# **Manuherikia Catchment - Budget Descriptions**

# **Capital cost background**

There have been three proposed dam options presented. The capital costs for each option are currently based off the pre-feasibility estimates and will be updated once revised costs for the three options are completed by Golders in September 2014.

The funding model for the capital costs is based on 50% equity funding by farmers and 50% debt funding by the irrigation scheme, with this debt serviced and principle repaid through annual water charges over a 35 year period. There are a significant number of cost options depending on what race the landowners currently take water from.

# Option 1)

This involves strengthening the existing Falls Dam and raising it by a further **5 metres**, which would provide greater reliability to the existing water users.

Our models are based on a proposed initial cost to farmers of \$1248/ha, with an ongoing annual cost of \$168/ha. This option would improve the reliability of water for current users, however, it wouldn't bring any further land under irrigation.

## Option 2)

The **15m option** would involve building a new dam, which would be 15 meters taller than the current dam height. This option would improve the reliability for current users and bring in some more land for irrigation. The capital costs for new water users have been estimated at \$3436/ha initially, with an ongoing charge of \$364/ha.

## Option 3)

The final option is to build a new dam **27 metres** higher than the existing falls dam. This option would open up a whole new area for water with high reliability. Due to the economies of scale of this option, the costs would be less than the 15m option for new users, at \$2734/ha initially with ongoing cost at \$288/ha.

#### Farm systems budgets

Financial analysis has been based on a farming system with an effective area of 400ha. This is analysing the farming systems under existing flood irrigation, compared to their potential under more efficient forms of irrigation. The irrigation and infrastructure costs which will be incurred through the change in farming systems have also been considered. Due to farm layout, contour and existing infrastructure, each individual farm will have varying capital costs. While efforts have been made to make these models as relatable as possible, users should seek their own advice on how their farm could benefit from the potential changes.

#### **Existing Flood Irrigated Sheep Farm**

This farm is a flat to undulating property which utilises wild flood and boarder dike forms of irrigation. A sheep breeding system is operated which finishes all its own lambs to 17.5KgCW. The farm is stocked at an average of nine sheep per ha (10.4 SU/ha) grazing Romney ewes which lamb at 130% STS.

		SHEEP BREEDING	i		
REVENUE	No./ha avlb.	Price	Weight	\$/ha	Total
Lamb	3,540	\$5.30	17.5	821	\$328,335
Cull Ewes	426	\$75.00		80	\$31,950
Wool	15,180	\$3.20		121	\$48,576
GROSS FARM REVENUE				1022	\$408,861
less Livestock purchases				21	\$4,200
NET FARM INCOME				1001	\$400,461
FARM WORKING EXPENSES					
			per SU	per ha	
Wages			4.00	42	\$16.672
Animal Health			3.90	41	\$16,256
Breeding			0.40	4	\$1.667
Shed Expenses					. ,
Electricity			1.80	19	\$7,503
Feed			3.20	33	\$13,338
Fertiliser			11.00	115	\$45,849
Freight			1.17	12	\$4,877
Seeds			1.70	18	\$7,086
Shearing			4.00	42	\$16,672
Weed and Pest			2.88	30	\$12,004
Fuel			3.55	37	\$14,797
Vehicle			2.37	25	\$9,878
Repairs & Maint			5.20	54	\$21,674
Rates			2.40	25	\$10,000
Communication			0.48	5	\$2,000
Insurance			1.25	13	\$5,200
Acct, Legal,Cons			1.06	11	\$4,400
Administration			0.77	8	\$3,200
Depreciation			4.75	49	\$19,798
Other			0.19	2	\$800
Irrigation	Off Farm		5.76	60	\$24,000
	On Farm		4.80	50	\$20,000
FARM EXPENDITURE			67	694	\$277,672
FARM SURPLUS			29	307	\$122.789

### **Existing Flood Irrigated Dairy Support**

This dairy support property operates on a similar land class to the sheep system outlined above. Every year, 680 calves are taken on in December and grazed right through for 18 months before leaving as in-calf heifers, before their second winter. The calves are initially grazed at \$7/hd/week until the end of April, they then go onto an \$11/hd/week grazing contract for the next 12 months and then increase to \$15/hd/week for the 4 weeks of the following May. The following table shows the profit and loss on a per hectare basis.

	DAIRY SUPPO	RT	-
REVENUE			
Calves			214
R1yrs			972
R2 yrs			102
TOTAL REVENUE			1,289
FARM WORKING EXPENSES			
		per ha	
Wages		150	60,000
Animal Health		1	400
Breeding			-
Shed Expenses			-
Electricity		19	7,503
Feed			
Fertiliser		200	80,000
Freight		11	4,400
Seeds		31	12,400
Shearing			-
Weed and Pest		18	7,200
Fuel		33	13,200
Vehicle		25	9,878
Repairs & Maint		50	20,000
Rates		30	12,000
Communication		5	2,000
Insurance		11	4,400
Acct, Legal,Cons		11	4,400
Administration		8	3,200
Depreciation		49	19,798
Other		2	800
Irrigation	Off Farm	60	24,000
	On Farm	50	20,000
FARM EXPENDITURE			764
FARM SURPLUS			525

### **Existing Dryland Sheep Farm**

The farm system outlined below is based on the farm having no irrigation, so the whole property is dryland. A half bred sheep system is operated which produces store lambs and mid micron wool. The farm is stocked at 4.4 sheep per hectare with the ewes lambing at 100%. Lambs are sold for \$65/hd and wool is sold for \$10/kg.

REVENUEIncomIncomSysueSysueIncomREVENUENo.ha avisPriceIIILamb1.16865.000.45.619.89.873.920Cull Evers0.73.880.10.000.44.419.84.973.876Bross FARM REVENUEIIIIIBross FARM REVENUEIIIIIBross FARM REVENUEIIIIIIBross FARM REVENUEIIIIIIBross FARM REVENUEIIIIIIIBross FARM REVENUEIII <t< th=""><th></th><th>HALF</th><th>BRED SHEEP DRY</th><th>(LAND</th><th></th><th></th></t<>		HALF	BRED SHEEP DRY	(LAND		
REVENUE    No./ha avlb.    Price    Image    Image <thimage< th=""></thimage<>				\$/SU	\$ / Ha	Total
Lamb    1,168    65.00    45.6    189.80    75,920      Cull Ewes    214    80.00    10.3    42.78    17,114      Wool    7,388    10.00    44.4    184.69    73,876      GROSS FARM REVENUE     417.27    166,910      less Livestock purchases     99.4    413.62    165,450      NET FARM INCOME     99.4    413.62    165,450      FARM WORKING EXPENSES      99.4    413.62    165,450      Wages     40.00    16.64    6,655    6,655      Animal Health     3.90    16.22    6,488      Breeding     0.00    0    0      Electricity     1.80    7.49    2,995      Feed     3.20    13.31    5,324      Fertiliser     3.03    7.49    2,995      Feed     3.20    2.828    3.193      Freight <td< th=""><th>REVENUE</th><th>No./ha avlb.</th><th>Price</th><th></th><th></th><th></th></td<>	REVENUE	No./ha avlb.	Price			
Cull Ewes21480.0010.342.7817,114Wool7,38810.0044.4184.6973,876GROSS FARM REVENUE417.72166,910less Livestock purchases3.653.65NET FARM INCOME99.4413.62155,450FARM WORKING EXPENSES99.4413.62Wages99.416.646,655Animal Health3.9016.226,488Breeding0.0000Electricity1.807.492,995Feed3.0010.226,488Breeding1.807.492,995Feed1.807.492,995Feed3.0010.626,655Freight1.174.871,947Seeds1.707.072,828Shearing3.534,791Fuel3.5511.984,791Fuel3.533,9438,655Weed and Pest3.133,2003,000Fuel3.133,2003,000Communication3.003,000Insurance3.003,0003,000Communication3.003,000Insurance3.003	Lamb	1,168	65.00	45.6	189.80	75,920
Wool    7,388    10.00    44.4    184.69    73,876      GROSS FARM REVENUE      417.27    166,910      less Livestock purchases     3.65        NET FARM INCOME     99.4    413.62    165,450      FARM WORKING EXPENSES           Wages    4.00    16.64    6,655 <td>Cull Ewes</td> <td>214</td> <td>80.00</td> <td>10.3</td> <td>42.78</td> <td>17,114</td>	Cull Ewes	214	80.00	10.3	42.78	17,114
GROSS FARM REVENUE    Image: Constraint of the section of t	Wool	7,388	10.00	44.4	184.69	73,876
GROSS FARM REVENUE417.27166,910less Livestock purchases3.653.65NET FARM INCOME99.4413.62165,450FARM WORKING EXPENSESper SUper haWages4.0016.646,655Animal Health3.9016.226,488Breeding0.0401.666655Shed Expenses0.000.000.00Electricity1.807.492,995Feed3.0020.808,315Freight1.174.871,947Seeds1.707.072,828Shearing4.0016.646,655Weed and Pest2.0016.646,655Weed and Pest2.3514.775,906Vehicle3.3514.775,9063,943Rates6.012.50010,0002,000Communication1.205.002,000Insurance3.033.008,00Act, Legal, Cons4.7519.760.000Cother0.7472.9463.003,000Cother0.7492.9463.003,000Cother0.7492.9493,9433,943Repais & Maint0.002.0001,000Communication1.205.002,000Insurance3.1313.005,200Act, Legal, Cons0.144.7519.76On Farm0.7472.946,6798,670FARM SURPLUIS0.7672.66						
less Livestock purchases    3.65      NET FARM INCOME    99.4    413.62    165,450      FARM WORKING EXPENSES    per SU    per ha    165,450      Wages    4.00    16.64    6,655      Animal Health    3.00    16.22    6,488      Breeding    0.40    1.66    6655      Shed Expenses    0.00    0.00    0.00      Electricity    1.80    7.49    2,995      Feed    3.20    13.31    5,324      Freight    1.80    7.49    2,995      Feed    3.20    13.31    5,324      Freight    1.80    7.49    2,995      Feed    3.20    13.31    5,324      Freight    1.17    4.87    1,947      Seeds    1.70    7.07    2,828      Shearing    4.00    16.64    6,655      Weed and Pest    2.36    1.477    5,906      Fuel    3.55    14.77    5,906      Rates </td <td>GROSS FARM REVENUE</td> <td></td> <td></td> <td></td> <td>417.27</td> <td>166,910</td>	GROSS FARM REVENUE				417.27	166,910
NET FARM INCOME    Image: Marking EXPENSES    Image: Marking EXPENSE	less Livestock purchases				3.65	
FARM WORKING EXPENSES    Image is a state of the state of t	NET FARM INCOME			99.4	413.62	165,450
FARM WORKING EXPENSESImage (Control of the Control of th						
Wages    Images    per SU    per ha      Wages    4.00    16.64    6,655      Animal Health    Images    3.90    16.22    6,488      Breeding    Images    0.00    16.62    6,655      Shed Expenses    Images    0.00    0.00    0.00      Electricity    Images    1.80    7.49    2,995      Feed    Images    3.20    1.31    5,324      Freight    Images    0.00    0.00    0.00      Freight    Images    0.00    0.20.80    8,319      Freight    Images    Images    0.20.80    8,319      Shearing    Images    Images    1.17    4.87    1,947      Subed and Pest    Images    Images    Images    Images    1.17    4.87    1,947      Fuel    Images	FARM WORKING EXPENSES					
Wages    4.00    16.64    6,655      Animal Health    3.90    16.22    6,488      Breeding    0.40    1.66    665      Shed Expenses    0.00    0.00    0.00      Electricity    1.80    7.49    2,995      Feed    3.20    13.31    5,324      Fertiliser    5.00    20.80    8,313      Freight    1.17    4.87    1,947      Seeds    0.00    16.64    6,655      Weed and Pest    1.17    7.07    2,828      Shearing    4.00    16.64    6,655      Weed and Pest    2.88    11.98    4,791      Fuel    3.55    14.77    5,906      Vehicle    2.37    9.86    3,943      Repairs & Maint    2.00    2.000    10,000      Communication    1.20    5.00    2.000      Insurance    3.13    3.00    5.200      Acct, Legal,Cons    4.01    4.400    4.400				per SU	per ha	
Animal Health  Image  3.90  16.22  6,488    Breeding  0.40  1.66  665    Shed Expenses  Image  0.00  0.00    Electricity  1.80  7.49  2,995    Feed  3.20  13.31  5,324    Fertiliser  Image  3.00  13.31  5,324    Freight  Image  5.00  20.80  8,319    Freight  Image  1.17  4.87  1,947    Seeds  Image  1.17  4.87  1,947    Seeds  Image  1.17  4.87  1,947    Seeds  Image  1.17  7.82  2,828    Shearing  Image  1.00  16.64  6,655    Weed and Pest  Image  2.83  11.98  4,791    Fuel  Image  3.55  14.77  5,906  3,943    Repairs & Maint  Image  1.00  2.000  10,000  000    Communication  Image  Image  1.00  4,000  4,000  3.00  3.200	Wages			4.00	16.64	6,655
Breeding    (0.40)    1.66    665      Shed Expenses    (0.00) </td <td>Animal Health</td> <td></td> <td></td> <td>3.90</td> <td>16.22</td> <td>6,488</td>	Animal Health			3.90	16.22	6,488
Shed Expenses   0.00  0.00    Electricity   1.80  7.49  2,995    Feed   3.20  13.31  5,324    Fertiliser   5.00  20.80  8,315    Freight   1.17  4.87  1,947    Seeds   1.17  4.87  1,947    Seeds   1.17  7.07  2,828    Shearing   4.00  16.64  6,655    Weed and Pest   2.88  11.98  4,791    Fuel   3.55  14.77  5,906    Vehicle   3.55  14.77  5,906    Vehicle   3.55  14.77  5,906    Repairs & Maint   5.20  21.63  8,651    Rates   6.01  25.00  10.000    Communication   1.20  5.00  2,000    Insurace   3.13  13.00  5,200    Act, Legal,Cons   4.014  4.004  4.000 <td>Breeding</td> <td></td> <td></td> <td>0.40</td> <td>1.66</td> <td>665</td>	Breeding			0.40	1.66	665
Electricity  1.80  7.49  2,995    Feed  3.20  13.31  5,324    Fertiliser  5.00  20.80  8,319    Freight  1.17  4.87  1,947    Seeds  1.17  4.87  1,947    Seeds  1.17  7.07  2,828    Shearing  4.00  16.64  6,655    Weed and Pest  2.88  11.98  4,791    Fuel  2.88  11.98  4,791    Fuel  2.88  11.98  4,791    Fuel  3.55  14.77  5,906    Vehicle  2.37  9.86  3,943    Repairs & Maint  5.20  21.63  8,651    Rates  6.01  25.00  10,000    Communication  1.20  5.00  2,000    Insurance  3.13  13.00  5,200    Acct, Legal,Cons  3.64  11.00  4,400    Administration  3.00  8.00  3,200    Depreciation  0fF Farm	Shed Expenses				0.00	0
Feed  3.20  13.31  5,324    Fertiliser  5.00  20.80  8,319    Freight  1.17  4.87  1,947    Seeds  1.17  4.87  1,947    Seeds  1.17  4.87  1,947    Seeds  1.17  7.07  2,828    Shearing  4.00  16.64  6,655    Weed and Pest  2.88  11.98  4,791    Fuel  2.88  11.98  4,791    Fuel  2.83  14.97  5,906    Vehicle  2.37  9.86  3,943    Repairs & Maint  6.01  25.00  21.63    Rates  6.01  25.00  2,000    Insurance  3.13  13.00  5,200    Acct, Legal,Cons  2.64  11.00  4,400    Administration  3.00  8.00  3,200    Depreciation  0.48  2.00  800    Irrigation  Off Farm  0.48  2.00  800    Irrigation  Off Farm  0.404  60.38  246.67	Electricity			1.80	7.49	2,995
Fertiliser  1  5.00  20.80  8,319    Freight  1.17  4.87  1,947    Seeds  1.70  7.07  2,828    Shearing  4.00  16.64  6,655    Weed and Pest  2.88  11.98  4,791    Fuel  2.88  11.98  4,791    Fuel  2.88  11.98  4,791    Fuel  2.85  14.77  5,906    Vehicle  2.37  9.86  3,943    Repairs & Maint  2.37  9.86  3,943    Repairs & Maint  2.00  21.63  8,651    Rates  6.01  25.00  10,000    Communication  1.20  5.00  2,000    Insurance  3.13  13.00  5,200    Acct, Legal,Cons  2.64  11.00  4,400    Administration  3.00  8.00  3,200    Depreciation  Off Farm  0.48  2.00  800    Irrigation  Off Farm  0.4  2.00  800    Irrigation  Off Farm	Feed			3.20	13.31	5,324
Freight  1117  4.87  1,947    Seeds  1170  7.07  2,828    Shearing  4.00  16.64  6,655    Weed and Pest  2.88  11.98  4,791    Fuel  2.88  11.98  4,791    Fuel  3.55  14.77  5,906    Vehicle  2.37  9.86  3,943    Repairs & Maint  5.20  21.63  8,651    Rates  6.01  25.00  10,000    Communication  1.20  5.00  2,000    Insurance  3.13  13.00  5,200    Administration  3.00  8.00  3,200    Depreciation  4.75  19.76  7    Other  0.48  2.00  800    Irrigation  Off Farm  7  98,670    On Farm  40.14  166.95  66.780	Fertiliser			5.00	20.80	8,319
Seeds    1.70    7.07    2,828      Shearing    4.00    16.64    6,655      Weed and Pest    2.88    11.98    4,791      Fuel    2.88    11.98    4,791      Fuel    3.55    14.77    5,906      Vehicle    2.37    9.86    3,943      Repairs & Maint    6.01    25.00    10,000      Communication    6.01    25.00    10,000      Communication    1.20    5.00    2,000      Insurance    3.13    13.00    5,200      Acct, Legal, Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    7.75      Other    0.04    2.00    800      Irrigation    Off Farm    7.75    19.76      On Farm    7.75    19.76    7.75      FARM EXPENDITURE    60.38    246.67    98,670      FARM SUBPLUS    40.14    166.95	Freight			1.17	4.87	1,947
Shearing    4.00    16.64    6,655      Weed and Pest    2.88    11.98    4,791      Fuel    3.55    14.77    5,906      Vehicle    2.37    9.86    3,943      Repairs & Maint    2.237    9.86    3,943      Repairs & Maint    2.20    21.63    8,651      Rates    6.01    25.00    10,000      Communication    1.20    5.00    2,000      Insurance    3.13    13.00    5,200      Acct, Legal, Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    7.75      Other    0.01 A    2.00    800      Irrigation    Off Farm    0.48    2.00    800      Irrigation    On Farm    60.38    246.67    98,670      FARM EXPENDITURE    40.14    166.95    66.780	Seeds			1.70	7.07	2,828
Weed and Pest    2.88    11.98    4,791      Fuel    3.55    14.77    5,906      Vehicle    2.37    9.86    3,943      Repairs & Maint    5.20    21.63    8,651      Rates    6.01    25.00    10,000      Communication    .    6.01    25.00    10,000      Insurance    .    3.13    13.00    5,200      Acct, Legal,Cons    .    2.64    11.00    4,400      Administration    .    3.00    8.00    3,200      Depreciation    .    .    .    .    .      Other    .    .    .    .    .    .      Irrigation    Off Farm    .    .    .    .    .    .      FARM EXPENDITURE    .    .    .    .    .    .    .      FARM SUBPLUS    .    .    .    .    .    .    .    .    .    .    .	Shearing			4.00	16.64	6,655
Fuel  3.55  14.77  5,900    Vehicle  2.37  9.86  3,943    Repairs & Maint  5.20  21.63  8,651    Rates  6.01  25.00  10,000    Communication  1.20  5.00  2,000    Insurance  3.13  13.00  5,200    Acct, Legal, Cons  2.64  11.00  4,400    Administration  3.00  8.00  3,200    Depreciation  4.75  19.76  1000    Other  0.048  2.00  800    Irrigation  Off Farm  100  40.14  60.38    FARM EXPENDITURE  40.14  166.95  66.780	Weed and Pest			2.88	11.98	4,791
Vehicle    2.37    9.86    3,943      Repairs & Maint     5.20    21.63    8,651      Rates     6.01    25.00    10,000      Communication     1.20    5.00    2,000      Insurance     3.13    13.00    5,200      Acct, Legal,Cons     2.64    11.00    4,400      Administration     3.00    8.00    3,200      Depreciation     4.75    19.76      Other     0.48    2.00    800      Irrigation    Off Farm     40.14    165.95    66.780	Fuel			3.55	14.77	5,906
Repairs & Maint    5.20    21.63    8,651      Rates    6.01    25.00    10,000      Communication    1.20    5.00    2,000      Insurance    3.13    13.00    5,200      Acct, Legal,Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    0      Other    0.48    2.00    800      Irrigation    Off Farm    0    40.14    166.95      FARM EXPENDITURE    40.14    166.95    66.780	Vehicle			2.37	9.86	3,943
Rates    6.01    25.00    10,000      Communication    1.20    5.00    2,000      Insurance    3.13    13.00    5,200      Acct, Legal,Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    0      Other    0.48    2.00    800      Irrigation    Off Farm    0    40.14    166.95      FARM EXPENDITURE    40.14    166.95    66.780	Repairs & Maint			5.20	21.63	8,651
Communication    1.20    5.00    2,000      Insurance    3.13    13.00    5,200      Acct, Legal,Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    0      Other    0.48    2.00    800      Irrigation    Off Farm    0    800      FARM EXPENDITURE    60.38    246.67    98,670      FARM SUBPLUS    40.14    166.95    66.780	Rates			6.01	25.00	10,000
Insurance    3.13    13.00    5,200      Acct, Legal,Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    0      Other    0.48    2.00    800      Irrigation    Off Farm    60.38    246.67    98,670      FARM EXPENDITURE    40.14    166.95    66.780	Communication			1.20	5.00	2,000
Acct, Legal, Cons    2.64    11.00    4,400      Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    0      Other    0.48    2.00    800      Irrigation    Off Farm    0    800      FARM EXPENDITURE    60.38    246.67    98,670      FARM SUBPLUS    40.14    166.95    66.780	Insurance			3.13	13.00	5,200
Administration    3.00    8.00    3,200      Depreciation    4.75    19.76    0      Other    0.48    2.00    800      Irrigation    Off Farm    0    800    800      FARM EXPENDITURE    60.38    246.67    98,670      FARM SUBPLUS    40.14    166.95    66.780	Acct, Legal,Cons			2.64	11.00	4,400
Depreciation    4.75    19.76      Other    4.75    19.76      Other    0.48    2.00    800      Irrigation    Off Farm    60.48    2.00    800      On Farm    60.38    246.67    98,670      FARM SUBPLUS    40.14    166.95    66.780	Administration			3.00	8.00	3,200
Other    0.48    2.00    800      Irrigation    Off Farm          800      On Farm    On Farm    60.38    246.67    98,670 <td>Depreciation</td> <td></td> <td></td> <td>4.75</td> <td>19.76</td> <td></td>	Depreciation			4.75	19.76	
Irrigation    Off Farm    Image: Constraint of the system    On Farm    Image: Constraint of the system    Image: Constrainton of the system    Image: Constraint of t	Other			0.48	2.00	800
On Farm    60.38    246.67    98,670      FARM EXPENDITURE    60.38    246.67    98,670      FARM SURPLUS    40.14    166.95    66.780	Irrigation	Off Farm				
FARM EXPENDITURE 60.38 246.67 98,670		On Farm				
FARM SURPLUS 40.14 166.95 66.780	FARM EXPENDITURE			60.38	246.67	98,670
	FARM SURPLUS			<u> ۵</u> ۵.14	166.95	66.780

#### Efficiently Spray Irrigated Sheep Farm Model

This model is an example of a farm system which could be operated on a 400ha property if it was developed to utilise efficient forms of irrigation, such as spray. It is based on a sheep breeding and finishing system in which the lambs bred on the property are finished to 19KgCW and sold for \$5.30/KgCW. The farm is stocked at 17.1 sheep per ha with the ewes lambing at 140% STS. Half of the hoggets are mated which lamb at 90%. An extra 4000 trade lambs are finished on the excess summer pasture.

		SHEEP BREEDI			
REVENUE	Total Number	Price	Weight (Kgs)	\$ / Ha	Total
Own Bred Lambs	7353	\$5.30	19.00	1,851	740,447
Traded Lambs	4000	\$20.00		200	80,000
Cull Ewes	836	\$75.00		157	62,730
Ewe Wool	5700	\$3.50	4.50	224	89,775
Hoggets Wool	1140	\$3.50	2.80	28	11,172
Lambs Wool (half shorn)	5677	\$4.20	1.50	89	35,762
GROSS FARM REVENUE				2,550	1,019,886
less purchases				20	7,980
NET FARM INCOME				2,530	1,011,906
FARM WORKING EXPENSES					
			per SU	per ha	
Wages			9.00	178	71,290
Animal Health			4.00	79	31,684
Breeding			0.40	8	3,168
Shed Expenses				-	-
Electricity			3.50	69	27,724
Feed			5.00	99	39,606
Fertiliser			12.62	250	100,000
Freight			0.76	15	6,000
Seeds			2.80	55	22,179
Shearing			4.00	79	31,684
Weed and Pest			1.50	30	11,882
Fuel			3.00	59	23,763
Vehicle			2.40	48	19,011
Repairs & Maint			3.20	63	25,348
Rates			2.02	40	16,000
Communication			0.25	5	2,000
Insurance			0.76	15	6,000
Acct, Legal,Cons			0.56	11	4,400
Administration			0.56	11	4,400
Other			0.20	4	1,600
Total			56.52	1,119	447,739
Depreciation			5.05	100	40,000
Total			61.57	1,219	487,739
Irrigation	Off Farm		8.47	168	67,127
	On Farm		10.10	200	80,000
FARM EXPENDITURE			80.15	1,587	634,866
FARM SURPLUS				943	377,040

These two tables show the potential costs to convert the 400ha property from either the flood irrigated sheep or dryland sheep system. The cost of capital is based on 7%. The purchasing of the water shares is at the higher 27m price for the dryland model, because those farms do not presently hold any shares in the current irrigation companies.

Conversion Costs from Flood Irrigated sheep to spray irrigated sheep			Conversion Costs from Dry sheep to irrigate	ed sheep	
Item	\$/ha	Total		\$/ha	Total
Clean Up	150	60,000	Clean Up	200	80000
Irrigation System	4,500	1,800,000	Irrigation System	4,500	1800000
Cow Shed	0	0	Cow Shed	0	0
Electricity	250	100,000	Electricity	250	100000
Housing	0	0	Housing	0	0
Other Buildings	100	40,000	Other Buildings	100	40000
Fencing and Lanes	200	80,000	Fencing and Lanes	250	100000
Stockwater	150	60,000	Stockwater	200	80000
Fertiliser	200	80,000	Fertiliser	300	120000
Regrassing	300	120,000	Regrassing	550	220000
Machinery	150	60,000	Machinery	200	80000
Net Livestock	810	324000	Net Livestock	1272	508800
Gross Total	6,810	2,724,000	Gross Total	7,822	3128800
Water Shares	1248	499,265	Water Shares	2734	1093793
Total	8,058	3,223,265	Total	10,556	4222593
Debt Servicing Cost	564	225,629	Debt Servicing Cost	739	295582

#### Efficiently Spray Irrigated Dairy Support Farm Model

This model is an example of a dairy support system which could be operated on a 400ha property if it was developed to utilise efficient forms of irrigation, such as spray. The farm is based on 80% of the land being utilised to raise young dairy heifers and the remaining 20% used to winter dairy cows. In December 1024 dairy calves are taken on and grazed through for 18 months. The calves are initially grazed at \$7/hd/week until the end of April, they then go onto an \$11/hd/week grazing contract for the next 12 months and then increase to \$15/hd/week for the 4 weeks of the following May. The winter dairy cow policy involves taking on 1620 MA cows for nine weeks over the winter and grazing them at a rate of \$28/week.

	Irrigate	d Dairy Support		
REVENUE				
			Total Price/ha	
Calves			323	129,024
R1yrs			1,464	585,728
R2yrs			154	61,440
Dairy Cow Wintering			1,020	408,000
TOTAL REVENUE			2,960	1,184,192
FARM WORKING EXPENS	ES			
			per ha	total
Wages			180	72,000
Animal Health			1	400
Breeding				-
Shed Expenses				-
Electricity			70	28,000
Feed			200	80,000
Fertiliser			250	100,000
Freight			15	6,000
Seeds			54	21,600
Winter Crop			220	88,000
Weed and Pest			35	14,000
Fuel			62	24,800
Vehicle			45	18,000
Repairs & Maint			60	24,000
Rates			40	16,000
Communication			5	2,000
Insurance			15	6,000
Acct, Legal,Cons			11	4,400
Administration			11	4,400
Other			4	1,600
Total			1278	511200
Depreciation			100	40,000
Total		47%	1378	471200
Irrigation	Off Farm		168	67,127
	On Farm		200	80,000
FARM EXPENDITURE			1,746	698,327
FARM SURPLUS			1,215	485,865

The table below shows the potential conversion costs of the 400ha property, from the existing system of flood irrigated dairy support, to spray irrigated dairy support. Cost of capital has been budgeted at 7%.

Conversion Costs from Dairy Support to Dairy	Support	
Item	\$/ha	Total
Clean Up	350	140,000
Irrigation System	4,500	1,800,000
Cow Shed		0
Electricity	300	120,000
Housing		0
Other Buildings	150	60,000
Fencing and Lanes	200	80,000
Stockwater	350	140,000
Fertiliser	200	80,000
Regrassing	300	120,000
Machinery	250	100,000
Livestock		0
Gross Total	6600	2,640,000
Water Shares	1248	499,265
Total	7,848	3,139,265
Debt Serv. Cost on Conv.	549	219,749

#### Efficiently Spray Irrigated Dairy Farm Model

This model is an example of a dairy system which could be operated on a 400ha property if it was developed to utilise efficient forms of irrigation, such as spray. The farm is based on a stocking rate of 3.2 cows per ha producing 1315MS/ha. All young stock are grazed off and the cows are wintered off the property. An average milk price of \$6.50/KgMS is used and farm working expenses accumulate to \$4.63/KgMS.

	Dairy Farmi	ng System	
REVENUE		per kgMS	\$/ha
Milksolids	1,315	\$6.50	8548
Cattle net of P	urchases	0.35	460
Other		0.02	26
GROSS FARM F	REVENUE	6.87	9035
Livestock Purch	nases	0.02	26
NET FARM REV	ENUE	6.85	9009
FARM WORKIN	IG EXPENSES		
		per MS	per ha
Wages		0.75	986
Animal Health		0.20	263
Breeding		0.10	132
Shed Expenses		0.05	66
Electricity		0.18	237
Feed		1.33	1749
Fertiliser		0.50	658
Freight		0.05	66
Seeds		0.05	66
Shearing			0
Weed and Pest	t	0.03	39
Fuel		0.08	105
Vehicle		0.08	105
Repairs & Main	nt	0.35	460
Rates		0.04	53
Communicatio	n	0.02	26
Insurance		0.06	79
Acct, Legal,Cor	IS	0.05	66
Administration	1	0.03	39
Other		0.06	79
Total		4.01	5274
Depreciation		0.34	450
Total		4.35	5724
Irrigation	Off Farm	0.13	168
	On Farm	0.15	200
FARM EXPEND	ITURE	4.63	6091
FARM SURPLU	S	2.22	2917
less Debt Servi	cing	1.08	1414
NET FARM SUR	PLUS AFTER DEBT SERVIC	CING 1.14	1503

These tables show the potential costs which would be incurred if the property was converted from either sheep breeding or dairy support. Livestock costs do vary between the two options since the sell down of the capital ewe flock in the sheep model would offset the purchase of the dairy cows.

CONVERSION C	OSTS going from Dairy Sup	port to Dairy	
Item		MS	\$/ha
Clean Up		0.38	500
Irrigation Syste	m	3.42	4,500
Cow Shed		3.04	4,000
Electricity		0.53	700
Housing		0.61	800
Other Building	5	0.06	75
Fencing and Lanes		0.38	500
Stockwater		0.30	400
Fertiliser		0.23	300
Regrassing		0.42	550
Machinery		0.57	750
Net Livestock		3.92	7,354
Gross Total		15.53	20429
Plus Water Sha	res (1 for 1 ha)	0.95	1248
Total		16.48	21,677
Debt Serv. Cost	on Conv.	1.09	1430
Debt Serv. Cost	on Water Shares	0.07	87
Total DS		1.15	1517

CONVERSION C	OSTS going from S&B to Dairy		
Item		MS	\$/ha
Clean Up		0.38	500
Irrigation System	m	3.42	4,500
Cow Shed		3.04	4,000
Electricity		0.53	700
Housing		0.61	800
Other Buildings		0.06	75
Fencing and Lar	les	0.38	500
Stockwater		0.30	400
Fertiliser		0.23	300
Regrassing		0.42	550
Machinery		0.57	750
Net Livestock		3.92	5,874
Gross Total		14.41	18949
Plus Water		0.95	1248
Total		15.36	20,197
Debt Serv. Cost	on Conv.	1.01	1326
Debt Serv. Cost	on Water Shares	0.07	87
Total DS		1.08	1414

### Summary Tables

FINANCIAL SUMMARY										
		Existing	Systems			New S	ystems			
	Mixed Arable	Sheep Breeding	Dairy Support	Dryland Half-Bred Sheep	Dairy	Mixed Arable	Sheep & Breeding Finishing	Dairy Support		
Total Revenue	\$1,726	\$1,001	\$1,289	\$414	\$9,009	\$3,531	\$2,530	\$2,960		
Farm expenses	\$1,142	\$584	\$654	\$247	\$5,724	\$2,055	\$1,219	\$1,378		
FE as % TR	66%	58%	51%	<u>60%</u>	64%	58%	48%	47%		
On Farm Irrigation Expense	110	110	110		\$200	\$200	\$200	\$200		
Off Farm Irrigation Annual Cost 5m					\$168	\$168	\$168	\$168		
Off Farm Irrigation Annual Cost 27m					\$288	\$288	\$288	\$288		
Farm Surplus - Existing Systems	\$474	\$307	\$525	\$167						
Farm Surplus - 5m					\$2,917	\$1,108	\$943	\$1,215		
Farm Surplus - 27m					\$2,797	\$988	\$822	\$1,094		

The results for the budgets above have been summarised in the table below. It shows what the farm surplus would be for each of the new systems, under the two scenarios of the 5m dam or the 27m dam.

This table shows the return which could be generated under different conversion scenarios. The 27m dam option would involve bringing in new users from dryland farming to an irrigated system. Therefore, it is assumed that the conversion of these properties would only be from the dryland half-bred sheep systems.

The marginal return is the increase in profit which the new system generates, over and above what the existing system did. The marginal capital is the capital which would be required to be invested, in order to convert to the new farming system. Therefore the return on marginal capital is the extra profit margin as a % of the extra capital invested.

Converting from Flood Irrigation to Spray Irrigation									
		Do	Minimum (5	im)			27m C	ption	
Existing System (Flood Irrigated or Dryland)	Sheep Breeding	Dairy Support	Arable	Sheep Breeding	Dairy Support	Dryland Halfbred Sheep			
New System (Spray Irrigated)	Dairy	Dairy	Mixed Arable	Sheep & Breeding Finishing	Dairy Support	Dairy	Mixed Arable	Sheep & Breeding Finishing	Dairy Support
Off Farm Capital Cost	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$2,734	\$2,734	\$2,734	\$2,734
Marginal Return (\$/ha)	\$2,610	\$2,393	\$634	\$636	\$690	\$2,630	\$821	\$655	\$927
Marginal Capital (\$/ha)	\$20,197	21,677	\$7,826	\$8,058	\$7,848	\$21,683	\$9,312	\$9,544	\$9,334
Return on Marginal Capital	12.9%	11.0%	8.1%	7.9%	8.8%	12.1%	8.8%	6.9%	9.9%