

Crown Pastoral Land Tenure Review

Lease name : TE AKATARAWA

Lease number : PT 023

Due Diligence Report (including Status Report) - Part 3

This report and attachments results from a pre-Tenure Review assessment of the pastoral lease for the purpose of confirming land available for Tenure Review and any issues, rights or obligations attaching to it. The information is gathered from files and other sources available to the LINZ contractor.

Part of the information relates to research on the status of the land, resulting in a Status Report that is signed off by a LINZ approving officer. The remainder of the information is not analysed for relevancy or possible action until required, and LINZ does not guarantee its accuracy or completeness as presented.

The report attached is released under the Official Information Act 1982.

July 09

Block No/Name	Fencing Quality (stock & rabbit)	Present Block Use	Direct Drilling	Irrigation	OSTD	Tree Planting	Fencing	Stock Water	Access	Other
Dowus Black Jack	7 wire + electric good	Lamb ewes winter mob ewes Lambs		no water supply	Done	None	None	Adequate	None	
High Ewe Range	7 wire good	Lamb ewes winter mob ewes	contour	contour	Done	Contour altitude at higher levels	Limited to ridge lines	None	Limited	
Dark McReas	7 wire good	Lamb ewes winter mob ewes	contour	contour	Done	Contour but could plant most area	None but probably adequate now	None	None	
Ewe Range (McReas)	7 wire good	Lamb ewes winter mob ewes lambs hogget	as above	as above	Done	contour altitude	Limited to ridge lines	None	None	
Dam	7 wire some maint with Sugar Loaf some netted along road	winter/spring hoggets	as above	as above	drought rabbit hieracium briar	contour drought access visual	difficult lines to erect and maintain	None	None	Recreational use over summer shoot
River Face	7 wire good	Winter/spring hoggets	as above	as above	Done. Poor response in places Hieracium			None	Good along road but little access on block	
Hogget	7 wire good	winter/spring hoggets	as above	as above	Done	contour drought	Adequate fencing already	None	None	
Shearing	7 wire good	Winter/spring hoggets	as above	as above	Done	contour drought	Adequate	None	None	
Cemetery	7 wire	Lamb ewes winter mob ewes	drought species	as above	Done	drought	None	?	None	
Cottage, House, Dairmond, Buscot, Bridges	7 wire and electric	Lamb ewes winter mob Holding blks-	drought species	as above	Done	drought	None	?	None	

1. NOV. 2001
 9:50
 "RELEASED UNDER THE OFFICIAL INFORMATION ACT"
 LINZ CHCH 03 3666422 A
 LINZ CHCH 3 3666422
 NO. 795
 P. 26/60

ML

FACTORS INFLUENCING LAND MANAGEMENT DECISIONS

Te Akatarawa

CONSTRAINTS ON

Block No/Name	Fencing Quality (stock & rabbit)	Present Block Use	Direct Drilling	Irrigation	OSTD	Tree Planting	Fencing	Stock Water	Access	Other
Wether Range Scrubby	7 wire fences well maintain section in SL poor	Winter Wether Summer Wether	contour	contour	low fertility drought rabbit briar hieracium	necess contour drought visual	difficult lines to erect and maintain	OK	OK	Recreational use over summer picnic camp shoot
Sugar Loaf	7 wire fences some maint required	as above	as above	as above	as above	as above	as above	as above	as above	as above
Potato Pit	7 wire OK	summer wether	as above	as above	lower OK upper altitude limit response	climate access contour	adequate for area	as above	distance	
Back Emmanuals	7 wire OK	autumn wether	as above	as above	lower Ok upper altitude limit response	as above	as above	as above	distance	
Front Emmanuals	7 wire OK	spring autumn wheter	as above	as above	lower done	as above	None	None	None	
Razor Back	7 wire bound + electric good order	Lamb ewes winter mob ewes	as above	as above	drought on sunny but all could be done	as above	difficult line scrub	None	Limited contour	
Downs Paddocks Ram Paddocks	7 wire + electric good	Lamb ewes winter mob ewes	possible on easier areas with drought species	as above no water supply	Done	None	None	Adequate	None	
Docking Yards Airstrip	7 wire good	Lamb ewes winter mob ewes Lucerne hay	"	"	Done some cultivated	None	None	Adequate	None	

Block No/Name	Pest Proneness (Kerr Scale)	Present Rabbit Infestation Levels McLean Scale as at Jan 91	Poisoning History	Present Poisoning Unit	Poisoning Programme Primary	Poisoning Programme Secondary	Cont. Programme Other than Poisoning
Collage etc	Extreme 100%	2+ near trees	Regular ground poison blks	Unit 5	1991 Ground oat and carrot	Ground Pindone and Oat	Net Fence

CHC

Block No/Name	Pest Proneness (Kerr Scale)	Present Rabbit Infestation Levels McLean Scale as at Jan 91	Poisoning History	Present Poisoning Unit	Poisoning Programme Primary	Poisoning Programme Secondary	Control Programme Other than Poisoning
Docking Yards Airstrip	Extreme 40% High 60%	3+ 4+ patches	Shoot Nightshoot	Unit 4	1991 Ground Oat	Ground oat Ground Pindone	Nightshoot Shoot Hand Pindone
Downs Black Jack	Extreme 50% High 50%	1-2	Part Aerial Poison 1080 carrot 82 Shoot Nightshoot	Unit 4	1993 Ground Oat	Ground Pindone	Nightshoot Shoot Hand Pindone
High Ewe Range	High 40% Low 60%	1-	Aerial Poison 1080 carrot 82 1080 oat 87 88	Unit 4	1990 Aerial Carrot	Patch Pindone	Shoot Hand Pindone
Dark McReas	High 100%	3+ patches 4+	Aerial Poison 1080 oat 1986 occasional NS	Unit 4 No boundaries	1991 Aerial Carrot	Aerial Oat Aerial Pindone	Hand Pindone Net fence 4/5
Ewe Range (McReas)	High 70% Low 30%	3+	as above	as above	1990 Aerial Carrot	as above	as above
Dam	Extreme 90% High 10%	3-5	Aerial Oat 1986 Little recorded, Historical oating along road	Unit 5 No boundaries	1992 Aerial carrot	Aerial oat Pindone	Shoot Hand Pinedone Helicopter
River Face	Extreme 10% High 90%	3+	Aerial oat 1989 patch	Unit 5 No boundaries	as above	as above	as above
Hogget	Extreme 30% High 70%	3	Aerial oat Patch 1982 1983 1983 Shoot	Unit 5 No boundaries	as above	as above	as above
Shearing	High 70% Low 30%	2	Aerial oat 1989 Nightshoot	Unit 5 No boundaries	as above	as above	as above Net fence
Cemetery	Extreme 90% High 10%	2	Aerial oat 1989 Nightshoot	Unit 5	1992 Ground oat	Ground Pindone	Shoot Nightshoot Hand Pindone

Appendix

PEST CONTROL PROGRAMME

Te Akatarawa

Block No/Name	Pest Proneness (Kerr Scale)		Present Rabbit Infestation Levels		Poisoning History	Present Poisoning Unit	Poisoning Programme Primary	Poisoning Programme Secondary	Control Programme Other than Poisoning	
			McLean Scale as at Jan 91							
Wether Range (Scrubby)	Extreme High Low	40% 50% 10%	patches general	7 3-4 1-2	Aerial Poison 1080 carrot pellet part oat	84 88 82 86 89	Unit 1 = 3000 ha plus Black Forest 7 wire fences and altitude	1991 AC 1995 part AC farmer	Patch Aerial Oat Patch Pindone Pellet	Hand Pindone Trap Shoot Fumigate Helicopter
Sugar Loaf	Extreme High Low	60% 10% 30%	patches Lake faces Honeymoon Ck	5-6 3-4 1-2 Above 1000m	Aerial Poison 1080 carrot Oat	83 89 81	Unit 2 = 1200 ha 7 wire fences and altitude	1991 part AO	Patch Aerial Oat Patch Pindone Pellet	Net fence? Hand Pindone Trap Shoot Fumigate Helicopter
Potato Pit	High Low	15% 85%		1-2			Unit 3 + Waitangi 7 wire fences and altitude	1990 part AC to altitude	Nil	Nil some shoot
Back Emmanuels	High Low	20% 80%		1-2			as above	as above	Nil	Nil
Front Emmanuels	High Low	50% 50%		1-2 patch up to 3	Aerial oat	1989	as above	as above	Patch Aerial Oat 1991 Patch Pindone P	Hand Pindone Shoot Possible net fence
Razor Back	High	100%		1-2	Pt Aerial Poison 1080 oat	1987	Unit 4 No altitude boundary	1990 Aerial Carrot	Patch aerial Oat 1994/5 or Pindone	Hand Pindone Shoot
Downs Paddock Ram Paddock	Extreme High	50% 50%		1-2	Regular control non poison		Unit 4 No boundaries			Nightshoot Shoot Hand/vehicle Pindone

SM

5-0-1
 "RELEASED UNDER THE OFFICIAL INFORMATION ACT"
 1992-09-22
 988522

NO. 795

1-31/91

Block No/Name	Area (ha)	Rainfall mm	Soils	Topography	Vegetation Dominants	% Hieracium	Other Problem Weeds	% Bare Ground	Land Use Capability Description	Fertiliser History	Present Carrying Capacity SU/ha
Dam	593	450	Waitaki Otematata Hill/Omararama	steep to very steep sunny	Tav, Rru, Rtc, Fno, Vth, Dto, Hpi, Pse	5	Briar	75+	VII 50%	Nil	0.16
		↓ 600		mod steep to steep shady	Hpi, Fno, Rru, Aod	50	Briar	30	VI 50%		
River Face	341	450	Waitaki Omararama/Meyer/Becks	steep to very steep sunny	Rru, Tav, Rtc, Hpi	10	Briar dense patches	50	VII 15%	AOS & TD 1984 Biannual	0.38
				mod steep to very steep	(Fno, Tre, Hpi) Rru, Hla, Aod	10 patches much higher	10	Briar	10		
Hogget	298	500	Omararama/Dryweed Waitaki	steep	Fna, Aod, Tre, Hpi, Hla	10 patches much higher		-	VI 60%	AOS & TD 1984 Biannual	1.74
				steep sunny	Tav, Rtc, Fno	10 patches much higher					
Shearing	181	500	Tengawai/Omararama Omararama	steep	Fno, Tre, Aod, Cri	<5		-	VI 70%	AOS & TD 1987 Biannual	1.74
		↓ 600				Fno, Cri	5		20		
Cemetery	142	500	Becks Kurow	mod steep	Aod, Agt, Hla, Fno, Tre, Hpi, Rru	<5		10	VI	Biannual	2.0 plus
Cottage, House, Daimond, Buscot Bridges 1-3	316	500	Becks/Sawdon Wetherburn Becks Hill	Undulating strongly rolling	Aod, Tre, Lpe, Fno, Hpi, (Dto)	<5	scrub patches	-	IV	Super-biannual	1.72 +
				Strongly rolling to moderately steep	Aod, Agt, Hla, Fno, Rru, Fno, Hpi, Lpe (Dto)	(5)	scrub patches		VI		

1. NOV. 2013 9:52 AM
 INZ CHCH 03 3666422 A
 "RELEASED UNDER THE OFFICIAL INFORMATION ACT"
 LINZ CHCH 3 3666422
 NO. 795 P. 31/60

Block No/Name	Area (ha)	Rainfall mm	Soils	Topography	Vegetation Dominants	% Hieracium	Other Problem Weeds	% Bare Ground	Land Use Capability Description	Fertiliser History	Carrying Capacity SU/ha
Front Eumaneals	839	650 ↓ 800	Tengawai Meyer Omarama Kaikoura Benmore	Rolling to steep Steep	Fna, Pla, Tre, Aod, Agt, Hla, Cri Cri, Fno, Pla, Toi, Hpi	5 5-25 Hpi 25 just above OS level	- -	<5 10 30	VI 60% VII 30% VIII 10%	VI land AOS & TD 1989	0.67
Razor Back	912	600	Meyer Hill Omarama Waitaki	Rolling to steep Steep to very steep	Fno, aod, Hla, Tre, Agt, Dto Aod, Dto, Rru, Fno	- -	Matagouri Matagouri Briar	5 20	VI 60% VII 40%	Nil	0.27
Downs Paddocks 5 blocks and Ran Paddock 3 blocks Downs Black Jack	222 157	600	Kurow & Kurow Hill Wetherburn Becks	Undulating to mod steep Rolling	Fno, Lpe, Aod, Tre (Casp, Dto) Lpe, Aod, Fno, Trep (Casp, Dto)	- -	Scrub (Casp Dto)	- -	IV VI IV	AOS & TD 1981 Biamual maintenance	4+
Docking Yards and Alratip 3 blocks	108	600	Becks Kurow and Kurow Hill	rolling strongly rolling	Msa, padks, Fno, Tre, Lpe Fno, Tre, Lpe Aod	- -	- -	- -	IV 65% VI 35%	AOS & TD 1981 Biamual Luzerne cultivated	3+
High Ewe Range or Upper Ewe Range	1021	600 ↓ 800	Tengawai/ Omarama Tengawai/ Kaikoura Benmore/ Kirkliston	mod steep to steep Steep Steep	Fno, m Aod, Tre, Agt, Cri Cri, Flo, Fno, Agt, Hpi Cri, Pro, Hpi	<5 5 5	Scrub -	- 10 30 (50)	VI 30% VIII 50% VII & VIII 20%		0.5 +
Dark McRaes	111	600	Tengawai/ Omarama	mod steep	Fno, Hla, Tre, Agt, Cri (Dto)	<5	scrub	-	VI	AOS & TD 1983 Biamual	1.5 +
Ewe Range (McRaes)	496	600	Omarama/ Tengawai Waitaki	steep steep sunny	Fno, Hla, Tre, Agt Fno, Aod	<5 <5	scub -	- -	VI 80% VII 20%		2.0 +

MS

"RELEASED UNDER THE OFFICIAL INFORMATION ACT"

**RABBIT AND LAND MANAGEMENT PROGRAMME
BLOCK WORKSHEET**

Property: **Te Akatarawa**

Block No/Name	Area (ha)	Rainfall mm	Soils	Topography	Vegetation Dominants	% Hieracium	Other Problem Weeds	% Bare Ground	Land Use Capability Description	Fertiliser History	Present Carrying Capacity SU/ha
Wether Range (Scrubby)	3048	400	Waitaki S	Steep sunny	Rro, Fno, Rte, Vth, Rac	0	Briar	80+	VII + VIII 25%	75 kg/ha super in 70's	Wether & Sugar Loaf Calculated overall 0.27
		↓	Omarara S	Steep shady	Fno, Aod, Hpi, Pla, Bmo (Dlo, Casp, Rru)	10-40	Matagouri	30-50	VI 50%		
		700	Benmore	High steep	Cri, Pca, Hpi	10	-	20 40	VII 25% VIII		
			Otematata + Glenburn	Undulating fans	Hpi, Rru, Fno, Rac (Dlo, Casp)	30	Matagouri Caprosma	50	IV & VI small areas		
Sugar Loaf	1665	400	Waitaki S	Steep sunny	Tar, Rte, Rac, Fno Vth	0	-	80	VIII 35%		
		↓	Omarara S	Steep shady	Fno, Aod, Hla, Tar, Hpi, Tre (Hpi)	10 (50) increasing-ly dominant in VI areas	-	30	VI & VII 25%		
		700	Benmore	High steep	Cri, Fno, Aod	10-20	-	40	VII & VIII 40%		
			Kirkliston	High mod	Hpi	-	-	-	-		
Potato Pit	532	700	Tengawai	Rolling to mod-steep	Cri, Fno, Hla, Hpi, Tre, Aod	10	-	10	VI 40%	Small topdress 1970's	0.26
		↓	Kaikoura Benmore	Steep Steep	Cri, Pca, Hpi Cri, Pca	10 <5	-	20 20	VII 40% VII & VIII 20%		
Back Emmanuel's	923	650	Sawdon	Roll to mod steep	Fno, Pca, Cri, Pla, Hpi, Aod, Tof, Hla	5	-	<10	VI 20%	Small topdress 1970's	0.39
		↓	Tengawai								
			Kaikoura	Steep	Cri, Pca, Hpi, Aod	10	-	10	VII 60%		

DATE	JOB NO	DETAILS	QTY	UNIT	UNIT	UNIT	TOTAL COST	FARMERS SHARE	F/CRC SHARE	PEST RATES INPUTS	MAF/CRC FLM INPUTS	FARMERS NET BALANCE	MAF/CRC NET BALANCE
1993/94 FINANCIAL YEAR													
Sep-93	28	SEC CONTROL PP/FUM : WETHER/SUGAR LOAF J3&4	50	DAYS	250	PER DAY	\$12,500	\$3,750	\$8,750			-\$10,807	-\$20,899
Oct-93	29	SECONDARY CONTROL PP/FUM/NS : JOB 1, 2, 7 & 22	10	DAYS	250	PER DAY	\$2,500	\$750	\$1,750			-\$14,557	-\$29,749
Oct-93	30	SECONDARY CONTROL PP/FUM/NS : DAM ETC JOB 14	15	DAYS	250	PER DAY	\$3,750	\$1,125	\$2,625			-\$15,307	-\$31,489
Feb-94	31	SECONDARY AERIAL POISON:WETHER/SUGAR LOAF POSSIBLE 1080 OAT OR PINDONE PELLETS	400	HA	20	PER HA	\$8,000	\$2,400	\$5,600			-\$16,432	-\$34,124
Apr-94	32	SECONDARY CONTROL PP/FUM/NS : JOB 1, 2, 7 & 22	10	DAYS	250	PER DAY	\$2,500	\$750	\$1,750			-\$18,832	-\$38,724
Apr-94	33	SECONDARY CONTROL PP/FUM/NS : DAM ETC JOB 14	10	DAYS	250	PER DAY	\$2,500	\$750	\$1,750			-\$18,832	-\$39,724
Jun-94	34	PATCH AERIAL POISON PINDONE CARROT: RAZOR BACK	300	HA	30	PER HA	\$9,000	\$2,700	\$6,300			-\$20,332	-\$49,224
Jun-94	35	NET EXISTING FENCE: SUGAR LOAF/WETHER LABOUR ON FENCE	1000	MTR	2.315	PER MTR	\$2,315	\$0	\$2,315			-\$23,032	-\$49,524
Jun-94	36	NEW NETTING FENCE: SUGAR LOAF/WETHER LABOUR ON FENCE	1000	MTR	0.8	PER MTR						-\$23,032	-\$51,839
			2000	MTR	4.42	PER MTR	\$8,840	\$0	\$8,840			-\$23,032	-\$51,839
			2000	MTR	2	PER MTR						-\$23,032	-\$60,679
		REGIONAL COUNCIL PEST RATES										-\$23,032	-\$60,679
		MAF/CRC R & LM CONTRIBUTION								\$17,789		-\$23,032	-\$60,679
		TOTAL FOR 1993/94 FINANCIAL YEAR										-\$5,249	-\$60,679
							\$51,905	\$12,225	\$39,680	\$17,783	\$49,421	-\$11,258	-\$16,507

Oct-94	37	SECONDARY CONTROL PP/FUM/NS : JOB 1, 2, 7 & 22	20	DAYS	250	PER DAY	\$5,000	\$1,500	\$3,500			-\$5,249	-\$11,258
Oct-94	38	SECONDARY CONTROL PP/FUM/NS : DAM ETC JOB 14	20	DAYS	250	PER DAY	\$5,000	\$1,500	\$3,500			-\$5,249	-\$11,258
Oct-94	39	SECONDARY CONTROL PP/FUM/NS : JOB 1, 2, 7 & 22	20	DAYS	250	PER DAY	\$5,000	\$1,500	\$3,500			-\$6,749	-\$14,758
Jun-95	40	AERIAL POISON PINDONE/1080 CARROT:PT. SUGAR LOAF AERIAL POISON PART WETHER (FARMERS COST)	500	HA	25	PER HA	\$12,500	\$3,750	\$8,750			-\$8,249	-\$18,258
			600	HA	25	PER HA	\$15,000	\$15,000	\$0			-\$9,749	-\$21,758
Jun-95		REGIONAL COUNCIL PEST RATES										-\$13,499	-\$30,508
Jun-95		MAF/CRC R & LM CONTRIBUTION								\$17,783		-\$28,499	-\$30,508
		TOTAL FOR 1994/95 FINANCIAL YEAR										-\$10,716	-\$18,913
							\$42,500	\$23,250	\$19,250	\$17,783	\$49,421	-\$10,716	\$8,197
		TOTALS					\$343,430	\$103,973	\$239,457	\$93,257	\$258,370	-\$10,716	\$18,913

EFFECTIVE GRANT RATE

PRIMARY CONTROL OPERATIONS
SECONDARY CONTROL OPERATIONS
FENCING-NETTING (INCLUDES SUB. NET)
FENCING-SUBDIVISION
AERIAL OVERSOWING & TOPDRESSING
TRIAL

TOTAL COST	FARMERS SHARE	MAF/CRC SHARE	PEST RATES INPUTS	MAF/CRC FLM INPUTS
\$151,698	\$58,009	\$95,689	44%	
\$129,878	\$38,968	\$90,910	38%	
\$28,993	\$0	\$28,993	8%	
\$4,862	\$0	\$4,862	1%	
\$20,000	\$6,000	\$14,000	5%	
\$10,000	\$3,000	\$7,000	3%	
\$343,430	\$103,973	\$239,457	100%	

70%

TOTAL COST INCLUDES FARMER POISON OF WETHER BLOCK IN YEAR FIVE

"RELEASED UNDER THE OFFICIAL INFORMATION ACT"
 LINC. CH. 93 366&422 A
 NOV. 2001

DATE	JOB NO	DETAILS	NO OF UNITS	UNIT DESC	UNIT COST	UNIT DESC	TOTAL COST	FARMERS SHARE	MAF/CRC SHARE	PEST RATES	MAF/CRC RLM	FARMERS NETT	MAF/CRC NETT	TOTAL RLM PLAN
1991/92 FINANCIAL YEAR														
Jul-91	9	AERIAL POISON 1080 CARROT: DARK McCREAS(EWE RANGE	600 HA	16.7	PER HA		\$10,020	\$3,006	\$7,014			-\$5,283	-\$3,266	-\$8,549
Jul-91	10	AOS & TD PART BACK EMMANUALS	200 HA	100	PER HA		\$20,000	\$6,000	\$14,000			-\$8,289	-\$10,280	-\$18,569
Jul-91	11	WCLOVER/ALLSIKE 50 SS @ 250 KG/HA										-\$14,289	-\$24,280	-\$38,569
Jul-91	11	SEC CONTROL (PP/FUM/TRAP/SHOOT): CONTRACTOR WETHER/SUGAR LOAF JUL TO SEP JOBS 3&5	50 DAYS	250	PER DAY		\$12,500	\$3,750	\$8,750			-\$18,039	-\$33,030	-\$51,069
Jul-91	12	SECONDARY CONTROL NIGHTSHOOTING RC JOBS 1,2,6	10 DAYS	250	PER DAY		\$2,500	\$750	\$1,750			-\$18,039	-\$33,030	-\$51,069
Jul-91	13	SECONDARY CONTROL NIGHTSHOOTING FARMER JOB 2&4	20 DAYS	250	PER DAY		\$5,000	\$1,500	\$3,500			-\$18,789	-\$34,780	-\$53,569
Aug-91	14	SECONDARY CONTROL:HELICOPTER WETHER/SL JOB 3&5	2 HR	550	PER HR		\$1,100	\$330	\$770			-\$20,289	-\$38,280	-\$58,569
Oct-91	15	PART MANAGEMENT FENCE:FRONT EMMANUALS LABOUR ON FENCE	2100 MTR	2.315	PER MTR		\$4,862	\$0	\$4,862			-\$20,619	-\$39,050	-\$59,669
Nov-91	16	PART NEW NETTING FENCE :FRONT EMMANUALS LABOUR ON FENCE	2100 MTR	0.8	PER MTR		\$7,735	\$0	\$7,735			-\$20,619	-\$43,911	-\$64,531
Feb-92	17	GROUND POISON 1080 OAT :CEMETARY	1750 MTR	4.42	PER MTR		\$7,735	\$0	\$7,735			-\$20,619	-\$51,646	-\$72,266
Apr-92	18	SECONDARY CONTROL PP/FUM/NS : JOB 1 & 2	142 HA	18	PER HA		\$2,556	\$767	\$1,789			-\$20,619	-\$51,646	-\$72,266
Jun-92	19	AERIAL POISON 1080 CAR:DAM/FACE/HGT/COTT/SHEAR	10 DAYS	250	PER DAY		\$2,500	\$750	\$1,750			-\$21,366	-\$53,435	-\$74,822
Jun-92	20	TRIALS: SUGAR LOAF/WETHER/DAM	1495 HA	22	PER HA		\$32,890	\$9,867	\$23,023			-\$22,136	-\$55,185	-\$77,322
Jun-92		REGIONAL COUNCIL PEST RATES					\$10,000	\$3,000	\$7,000			-\$32,003	-\$78,208	-\$110,212
Jun-92		MAF/CRC R & LM CONTRIBUTION								\$17,783		-\$35,003	-\$85,208	-\$120,212
Jun-92		TOTAL FOR FINANCIAL YEAR 1991/92										-\$17,220	-\$85,208	-\$102,429
							\$111,663	\$29,720	\$81,943	\$17,783	\$49,421	-\$17,220	-\$35,787	-\$53,008
1992/93 FINANCIAL YEAR														
Sep-92	21	SEC CONTROL PP/FUM/TRAP:WETHER/SUGAR LOAF JS&4	50 DAYS	250	PER DAY		\$12,500	\$3,750	\$8,750			-\$17,220	-\$35,787	-\$53,008
Oct-92	22	SECONDARY CONTROL PP/FUM/NS/SHOOT : JOB 1, 2 & 7	10 DAYS	250	PER DAY		\$2,500	\$750	\$1,750			-\$20,970	-\$44,537	-\$65,508
Oct-92	23	SECONDARY CONTROL PP/FUM/NS : DAM ETC, JOB 14	50 DAYS	250	PER DAY		\$12,500	\$3,750	\$8,750			-\$21,720	-\$46,287	-\$68,008
Apr-93	24	GROUND POISON 1080 OAT : DOWNS ETC	300 HA	18	PER HA		\$5,400	\$1,620	\$3,780			-\$25,470	-\$55,037	-\$80,508
Apr-93	25	NET EXISTING FENCE : SHEARING/HOGGET/COTTAGE LABOUR ON FENCE	3500 MTR	2.315	PER MTR		\$8,103	\$0	\$8,103			-\$27,090	-\$50,817	-\$77,908
Apr-93	26	SECONDARY CONTROL PP/FUM/NS/SHOOT : JOB 1, 2 & 7	3500 MTR	0.8	PER MTR		\$27,090	\$0	\$27,090			-\$27,090	-\$66,920	-\$94,010
Apr-93	27	SECONDARY CONTROL PP/FUM/NS : DAM ETC, JOB 14	10 DAYS	250	PER DAY		\$2,500	\$750	\$1,750			-\$27,090	-\$66,920	-\$94,010
Jun-93		REGIONAL COUNCIL PEST RATES					\$2,500	\$750	\$1,750			-\$27,840	-\$68,670	-\$96,510
Jun-93		MAF/CRC R & LM CONTRIBUTION								\$17,783		-\$28,590	-\$70,420	-\$99,010
Jun-93		TOTAL FOR 1992/93 FINANCIAL YEAR										-\$10,807	-\$70,420	-\$81,227
							\$45,003	\$11,370	\$33,633	\$17,783	\$49,421	-\$10,807	-\$20,999	-\$31,806
							\$45,003	\$11,370	\$33,633	\$17,783	\$49,421	-\$10,807	-\$20,999	-\$31,806

RABBIT AND LAND MANAGEMENT PLAN

TE AKATARAWA

F. GRAHAM, KUROW
6 LAN 804

May-91

DATE	JOB NO	DETAILS	NO OF UNITS	UNIT DESC	UNIT COST	UNIT DESC	TOTAL COST \$	FARMERS SHARE \$	MAF/CRC SHARE \$	PEST RATES IMPUTS	MAF/CRC RLM IMPUTS	FARMERS NET BALANCE	MAF/CRC NET BALANCE	TOTAL RLM PLAN BALANCE
INTERIM RLM PLAN														
Jun-90	1	AERIAL POISON 1080 CARROT EMMAN./RAZOR BACK/ETC SECONDARY CONTROL	1000 HA	16.09 PER HA			\$16,092	\$4,828	\$11,264			-\$4,828	-\$11,264	-\$16,092
												-\$4,828	-\$11,264	-\$16,092
Oct-90		TRANSITIONAL RATES					\$0	\$0	\$0	\$4,342		-\$486	-\$11,264	-\$11,751
		RLM CRC/MAF SUBSIDY @70%					\$0	\$0	\$0		\$11,265	-\$486	\$1	-\$485
		TOTAL FOR INTERIM PLAN					\$16,092	-\$4,828	\$11,264	\$4,342	\$11,265	-\$486	\$1	-\$485
		CREDIT(DEFICIT) CARRIED FORWARD FROM INTERIM PLAN					\$0	\$0	\$0			-\$486	\$1	-\$485
							\$0	\$0	\$0			-\$486	\$1	-\$485
							\$0	\$0	\$0			-\$486	\$1	-\$485
1990/91 FINANCIAL YEAR														
Feb-91	2	GROUND POISON 1080 OAT : DOCKING YARD/AIRSTRIP	200 HA	17.85 PER HA			\$3,570	\$1,071	\$2,499			-\$1,557	-\$2,498	-\$4,056
Feb-91	3	SECONDARY AERIAL POISON 1080 OAT:SUGAR LOAF	800 HA	16.45 PER HA			\$13,160	\$3,948	\$9,212			-\$1,557	-\$2,498	-\$4,058
Feb-91	4	SEC AERIAL POISON 1080 OAT:PART FRONT EMMANUALS	150 HA	16.45 PER HA			\$2,468	\$740	\$1,727			-\$5,605	-\$11,710	-\$17,216
May-91	5	AERIAL POISON 1080 CARROT: WETHER	3000 HA	18.70 PER HA			\$50,100	\$15,030	\$35,070			-\$6,245	-\$19,439	-\$69,683
May-91	6	GROUND POISON 1080 CARROT & OAT: BRIDGES etc	200 HA	17.85 PER HA			\$3,570	\$1,071	\$2,499			-\$21,275	-\$48,508	-\$69,783
Jun-91	7	SECONDARY CONTROL NIGHTSHOOTING FARMER JOB 1	8 DAYS	200 PER DAY			\$1,600	\$480	\$1,120			-\$22,346	-\$51,007	-\$73,353
Jun-91	8	SEC CONTROL DAYWORK (PP PINDONE) FARMER JOB 1	4 DAYS	200 PER DAY			\$800	\$240	\$560			-\$22,828	-\$52,127	-\$74,953
												-\$23,066	-\$52,687	-\$75,753
Jun-91		REGIONAL COUNCIL PEST RATES								\$17,783		-\$23,066	-\$52,687	-\$75,753
Jun-91		MAF/CRC R & LM CONTRIBUTION									\$49,421	-\$5,283	-\$3,266	-\$8,549
		TOTAL FOR FINANCIAL YEAR 1990/91					\$75,268	\$22,580	\$52,687	\$17,783	\$49,421	-\$5,283	-\$3,266	-\$8,549
												-\$5,283	-\$3,266	-\$8,549

SHZ

1. NOV. 2001
54 RELEASED UNDER THE OFFICIAL INFORMATION ACT
LINZ CHCH 3 3666422
NO. 795
P. 36/60

"RELEASED UNDER THE OFFICIAL INFORMATION ACT"

Future Cost of Pest Control

A poisoning programme and manpower requirement based upon past poison history and the objectives of this programme gives the following future pest control costs.

a)	Downlands and Razor Back, 1857 ha Regular poison of approximately 1000 ha on 8 year cycle Increased manpowering to 20 man days/yr	2,500 3,000
b)	Shady and undeveloped Steeplands, 4103 ha Occasional poison of approximately 1000 ha on 15 year cycle Increased manpower and patch poisons, say	1,330 500
c)	Lake Aviemore Faces, 1232 ha Regular poison of 1200 ha on 8 year cycle Increased manpowering to 10 man days/yr	3,000 1,500
d)	Depleted Steeplands, 4713 ha Regular poison of 3000 ha on 6 year cycle Increased manpowering to 50 man days for 5 years	10,000 6,250
		\$28,080

or at 9000 su \$3.12/su

11. LAND IMPROVEMENT AGREEMENT

A Land Improvement Agreement will be registered against the title of the property. It will formalise the programme between the landholder and Regional Council detailing cost sharing arrangements, agreed maintenance of works and agreed land management.

The Rabbit and Land Management Programme has endeavoured to outline a 5 year works programme. Changes to this programme will be made by mutual consent between the parties involved. An Annual Report, to be completed between November and February each year, will finalise the anticipated works in that year.

12. ACKNOWLEDGEMENTS

Plan prepared by: G K Cooper, Land Management Officer, Timaru
F & J Graham, Te Akatarawa

With assistance from: G Chamberlain, Pest Supervisor, Kurow
T Hood, Landcorp, Timaru
R Ward-Smith, Landcorp, Timaru

GRAZING REVIEW

Proposed changes to grazing can be seen in the Stock Grazing Charts - Appendix 6.

Short term alterations to grazing patterns may be agreed to, to meet seasonal conditions and rabbit control operations.

Review of the limits on Sugar Loaf and Wether may be made under the R & LMP annually but an overall stock limit increase would be subject to application to Landcorp.

Any review to the grazing limit must be carried out within the objectives of section 2.1.2 and 2.1.3 and would require that these objectives are being met. (A programme of monitoring will be required to assess whether the objectives are being met - section 9.4.)

9.4 MONITORING

There are no existing CRC monitoring sites on Te Akatarawa.

MAF sites presently monitor the less sensitive areas.

The lessee and CRC will establish a number of sites in key locations to monitor the condition and trend of the vegetation.

Sites in Wether, Sugar Loaf, Dam, River Face, Front and Back Emmanuels could be set up to monitor bare ground and hieracium.

These sites will primarily involve simple photopoints but it would also be useful to include some form of simple "transect line" to measure changes in vegetative cover.

10. FINANCIAL SUMMARY OF PROGRAMME

The estimated costs of the 5 year programme are as follows:

		Total Cost	Farmer	MAF/CRC	
Rabbit Control	- Primary Control	151,698	56,009	95,689	44%
	Secondary Control	129,878	38,963	90,914	38%
Physical Works - Fencing	Netting Existing Fences	10,418	0	10,418	8%
	New Netting	16,575	0	16,575	
	Management Fences	4,862	0	4,862	1%
	Farm Labour on Fencing	0	12,780	0	-
	Land Management	Aerial Oversowing & TD	20,000	6,000	14,000
	Trial	10,000	3,000	7,000	3%
Total Programme	(ex labour fence)	\$343,430	\$103,973	\$239,457	

This programme falls within the MAF/CRC cost share but farmer contribution will need to increase over current pest rate inputs to fulfil all the commitments within this Plan.

The effective grant rate to the farmer (excluding labour on fencing and no grant for a second part poison on Wether Block) is 70%.

Total Programme Cost: \$28.98/ha
 \$5.80/ha/yr at 5 yr
 \$37.97/su
 \$7.59/su/yr (on total su)

6.

GR

Primary and secondary rabbit control is the primary focus for improving the condition but some of the trial work within the plan will aim at further improvement.

8.2.3 Front/Back Emmanuel's

These blocks contain LUC class VI land, well suited to development through AOS & TD. Front Emmanuel's was AOS & TD by the lessee in 1989 with very good results. The subdivision of a sunnier portion of this block will enable some wethers (from Sugar Loaf and Wether Blocks) to be grazed during the winter.

Back Emmanuel's will be AOS & TD under this programme enabling extra use of this block by wethers in the autumn.

Both blocks will be grazed conservatively and spelled at appropriate times to allow seeding of the vegetation. As hieracium is present in these blocks, especially at the higher levels around the short and tall tussock boundaries, it is essential that these blocks retain a vigorous vegetative cover and that fertiliser levels are maintained.

8.2.4 Trials

\$10,000 has been set aside for trial work on the property. The main emphasis of this work will be to find a relatively low cost option for revegetation of sunny faces and combating hieracium. Work could include:

- topdressing sunny faces with sulphur fertilisers
- seeding with drought tolerant species
- oversowing hieracium areas with competitive grasses and legumes (eg Tall oat grass, Mountain rye, Yukon sweet clover, Canary clover)
- establishing shrubby species as fodder browse plants

9. LAND USE CONDITIONS AND MONITORING

Overall wether numbers are to drop over the whole property from 4000 to 3300. These numbers will be formalised in the Landcorp Personal Stock Limitation. In addition hogget numbers may be reduced by 200 as a consequence of requiring less replacements for the wether flock.

9.1 SUGAR LOAF/WETHER

1991/92 Agreed grazing "for a maximum period of 5 months between late September and late February by no more than 2000 wethers".

After this period final culling will bring down overall wether numbers to 3300 and the general summer grazing level for these blocks will be "for a maximum period of 5 months between late September and late February by 1500-1700 wethers".

In addition the winter carrying capacity will be decreased by the provision of an extra wintering block on Front Emmanuel's, this block should winter approximately 70-80 su or 400-500 wethers for 3½ months.

9.2 BACK EMMANUELS

Development of 200 ha AOS & TD in spring 1992 will aid the lowering of stocking rate on Sugar Loaf and Wether blocks over summer. This development should not be grazed during the first growing season and should be maintained with adequate fertiliser inputs, maintenance levels based on soil test recommendations.

An estimated increase in summer grazing of 200 su or 650-700 wethers for 5 months should be achievable.

It may be necessary to concede that briar may be the cheapest and most effective ground cover for the most severely degraded country. In these areas briar may have to be encouraged.

Increased dominance of hieracium implies creation of areas more conducive to rabbit populations at the expense of sustainable grazing by sheep. Maintenance of a healthy, vigorous vegetative cover on land with low incidence of hieracium is essential as is maintenance fertiliser and vegetative cover on any improved land.

8.2 LAND MANAGEMENT

8.2.1 Wether and Sugar Loaf Blocks

The severe degradation of these blocks questions their long term use under present grazing conditions but options for alternative uses for these blocks are severely limited.

Options considered when developing this plan include:

- continue the present situation resulting in continued cyclic rabbit plagues, land degradation, impacts of rabbit spread on neighbouring lands, slow spread of hieracium and briar, continued costs of rabbit control and a slow fall in returns as stocking rate and quality declines.
- modify present use by decreasing stock and increasing rabbit control, results in higher costs but improvement in land condition due to decreased grazing pressure.
- high inputs of fencing, AOS & TD, decreasing grazing pressure. Costs beyond the physical resources of the farmer and the programme. Would require a sustained decrease in rabbit numbers but at present a lack of confidence in this occurring precludes such a high cost option.
- retire the area from grazing. Cost of rabbit control remains with the farmer but with no returns, cyclic rabbit plagues, land degradation continues, rabbits can spread to neighbouring lands, hieracium and briar increase.
- surrender from lease, transfers costs to another party (assuming someone is willing to accept costs) and unless there is a large input into rabbit control land degradation continues.

Works outlined in 8.1 will contribute to the improved vegetative cover of these blocks. Areas will respond at different rates and it may be beyond the immediate life of this programme before any significant improvement can be detected on the most seriously affected land.

Lowering of rabbit numbers will have a significant impact on overall grazing pressure. MAF pre-poison night count routes indicated mean counts of 40 rabbits/km, which could account for grazing pressure of up to 0.4 su/ha (40 r/km = 4 r/ha at 10 rabbits = 1 su) on land that is considered to have an overall safe sheep grazing level of 0.3 su/ha on an annual basis.

Further improvement of vegetative cover is to be encouraged through decreasing the sheep grazing pressure to a level below its estimated safe grazing level. (Section 9 and Appendix 7.)

8.2.2 Dam/River Face

Areas on these blocks are suffering from severe depletion and rapid invasion by hieracium. Current grazing management is assessed as being suitable for the class of land but further ingress by hieracium and continued high rabbit numbers would result in continued land degradation.

SM

The lessee's most desirable methods of rabbit control would be managed biological control, enhanced with other secondary control methods on remnant populations with an aim to eradicate rabbits from the property.

All planned rabbit control operations will need to be kept flexible as the programme must take into account:

- the unpredictable nature of the rabbit and its population increase in relation to complex interactions with climate, predators, vegetation, etc.
 - the possibility of poison and/or secondary control failure
 - any scientific improvements, new technology, improved knowledge.
- d) Monitoring of population levels through nightcounts and inspections. Future poisoning would be desirable at lower base rabbit populations. However this objective can be in conflict with the objective of decreasing poison frequency. It is desirable to achieve a balance which will have regard for both objectives.

Nightcount levels may be a useful guide to assess "trigger levels" to initiate poison operations and may be used in conjunction with day inspections to determine when a poison is necessary.

Annual programme reviews should attempt to address the issue of poison frequency and trigger levels at which to poison.

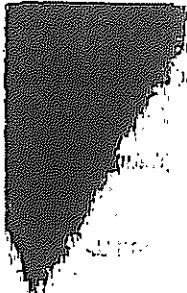
Objective 2.1.2 To identify and plan for the recuperation of degraded and severely depleted lands by:

- a) addressing the future use of areas of land that are in a state of severe degradation, in particular areas within Wether and Sugar Loaf blocks (section 8.2).
- b) assessing appropriate grazing levels for severely depleted lands (section 8.2 and 9).
- c) provision of alternative grazing, where these alternatives are appropriate and sustainable, to ease grazing pressure on lands indicated in a) and b) above. Alternative grazing has been identified on LUC Class VI lands within the Back Emmanuels block which are presently unimproved and will be provided through AOS & TD.

Management fencing to enable safe winter grazing for wethers on Front Emmanuels

- AOS & TD 200 ha
 - subdivision fencing 2100 m (in conjunction with 1750 m new netting fence)
- d) carrying out trials in an endeavour to identify a feasible option for revegetation of sunny faces and combating Hieracium on shady faces within the Wether, Sugar Loaf, Dam and River Face blocks.
 - e) monitoring of the land condition and land trend at various key sites on the property (section 9).

Objective 2.1.3 To acknowledge when considering this plan the potential of weed invasion and spread, especially of hieracium and briar and the threat that these weeds present to the more productive areas of the property.



a) identifying and isolating rabbit populations into discrete poison areas.

natural boundaries of Lake (Benmore and Aviemore) and contour will be used to isolate rabbit populations, these boundaries will be complemented by the crection of 2 or 3 netting fences:

- 1) new netting fence - Front Emmanuels - 1750 m. Splitting traditionally low to moderate prone land from higher prone farm land.
- 2) netting existing fence - Shearing/Cottage/Hogget - 3500 m. Splitting boundaries to poison units moderate to high prone land from low prone land.
- 3) netting existing and new netting fence - Sugar Loaf/Wether 1000 m and 2000 m planned to create boundaries between poison areas and decrease block size to allow compartments to be more easily worked. (This fence may be deleted from the programme due to difficulty in establishing a low maintenance line.)

b) carrying out primary rabbit control operations at the best technical level to ensure best possible kills.

primary control will be carried out during the 5 year programme:

- Interim	1000 ha	Aerial Carrot
- Year 1	200 ha	Ground Oat
	200 ha	Ground Oat and Carrot
	3000 ha	Aerial Carrot
- Year 2	2095 ha	Aerial Carrot
	142 ha	Ground Oat
- Year 3	300 ha	Ground Oat

In addition some secondary (patch) poisoning may be carried out if considered technically acceptable.

Lengthening the poison interval on rabbit prone lands from the current 3-4 yr cycle to a 6-7 year plus cycle is essential to enable more cost effective primary poisoning. Currently a partial poison of 600 ha has been costed for the Wether Block at full cost to the lessee. This indicates a general feeling on his behalf that it will be extremely difficult to extend the poison frequency in this area.

c) employing appropriate secondary control (follow up) based on all possible techniques to enhance primary control results and keep rabbit populations at lower levels.

The large scale of the rabbit problem and the difficulty in creating adequate rabbit boundaries means the successful implementation of secondary control operations on this property is vitally important. This is reflected in the estimated secondary control manpowering of over 300 man days. The majority of this work is planned for Sugar Loaf, Wether, Dam and River Face blocks. Secondary control will be carried out by farmer, contractor and Regional Council.

Other Control Methods

Recreationalists do a large amount of unauthorised shooting on the lake faces of Te Akatarawa. This shooting is greatest over the Christmas holiday period and confined to country close to shore with easy boat access. Unfortunately the result of this shooting has generally been to scare rabbits making them more difficult to poison.

GR

"RELEASED UNDER THE OFFICIAL INFORMATION ACT"

1989	10550 130	sheep cattle	max sheep numbers
1990	10350 130	sheep cattle	9135 su

Overall stocking rates have fluctuated but the major trend evident since the early 1970's has been a decline in cattle numbers and a rise in sheep numbers. This has been accompanied by a relatively steady per head production.

1990	Lambing 85%	Average 1984-89	90-95%
	Wool wt	4.2 kg/hd overall	

Pastoral development through AOS & TD also took place in the early 1980's.

General Management

A merino flock is run to produce fine wool, with excess stock sold at local sales. The recent trend, dictated by dry seasons and high rabbit numbers, has been to cut back wether numbers. This year the owner anticipated wintering around 3500-3700 wethers.

The property is run in 3 distinct grazing areas:

- a hogget unit on the country around Lake Aviemore
- a wether unit on the sunny faces around Lake Benmore and the shady unimproved tussock country in the top of the Gibson Stream catchment
- a ewe unit on improved shady land and the downlands area.

Cattle are run on improved areas and shady unimproved country, primarily as a grazing management tool. The presence of Bovine TB has been one reason for a recent decline in cattle numbers.

Stock Limitation as per Lease Conditions

The base stocking limitation for the Pastoral Lease is 6700 sheep plus 10%.

The personal limit as set in 1980, while run in conjunction with 407 ha freehold, is for not more than 10,000 sheep (including 3,000 breeding ewes) 300 cattle (including 150 breeding cows and heifers).

Block limitations as per Lease Conditions:

Nil

8. RABBIT & LAND MANAGEMENT PROGRAMME

8.1 PROGRAMME OBJECTIVES

A works programme involving Rabbit Control, Physical Works and Land Management has been developed which will address the objectives as outlined in section 2.1.

Objective 2.1.1 To lengthen the poisoning interval, particularly on the rabbit prone and depleted lands and prevent the development of bait or toxic sheep rabbit populations by:

Sunny Depleted Steeplands 4713 ha (40% of the property)

Comprising a complex of steep to very steep land on the "Wether Range" and "Sugar Loaf" blocks, rising from 360 m at Lake Benmore to 1270 m on the range top. Waitaki soils on the sunny lands, Otermatata and Omarama soils on the rolling and shady lands, Kirkliston and Benmore soils above 900-1000 m. Vegetation consists of very weak annual weeds, scabweed, woody mullien and briar on sunny faces, periodically decimated by high rabbit populations with extreme depletion (80%+ bare ground) and rill, sheet, wind and gully erosion. Short tussock, low producing grasses, briar, matagouri and hieracium on shady faces. Rabbit numbers build up more slowly on shady faces but at very high populations seriously deplete the vegetative cover. The land is very severely depleted (40-60% bare ground) and slight to moderately eroded through sheet and wind erosion. Snow and blue tussock associations above 900-1000 m on land which is moderately to severely depleted (20-40% bare ground). Hieracium has increased rapidly on shady faces and lower fans especially in Black Forest Gully, fans in Scrubby Gully and around the lake edge in Sugar Loaf. In some places hieracium makes up 40-50% of the ground cover. Briar is also scattered over most of the area and is thick in some gullies. Matagouri and other shrublands are thick in places, especially in Scrubby Gully, where a shrubland PNA has been identified.

These areas are used for wether grazing at approximately 0.30 su/ha in both summer and winter.

This area is generally a complex of LUC Class VI on shady faces, VII and VIII on sunny faces and VII and VIII on higher land above 900 m. Overall dry, sunny LUC Class VIII land would make up approximately 20% of this area.

7. PRESENT MANAGEMENT

Stock Numbers as at 30 June 1990

Stock	No	su Conversion	su
MA breeding ewes	4000	1.0	4000
MA wethers	4000	0.7	2800
MS hoggets	2200	0.7	1540
Rams & killers	150	0.7	105
	10350		8445
Cows	100	6.0	600
Other	30	3.0	90
		Total su or	9135 0.77/ha

Historical

Approximate stocking rates taken from Soil and Water Plans:

1970	8300 540	sheep cattle	
1973	9275 806	sheep cattle	approx 10742 su max cattle numbers
1983	10000 145	sheep cattle	8355 su
1984	10345 130	sheep cattle	

GML

the transition between the short and snow tussock associations. Matagouri is dense patches on lower slopes.

These areas are mainly used for ewe grazing at approximately 1-3 su/ha, with some lamb grazing in summer and appear capable of sustaining this grazing level.

This area is generally LUC Class VI land below 1000 m, and LUC Class VII & VIII (VIII approx 15% unit) land above 1000 m.

- c) **Undeveloped Shady Lands** 2294 ha (19% of the property) in the "Emmanuels" area.

Omarama, Tengawai and Sawdon soils on the lower slopes and Kaikoura, Kirkliston and Benmore above 900-1000 m. Small areas were partially developed through AOS & TD under the SWCP in the 1970's, but were not maintained. An area on Front Emmanuel has been AOS & TD in the last two seasons with good response. Vegetation consists of vigorous short tussock and low producing grasses on slopes below 1000 m, with a moderately depleted (20% bare ground) snow tussock association on higher slopes. Land above 1450 m, rising to 1570 m is generally a weakened snow tussock, blue tussock association which is moderately to severely depleted (20-40% bare ground). Hieracium has increased in significance over the last 10-15 years and generally consists of 10-20% of the groundcover at the transition between short and tall tussock associations, can be up to 25-30% of the groundcover.

The area is stocked by wethers at a rate of 0.24 to 0.7 su/ha and appear capable of sustaining this grazing level but increasing hieracium is of concern.

The area consists primarily of LUC Class VI and VII land with approximately 10-15% LUC Class VIII land.

- d) **Razor Back** 912 ha (8% of the property)

Comprising a steep, deeply dissected gorge (of Gibson Stream) on the Waitangi boundary. The land on the sunny side of this gorge consists of Waitaki soils on steep to very steep land and on the shady side, Meyer and Omarama soils on strongly rolling to steep lands. The sunny faces have a weak vegetation of annual grasses, matagouri and briar and are moderately to severely depleted (15-30% bare ground). The shady faces and rolling slopes are well covered with short tussock and low producing sward grasses.

The area is stocked by ewes during winter and before shearing at a rate of 0.27 su/ha.

The area is approximately 60% LUC Class VI and 40% LUC Class VII land.

- e) **Lake Aviemore Faces** 1232 ha (10% of the property)

Comprising the hogget blocks excluding the "Shearing" block. Waitaki and Omarama soils on steep to very steep lands. The sunny faces (Waitaki soils) tend to have a weak vegetative cover of annual grasses and weeds with briar (dense in places), the land is very severely to extremely depleted (60-80% bare ground), the worst area being the "Dam Block". On the shady areas (Omarama soils) the vegetative cover consists of improved vegetation, low producing grasses, briar and short tussock. Hieracium is increasing dramatically on unimproved shady faces and in areas in the Dam Block makes up 40-60% of the ground cover.

Some blocks were AOS & TD in the 1980's and followed up with regular maintenance. These blocks appear to be grazed at a sustainable level so long as maintenance fertiliser is continued.

These areas are stocked by hoggets and lambs at a rate of 0.16 to 1.75 su/ha.

The area is a mix of LUC Class VI and VII lands.

Pastoral Lease

Area: 11,190.0000 ha

CT 529/23 Run 67 and Rural Sections 39703, 39704, 39705 and 39706 Hewlings & Gibson SD

Total area: 11,597.3928

The area funded for this programme is 5676 ha

The CRC rabbit rating classification recognises the following land classes:

Land of:	Extreme rabbit proneness	3059.7500
	" " "	172.4440
	High rabbit proneness	234.7470
	" " "	5371.1800
	Low (HC) rabbit proneness	<u>3013.7500</u>

11851.8710

5. CLIMATE

Average rainfall at the homestead is 450-500 mm which rises with altitude to 800 mm in the top of the Gibson Creek catchment. Rainfall is evenly distributed through the year (slight summer maximum) but there can be wide annual variations.

Prevailing northwest winds and accompanying high summer temperatures can produce high evapotranspiration rates which lower effective rainfall. This is accentuated on the sunny faces on Lake Benmore which are exposed to strong winds funnelling down the valley.

Snowfalls are possible at any time of the year but rarely settle for extended periods on land below 1000 m. Snow risk is low, rising to moderate on southerly faces in the head of Gibson Creek.

6. SUMMARY OF PHYSICAL FEATURES (block worksheets attached)

The land resources of this property can be divided into the following units:

a) The Developed Downlands Area 945 ha (8% of the property)

Becks, Kurow, Wetherburn and Sawdon soils on undulating to moderately steep land (short slopes, terraces and fans). Regularly topdressed with little hieracium but some scrub cover (matagouri and mixed coprosmas) over much of the area. Small areas have been developed through cultivation into lucerne for hay production.

Stocking rate varies throughout the year, mostly ewes, lambs and hoggets, mob stocked during the winter.

This area is LUC Class IV and VI land.

b) The Developed Shady Steeplands 1809 ha (15% of the property) in the "ewe range" area.

Omarama, Tengawai and Meyer soils on the lower slopes and Kaikoura, Kirkdiston and Benmore above 900-1000 m. Moderately steep to steep land rising from 450 to 1270 m. Most of the slopes below 1000 m were developed in the 1980's through AOS & TD and have received regular topdressing since. Vegetation consists of vigorous short tussock and white clover swards below 1000 m, with moderately depleted snow tussock associations above 1000 m. Hieracium is generally of little significance but does form a noticeable component of the ground cover (up to 25%) at

GR

- 2.1.5 To identify whether there is an economic base to the enterprise to fund future pest control. The lessee is aware of the offer of an economic evaluation under grant assistance within this Plan.
- 2.2 Previous Soil and Water Conservation works were carried out on this property with the Waitaki Catchment Commission. These works were initiated under Soil and Water Plans under previous owners from 1970 and final works carried out by the present owner in 1983/84. Works completed consisted of:

22 km of Erosion Control Fencing
 23 km of Cattle Proof Fencing
 1900 ha of Aerial Oversowing and Top dressing
 33 km of Strategic Firebreak Access Tracking

A Land Improvement Agreement has not been registered against the title of this property.

3. LOCATION

Te Akatarawa is situated on Te Akatarawa Road on the eastern shores of Lakes Aviemore and Benmore. Otematata is 15 km to the west and Kurow 30 km south east.

The property rises over a dividing range of approximately 1200 m, taking in all the land in the east bounding Lakes Aviemore and Benmore and in the west the majority of the Gibson Stream catchment.

4. LEGAL DESCRIPTION/R & LM AREA/RATING CLASSIFICATION

4.1 Freehold

Area:	407,3928 ha	
CT 399/217	Rural Section 34946, 34954 and 34955 Blocks XIV & XV Hewlings SD	61.3098 ha
CT 20B/25	Rural sections 34977, 34978, 34979, 34980, 34981 and 34982 and part Rural Section 34983 in Blocks XIV & XV of Hewlings SD and Block II of Gibson SD	61.1123 ha
CT 20B/26	Rural Section 34962 and 34963 Block XIV of Hewlings SD	48.5622 ha
CT 20B/27	Rural Sections 34967, 34968 and 34969 Block II Gibson SD	35.1266 ha
CT 20B/28	Part Rural Section 14456 Block II Gibson SD	8.1225 ha
CT 20B/29	Rural sections 34956 and 34957 Block XIV Hewlings SD	12.9499 ha
CT 20B/30	Rural Sections ³⁴⁹⁶⁴ 34965 , 34965 and 34966 Block II Gibson SD and Block XIV Hewlings SD	19.2451 ha
CT 20B/31	Rural Sections 29965, 29967 and Part Rural Sections 29964 and 29966 in Block II Gibson SD	160.9644 ha

CANTERBURY REGIONAL COUNCIL

RABBIT AND LAND MANAGEMENT PROPERTY PLAN

PROPERTY NAME: Te Akatarawa
ADDRESS: Mr F Graham
Te Akatarawa
KUROW

SUMMARY

This Rabbit and Land Management Programme for Te Akatarawa involves a five year programme incorporating pest control and land management work to achieve specifically agreed objectives.

The total estimated cost is \$343,430 (excluding farmer's labour on fencing) with the Ministry of Agriculture and Fisheries (MAF) and the Canterbury Regional Council (CRC) currently contributing a maximum \$239,457 of Taxpayer/Ratepayer input and the farmer contributing \$103,973 through contributions and rates and \$12,780 directly in labour for fencing.

1. INTRODUCTION

The objective of the Rabbit and Land Management Programme is to improve the long term sustainability of the land resources in semi-arid areas where they are threatened by rabbits.

This will be achieved by the implementation of a rabbit and land management property plan. The property plan will be a cooperative plan developed between the landholder and the Canterbury Regional Council.

The overall aim of the plan is to:

- Achieve the long term protection of the land resource through wise land use and management.
- Coordinate rabbit control with appropriate land management.
- Prevent development of bait or toxic shy rabbit populations.
- Achieve a reduction in the long term costs of rabbit control.

2. THE PROPERTY PLAN - TE AKATARAWA

2.1 The agreed objectives of the plan on Te Akatarawa are:

- 2.1.1 To lengthen the poisoning interval, particularly on the rabbit prone and depleted lands and prevent the development of bait or toxic shy rabbit populations.
- 2.1.2 To identify and plan for the recuperation of degraded and severely depleted lands.
- 2.1.3 To acknowledge, when considering this plan, the potential of weed invasion and spread, especially of hieracium and briar and the threat that these weeds present to the more productive areas of the property.
- 2.1.4 To acknowledge the influence that other pests have on property management, especially in Bovine TB control of possums. Where possible to integrate the rabbit control programme with Bovine TB and Wallaby control, noting rabbit control is the primary responsibility of this Plan.

ML

CANTERBURY REGIONAL COUNCIL

RABBIT AND LAND MANAGEMENT PROPERTY PLAN

TE AKATARAWA STATION

Te Akatarawa
Mr & Mrs F Graham
Kurow

CONTENTS

SUMMARY

1. INTRODUCTION
2. THE PROPERTY PLAN - TE AKATARAWA
3. LOCATION
4. LEGAL DESCRIPTION
5. CLIMATE
6. SUMMARY OF PHYSICAL FEATURES
7. PRESENT MANAGEMENT
8. RABBIT & LAND MANAGEMENT PROGRAMME
 - 7.1 Programme Objectives
 - 7.2 Land Management
 - 7.3 Trials
9. LAND USE CONDITIONS AND MONITORING
10. FINANCIAL SUMMARY OF PROGRAMME
11. LAND IMPROVEMENT AGREEMENT
12. ACKNOWLEDGEMENTS

APPENDICES

Appendix:

- 1 Cost Spreadsheets
- 2 Block Worksheet Assessments
- 3 Pest Control Programme
- 4 Factors Influencing Land Management Decisions
- 5 Land Management Decisions
- 6 Stock Grazing Charts
- 7 Land Use Capability - Grazing Assessments
- 8 Specifications
- 9 Maps -
 - Blocks & Rabbit Control Units
 - Rabbit Control Programme
 - Land Management Programme
 - Land Condition
 - Monitoring