Practical Engineering Solutions Consents, Effluent, Stockwater Design through to Installation

Extra information for Wainui stevens Ltd. application



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WAINUI STEVENS Ltd.

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An Analysis of the Impact of Irrigation on Farming Practice, the Consequential Effects on Nitrate Leaching, and Some Opportunities for Nutrient Management

Prepared by Tony Rhodes Agricultural Consultant PGG Wrightson Consulting PO Box 42 Dannevirke 4942

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Report History

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Version	Date	Author	Change Description
1.0	14/12/2011	Tony Rhodes	Initial draft to Dairy Green for comment
1.2	17/2/2012	Tony Rhodes	Minor changes following review by Dairy Green

Introduction

Application has been made to Environment Southland by Wainui Stevens Ltd. to take up to 65 litres per second to a maximum of 520,000 m³ of groundwater between July 1 and the following 30 June for the purpose of irrigation of up to 332 ha of pasture and crops for the grazing and milking of dairy cows.

Environment Southland has sought additional information to support the application¹, specifically:

- A nutrient budget of the current farming operations (status quo); and
- A nutrient budget of farming operations under the proposed irrigation, and
- A nutrient management plan

Environment Southland has identified an area of elevated groundwater nitrate concentrations (Balfour nitrate hotspot) and is seeking detail on how the applicant intends to manage the effects of the proposed activity in a manner consistent with Environment Southlands resource management standards.

Dairy Green Ltd. has prepared further information in support of the application², and has requested that an analysis of N-loss from the current and potential farm systems be undertaken.

Current Farming System

The current farm system, policies and practice is described in the Dairy Green report².

The notable difference between the Dairy Green report and this analysis is in the farmed area.

For the purpose of my analysis and assessment of nitrate leaching the area of land farmed is 424 ha, Table 1.

Block Name	Use/activity	Effective block area (ha)	
Non-effluent area – Kaweku	Milking platform	107	
Non-effluent area - Makarewa	Milking platform	72	
Effluent area	Milking platform	65	
Dry stock	Dry stock, supplements	90	
Dry stock – summer crop	Forage, dry stock, supplement	40	
Dry stock winter crop	Forage, dry stock, supplement	10	
Lease	Dry stock, supplements	10	
Total grazed area		394	
Non-productive area		30	
Total farm area		424	

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Table 1. Land Area Farmed

¹ W258-003, 3 August 2010, Jason Domigan, Environment Southland

² Wainui Stevens, Further Information re Nitrogen Hotspot, 19/10/2011

The non-productive area includes 8ha of wetland which is classified unfenced and accessible by cattle; with water flow most of the year, apart from drought; colonised by sedges and rushes; with a contributing catchment area of approximately 12 ha.

Livestock grazing are based on spring-calving 750 cows, Table 2.

	Replacement Heifer calves	R2 Heifers	MA Milkers	Bull Calves	Carry-over cows
July			750		40
August			750		40
September			750		40
October	225		740	100	40
November	225		740	100	40
December	225	************	740		40
January	225		740		40
February	225	1000 10	690		40
March	225		690		40
April	225		640		40
May		195	555		40
June		195	555		40

Table 2. Livestock Numbers and Class

Assumptions

The total land and farmed area are important input values for Overseer analysis. A further check on the accuracy of data assumptions would be provided by the legal title area.

In the analysis I have undertaken, I have included the total land area and all livestock farmed across this. Accordingly, dry stock replacement cattle, bull calves reared for sale in December at 100 kg live weight, and carry-over cows are included.

Equally, supplements imported onto the farm are detailed in the analysis, Table 3.

Product	Usage	Quantity	Placement
Wheat grain	In-shed lactating cows	ows 250 tonnes	In-shed
Straw	Wintering of cows	75	Paddock
Straw	Wintering 1 st calvers	25	Paddock
Straw	Lactating cows - Spring 30 Padd		Paddock
Molasses			Paddock
Meal	Calf rearing 18 Padd		Paddock

 Table 3. Status Quo - Supplement Imported onto the Farm

However, supplements made on the farm, irrespective of the block they are harvested from, and where they are fed, are not separately detailed, as they represent no net importation of nutrients into the system. This includes 600 tonnes of silage fed to cows

through winter; 42 tonnes of balage fed to 1st calvers through winter; 250 tonnes of silage fed to lactating cows August-October; 150 tonnes of silage fed to lactating cows November – January; and 200 tonnes of silage fed mid-March – May.

Milksolids production used in this analysis is 282,000 kg, comprising 276,500 kg estimated sold to Fonterra plus 5,500 kg estimated as being fed to rear both heifer and bull calves.

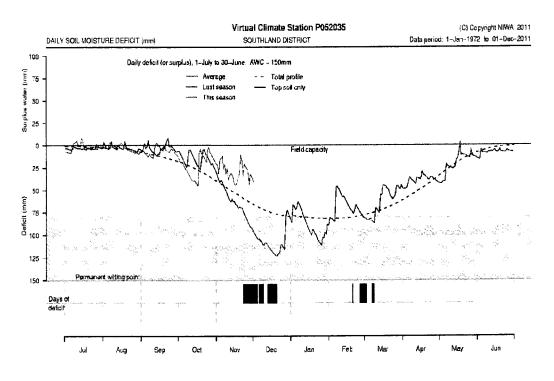
Forage cropping is typically undertaken on both the milking platform and the dry-stock or lease land and comprises 10 ha of summer turnips plus 10 ha of winter forage. In 2011/12 this was planted in Fodder Beet.

Irrigation

The nature and scope, and the rationale of how irrigation is expected to benefit the business are detailed in the Dairy Green report².

Data from the NIWA Virtual Climate data set provides an indication of the extent and level of soil moisture deficit for the farm, albeit in an average season³, Figure 1.

Figure 1. Soil Moisture Deficit Estimates



³ NIWA – Agent no. 10619; Station P052035; <u>http://wrenz.niwa.co.nz/webmodel/</u>. Virtual site is approximately 500m East of Panini-Balfour Rd and 500m North of Cowrie Rd.

On average, there is low expectation of soil moisture deficit negatively impacting on pasture production, through January and February. So overall, the average total production benefit resulting from irrigation is not expected to be large, compared to irrigating in a routinely high spoil moisture deficit environment.

However, "averaging" misses the strategic benefit that irrigation may be able to provide. This is illustrated by the 2001/11 soil moisture deficit profile; soil moisture deficit was significant through mid-November to late December; late January; and again for a short time late February – early March.

The benefit of irrigation that has been applied in this analysis includes:

- No overall increase in milksolids production from the farm
- Improvement in consistency of summer crop yield from a low of 7 tonnes/ha to 12 tonnes/ha of summer turnip through improved crop production from establishment
- Improvement in consistency of winter fodder beet crop yield from a low of 17 tonnes/ha to 30 tonnes/ha through improved crop production from establishment and through the summer
- Less feed imported (energy and nutrients) to make up the shortfall which occurs when crop yield and late summer-autumn pasture growth is reduced due to moisture deficit

An additional benefit, but one which cannot be quantified with Overseer, is the impact irrigation is expected to provide in reducing the loss of Nitrate from grazed pasture in the autumn when rainfall resulting in drainage follows a period of dry conditions. Irrigation will avoid an extended period of soil moisture deficit, so that pasture growth is able to utilise deposited urine and dung and minimise any build-up of soil nitrate, which would otherwise be at risk of leaching at the start of autumn.

However, there are also potentially negative risks with irrigation. Irrigation timing and application rate will need to be carefully monitored and managed to avoid creating situations when field capacity moisture levels are approached when irrigation and rainfall are combined. This will have implications for soil compaction, infiltration and drainage, and management of effluent, both application and storage.

Secondly, maintaining soils in a more consistently moist state risks disturbing the normal cyclical wetting/drying phase which contributes to soil development and soil structure. It is unclear how this, combined with high relative stocking rate, will affect soil compaction and soil infiltration rate on each of the soils comprising the farm over time. However, first principles indicate likely negative impact on soil compaction, infiltration rate and soil structure as well as pasture damage.

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Nitrate Leaching

Several scenarios that represent alternative strategies and practice have been considered, with emphasis in the impact on long-term average N-loss.

Overseer[®] (ver. 5.4.8.0) has been used to produce estimates of the long-term equilibrium nutrient profile of each of these scenarios.

Each scenario has been prepared considering the whole farm – milking platform and support areas, including the leased land.

The approach detailed across the following scenarios has been to establish the best estimate for the current (status quo non-irrigated) farming system and feeding practice.

Against this, various alternatives have been considered, initially with production limited to 282,000 kg milk solids; then impacts when production is increased to 310,000 kg milk solids; and finally if a production capacity of 325,000 kg milk solids was achieved.

Within each block of analysis, several incremental scenarios are detailed, simply to enable the reader to appreciate to consequence and nature of the impact of the production system on nitrogen inputs and leaching. Some of these scenarios will not function as a whole-farm system.

Within each scenario description, an indication of the nitrogen input into the system from the combination of applied nitrogen fertiliser plus imported feed is detailed. Obviously, nitrogen fixed by rhizobia and clover will be additional to this.

In addition to the tables describing each scenario, estimated nitrate leaching levels are illustrated in Figure 2.

Impacts Under Current Production - 282,000 kg MS

Scenario	Description
1a	Status quo farm system with dryland crop yield and current levels of supplement importation
1b	Status quo farm system but with increased summer & winter forage crop yield with irrigation. Supplement importation is unchanged, consequently pasture consumption is assumed to reduce.
1c	Increased forage crop yield, and consequential reduction in quantity of imported supplements – wheat grain reduced from 250 to 110 tonnes.
1c.1	Increased forage crop yield, but with better nutritional balancing – 250 tonnes grain imported and 148 and less N-boosted silage made on farm – 148 tonnes less silage & 12.3 tonnes less nitrogen applied
1c.1B	As 1c.1, but with nitrification inhibitor applied
1c.2	Feeding winter crop and paddock winter grazing results in N-leaching hot spots. Elimination of on-paddock winter grazing of cows through provision of a wintering pad with any liquid effluent capture and storage and solids scrape and spread.
	Maintain status quo N use for silage, import extra 60 tonnes straw and purchase 200 tonnes DM as whole crop silage.

Scenario	Overall farm N-leaching loss		MS	Farm average
	N - kg/ha – all blocks average	N – total kg	Production kg	fertiliser+feed import kg N/ha
1a	21	8,716	282,000	127
1b	20	8,326	282,000	127
1c	20	8,576	282,000	122
1c.1	19	8,061	282,000	107
1c.1B	16	6,918	282,000	107
1c.2	16	6,894	282,000	123

Assuming that milksolids production is not increased above 282,000 kg, the impact of irrigation is that forage crop yield and new pasture establishment performance is more consistently achieved. A consequence of this is that in seasons which would otherwise result in feed stress, less feed would need to be imported onto the farm, or less nitrogen would need to be applied to achieve feed equivalence.

The opportunity to feed more balance ration to the herd, particularly through the spring, by feeding grain in conjunction with spring pasture, and the impact on mitigating nitrate leaching is illustrated in scenario 1c.1.

The possible impact of two mitigation strategies is explored in 1c.1B (nitrification inhibitor application) and 1c.2 (wintering all cows on a wintering pad). Both potentially offer

significant reduction on nitrate leaching potential, while the wintering pad offers cobenefits around more sustainable soil management, pasture damage and spring pasture production.

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Impacts Under Increased Production - 310,000 kg MS

The reality is that there will be some expectation of increased pasture production as a consequence of irrigation, albeit not in every season. Based on the NIWA data, 50% of the time the extent of summer soil moisture deficit is minimal. But the upshot will be an expectation of a higher level of farm production across most seasons, if not because of the benefit of irrigation, then at least because of summer rainfall conditions. The quantum of this increase in farm production is unclear – I am expecting some further data from AgResearch around irrigation in Southland, but as at 17th February 2012 this data is unavailable.

It is plausible to assume an increase in farm production from 282,000 kg MS to 310,000 kg MS. An increase of this level will require additional DM consumption of 336,000 kg DM/annum, which will all be additional pasture. This equates to an additional 1,377 kg DM eaten per hectare.

Additional pasture production will require additional nitrogen into the system, either through extra legume nitrogen fixation or as fertiliser. While this will be cycled within the system, there will be significant losses as a result of urination etc. which will necessitate additional nitrogen input. Secondly, there appears to be no improvement in nitrogen response efficiency as a result of irrigation in this environment. Consequently, I have estimated that an additional 15 tonnes of nitrogen per annum will be required to realise this level of additional pasture production and milk solids performance.

Scenario	Description
1c.1	Increased forage crop yield, but with better nutritional balancing - 250
	tonnes grain imported and 148 and less N-boosted silage made on farm -
	148 tonnes less silage & 12.3 tonnes less nitrogen applied
1c.1.1	10% extra MS production from more consistent summer soil moisture
	levels – no additional nitrogen input
1c.1.2	10% extra MS production from more consistent summer soil moisture
	levels but with an additional 15 tonnes of nitrogen input per annum to
	realise the additional pasture production and milk solids performance
1c.1.2B	10% extra MS production from more consistent summer soil moisture
	levels but with an additional 15 tonnes of nitrogen input per annum to
	realise the additional pasture production and milk solids performance.
	Nitrification inhibitor applied.

Scenario	Overall farm N-le	eaching loss	MS Production kg	Farm average fertiliser+feed import kg N/ha
	N - kg/ha – all blocks average	N – total kg		
1c.1	19	8,061	282,000	107
1c.1.1	19	8,240	310,000	107
1c.1.2	22	9,210	310,000	142
1c.1.2B	19	7,925	310,000	154

With irrigation, increasing production to 310,000 kg milksolids will involve higher nitrogen application (scenario 1c.1.2). This system can be expected to result in a higher level of potential nitrate leaching (9,210 kg vs. 8,716 kg in the status quo system).

One option to mitigate this is application of nitrification inhibitor (1c.1.2B) which is estimated to reduce nitrate leaching potential to 7,925 kg.

Scenario	Description
1c.2	Feeding winter crop and paddock winter grazing results in N-leaching hot spots. Elimination of on-paddock winter grazing of cows through provision of a wintering pad with any liquid effluent capture and storage and solids scrape and spread.
	Maintain status quo N use for silage, import extra 60 tonnes straw and purchase 200 tonnes DM as whole crop silage.
1c.2.1	10% extra MS production from more consistent summer soil moisture levels – no additional nitrogen input
1c.2.2	10% extra MS production from more consistent summer soil moisture levels but with an additional 15 tonnes of nitrogen input per annum to realise the additional pasture production and milk solids performance
1c.2.2B	10% extra MS production from more consistent summer soil moisture levels but with an additional 15 tonnes of nitrogen input per annum to realise the additional pasture production and milk solids performance.
	Nitrification inhibitor applied.

Scenario	Overall farm N-le	aching loss	MS Production kg	Farm average fertiliser+feed import kg N/ha
	N - kg/ha – all blocks average	N – total kg		
1c.2	16	6,894	282,000	123
1c.2.1	17	7,067	310,000	123
1c.2.2	19	8,130	310,000	160
1c.2.2B	16	6,714	310,000	171

Installing a wintering pad with production of 310,000 kg milksolids production is expected to result in less nitrate leaching potential than is likely occurring under the current system. When the additional nitrogen use under irrigation is factored in (1c.2.2), nitrate leaching is expected to be 7% lower than the status quo (8,130 vs. 8,716).

Utilizing nitrification inhibitor in conjunction with a winter feeding can be expected to further mitigate the risk of nitrate leaching (1c.2.2B), however the magnitude of this additional benefit is unlikely to be a large as indicated in this analysis.

Impact of Higher Farm Production – 325,000 kg MS

Environment Southland's concerns around the Balfour nitrate hotspot are obviously influenced by the potential impact of further intensification of production.

To expand understanding around the sensitivity of nitrate leaching loss to even higher production levels, likely system outputs of nitrate at a production level of 325,000 kg MS has been explored.

Achieving this level of production is premised on the assumptions around the benefits of irrigation, input of the additional 15 tonnes of nitrogen per annum as noted in scenarios 1c.1.2 and 1c.2.2, plus an additional import of 180 tonnes DM of whole crop silage.

Importation of feed onto the farm is expected to be necessary to meet the feeding requirements for this level of production. While additional nitrogen input could be employed, this is not a realistic option as in scenario 1c.2.2 the proposed farm-average application rate of 160 kg N/ha would need to be significantly lifted.

A practical option, and one which will assist in mitigating, the level of farm nitrate loss is to import a lower protein-higher carbohydrate supplement such as maize or whole crop silage. In contrast, importing an equivalent quantity of pasture silage would result in unnecessarily high protein intake and excessive loss of nitrate through urine excretion.

Scenario	Description
1c.1	Increased forage crop yield, but with better nutritional balancing - 250
	tonnes grain imported and 148 and less N-boosted silage made on farm – 148 tonnes less silage & 12.3 tonnes less nitrogen applied
1c.1.3	15% extra MS production (325,000 kg MS) from more consistent summer soil moisture levels, plus an additional 15 tonnes of nitrogen input per annum to realise the additional pasture production, plus an additional 180 tonnes of whole crop silage for feeding to the milking herd
1c.1.3A	As above, but imported feed is pasture silage rather that whole crop
1c.2	Feeding winter crop and paddock winter grazing results in N-leaching hot spots. Elimination of on-paddock winter grazing of cows through provision of a wintering pad with any liquid effluent capture and storage and solids scrape and spread. Maintain status quo N use for silage, import extra 60 tonnes straw and purchase 200 tonnes DM as whole crop silage.
1c.2.3	 15% extra MS production (325,000 kg MS) from more consistent summer soil moisture levels, plus an additional 15 tonnes of nitrogen input per annum to realise the additional pasture production, plus an additional 180 tonnes of whole crop silage for feeding to the milking herd. Feeding winter crop and paddock winter grazing results in N-leaching hot spots. Elimination of on-paddock winter grazing of cows through provision of a wintering pad with any liquid effluent capture and storage and solids scrape and spread.

Maintain status quo N use for silage, import extra 60 tonnes straw and
purchase 200 tonnes DM as whole crop silage.

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Scenario	Overall farm N-leaching loss		MS	Farm average	
	N - kg/ha – all blocks average	N – total kg	Production kg	fertiliser+feed import kg N/ha	
1c.1	19	8,061	282,000	159	
1c.1.3	22	9,289	325,000	145	
1c.1.3A	22	9,314	325,000	145	
1c.2	16	6,894	282,000	187	
1c.2.3	19	8,202	325,000	162	

At a production level of 325,000 kg milksolids expected nitrate leaching potential will exceed the status quo level by around 7% (1c.1.3 & 1c.1.3A).

However, even at this level of production, with all cows fed on a wintering pad, nitrate leaching potential is expected to be around 9% lower than the status quo level (1c.2.3).

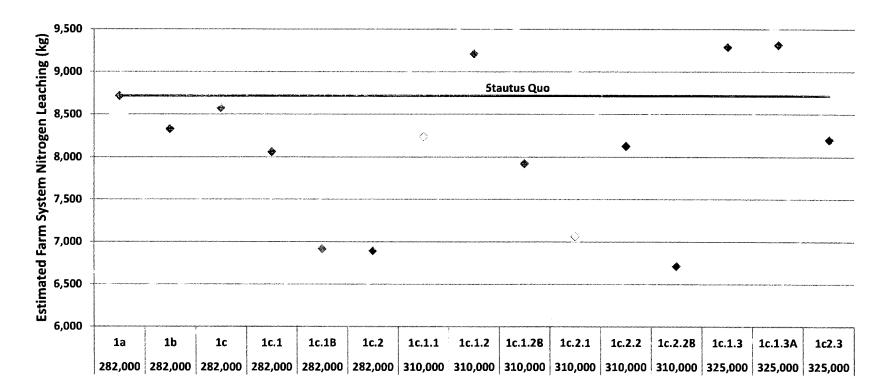


Figure 2. Comparison of Whole Farm System Nitrate Leaching – Wainui Stevens (from Overseer[®] analysis)

Farm System Scenario and MS Production (kg)

Concluding Comments

COMPLETING CONTRACT AND

The Overseer[®] analysis is based on the information provided and my understanding of the farm systems of the property.

Potentially there are other alternatives that could be explored and their impact assessed.

For example, one mitigation option that has not been assessed is the construction of wetlands to intercept and treat sub-surface drainage water. There is currently an 8ha wetland which is considered, in this analysis, to provide no remediation. However, it is conceivable that a level of remediation could be considered, and used to off-set other possible nitrate leaching risk. While the existing wetland is situated at a higher level of the farm, and would likely provide little remediation of sub-surface drainage water from this farm, if the catchment received sub-surface drainage water from neighbouring farms, it may be possible to gain off-set for this if the wetland were upgraded.

Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:27 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields & 140 t less grain imported File: Stevens Whole Farm Budget ver.1c.ovp

Parameter report

Parameter name		Units		Value
Region				Southland
No Fuel, electricity and other f	arm inputs			
No Farm capital (structure) inp	outs			
Block setup summary				
Block name	Block type	Effecti∨e area (ha)	Relative	productivity
Non-effluent area- Kaweku	Pastoral	107	1	
Non-effluent area-Makarewa	Pastoral	72	1	
Effluent area	Pastoral	65	1	
Dry stock	Pastoral	90	1	
Lease	Pastoral	40	1	
Dry stock Summer crop	Fodder Crop	10	0	
Dry stock Winter crop	Fodder Crop	10	0	
Total farm area declared as b	locks	ha		394
Total farm area		ha		424
Non-productive area		ha		30
Relative productivity assessm	ent method			No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios		False

Tony Rhodes

PGG Wrightson Consulting

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		740
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:27 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields & 140 t less grain imported File: Stevens Whole Farm Budget ver.1c.ovp

Parameter report

Parameter name		Units	Value
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No Fuel, electricity and other f	arm inputs		
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Block setup summary			
Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	90	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Dry stock Winter crop	Fodder Crop	10	0
Total farm area declared as b	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessm	ent method		No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios	False
Stock Information: Dairy ani	imals		
Monthly stock reconciliation			

Tony Rhodes

PGG Wrightson Consulting

Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		740
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

ENVIRONMENTAL FARM SYSTEM INFORMATION

This section sets out the information that Fonterra requires all farms to maintain during the course of the season. This information is used for a range of purposes within the business such as ensuring milk safety, forecasting milk production and measuring our environmental footprint.

For the purposes of completing these forms, the 'season' includes the period from 1 June 2012 through to 31 May 2013. This information needs to be provided to Fonterra prior to 30 June 2013. You can add to and save this PDF throughout the season. When all your information has been entered, please email your saved PDF to nitrogen@fonterra.com or print the PDF and mail to Fonterra Co-operative Group Ltd, Environmental Farm System Information, PO Box 459, Hamilton 3204.

When completing the forms you must ensure that all the relevant fields are completed.

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The required information is broken into five categories. Complete the table below to ascertain which information you need to collect and where you will keep these records.

	Section	When to complete	Where is th	e data recorded?
			Dairy Diary (tick)	Other (Specify)
1	Herd Data	This section must be completed by all farms		Owners House
2	Nitrogen Inputs	Complete this section if you apply any of the following to the farm: • Any fertiliser that contains nitrogen		Owners House
		Organic matter or compost		
		Effluent from external sources		
		DCDs such as eco-N from Ravensdown or DCn from Ballance		
3	Supplementary	Complete this section if you use:		Owners House
	Feeds and Fodder	Feed that is sourced from a third party or grown offsite		
	Crops	Fodder crops on the milking platform		
		 Other feeds that are grown on the milking platform 		
4	Feed pads, Stand- offs and Housing	Complete this section if you use any kind of feed pad, stand-off pad or animal housing system		N/A
5	Effluent and Irrigation	The effluent section must be completed by all farms. The irrigation section must be completed by all farms that use clean water irrigation	1	

GENERAL INFORMATION

Preferred Fertiliser Supplier (tick one):

✓ Ballance/Altum

Ravensdown Neither

Supplier Number: 32940

Record the details of your farm blocks below for easy reference.

Block name	Description	Area (Ha)
Main pasture block		150
Effluent block		83
Fodder crop block		17
Stock excluded block	Swamp, lanes, buildings, houses.	26
Additional block 1	Calf rearing block	10
Additional block 2		
Additional block 3		
	Total Farm Area	286

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HERD DATA

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Record all details of the milking herd including grazing off data and other livestock that is kept on the property.

DAIRY HERD				
en an an an an an Arran an Ar Arran an Arran an Arr Arran an Arran an Arr	Calving date (start)	Drying-off date	Number of cows calved	Predominant breed
Milking herd 1	08/08/12	25/05/13	755	Friesian
Milking herd 2				
Milking herd 3				
Milking herd 4				
		Note: Only enter more than one	e herd when there is a split calving	
Once-a-day milking (tick one)	Never	Only at drying-off	Half of season	All season
Replacements (tick)	Off-farm from weaning	Off-farm from 9 months	Always on-farm	
Replacement rate	18 %			

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Supplier Number:

Date off-farm	Date returned	Where did they go?
When did they leave the milking platform?	When did they return to the milking platform?	Where did the cows go during this time?
20 May 2012	1 August 2012	Off-site grazier
30 May 2012	10 August 2012	Support Block
		· · · · · · · · · · · · · · · · · · ·
	When did they leave the milking platform? 20 May 2012	When did they leave the milking platform? When did they return to the milking platform? 20 May 2012 I August 2012

OTHER ANIMALS					
Species	Class	Number	Date on-farm	Date off-farm	Age
e.g. Pigs, sheep, cattle	e.g. Bulls, hoggets	Number of animals of this breed and class	The date that animals arrived on the property	Date that the animals left the property	The age of the animals at arrival on-farm (months)
Sheep example	Hoggets	30	30 June 2012	August 2012	8
N/A					

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NITROGEN INPUTS

This section is to record the use of all nitrogen inputs such as nitrogen fertiliser, imported effluent and compost along with the use of DCDs.

NITROGEN FERTILISER INPUTS				
Fertiliser type/name	Amount applied	Block(s) applied	Month applied	Records for verification?
Preferably the company and product name	Enter amount in tonnes or kg/ha	Identify the nutrient management blocks that the fertiliser is applied to	Which month is the fertiliser applied?	Are records available ta verify application and where are they kept?
Fertio Urea	100 kg/ha.	Main and effluent	January	Yes, fertiliser records stored in office
Ballance n - rich urea	12 tonnes	Main and effluent	September	Yes, records at owners house
Ballance DAP	4.7 tonnes	Fodder crop block	October	Yes, records at owners house
Ballance n - rich urea	6.6 tonnes	Main	October	Yes, records at owners house
Ballance n - rich urea	3.3 tonnes	Main	November	Yes, records at owners house
Ballance n - rich urea	6.6 tonnes	Main	December	Yes, records at owners house
Ballance n - rich urea	8.5 tonnes	Main	January	Yes, records at owners house
Ballance n - rich urea	6 tonnes	Main	March	Yes, records at owners house
Ballance n - rich urea	10 tonnes	Main and effluent	April	Yes, records at owners house
Ballance n - rich urea	4 tonnes	Main and effluent	Мау	Yes, records at owners house

This table is to record all other external sources of nitrogen being imported into the farming system. You should only use this table if you are using special fertiliser mixes, effluent from external sources, compost or other non-traditional fertilisers.

	Product description	Amount applied	Nitrogen content	Block(s) applied to	Month applied	Records for verification?
	What is the product being applied?	Enter amount in tonnes or m ³	What is the N content (%)?	ldentify the nutrient management blocks that the fertiliser is applied to	Which month is the product applied?	Are records available to verify application and where are they kept?
<i>9</i> .	Dairy Wastewater	300	15	Main	January	Records kept at shed
	N/A					
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This table is to record the use of the nitrification inhibitor dicyandiamide (DCD). This includes the application of the branded products eco-N from Ravensdown and DCn from Ballance Agri-Nutrients where they are used in accordance with the manufacturer's instructions.

DICYAN	NDIAMIDE (DCD) USAGE													
Block a	pplied to					۸	Month	applie	d					
DIOCK a	ppneu to	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Records for verification?
Which bloc	ks received the treatment?	Tick the	e months	when DC	D was ap	plied			÷.					Are records available and where are they kept?
e.g.	Whole farm		\checkmark					2				\checkmark		Receipts in farm office
1	N/A													
2														
3														
4														
5														
6														

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SUPPLEMENTARY FEEDS AND FODDER CROPS

Start by recording the details of all supplementary feed on-hand at the start of the season, regardless of where it is from. During the season, record all fodder crops, grass silage, baleage and hay that is grown on the farm, along with all supplementary feed that is either purchased or grown offsite and imported onto the farm. Also record any feed that is left at the end of the season.

FEED AT START OF SEASON

		Eitl	ner	As dry	Neter
Sup	plement type	No. of bales	Amount	weight?	Notes
What	type of feed is it? e.g. grass silage, PKE, straw, etc	Size and number of bales; or	Enter the total tonnage	Click over Y or N	
e.g.	Grass Silage		30	Y/X	
1	Grass Silage		200	Y /₩	
2				Y / N	
3				Y / N	
4				Y / N	
5				Y / N	
6				Y / N	
7				Y / N	
8				Y / N	
10				Y / N	

NOTES

This table is to record the details of fodder crops that are grown on-farm. (Note that these need to be identified as separate blocks in the block set-up.)

	Example	Crop 1	Crop 2	Crop 3	Crop 4
Crop name	Kale	Turnips			
Area (ha)	23	17 ha	ha	ha	ha
Yield (tonnes DM/ha)	11	10 t/DM/ha	t/DM/ha	t/DM/ha	t/DM/ha
Cultivation method (tick)					
• Direct drill	\checkmark				
• Minimum tillage					
Conventional		✓			
Month of first cultivation	November	october			
Effluent applied to crop? (yes/no)	No	No			
Irrigation water applied to crop? (yes/no)	No	No			
Month resown	August	March			
Percent of crop eaten by:					
Dairy cows	100 %	100%	%	%	%
Dairy replacements			%	%	%
Other stock			%	%	%
Fate of the crop (tick)					
Grazed in paddock	\checkmark	✓			
- Hours grazing/day	3	3 hrs/day	hrs/day	hrs/day	hrs/day
- Month first grazed	June	Jan			
- Month last grazed	July	March			
Cut and carry	,	N/A			
- Where was it fed?					
• Exported off-farm		N/A			
Carried over to next season		N/A			

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Supplier Number:

32940

SUPPLEMENTARY FEEDS AND FODDER CROPS (Continued) Enter all supplementary feed inputs that are either obtained from a third party or grown on a support block and imported onto the farm.

C			E	ither		
Sup	olement type	Supplement source	No. of bales	Amount	As dry weight?	Where fed?
	type of feed is it? e.g. grass silage, arley, straw, etc	Where did the feed come from?	Enter the size and number of bales; or	Enter the total tonnage of feed	Click over Y or N	Where was the feed fed to the cows? e.g. in the paddock, shed feed pad, etc
e.g.	Maize silage	Rurchased - FeedsRus Ltd.		100	Y/X	Paddoxk
1	Wheat	Purchased- Collins Farmin		194.46	X /N	In- Bail feed system
2	Molasses	Purchased - CRT		59.86	X /N	In- Bail feed system
3	Straw	Purchased- Collins Farmin		41.5	Y / X	in the paddock
4	Barley wholecrop silage	Grown support block		350	Y / 🗙	in the paddock
5	Grass Silage	Grown support block		250	Y / 🕅	in the paddock
6					Y / N	11 - 1994 - 199
7					Y / N	
8					Y/N	
9					Y / N	
10					Y / N	
11					Y / N	
12.					Y / N	
13					Y / N	
14			<u> </u>		Y/N	

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Enter all grass silage, baleage and hay that is grown on-farm over the course of the season.

FEED	GROWN ON-FARM								
Sunn	lement type	E	lither	As dry unight?	Notes				
Jupp		No. of bales	Amount	- As dry weight?					
Whot ty	pe of feed is it? e.g. grass silage, baleage, etc	Size and number of bales; or Enter the total tonnage of		Click over Y or N					
1	N/A			Y/N					
2				Y/N					
3				Y/N					
4				Y/N					
5				Y/N					
6				Y/N					
7				Y/N					

1 <u>.</u>	AT END OF SEASON	E	Either		
Suppi	ement type	No. of bales	Amount	As dry weight?	Notes
What ty	pe of feed is it? e.g. grass silage, baleage, etc	d is it? e.g. grass silage, baleage, etc Size and number of bales; or Enter the total tonnoge of feed Click ove. Y or N		Click over Y or N	
1	Grass Silage		200	Y / 🛪	
2				Y/N	
3				Y/N	
4				Y / N	
5				Y/N	
6				Y/N	
7				Y / N	

FEED PADS, STAND-OFFS AND HOUSING

These forms are to be completed by all farms where feed pads, stand-off pads, loafing pads or cow housing is used. Please check the description at the top of each box to ensure you complete the correct form.

Feed pads: usually a hard surface near the dairy where stock is fed with supplementary feed.

FEED PADS												
Month	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
How many hours per day is the pad used?	N/A											
What percentage of the herd uses the pad?												
How is manure removed from the feed pad? (i.e. scraped or hosed)												
Over which blocks are the solids from the feed pad applied?												
For how long are the solids stored?												
Are the solids covered while they are being stored?												
Stored?												

Stand-off and loafing pads: specially built area with a base of sawdust, bark, peelings or soft rock for stock to be held during wet conditions.

STAND-OFF AND LOAFING PADS												
Month	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
How many hours per day is the pad used?	N/A											
What percentage of the herd uses the pad?							5					
What is the surface of the pad made of? (tick)		Li	me or re	ock mix		Sawdus	st, peelii	ngs, etc				Other
Is liquid effluent collected from the pad?												
Over which blocks are the solids from the pad applied?												
For how long are the solids stored?												
Are the solids covered while they are being stored?												

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Wintering barns or pads: facilities for housing or holding animals for weeks or months at a time. Feed is brought to the animals.

WINTERING BARNS OR PADS												
Month	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
What percentage of the herd uses the facility each month?	N/A											
What is the surface of the pad made of? (tick)		Lime or	rock mix	Sav	vdust, pee	elings etc			Concrete			Othe
Is limited grazing used (3-6 hours per day)?				•								
Is the facility covered?												
Is liquid effluent captured?												
Is the surface scraped regularly?												
Over which blocks are the solids from the pad applied?												
For how long are the solids stored?												
Are the solids covered while they are being stored?												
	I											

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ADDITIONAL DESCRIPTION OR NOTES

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EFFLUENT AND IRRIGATION

Record the details of the effluent disposal system on the farm and the use of clean water irrigation on the property.

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EFFLUENT				
How do you dispose of effluent? (tick)		Irrigated to pasture	Discharge to water	Both
If you have effluent pond(s), how do you manage the solids? Tick the option that applies or describe in the space provided.		Applied to effluent block	Applied to whole farm	Exported off-site
Answer the following questions if you apply effluent to land:				
How many days of effluent storage does the system have?	90			
How do you decide when to irrigate effluent?	Soil	Moisture Tapes		
Average depth of application?' (tick)		<12mm	12 – 24mm	>24mm

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Enter the details of irrigation on the farm. You can either enter the months that irrigation occurred and the total depth, or a monthly depth if you know it. If you do not know the depth of water applied, default values will be used for your region.

	Month applied							Annual	Area	Irrigation					
Block applied	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	irrigation		method
Which blocks received irrigation?	Either put	t an X in the	e months w	/hen irrigat	ion occurre	d and enter	an ann ual	depth, or e	nter month	ly depths ii	n mm			Но	e.g. pivot, border, K-line
Example I: Whole farm			Х	X	X	X	X	X	X				530	125	Centre to Centre
Example 2: Whole farm			30	50	100	120	120	70	60					125	Centre to Centre
N/A															
										· ·					
· · · · · · · · · · · · · · · · · · ·															

¹ Low rate pods, centre pivot injection or a travelling irrigator that is set-up well and on its fastest setting can achieve depths of less than 12mm.



ADDITIONAL NOTES

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	Mob 4		
Class	Calves (male)		
Breed	Friesian		
Numbers July	Thesian		
Numbers August			
Numbers September			
Numbers October	100		
Numbers November	100		
Numbers December	100		
Numbers January			
Numbers February			
Numbers March			
Numbers April			
Numbers May			
Numbers June			
Maximum weight (kg)	100		
Live weight start (kg)	80		
Live weight end (kg)	100		
Carcass weight (kg)	45		
Age start (months)	2		
Calves fed milk powder			False
Advanced dairy product	ion		
Milksolid yield		kg	282000
Lactation length		days	Unknown
Average weight		kg/animal	Unknown
% replacements in milking	herd	0	28
Median calving date			25 August
Drying off			24 May
Effluent disposal system			Holding pond
Ponding system			
Pond treatement methods			Seepage Walls
Pond sludge disposal met	hod		Spread over farm
Solids disposal method			Spread over farm
Once a day milking			Never
Grazing off options for n	nilking cows animals		
Percentage milking cows	removed	%	100
Month leaving farm beginn	ning of		June
Month returned end of	-		July
Grazed out most of farm p	rior to removal of animals		True
Feed pad			
% of milking season cows	use feed pad	%	100
Dairy wintering pad/anima	I shelter option not used		
	pafing pads option not used		
	oplements options for Dairy not	used	
	· · ·		

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 4
Catchment area	ha	12
Catchment convergence		Moderate convergence
Wetland type		Туре В
Aquitard depth		0 -1 m
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Sup	plements	Added
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Supplements A	Aded		Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	110.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproduc	cts Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

Block Information

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Parameter name	Units	Value
		Non-effluent area- Kaweku
Block name	ha	107
Area	114	Pastoral
Block type		Flat
Topography Distance from coast	km	90
	NIII	Imperfect
Profile drainage class		False
Poorly drained		True
Mole/tile drained		nue
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
	5 5	.6
TBK reserve K test		.0

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200

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Units	Value
Ballance other	100
Ballance other	75
	Lime (good quality)
kg/ha/yr	500
ation	False
ł	Ballance other kg/ha/yr

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley

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Parameter name	Units	Value
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	·- •
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Spray effluent		True	
Effluent application depth		< 12 mm	

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Block Information		
Parameter name	Units	Value
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		

Annual lime applications Lime material Rate

kg/ha/yr

Lime (good quality) 500

Block Information		
Parameter name	Units	Value
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

Block Information

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Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9

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Biookimonnation		
Parameter name	Units	Value
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Lease
Area	ha	40
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate

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DIOCK INTOTTIATION		
Parameter name	Units	Value
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animala and Postura		
Animals and Pasture	0/	20
Dairy milking herd	%	30
Dairy replacements	%	60 10
Beef	%	False
Finishing		
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
		500
Rate	kg/ha/yr	500
	kg/ha/yr	500 False

Block Information		
Parameter name	Units	Value

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Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True
Crop eaten by Sheep		False
Crop eaten by Beef		False
Crop eaten by Deer		False

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Parameter nam	ne			Units		Value	
Month first cultiv	vated					November	
Cultivation meth	nod					Conventional	
Cultivated pastu	ure brownto	p/unimproved				False	
Month first remo	oved					June	
Month last remo	oved					August	
Month resown i	n pasture					September	
Fertiliser							
December							
Soluble fertili	ser (kg/ha	/month)					
	N	P	к	S	Са	Mg	Na
	100	40	30	0	0	0	0
February							
Soluble fertili	ser (kg/ha	/month)					
	N	P	к	S	Ca	Mg	Na
	100	0	0	0	0	0	0

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Dryland crop yield File: Stevens Whole Farm Budget ver.1a.ovp

Parameter report

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Parameter name		Units	Value
Region	· · ·		Southland
No Fuel, electricity and other f	farm inputs		
No Farm capital (structure) inp	outs		
Block setup summary			
Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	90	1
1	Destavel	40	1

Tony Rhodes

PGG Wrightson Consulting

Dry Stook	rastoral	50		•	
Lease	Pastoral	40		1	
Dry stock Summer crop	Fodder Crop	10		0	
Dry stock Winter crop	Fodder Crop	10		0	
Total farm area declared as	blocks		ha		394
Total farm area			ha		424
Non-productive area			ha		30
Relative productivity assessment method					No difference between blocks
Make all block stock ratios s	ame as farm stoc	k ratios			False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:			
Duny.	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		740
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	590
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

	Mob 4				
Class	Calves (male)				
Breed	Friesian				
Numbers July					
Numbers August					
Numbers September					
Numbers October	100				
Numbers November	100				
Numbers December					
Numbers January					
Numbers February					
Numbers March					
Numbers April					
Numbers May					
Numbers June					
Maximum weight (kg)	100				
Live weight start (kg)	80				
Live weight end (kg)	100				
Carcass weight (kg)	45				
Age start (months)	2				
Calves fed milk powder					
Advanced dairy production					
Milksolid yield		kg			
Lactation length		days			
Average weight		kg/animal			
% replacements in milking her	d				
Median calving date					
Drying off					
Effluent disposal system					
Ponding system					
Pond treatement methods					
Pond sludge disposal method					
Solids disposal method					
Once a day milking					
Grazing off options for milking	+	0/			
Percentage milking cows remo		%			
Month leaving farm beginning	01				
Month returned end of	to romoval of animals				
Grazed out most of farm prior	to removal of animals				
Feed pad					
% of milking season cows use	% of milking season cows use feed pad %				
Dairy wintering pad/animal shelter option not used					
Dairy Winter stand off or loafing pads option not used					
Advanced pasture and supple	ments options for Dairy not use	d			

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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False

282000 Unknown Unknown 28

25 August 24 May Holding pond

Seepage Walls Spread over farm Spread over farm

Never

100 June July True

100

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 4
Catchment area	ha	12
Catchment convergence		Moderate convergence
Wetland type		Туре В
Aquitard depth		0 -1 m

Supplements Added

Supplements Added			Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	250.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproduc	cts Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

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Parameter name	Units	Value
Block name		Non-effluent area- Kawek
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200

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Parameter name	Units	Value
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application Annual lime applications Lime material Rate Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block	kg/ha/yr	Lime (good quality) 500 False

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley

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Block Information		
Parameter name	Units	Value
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Eartilizar B applied within 3 weeks of border dyke irrigation	2 2	False

Block Information

Fertiliser P applied within 3 weeks of border dyke irrigation

No supplements removed from the block

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Spray effluent		True	
Effluent application depth		< 12 mm	

False

Parameter name	Units	Value
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
ιναισ	ng/lid/yi	000

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Parameter name	Units	Value	
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False	
No supplements removed from the block			

Block Information

Areaha90Block typeFaltaBlock typeFaltaDistance from coastkm90Distance from coastmperfedDoity drainedFalsaMole/tile drainage classTruePority drainedTrueBook typesainedMole/tile drainedTrueReceives no liquid or solid effluentsTrueNo irrigation appliedmm850ClimateC11Mean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)ModerateSeasonal variation in rainfallNeverAttude South*46.2Hydrophobic conditionn40Attude South%30Dairy miking herd%60Baeef%60Dairy or beef animals have direct access to streamsFalseDairy or beef animals have direct access to streamsFalseSoil typeKAWEKUSoil order (default)Soil order (default)UiticSoil orderSoil order (default)FalseSoil order (default)Soil order (default)Sonal order (default)FalseSoil order (default)FalseSoil order (default) <th>Parameter name</th> <th>Units</th> <th>Value</th>	Parameter name	Units	Value
Tapography Pastoral Tapography Filt Tapography Filt Tapography Filt Tapography Filt Tapography Filt Filt Poorly drained Managements Managements No irrigation applied Climate Tapograph Tapograph Managements No irrigation applied Climate Seasonal variation in rainfall Mean annual temperature °C 111 Seasonal variation in rainfall Annual potential evapotranspiration (PET) °C 111 Seasonal variation in PET Season Annual potential evapotranspiration (PET) Season Seasonal variation in PET Season Hydrophobic condition Seasonal variation in PET Season Hydrophobic condition Seasonal variation in PET Season Hydrophobic condition Seasonal variation in PET Season Seasonal variation in PET Season Hydrophobic condition Seasonal variation in PET Season Seasonal variation in PET Season Hydrophobic condition Seasonal variation in PET Season Seasonal variation in PET Season Hydrophobic condition Seasonal variation in PET Season Seasonal variation in PET Season Season Season Season Season Season Season	Block name		Dry stock
Flat Distance from coast km 90 Profile drainage class Imperfect Pooly drainad False Mole/tile drained True Mole/tile drained True Mole/tile drained True Mole/tile drained True Receives no liquid or solid effluents True No irrigation applied Sol Climate C Mean annual rainfall mm 850 Mean annual trainfall Low Annual potential evapotranspiration (PET) 61-800 Seasonal variation in PET Moderate Hydrophobic condition Never Latitude South * 46.2 Altitude m 40 Dairy milking herd % 30 Dairy prelacements % 60 Base Sol Sol Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams Palse Dairy or beef animals have direct access to streams <t< td=""><td>Area</td><td>ha</td><td>90</td></t<>	Area	ha	90
Distance from coast metabolic metab	Block type		Pastoral
Profile drainage class Poorly drained Poorly drained Poorly drained Poorly drained Poorly drained Poorly drained Poorly drained Mole/tile drained Receives no liquid or solid effluents No irrigation applied Climate Climate Climate Climate Climate Climate Climate Climate Climate Climate Climate Mean annual rainfall Mean annual r	Topography		Flat
Poorly drained Mole füle drained Receives no liquid or solid effluents No irrigation applied Climate receives no liquid or solid effluents No irrigation applied Climate receives no liquid or solid effluents No irrigation applied Climate receives no liquid or solid effluents Mean annual temperature receives no liquid or solid effluents Mean annual temperature °C 111 Seasonal variation in rainfall mm 850 Moderate Normal temperature °C 111 Seasonal variation in rainfall Norma 850 Seasonal variation in PET Seasonal variation in PET Normal 860 Seasonal variation NET Normal 860 Seasonal variation NET Normal 860 Seasonal variation NET Normal 860 Seasonal variation Normal 860 Seasonal variation 10 Seasonal 860 Seasonal 97 Seasonal 860 Seasonal 98 Seasonal 98	Distance from coast	km	90
No irrigation applied No irrigation applied Climate Receives no liquid or solid effluents No irrigation applied Climate Clima	Profile drainage class		Imperfect
Receives no liquid or solid effluents No irrigation applied Climate	Poorly drained		False
No irrigation applied Climate	Mole/tile drained		True
Climate mm 850 Mean annual remperature °C 11 Seasonal variation in rainfall Low Annual potential evapotranspiration (PET) 651-800 Seasonal variation in PET Moderate Hydrophobic condition Never Latitude South ° 46.2 Altitude m 40 Animals and Pasture V Saland Condition Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing False Saland Dairy or beef animals have direct access to streams Palse Palse Dairy or beef animals have direct access to streams Palse Salae Development status (organic nutrients) Palse Palse Soil ofter (default) Utic Sedimentary Soil ofter (default) Sedimentary False Soil group (default) Sedimentary Sedimentary Soil group (default) Utic Sedimentary Soil group (default) Sedimentary Salae Soi	Receives no liquid or solid effluents		
Mean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°46.2Altitudem40Attitude%30Dairy milking herd%60Beef%10Dairy replacements%60Beef%10Dairy or beef animals have direct access to streamsFalseDairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)PeelopedSoil trypeKAWEKUSoil group (default)SedimentarySoil group (default)SedimentarySoil group (default)FalseSoil group (default)SedimentarySoil profileUlticSoil profileStonySoil profileStonySoil profileStonySoil profileStony	No irrigation applied		
Mean annual temperature °C 11 Seasonal variation in rainfall Low Annual potential evapotranspiration (PET) 651-800 Seasonal variation in PET Moderate Hydrophobic condition Never Latitude South ° 46.2 Altitude m 40 Aninals and Pasture * 50 Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing % 51-800 Development status (organic nutrients) False Pasture type Ryegrass / white clover Soil information KAWEKU Soil group (default) Sedimentary Soil group (default) Sedimentary Soil profile Unknown Soil profile Stony Soil profile Stony	Climate		
Seasonal variation in rainfall Low Annual potential evapotranspiration (PET) 651-800 Seasonal variation in PET Moderate Mydrophobic condition Never Latitude South * 46.2 Altitude M * 40 Antimals and Pasture Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing False False False Development status (organic nutrients) Easture type Soil information Soil type KAWEKU Soil order (default) Soil group (default) Soil group (default) Soil group (default) Soil group (default) Soil profile Soil texture Soil texture Soil texture Soil texture Soil profile So	Mean annual rainfall	mm	850
Annual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°46.2Altitudem40Animals and PastureDairy milking herd%30Dairy replacements%60Beef%10FinishingFalseDairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Seasonal variation (default)Soil informationKAWEKUSoil informationSedimentarySoil order (default)UlticSoil aparent materialSedimentarySoil textureFalseSoil textureUlticSoil textureSedimentarySoil profileUnknownSoil profileUnknownSoil profileStonyOlsen P21QT K5	Mean annual temperature	°C	11
Seasonal variation in PET Moderate Never Hydrophobic condition NET Never Latitude South ° 46.2 Altitude m 40 Animals and Pasture Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing False 10 Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Development status (organic nutrients) Peveloped Pasture type KAWEKU Soil information Soil information Soil information Soil group (default) Vice Sedimentary Sand parent material Sedimentarial False Soil strue Soil profile Unknown Soil profile Stony Onknown Soil profile Stony Onknown Olsen P	Seasonal variation in rainfall		Low
Hydrophobic condition Never Latitude South * 46.2 Altitude m 40 Animals and Pasture * 40 Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing False Dairy or beef animals have direct access to streams False Development status (organic nutrients) Developed Pasture type Ryegrass / white clover Soil information KAWEKU Soil order (default) Sedimentary Soil order (default) Sedimentary Soil exture False Soil profile Unknown Soil profile Stony Olsen P 21 QT K 5	Annual potential evapotranspiration (PET)		651-800
Atitude South & 46.2 Atitude South # 40 Animals and Pasture Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing False 10 Ease 10 Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Dairy or beef animals have direct access to streams False Development status (organic nutrients) False Soil information Soil information Soil order (default) Soil order (default) Soil order (default) Soil order (default) Soil actert material Soil texture Unknown Soil profile Olsen P QT K 5	Seasonal variation in PET		Moderate
Altitude m 40 Animals and Pasture Dairy milking herd % 30 Dairy replacements % 60 Beef % 10 Finishing False 7 Dairy or beef animals have direct access to streams False Development status (organic nutrients) Peveloped Pasture type Ryegrass / white clover Soil information KAWEKU Soil order (default) Sedimentary Soil order (default) Sedimentary Soil aprent material False Soil profile Unknown Soil profile Stony QT K S1	Hydrophobic condition		Never
Animals and PastureDairy milking herd%30Dairy replacements%60Beef%10FinishingFalseDairy or beef animals have direct access to streamsFalseDairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)DevelopedPasture typeRyegrass / white cloverSoil informationKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Latitude South	0	46.2
Dairy milking herd%30Dairy replacements%60Beef%10FinishingFalseDairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)DevelopedPasture typeRyegrass / white cloverSoil informationKAWEKUSoil order (default)UlticSoil group (default)SedimentarySoil papent materialFalseSoil textureSedimentarySoil profileUnknownSoil profileStonyOlsen P21QT K5	Altitude	m	40
Dairy replacements % 60 Beef % 10 Finishing False Dairy or beef animals have direct access to streams False Development status (organic nutrients) Developed Pasture type Ryegrass / white clover Soil information Soil order (default) KAWEKU Soil group (default) Sedimentary Soil group (default) Sedimentary Soil profile False Soil texture Soil	Animals and Pasture		
Beef % 10 Finishing False Dairy or beef animals have direct access to streams False Development status (organic nutrients) Developed Pasture type Ryegrass / white clover Soil information KAWEKU Soil order (default) Ultic Soil group (default) Sedimentary Soil texture Unknown Soil profile Unknown Soil profile Stony Olsen P 21 QT K 5	Dairy milking herd	%	30
FinishingFalseDairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)DevelopedPasture typeRyegrass / white cloverSoil informationKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Dairy replacements	%	60
Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)DevelopedPasture typeRyegrass / white cloverSoil informationSoil typeKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil txtureUnknownSoil profileStonyOlsen P21QT K5	Beef	%	10
Development status (organic nutrients)DevelopedPasture typeRyegrass / white cloverSoil informationKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Finishing		False
Pasture typeRyegrass / white cloverSoil informationKAWEKUSoil typeKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Dairy or beef animals have direct access to streams		False
Soil informationKAWEKUSoil typeKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Development status (organic nutrients)		Developed
Soil typeKAWEKUSoil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT KSoil commendation	Pasture type		Ryegrass / white clover
Soil order (default)UlticSoil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Soil information		
Soil group (default)SedimentarySand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Soil type		KAWEKU
Sand parent materialFalseSoil textureUnknownSoil profileStonyOlsen P21QT K5	Soil order (default)		Ultic
Soil textureUnknownSoil profileStonyOlsen P21QT K5	Soil group (default)		Sedimentary
Soil profileStonyOlsen P21QT K5	Sand parent material		False
Olsen P 21 QT K 5	Soil texture		Unknown
QT Κ 5	Soil profile		Stony
	Olsen P		21
QT Ca 9	QT K		5
	QT Ca		9

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Parameter name	Units	Value	
QT Mg		14	
QT Na		5	
Organic S		18.1	
QT SO4	mg/kg	16	
TBK reserve K test		.6	
Anion storage capacity or PR		Not known	
Block Fertiliser			
Fertiliser Calculator			
Fertiliser name	Category	Amount (kg/ha/yr)	
Superten	Ballance super	500	
N-rich Urea	Ballance other	200	
N-rich Ammo	Ballance other	100	
Muriate of potash	Ballance other	75	
No N added in May, June and July			
No soluble P applied in high risk months			
Lime / dolomite Application			
Annual lime applications			
Lime material		Lime (good quality)	
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irrigation		False	
No supplements removed from the block			

Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			
Climate			
Mean annual rainfall	mm	850	
Mean annual temperature	°C	11	
Seasonal variation in rainfall		Low	
Annual potential evapotranspiration (PET)		651-800	
Seasonal variation in PET		Moderate	

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Parameter name	Units	Value
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Aulude	111	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QTK		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
		lime (good quality)
Lime material	ka/ba/ur	Lime (good quality)
Lime material Rate	kg/ha/yr	500
Lime material	kg/ha/yr	

Parameter name	Units	Value	

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Parameter name			Units		Value		
Block name	Э					Dry stock Sun	nmer crop
Area			ha		10		
Fodder crop						Turnips Barka	int
Crop yield				T/ha dry	weight	7	
Fate of crop	р					Grazed in situ	
Stock types	s grazing pastu	re prior to cultiv	/ation			Non-dairy	
Crop eaten	by Dairy					True	
Crop eaten	by Sheep					False	
Crop eaten	by Beef					False	
Crop eaten	by Deer					False	
Month first cultivated					November		
Cultivation	method					Conventional	
Cultivated p	pasture brownt	op/unimproved			False		
Month first	removed					January	
Month last removed					February		
Month reso	wn in pasture					March	
Fertiliser							
November							
Soluble fe	ertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
January							
Soluble fe	ertiliser (kg/ha	a/month)					
	N	Р	к	S	Ca	Mg	Na
	100	0	0	0	0	0	0

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	17
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True
Crop eaten by Sheep		False
Crop eaten by Beef		False
Crop eaten by Deer		False



Parameter r	Parameter name			Units		Value	
Month first cultivated						November	
Cultivation n	nethod					Conventional	
Cultivated pa	asture brownt	op/unimproved				False	
Month first r	emoved					June	
Month last re	emoved					August	
Month resow	vn in pasture					September	
Fertiliser							
December							
Soluble fe	rtiliser (kg/ha	a/month)					
	N	Р	κ	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February							
Soluble fe	rtiliser (kg/ha	a/month)					
	N	Р	κ	S	Ca	Mg	Na
	100	0	0	0	0	0	0

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields, 50 t grain imported, less N File: Stevens Whole Farm Budget ver.1c.1.ovp

Parameter report

Parameter name			Units		Value
Region					Southland
No Fuel, electricity and other f	farm inputs				
No Farm capital (structure) inp	outs				
Block setup summary					
Block name	Block type	Effective area	(ha)	Relative	productivity
Non-effluent area- Kaweku	Pastoral	107		1	
Non-effluent area-Makarewa	Pastoral	72		1	
Effluent area	Pastoral	65		1	
Dry stock	Pastoral	90		1	
Lease	Pastoral	40		1	
Dry stock Summer crop	Fodder Crop	10		0	
Dry stock Winter crop	Fodder Crop	10		0	
Total farm area declared as b	locks		ha		394
Total farm area			ha		424
Non-productive area			ha		30
Relative productivity assessm	ent method				No difference between blocks
Make all block stock ratios sat	me as farm stoc	k ratios			False

Tony Rhodes

PGG Wrightson Consulting

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

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•	Mob 4		
Class	Calves (male)		
Breed	Friesian		
Numbers July			
Numbers August			
Numbers September			
Numbers October	100		
Numbers November	100		
Numbers December			
Numbers January			
Numbers February			
Numbers March			
Numbers April			
Numbers May			
Numbers June			
Maximum weight (kg)	100		
Live weight start (kg)	80		
Live weight end (kg)	100		
Carcass weight (kg)	45		
Age start (months)	2		
Calves fed milk powder			False
Advanced dairy production	on		
Milksolid yield		kg	282000
Lactation length		days	Unknown
Average weight		kg/animal	Unknown
% replacements in milking l	nerd		28
Median calving date			25 August
Drying off			24 May
Effluent disposal system			Holding pond
Ponding system			
Pond treatement methods			Seepage Walls
Pond sludge disposal metho	bd		Spread over farm
Solids disposal method			Spread over farm
Once a day milking			Never
Grazing off options for mi	lking cows animals		
Percentage milking cows re	-	%	100
Month leaving farm beginni			June
Nonth returned end of	-		July
Grazed out most of farm pri	or to removal of animals		True
Feed pad			
% of milking season cows u	se feed pad	%	100
Dairy wintering pad/animal	-		
Dairy Winter stand off or loa	ating pads option not used		

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

no anima supplementation has been

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 1
Catchment area	ha	50
Catchment convergence		Moderate convergence
Wetland type		Туре А
Aquitard depth		0 -1 m

Supplements Added

Category	Туре	Amount (T)	Amount on a dry weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproduc	ts Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

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Diock information		
Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Тородгарну		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		, also
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test	- -	.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

Page 4 of 12 Pages

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Parameter name	Units	Value
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

Soil information

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Parameter name	Units	Value
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Son group (default) Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
		21
QT Mg		6
QT Na		0 11.3
Organic S QT SO4	malka	10
	mg/kg	.9
TBK reserve K test Anion storage capacity or PR		.9 Not known
Block Fertiliser		
Block I ettilisei		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		Lime (good quality)
Annual lime applications Lime material	ko/ha/vr	Lime (good quality) 500
Annual lime applications	kg/ha/yr	Lime (good quality) 500 False

Block Information

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
		Page 6 of 12 Pages	

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Block Information		
Parameter name	Units	Value
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
5		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QTK		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser calculator	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		100
No soluble P applied in high risk months		
NO SOUDIE E APPLIEU ILI HIGH HSK HIUHUNS		

Lime / dolomite Application

Annual lime applications

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Parameter name	Units	Value
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Sail order (default)		Liltic

Soil order (default) Soil group (default) Sand parent material Soil texture Soil profile Olsen P KAWEKU Ultic Sedimentary False Unknown Stony 21

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Parameter name	Units	Value	
QT K		5	
QT Ca		9	
QT Mg		14	
QT Na		5	
Organic S		18.1	
QT SO4	mg/kg	16	
TBK reserve K test		.6	
Anion storage capacity or PR		Not known	

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		

Lime / dolomite Application Annual lime applications

Annual lime applications			
Lime material		Lime (good quality	()
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irr	igation	False	
No supplements removed from the block			

Block Information

Parameter name	Units	Value
Block name		Lease
Area	ha	40
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800

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DIOCK INTOTTIATION		
Parameter name	Units	Value
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	~	40
Autode	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing	<i>,</i> ,	False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QTK		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test	ing/kg	.6
Anion storage capacity or PR		.o Not known
Anon storage capacity of TR		NOT KNOWN
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July	Dallarice Offici	10
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information	
Parameter name	Units

Parameter name	Units	Value

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Paramete	er name			Units		Value		
Block nan	ne					Dry stock Sur	nmer crop	
Area				ha		10		
Fodder cr	ор					Turnips Barka	ant	
Crop yield	1			T/ha dry v	weight	12		
Fate of cr	ор					Grazed in situ		
Stock type	es grazing pastu	ire prior to cultiv	vation			Non-dairy		
Crop eate	n by Dairy					True		
Crop eate	n by Sheep					False		
Crop eate	n by Beef					False		
Crop eate	n by Deer					False		
Month firs	t cultivated					November		
Cultivation method					Conventional			
Cultivated	l pasture brownt	op/unimproved				False		
Month firs	t removed					January		
Month last removed					February			
Month resown in pasture					March			
Fertiliser								
Novembe	er							
Soluble	fertiliser (kg/ha	a/month)						
	N	P	к	S	Ca	Mg	Na	
	100	40	30	0	0	0	0	
January								
Soluble	fertiliser (kg/ha	a/month)						
	N	Р	к	S	Ca	Mg	Na	
	100	0	0	0	0	0	0	

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True
Crop eaten by Sheep		False
Crop eaten by Beef		False
Crop eaten by Deer		False
		Page 11 of 12 Pages

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Parameter name				Units		Value	
Month first cultivated						November	
Cultivation method						Conventional	
Cultivated pasture browntop/unimproved						False	
Month first removed						June	
Month last	removed					August	
Month resown in pasture						September	
Fertiliser							
December							
Soluble f	ertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February							
Soluble f	ertiliser (kg/ha	a/month)					
	N	P	к	S	Са	Mg	Na
	100	0	0	0	0	0	0

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields, 50 t grain imported, less N + DCD File: Stevens Whole Farm Budget ver.1c.1B.ovp

Parameter report

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Parameter name		Units	Value
Region			Southland
No Fuel, electricity and other	farm inputs		
No Farm capital (structure) in	puts		
Block setup summary			
Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	90	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Dry stock Winter crop	Fodder Crop	10	0
Total farm area declared as b	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30

Tony Rhodes

PGG Wrightson Consulting

Relative productivity assessment method Make all block stock ratios same as farm stock ratios

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

No difference between blocks

False

	Mob 4		
Class	Calves (male)		
Breed	Friesian		
Numbers July			
Numbers August			
Numbers September			
Numbers October	100		
Numbers November	100		
Numbers December			
Numbers January			
Numbers February			
Numbers March			
Numbers April			
Numbers May			
Numbers June			
Maximum weight (kg)	100		
Live weight start (kg)	80		
Live weight end (kg)	100		
Carcass weight (kg)	45		
Age start (months)	2		
Calves fed milk powder			False
Advanced dairy product	ion		
Milksolid yield		kg	282000
Lactation length		days	Unknown
Average weight		kg/animal	Unknown
% replacements in milking	l herd		28
Median calving date			25 August
Drying off			24 May
Effluent disposal system			Holding pond
Ponding system			
Pond treatement methods			Seepage Walls
Pond sludge disposal met	hod		Spread over farm
Solids disposal method			Spread over farm
Once a day milking			Never
Grazing off options for n	nilking cows animals		
Percentage milking cows i	removed	%	100
Month leaving farm beginn			June
Month returned end of			July
Grazed out most of farm p	prior to removal of animals		True
Feed pad			
% of milking season cows	use feed pad	%	100
Dairy wintering pad/anima	•		
	pafing pads option not used oplements options for Dairy no	tused	

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 1
Catchment area	ha	50
Catchment convergence		Moderate convergence
Wetland type		Туре А
Aquitard depth		0 -1 m

Supplements Added

Category	Туре	Amount (T)	Amount on a dry weight basis	Destination	Animal type or block	
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy	
Straws	Wheat straw	130.0	True	Paddocks	dairy	
Process byproduct:	s Molasses	30.0	False	Paddocks	dairy	
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen	

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Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
ΩΤ K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test	0.0	.6
Anion storage capacity or PR		Not known
Plack Fortiliaar		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

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Parameter name	Units	Value
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False

Block Information

Parameter name	Units	Value		
Block name		Non-effluent area-Makarewa		
Area	ha	72		
Block type		Pastoral		
Topography		Flat		
Distance from coast	km	90		
Profile drainage class		Imperfect		
Poorly drained		False		
Mole/tile drained		True		
Spray effluent		False		
Receives pond sludge effluent				
No irrigation applied				
Climate				
Mean annual rainfall	mm	850		
Mean annual temperature	°C	11		
Seasonal variation in rainfall		Low		
Annual potential evapotranspiration (PET)		651-800		
Seasonal variation in PET		Moderate		
Hydrophobic condition		Never		
Latitude South	0	46.2		
Altitude	m	40		
Animals and Pasture				
Dairy milking herd	%	100		
Dairy or beef animals have direct access to streams		False		
Development status (organic nutrients)		Developed		
Pasture type		Ryegrass / white clover		

Soil information

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Parameter name	Units	Value	
Soil type	· · · · · · · · · · · · · · · · · · ·	MAKARAKA	
Soil order (default)		Gley	
Soil group (default)		Sedimentary	
Sand parent material		False	
Soil texture		Unknown	
Soil profile		Stony	
Olsen P		21	
QT K		4	
QT Ca		10	
QT Mg		21	
QT Na		6	
Organic S		11.3	
QT SO4	mg/kg	10	
TBK reserve K test		.9	
Anion storage capacity or PR		Not known	
Block Fertiliser			
Fertiliser Calculator			
Fertiliser name	Category	Amount (kg/ha/yr)	
Superten	Ballance super	500	
Muriate of potash	Ballance other	75	
N-rich Urea	Ballance other	200	
N-rich Ammo	Ballance other	100	
No N added in May, June and July			
No soluble P applied in high risk months			
Lime / dolomite Application			
Annual lime applications			
Lime material		Lime (good quality)	
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irrigation	Ng/Tita/Ji	False	
No supplements removed from the block		1 0.00	

Block Information

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	

Page 6 of 12 Pages

Block Information				
Parameter name	Units	Value		
Spray effluent		True		
Effluent application depth		< 12 mm		
No irrigation applied				
Climate				
Mean annual rainfall	mm	850		
Mean annual temperature	°C	11		
Seasonal variation in rainfall		Low		
Annual potential evapotranspiration (PET)		651-800		
Seasonal variation in PET		Moderate		
Hydrophobic condition		Never		
Latitude South	o	46.2		
Altitude	m	40		
Animals and Pasture				
Dairy milking herd	%	100		
Dairy or beef animals have direct access to streams		False		
Development status (organic nutrients)		Developed		
Pasture type	Ryegrass / white clover			
Soil information				
Soil type		KAWEKU		
Soil order (default)		Ultic		
Soil group (default)		Sedimentary		
Sand parent material		False		
Soil texture		Unknown		
Soil profile		Deep		
Olsen P		30		
QT K		5.5		
QT Ca		10.5		
QT Mg		15.5		
QT Na		6		
Organic S		31.7		
QT SO4	mg/kg	28		
TBK reserve K test		.8		
Anion storage capacity or PR		Not known		
Block Fertiliser				
Fertiliser Calculator				
Fertiliser name	Category	Amount (kg/ha/yr)		
Superten	Ballance super	500		
N-rich Urea	Ballance other	130		
N-rich Ammo	Ballance other	130		
No N added in May, June and July				

No N added in May, June and July No soluble P applied in high risk months

Lime / dolomite Application

Annual lime applications

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Parameter name	Units	Value
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name		Malua
Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Call information		
Soil information		KAWEKU
Soil type		NAWENU

Soil order (default) Soil group (default) Sand parent material Soil texture Soil profile Olsen P KAWEKU Ultic Sedimentary False Unknown Stony 21

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Parameter name	Units	Value	
QT K		5	
QT Ca		9	
QT Mg		14	
QT Na		5	
Organic S		18.1	
QT SO4	mg/kg	16	
TBK reserve K test		.6	
Anion storage capacity or PR		Not known	
Block Fertiliser			
Fertiliser Calculator			
Fertiliser name	Category	Amount (kg/ha/yr)	
Superten	Ballance super	500	
N-rich Urea	Ballance other	140	
Muriate of potash	Ballance other	75	
No N added in May, June and July			
No soluble P applied in high risk months			
Lime / dolomite Application			
Annual lime applications			
Lime material		Lime (good quality)	
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irrigation	<u> </u>	False	
No supplements removed from the block			

Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			
Climate			
Mean annual rainfall	mm	850	
Mean annual temperature	°C	11	
Seasonal variation in rainfall		Low	
Annual potential evapotranspiration (PET)		651-800	

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Block mornation		
Parameter name	Units	Value
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500 Falsa
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

Block Informati

Parameter name

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Units Value

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Block Information

Parameter name Units						Value		
Block nam	ie					Dry stock Sur	nmer crop	
Area				ha		10		
Fodder cro	ор					Turnips Barkant		
Crop yield				T/ha dry ⁻	weight	12		
Fate of cro	ор					Grazed in situ		
Stock type	es grazing pastu	ire prior to cultiv	/ation			Non-dairy		
Crop eater	n by Dairy					True		
Crop eater	n by Sheep					False		
Crop eater	n by Beef					False		
Crop eater	n by Deer					False		
Month first	t cultivated					November		
Cultivation method					Conventional			
Cultivated pasture browntop/unimproved					False			
Month first	t removed					January		
Month last removed					February			
Month resown in pasture					March			
Fertiliser								
Novembe	r							
Soluble	fertiliser (kg/ha	a/month)						
	Ν	Р	к	S	Ca	Mg	Na	
	100	40	30	0	0	0	0	
January								
Soluble	fertiliser (kg/ha	a/month)						
	N	P	к	S	Ca	Mg	Na	
	100	0	0	0	0	0	0	

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True
Crop eaten by Sheep		False
Crop eaten by Beef		False
Crop eaten by Deer		False

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Parameter name			Units		Value		
Month firs	t cultivated					November	
Cultivatior	n method					Conventional	
Cultivated	pasture brownt	op/unimproved				False	
Month firs	t removed					June	
Month last	t removed					August	
Month res	own in pasture					September	
Fertiliser							
Decembe	r						
Soluble	fertiliser (kg/ha	a/month)					
	N	Р	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February							
Soluble	fertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	0	0	0	0	0	0

Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:26 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields File: Stevens Whole Farm Budget ver.1b.ovp

Parameter report

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Parameter name		Units		Value
Region				Southland
No Fuel, electricity and other f	arm inputs			
No Farm capital (structure) ing	outs			
Block setup summary				
Block name	Block type	Effective area (ha)	Relative	productivity
Non-effluent area- Kaweku	Pastoral	107	1	
Non-effluent area-Makarewa	Pastoral	72	1	
Effluent area	Pastoral	65	1	
Dry stock	Pastoral	90	1	
Lease	Pastoral	40	1	
Dry stock Summer crop	Fodder Crop	10	0	
Dry stock Winter crop	Fodder Crop	10	0	
Total farm area declared as b	locks	ha		394
Total farm area		ha		424
Non-productive area		ha		30
Relative productivity assessm	ent method			No difference between blocks

Tony Rhodes

PGG Wrightson Consulting

Stock Information: Dairy animals

Make all block stock ratios same as farm stock ratios

Monthly stock reconciliation Dairy:			
20	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		740
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		540
Numbers May		195	590
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

False

	Mob 4	
Class	Calves (male)	
Breed	Friesian	
Numbers July		
Numbers August		
Numbers September		
Numbers October	100	
Numbers November	100	
Numbers December		
Numbers January		
Numbers February		
Numbers March		
Numbers April		
Numbers May		
Numbers June		
Maximum weight (kg)	100	
Live weight start (kg)	80	
Live weight end (kg)	100	
Carcass weight (kg)	45	
Age start (months)	2	
Calves fed milk powder		
Advanced dairy production		
Milksolid yield		kg
Lactation length		days
Average weight		days kg/animal
Average weight % replacements in milking he	rd	-
Average weight % replacements in milking he Median calving date	rd	-
Average weight % replacements in milking her Median calving date Drying off	rd	-
Average weight % replacements in milking he Median calving date	rd	-
Average weight % replacements in milking her Median calving date Drying off	rd	-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods	rd	-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method	rd	-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method Solids disposal method	rd	-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method	rd	-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method Solids disposal method		-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking	ing cows animals	-
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Pond ireatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem	ing cows animals oved	kg/animal
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk	ing cows animals oved	kg/animal
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning	ing cows animals oved of	kg/animal
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning Month returned end of Grazed out most of farm prior	ing cows animals oved of	kg/animal
Average weight % replacements in milking hei Median calving date Drying off Effluent disposal system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning Month returned end of Grazed out most of farm prior	ing cows animals oved of to removal of animals	kg/animal
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning Month returned end of Grazed out most of farm prior	ing cows animals oved of to removal of animals	kg/animal
Average weight % replacements in milking hei Median calving date Drying off Effluent disposal system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning Month returned end of Grazed out most of farm prior	ing cows animals oved of to removal of animals e feed pad	kg/animal
Average weight % replacements in milking her Median calving date Drying off Effluent disposal system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning Month returned end of Grazed out most of farm prior Feed pad % of milking season cows use	ing cows animals oved of to removal of animals e feed pad elter option not used	kg/animal
 Average weight % replacements in milking here Median calving date Drying off Effluent disposal system Ponding system Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking Grazing off options for milk Percentage milking cows rem Month leaving farm beginning Month returned end of Grazed out most of farm prior Feed pad % of milking season cows use Dairy wintering pad/animal sh Dairy Winter stand off or loafing 	ing cows animals oved of to removal of animals e feed pad elter option not used	kg/animal %

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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False

282000 Unknown Unknown 28

25 August 24 May Holding pond

Seepage Walls Spread over farm Spread over farm

Never

100 June July True

100

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

DCD is not applied

Wetlands

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Supplements Added

Supplements Added			Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	250.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproduc	ts Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

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Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200

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Parameter name	Units	Value
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley

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Block Information		
Parameter name	Units	Value
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation	Ngritaryi	False
No supplements removed from the block		. 0.00

Block Information

Parameter name	Units	Value
Block name		Effluent area
Area	ha	65
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm

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Block Information		
Parameter name	Units	Value
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / delemite Application		
Lime / dolomite Application		
Annual lime applications Lime material		Lime (good quality)
Lime material Rate	kg/ha/yr	500
	Ny/Ha/yi	300

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Parameter name	Units	Value
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU

Soil type Soil order (default) Soil group (default) Sand parent material Soil texture Soil profile Olsen P QT K QT Ca

9

Ultic

False Unknown

Stony

21

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Sedimentary

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Parameter name	Units	Value
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Lease
Area	ha	40
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate

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DIOCK IIIOI III auon		
Parameter name	Units	Value
		Never
Hydrophobic condition	0	46.2
Latitude South		
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
		14
QT Mg		5
QT Na		J 11.3
Organic S		10
QT SO4	mg/kg	
TBK reserve K test		.6 Native aver
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		
no supplements removed nom the block		

Block Information			
Parameter name	Units	Value	

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Parameter name				Units		Value		
Block name	Block name				Dry stock S		Summer crop	
Area				ha		10		
Fodder crop						Turnips Barka	int	
Crop yield				T/ha dry	weight	12		
Fate of crop						Grazed in situ		
Stock types graz	zing pastu	re prior to cultiv	ation			Non-dairy		
Crop eaten by D	airy					True		
Crop eaten by S	heep					False		
Crop eaten by B	eef					False		
Crop eaten by D	eer					False		
Month first cultiv	ated					November		
Cultivation method					Conventional			
Cultivated pastu	re brownt	op/unimproved				False		
Month first remo	ved			January				
Month last remo	ved			February				
Month resown in	i pasture				March			
Fertiliser								
November								
Soluble fertilis	ser (kg/ha	a/month)						
l	N	Р	к	S	Ca	Mg	Na	
	100	40	30	0	0	0	0	
January								
Soluble fertilis	ser (kg/ha	a/month)						
I	N	Р	к	S	Ca	Mg	Na	
	100	0	0	0	0	0	0	

Block Information

Parameter name	meter name Units	
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True
Crop eaten by Sheep		False
Crop eaten by Beef		False
Crop eaten by Deer		False

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Parameter name	ter name			Units		Value	
Month first cultivate					November		
Cultivation method					Conventional		
Cultivated pasture	prowntop/	unimproved				False	
Month first remove	ť					June	
Month last removed	4					August	
Month resown in pa	isture					September	
Fertiliser							
December							
Soluble fertiliser	(kg/ha/m	onth)					
N		P	к	S	Ca	Mg	Na
100)	40	30	0	0	0	0
February							
Soluble fertiliser	(kg/ha/m	onth)					
N		P	к	S	Са	Mg	Na
100		0	0	0	0	0	0

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields, 310,000 kg MSss N File: Stevens Whole Farm Budget ver.1c.1.1.ovp

Parameter report

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Parameter name		Units		Value
Region				Southland
No Fuel, electricity and other	farm inputs			
No Farm capital (structure) in	puts			
Block setup summary				
Block name	Block type	Effective area (ha)	Relative	productivity
Non-effluent area- Kaweku	Pastoral	107	1	
Non-effluent area-Makarewa	Pastoral	72	1	
Effluent area	Pastoral	65	1	
Dry stock	Pastoral	90	1	
Lease	Pastoral	40	1	
Dry stock Summer crop	Fodder Crop	10	0	
Dry stock Winter crop	Fodder Crop	10	0	
Total farm area declared as b	locks	ha		394
Total farm area		ha		424
Non-productive area	•	ha		30
Relative productivity assessm	ent method			No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios		False

Tony Rhodes

PGG Wrightson Consulting

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

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	Mob 4		
Class	Calves (male)		
Breed	Friesian		
Numbers July			
Numbers August			
Numbers September			
Numbers October	100		
Numbers November	100		
Numbers December			
Numbers January			
Numbers February			
Numbers March			
Numbers April			
Numbers May			
Numbers June			
Maximum weight (kg)	100		
Live weight start (kg)	80		
Live weight end (kg)	100		
Carcass weight (kg)	45		
Age start (months)	2		
Calves fed milk powder			False
Advanced dairy production	on		
Milksolid yield		kg	310000
Lactation length		days	Unknown
Average weight		kg/animal	Unknown
% replacements in milking	herd		28
Median calving date			25 August
Drying off			24 May
Effluent disposal system			Holding pond
Ponding system			
Pond treatement methods			Seepage Walls
Pond sludge disposal meth	od		Spread over farm
Solids disposal method			Spread over farm
Once a day milking			Never
Grazing off options for m	ilking cows animals		
Percentage milking cows re		%	100
Month leaving farm beginni	ing of		June
Month returned end of	-		July
Grazed out most of farm pr	rior to removal of animals		True
Feed pad			
% of milking season cows	use feed pad	%	100
Dairy wintering pad/animal Dairy Winter stand off or lo Advanced pasture and sup		used	

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands		
Wetland 1		
Effective wetland area	ha	8
Condition		Class 1
Catchment area	ha	50
Catchment convergence		Moderate convergence
Wetland type		Туре А
Aquitard depth		0 -1 m

Supplements Added

Supplements Added			Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproducts	s Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

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Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QTK		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known

Fertiliser Calculator

Fertiliser Galculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

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Parameter name	Units	Value
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

Soil information

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Parameter name	Units	Value
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
		Page 6 of 12 Pages	

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Block Information		
Parameter name	Units	Value
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams	,0	False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
	-	
Soil profile Olsen P		Deep 30
QT K		
		5.5
QT Ca		10.5
		15.5
QT Na		6
Organic S	n	31.7
QT SO4	mg/kg	28
TBK reserve K test Anion storage capacity or PR		.8 Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble Dissolation to black state was the		

No soluble P applied in high risk months

Lime / dolomite Application

Annual lime applications

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Parameter name	Units	Value		
Lime material		Lime (good quality)		
Rate	kg/ha/yr	500		
Fertiliser P applied within 3 weeks of border dyke irrigation		False		
No supplements removed from the block				

Block Information

Soil texture

Soil profile

Olsen P

Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall	-	Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False

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Unknown

Stony

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Parameter name	Units	Value	
QT K		5	
QT Ca		9	
QT Mg		14	
QT Na		5	
Organic S		18.1	
QT SO4	mg/kg	16	
TBK reserve K test		.6	
Anion storage capacity or PR		Not known	

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		

Lime / dolomite Application

Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irriga	ation	False
No supplements removed from the block		

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Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			
Climate			
Mean annual rainfall	mm	850	
Mean annual temperature	°C	11	
Seasonal variation in rainfall		Low	
Annual potential evapotranspiration (PET)		651-800	

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DIOCK INTOTINATION		
Parameter name	Units	Value
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing	70	False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information			
Parameter name	Units	Value	
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Parameter n	ame			Units		Value		
Block name						Dry stock Sun	nmer crop	
Area	·			ha		10		
Fodder crop						Turnips Barka	int	
Crop yield				T/ha dry v	weight	12		
Fate of crop						Grazed in situ		
Stock types g	grazing pastu	re prior to cultiv	ation			Non-dairy		
Crop eaten b	y Dairy					True		
Crop eaten b	y Sheep					False		
Crop eaten b	y Beef					False		
Crop eaten b	y Deer					False		
Month first cu	ultivated					November		
Cultivation m	ethod					Conventional		
Cultivated pa	sture brownto	op/unimproved				False		
Month first re	emoved					January		
Month last re	moved					February		
Month resow	n in pasture					March		
Fertiliser								
November								
Soluble fer	tiliser (kg/ha	/month)						
	N	Р	к	S	Ca	Mg	Na	
	100	40	30	0	0	0	0	
January								
Soluble fer	tiliser (kg/ha	/month)						
	Ν	Р	к	S	Ca	Mg	Na	
	100	0	0	0	0	0	0	

Block Information

Parameter name	Units	
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True
Crop eaten by Sheep		False
Crop eaten by Beef		False
Crop eaten by Deer		False

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Paramete	Parameter name			Units		Value	
Month firs	t cultivated					November	
Cultivation	n method					Conventional	
Cultivated	pasture brownt	op/unimproved				False	
Month firs	t removed					June	
Month last	t removed					August	
Month res	own in pasture					September	
Fertiliser							
Decembe	r						
Soluble	fertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February							
Soluble	fertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	0	0	0	0	0	0

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 B & S Stevens
 Tony Rhodes

 Wainui Farm
 PGG Wrightson Consulting

 Pahiwi Road
 RD 6

 Gore
 Client Reference: Irrigated crop yields, 310,000 kg MS + extra 15 tonnes N + nitrification inhibitor

 File:
 Stevens Whole Farm Budget ver.1c.1.2.B.ovp

Parameter report

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Parameter name	Units	Value
Region		Southland
No Fuel, electricity and other farm inputs		
No Farm capital (structure) inputs		

Block setup summary

Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	90	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Dry stock Winter crop	Fodder Crop	10	0
Total farm area declared as bl	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessme	ent method		No difference between blocks
Make all block stock ratios sar	me as farm stoc	k ratios	False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		

Age start (months)

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-23	

	Mob 4
Class	Calves (male)
Breed	Friesian
Numbers July	
Numbers August	
Numbers September	
Numbers October	100
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2
Calves fed milk powder	
Advanced dairy production Milksolid yield	

False

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Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 1
Catchment area	ha	50
Catchment convergence		Moderate convergence
Wetland type		Туре А
Aquitard depth		0 -1 m

Supplements Added

Supplements Added		Amount on a dry			
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byprodu	cts Molasses	30.0	False	Paddocks	dairy

User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen
eeer aennea		10.0	1 4100	1 dddooro	duily replacement

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Poromotor pomo	11-14-	Value
Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Category

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Parameter name	Units	Value
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation	0	False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
		Page 5 of 12 Pages

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Block Information		
Parameter name	Units	Value
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca	e e e e e e e e e e e e e e e e e e e	10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200

N-rich UreaBallance otherN-rich AmmoBallance otherN-rich UreaBallance otherNo N added in May, June and JulyBallance otherNo soluble P applied in high risk monthsSoluble P applied in high risk months

Lime / dolomite Application

Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke in	rrigation	False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	

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Parameter name	Units	Value
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble B applied in high risk months		

No soluble P applied in high risk months

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Parameter name	Units	Value
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic

Soil order (default) Soil group (default) Sand parent material

Sedimentary False

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Parameter name	Units	Value
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75

No N added in May, June and July No soluble P applied in high risk months

Lime / dolomite Application

N-rich Urea

Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

Ballance other

Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			

Climate

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Block Information

Mean annual rainfall		
	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing	,0	False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
		False
Sand parent material		Unknown
Soil texture		
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
	Ng/ Ha/ yi	000
		Page 10 of 12 Pages

Parameter name	Units	Value
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

Block Information

Parameter name		Units		Value			
Block name	e					Dry stock Sur	nmer crop
Area				ha		10	
Fodder crop					Turnips Barka	ant	
Crop yield			T/ha dry	/ha dry weight 12			
Fate of crop					Grazed in situ		
Stock types grazing pasture prior to cultivation					Non-dairy		
Crop eaten by Dairy					True		
Crop eaten by Sheep					False		
Crop eaten by Beef					False		
Crop eaten by Deer					False		
Month first cultivated					November		
Cultivation method					Conventional		
Cultivated pasture browntop/unimproved					False		
Month first removed					January		
Month last removed					February		
Month resown in pasture				March			
Fertiliser							
November							
Soluble f	ertiliser (kg/ha	a/month)					
	Ν	P	к	S	Са	Mg	Na
	100	40	30	0	0	0	0
January							
Soluble f	ertiliser (kg/ha	a/month)					
	N	P	к	S	Са	Mg	Na
	100	0	0	0	0	0	0

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy

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o rowntop/unimproved	1			True False False False November Conventional False June August September	
owntop/unimprovec	1			False False November Conventional False June August	
owntop/unimprovec	1			False November Conventional False June August	
owntop/unimprovec	3			November Conventional False June August	
owntop/unimprovec	1			Conventional False June August	
	1			False June August	
	1			June August	
				August	
ture				-	
ture				-	
kg/ha/month)					
P	к	S	Ca	Mg	Na
40	30	0	0	0	0
kg/ha/month)					
P	к	S	Ca	Mg	Na
0	0	0	0	0	0
	P 40 (kg/ha/month) P	P K 40 30 (kg/ha/month) K	P K S 40 30 0 (kg/ha/month) F K S	P K S Ca 40 30 0 0 (kg/ha/month) F K S Ca	PKSCaMg4030000(kg/ha/month)KSCaMg

Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:32 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields, 325,000 kg MS + extra 15 tonnes N File: Stevens Whole Farm Budget ver.1c.1.2.ovp

Parameter report

Parameter name		Units	Value	
Region			Southland	
No Fuel, electricity and other f	arm inputs			
No Farm capital (structure) inp	outs			
Block setup summary				
Block name	Block type	Effective area (ha)	Relative productivity	
Non-effluent area- Kaweku	Pastoral	107	1	
Non-effluent area-Makarewa	Pastoral	72	1	
Effluent area	Pastoral	65	1	

Tony Rhodes

PGG Wrightson Consulting

Effluent area	Pastoral	65		1	
Dry stock	Pastoral	90		1	
Lease	Pastoral	40		1	
Dry stock Summer crop	Fodder Crop	10		0	
Dry stock Winter crop	Fodder Crop	10		0	
Total farm area declared as	blocks		ha		394
Total farm area			ha		424
Non-productive area			ha		30
Relative productivity assess	ment method				No difference between blocks
Make all block stock ratios :	same as farm stoc	k ratios			False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

	Mob 4	
Class	Calves (male)	
Breed	Friesian	
Numbers July	Thesian	
Numbers August		
Numbers September		
Numbers October	100	
Numbers November	100	
Numbers December	100	
Numbers January		
Numbers February		
Numbers March		
Numbers April		
Numbers May		
Numbers June		
Maximum weight (kg)	100	
Live weight start (kg)	80	
Live weight end (kg)	100	
Carcass weight (kg)	45	
Age start (months)	2	
Age start (months)	2	
Calves fed milk powder		
Advanced dairy production		
Milksolid yield		kg
Lactation length		days
Average weight		kg/animal
% replacements in milking here	1	1.000
Median calving date		
Drying off		
Effluent disposal system		
Ponding system		
Pond treatement methods		
Pond sludge disposal method		
Solids disposal method		
Once a day milking		
Once a day minking		
Grazing off options for milkir	o cows animals	
Percentage milking cows remo	•	%
Month leaving farm beginning of		
Month returned end of		
Grazed out most of farm prior t	o removal of animals	
Feed pad		
% of milking season cows use	feed pad	%
g 000		
Dairy wintering pad/animal she	ter option not used	
Dairy Winter stand off or loafing		
Advanced pasture and supplem		
the second second second second		

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

False

	kg	310000
	days	Unknown
	kg/animal	Unknown
		28
		25 August
		24 May
		Holding pond
		Seepage Walls
		Spread over farm
		Spread over farm
		Never
cows animals		
ed	%	100
		June
		July
removal of animals		True
ed pad	%	100
er option not used		
pads option not used		

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

ha	8
	Class 1
ha	50
	Moderate convergence
	Туре А
	0 -1 m

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Supplements Added

Supplements A	aea		Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproduct	s Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

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Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall	~	Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test	шуљу	.6
Anion storage capacity or PR		.o Not known
anon storage sepacity of Fit		
Block Fertiliser		

Block Fertiliser

Fertiliser C	alculator
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Fertiliser name	
Superten	

Category Ballance super

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Amount (kg/ha/yr) 500

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Parameter name	Units	Value
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No coluble D opplied in high risk months		
No soluble P applied in high risk months		
Lime / dolomite Application		
Lime / dolomite Application		Lime (good guality)
Lime / dolomite Application Annual lime applications	kg/ha/yr	Lime (good quality) 500
Lime / dolomite Application Annual lime applications Lime material	kg/ha/yr	

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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Parameter name	Units	Value
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	

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Parameter name	Units	Value
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		

N-rich Urea N-rich Ammo No N added in May, June and July No soluble P applied in high risk months

Parameter name	Units	Value
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500 ⁻
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

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Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU

Soil type Soil order (default) Soil group (default) Sand parent material Soil texture KAWEKU Ultic Sedimentary False Unknown

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Parameter name	Units	Value	
Soil profile		Stony	
Olsen P		21	
QT K		5	
QT Ca		9	
QT Mg		14	
QT Na		5	
Organic S		18.1	
QT SO4	mg/kg	16	
TBK reserve K test		.6	
Anion storage capacity or PR		Not known	

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		

Lime / dolomite Application

Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke	irrigation	False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	······
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			
Climate			
Mean annual rainfall	mm	850	

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Parameter name	Units	Value
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing	<i>,</i> ,,	False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140

Muriate of potash No N added in May, June and July No soluble P applied in high risk months

Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
	kg/ha/yr	500

Ballance other

75

Block Information			
Parameter name	Units	Value	·
No supplements removed from the block			

Block Information

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Parameter	name			Units		Value	
Block name						Dry stock Sur	nmer crop
Area				ha		10	
Fodder crop)					Turnips Barka	ant
Crop yield				T/ha dry	weight	12	
Fate of crop)					Grazed in situ	l
Stock types	grazing pastu	ure prior to cultiv	vation			Non-dairy	
Crop eaten l	b y Dairy					True	
Crop eaten l	by Sheep					False	
Crop eaten l	by Beef					False	
Crop eaten l	by Deer					False	
Month first c	cultivated					November	
Cultivation n	Cultivation method					Conventional	
Cultivated pa	asture brownt	top/unimproved				False	
Month first r	removed					January	
Month last re	emoved					February	
Month resov	wn in pasture					March	
Fertiliser							
November							
Soluble fe	rtiliser (kg/h	a/month)					
	N	P	ĸ	S	Ca	Mg	Na
	100	40	30	0	0	0	0
January							
Soluble fe	rtiliser (kg/h	a/month)					
	N	Р	ĸ	S	Ca	Mg	Na
	100	0	0	0	0	0	0

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True

Block Information		
Perometer name		

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Paramete	r name			Units		Value	
Crop eate	n by Sheep					False	
Crop eate	n by Beef					False	
Crop eate	n by Deer					False	
Month firs	t cultivated					November	
Cultivation	n method					Conventional	
Cultivated	pasture brownt	op/unimproved				False	
Month firs	t removed					June	
Month last	t removed					August	
Month resown in pasture					September		
Fertiliser							
Decembe	r						
Soluble	fertiliser (kg/h	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February							
	fertiliser (kg/ha	a/month)					
Soluble		-	к	S	Ca	Mg	Na
Soluble	N	P	n	U U	<u>u</u>		144

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated crop yields, 325,000 kg MS + extra 15 tonnes N File: Stevens Whole Farm Budget ver.1c.1.2.ovp

Parameter report

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Parameter name		Units		Value
Region				Southland
No Fuel, electricity and other f	arm inputs			
No Farm capital (structure) inp	outs			
Block setup summary				
Block name	Block type	Effective area (ha)	Relative	e productivity
Non-effluent area- Kaweku	Pastoral	107	1	
Non-effluent area-Makarewa	Pastoral	72	1	
Effluent area	Pastoral	65	1	
Dry stock	Pastoral	90	1	
Lease	Pastoral	40	1	
Dry stock Summer crop	Fodder Crop	10	0	
Dry stock Winter crop	Fodder Crop	10	0	
Total farm area declared as b	locks	ha		394
Total farm area		ha		424
Non-productive area		ha		30
Relative productivity assessm	ent method			No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios		False

Tony Rhodes

PGG Wrightson Consulting

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

	NA-L 4		
Class	Mob 4		
Breed	Calves (male)		
	Friesian		
Numbers July			
Numbers August			
Numb e rs S e ptember Numbers October	100		
Numbers October	100		
Numbers November	100		
Numbers January Numbers February			
Numbers Pebruary Numbers March			
Numbers April			
Numbers April			
Numbers May			
Maximum weight (kg)	100		
Live weight start (kg)	80		
Live weight end (kg)	100		
Carcass weight (kg)	45		
Age start (months)	2		
Age start (months)	2		
Calves fed milk powder			False
Advanced dairy product	ion		
Milksolid yield		kg	310000
Lactation length		days	Unknown
Average weight		kg/animal	Unknown
% replacements in milking	g herd		28
Median calving date			25 August
Drying off			24 May
Effluent disposal system			Holding pond
Ponding system			
Pond treatement methods			Seepage Walls
Pond sludge disposal met	hod		Spread over farm
Solids disposal method			Spread over farm
Once a day milking			Never
Grazing off options for r	nilking cows animals		
Percentage milking cows		%	100
Month leaving farm beginn	ning of		June
Month returned end of			July
Grazed out most of farm p	prior to removal of animals		True
Feed pad			
% of milking season cows	use feed pad	%	100
Dairy wintering pad/anima	I shelter option not used		
	oafing pads option not used		
	pplements options for Dairy not	used	

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

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Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 1
Catchment area	ha	50
Catchment convergence		Moderate convergence
Wetland type		Туре А
Aquitard depth		0 -1 m

Supplements Added

Supplements Ac	lded		Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproduct	s Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen

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Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known

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Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

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Parameter name	Units	Value
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
		Lime (good quality)
Lime / dolomite Application Annual lime applications	kg/ha/yr	Lime (good quality) 500
Lime / dolomite Application Annual lime applications Lime material	kg/ha/yr	

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Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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	MAKARAKA
	Gley
	Sedimentary
	False
	Unknown
	Stony
	21
	4
	10
	21
	6
	11.3
ma/ka	10
	.9
	Not known
Category	Amount (kg/ha/yr)
	500
Ballance other	75
Ballance other	200
Ballance other	100
Ballance other	132
	Lime (good guality)
ka /h o h m	Lime (good quality) 500
kg/na/yr	
	False
	Ballance other Ballance other

Block Information

Parameter name	Units	Value	
Block nam e		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	

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Parameter name	Units	Value
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clove
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT Κ		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
	5 5	.8
TBK reserve K test		

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		

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Parameter name	Units	Value	
Lime / dolomite Application			
Annual lime applications			
Lime material		Lime (good quality)	
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irrigation	False		
No supplements removed from the block			

Block Information

Parameter name	Value	
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall	Low	
Annual potential evapotranspiration (PET)	651-800	
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clove
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
		Onic

Soil order (default) Soil group (default) Sand parent material Soil texture

Sedimentary False Unknown

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Parameter name	Units	Value	
Soil profile		Stony	
Olsen P		21	
QT Κ		5	
QT Ca		9	
QT Mg		14	
QT Na		5	
Organic S		18.1	
QT SO4	mg/kg	16	
TBK reserve K test		.6	
Anion storage capacity or PR		Not known	

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
N-nch Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		

Lime / dolomite Application

Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke ir	False	
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Lease
Area	ha	40
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850

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Rate

Parameter name	Units	Value
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QTK		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)

kg/ha/yr Fertiliser P applied within 3 weeks of border dyke irrigation

(good quality) 500 False

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Parameter name	Units	Value
No supplements removed from the block		

Block Information

Paramete	r name			Units		Value		
Block name					Dry stock Sur	nmer crop		
Area				ha		10		
Fodder cro	ор					Turnips Barka	ant	
Crop yield				T/ha dry v	veight	12		
Fate of cro	ор					Grazed in situ		
Stock type	es grazing pastu	re prior to cultiv	ation			Non-dairy		
Crop eater	n by Dairy					True		
Crop eater	n by Sheep					False		
Crop eater	n by Beef					False		
Crop eater	n by Deer					False		
Month first	t cultivated					November		
Cultivation	n method					Conventional		
Cultivated	pasture brownt	op/unimproved				False		
Month first removed					January			
Month last removed					February			
Month resown in pasture					March			
Fertiliser								
Novembe	r							
Soluble	fertiliser (kg/ha	a/month)						
	N	Р	к	S	Са	Mg	Na	
	100	40	30	0	0	0	0	
January								
Soluble	fertiliser (kg/ha	a/month)						
	N	P	к	S	Ca	Mg	Na	
	100	0	0	0	0	0	0	

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ
Stock types grazing pasture prior to cultivation		Non-dairy
Crop eaten by Dairy		True

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Parameter name				Units		Value	
Crop eate	en by Sheep					False	
Crop eate	en by Beef					False	
Crop eate	en by Deer					False	
Month firs	st cultivated					November	
Cultivatio	n method					Conventional	
Cultivated	d pasture brownt	op/unimproved				False	
Month firs	st removed					June	
Month last removed						August	
Month resown in pasture						September	
Fertilise	r						
Decembe	er						
Soluble	e fertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February	/						
-	e fertiliser (kg/ha	a/month)					
		P	к	S	Ca	Mg	Na
	Ν	F					

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 B & S Stevens
 Tony Rhodes

 Wainui Farm
 PGG Wrightson Consulting

 Pahiwi Road
 RD 6

 Gore
 Client Reference: Irrigated crop yields,

 225,000 kg MS + extra 15 tonnes N +
 180 tonnes pasture silage

 File:
 Stevens Whole Farm Budget ver.1c.1.3A.ovp

Parameter report

Parameter name	Units	Value
Region		Southland
No Fuel, electricity and other farm inputs		
No Farm capital (structure) inputs		

Block setup summary

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Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	90	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Dry stock Winter crop	Fodder Crop	10	0
Total farm area declared as bl	ocks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessme	ent method		No difference between blocks
Make all block stock ratios sar	ne as farm stoc	k ratios	False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			750
Numbers August			750
Numbers September			750
Numbers October	225		750
Numbers November	225		740
Numbers December	225		740
Numbers January	225		740
Numbers February	225		690
Numbers March	225		690
Numbers April	225		640
Numbers May		195	555
Numbers June		195	555
Maximum weight (kg)	200		500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		

Aae	start	(months)	
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Class	Mob 4 Calves (male)
Breed	Friesian
Numbers July	
Numbers August	
Numbers September	
Numbers October	100
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2

Calves fed milk powder

Advanced dairy production

False

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Milksolid yield	kg	325000
Lactation length	days	Unknown
Average weight	kg/animal	Unknown
% replacements in milking herd		28
Median calving date		25 August
Drying off		24 May
Effluent disposal system		Holding pond
Ponding system	*	
Pond treatement methods		Seepage Walls
Pond sludge disposal method		Spread over farm
Solids disposal method		Spread over farm
Once a day milking		Never
Grazing off options for milking cows animals		
Percentage milking cows removed	%	100
Month leaving farm beginning of		June
Month returned end of		July
Grazed out most of farm prior to removal of animals		True
Feed pad		
% of milking season cows use feed pad	%	100
Dairy wintering pad/animal shelter option not used		
Dairy Winter stand off or loafing pads option not used		
Advanced pasture and supplements options for Dairy no	t used	
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Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

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	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	35
Numbers March	35
Numbers April	20
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 1
Catchment area	ha	50
Catchment convergence		Moderate convergence
Wetland type		Туре А
Aquitard depth		0 -1 m

Supplements Added

Supplements /	Added		Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	200.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byprodu	cts Molasses	30.0	False	Paddocks	dairy

User defined	Calf Meal 16% P 18.0	False	Paddocks	dairy replacemen
Silages	Pasture good quality si&@ @	False	Paddocks	dairy

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Parameter nameUnitsValueBlock nameNon-effluent area- KawekuAreaha107Block typePastoralBlock typeFlatBlock typeFlatDopgraphyFlatDistance from coastKm90Profile drainage classPoorly drainedKmPoorly drainedFalseMole/tile drainadeTrueSpray effluentFalseNo irrigation appliedFalseClimateClimateMean annual rainfallMean annual rainfallmmMean annual temperature°CSeasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionnLatitude South°AttitudenDairy milking herd%Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)DevelopedPasture typeKmRegrass / white clover
Areaha107Block typePastoralTopographyFlatDistance from coastkm90Profile drainage classImperfectPoorly drainedFalseMole/tile drainedTrueSpray effluentFalseReceives pond sludge effluentFalseNo irrigation appliedmm850Mean annual rainfallmm850Mean annual rainfallC11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic condition°Laitude South°AltitudemAutitude%AltitudemDairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)FalseDevelopment status (organic nutrients)FalseDevelopment status (organic nutrients)False
Block typePastoralTopographyFlatDistance from coastkmPorfile drainage classImperfectPoorly drainedFalseNole/tile drainedTrueSpray effluentFalseReceives pond sludge effluentFalseNo irrigation applied"CClimateLowMean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallCow611-800Annual potential evapotranspiration (PET)Never611-800Seasonal variation in PETModerateNeverHydrophobic condition°46.2Altitudem40Chimate and Pasture"Sales"Dairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)SalesSales
TopographyFlatDistance from coastkm90Profile drainage classImperfectPoorly drainedFalseMole/tile drainedTrueSpray effluentFalseReceives pond sludge effluentFalseReceives pond sludge effluentFalseReceives approximation appliedTrueClimateVMean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic condition°46.2Altitudem46.2Altitudem100Dairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)SeasonalFalse
Distance from coastkm90Profile drainage classImperfectPoorly drainedFalseMole/tile drainedTrueSpray effluentFalseRecives pond sludge effluentFalseNo irrigation appliedmmClimate
Profile drainage classImperfectPoorly drainedFalsePoorly drainedTruePoorly drainedFalseMole/tile drainedFalseSpray effluentFalseReceives pond sludge effluentFalseNo irrigation appliedTrueClimateClimateMean annual rainfallmmMean annual rainfallmmSeasonal variation in rainfall°CAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic condition°Latitude South°AthitudemAthitudeModerateDairy milking herd%Dairy milking herd%Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)False
Poorly drainedFalseMole/tile drainedTrueSpray effluentFalseReceives pond sludge effluentFalseNo irrigation appliedTrueClimateClimateMean annual rainfallmmMean annual rainfallCMean annual rainfallCMean annual rainfallLowMean annual remperature°CSeasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETNoderateHydrophobic conditionNeverLatitude South°AthitudemAthitudemDairy milking herd%Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)False
Mole/tile drainedTrueSpray effluentFalseReceives pond sludge effluentFalseNo irrigation applied*********************************
Spray effluent Receives pond sludge effluent No irrigation appliedFalseClimatemm850Mean annual rainfall Mean annual temperature°C11Seasonal variation in rainfall Annual potential evapotranspiration (PET)Cow651-800Seasonal variation in PET Hydrophobic condition Latitude South AltitudeNever46.2Antimate and Pasture°46.2Dairy milking herd Dairy or beef animals have direct access to streams Development status (organic nutrients)%100DevelopedSeasonal variation in utrientsFalseSeasonal variation
Receives pond sludge effluentNo irrigation appliedClimatemm850Mean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallC11Seasonal variation in rainfallLow651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°46.2Altitudem40VertureNeverDairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)LowSeasonal
No irrigation appliedClimatemm850Mean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°AltitudemAdditional PastureNeverDairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Developed
Climatemm850Mean annual rainfall°C11Seasonal variation in rainfallC11Annual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°46.2Altitudem40Animals and PastureDairy milking herd%100Development status (organic nutrients)FalseDevelopment status (organic nutrients)Development status (organic nutrients)
Mean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°AltitudemAtitudeModerateDairy milking herd%Dairy or beef animals have direct access to streams%Development status (organic nutrients)Developed
Mean annual rainfallmm850Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°AltitudemAtitudeModerateDairy milking herd%Dairy or beef animals have direct access to streams%Development status (organic nutrients)Developed
Mean annual temperature°C11Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°AltitudemAttitudeModerateDairy milking herd%Dairy or beef animals have direct access to streams%Development status (organic nutrients)Latitude
Seasonal variation in rainfallLowAnnual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°Altitude°AltitudemAtitudeNeverAnimals and Pasture°Dairy milking herd%Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Development status (organic nutrients)
Annual potential evapotranspiration (PET)651-800Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South°AltitudemAltitudeModerateAnimals and Pasture*Dairy milking herd%Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Lot
Seasonal variation in PETModerateHydrophobic conditionNeverLatitude South•Altitude•AltitudemAltitude•Animals and Pasture•Dairy milking herd%Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)•
Hydrophobic conditionNeverLatitude South°46.2Altitudem40AltitudeNever100Dairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)LowerDeveloped
Latitude South Altitude M 46.2 Altitude M 40 A0 Animals and Pasture Dairy milking herd Dairy or beef animals have direct access to streams Development status (organic nutrients) Latitude Animals Advention Development status (organic nutrients) Latitude D Animals Advention D Animals D Anim
Altitudem40Animals and PastureDairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Developed
Animals and PastureDairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Developed
Dairy milking herd%100Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Developed
Dairy or beef animals have direct access to streamsFalseDevelopment status (organic nutrients)Developed
Development status (organic nutrients) Developed
Soil information
Soil type KAWEKU
Soil order (default) Ultic
Soil group (default) Sedimentary
Sand parent material False
Soil texture Unknown
Soil profile Deep
Olsen P 21
QT K 4
QT Ca 10
QT Mg 21
QT Na 6
Organic S 11.3 QT SO4 mg/kg 10
5 5
TBK reserve K test .6
Anion storage capacity or PR Not known

Block Fertiliser

Fertiliser Calculator

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Parameter name	Units	Value
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		False
Receives pond sludge effluent		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
		Page 5 of 12 Pages

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Parameter name	Units	Value
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
N-rich Urea	Ballance other	132

No N added in May, June and July No soluble P applied in high risk months

Lime / dolomite Application

Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	
Block name		Effluent area	
Area	ha	65	
Block type		Pastoral	
Topography		Flat	
		Page 6 of 12 Pages	

No N added in May, June and July No soluble P applied in high risk months

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Block Information		
Parameter name	Units	Value
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130

Block	Inform	ation
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Parameter name	Units	Value
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False

No supplements removed from the block

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
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Soil type Soil order (default) Soil group (default)

KAWEKU Ultic Sedimentary

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Parameter name	Units	Value
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test	-	.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation	· · · · · · · · · · · · · · · · · · ·	False
No supplements removed from the block		
		-

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			

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Parameter name	Units	Value
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
	mg/kg	10
QT SO4		
QT SO4 TBK reserve K test		.6

Fertiliser Calculator

Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		

Lime / dolomite Application

Annual lime applications Lime material

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Parameter name	Units	Value	
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irrigation		False	
No supplements removed from the block			

Block Information

Parameter name			Units		Value		
Block nam	e					Dry stock Sur	mmer crop
Area	98			ha		10	
Fodder cro	р					Turnips Barka	ant
Crop yield				T/ha dry	T/ha dry weight 12		
Fate of cro	р					Grazed in situ	J
Stock type	s grazing pastu	ure prior to cultiv	vation			Non-dairy	
Crop eater	1 by Dairy					True	
Crop eater	ı by Sheep					False	
Crop eater	ı by Beef					False	
Crop eater	ı by Deer					False	
Month first	cultivated					November	
Cultivation	method					Conventional	
Cultivat ed	pasture brownt	top/unimproved				False	
Month first removed					January		
Month last removed					February		
Month resown in pasture					March		
Fertiliser							
November							
Soluble f	ertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
January							
Soluble f	ertiliser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	0	0	0	0	0	0

Block Information

Units	Value
	Dry stock Winter crop
ha	10
	Swedes
T/ha dry weight	30
	Grazed in situ

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Block Information Parameter name Units Value Stock types grazing pasture prior to cultivation Non-dairy Crop eaten by Dairy True Crop eaten by Sheep False Crop eaten by Beef False Crop eaten by Deer False Month first cultivated November Cultivation method Conventional Cultivated pasture browntop/unimproved Faise Month first removed June Month last removed August Month resown in pasture September Fertiliser December Soluble fertiliser (kg/ha/month) Ν Ρ Κ S Са Mg Na 100 40 30 0 0 0 0 February Soluble fertiliser (kg/ha/month) Ν Ρ Κ S Са Mg Na 100 0 0 0 0 0 0

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Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:35 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

B & S Stevens PGG Wrightson Consulting Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated summer crop + zero winter crop + wintering pad + 310,000 kg MS File: Stevens Whole Farm Budget ver.1c.2.1.ovp

Parameter report

Parameter name	Units	Value
Region		Southland
No Fuel, electricity and other farm inputs		
No Farm capital (structure) inputs		

Tony Rhodes

Block setup summary

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Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	100	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Total farm area declared as b	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessm	ent method		No difference between blocks
Make all block stock ratios sa	me as farm stoc	False	

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			710
Numbers August			710
Numbers September			710
Numbers October			700
Numbers November	225		700
Numbers December	225		700
Numbers January	225		700
Numbers February	225		650
Numbers March	225		650
Numbers April			600
Numbers May		195	550
Numbers June		195	515
Maximum weight (kg)	200	490	500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

	Mob 4
Class	Calves (male)
Breed	Friesian
Numbers July	
Numbers August	
Numbers September	
Numbers October	
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2

Calves fed milk powder

Advanced dairy production

Milksolid yield Lactation length Average weight % replacements in milking herd Median calving date Drying off Effluent disposal system

Ponding system

Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking

Wintering pad / animal shelter for Dairy animals

Feeding regime % cows on wintering pad Month on to wintering pad, beginning of Month off wintering pad end of Time grazing pasture (hrs) Pad construction UnCovered pad Pad surface Lined or subsurface drainage captured Surface scraped regularly Liquid effluent management Added to farm dairy effluent Solid effluent management Solid disposal method Storage method True

kg

days

kg/animal

310000 Unknown Unknown Unknown 25 August 24 May Holding pond

Seepage Walls Spread over farm Spread over farm Never

Wintering pad + grazing 100 June July 1

Carbon rich (sawdust, bark, woodchips True True

True

Spread over farm Covered (from rain)

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Dairy winter grazing off option not used Dairy feed pad option not used Dairy Winter stand off or loafing pads option not used Advanced pasture and supplements options for Dairy not used

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	40
Numbers March	40
Numbers April	40
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		Class 4
Catchment area	ha	30
Catchment convergence		Moderate convergence
Wetland type		Туре В
Aquitard depth		0 -1 m

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Supplements Added

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Supplements /	Added		Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	110.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byprodu	cts Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen
Straws	Wheat straw	60.0	False	Wintering pad	dairy
Silages	Triticale silage	200.0	False	Wintering pad	dairy

Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21

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Parameter name	Units	Value
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
		Page 5 of 11 Pages

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Parameter name	Units	Value
Latitude South	٥	46.2
Altitude	~	40.2
Aude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QTK		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July	-	
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

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Parameter name	Units	Value
Block name		Effluent area
Area	ha	65
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		o 31.7
-	maller	
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

500

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Parameter name	Units	Value
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
• -		

Parameter name	Units	Value
Block name		Dry stock
Area	ha	100
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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Parameter name	Units	Value
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
	kg/ha/yr	500
Rate		_ .
Rate Fertiliser P applied within 3 weeks of border dyke irrigation		False

Block Information

Units	Value	
	Lease	
ha	40	
	Pastoral	
	Flat	
km	90	
	Imperfect	
	False	
	ha	ha Lease ha 40 Pastoral Flat km 90 Imperfect

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Parameter name	Units	Value	
Lime / dolomite Application			
Annual lime applications			

Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Parameter nan	ne			Units		Value	
Block name						Dry stock Sun	nmer crop
Area				ha		10	
Fodder crop						Turnips Barka	int
Crop yield				T/ha dry	weight	12	
Fate of crop						Grazed in situ	
Stock types gra	zing pastu	re prior to cultiv	ation			Non-dairy	
Crop eaten by [Dairy					True	
Crop eaten by S	Sheep					False	
Crop eaten by E	Beef					False	
Crop eaten by [Deer					False	
Month first culti	vated					November	
Cultivation meth	nod					Conventional	
Cultivated pasts	ure brownt	op/unimproved				False	
Month first rem	oved					January	
Month last remo	oved					February	
Month resown i	n pasture					March	
Fertiliser							
November							
Soluble fertili	iser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
January							
Soluble fertili	iser (kg/ha	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	0	0	0	0	0	0

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated summer crop + zero winter crop + wintering pad + 310,000 kg MS File: Stevens Whole Farm Budget ver.1c.2.1.ovp

Parameter report

Parameter name	Units	Value
Region		Southland
No Fuel, electricity and other farm inputs		
No Farm capital (structure) inputs		

Tony Rhodes

PGG Wrightson Consulting

Block setup summary

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Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	100	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Total farm area declared as b	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessm	ent method		No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios	False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			710
Numbers August			710
Numbers September			710
Numbers October			700
Numbers November	225		700
Numbers December	225		700
Numbers January	225		700
Numbers February	225		650
Numbers March	225		650
Numbers April			600
Numbers May		195	550
Numbers June		195	515
Maximum weight (kg)	200	490	500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

Class Breed	Mob 4 Calves (male) Friesian
	Filesiali
Numbers July	
Numbers August	
Numbers September	
Numbers October	
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2

Calves fed milk powder

Advanced	dairy	production
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Milksolid yield Lactation length Average weight % replacements in milking herd Median calving date Drying off Effluent disposal system

Ponding system

Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking

Wintering pad / animal shelter for Dairy animals

Feeding regime % cows on wintering pad Month on to wintering pad, beginning of Month off wintering pad end of Time grazing pasture (hrs) Pad construction UnCovered pad Pad surface Lined or subsurface drainage captured Surface scraped regularly Liquid effluent management Added to farm dairy effluent Solid effluent management Solid disposal method Storage method True

310000 Unknown Unknown Unknown 25 August 24 May

kg

days

kg/animal

Holding pond

Seepage Walls Spread over farm Spread over farm Never

Wintering pad + grazing 100 June July 1

Carbon rich (sawdust, bark, woodchips True True

True

Spread over farm Covered (from rain)

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Dairy winter grazing off option not used Dairy feed pad option not used Dairy Winter stand off or loafing pads option not used Advanced pasture and supplements options for Dairy not used

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	40
Numbers March	40
Numbers April	40
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

DCD is not applied

Wetland 1		
Effective wetland area	ha	8
Condition		Class 4
Catchment area	ha	30
Catchment convergence		Moderate convergence
Wetland type		Туре В
Aquitard depth		0 -1 m

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Supplements Added

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Supplements Added			Amount on a dry		
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	110.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproducts	Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen
Straws	Wheat straw	60.0	False	Wintering pad	dairy
Silages	Triticale silage	200.0	False	Wintering pad	dairy

Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21

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Parameter name	Units	Value
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation	Ng/Na/Ji	False
No supplements removed from the block		

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
		Page 5 of 11 Pages

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Parameter name	Units	Value
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

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Parameter name	Units	Value
Block name		Effluent area
Area	ha	65
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

500

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Parameter name	Units	Value
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Parameter name	Units	Value
Block name		Dry stock
Area	ha	100
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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Parameter name	Units	Value
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall	-	Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams	<i>,</i> ,	False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Jisen P		30
QTK		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		6 31.7
QT SO4	malka	
TBK reserve K test	mg/kg	28
		.8
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Contilions norma	0.1	

Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		

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Parameter name	Units	Value	
Lime / dolomite Application			
Annual lime applications			
Lime material		Lime (good quality)	
D-1-			

Rate

Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block kg/ha/yr

Lime (good quality 500 False

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	90
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		

Soil type Soil order (default) Soil group (default)

KAWEKU Ultic Sedimentary

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Parameter name	Units	Value
Sand parent material		False
Soil texture		Unknown
Soil profile	ζ	Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	
Poorly drained		False	
Mole/tile drained		True	
Receives no liquid or solid effluents			
No irrigation applied			

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Parameter name	Units	Value
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Fertiliser Calculator

Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	140
Muriate of potash	Ballance other	75
No N added in May, June and July		
No soluble P applied in high risk months		

Lime / dolomite Application

Annual lime applications Lime material

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Parameter name	Units	Value	
Rate	kg/ha/yr	500	
Fertiliser P applied within 3 weeks of border dyke irrigation		False	
No supplements removed from the block			

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Block Information

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Parameter name			Units		Value		
Block name					Dry stock Sur	nmer crop	
Area	Area				10		
Fodder crop					Turnips Barka	ant	
Crop yield			T/ha dry	weight	12		
Fate of crop				-	Grazed in situ	I	
Stock types grazing pasture p	rior to cultiv	ation			Non-dairy		
Crop eaten by Dairy					True		
Crop eaten by Sheep					False		
Crop eaten by Beef					False		
Crop eaten by Deer					False		
Month first cultivated					November		
Cultivation method					Conventional		
Cultivated pasture browntop/u	inimproved				False		
Month first removed					January		
Month last removed					February		
Month resown in pasture					March		
Fertiliser							
November							
Soluble fertiliser (kg/ha/mo	onth)						
Ν	Ρ	к	S	Ca	Mg	Na	
100	40	30	0	0	0	0	
January							
Soluble fertiliser (kg/ha/mo	onth)						
Ν	Р	к	S	Са	Mg	Na	
100	0	0	0	0	0	0	

Block Information

Parameter name	Units	Value
Block name		Dry stock Winter crop
Area	ha	10
Fodder crop		Swedes
Crop yield	T/ha dry weight	30
Fate of crop		Grazed in situ

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Paramete	r name			Units		Value	
Stock type	s grazing pastu	are prior to cultiv	vation			Non-dairy	
Crop eater	n by Dairy					True	
Crop eater	n by Sheep					False	
Crop eater	n by Beef					False	
Crop eater	n by Deer					False	
Month first	cultivated					November	
Cultivation	method					Conventional	
Cultivated	pasture brownt	op/unimproved				False	
Month first	removed					June	
Month last	removed					August	
Month reso	own in pasture					September	
Fertiliser							
December							
Soluble f	ertiliser (kg/h	a/month)					
	N	P	к	S	Ca	Mg	Na
	100	40	30	0	0	0	0
February							
-	ertiliser (kg/h	a/month)					
	N	P	к	S	Са	Mg	Na
	100	0	0	0	0	0	0

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B & S Stevens Wainui Farm Pahiwi Road RD 6 Gore Client Reference: Irrigated summer crop + zero winter crop + wintering pad + 310,000 kg MS + extra 15 tonnes N File: Stevens Whole Farm Budget ver.1c.2.2.ovp

Parameter report

Parameter name	Units	Value
Region		Southland
No Fuel, electricity and other farm inputs		
No Farm capital (structure) inputs		

Tony Rhodes

PGG Wrightson Consulting

Block setup summary

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Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	100	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Total farm area declared as b	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessme	ent method		No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios	False

ake all block stock ratios same as farm stock ratios

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			710
Numbers August			710
Numbers September			710
Numbers October			700
Numbers November	225		700
Numbers December	225		700
Numbers January	225		700
Numbers February	225		650
Numbers March	225		650
Numbers April			600
Numbers May		195	550
Numbers June		195	515
Maximum weight (kg)	200	490	500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

	NOD 4
Class	Calves (male)
Breed	Friesian
Numbers July	
Numbers August	
Numbers September	
Numbers October	
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2
Calves fed milk powder	

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Advanced dairy production Milksolid yield Lactation length Average weight % replacements in milking herd Median calving date Drying off

Effluent disposal system

Ponding system

Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking

Wintering pad / animal shelter for Dairy animals

Feeding regime % cows on wintering pad Month on to wintering pad, beginning of Month off wintering pad end of Time grazing pasture (hrs) Pad construction UnCovered pad Pad surface Lined or subsurface drainage captured Surface scraped regularly Liquid effluent management Added to farm dairy effluent Solid effluent management Solid disposal method Storage method

True

kg

days

kg/animal

310000 Unknown Unknown Unknown 25 August 24 May Holding pond

Seepage Walls Spread over farm Spread over farm Never

Wintering pad + grazing 100 June July 1

Carbon rich (sawdust, bark, woodchips True True

True

Spread over farm Covered (from rain)

Page 2 of 11 Pages

Dairy winter grazing off option not used Dairy feed pad option not used Dairy Winter stand off or loafing pads option not used Advanced pasture and supplements options for Dairy not used

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

20011	
	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	40
Numbers March	40
Numbers April	40
Numbers May	40
Numbers June	40
Maximum w e ight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals

No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1	
Effective wetland area	ha
Condition	
Catchment area	ha
Catchment convergence	
Wetland type	
Aquitard depth	

8 Class 4 30 Moderate convergence Type B 0 -1 m Page 3 of 11 Pages

Supplements Ad	ded		Amount on a dry weight basis	Destination	Animal type or block
Category	Туре	Amount (T)			
Grains/Pulses	Wheat grain	110.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproducts	Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen
Straws	Wheat straw	60.0	False	Wintering pad	dairy
Silages	Triticale silage	200.0	Faise	Wintering pad	dairy

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Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21

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Parameter name	Units	Value
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		False

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
		Page 5 of 11 Pages

Block Information Value Parameter name Units Hydrophobic condition Never 0 Latitude South 46.2 Altitude 40 m **Animals and Pasture** 100 % Dairy milking herd False Dairy or beef animals have direct access to streams Development status (organic nutrients) Developed Ryegrass / white clover Pasture type Soil information MAKARAKA Soil type Soil order (default) Gley Soil group (default) Sedimentary Sand parent material False Soil texture Unknown Soil profile Stony Olsen P 21 QT K 4 10 QT Ca 21 QT Mg QT Na 6 11.3 Organic S QT SO4 10 mg/kg .9 **TBK reserve K test** Anion storage capacity or PR Not known **Block Fertiliser Fertiliser Calculator** Fertiliser name Category Amount (kg/ha/yr) Superten Ballance super 500 75 Muriate of potash Ballance other Ballance other 200 N-rich Urea N-rich Ammo Ballance other 100 N-rich Urea Ballance other 132 No N added in May, June and July No soluble P applied in high risk months Lime / dolomite Application Annual lime applications Lime material Lime (good quality) Rate kg/ha/yr 500 Fertiliser P applied within 3 weeks of border dyke irrigation False No supplements removed from the block

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Parameter name	Units	Value
Block name		Effluent area
Area	ha	65
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QTK		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

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Parameter name	Units	Value
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application Annual lime applications Lime material Rate Fertiliser P applied within 3 weeks of border dyke irrigation	kg/ha/yr	Lime (good quality) 500 False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	100
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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Parameter name	Units	Value
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation	······································	False
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Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	

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Block Information Parameter name	Units	Value
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
_atitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing	70	False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Disen P		21
QT K		5
QT Ca		9
		9 14
QT Na		5
Organic S		11.3
	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

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Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		

Parameter name	Units	Value
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

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Parameter name	meter name Units				Value		
Block name					Dry stock Sur	nmer crop	
Area			ha		10		
Fodder crop					Turnips Barka	ant	
Crop yield			T/ha dry	weight	12		
Fate of crop					Grazed in situ	I	
Stock types grazing pastu	re prior to cultiv	vation			Non-dairy		
Crop eaten by Dairy					True		
Crop eaten by Sheep					False		
Crop eaten by Beef					False		
Crop eaten by Deer					False		
Month first cultivated					November		
Cultivation method					Conventional		
Cultivated pasture brownto	op/unimproved				False		
Month first removed					January		
Month last removed					February		
Month resown in pasture					March		
Fertiliser							
November							
Soluble fertiliser (kg/ha	/month)						
Ν	Р	к	S	Са	Mg	Na	
100	40	30	0	0	0	0	
January							
Soluble fertiliser (kg/ha	/month)						
N	Р	к	S	Ca	Mg	Na	
	0	0	0	0	0	0	

Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:36 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

B & S StevensTony RhodesWainui FarmPGG Wrightson ConsultingPahiwi RoadPGG Wrightson ConsultingRD 6GoreClient Reference: Irrigated summer crop+ zero winter crop + wintering pad +
310,000 kg MS + extra 15 tonnes NFile:Stevens Whole Farm Budget ver.1c.2.2.ovp

Parameter report

Parameter name	Units	Value	
Region		Southland	
No Fuel, electricity and other farm inputs			
No Farm capital (structure) inputs			

Block setup summary

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Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	100	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Total farm area declared as b	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessm	ent method		No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios	False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			710
Numbers August			710
Numbers September			710
Numbers October			700
Numbers November	225		700
Numbers December	225		700
Numbers January	225		700
Numbers February	225		650
Numbers March	225		650
Numbers April			600
Numbers May		195	550
Numbers June		195	515
Maximum weight (kg)	200	490	500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

Class	Mob 4 Calves (male)
Breed	Friesian
Numbers July	
Numbers August	
Numbers September	
Numbers October	
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2

Calves fed milk powder

Advanced dairy production

Milksolid yield Lactation length Average weight % replacements in milking herd Median calving date Drying off Effluent disposal system

Ponding system

Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking

Wintering pad / animal shelter for Dairy animals

Feeding regime % cows on wintering pad Month on to wintering pad, beginning of Month off wintering pad end of Time grazing pasture (hrs) Pad construction UnCovered pad Pad surface Lined or subsurface drainage captured Surface scraped regularly Liquid effluent management Added to farm dairy effluent Solid effluent management Solid disposal method Storage method

True

kg

days

kg/animal

310000 Unknown Unknown 25 August 24 May Holding pond

Seepage Walls Spread over farm Spread over farm Never

Wintering pad + grazing 100 June July 1

Carbon rich (sawdust, bark, woodchips True True

True

Spread over farm Covered (from rain)

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Dairy winter grazing off option not used Dairy feed pad option not used Dairy Winter stand off or loafing pads option not used Advanced pasture and supplements options for Dairy not used

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	40
Numbers March	40
Numbers April	40
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

DCD is not applied

Wetlands		
Wetland 1		
Effective wetland area	ha	8
Condition		Class 4
Catchment area	ha	30
Catchment convergence		Moderate convergence
Wetland type		Туре В
Aquitard depth		0 -1 m

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Supplements Added

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Supplements Ad	ents Added Amount on a dry				
Category	Туре	Amount (T)	weight basis	Destination	Animal type or block
Grains/Pulses	Wheat grain	110.0	False	Paddocks	dairy
Straws	Wheat straw	130.0	True	Paddocks	dairy
Process byproducts	Molasses	30.0	False	Paddocks	dairy
User defined	Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen
Straws	Wheat straw	60.0	False	Wintering pad	dairy
Silages	Triticale silage	200.0	False	Wintering pad	dairy
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Block Information

Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
		Page 4 of 11 Pages

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Parameter name	Units	Value
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
		Page 5 of 11 Pages

Parameter name	Units	Value
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
N-rich Urea No N added in May, June and July No soluble P applied in high risk months	Ballance other	132
Lime / dolomite Application Annual lime applications		Lime (good quality)
Lime material	kg/ha/yr	500
Rate	ky/Ha/yi	False
Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block		Laise

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Block Information		
Parameter name	Units	Value
Block name		Effluent area
Area	ha	65
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test		.8
Anion storage capacity or PR		Not known
Block Fertiliser		

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Fertiliser CalculatorCategoryAmount (kg/ha/yr)SupertenBallance super500

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Parameter name	Units	Value
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	100
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	0	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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Block Information Parameter name	Units	Value
	01113	
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	

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Parameter name	Units	Value
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Fertiliser Calculator

Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash No N added in May, June and July	Ballance other	75

Parameter name	Units	Value
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

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Parameter name	ameter name		Units		Value	
Block name					Dry stock Sun	nmer crop
Area			ha		10	
Fodder crop					Turnips Barka	int
Crop yield			T/ha dry	weight	12	
Fate of crop					Grazed in situ	
Stock types grazing past	ure prior to cultiv	vation			Non-dairy	
Crop eaten by Dairy					True	
Crop eaten by Sheep					False	
Crop eaten by Beef					False	
Crop eaten by Deer					False	
Month first cultivated					November	
Cultivation method				Conventional		
Cultivated pasture brown	top/unimproved				False	
Month first removed					January	
Month last removed				February		
Month resown in pasture				March		
Fertiliser						
November						
Soluble fertiliser (kg/h	a/month)					
N	Р	к	S	Ca	Mg	Na
100	40	30	0	0	0	0
January						
Soluble fertiliser (kg/h	a/month)					
	P	к	S	Ca	Mg	Na
N					-	0

Report from OVERSEER nutrient budgets 2009, version 5.4.10 on 17/02/2012 01:37 p.m. Copyright© 2009 AgResearch Ltd. All rights Reserved

 B & S Stevens
 Tony Rhodes

 Wainui Farm
 PGG Wrightson Consulting

 Pahiwi Road
 RD 6

 Gore
 Client Reference: Irrigated summer crop

 + zero winter crop + wintering pad +
 310,000 kg MS + extra 15 tonnes N +

 DCD
 File:

 Stevens Whole Farm Budget ver.1c.2.2B.ovp

Parameter report

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Parameter name	Units	Value	
Region		Southland	
No Fuel, electricity and other farm inputs			
No Form appital (atruature) inpute			

No Farm capital (structure) inputs

Block setup summary			
Block name	Block type	Effective area (ha)	Relative productivity
Non-effluent area- Kaweku	Pastoral	107	1
Non-effluent area-Makarewa	Pastoral	72	1
Effluent area	Pastoral	65	1
Dry stock	Pastoral	100	1
Lease	Pastoral	40	1
Dry stock Summer crop	Fodder Crop	10	0
Total farm area declared as bl	locks	ha	394
Total farm area		ha	424
Non-productive area		ha	30
Relative productivity assessme	ent method		No difference between blocks
Make all block stock ratios sa	me as farm stoc	k ratios	False

Stock Information: Dairy animals

Monthly stock reconciliation Dairy:

•	Mob 1	Mob 2	Mob 3
Class	Calves (female)	R2 Heifers pre-calving	Milking herd 1
Breed	Friesian	Friesian	Friesian
Numbers July			710
Numbers August			710
Numbers September			710
Numbers October			700
Numbers November	225		700
Numbers December	225		700
Numbers January	225		700
Numbers February	225		650
Numbers March	225		650
Numbers April			600
Numbers May		195	550
Numbers June		195	515
Maximum weight (kg)	200	490	500
Live weight start (kg)	75	470	
Live weight end (kg)	200	490	
Carcass weight (kg)	90		
Age start (months)	2	23	

	Mob 4
Class	Calves (male)
Breed	Friesian
Numbers July	
Numbers August	
Numbers September	
Numbers October	
Numbers November	100
Numbers December	
Numbers January	
Numbers February	
Numbers March	
Numbers April	
Numbers May	
Numbers June	
Maximum weight (kg)	100
Live weight start (kg)	80
Live weight end (kg)	100
Carcass weight (kg)	45
Age start (months)	2

Mah A

Calves fed milk powder

Advanced d	airy pr	oduction
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Milksolid yield Lactation length Average weight % replacements in milking herd Median calving date Drying off Effluent disposal system

Ponding system

Pond treatement methods Pond sludge disposal method Solids disposal method Once a day milking

Wintering pad / animal shelter for Dairy animals

Feeding regime % cows on wintering pad Month on to wintering pad, beginning of Month off wintering pad end of Time grazing pasture (hrs) Pad construction UnCovered pad Pad surface Lined or subsurface drainage captured Surface scraped regularly Liquid effluent management Added to farm dairy effluent Solid effluent management Solid disposal method Storage method

True

310000

Unknown

kg/animal

kg

days

Unknown Unknown 25 August 24 May Holding pond

Seepage Walls Spread over farm Spread over farm Never

Wintering pad + grazing 100 June July 1

Carbon rich (sawdust, bark, woodchips True True

True

Spread over farm Covered (from rain)

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Dairy winter grazing off option not used Dairy feed pad option not used Dairy Winter stand off or loafing pads option not used Advanced pasture and supplements options for Dairy not used

Animal health supplementation used by Dairy animals

No animal supplementation has been entered

Stock Information: Sheep, beef and deer

Monthly stock reconciliation Beef:

	Mob 1
Class	Cows (non-breeding)
Breed	Friesian
Numbers July	40
Numbers August	40
Numbers September	40
Numbers October	40
Numbers November	40
Numbers December	40
Numbers January	40
Numbers February	40
Numbers March	40
Numbers April	40
Numbers May	40
Numbers June	40
Maximum weight (kg)	500
Live weight start (kg)	450
Live weight end (kg)	450
Carcass weight (kg)	
Age start (months)	36

Grazing off options for beef animals not used Wintering off/animal shelter options for beef animals not used Advanced pasture supplement feeding options for beef not used

Animal health supplementation used by Non-dairy animals No animal supplementation has been entered

DCD is not applied

Wetlands

Wetland 1		
Effective wetland area	ha	8
Condition		С
Catchment area	ha	3
Catchment convergence		N
Wetland type		Т
Aquitard depth		0

8 Class 4 30 Moderate convergence Type B 0 -1 m

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Supplements Added

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ded		Amount on a dry		
Туре	Amount (T)	weight basis	Destination	Animal type or block
Wheat grain	110.0	False	Paddocks	dairy
Wheat straw	130.0	True	Paddocks	dairy
Molasses	30.0	False	Paddocks	dairy
Calf Meal 16% P	18.0	False	Paddocks	dairy replacemen
Wheat straw	60.0	False	Wintering pad	dairy
Triticale silage	200.0	False	Wintering pad	dairy
	Type Wheat grain Wheat straw Molasses Calf Meal 16% P Wheat straw	TypeAmount (T)Wheat grain110.0Wheat straw130.0Molasses30.0Calf Meal 16% P18.0Wheat straw60.0	TypeAmount (T)Amount on a dry weight basisWheat grain110.0FalseWheat straw130.0TrueMolasses30.0FalseCalf Meal 16% P18.0FalseWheat straw60.0False	TypeAmount (T)Amount on a dry weight basisDestinationWheat grain110.0FalsePaddocksWheat straw130.0TruePaddocksMolasses30.0FalsePaddocksCalf Meal 16% P18.0FalsePaddocksWheat straw60.0FalseWintering pad

Block Information

Parameter name	Units	Value
Block name		Non-effluent area- Kaweku
Area	ha	107
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		21
QT K		4
QT Ca		10
QT Mg		21

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Parameter name	Units	Value
QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation	•	False
No supplements removed from the block		

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Block Information

Parameter name	Units	Value
Block name		Non-effluent area-Makarewa
Area	ha	72
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate

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BIOCK Information		
Parameter name	Units	Value
Hydrophobic condition		Never
Latitude South	٥	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		MAKARAKA
Soil order (default)		Gley
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QTK		4
QT Ca		10
QT Mg		21
QT Ng QT Na		6
Organic S		11.3
QT SO4	mg/kg	10
TBK reserve K test	ilig/kg	.9
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
N-rich Urea	Ballance other	132
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		
Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		
hb		

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	11:40	Value
Parameter name	Units	Value
Block name		Effluent area
Area	ha	65
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Spray effluent		True
Effluent application depth		< 12 mm
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	100
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Olsen P		30
QT K		5.5
QT Ca		10.5
QT Mg		15.5
QT Na		6
Organic S		31.7
QT SO4	mg/kg	28
TBK reserve K test	5 5	.8
Anion storage capacity or PR		Not known
Block Fartilisar		

Block Fertiliser

Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500

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Parameter name	Units	Value
N-rich Urea	Ballance other	130
N-rich Ammo	Ballance other	130
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application Annual lime applications Lime material Rate Fertiliser P applied within 3 weeks of border dyke irrigation No supplements removed from the block	kg/ha/yr	Lime (good quality) 500 False

Block Information

Parameter name	Units	Value
Block name		Dry stock
Area	ha	100
Block type		Pastoral
Topography		Flat
Distance from coast	km	90
Profile drainage class		Imperfect
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
Hydrophobic condition		Never
Latitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover

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Block Information		
Parameter name	Units	Value
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Stony
Olsen P		21
QT K		5
QT Ca		9
QT Mg		14
QT Na		5
Organic S		18.1
QT SO4	mg/kg	16
TBK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		
Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
N-rich Urea	Ballance other	100
No N added in May, June and July		
No soluble P applied in high risk months		
Lime / dolomite Application		
Annual lime applications		Lime (good quality)
Lime material	han the estimate	Lime (good quality)
Rate	kg/ha/yr	500 Feler
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name	Units	Value	
Block name		Lease	
Area	ha	40	
Block type		Pastoral	
Topography		Flat	
Distance from coast	km	90	
Profile drainage class		Imperfect	

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Block Information		
Parameter name	Units	Value
Poorly drained		False
Mole/tile drained		True
Receives no liquid or solid effluents		
No irrigation applied		
Climate		
Mean annual rainfall	mm	850
Mean annual temperature	°C	11
Seasonal variation in rainfall		Low
Annual potential evapotranspiration (PET)		651-800
Seasonal variation in PET		Moderate
lydrophobic condition		Never
atitude South	o	46.2
Altitude	m	40
Animals and Pasture		
Dairy milking herd	%	30
Dairy replacements	%	60
Beef	%	10
Finishing		False
Dairy or beef animals have direct access to streams		False
Development status (organic nutrients)		Developed
Pasture type		Ryegrass / white clover
Soil information		
Soil type		KAWEKU
Soil order (default)		Ultic
Soil group (default)		Sedimentary
Sand parent material		False
Soil texture		Unknown
Soil profile		Deep
Disen P		21
ат к		5
дт Са		9
QT Mg		14
QT Na		5
Drganic S		11.3
QT SO4	mg/kg	10
BK reserve K test		.6
Anion storage capacity or PR		Not known
Block Fertiliser		

Block Fertiliser

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Fertiliser Calculator		
Fertiliser name	Category	Amount (kg/ha/yr)
Superten	Ballance super	500
N-rich Urea	Ballance other	200
N-rich Ammo	Ballance other	100
Muriate of potash	Ballance other	75
No N added in May, June and July		

Lime / dolomite Application

Ť

Lime material		Lime (good quality)
Rate	kg/ha/yr	500
Fertiliser P applied within 3 weeks of border dyke irrigation		False
No supplements removed from the block		

Block Information

Parameter name Units			Value				
Block name					Dry stock Sun	nmer crop	
Area			ha		10		
Fodder crop					Turnips Barka	int	
Crop yield			T/ha dry	weight	12		
Fate of crop			-	-	Grazed in situ		
Stock types grazing pasture	e prior to cultiv	ation			Non-dairy		
Crop eaten by Dairy	-				True		
Crop eaten by Sheep					False		
Crop eaten by Beef					False		
Crop eaten by Deer					False		
Month first cultivated					November Conventional		
Cultivation method							
Cultivated pasture browntop	p/unimproved				False		
Month first removed					January		
Month last removed	emoved			February			
Month resown in pasture					March		
Fertiliser							
November							
Soluble fertiliser (kg/ha/	month)						
N	P	к	S	Са	Mg	Na	
100	40	30	0	0	0	0	
January							
Soluble fertiliser (kg/ha/	month)						
N	P	к	S	Са	Mg	Na	
100	0	0	0	0	0	0	

Value

Wainui Stevens Ltd

SCITT

2 9 MAY 2014

Further information

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A: Purpose

- The purpose of this document is to supply supporting data, information and background to assist in support of Wainui Stevens Limited (WSL) irrigation consent application, and to assist in response to the issues raised by Mr Hughes of Liquid Earth Ltd in his review of the application, on behalf of Environment Southland.
- 2. In discussion with several Environment Southland staff there have been a number of other details and data that were described as being relevant and we have included these in this paper.
- 3. Application to ES has been made to take up to 65 litres per second (5,616 m³/day) to a maximum of 520,000 m³ of groundwater between July 1 and the following 30 June in any year from existing well; E44/0441, for the purpose of irrigation of up to 332 ha of pasture and crops for the grazing and milking of dairy cows.

a. Balfour Nitrogen Hotspot

- 4. Environment Southland commissioned SKM to undertake an investigation into elevated nitrate concentrations in groundwater to the west of the WSL property. Groundwater quality monitoring between 2003 and 2007 found consistently elevated nitrate-nitrogen concentrations on bores situated on the Falcon Farm dairy units. Snapshot sampling undertaken by SKM in May 2007 indicated that the nitrate hotspot extended to at least as far as the Cowie Road/Pahiwi Balfour Road corner. WSL can confirm that groundwater sampling from the production bore found elevated nitrate-nitrogen concentrations of 12 mg/L.
- 5. The nitrate concentration in groundwater exceeds the New Zealand Drinking Water Quality Guideline of 11.3 mg/L. We note the purpose of the groundwater abstraction is for irrigation of pasture and crops and not for human or animal consumption.
- 6. The environment risks associated with irrigation of the water are linked to potential increased nutrient leaching through the soil to groundwater or via overland flow to surface water. To limit these potential effects, WSL has Aquaflex soil moisture monitoring tapes to guide the timing of irrigation and will enforce 20 metre zones from surface water bodies. These mitigation measures will ensure the irrigated water is available for plant uptake rather than lost through the soil profile.
- 7. The WSL directors who operate the farm are very aware of the hotspot problem and its attendant issues, and have both been members of the local Environment Southland coordinated nitrogen hotspot consultation group, since its inception about five years ago.

B: Farm Background

a. Conversion

- 8. The Wainui Stevens Limited (WSL) property was converted in 2008/2009 from a sheep, beef and deer farm to a dairy farm.
- 9. The farm has a centrally located 54 bail rotary cowshed, concreted cow-yards and cow handling areas and around 6.5 km of formed cow-lanes.
- 10. All cowshed and cow yards are installed with effluent gravity feeding to sludge beds. The filtered effluent, having passed through a weeping wall, is transported via float switch controlled submersible pump to a 90 day (3,700m³) membrane lined storage pond. In late 2013 the pond bank height was increased by 1.2m to increase the storage capacity to 5,780m³, to store effluents from the proposed wintering shed.
- 11. The stored effluent is pumped via a buried field main to K/Line irrigation pod sets.
- 12. The pumping system has the pulsed irrigation capability. This allows application rates of below 1mm per hour.
- 13. All waterways, ditches and streams on the dairy farm are fenced.
- 14. The farm is operated in two blocks
 - a. The milking platform of 244ha from which the cows are milked from, and includes the summer crops.
 - b. The 140ha support block is utilized as the young stock replacement rearing block, the raising of 50 bull calves, growing of silage for use on the milk platform, and provision of the winter grazing including the growing of the winter crops.
 - c. The use of this block will change in 2014/15 as a wintering shed will be built (it was scheduled for commissioning in May 2014 but has been postponed due to weather delays).
- 15. The farm occupies two terraces. The lower terrace is a flood plain created by the Waimea stream. The upper terrace is farmed on gravels covered with a layer of windblown silts. It is approximately 8-10m higher than the flood plain. The upper terrace is bisected by 1 major and 2 minor gullies that provide surface drainage channels from the upper terrace, across the Waimea flood plain, and discharging into the Waimea stream.
- 16. From a farming viewpoint the flood plain and upper terrace are relatively flat.

17. The current pastures are largely longer rotation rye grass and clover and appear in good heart, although a regrassing plan with medium rotation grasses is currently being completed

b. Soils

- 18. The attributes of the principal soils types in terms of water holding capacity needed to be understood to not only ensure they were appropriate for irrigation but to allow the necessary calculations to be completed in terms of volumes that would need to be applied to ensure maximum benefit whilst insuring the water (and money) was not wasted in water being applied beyond the soils ability to hold it in the root zone.
- 19. Two soils reports have been commissioned, one by Mr Bill Risk the other by Mr John Scandrett.

Туре	Area - ha	% of irrigable area
Waikoikoi	158	41.8
Crookston & derivates	53	13.8
Makarewa	115	30.7
Others	52	13.7

20. The iirrigable area by primary soils types are approximately as follows:

21. The field survey revealed that the boundaries as shown on the soils maps are considerably less defined than tabulated on the soil maps, with considerable areas of intergrades, and in places little visible distinction between some listed types (especially the Crookston and Waikoikoi types).

Waikoikoi and Crookston Soils

Soils Description

- 22. These soils were created by the deposition of loess on tertiary sediments, i.e. gravels. Typically Waikoikoi soils have silty textures and are poorly drained and have a dense fragipan at approximately 50 cm which is sufficient to restrict drainage.
- 23. Crookston soils also have silt textures but may have a somewhat compact subsoil which results in slowly permeable drainage.
- 24. Inspection of the terrace that these soils occur on showed the soil boundaries are not distinct and that there are inter-grades between the two types. The parent material for both soil types is the same, i.e. windblown silt and the depth of the profile is also similar. It appears the nature and physical properties of the underlying gravels have had the largest influence on the soil structure development and subsequent physical soil properties.

25. For both profiles, the topsoil is typically 200-220 mm deep overlying a distinct yellow subsoil. The transition layer, which occurs in some soils, i.e. AB horizon, is largely absent. The topsoil showed some signs of compaction to a depth of 5 cm which would be a grazing effect from dairy stock. The topsoil had a strong presence of pasture roots and these continued vertically down the profile to either gravels or, in the case of Waikoikoi soil types, a fragipan. The subsoil showed varying degrees of mottling for both soil types and in localized hollows the mottling was quite severe. In fact concretions of iron and manganese had formed. The depth of both profiles varied from 400-600 mm so from an irrigation design point of view the water holding capacity to 400 mm should be the design parameter used.

Water Holding Capacity

26. Well-structured silt loam topsoils to a depth of 220 mm can be expected to hold 40 mm plant available water. Subsoils 200 mm in depth are likely to hold 30 mm plant available water, therefore the total plant available water holding capacity is 70 mm. Therefore irrigation responses are likely after 14-20 days of no rain and moderate to high evapotranspiration.

Makarewa Soils

- 27. Makarewa soils are formed primarily from alluvial silts. The predominant parent material is greywacke. During their development they were frequently subject to a high water table.
- 28. The alluvial nature of the flats on this property was evident with the layering of soil and gravels as could be seen in ditch bank profiles. The topsoil typically ranges from 200 mm to 300 mm deep and overlies subsoil that varies from 400-700 mm deep overlying gravel. Mottling and iron and manganese concretions were evident throughout the topsoil and subsoil. The subsoil had a heavier texture than the topsoil which was a silt loam to heavy silt loam (Scandrett, 2010).

Details of the minor Soils as per the Topo-climate South information is presented as follows:

- 29. Jacobstown Poorly drained silt loam with top soil clay content of 15 30%. Poor aeration during wet periods due to poor drainage and slow subsoil permeability. Severe waterlogging vulnerability and very severe risk of structural compaction.
- 30. Glenure Poorly drained silt loam to loamy silt with top soil clay content of 22 30%. Poor aeration during wet periods due to poor drainage and slow subsoil permeability. Severe risk of waterlogging and structural compaction.
- 31. Kaweku Moderately well drained shallow soils with stony subsoils. Heavy silt loams in the topsoil with clay content of 30 40% and silty clays and clay loams in the subsoil.

32. It should be noted that these minor soils types are in practice intergrades, that are often atypical and therefore indistinct, being dispersed around the margins (and sometimes throughout) the major types.

Water Holding Capacity

33. The plant available water holding capacity is similar for silt loams and heavy silt loams with a slight decrease with heavier textures. Assuming a typical profile of 250 mm of topsoil and 500 mm depth of subsoil the total plant available water holding capacity could be expected to be 110 mm.

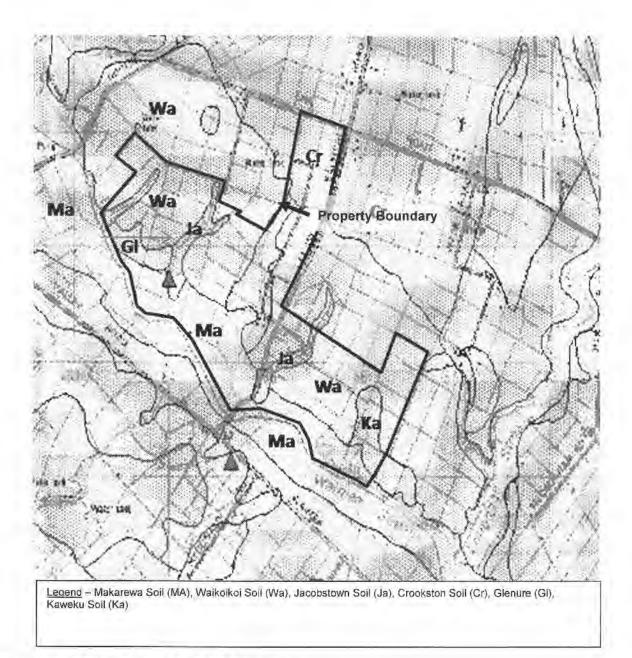


Figure 5: Soil Types located on WSL Property

c. Wetland

- 34. There is a wetland area of approximately 8 hectares located in the major gully feature bisecting the upper terrace. Several seeps drain into the wetland. A legacy earthen dam structure is located approximately 200 m from the top of the wetland. The dam retains an area of approximately 4,000 m² of surface water and wetland.
- 35. This feature is deer fenced.

d. Tree-lanes

36. The prevailing wind is from the west, and unlike most other dairy conversions, the existing tree-lanes have been retained to provide shelter and reduce evapotranspiration rates across the property. The planting of trees and shelter/shade belts has been an ongoing effort especially over the last 20 years.

e. Drainage

- 37. The farm does have tiles in a number of paddocks predominantly in the Waikoikoi soil type. These are moderately deep (over 0.7m) and generally only run in mid and late winter.
- 38. Active monitoring during effluent irrigation application (over the last five summer irrigation seasons) has shown that no drainage to tile drains has occurred as a result of the effluent applications of up to 25 mm depth (at an application rate of 4 mm/hr).
- 39. WSL propose to implement a drainage monitoring program to monitor to effect of field irrigation on drainage from the farm.
- 40. It is clear that there will be a small increase in drainage through the soils profile due to the fact that the soils will be kept moister longer over summer, and that a significant unexpected rainfall event could result in some drainage that would not occur should there have been no irrigation and the soil moisture less.
- 41. Whilst this is a reality, it is not believed that this will add significantly to the leaching of macro and micronutrients through the soils profile to groundwater, or to surface watercourses via overland flows, as:
 - a. There is little point from an economic viewpoint point of buying nutrients to have them leached into drainage.
 - b. The cost of pumping is such that it is senseless to irrigate to the point that the usual rain events will result in substantially increased drainage.

- c. The modest amount of water sought is best utilised by spreading it widely to maximize the benefits of the natural rainfall, hence the likelihood of any one area on the property being within say 20mm of field capacity at any given time during summer is very small.
- d. The *relative* accuracy in prediction of at least significant rain events over the 5-10 day horizon by the Met service and others (all of which is available online and in near real time) allows flexibility in the planning for irrigation from an efficiency of resource use, minimization of nutrient use (ie maximization of water and nutrient root zone retention), and economics in terms of pumping costs. Active management across these factors minimizes nutrient leaching losses.

f. Rain fall

42. Detail of area rainfall has been requested and is summarized in the table below:

YE		Total		a second	Oct to Mar			April to sept		
	mm Rain	Rain days	ave /day	mm Rain	Rain days	ave /day	mm Rain	Rain days	ave /day	
1987	939.90	141	6.67	476.00	58	8.21	463.90	83.00	5.59	
1988	997.20	149	6.69	573.50	61	9.40	423.70	88.00	4.81	
1989	946.00	133	7.11	532.00	62	8.58	414.00	71.00	5.83	
1990	782.50	91	8.60	488.00	54	9.04	294.50	37.00	7.96	
1991	846.50	122	6.94	514.50	68	7.57	332.00	54.00	6.15	
1992	895.90	139	6.45	450.50	70	6.44	445.40	69.00	6.46	
1993	988.10	138	7.16	582.50	60	9.71	405.60	78.00	5.20	
1994	963.50	123	7.83	620.00	63	9.84	343.50	60.00	5.73	
1995	811.50	136	5.97	416.50	59	7,06	395.00	77.00	5.13	
1996	1,010.50	131	7.71	559.00	62	9.02	451.50	69.00	6.54	
1997	883.50	131	6.74	521.50	70	7.45	362.00	61.00	5.93	
1998	979.00	199	4.92	549.36	97	5.66	429.64	102.00	4.21	
1999	731.69	181	4.04	415.37	85	4.89	316.32	96.00	3.30	
2000	895.31	166	5.39	564.31	90	6.27	331.00	76.00	4.36	
2001	828.00	186	4.45	515.71	94	5.49	312.29	92.00	3.39	
2002	727.44	208	3.50	385.93	92	4.19	341.51	116.00	2.94	
2003	974.06	218	4.47	441.30	104	4.24	532.76	114.00	4.67	
2004	666.35	192	3.47	300.58	89	3.38	365.77	103.00	3.55	
2005	1,148.00	214	5.36	699,67	105	6.66	448.33	109.00	4.11	
2006	788.72	198	3.98	365.28	108	3.38	423.44	90.00	4.70	
2007	776.03	178	4.36	427.26	83	5.15	348.77	95.00	3.67	
2008	704.72	147	4.79	360.39	75	4.81	344.33	72.00	4.78	
2009	875.78	179	4.89	424.32	81	5.24	451.46	98.00	4.61	
2010	766.00	165	4.64	505.00	92	5.49	261.00	73.00	3.58	
Total	20,926.20	3865	5.41	11,688.48	1,882.00	6.21	9,237.72	1,983.00	4,66	
Ave	871.93	161.0417		487.02	78.42		384.91	82.63		
Hi	1,148.00	218		699.67	108		532.76	116		
Lo	666.35	91		300.58	54		261.00	37		

g. Herd profiles

43.

	Cows milked	Ms/cow	M/s season	M/s ha
08/09 season	600	336 kg	202,000 kg	1,072 kg
09/10 season	685	392 kg	268,520 kg	1,114 kg
10/11 season	720	392 kg	284,000 kg	1,178 kg

Commercial in Confidence

11/12 season	710	402 kg	286,000 kg	1,186 kg
12/13 season	710	387 kg	275,000 kg	1,141 kg
13/14 season	685	430 kg	295,000 kg	1,224 kg

h. Feed supplements

44. The following supplementary feed was brought onto the property and used over the last three milking seasons.

	Summer	r Turnips	Other Supplements		
	ha	T/ha	Silage -T	Grain -T	
08/09	20	3.5	100	30	
09/10	27	7.0	110	75	
10/11	26	7.5	150	50	
11/12	15	8.5	300	200	
12/13	17	8.0	410	200	

- 45. The summer turnips are grown on the milking platform, and are usually grazed from mid December on.
- 46. The silage is grown on the support block, and has this season been stored both in the existing bunkers and on the new 900 ton concrete pad, adjacent the new wintering shed site.
- 47. The grain was purchased off farm and transported in.
- 48. The extra dry matter per ha in the turnips growth, between the two initial years gives some idea of the value of moisture during the turnips late spring early summer growing season. In the first season the rainfall was 103.77mm and in the second 223.67 mm- despite the fact the ET rate over both years was approximately the same (270/296mm).
- 49. The drier 08/09 season forced a move to once a day milking on 1 Feb 09 whereas 09/10 season milking was twice a day whole of season. The net ET loss in 08/09 for the period 1 October to 31 Jan was 209 mm in the 08/09 years but was 352 in the 09/10 seasons.

i. Winter feed

50. The following winter feed is grown on the support block:

	Brassicas/swedes		Oats/green feed		Fodder Beet	
	ha	T/ha	ha	T/ha	ha	T/ha
08/09						
09/10	10	12				
10/11	10	12	····			

11/12	10	12	10	5	10	20
	-			1 -	-	-

j. Nutrient Usage

- 51. Clearly if more grass/feedstuffs are to be grown then there will need to be an increase in the amount of nutrients brought onto the property.
- 52. With the intent to keep the irrigated water, and therefore nutrients, in the root zone the effects on nutrient leakage should be minimal.
- 53. It is improbable that there will be any net increase in the total nutrients brought onto the property as the foliage grown/feed will be a replacement for the feedstuffs, (such as grain, silage, palm kernel etc), that are currently transported on to feed the livestock. The nutrients from these imported feeds are currently being deposited back onto the land.
- 54. A positive benefit of irrigation is that by keeping the soil moist dry season cracks are prevented and issues with effluents being deposited in deep cracks washing though the profile in subsequent rain can be avoided.
- 55. As per the attached report "An analysis of the Impact of Irrigation on Farming Practice, the Consequential Effects of nitrate leaching, etc" only three of the 15 scenarios modeled using Overseer show an increase in the nitrate leaching. (See summary p14).
- 56. The following practices are recognised as being most desirable and are followed as much as is practical.
 - I. The spreaders used to apply fertilizer are 'spread mark' accredited and ideally have tracmap or a similar recording system to show proof of placement.
 - II. Buffer distances are maintained such that there is no direct contamination of waterways from the application of fertilizer.
 - III. Best practice is to have a 20m buffer between fertilizer placement and waterways. Fertilizer is not applied to saturated soils.
 - IV. Nitrogen containing fertilizers are only applied to actively growing pastures.
 - V. Fertilizer is not applied when air drift can occur beyond the farm boundaries.
- VI. The need for large fertilizer dressings should be achieved through split dressings rather than a single application.
- VII. Less soluble phosphate fertilizers, i.e. reverted super phosphate fertilizers are less likely to leach or run off particularly if heavy rain occurs after application.

k. Irrigation of Bore water.

57. The drawing of the high N water and irrigation of this water within the policy of keeping the water within the root-zone will lessen the content of the nitrogen in the groundwater in any case.

I. Moisture monitoring

- 58. Aquaflex Tapes have been installed in two sites on the farm, the first on the Waikoikoi type on the upper downs and second on the Makarewa type on the Waimea stream river flat. This data is currently being collected and after the initial settling period will provide some baseline data on the water holding and water loss capacity of these two principal soil types.
- 59. This allows the discretion to use the water to best effect across the variations of the seasons.

m. Autumn, Winter and Spring grazing

I Wintering barn

- 60. It was originally intended to have the wintering barn in place for the 2014 winter, and while the new concrete silage bunkers have been completed, the actual construction of the wintering shed was delayed due to wet weather, and the construction of the shed and soft floor structures has been postponed until the 2104/5 summer construction season.
- 61. By housing the milking herd over the winter, the risks with feeding 700 cows on crop (the balance have been grazed off,) on the wintering block will be greatly mitigated, as the winter period, when the ground is saturated, accelerates the leaching of nutrients to ground water and waterways, both thought overland flows and down through the soil profiles.
- 62. Furthermore, the soft floor wintering shed's floor drainage system will allow nutrients especially those in cow urine which is rich in nitrates to be captured and stored, for irrigation to the land when soil conditions are less moist, and the herbage is actively growing.
- 63. The wintering facility will also be available for use during the milking season, should weather and/or ground moisture levels require.
- 64. As per the report "An analysis of the Impact of Irrigation on Farming Practice, the Consequential Effects of nitrate leaching, etc," the nitrogen losses due to the use of a winter shed could be reduced by between 7% and 9% over the status quo, even given an increase in production of 5% to 10% over last year's record production. (p11,12).

Il Outdoor Wintering

The following are employed during autumn, winter and spring grazing.

65. Paddock selection. Judicious paddock selection based on the soil moisture content is the key tool. This is important not only to avoid overland flow, pugging, etc but to ensure that the pasture and soils are not damaged to any extent that would inhibit spring pasture growth.

- 66. The farm contour gives the flexibility of being able to move away from waterways to better draining soils during wet weather.
- 67. The eating off of the excess feed does not (for spring growth reasons) result in the paddocks being eaten down hard, or pugged.
- 68. If break fencing is to be used, the breaks, once eaten off, are back fenced.
- 69. Breaks are sequenced to insure that grazing is away from the watercourse as opposed to towards them.
- 70. Where breaks do not encompass a trough, a portable trough is used to avoid pug lanes between the water troughs and the feed breaks.
- 71. There are the fenced buffer zones along the water ways, but higher risk areas over tiles or drainage depressions will be temporarily fenced off and not grazed.
- 72. In wet weather, where there is risk of pasture and soil damage, care is taken to avoid grazing, supplement feeding and pugging within 10 meters of a waterway or drain. Temporary fencing is used as and when necessary.
- 73. Vehicle/machinery movement. Consideration is given to pasture damage due to the use of heavy feed wagons and tractors. On soft pasture the high axel weights can result in pugging, or churning up of the ground, creating sediments that can move in the overland drainage water.

C: Existing consents

a. Discharge

- 74. The initial dairy discharge consent (o 204955 required) 3,600m³ of storage. However the decision was taken to install a pond of 3,900m³ to allow more flexibility in management. The above consent was renewed in 2013, and as part of that renewal, the storage was increased to accommodate effluents from the proposed wintering shed.
- 75. The discharge consent requires an effluent irrigation area of 64ha (8ha per 100 cows), however effluent mains have been installed to allow the irrigation of over 80ha.

b. Water

76. The existing water permit only consents the dairy shed and stock drinking water of 96,000 litres per day. It is drawn from a small bore to the north of the shed.

<u>D: Resource usage</u>

a. Coverage area

- 77. The request is to be permitted to irrigate any part of the farm to ensure the best use of the limited available water.
- 78. The priority for the use of the limited water is:
 - a. Summer crops on the milking platform
 - b. Establishing of young grass on the milking platform
 - c. Establishment of winter crops on the support block
 - d. Establishing young grass on the support block
 - e. Field irrigation on the milking platform.
- 79. For example should the embedded tapes indicate that the plant available water is falling across the root zones and application of say 15 mm could be made over the whole farm on a 7 day rotation (ie 5616 m³ daily allocation divided 150m³/ ha = 37.4 ha per day rounds up to 9 days for 332 ha.). By making this light application over the whole property the soils can be kept sufficiently moist to ensure the grasses are not unduly stressed, (or worse wilting) and can capitalize on any rain be that light or substantial -when it arrives.
- 80. However should the dry period continue and/or trans-evaporation rates rise then the requested allocation of 5,616 m³ a day is insufficient to keep all the property's soils above the plant stressing or wilt zone. The focus will then shift to complete support of a smaller area, with little or no support for some areas. If the loss were say 5 mm a day the support would need to be for 35 mm depth a week. This would restrict the irrigable area to around 112 ha per week or 46% of the farm's land area. Even this reduced area would be of huge benefit and in extreme circumstances would, along with supplements brought in, lessen the number of cows would have to be dried off and/or avoid reducing the herd to 16 hour (or even once a day) milking.
- 81. The quality of the feed will be assessed on a daily basis as are pasture growth rates and the necessary management systems (as well as herbage management systems) will be enhanced with experience.
- 82. The data provided above were based on trans-evaporation rates in Gore, which are easily believed to be somewhat lower than that at Balfour especially as Balfour has considerably longer periods of westerly winds throughout summer. We believe the trans-evaporation from November through to the end of March maybe in excess of 20% of the above figures.

b. DM increases

- 83. The increased production due to the availability of the extra water has a direct impact on the amount of fertilizer that will need to be applied. The fertilizer will not only provide nutrient for the increased growth but will decremented by the nutrient value of the amount of supplementary feeds in this case grain and silage- that will need to be imported onto the farm.
- 84. Experience has shown that the amount of extra dry matter (DM) that can be grown per hectare per day due to irrigation over a 90 day season can be between 30kg and 60kg.
- 85. The variability of these figures is due to not only the rainfall profiles of any given season but also the management of the other factors such as application rates, et rates, pasture wilt management etc. If the ryegrass (especially) can be kept above wilt point it does not have to self repair before increasing growth when rain comes.
- 86. Hence spreading water wide with low applications will allow the grass to make more benefit of the natural rain when it arrives.
- 87. If the water is used over the 260 ha easily irrigable area then the following extra DM will be available (subject to nutrient supply)

	T pa DM	T Ha DM
30kg/ha/day	702	2.7
40kg/ha/day	936	3.6
50kg/ha/day	1,170	4.5
60kg/ha/day	1,404	5.4

Above is over 90 growing days only.

- 88. Pasture Irrigation is not economical if viewed only as a drought insurance tool. The economics lie in proactive management and being able to grow more grass every year, as almost every year there are periods when the property- or parts of it -will benefit from support.
- 89. That being the case, it is still required that the project be able to show a return on both capital and operational cost over the life of the plant sufficient to justify the funding costs and risks and operational effort.
- 90. It is believed in this case that there is a sound business case for the investment in irrigation but it is conditional on the judicious use of the resource, careful consideration of the rates, depth, timing of and application, to reduce pumping costs, and other input costs, minimize losses through drainage etc.

c. Irrigation Method

- 91. The most efficient and effective method of irrigation, both from a water use prospective and an operational input viewpoint, is the use of center pivot irrigators. However the footprint and typography along with the fact that the established shelter belts need to be retained to reduce water loss to the atmosphere, means that the irrigation method will probably be via medium or large traveling roto-rainers, the possible use of big-gun systems and/or the use of K-line or other low rate pod type systems.
- 92. Furthermore, the required flexibility to be able to move water to wherever the crops are located required that portable system such as roto-rainers or pod sets be used.

d. Bore Yields and continuance

- 93. Yield. The obvious procedure would be to begin pumping at a low rate, check for any adverse effects over a specified period and then increase the rate to a new extraction rate, etc. However this has some practical problems in that submersible pumps are relatively inflexible in terms of being able to vary delivery volumes. It such a stepping up regime could require different pumps at different volumes.
- 94. Furthermore irrigators have design limitations, which may not allow them to run outside certain stated volumes. If only supplied with sub optimal volumes of water they can malfunction and dump large quantities of water in small areas due to not having sufficient volumes to rotate, or their distribution profiles become distorted, etc.
- 95. Again the obvious solution of pulse pumping has some problems in that a high capacity submersible pump is not designed for pulse pumping.
- 96. The proposal is therefore to begin initial pumping in hourly pumps at half rate, ie hour on hour off.

e. Irrigation Efficiency

- 97. This water demand is consistent with other irrigation applications and is reasonable for the size of the farm. Soil moisture deficit monitoring using in-ground probes will ensure that water is only applied if it is needed, and only applied at a rate sufficient to maintain the desirable soil moisture level for optimal vegetation growth. To provide flexibility from November through to March/April, the applicant is seeking the ability to irrigate for up to 5 months during any season, that is, a 150 day (cumulative) water provision.
- 98. Over a 150 day season only about 55% of the peak demand is needed. The water demand modeling is based upon the last 20 years of climate data. Due to climate change we cannot be certain that this data adequately reflects the conditions that might occur over the next 10-20 years.

We consider the actual water use will be between 55-65% over 150 days. For this reason an average value of 60% of the maximum irrigation volume has been used in undertaking the assessment of environment effects (except where excluded by the Environment Southland Proposed Regional Water Plan).

E: Possible Adverse Effects Mitigation.

- 99. In section 3.0.32 of the AEE (p 16) a potential adverse effect on bore W44/0079 is identified. The transmissibility model suggests that the use of the irrigation bore could increase the draw down in this shallow dairy shed bore by over double the guide line limits.
- 100. The dairy shed bore depth is shown as 9m, however it is believed that it is deeper with some initial measurements suggesting that it is closer to 13m deep.
- 101. Nevertheless the possibility of a unintended adverse effect on this vital s dairy shed and stock water bore needs to be addressed.
- 102. In discussions with the bore owner Mr. Kelvin Reed is has been agreed that:
 - a. A piezo will be installed in the bore, a soon as practical, to monitor and baseline drawdown in the current operational environment.
 - b. Should during the use of this new irrigation bore, the drawdown exceed 0.50m over the base lined dairy bore drawdown, or there be any water availability issues at the dairy shed due to low water levels in the bore, field irrigation will stop, and a series of pumping tests employed to understand the ramifications of the range of irrigation pumping serious on water yield levels in the dairy shed bore.

F: Summary

- 1. The applicants are very aware of the nitrogen hotspot issues and have been active in the Environment Southland sponsored consultation group.
- II. Production and stocking rates are not excessive, and nitrogen use is within current guidelines. Other industry best practices are already in place to minimize N losses to groundwater.
- III. The Overseer modeling of the use of the ground water for irrigation water suggests that losses to the groundwater will not increase because of the irrigation.
- IV. The decision to install a wintering shed will further lessen losses but keeping stock of pasture in the high risk.
- V. The requirement for water is modest in relation to the proposed irrigation area, and care has been taken to ensure best use of the limited resource.

3.5

Version Control

Ver	Date issued	Detail
1.0	18/01/11	To Aqualinc for their comment/addition
2.0		Incorporation of the Stevens inputs and JS inputs
3.0	17/02/12	Update following T Rhodes paper. Includes met charts updates
3.1		Update following discussion with Kelvin Reed
4.0	1/06/2013	Update re Wintering Shed

Č5	Chr North Road and Price Street (Private Bag 90116) Invercargill Telephone (03) 211 5115 Uax No. (03) 211 5252
environment	Southland Freephone No. 0800 76 88 45
SOUTHLAND	File No: Officer in Charge:
To: The General Manager	WRITTEN APPROVAL OF A POTENTIALLY AFFECTED PARTY
Environment Southland Private Bag 90116 Invercargill	AFFECTED FARTT Approval by Person(s) Potentially Affected by an Application for a Resource Consent
To be completed by the person r Applicant: <u>'A'CUMAI</u> SH Type of Resource Consent: <u>W</u> C Proposed Activity: <u>Fee HA</u> U	equesting approval ievens iter Permit igution,
and/or Organisation: Falion	ziving his or her approval: Farms

I/we have sighted all the attached plans and supporting information for the above activity.

1/we hereby give approval for the proposal to be considered by Environment Southland without public notification.

I/we understand that, if I give my approval, Environment Southland shall not take into account any effects that the proposed activity may have on me, when considering the application (Section 104(3)(b) of the Resource Management Act 1991).

KERced

<u>3/11/12</u> (Date)

NOTE: IF YOU DO NOT UNDERSTAND WHAT THIS FORM IS, OR DETAILS ABOUT THE APPLICATION ASSOCIATED WITH THIS FORM, DO NOT SIGN IT.

Environment Southland is the bound name of the Southland Regional Council

Notice of written approvalidae