

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF the Resource Management Act 1991

A N D

IN THE MATTER OF Water permit applications by Simons Pass Station Limited and Simons Hill Station Limited, Rosehip Orchards New Zealand Limited and High Country Rosehip Orchards Limited

**STATEMENT OF EVIDENCE OF GRAEME IAN OGLE
DATED 18 NOVEMBER 2009**

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INTRODUCTION

- 1 My name is Graeme Ian Ogle. I am a Farm Management Consultant, the manager of Farmax Limited, and part owner of Rezare Systems Limited.
- 2 I am a practising Farm Management Consultant and have done so in varying degrees since 1988.
- 3 I have a Degree in Agriculture from Massey University.
- 4 I have specialist experience in analysing high country farming systems. My professional involvement in the high country commenced in 1992 (until 1995) when I was employed by Landcare Research with the Rabbit and Land Management Programme to head research into the analysis of high country farm systems with a particular emphasis on physical and financial sustainability.
- 5 From 1998 I have been involved in consulting to a business group called the Merino Group. This comprises approximately 20 high country farmers involved in the collection and analysis of data collected concerning the physical and financial performance of their respective pastoral businesses. I also provide individual consulting services to group members.
- 6 Rezare Systems Limited and Farmax Limited are companies involved in the development of decision support systems for farmers, consultants and agribusinesses.

SCOPE OF EVIDENCE

- 7 In July 2009 I was requested by Simons Pass Station Limited and Simons Hills Station Limited to develop farm models for four areas situated in the Mackenzie Basin.
- 8 In that same month I was requested to prepare additional models for Rosehip Orchards NZ Limited, and High Country Rosehip Orchards Limited.
- 9 These models were built to represent the most likely uses that these areas would be used for. The purpose of these models was to define what systems including livestock numbers, livestock policies, supplementary feeding regimes, crop rotations, and farm production would be feasible on the proposed irrigated areas on these farms. These were developed for the purpose of quantifying the nutrient input and removal for the purpose of developing nutrient balances. The

modelling for the nutrient balances was developed by AgResearch Limited using the OVERSEER® nutrient budget model. This work is covered in separate evidence by Ms Val Snow.

- 10 I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court Consolidated Practice Note (2006). I agree to comply with that Code. Other than where I state that I am relying on the evidence of another person, my evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.
- 11 I have visited each area covered in this analysis and inspected the soil depths, land aspects, and contours.

METHODOLOGY

- 12 The steps carried out in this study were:
- (a) Define management areas that needed to be modelled separately.
 - (b) Consider the likely farm systems that the management areas would run. These needed to be feasible given the regions livestock resources.
 - (c) Quantify the stocking rate, stock mix, stock policies, and degree of supplementation required for each system to be feasible. To achieve this two programs, Farmax® Pro and Farmax® Dairy Pro, were used. This is a further development of the Stockpol® program designed for sheep and beef farms (Marshall *et al*, 1991). In 2008, equations were added and validated for use in modelling dairy systems (Bryant, 2009). Feasibility is calculated mathematically by determining the pasture cover needed by livestock versus the pasture cover predicted by the model. If pasture cover is adequate to meet livestock demand then a system is determined to be feasible. The pasture cover is predicted based on livestock demand, pasture growth, supplementary feeding, nitrogen applications, cropping regimes, and pasture decay.
- 13 These models were then sent to AgResearch Limited who extracted the relevant outputs needed to construct nutrient budgets using OVERSEER®.

MANAGEMENT AREAS

- 14 The management areas and farming systems that have been designed will be considered in this evidence in two separate sections. The first section covers

Simons Pass Station and Simons Hills Station and the second section covers Rosehip Orchards NZ, and High Country Rosehip Orchards.

SECTION 1: SIMONS PASS STATION & SIMONS HILLS STATION

- 15 The proposed areas to be irrigated on Simons Hill Station and Simons Pass Station were divided into five areas which reflected the different ownership and the different soil depth. These should be read in conjunction with the map in Appendix 1. A summary of the farm systems modelled on each area and the abbreviations used is given in Table 1 below.
- 16 Land west of the Mary Range is known as the Pukaki Flats. The northern block is farmed by Simons Pass Station Limited and the southern Block is farmed by Simons Pass Station Limited.
- 17 The northern block is divided into an area of shallow Mackenzie soils and an area of deeper Pukaki – Holbrook association soils. This area has therefore been divided into two management areas to reflect differences in pasture productivity; SPS1A having deeper soils and SPS1B having shallower soils.
- 18 The southern block comprises shallower Mackenzie soils and is farmed by Simons Hill Station Limited.
- 19 Two other blocks are referred to which are east of the Mary Range. The northerly management area, which is located north of State Highway 8 and east of the Mary Range (and owned by Mary Range Farming Limited), is farmed by Simons Pass Station Limited (SPS2) and has deep Grampians – Simons – Glenrock association soils. The other eastern management area (SHS4) to the south of State Highway 8 also has these deep soils and is farmed by Simons Hill Station Limited.

<i>Management areas and abbreviations</i>	Irrigable Area (ha)	Systems Modelled
1. Simons Pass Station Limited - Land west of Mary Range – North block		
SPS1A	1307	1,3,4
SPS1B	980	1,3,4
Total Area	2287	
2. Simons Hill Station Limited - Land west of Mary Range – South Block		
SHS3	1735	1,3,4

3. Simons Pass Station Limited - Land east of Mary Range – North Block		
SPS2	287	3,4
4. Simons Hill Station Limited - Land east of Mary Range – South Block		
SHS4	472	2

Table 1: Management areas and naming convention used for Simons Hill and Simons Pass Stations.

PASTURE GROWTH RATE

- 20 The Upper Waitaki Basin (450 – 750 m asl) is characterised by hot, dry summers and cold winters. Studies that may assist in determining the potential pasture growth rate for irrigation in this area were reviewed by King (2009). He considered similar altitude soils in Otago that produced a mean of 9 tDM/ha and a maximum of 12 tDM/ha under border dyke irrigation (Radcliff & Cossens 1974). King also extrapolated from work done in the Mackenzie by Scott & Maunsell (1981) and concluded that while mean production was similar, maximum production would be 15 to 18 tDM/ha.
- 21 It can be expected that centre pivot technology will produce more grass than border dyke technologies by improving water saturation and maintaining a more even soil moisture balance. While no experimental data has been published to compare the two technologies, it is widely accepted that pivot irrigation produces 2 to 3 tDM/ha/annum more than border dyke (Ian McIndoe *pers comms*).
- 22 Simons Hill Station is a member of the Merino Group. As such, considerable data has been collected and analysed from the Station. This includes the stocking rate data recorded on each block over the past 2 years using the Endeavour Mapping program. This program has been used to calculate the average annual stocking rate of a new irrigated area that has been developed on light stony Mackenzie soils. This stocking rate is 15.7 Stock Units/ha/year.
- 23 A Stock Unit is a measure of annual pasture eaten by livestock. It is described by Garrick (1994) as a base ewe weighing 55 kg (pre-mating) and weaning one lamb at 25 kg. This has been calculated to consume 550 kg of DM per annum. This ewe size and production is very similar to Simons Hill Station and the conversion from Stock Units to the annual production of dry matter can be achieved by multiplication (SU times 550kg) to equate to an estimated total annual production. On this basis the stocking rate on the area described in

paragraph 22 was 8.6 tDM/ha. However, the pasture development on half of this irrigation was poor due to insect damage and has since been rectified. I inspected this irrigated area during its development and I estimate the affected half would easily produce 40% more pasture if establishment had been successful. Also, livestock on intensively farmed land typically consume only 80 - 85% of potential pasture production. When these adjustments are made I calculate that the total potential pasture production on these lighter Mackenzie soils to be approximately 12.5 tDM/ha.

- 24 While centre pivot technology can smooth the yield differences between shallower and deeper soils, soil physical properties and some drying between watering on lighter soils mean deeper soils will produce more. For the deeper soils, I have used a figure closer to that extrapolated by King (2009) for a Mackenzie site where he estimated the potential yield at 15 to 18 tDM/ha/annum. I have used 14 tDM/ha/annum.

FARM SYSTEM MODELS

- 25 Four farm systems were modelled. A summary of which systems were modelled on each area and abbreviations used in Ms Val Snow's evidence is provided in Table 1 above. The systems were:

- (a) Dairy system - cows wintered off (DOFF);
- (b) Integrated high country system (SBHC);
- (c) Lamb finishing, bull finishing and dairy grazing farm (SBFIN); and,
- (d) Intensive lamb finishing, bull finishing and dairy grazing farm (SBIFIN).

- 26 The dairy system was modelled for management areas SPS1A, SPS1B, and SHS3 (1: DOFF). Two finishing options were also modelled (3: SBFIN and 4: SBIFIN). Only one system (2: SBHC), was modelled on management area SHS4. Two system finishing systems (3: SBIFIN and 4: SBIFIN) were modelled on SPS2.

SYSTEM 1: DAIRY SYSTEM - COWS WINTERED OFF (DOFF)

- 27 This system grazes milking cows off during winter and no forage crops are fed at any time. It is designed to fit the pasture growth pattern by wintering all cows off as soon after drying off as possible. Replacement heifers are also grazed off. Cows leave the property in mid to late May at 4.1 condition score and return in July at 4.5 condition score. Cows calve late in this environment (13th August) and are drafted onto the farm in late July (25th) and late August (25th).

- 28 All calves are grazed off the farm from mid-December (at 3 months old and 85kg liveweight) through to 22 months of age when they are transferred back to the farm in late July at 480kg liveweight.
- 29 Silage is made during the growing season and is fed during calving to dries and springers (cows about to calve) at 88% of diet from July to September. In October this decreases to 20%. Milkers are fed 25% silage in August and September, after which cows graze 100% grass.
- 30 Pasture is renovated on a 10 year renewal program by spraying and direct drilling from mid October to mid November.

	Management areas		
	SPS1A	SPS1B	SHS3
Cows milked (peak)	3710	2480	4420
Milking cows/hectare	2.8	2.5	2.5
Kg/cow	395	395	395
Kg/ha	1100	1000	1000

Table 2: Summary of System 1 (DOFF) performance on each management area

SYSTEM 2: INTEGRATED HIGH COUNTRY SYSTEM (SBHC)

- 31 In this system the irrigated area is intended to integrate with the existing Simons Hill Station farming operation. Irrigated pasture would enable store stock to be finished and breeding stock to be more productive. Typically, with better quality and quantity of pasture, ewes can be mated at higher weights leading to a higher lambing percentage. A specialist mob of ewes would also be mated earlier to a terminal ram breed that enables better weaning weight and subsequent lamb growth rates.
- 32 Twin ewes and terminal sired ewes lamb on the station (off the irrigation). They are then transferred onto the irrigation with lambs at foot shortly after lambing. Irrigation is used to keep these lambs on a high level of nutrition through to weaning. After weaning in January, ewes return to the station. In mid-April all of the station's ewes are run on the irrigation for flushing to improve pregnancy rates (from mid-April until end of May).
- 33 From weaning, the irrigation would be used to raise both the lambs born on the irrigation and all other lambs born on the station. Lambs born from the terminal

ewes, with their higher growth rates, would be finished progressively and slaughtered at a target of 18kg carcass weight during January to the end of March.

- 34 Merino lambs, growing slower, would not be saleable until spring. These are transferred back to the warmer station country (off the irrigated area) during the colder months of June, July, and August. They would return after shearing (September) for 3 to 4 months to be either raised as replacement hoggets through to November or sold to the works during the November to December period when they are ready for slaughter.
- 35 Beef cows would be transferred from the run to the irrigation in early January with calves at foot. In mid-April they are weaned, all calves sold, and cows return to the run.
- 36 The modelling calculated there would be enough extra pasture growth to run a beef finishing enterprise. One year beef steers are purchased in October (12 months old) at 250kg liveweight and would be slaughtered by the end of May at 265 kg carcass weight to avoid over-wintering.
- 37 To cope with the peak of pasture growth, a large area (40% of total area) is made into silage. A third of this silage, which is surplus to requirements, would be sold.
- 38 An area of 8% is removed in early October to be sown into a green feed ryecorn crop. Ryecorn is fed standing in April and May and again in September and October. Half of this area is then sown into a specialist seed crop and the other half is sown back into a green feed ryecorn crop to repeat the process described above. The seed crop will be harvested in autumn and resown in the spring along with the second year ryecorn paddocks. This enables a 12.5 year pasture renovation cycle.
- 39 Nitrogen is applied to the irrigated area on the 10th of March at 40kgN/ha.

	Management area - SHS4
Area (ha)	472
Merino hoggets finished/raised (Sept to Dec)	8500
Terminal sire ewes run from lambing to weaning (Sept to Jan)	3000
Breeding cows run in autumn	150
1 Year Steers finished	220

Merino ewes run from lambing to weaning (Nov to Jan)	1500
Merino ewes run during tuppung (April to May)	8500
Product per hectare (carcass and wool weight) kg/ha	487
Stock Units/ha	16.5

Table 3: Summary of System 2 (SBHC) performance on the SHS4 management area.

SYSTEM 3: LAMB FINISHING, BULL FINISHING, AND DAIRY GRAZING (SBFIN)

- 40 This system utilises the surrounding high country stations, dairy farms, and down land farms to source trading and contract grazing stock. This enables the buying and selling policies to create a livestock feed demand that fits well with the cold climate pasture supply pattern.
- 41 A summer lamb finishing enterprise purchases lambs from down land farms between mid-December and mid-January at 26 to 28 kg liveweight. These are finished at 180 grams per day and sold from mid-February to late April with weekly drafting to achieve a target of 18 kg carcass weight.
- 42 A spring finishing enterprise involves purchasing merino hoggets 'off shears' in September at 33kg liveweight from surrounding high country stations and growing these at 150 grams per day. Drafting commences in early November to achieve an 18 - 20 kg carcass weight. All hoggets are sold by mid December.
- 43 Dairy calf grazers are sourced in mid-December from dairy farms. These are grazed under contract and raised through to 22 months when they are transferred back to the dairy farms in mid-July at 480kg liveweight. To achieve this they have a liveweight gain of 0.67kg/day.
- 44 A bull beef enterprise purchases weaned bull calves in mid-November at 100kg liveweight and raises these to 17 – 19 months when they are sold at 290kg carcass weight. To achieve this they have a liveweight gain of 0.92kg/day.
- 45 Silage is made to conserve surplus feed progressively from early November to early January (46% of area in total). Silage is fed out from May until September (inclusive).
- 46 Seven percent of the irrigated area is removed in late October to be planted into green feed ryecorn. This is feed off from May through to September. In

November it is resown in new grass providing a pasture renovation cycle of 14 years.

- 47 Nitrogen is applied to the whole farm (except cropping area) in mid-March at 40kgN/ha.

	Management Areas			
	SPS1A	SPS1B	SHS3	SPS2
Area	1307	980	1735	285
Summer lambs finished	20,560	14,220	25,200	4,500
Spring lambs finished	11,420	7,880	14,000	2,500
Dairy grazers run	685	470	840	150
1 Year bulls finished	1,740	1,200	2,130	380
Product per hectare (carcass and wool weight) kg/ha	630	575	575	630
Stock Units/ha	18.1	16.6	16.6	18.1

Table 4: Summary of System 3 (SBFIN) performance on each management area.

SYSTEM 4: INTENSIVE LAMB FINISHING, BULL FINISHING AND DAIRY GRAZING FARM (SBIFIN)

- 48 This system maintains the same livestock enterprises and stock policies as outline above in System 3. However, this option has more forage cropping, an early autumn nitrogen application, and less pasture silage made.
- 49 The cropping rotation involves two rotations: the first involves land sprayed out in December with turnips sown in January. Turnips are sown with an annual ryegrass. These provide the bulk of feed in autumn but the annual ryegrass provides winter and spring grazing. This is then sown into Kale in November which is fed out in winter and sown into new grass in spring. The second involves land sprayed out in October and sown into Swedes in November. These are fed out in winter then spring sown with land coming back into the grazing area in summer.
- 50 As with System 3, silage is made to control pasture cover; two crops being made from early October to mid-December. Nitrogen is applied to the entire grazing area at 40kgN/ha in mid March.

	Management Areas			
	SPS1A	SPS1B	SHS3	SPS2
Area	1307	980	1735	285
Summer lambs finished	22,850	15,590	27,700	5,000
Spring lambs finished	15,990	10,880	19,400	3,500
Dairy grazers run	1,140	620	1,390	250
1 Year bulls finished	1,600	1,090	1,940	350
Product per hectare (carcass and wool weight) kg/ha	735	665	665	735
Stock Units/ha	20.3	18.5	18.5	20.3

Table 5: Summary of System 4 (SBIFIN) performance on each management area.

SECTION 2: ROSEHIP ORCHARDS NEW ZEALAND LIMITED, & HIGH COUNTRY ROSEHIP ORCHARDS LIMITED

51 Rosehip Orchards New Zealand Limited is based on 970 ha situated below Bendrose Station and Lake Benmore bounding the Pukaki River to the east and the Twizel River to the west. The proposed irrigable area of 610 ha is shown in Appendix 2. There is an existing pivot with an area of 200 hectares which has resource consent and does not form part of these applications. The total future irrigated area under pivot is therefore 810 hectares.

52 High Country Rosehip Orchards Limited is based on 880ha situated south east of SH8 opposite Twizel. The property stretches from SH8 to Lake Benmore and is bounded by the Twizel River to the east and the Ohau River to the west. The proposed irrigable area is 500ha and is shown in Appendix 3.

Management areas	Total Irrigation Area	Systems
Rosehip Orchards	810	3,4,6
High Country Rosehip Orchards	500	3,4

Table6: Management areas and naming convention used for Rosehip Orchards New Zealand Limited and High Country Rosehip Orchards Limited.

53 Systems modelled for Rosehip Orchards New Zealand Limited, and High Country Rosehip Orchards Limited included the two finishing systems described in

Section 1 for Simons Pass Station and Simons Hills Station and two new systems. The two finishing systems were:

- (a) Lamb finishing, bull finishing and dairy grazing farm (SBFIN), see paragraphs 40 to 47;
- (b) Intensive lamb finishing, bull finishing and dairy grazing farm (SBIFIN), see paragraphs 48 to 50.

The two new systems were:

- (c) Lucerne production with lamb grazing and some cropping (Crop15);
- (d) Bull beef finishing (Bull).

54 Variations were also developed by Ms Val Snow based on my models and are described in her evidence as Luc (lucerne production with no grazing) and Crop10 (based on Crop15 above but without a second year of cropping), These altered the cropping rotations and are covered in Appendix 3 of Val Snows evidence.

55 Both the Rosehip Orchards and High Country Rosehip blocks have Mackenzie soils as defined by the DSIR Land Resources Map 302 (1992). I inspected these soils in 2009 taking soil profile samples at regular intervals. These soils are deeper, contain more soil, and less stones than on the east of the Pukaki River where management areas SHS4 and SPS1B are sited (described previously). I believe they would perform under centre pivot as described for the deeper soils on management area SPS1A (described in paragraph 24).

SYSTEM 3: LAMB FINISHING, BULL FINISHING AND DAIRY GRAZING FARM (SBFIN)

56 For a description of this system see paragraphs 40 to 57.

	High Country Rosehip	Rosehip Orchards
Area	500	810
Summer lambs finished	7865	12740
Spring lambs finished	4369	7077
Dairy grazers run	262	425

1 Year bulls finished	1270	1078
Product per hectare (carcass and wool weight) kg/ha	630	630
Stock Units/ha	18.1	18.1

Table 7: Summary of System 3 (SBFIN) performance on Rosehip Orchards and High Country Rosehip.

SYSTEM 5: INTENSIVE LAMB FINISHING, BULL FINISHING AND DAIRY GRAZING FARM (SBIFIN)

57 For a description of this system see paragraphs 48 to 50.

	High Country Rosehip	Rosehip Orchards
Area	500	810
Summer lambs finished	8,740	14,160
Spring lambs finished	6,120	9,910
Dairy grazers run	440	710
1 Year bulls finished	610	990
Product per hectare (carcass and wool weight) kg/ha	740	740
Stock Units/ha	20.3	20.3

Table 8: Summary of System 4 (SBIFIN) performance on Rosehip Orchards and High Country Rosehip.

SYSTEM 5: LUCERNE, LAMB GRAZING AND SOME CROPPING (CROP15)

58 This option specialises in producing lucerne supplements. During the season three cuts are taken: a hay crop, a balage crop, and a silage crop. After this, lucerne is left for grazing lambs. It is assumed that the lucerne will have a 10 year life with a break crop rotation of two years between cycles. All crops and lucerne are direct drilled.

59 The break crop rotation starts with wheat in late autumn which is harvested the following January. A cereal forage crop is then sown. Lambs are purchased (transferred on) through February at 28kg. These graze the lucerne and cereal during the autumn until mid June. This complements the grazing of the fourth cut of lucerne. Lambs are sold mid June and cereal is shut up for whole crop silage

which is harvested before a grain crop is sown in November and harvested in February. The rotation is completed with the establishment of another forage cereal crop in March before establishment of a new lucerne stand the following December.

- 60 The only supplementation is provided by the cereal forage during autumn. No nitrogen application to pastures is required.

	Rosehip Orchards
Area	810
June lambs finished	11,840
Hay (230kg dry matter/bale)	4,730
Baleage (200kg dry matter/bale)	10,130
Silage (tonnes DM)	1,720
Whole crop (tonnes DM)	320
Crops per hectare total	6,290
Product per hectare (carcass and wool weight) kg/ha	96
Stock Units/ha	3.4

Table 9: Summary of System 5 (Crop15) performance on each management area.

SYSTEM 6: BULL FINISHING (BULL)

- 61 This option specialises in bull beef finishing. It is assumed that the area would be intensively fenced for example in a technosystem.
- 62 1 Year bulls would be purchased in spring (01 September) at 300kg liveweight. This purchase date matches the start of pasture growth. Bulls would be run at 4.8 bulls per hectare during the growing season (September to April). This relatively high stocking rate is achievable as no bulls are overwintered.
- 63 Bulls would grow at an average rate of 1.3kg/day. This is near their biological maximum but supported by the quality of feed and time they are being run.
- 64 Drafting would commence in mid March and would be complete by late April with the average slaughter weight of 308kg carcass weight.

- 65 By fitting livestock closely with pasture growth no crops or conserved feed are required. Pasture cover can be maintained by livestock and no hay/silage needs to be made. Nitrogen is applied in early October and again in mid February; both at a rate of 40kgN/ha.
- 66 Regrassing – As there is no feeding of supplements during winter, and pasture cover is maintained at optimal levels most of the year, pastures are expected to last considerably longer than other options. A renewal is therefore based on 15 years with grass to grass renewal occurring in spring on 33ha.

	<i>Rosehip Orchards</i>
Area	810
Rising two year Bulls	3,890
Product per hectare (carcass and wool weight) kg/ha	796
Stock Units/ha	21.1

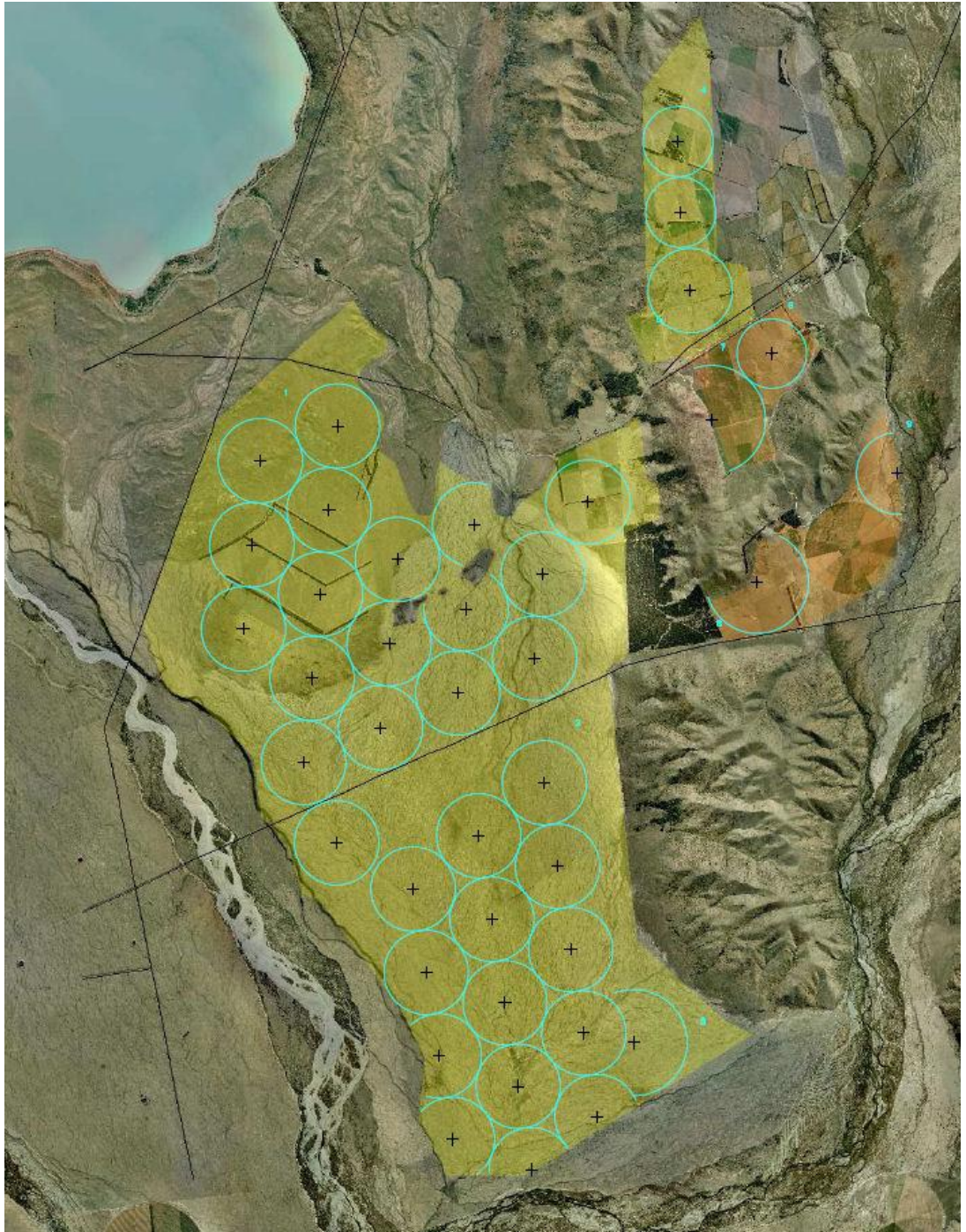
Table 10: Summary of System 6 (BULL) performance on each management area.

References

- J. R. Bryant, G. Ogle, P. R. Marshall, C. B. Glassey, J. A. S. Lancaster, S. C. García, C. W. Holmes 2009: Description and Evaluation of the Farmax Dairy Pro Simulation Model. *New Zealand Journal of Agricultural Research*: accepted
- Garrick, D.G. 1994. The most profitable size of sheep. *Breeding Matters*, New Zealand Animal Breeding Trust, Massey University No. 5 (November).
- W. King 2009. Upper Waitaki Farm Systems and Nutrient Assessment. Stage 2: Pasture growth literature review. *Report prepared for GHD* pp6.
- Marshall P.R., McCall, D.G. and Johns, K.L. 1991. Stockpol: A decision support model for livestock farms. *Proceedings of the New Zealand Grassland Association* 53: 137-140.
- Ian McIndoe. September 2009. Irrigation engineer for Aqualinc Research Limited, Christchurch.
- Radcliffe J.E., Cossens G.G., 1966. Irrigation investigations in Otago, New Zealand. 1. Description and physical properties of irrigated soils of the Ida Valley: *New Zealand Journal of Agricultural Research* 9:197-217.
- Webb, T.H. 1992 Soils of the Upper Waitaki Basin, South Island, New Zealand. *DSIR Land Resources Scientific Report No.3* pp100.

Appendix 1. Map of Simons Hill and Simons Pass management areas to be irrigated.

The map below shows the areas referred to in this report. The dotted line shows which pivots are included in each system. Some rearrangement of pivots between SPS1A and SPS1B would avoid pivots to cover two different soil types. This would also result in an equal number of pivots in each area.



Appendix 3. High Country Rosehip management area.

