)	18%

BORROWING ABILITY

(ii) TOTAL IRRIGATION (100% ARABLE)

Assets (as at start of Year 3)

Land 200 ha @ $7,500/ha	$1,500,000		
Stock & Plant	$ 287,000		
Produce on Hand	$ 311,000		
Total Assets	$2,098,000		

Less

Debts

Existing Term	$ 470,000	)	
Irrigation Costs	$ 250,000	)	$802,000 total
Additional Stock	$ 100,000	)	term debt
Seasonal Opening OD	$ 145,000		
Total Debts	$ 965,000		
Net Equity	$1,033,000		

Ratios

- Total Debt to Total Assets	46%
- Term Debt to Land Assets	55%
- Interest as a % to total income (net of stock purchase)	19%

BORROWING ABILITY

(iii) TOTAL IRRIGATION – (60% ARABLE/40% STOCK)

Assets (as at start of Year Three)			
Land 200 ha $7,500	$1,500,000		
Stock & Plant	$ 252,000		
Produce on Hand	$ 188,000		
Total Assets	$1,940,000		
Less			
Debts			
Existing Term	$ 470,000	)	
Irrigation Costs	$ 250,000	)	$820,000 total
Additional Plant	$ 82,000	)	term debt
Seasonal Opening OD	$ 105,000		
Total Debts	$ 907,000		
Net Equity	$1,033,000		

Ratios

- Total Debt to Total Assets 47%
- Term Debt to Land Assets 53%
- Interest as a % to total Income(net of stock purchase) 23%

5(5) Comments regarding Irrigation Development

The financial rewards associated with the Irrigation Development (Table 2 & 3) are estimated to be an additional $10 – 20,000 p.a. for the case study property.

While these sums are not large they are in effect substantially greater than the Status Quo budget surplus.

There is potential for additional returns on top of these figures as irrigation will give more options and reliability.

As the Status Quo this particular property has been making some financial improvement in recent seasons ($10-15,000 bracket after all outgoings).

With recent land purchase debts have increased to a level which would now be higher than district average being 40% of Land Asset, however, the management ability is very high.

Due to the properties location and soil type the reliability of a productive season is reasonable but every now and then drought will severely limit production and some droughts are so severe that major financial losses can be incurred (e.g. 1988/89)

As well as the economic loss in drought seasons, some people find that the mental strain and worry associated with drought are very difficult to cope with.

Farmers largely regard irrigation as providing a more reliable farming system even with the risk associated with increased borrowings.

This reliability factor is definitely one of the major motivations for farmers to take on irrigation development.

Irrigation development over the years has lead to an intensification of land use and some of this intensification resulted in the farmer grappling with a farming system that he was unfamiliar with, e.g. dryland sheep to irrigated intensive cropping.

Often this step up with intensification caused management and production problems for the first few years of a farmer's irrigation development programme.

The advantage for properties like the case study farm is that the step up to intensification with irrigation is not so great, as the existing practices and knowledge required is very close to what an irrigated arable farm would require. The small changes required would be slightly higher farm inputs plus, obviously, coming to grips with the irrigation scheduling.

A wider range of crops can be grown under irrigation but the farmer need not be reliant on new crops in the first few years of development.

5(6) Comments regarding borrowing ability

This property has had a good rapport with its Bank over the years.

The proposal has a reasonable risk in the fact that term debt will be around 55% of estimated land value, however, the risks of doing nothing and staying as a relatively small dryland arable unit are also quite high.

The proposed debt would be higher than the district average but it would be my opinion that due to a good personal factor the Bank would approve the development loan.

The bank in some ways would be reducing its risk by the property's increased reliability of income.

6. Other Alternatives

6(1) Instead of irrigation invest the same funds into additional land (dry land).

6(2) Dairy conversion (assuming low DDT levels).

6(3) Dairy conversion and employ a sharemilker.

6(1) ADDITIONAL LAND

(i) BASED ON ADDITIONAL BORROWINGS OF:

50 ha @ $5,800/ha	$290,000
Costs	$ 10,000
Plant upgrade	$ 50,000
Increase in term borrowings	$350,000

(ii) ECONOMIC FARM SURPLUS

Total farm income	$327,600
(net of stock purchase)	
Less farm costs	$177,500
Equals E.F.S	$150,000
E.F.S./ha	($600/ha)
Less debt servicing	$ 80,500
Plant requirement	$ 19,000
Balance for living, tax, surplus	**$ 50,500**

(iii) BORROWING ABILITY

Assets 250 ha @ $5,800/ha	$1,450,000		
Stock & Plant	$ 267,000		
Produce on Hand	$ 188,000		
Total Assets	$1,905,000		
Less debts			
Existing term	$ 470,000	)	$820,000 Term Debt
Increased debt	$ 350,000	)	
Seasonal Opening OD, say	$ 78,000		
Total Debts	$ 898,000		
Net Equity	**$1,007,000**		

Ratios

- Total debt to total assets 47%
- Term debt to land assets 57%
- Interest as a % to total income (net of stock purchase) 25%

(iv) ADDITIONAL LAND AS AN ALTERNATIVE

To analyse the investment of additional land the S.F./ha ($600/ha) is assumed to be slightly better than the status quo E.F.S./ha ($578/ha). This slight gain is assumed through Economics of Scale.

The case study property has a reasonably high debt to land asset ratio (40%) and with the purchase of additional land this increases to 57%.

In my opinion the risk of borrowing to this level on a dryland arable unit would be a higher risk than the irrigation alternative.

The payability of the additional land appears to be slightly worse than the status quo.

6(2) DAIRY CONVERSION

(i) BASED ON ADDITIONAL BORROWINGS OF:

	Irrigation (3 irrigators)		$ 300,000
	Plant		$ 100,000
	Stock 560 cows	@ $700	$ 390,000
	150 heifers	@ $500	$ 75,000
	Bulls		$ 5,000
	Dairy Company & Board Shares		
	190,000 kgs milk solids	@ $2.15	$ 410,000
	Conversion costs ($2,500/ha)		$ 500,000
		Total	$1,780,000
Less	SALE OF:		
	Arable plant	$140,000	
	Sheep	$ 32,000	
	Store lambs	$ 47,000	
	Crop on hand	$ 94,000	- (Total amount $188,000, say 50% required for seasonal, balance as debt reduction)
	Sales & Realisation	$313,000	$ 313,000
	Increase in term borrowings		**$1,470,000**

ECONOMIC FARM SURPLUS

(ii) DAIRY CONVERSION

Total Farm Income		
190,000 kgs MS @ $3.20/kg and cull stock		$ 640,000
less	Farm Costs (58%)	$ 371,000
Equals	E.F.S.	$ 269,000
	F.S./ha	($1,345)
Less	Debt Servicing Existing & Additional $47,000 + $138,000	*$ 185,000
Plant requirement		$ 10,000
Balance for living, tax, surplus		**$ 74,000**

* Includes an allowance for additional seasonal interest.

(iii) BORROWING ABILITY

Assets		
	Land 200 ha/ @ $12,000ha	$2,400,000
	(including shares)	
	Stock & Plant	$ 570,000
	Produce	$ 94,000
	Total Assets	$3,064,000
Less	Debts	
	Existing term	$ 470,000
	Increased debt	$1,470,000
	Seasonal Opening, say	$ 80,000
	Total Debts	$2,020,000
	Net Equity	**$1,044,000**

Ratios

- Total debt to total assets 66%
- Term debt to land assets 81%
- Interest as a % to total income 29%

6(3) Dairy Conversion & Employ a Sharemilker.

(i) BASED ON ADDITIONAL BORROWINGS OF:

	Irrigation		$ 300,000	
	Dairy Company shares		$ 410,000	
	*Conversion costs		$ 500,000	
	Total		$1,210,000	
Less	Sale of			
	Arable plant	$140,000		
	Sheep	$ 32,000		
	Store lambs	$ 47,000		
	Crop on hand	$131,000		- (Total amount $188,000 say 30% required for seasonal balance as debt reduction)
	Sales & Realisation	$350,000	$ 350,000	
	Increase in term borrowings		**$ 860,000**	

*Could be additional housing required on top of this figure.

(ii) ECONOMIC FARM SURPLUS

(OWNERS SHARE)

Total Farm Income	$ 304,000
less Farm Costs (48%)	$ 146,000
Equals EFS	$ 158,000
EFS/ha	($790/ha)
Less Debt Servicing	
Existing & Additional	
$47,000 + $80,000	$ 127,000
Balance for living, tax, surplus	**$ 31,000**

(iii) BORROWING ABILITY

Assets		
	Land 200ha @ $12,000/ha	$2,400,000
	(including shares)	
	Produce	$ 57,000
	Total Assets	$2,457,000
Less	Debts	
	Existing Term	$ 470,000
	Increased debt	$ 860,000
	Seasonal, say	$ 80,000
	Total Debts	$1,410,000
	Net Equity	**$1,047,000**

Ratios

-	Total debt to total assets	57%
-	Term debt to land assets	55%
-	Interest as a% to total income	42%

6(4) DAIRY CONVERSION AS AN ALTERNATIVE

Realistically the dairy conversion alternative in the initial years of irrigation development looks to be a remote possibility for the majority of existing arable/stock farmers.

Nevertheless irrigation allows suitable properties the alternative of dairying in the future.

Initially, some properties could sell to intending dairy farmers while others on low indebted properties could look at the alternative of dairy conversion and employing a sharemilker.

The dairying alternatives for a property similar to the case study property (200ha) would appear to need ingoing equity in excess of $1.5 million to give the proposal a reasonable chance of success.

APPENDIX I

Arable Farming System

Cashflows for:

Year 1 - Status Quo

Year 2 - Development Stage

Year 3 - Total Irrigation

IRRIGATION PROJECT

STATUS QUO

ESTIMATES FOR PERIOD..... Year 1

NAME	**Status Quo**	**AREA**	**200 ha**
ADDRESS		**Tenure**	

Advisor *RossPolson* *Date Completed* 20/08/97

Lambing% 140% 700 For Sale 700

Calving%

Cattle			
Breeding Cows			
RSG 2yr heifers			
RSG 1yr heifers			
Steers			
Calves			
Total	0	0	

Sheep		Open	Close
Breeding ewes		500	500
Ewe hoggets			
Male hoggets			
Rams			
Total	500	500	

CROP	**HA**	**YIELD**		**$/t kg**	**TOTAL $**
Wheat	57.0	4.5	257	265.0	67973
Barley	34.0	4.5	153	220.0	33660
Peas	27.0	3.2	86	520.0	44928
Rgrass	6.0	800.0	4800	1.5	7200
Clover	43.2	275.0	11880	4.1	48708
			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
Crop area	*167.2*		*Total Crop Income*		*202469*

WOOL		**Kgs/H**	**TOTAL**
500	Ewes @	4.2	2100
	Ewes@		0
	2nd Shear		0
	Hoggets		0
800	Lambs	1.2	960
	Total	Kgs	3060
	AT	$/kg	3

STOCK SALES			$
Ewes	80	30	2400
			0
Lambs	700	50	35000
Lambs			0
Lambs	1170	53	62010
Cattle			0
			0

Deaths Cattle..... Sheep.....

	INCOME	**T/KGS**	**TOTAL**	**Open POH**	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	**Close POH**	
2400	Ewes		2400								2400							
0	0		0															
35000	Lambs		35000								4000	7000	7000	7000	6000	4000		
62010	Store Lambs		62010			6000	6000	41500	5000							3510		
0	Cattle		0															
0	0		0															
9180	Wool	3060	9180	4600	4600						6300					2880		
			0															
67973	Wheat	256.5	67973	77500	7500		2000	8000	10000	10000	10000	10000	20000				67973	
33660	Barley	153	33660	37000					10000	10000	10000	7000					33660	
44928	Peas	86.4	44928	17000			17000									14428	30500	
7200	Rgrass	4800	7200														7200	
48708	Clover	11880	48708	42000	22000			20000									48708	
0	0	0	0	4000									4000					
0	0	0	0	6000					3000	3000								
0	0	0																
0	0	0	0															
311059	**TOTAL INCOME**		311059	188100	34100	6000	25000	69500	28000	23000	32700	24000	31000	7000	6000	24818	188041	
	Adjust + - stocks on hand		59															
	ACTUAL CASH INCOME		311118															

	EXPENDITURE		TOTAL		MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL		
7000	Ewes	100@70	7000												7000			
41300	Lambs	1180@35	41300											13000	15300	13000		
700	Rams		700									700						
	Cattle		0															
			0															
12000	Wages		12000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
3000	Animal health		3000				500	500		500		500		500		500		
6000	Heading Dressing		6000			1500	1500	1000								2000		
1000	Contract		1000			500									500			
	General		0															
2000	Power		2000		200	200	200	200	200	200	200	100	100	100	100	200		
1000	Stock Food		1000												1000			
6000	Freight		6000		500	500	500		500	500	500	500		1000	1000	500		
22000	Fertiliser Lime		22000		5000	2000	2000	2000	1000	3000	2000				3000	2000		
14300	Seeds		14300			2000	1000	1000	3000	3000				1000	2000	1300		
2000	Shearing		2000				300			700						1000		
23000	Weed &Pest		23000				500	1000	1000	1500	5000	2000	2000	2000	2000	6000		
10200	R&M		10200		850	850	850	850	850	850	850	850	850	850	850	850		
17400	Vehicle Expences		17400		1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450		
9600	Fuel		9600		800	800	800	800	800	800	800	800	800	800	800	800		
7500	Administration		7500		500	500	1000		500		500	2500	1000	500		500		
9500	Insurance&Rates		9500		500	500	1000		500		500		3500	500	500	2000		
	Rent		0															
42840	Mortgage Interest	470000	42840		3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570		
4463	Current A/C Interest	12.00	4463		777	620	753	786	265	165	180	91	29	0	211	586		
0	Credit Bal Int		0		0	0	0	0	0	0	0	0	0	0	0	0		
	Water		0															
	Development		0															
14000	Plant 10%		14000				4000			4000			3000			3000		
14000	Taxation		14000				4000				4000			6000				
40000	Personal Costs		40000		3300	3300	3300	3300	3300	3300	3300	3700	3300	3300	3300	3300		
	(Includes Living,		0															
	Insurance,Fees,etc)		0		0	0	0	0	0	0	0	0	0	0	0	0		
			0															
			0															
310803	TOTAL EXPENDITURE		310803	310803	18447	19290	28223	17456	17935	24535	23850	17761	20599	35570	43581	43556		
	Opening Balance	-77700																
			Est.End Month		-62047	-75337	-78561	-26516	-16452	-17986	-9136	-2897	7504	-21066	-58647	-77385		
	Surplus	315	Act.End month Bal															
	Closing Balance	-77385																

Estimated Opening Balance -75600
plus unpresented chq -2100

Opening Assets & Debts

		$	$
LAND	200 HA @	5800	1160000
SHEEP	500 at	60	30000
LAMBS	1180 at	40	47200
PLANT			140000
POH			188000
AVE.W/CAPITAL			
		TOTAL	1565200

less

Debts

Existing Term	470000	
Seasonal OD	77700	
		547700
NET EQUITY		1017500

Economic Farm Surplus
(EFS)

Total Farm Income		311118
*less stk p*rchase		49000
Net Farm Income	(FI)	262118
Total Farm Costs	(FC)	146500
EFS		115618 ($578/ha)
FI/ha		1310
FC as a% of FI		56

COST WORKINGS

			FERT tonnes													
HA	CROP	$ Seed	DAP	Crop 20	Urea	SA	Lime		W.Oats	Weeds	Pests	F/cides	Appln	/ha	Total	
57	Wheat	3000	7.1			8.6	8.6			32	40	35	22	129	7353	
34	Barley	2200		8.5						25		35	22	82	2788	
27	Peas	5300		3.4						42			22	64	1728	
6	Rgrass					2.2				15		25	22	62	372	
43	Clover	1000								130			33	163	7041.6	
23	Pasture						3							0	0	
30	New Grass	1600	3.8								40			40	1200	
35	Green Feed	1200				4.4								0	0	
0	0													0	0	
0	0							83						0	0	
0	0													0	0	
167														0	0	
														0	0	
														Sundry	1100	
														Wild Oats	800	
														Roundup	600	
		14300	10.9	11.9	15.2	11.6	83								22982.6	0 0 0

IRRIGATION PROJECT

DEVELOPMENT STAGE

ESTIMATES FOR PERIOD.....Year 2

Cattle			
Breeding Cows			
RSG 2yr heifers			
RSG 1yr heifers			
Steers			
Calves			
	Total	0	0

NAME	Development Stage	AREA	200 ha

Advisor *RossPolson* *Date Completed* 20/08/97

For

Lambing% 0 Sale 0

Calving%

Sheep		Open	Close
Breeding ewes		500	
Ewe hoggets			
Male hoggets			
Rams			
	Total	500	0

CROP	HA	YIELD		$/t kg	TOTAL $
Wheat	57.0	7.5	428	265.0	113288
Barley	20.0	6.5	130	220.0	28600
Peas	27.0	3.5	95	520.0	49140
Rgrass	29.0	1500.0	43500	1.5	65250
Clover	50.0	500.0	25000	4.1	102500
Brassica	7.0	1000.0	7000	1.7	11900
			0		0
			0		0
			0		0
			0		0
			0		0
Crop area	*190.0*		*Total Crop Income*		*370678*

WOOL		Kgs/H	TOTAL
	Ewes @		0
	Ewes@		0
	2nd Shear		0
	Hoggets		0
1770	Lambs	1.2	2124
	Total	Kgs	2124
	AT	$/kg	3

STOCK SALES			$
Ewes			0
			0
Lambs			0
Lambs			0
Lambs	1770	53	93810
Cattle			0
			0

Deaths.Cattle..... Sheep.....

	INCOME	T/KGS	TOTAL	Open POH	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	Close POH
32500	Ewes 500@65		32500			32500											
0	0		0														
0	Lambs		0														
93810	Store Lambs		93810			20000	30000	40000	3810								
0	Cattle		0														
0	0		0														
6372	Wool	2124	6372		6372												
			0														
113288	Wheat	427.5	113288	67973	7500		2000	4473	10000	10000	10000	10000	14000				113288
28600	Barley	130	28600	33660	5660				12000	10000	6000						28600
49140	Peas	94.5	49140	30500	13500		17000									19640	29500
65250	Rgrass	43500	65250	7200		7200									10000	30000	25250
102500	Clover	25000	102500	48708	28708			20000									102500
11900	Brassica	7000	11900														11900
0	0	0	0														
0	0	0															
0	0	0	0														
503360	TOTAL INCOME		503360	188041	61740	59700	49000	64473	25810	20000	16000	10000	14000	0	10000	49640	311038
	Adjust + - stocks on hand		-122997														
	ACTUAL CASH INCOME		380363														

	EXPENDITURE		TOTAL		MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL		
21000	Lambs	600@35	21000		21000													
41300	Lambs	1180@35	41300											13000	15300	13000		
	Rams		0															
	Cattle		0															
			0															
20400	Wages		20400		1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700		
3000	Animal health		3000		500	500								500	500	1000		
10000	Heading Dressing		10000			1500	1500	1000			1000				5000			
2000	Contract		2000			500			500			500			500			
	General		0															
8500	Power		8500		200	200	200	200	200	200	1000	100	100	3000	100	3000		
1000	Stock Food		1000												1000			
8000	Freight		8000		500	500	500	500	500	500	500	500	500	1000	1000	1500		
35000	Fertiliser Lime		35000		4500	2000	2000	2000	4000	4000	4000	4000		1500	3000	4000		
14700	Seeds		14700			2000	1000	1000	3000	3000				1000	2000	1700		
2000	Shearing		2000		2000													
37000	Weed &Pest		37000			2000	1000	1000	2000	5000	5000	5000	3000	4000	3000	6000		
15000	R&M		15000		1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250		
20400	Vehicle Expences		20400		1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700		
12000	Fuel		12000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
8500	Administration		8500		500	500	1000	500	500	500	500	2500	1000	500		500		
13500	Insurance&Rates		13500		500	500	1000		500		500		7500	500	500	2000		
23625	Irrigation Loan@9%	350000	23625					2625	2625	2625	2625	2625	2625	2625	2625	2625		
42840	Mortgage Interest	470000	42840		3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570		
5089	Current A/C Interest	12.00	5089		874	687	324	115	0	0	0	10	277	442	938	1422		
0	Credit Bal Int		0		0	0	0	0	0	0	0	0	0	0	0	0		
16000	Water Charge		16000						5000			6000			5000			
5000	Development		5000									2500			2500			
18000	Plant		18000				3000			3000			3000	3000	3000	3000		
14000	Taxation		14000				4000				4000			6000				
40000	Personal Costs		40000		3300	3300	3300	3300	3300	3300	3300	3700	3300	3300	3300	3300		
	(Includes Living		0															
	Insurance Fees,etc)		0		0	0	0	0	0	0	0	0	0	0	0	0		
	Loan Repayments		0															
			0															
437854	TOTAL EXPENDITURE		437854	437854	43094	23407	28044	21460	31345	31345	31645	36655	30522	49587	58483	52267		
	Opening Balance	-87385																
			Est.End Month		-68739	-32446	-11491	31522	25987	14642	-1003	-27658	-44179	-93766	-142249	-144876		
	Loss	-57491	Act.End month Bal															
	Closing Balance	-144876																

Estimated Opening Balance -77385
plus
Irrigation costs * 10000
Opening Balance -87385

* Assumed a Capital Cost of $10,000 for Irrigation Shares

Assets

		$	$
LAND	HA @		
SHEEP	at		0
CATTLE	at		0
PLANT			
POH			
AVE.W/CAPITAL			
		TOTAL	0

Economic Farm Surplus
(EFS)

Total Farm Income
less stk purchase

Net Farm Income (FI) 0

Total Farm Costs (FC)

EFS 0

FI/ha

FC as a% of FI

COST WORKINGS

			FERT tonnes													
HA	CROP	$ Seed	DAP	Crop 20	Urea	SA	Lime		W.Oats	Weeds	Pests	F/cides	Appln	/ha	Total	
57	Wheat	3300	7.1			20	8.6			42	40	70	33	185	10545	
20	Barley	1600	2.5			2.5	2.5			42		70	33	145	2900	
27	Peas	5300		3.4						42		20	33	95	2565	
29	Rgrass	1300	3.6			11	3.6			32	40	70	33	175	5075	
50	Clover	1000	2.5							150	40		33	223	11150	
7	Brassica	200	1			1.8	3			24	15	70	44	153	1071	
														0	0	
60	Green Feed	2000				7.5								0	0	
0	0													0	0	
0	0							100						0	0	
0	0													0	0	
190														0	0	
														0	0	
														Sundry	1700	
														Wild Oats	800	
														Roundup	1200	
		14700	16.7	3.4	42.8	17.7	100								37006	0 0 0

IRRIGATION PROJECT

IRRIGATION (ARABLE)

ESTIMATES FOR PERIOD.....Year 3

NAME	**Irrigated**	**AREA**	**200 ha**
ADDRESS		**Tenure**	

Advisor *RossPolson* *Date Completed* 20/08/97

Lambing% For

Calving% 0 Sale 0

Cattle			
Breeding Cows			
RSG 2yr heifers			
RSG 1yr heifers			
Steers			
Calves			
Total	0	0	

Sheep			
Breeding ewes			
Ewe hoggets			
Male hoggets			
Rams			
Total	0	0	

CROP	**HA**	**YIELD**		**$/t kg**	**TOTAL $**
Wheat	57.0	7.5	428	265.0	113288
Barley	20.0	6.5	130	220.0	28600
Peas	27.0	3.5	95	520.0	49140
Rgrass	29.0	1500.0	43500	1.5	65250
Clover	50.0	500.0	25000	4.5	112500
Brassica	7.0	1000.0	7000	1.7	11900
			0		0
			0		0
			0		0
			0		0
			0		0
Crop area	*190.0*		*Total Crop Income*		*380678*

WOOL	**Kgs/H**	**TOTAL**
Ewes @		0
Ewes@		0
2nd Shear		0
Hoggets		0
2520 Lambs	1.2	3024
Total	Kgs	3024
AT	$/kg	3

STOCK SALES			**$**
Ewes			0
			0
Lambs			0
Lambs			0
Lambs	2500	53	132500
Cattle			0
			0

Deaths.Cattle..... Sheep.....

	INCOME	**T/KGS**	**TOTAL**	**Open POH**	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	**Close POH**	
			0															
0	0		0															
0	Lambs		0															
132500	Store Lambs		132500			30000	50000	50000	2500									
0	Cattle		0															
0	0		0															
9072	Wool	3024	9072		9072													
			0															
113288	Wheat	427.5	113288	113288	13288	10000	10000	20000	10000	20000	10000	10000	10000				113288	
28600	Barley	130	28600	28600					12600	10000	6000						28600	
49140	Peas	94.5	49140	29500	12500		17000									19640	29500	
65250	Rgrass	43500	65250	25250	5250	10000			10000						10000	30000	25250	
112500	Clover	25000	112500	102500	30000	10000	30000	32500								10000	102500	
11900	Brassica	7000	11900	11900		11900											11900	
0	0	0	0															
0	0	0																
0	0	0	0															
522250	**TOTAL INCOME**		522250	311038	70110	71900	107000	102500	35100	30000	16000	10000	10000	0	10000	59640	311038	
	Adjust + - stocks on hand		0															
	ACTUAL CASH INCOME		522250															

	EXPENDITURE		TOTAL		MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL		
	Ewes		0															
88400	Lambs	2525@35	88400		47100									13000	15300	13000		
	Rams		0															
	Cattle		0															
			0															
20400	Wages		20400		1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700		
3000	Animal health		3000		500	500								500	500	1000		
29000	Heading Dressing		29000		5000	3000	5000	4000	5000		2000				5000			
2000	Contract		2000			500			500			500			500			
	General		0															
10000	Power		10000		1700	200	200	200	200	200	1000	100	100	3000	100	3000		
1000	Stock Food		1000												1000			
12000	Freight		12000		1000	1000	1000	1000	1000	1000	1000	1000	500	1000	1000	1500		
35000	Fertiliser Lime		35000		4500	2000	2000	2000	4000	4000	4000	4000		1500	3000	4000		
14700	Seeds		14700			2000	1000	1000	3000	3000				1000	2000	1700		
4000	Shearing		4000		4000													
37000	Weed &Pest		37000			2000	1000	1000	2000	5000	5000	5000	3000	4000	3000	6000		
15000	R&M		15000		1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250		
20400	Vehicle Expences		20400		1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700		
12000	Fuel		12000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
8500	Administration		8500		500	500	1000	500	500	500	500	2500	1000	500		500		
13500	Insurance&Rates		13500		500	500	1000		500		500		7500	500	500	2000		
31500	Irrigation Loan@9%	350000	31500		2625	2625	2625	2625	2625	2625	2625	2625	2625	2625	2625	2625		
42840	Mortgage Interest	470000	42840		3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570		
7749	Current A/C Interest	12.00	7749		1449	1562	1232	497	0	0	0	0	235	409	955	1410		
0	Credit Bal Int		0		0	0	0	0	0	0	0	0	0	0	0	0		
16000	Water Charge		16000						5000			6000			5000			
5000	Development		5000									2500			2500			
24000	Plant 10%		24000			10000			2000	3000				6000		3000		
18000	Taxation		18000				5000				5000			8000				
40000	Personal Costs		40000		3300	3300	3300	3300	3300	3300	3300	3700	3300	3300	3300	3300		
	(Includes Living,		0															
	Insurance,Fees,etc)		0		0	0	0	0	0	0	0	0	0	0	0	0		
			0															
			0															
510989	TOTAL EXPENDITURE		510989	510989	81394	38907	33577	25342	38845	31845	34145	37145	27480	54554	55500	52255		
	Opening Balance	-144876																
			Est.End Month		-156160	-123166	-49743	27415	23670	21825	3680	-23465	-40945	-95500	-141000	-133615		
	Surplus	11261	Act.End month Bal															
	Closing Balance	-133615																

Estimated Opening Balance
Transferred Year 2 -144876

Increased Mortgage
Irrigation Cost 250000
Plant & Silo 100000
Total 350000

Opening Assets & Debts

Assets

			$	$
LAND	200	HA @	7500	1500000
Store lamb	1180	at	40	47200
CATTLE		at		0
PLANT				240000
POH				311000
			TOTAL	2098200

less

Debts

Existing Term	470000	
Irrigation Loan	350000	
Seasonal OD	145000	965000
NET EQUITY		**1133000**

Economic Farm Surplus
(EFS)

Total Farm Income		522250
less stk purchase		88400
Net Farm Income	(FI)	433850
Total Farm Costs	(FC)	253500
EFS		180350 ($900/ha)
FI/ha		2170
FC as a% of FI		58

COST WORKINGS

			FERT tonnes													
HA	CROP	$ Seed	DAP	Crop 20	Urea	SA	Lime	W.Oats	Weeds	Pests	F/cides	Appln	/ha	Total		
57	Wheat	3300	7.1		20	8.6			42	40	70	33	185	10545		
20	Barley	1600	2.5		2.5	2.5			42		70	33	145	2900		
27	Peas	5300		3.4					42		20	33	95	2565		
29	Rgrass	1300	3.6		11	3.6			32	40	70	33	175	5075		
50	Clover	1000	2.5						150	40		33	223	11150		
7	Brassica	200	1		1.8	3			24	15	70	44	153	1071		
													0	0		
60	Green Feed	2000			7.5								0	0		
0	0												0	0		
0	0						100						0	0		
0	0												0	0		
190													0	0		
													0	0		
													Sundry	1700		
													Wild Oats	800		
													Roundup	1200		
		14700	16.7	3.4	42.8	17.7	100							37006	0	0	0

APPENDIX II

Stock & Crop Farming System

Cashflows for:

Year 1 - Status Quo

Year 2 - Development Stage

Year 3 - Total Irrigation

IRRIGATION PROJECT

STATUS QUO

ESTIMATES FOR PERIOD.....Year 1

Cattle			
Breeding Cows			
RSG 2yr heifers			
RSG 1yr heifers			
Steers			
Calves			
	Total	0	0

NAME	Status Quo	AREA	200 ha
ADDRESS		Tenure	

Advisor *RossPolson* *Date Completed* 20/08/97

Sheep		Open	Close
Breeding ewes		500	500
Ewe hoggets			
Male hoggets			
Rams			
	Total	500	500

Lambing% 140% 700 Sale 700

Calving%

CROP	HA	YIELD		$/t kg	TOTAL $
Wheat	57.0	4.5	257	265.0	67973
Barley	34.0	4.5	153	220.0	33660
Peas	27.0	3.2	86	520.0	44928
Rgrass	6.0	800.0	4800	1.5	7200
Clover	43.2	275.0	11880	4.1	48708
			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
Crop area	*167.2*		*Total Crop Income*		*202469*

WOOL		Kgs/H	TOTAL
500	Ewes @	4.2	2100
	Ewes@		0
	2nd Shear		0
	Hoggets		0
800	Lambs	1.2	960
	Total	Kgs	3060
	AT	$/kg	3

STOCK SALES			$
Ewes	80	30	2400
			0
Lambs	700	50	35000
Lambs			0
Lambs	1170	53	62010
Cattle			0
			0

Deaths.Cattle..... Sheep.....

	INCOME	T/KGS	TOTAL	Open POH	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	Close POH	
2400	Ewes		2400								2400							
0	0		0															
35000	Lambs		35000								4000	7000	7000	7000	6000	4000		
62010	Store Lambs		62010			6000	6000	41500	5000							3510		
0	Cattle		0															
0	0		0															
9180	Wool	3060	9180	4600	4600						6300					2880		
			0															
67973	Wheat	256.5	67973	77500	7500		2000	8000	10000	10000	10000	10000	20000				67973	
33660	Barley	153	33660	37000					10000	10000	10000	7000					33660	
44928	Peas	86.4	44928	17000			17000									14428	30500	
7200	Rgrass	4800	7200														7200	
48708	Clover	11880	48708	42000	22000			20000									48708	
0	0	0	0	4000									4000					
0	0	0	0	6000					3000	3000								
0	0	0																
0	0	0	0															
311059	TOTAL INCOME		311059	188100	34100	6000	25000	69500	28000	23000	32700	24000	31000	7000	6000	24818	188041	
	Adjust + - stocks on hand		59															
	ACTUAL CASH INCOME		311118															

	EXPENDITURE		TOTAL		MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL		
7000	Ewes	100@70	7000												7000			
41300	Lambs	1180@35	41300											13000	15300	13000		
700	Rams		700									700						
	Cattle		0															
			0															
12000	Wages		12000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
3000	Animal health		3000				500	500		500		500		500		500		
6000	Heading Dressing		6000			1500	1500	1000								2000		
1000	Contract		1000			500									500			
	General		0															
2000	Power		2000		200	200	200	200	200	200	200	100	100	100	100	200		
1000	Stock Food		1000												1000			
6000	Freight		6000		500	500	500		500	500	500	500		1000	1000	500		
22000	Fertiliser Lime		22000		5000	2000	2000	2000	1000	3000	2000				3000	2000		
14300	Seeds		14300			2000	1000	1000	3000	3000				1000	2000	1300		
2000	Shearing		2000				300			700						1000		
23000	Weed &Pest		23000				500	1000	1000	1500	5000	2000	2000	2000	2000	6000		
10200	R&M		10200		850	850	850	850	850	850	850	850	850	850	850	850		
17400	Vehicle Expences		17400		1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450		
9600	Fuel		9600		800	800	800	800	800	800	800	800	800	800	800	800		
7500	Administration		7500		500	500	1000		500		500	2500	1000	500		500		
9500	Insurance&Rates		9500		500	500	1000		500		500		3500	500	500	2000		
	Rent		0															
42840	Mortgage Interest	470000	42840		3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570		
4463	Current A/C Interest	12.00	4463		777	620	753	786	265	165	180	91	29	0	211	586		
0	Credit Bal Int		0		0	0	0	0	0	0	0	0	0	0	0	0		
	Water		0															
	Development		0															
14000	Plant 10%		14000				4000			4000			3000			3000		
14000	Taxation		14000				4000				4000			6000				
40000	Personal Costs		40000		3300	3300	3300	3300	3300	3300	3300	3700	3300	3300	3300	3300		
	(Includes Living,		0															
	Insurance,Fees,etc)		0		0	0	0	0	0	0	0	0	0	0	0	0		
			0															
			0															
310803	**TOTAL EXPENDITURE**		310803	310803	18447	19290	28223	17456	17935	24535	23850	17761	20599	35570	43581	43556		
	Opening Balance	-77700																
			Est.End Month		-62047	-75337	-78561	-26516	-16452	-17986	-9136	-2897	7504	-21066	-58647	-77385		
	Surplus	315	Act.End month Bal															
	Closing Balance	-77385																

Estimated Opening Balance -75600
plus unpresented chq -2100

Opening Assets & Debts

		$	$
LAND	200 HA @	5800	1160000
SHEEP	500 at	60	30000
LAMBS	1180 at	40	47200
PLANT			140000
POH			188000
AVE.W/CAPITAL			
		TOTAL	1565200

less

Debts

Existing Term	470000	
Seasonal OD	77700	
		547700
NET EQUITY		1017500

Economic Farm Surplus
(EFS)

Total Farm Income		311118
less stk purchase		49000
Net Farm Income	(FI)	262118
Total Farm Costs	(FC)	146500
EFS		115618 ($578/ha)
FI/ha		1310
FC as a% of FI		56

COST WORKINGS

HA	CROP	$ Seed	FERT tonnes DAP	Crop 20	Urea	SA	Lime		W.Oats	Weeds	Pests	F/cides	Appln	/ha	Total			
57	Wheat	3000	7.1			8.6	8.6			32	40	35	22	129	7353			
34	Barley	2200		8.5						25		35	22	82	2788			
27	Peas	5300		3.4						42			22	64	1728			
6	Rgrass					2.2				15		25	22	62	372			
43	Clover	1000								130			33	163	7041.6			
23	Pasture						3							0	0			
30	New Grass	1600	3.8								40			40	1200			
35	Green Feed	1200				4.4								0	0			
0	0													0	0			
0	0							83						0	0			
0	0													0	0			
167														0	0			
														0	0			
														Sundry	1100			
														Wild Oats	800			
														Roundup	600			
		14300	10.9	11.9	15.2	11.6	83								22982.6	0	0	0

IRRIGATION PROJECT

IRRIGATION (STOCK & ARABLE)

ESTIMATES FOR PERIOD..... Year 2

NAME	**Stock & Crop**	**AREA**	**200 ha**
ADDRESS		**Tenure**	

Advisor *RossPolson* *Date Completed* 20/08/97

Lambing% 140% 2100 For Sale 1750

Calving%

Cattle			
Breeding Cows			
RSG 2yr heifers			
RSG 1yr heifers			
Steers			
Calves			
	Total	0	0

Sheep		open	close
Breeding ewes		1500	1500
Ewe hoggets		350	350
Male hoggets			
Rams		20	20
	Total	1870	1870

CROP	**HA**	**YIELD**		**$/t kg**	**TOTAL $**
Wheat	25.0	7.5	188	265.0	49688
Barley	25.0	6.5	163	220.0	35750
Peas	25.0	3.5	88	520.0	45500
Rgrass	25.0	1500.0	37500	1.5	56250
Clover	25.0	350.0	8750	4.1	35875
			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
Crop area	*125.0*		*Total Crop Income*		*223063*

WOOL		**Kgs/H**	**TOTAL**
1480	Ewes @	4.2	6216
	Ewes@		0
	2nd Shear		0
350	Hoggets	3.5	1225
700	Lambs	1.2	840
	Total	Kgs	8281
	AT	$/kg	3

STOCK SALES			**$**
Ewes	280	30	8400
			0
Lambs	1750	45	78750
Lambs			0
Lambs			0
Cattle			0
			0

Deaths.Cattle..... Sheep.....

	INCOME	**T/KGS**	**TOTAL**	**open POH**	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	**close POH**	
8400	Ewes		8400								2400	6000						
0	0		0															
78750	Lambs		78750								10000	30000	20000	10000	8750			
0	Store Lambs		0															
0	Cattle		0															
0	0		0															
24843	Wool	8281	24843			1500				4000	13343		2500			3500		
			0															
49688	Wheat	187.5	49688	67973	7500		2000	4473	10000	10000	10000	10000	14000				49688	
35750	Barley	162.5	35750	33660	5660				12000	10000	6000						35750	
45500	Peas	87.5	45500	30500	13500		17000									15000	30500	
56250	Rgrass	37500	56250	7200		7200										20000	36250	
35875	Clover	8750	35875	48708	28708			20000									35875	
0	0	0	0															
0	0	0	0															
0	0	0																
0	0	0	0															
335056	**TOTAL INCOME**		335056	188041	55368	8700	19000	24473	22000	24000	41743	46000	36500	10000	8750	38500	188063	
	Adjust + - stocks on hand		-22															
	ACTUAL CASH INCOME		335034															

	EXPENDITURE		TOTAL		MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL		
	Ewes		0															
24900	Lambs	710@35	24900											8000	8900	8000		
1500	Rams		1500									1500						
	Cattle		0															
			0															
20400	Wages		20400		1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700		
5000	Animal health		5000				500	500	1000	500	500	500		500	500	500		
10000	Heading Dressing		10000			1500	1500	1000			1000					5000		
1000	Contract		1000			500									500			
	General		0															
8500	Power		8500		200	200	200	200	200	200	1000	100	100	3000	100	3000		
2000	Stock Food		2000												2000			
7000	Freight		7000		500	500	500	500	500	500	500	500	500	1000	1000	500		
22000	Fertiliser Lime		22000		5000	2000	2000	2000	1000	3000	2000				3000	2000		
12000	Seeds		12000			2000	1000	1000	2000	2000				1000	2000	1000		
6000	Shearing		6000				1000			500	2500		1000			1000		
16000	Weed &Pest		16000				500			1000	3000	2500	1000		2000	6000		
10200	R&M		10200		850	850	850	850	850	850	850	850	850	850	850	850		
17400	Vehicle Expences		17400		1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450		
9600	Fuel		9600		800	800	800	800	800	800	800	800	800	800	800	800		
7500	Administration		7500		500	500	1000		500		500	2500	1000	500		500		
9500	Insurance&Rates		9500		500	500	1000		500		500		3500	500	500	2000		
22400	Irrigation Loan@9%	332000	22400		600	600	600	600	2500	2500	2500	2500	2500	2500	2500	2500		
42840	Mortgage Interest	470000	42840		3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570		
7995	Current A/C Interest	12.00	7995		874	519	636	748	685	721	746	633	486	369	619	960		
0	Credit Bal Int		0		0	0	0	0	0	0	0	0	0	0	0	0		
16000	Water		16000						5000			6000			5000			
5000	Development		5000									2500			2500			
14000	Plant 10%		14000				4000			4000			3000			3000		
14000	Taxation		14000				4000				4000			6000				
40000	Personal Costs		40000		3300	3300	3300	3300	3300	3300	3300	3700	3300	3300	3300	3300		
	(Includes Living,		0															
	Insurance,Fees,etc)		0		0	0	0	0	0	0	0	0	0	0	0	0		
			0															
			0															
352735	TOTAL EXPENDITURE		352735	352735	19844	20489	30106	18218	25555	26591	30416	31303	24756	35039	42789	47630		
	Opening Balance	-87385																
			Est.End Month		-51861	-63649	-74756	-68501	-72056	-74646	-63320	-48623	-36879	-61918	-95957	-105086		
	Surplus	-17701	Act.End month Bal															
	Closing Balance	-105086																

Estimated Opening Balance -77385

plus

Irrigation costs * 10000

Opening Balance -87385

*Assumed a Capital Cost of $10000 for Irrigation Shares

Increased Mortgage

	$
Irrigation	250000
Additional Sheep 1370 @60	82000
TOTAL	**332000**

Capital Involved

		$	$
LAND	HA @		0
SHEEP	at		0
CATTLE	at		0
PLANT			
POH			
AVE.W/CAPITAL			
		TOTAL	0

Economic Farm Surplus (EFS)

Total Farm Income

less stk purchase

Net Farm Income (FI) 0

Total Farm Costs (FC)

EFS 0

FI/ha

FC as a% of FI

COST WORKINGS

			FERT tonnes																
HA	CROP	$ Seed	DAP	Crop 20	Urea	SA	Lime		W.Oats	Weeds	Pests	F/cides	Appln		/ha	Total			
25	Wheat	1400	3.1			5	5			32	40	35	22		129	3225			
25	Barley	1800	3.1			2.5	2.5			25		35	22		82	2050			
25	Peas	5000		3.4						42			22		64	1600			
25	Rgrass					3.2				15		25	22		62	1550			
25	Clover	1000					3			130			33		163	4075			
65	Pasture			8			3								0	0			
25	New Grass	1300	3.8								40				40	1000			
50	Green Feed	1500				4.4									0	0			
0	0														0	0			
0	0							83							0	0			
0	0														0	0			
125															0	0			
															0	0			
														Sundry		1100			
														Wild Oats		800			
														Roundup		600			
		12000	10	11.4	15.1	13.5	83									16000	0	0	0

IRRIGATION PROJECT

IRRIGATION (STOCK & ARABLE)

ESTIMATES FOR PERIOD..... Year 3

NAME	**Stock & Crop**	**AREA**	**200 ha**
ADDRESS		**Tenure**	

Advisor *RossPolson* *Date Completed* 20/08/97

For

Lambing% 140% 2100 Sale 1750

Calving%

Cattle			
Breeding Cows			
RSG 2yr heifers			
RSG 1yr heifers			
Steers			
Calves			
Total	0	0	

Sheep		open	close
Breeding ewes		1500	1500
Ewe hoggets		350	350
Male hoggets			
Rams		20	20
Total		1870	1870

CROP	**HA**	**YIELD**		**$/t kg**	**TOTAL $**
Wheat	25.0	7.5	188	265.0	49688
Barley	25.0	6.5	163	220.0	35750
Peas	25.0	3.5	88	520.0	45500
Rgrass	25.0	1500.0	37500	1.5	56250
Clover	25.0	350.0	8750	4.1	35875
			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
Crop area	*125.0*		*Total Crop Income*		*223063*

WOOL		**Kgs/H**	**TOTAL**
1480	Ewes @	4.2	6216
	Ewes@		0
	2nd Shear		0
350	Hoggets	3.5	1225
1300	Lambs	1.2	1560
	Total	Kgs	9001
	AT	$/kg	3

STOCK SALES			$
Ewes	280	30	8400
			0
Lambs	1750	45	78750
Lambs			0
Lambs	700	50	35000
Cattle			0
			0

Deaths.Cattle..... Sheep.....

				open													close	
	INCOME	**T/KGS**	**TOTAL**	**POH**	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	**POH**	
8400	Ewes		8400								2400	6000						
0	0		0															
78750	Lambs		78750								10000	30000	20000	10000	8750			
35000	Store Lambs		35000			3000	3000	24000	5000									
0	Cattle		0															
0	0		0															
27003	Wool	9001	27003			1500				4000	15503		2500			3500		
			0															
49688	Wheat	187.5	49688	49688	4688	5000	5000	10000	5000	10000	5000	5000					49688	
35750	Barley	162.5	35750	35750				10000	10000	10000	5750						35750	
45500	Peas	87.5	45500	30500	13500		17000									15000	30500	
56250	Rgrass	37500	56250	36250	10000	10000		10000	6250							20000	36250	
35875	Clover	8750	35875	35875	20000			15875									35875	
0	0	0	0															
0	0	0	0															
0	0	0																
0	0	0	0															
372216	**TOTAL INCOME**		372216	188063	48188	19500	25000	69875	26250	24000	38653	41000	22500	10000	8750	38500	188063	
	Adjust + - stocks on hand		0															
	ACTUAL CASH INCOME		372216															

	EXPENDITURE		TOTAL		MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL		
	Ewes		0															
24900	Lambs	710@35	24900											8000	8900	8000		
1500	Rams		1500									1500						
	Cattle		0															
			0															
20400	Wages		20400		1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700		
5000	Animal health		5000				500	500	1000	500	500	500		500	500	500		
15000	Heading Dressing		15000			3000	3000	3000			1000					5000		
1000	Contract		1000			500									500			
	General		0															
10000	Power		10000		1700	200	200	200	200	200	1000	100	100	3000	100	3000		
2000	Stock Food		2000												2000			
7000	Freight		7000		500	500	500	500	500	500	500	500	500	1000	1000	500		
22000	Fertiliser Lime		22000		5000	2000	2000	2000	1000	3000	2000				3000	2000		
12000	Seeds		12000			2000	1000	1000	2000	2000				1000	2000	1000		
6000	Shearing		6000				1000			500	2500		1000			1000		
16000	Weed &Pest		16000				500			1000	3000	2500	1000		2000	6000		
10200	R&M		10200		850	850	850	850	850	850	850	850	850	850	850	850		
17400	Vehicle Expences		17400		1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450		
9600	Fuel		9600		800	800	800	800	800	800	800	800	800	800	800	800		
7500	Administration		7500		500	500	1000		500		500	2500	1000	500		500		
9500	Insurance&Rates		9500		500	500	1000		500		500		3500	500	500	2000		
30000	Irrigation Loan@9%	332000	30000		2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500		
42840	Mortgage Interest	470000	42840		3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570	3570		
7631	Current A/C Interest	12.00	7631		1051	803	850	947	472	462	486	411	312	332	582	922		
0	Credit Bal Int		0		0	0	0	0	0	0	0	0	0	0	0	0		
16000	Water		16000						5000			6000			5000			
5000	Development		5000									2500			2500			
14000	Plant 10%		14000				4000			4000			3000			3000		
16000	Taxation		16000				5000				5000			6000				
40000	Personal Costs		40000		3300	3300	3300	3300	3300	3300	3300	3700	3300	3300	3300	3300		
	(Includes Living,		0															
	Insurance,Fees,etc)		0		0	0	0	0	0	0	0	0	0	0	0	0		
			0															
			0															
368471	TOTAL EXPENDITURE		368471	368471	23421	24173	34720	22317	25342	26332	31156	31081	24582	35002	42752	47592		
	Opening Balance	-105086																
			Est.End Month		-80319	-84992	-94712	-47154	-46246	-48578	-41081	-31162	-33243	-58246	-92248	-101341		
	Surplus	3745	Act.End month Bal															
	Closing Balance	-101341																

Estimated Opening Balance
plus unpresented chqes

Increased Mortgage

	$
Irrigation	250000
Additional Sheep	
1370 @60	82000
TOTAL	**332000**

Opening Assets & Debts

			$	$
LAND	200	HA @	7500	1500000
SHEEP	1870	at	60	112200
CATTLE		at		0
PLANT				140000
POH				188000
AVE.W/CAPITAL				
			TOTAL	1940200
less				
Debts				
Existing Term			470000	
Additional Term			332000	
Seasonal OD			105000	907000
			NET EQUITY	**1033000**

Economic Farm Surplus
(EFS)

Total Farm Income		372216
less stk purchase		26400
Net Farm Income	(FI)	345816
Total Farm Costs	(FC)	186600
EFS		159216 ($795/ha)
FI/ha		1730
FC as a% of FI		54

COST WORKINGS

			FERT tonnes													
HA	CROP	$ Seed	DAP	Crop 20	Urea	SA	Lime		W.Oats	Weeds	Pests	F/cides	Appln		/ha	Total
25	Wheat	1400	3.1			5	5			32	40	35	22		129	3225
25	Barley	1800	3.1			2.5	2.5			25		35	22		82	2050
25	Peas	5000		3.4						42			22		64	1600
25	Rgrass					3.2				15		25	22		62	1550
25	Clover	1000					3			130			33		163	4075
65	Pasture			8			3								0	0
25	New Grass	1300	3.8								40				40	1000
50	Green Feed	1500				4.4									0	0
0	0														0	0
0	0							83							0	0
0	0														0	0
125															0	0
															0	0
														Sundry		1100
														Wild Oats		800
														Roundup		600
		12000	10	11.4	15.1	13.5	83								16000	0 0 0