
WHOLE FARM PLAN

Strategic Five Year Plan

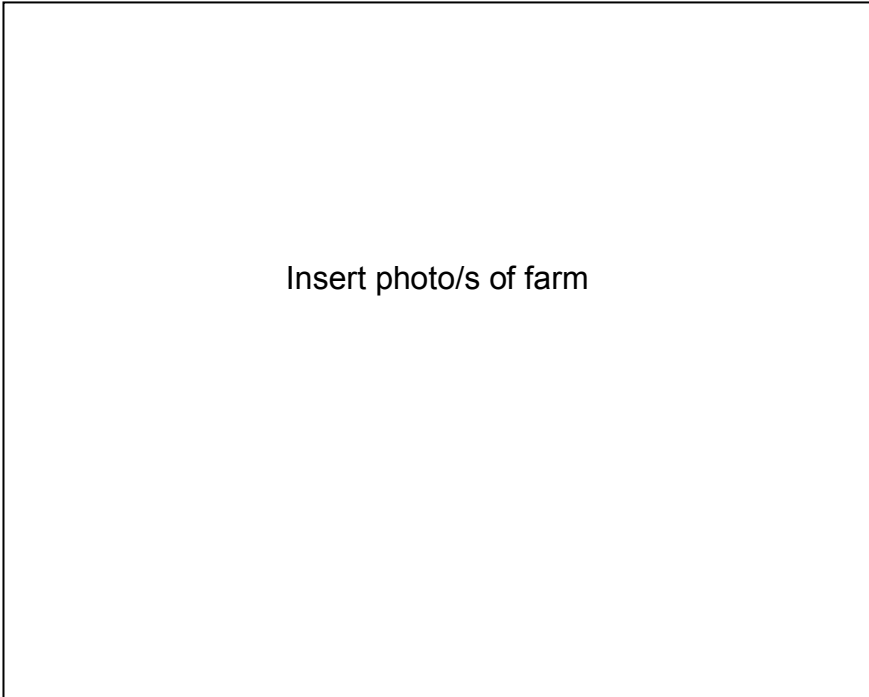


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BACKGROUND

The Sustainable Land Use Group was established in response to the February 2004 storm event to develop a Sustainable Land Use Package that aims to (1) Protect people & assets from future storms, (2) Protect the soil asset upon which our rural economy depends, and (3) Reduce the Region's reliance on government relief in the future. Whole Farm Plans (WFPs) are targeted as the key vehicle to deliver future-proofing assistance to the Region's landowners. Plan purpose is focused primarily on resource conservation (soils, land, water, vegetation) and sediment management, but also extends into enterprise development in recognition that environment and farm business cannot be treated separately.

Proactive targets are necessary: (1) Half the Region's most-at-risk farms operating under a WFP by 2017; (2) Half the Region's farms with an operational WFP by 2017, and (3) 90% of most-at-risk farms with an active WFP by 2030.

This report summarises

Long term strategic planning is an important tool for sustainable farm development, but situations and circumstances can change for both the Regional Council and the land holder, so it can be difficult to plan specific activities for an extended period. It is therefore critically important to review progress and plan operational activities on an annual basis. This is accommodated by having a detailed strategic plan (5 year duration) and a concise operational plan (1 year duration).

The strategic plan (this report) contains a full breakdown of descriptions and assessments, and strategically overviews recommended activities for a 5 year planning duration. It is intended as a resource containing core information for future purposes, and is not meant to undergo significant revision of the 5 year term. Year by year activities are captured in an annual Operational Plan, which is prepared by a regional council representative according to how may wish to proceed. Successive operational Plans include a progress review of the previous year's works.

1.0 PLAN SUMMARY

Purpose:

The Whole Farm Plan (WFP) has been prepared for *Insert name* farm located in the *District*. The plan aims to identify farm-specific opportunities that lead to sustainable resource management and business development.

Farm overview:

- Provided by farm consultant

Business assessment:

- Provided by farm consultant

Recommendations for business development:

- Provided by farm consultant

Environmental assessment:

- Provided by land management expert

Recommendations for environmental enhancement:

- Provided by land management expert

Year	Recommended activities

Monitoring and follow up:

Both Horizons Regional Council and Farmer have ongoing responsibilities regarding the implementation and maintenance of this plan. Effective implementation monitoring and review is best undertaken annually to accommodate inevitable short-term change in situations and circumstances.

2.0 DESCRIPTION OF THE FARM BUSINESS

Most recent physical and financial information (last financial year)

2.1 Farmers Visions And Goals

- a) Personal Goals
- b) Business Goals

2.2 Physical Resources

- Including size, vegetation types and areas, tye of country, climate

2.3 Infrastructure

- Including access, water and other infrastructure including subdivision

2.4 Current farming practice

Livestock reconciliation (current year) (see table on page 5 of Master Document)

Sheep	Month/Year
Cattle	Month/Year
Summary	Month/Year

2.5 Enterprises

- a) Sheep
 - Size, performance, key dates, genetics, breeding objectives, challenges
- b) Cattle
 - Size, performance, key dates, genetics, breeding objectives, challenges
- c) Deer
 - Size, performance, key dates, genetics, breeding objectives, challenges
- d) Forestry
 - Size, performance, key dates, genetics, breeding objectives, challenges
- e) Others (home stays, contracting etc)
 - Size, performance, key dates, genetics, breeding objectives, challenges

2.6 Grazing Management

Refer to example 2.1.5 on Example Whole Farm Plan

- Grazing management including set stocking at lambing, rotation of cattle, post weaning strategy

Insert:

Map of subdivision & effective area (see Page 6 of example Whole Farm Plan)

2.7 Business structure

2.8 Financial position

- Equity position. Net equity calculated at:
- Total potential assets:

2.9 Key Performance Indicators

a) General production

Key Performance Indicators	Farm	Class Average	Comment
Area (ha) effective			
Stocking Rate (su/ha)			
MA Lambing %			
Hogget lambing %			
Flock lambing %			
Average weaning weight			
Sheep deaths and missing			
Cattle deaths and missing			

b) Financial

Key Performance Indicators	Farm	Class Average	Comment
Sheep Gross Farm Income/ssu (\$)			
Cattle Gross Farm Income/csu (\$)			
Total Gross Farm Income /su\$			
Total GFI/ha\$			
R&M Expenses (\$/ha)			
Fertiliser (kgP/ha)			
Total FWE \$/su			
FWE /GFI %			
EFS/ha			
EFS/GFI %			
EBIT \$/ha			
Interest & rent/GFI %			
Return on Capital %			
Return on Equity %			
Change in Equity			
% Change in Equity			
Term Borrowings (\$/su)			
Times interest Covered			

Note:

- GFI Gross Farm Income
- FWE Farm Working Expenses
- EFS Effective Farm Surplus (GFI – FWE)
- EBIT Earnings Before Interest & Tax
- NA Not applicable

2.10 Fertiliser and nutrient management

-

2.11 Pasture production

- a) Current
- b) Potential

Insert:

Nutrient management map (see page 9 of example Whole Farm Plan)

2.12 Overseer Analysis

Fertiliser inputs (2004-2005)
Whole Farm 220 kg/ha DAP 13S P=33 kg/ha, S=28 kg/ha, N=24 kg/ha
Flats 30 tonnes lime

Soil test results (July 2005)					
	pH	Olsen P	ASC	SO ₄ -S	K
Fert unit					

Nutrient Budget	
	Nutrient
INPUTS	
Fertiliser	
Effluent	
Atmospheric /Clover N	
Irrigation	
Slow release	
Supplements	
OUTPUTS	
Product	
Transfer	
Supplement removed	
Atmospheric	
Leaching/runoff	
Immobilisation/absorption	

Nutrient loss, Greenhouse gas emissions and energy use		
Parameter	(Farm)	Average NZ farm
Nitrate leaching loss		5-20
Phosphorus runoff risk		
Greenhouse gases		
Methane		2000-3000
N ₂ O emissions		400-1400
CO ₂ emissions		30-130
Fuel and electricity		5-20

Insert:

Pasture production map (see page 10 of example Whole Farm Plan)

2.13 SWOT analysis

Include the biophysical, enterprise performance in this section

- (a) Strengths (e.g. equity level, performance level, good skills, drive etc
- (b) Weaknesses (e.g. type of country, age, size of farm, erosion)
- (c) Opportunities (e.g. large yield gap, specialisation, diversification)
- (d) Threats (e.g.....)

3.0 RESOURCE ASSESSMENT

3.1 Land

(a) Description

(b) Recommendations

Table 1: Land resource description by LUC (eg Resource, LUC unit, Area or length, parent material, dominant soil type, slope (degrees), erosion degree and severity, dominant vegetation).

Resource	LUC Unit	Total area	Parent material	Dominant soil type	Slope (degree)	Dominant vegetation	Area (ha)	Erosion degree & severity	
								Actual	Potential

Insert:
LUC Map (see page 12 example Whole Farm Plan)

3.2 Water resource

(a) Description (eg perennial streams etc)

(b) Recommendations

3.3 Living Heritage

(a) Description (e.g. vegetation, wetlands, vista etc)

(b) Recommendations

3.4 Physical business resources

(a) Description (eg tracking, water, coverts, etc)

(b) Recommendations

(c) Consents (current and future)

Possible consents works in this plan include:- (list possible works)

- Vegetation clearance (>2 ha)
- Tracking (2ha – 5m, 4km/yr)
- Culverts (>50, but <200ha)
- Dams (>2m or 10,000m³) – still requires engineer's report
- Nutrient plan (as proposed in the One Plan)

It is Horizons intention to integrate Whole Farm Plans into the One Plan policy. Properties participating in the farm planning process will not need to consents for works approved by their EMOS.

At this stage this process has not been approved through the appropriate regulation changes and consents are likely to be required for :- land clearance, new tracking and excavation works, dams, creek diversions etc.

In these situations your EMOS will be able to give consent advice and will expedite any consents required under your plan

3.5 Summary of Resources

Table 3: Recommendations summary by environmental issues (See page 16 of Master Document)

Environmental Issue	Component	Description of specific issue	LUC unit or location	Priority (1=high)	Solutions or control measures
LAND					
Soil Health	Soil erosion	Surface erosion			•
		Streambank erosion			•
		Slump & earthflow erosion			•
		Gully erosion			•
		Tunnel gully erosion			•
		Wind erosion			•
	Nutrient balance	Maintaining soil fertility levels			•
	Chemical use			•	
	Contaminated sites			•	
	Physical health	Potential for overcropping			•
		Soil pugging and treading from livestock			•
	Flooding	Sediment deposition			•
WATER					
Water quality	Stream protection	Stock access to streams			•
	Water supply				•
	Point source contaminants				•
	Non point source contaminants				•
	Fertiliser use				•
LIVING HERITAGE					
	Shelter	Stock access to shelter			•
Biodiversity	Indigenous bush				•
					•
					•
					•
					•
PHYSICAL BUSINESS					
Pasture					•
					•
					•
					•
Infrastructure					•
					•
					•
					•
					•

4.0 ENVIRONMENTAL PLAN (5 YEARS)

4.1 Land

In each case describe the specific issue, location (LUC and paddock), Priority (1-3), and actions required to address the issue, including the specific action for each of the next 5 years

e.g.

- Soil erosion
- Surface erosion
- Wind erosion
- Earth flow erosion
- Soil slip erosion
- Gully erosion
- Physical health
- Large boulders limiting use

4.2 Water

e.g.

- Flooding, willow choking causing flooding
- Stream protection, stock access to streams
- Point source contaminants,
- Yard runoff directly into watercourse
- Non point source contaminants
- Sediment in surface runoff

4.3 Living Heritage

e.g.

- Indigenous bush
- Possums
- Feral cats
- Stock access
- Wetlands
- Stock access
- Wetlands
- Open water wetland creation
- Tree health - poplar poles being strangled by sleeves, poplar and multiple leader shading, planting density of exotic woodlots
- Plant pests - blackberry
- Animal pests - possums
- Plant pests – rushes, ragwort, thistle
- Scrub regeneration, hawthorn bushes
- Animal pests - rabbits & hares
- Chemical use
- Wind erosion & stock access

4.4 Physical Business

e.g.

- Tracking - maintain cut offs and culverts
- Maintain water table
- Crossings/bridges, several crossing are situation on unstable reaches
- Access – bridging
- Water supply – inadequate stock water supply
- Buildings and yards - discharge of storm water to stream
- Subdivision – number of paddocks
- Refuse tip – old site over the side of 8e3
- Silage wrap
- Shade
- Shelter

5.0 FARM BUSINESS STRATEGY

5.1 *Business opportunities*

- (a) Production
- (b) Growth (utilising equity)
- (c) Succession

5.2 *Monitoring*

Monitoring of the farm's environmental performance

6.0 REPORTING

Monitoring Programme

Monitoring of the farm's environmental performance

LAND						
	Soil erosion (reducing the risk of soil erosion)	Environmental works programme				
	Soil health ('Flat Land' management unit)		VSA		VSA	
	Soil fertility		Soil test		Soil test	
WATER						
	In stream health (Two locations)	SHMAK	SHMAK	SHMAK	SHMAK	SHMAK
	Nutrient Budget					
	Nitrate leaching loss		Overseer		Overseer	
	Phosphorus run-off risk		Overseer		Overseer	
LIVING HERITAGE						
	Indigenous Bush		VBA		VBA	
	Wetlands		VWLA		VWLA	
	Plant & animal pests	Environmental works programme → →				

Note:

VSA – Visual Soil Assessment:

www.landcareresearch.co.nz/research/rurallanduse/soilquality/VSA_Home.asp

SHMAK – Stream Health Monitoring Assessment Kit:

www.landcare.org.nz/SHMAK/index.html

VBA – Visual Bush Assessment:

www.horizons.govt.nz/default.asp?data_article=1030

VWLA – Visual Wetland Assessment:


www.landcareresearch.co.nz/research/biodiversity/landscapesprog/handbook2004.pdf

APPENDIX: LAND RESOURCES

Extended geological legend

The main rock types found on the property include unconsolidated sands, massive sandstone, weakly consolidated conglomerate, loess, alluvium and alluvial gravels.


e.g.

	<p>Rock type (e.g. Unconsolidated sands (Us)): loose to very compact, very thickly to very thinly bedded sands and gravels with minor silts or clays. Locally hardened layers occur as a result of podsolisation or formation of iron pans. Surface or near surface Pleistocene fluvial and glacio-fluvial deposits of variable composition. These deposits may underlie Loess (Lo) or ash deposits. Gully erosion, often severe, is typical erosion form, but soil slip or wind erosion also occur.</p>

Extended soil map legend

The property comprises a wide diversity and versatility of different soils. They have been mapped according to attributes directly relevant to the pastoral farming operation. Soil type names (local soil names) are not well defined for Rangitikei hill country, particularly at detailed farm scales. For this reason, soil classification names have not been used. Soil map presented over the page.

e.g.

	<p>Name: Soil 1 LUC map symbol: 1 Slope: 25 degrees. Drainage status: Well drained. Top soil consistence: Friable when moist, plastic when wet. Degree of topsoil development: Weakly to moderately developed. Parent material: Loess Pugging susceptibility: Moderate. Profile description: 39 cm weakly to moderately developed fine nut crumb orange grey (O1d) silt loam on 35 cm weakly developed fine crumb nut dusky orange yellow (O2c) silt loam on weakly developed fine nut crumb orange yellow grey (OY1d) silt loam, on loess. Comments: A dominant soil on the property from a slope that is 25 degrees. Management considerations: This soil has a moderate pugging susceptibility due to its weak topsoil development and plasticity when wet. Care is needed with heavy cattle during wet periods. Heavy cattle during wet periods will also cause soil creep when on a slope.</p>

Extended slope legend

The definition of the various slope classes mapped on the Land Resources Map are shown in Table 3 below and the summary of the various slope classes found on the property are shown in Table 4 below.

Slope class	Degrees	Slope description	Access suitability
A	0-3°	Flat to gentle undulating	Tractor
B	4-7°	Undulating	Tractor
C	8-15°	Rolling	Tractor
D	16-20°	Strongly rolling	Some tractor, 4 wheel bike
E	21-25°	Moderately steep	2 wheel bike
F	26-35°	Steep	Walking & some 2 wheel bike
G	>35	Very steep	Walking
+	<i>Indicates a compound slope</i>		
/	<i>Indicates average slope is borderline between two slope classes</i>		


e.g.

Slope class	Area (Ha)	Percentage (%)
A+B+C	72.8	10
D, D+C	15.4	2
D+E	88.8	12
E	262.1	35
E+F, F+E	280.4	37
F+G	32.6	4

Extended erosion legend

The types of erosion found on the property are shown below.

e.g.

	<p>Gully erosion (G): Gully erosion is the removal of soil or soft rock material by water, forming distinct narrow channels which usually only carry water during and immediately after rains. The main control of gully erosion is by controlling storm water runoff over the gully head and through the gully floor. The control techniques include drop structures over the gully head, plantings (space plantings of critical points or retirement), and reducing peak runoff rates with coffer dams.</p>

The Land Resources Map contains the various erosion types and their severities across the property. Table 6 outlines the classification for severity whilst Table 7 quantifies the erosion types and severities found on the property.

Erosion severity rankings:

Erosion severity	LRI symbol
Slight	1
Moderate	2
Severe	3
Extreme	4
Very extreme	5

e.g.

The areas affected by the different erosion types and severities.

Erosion type	Area affected by		
	Slight	Moderate	Total
Soil Slip (Ss)	484.5	132.0	616.5
Earthflow (Ef)	128.8		128.8
Gully (G)	401.1	35.5	436.6
Sheet	39.3		39.3
Stream bank	26.7	17.4	44.1

Extended vegetation legend

The vegetation types and the definition of the symbols on the LRI map are shown in the table below.

Vegetation type	Map symbol
Improved pasture	gl
Semi improved pasture	gS
Exotic forestry	fF
Indigenous forestry	fO
Rushes	hR
Wetland association species	hW
Regenerating scrub	sM
Trees planted for soil conservation purposes	c
Vegetation is scattered	*

Insert

Insert soil resources map (see page 28 of example Whole Farm Plan)

Disclaimer:

The limitations of scale and available time in the mapping mean that there is likely to be a mixture of soil types in most map units.

ENVIRONMENTAL CHECKLIST :

Land

- Soil erosion
- Surface erosion
- Wind erosion
- Earth flow erosion
- Soil slip erosion
- Gully erosion
- Physical health
- Large boulders limiting use

Water

- Flooding, willow choking causing flooding
- Stream protection, stock access to streams
- Point source contaminants
- Yard runoff directly into watercourse
- Non point source contaminants
- Sediment in surface runoff
- Water takes for irrigation

Living Heritage

- Indigenous bush
- Possums
- Feral cats
- Stock access
- Wetlands
- Stock access
- Wetlands
- Open water wetland creation
- Tree health - poplar poles being strangled by sleeves, poplar and multiple leader shading, planting density of exotic woodlots
- Plant pests – blackberry
- Animal pests – possums
- Plant pests – rushes, ragwort, thistle
- Scrub regeneration, hawthorn bushes
- Animal pests - rabbits & hares
- Chemical use
- Wind erosion & stock access

OWNERSHIP OF THE INFORMATION

The resource information collected as part of the process of developing the WFP will be in the public domain, once the whole farm plan is signed off. This includes the LIR (soil types vegetation cover, rock type, slope, erosion severity) and all the data that could be derived from the LRI (e.g. LUC, erosion risk maps etc). These data and any other biophysical data collected at the farm scale (e.g. information from the monitoring programme) will be used for reporting at the district and regional scale. The identity of individual properties will not be provided.

All the business information (infrastructure, livestock – except basic stocking rate and policy summaries, production information, financial data, business plans and nutrient budget input details) remains the ownership of the landowner. This information will not be available under any circumstances to the public.

SHARED RESPONSIBILITY

Ratepayers have funded the preparation of this Whole Farm Plan as an investment for the good of the local and regional community. Implementation is voluntary, and it is recognised that it may not always be possible or practical for the farmer to adhere to the recommended actions in the plan.

Horizons Regional Council has a responsibility to the landholder and the regional community (i.e. rate payers). Our role is to help with implementation, monitoring and annual renewal of the plan. Depending on individual circumstances, implementation support to the landholder may take on the form of financial grants (if eligible), the provision of some materials (e.g. poplar poles), labour and technical support. Monitoring and renewal is to help keep the plan on track, and is critically important to ensure that ratepayers' money is being invested effectively and efficiently. In return for financial support HRC may require some form of legal agreement between the landowner and the Council.

Like most aspects of farming, environmental management requires a commitment to long term maintenance. Shelterbelts, erosion-control plantings, and riparian plantings all require a degree of periodic maintenance. Poplars falling over, or willows choking streams are examples of what can happen if environmental works are not managed. Similarly, farming situations change, and new environmental challenges can arise (e.g. nitrogen leaching was barely even acknowledged 20 years ago). We therefore suggest a long term partnership with Horizons, where this Whole Farm Plan is continued well beyond its explicit duration of five years.

Responsibilities regarding the business side of this plan are a little different. Responsibility for designing an operational plan, and for implementing the business strategy, is completely in the hands of the landholder. We suggest that the landholder work closely with their business development consultant. Business strategies should be revisited and evaluated at least annually.

Contacts for follow-up and further information include your Horizons Regional Council representative, and the land manager and farm business development consultant involved in this project.



