

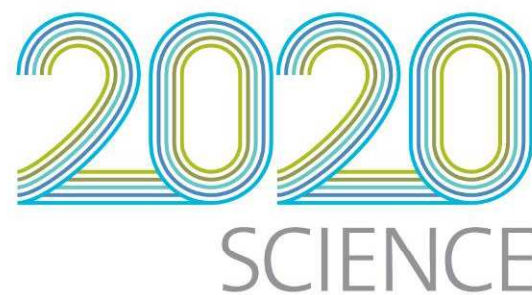


Farming, Food and Health. **First**

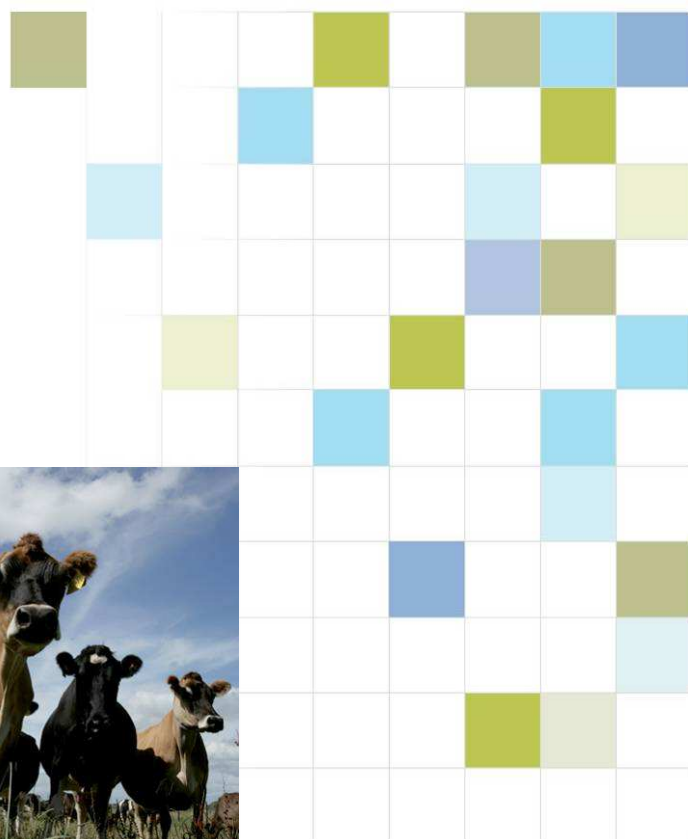
Te Ahuwhenua, Te Kai me te Whai Ora. Tuatahi

Specifications of whole farm plans as a tool for affecting land use change to reduce risk to extreme climatic events

June 2007



New Zealand's science. New Zealand's future.



**Specifications of whole farm plans as a tool for affecting land use change
to reduce risk to extreme climatic events**

Envirolink project prepared for Horizons Regional Council

June 2007

Alec Mackay
AgResearch Grasslands

DISCLAIMER: While all reasonable endeavours have been made to ensure the accuracy of the investigations and the information contained in this report, AgResearch expressly disclaims any and all liabilities contingent or otherwise that may arise from the use of the information.

COPYRIGHT: All rights are reserved worldwide. No part of this publication may be copied, photocopied, reproduced, translated, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of AgResearch Ltd.

Table of Contents

1.	Executive summary	2
2.	Objective	3
3.	Background.....	3
4.	Development of Whole-farm-plan template and protocols.....	4
5.	Whole-farm-plan template and protocols	5
5.1	WFP Template	5
5.2	Protocol for developing and implementation of a WFP with land owners.....	6
5.3	Business Assessment.....	9
5.4	Minimum specifications for the data sets	10
5.5	Qualifications for Whole Farm Planning	11
5.6	Inclusion of consents within the Whole Farm Plan.....	12
5.7	Audit and review	12
6.	Appendix – Accompanying documents	14
6.1	Appendix 1 Whole farm Plan Template.....	14
6.2	Appendix 2 Example of a completed WFP.....	14
6.3	Appendix 3 SLUI Newsletter.....	14

1. Executive summary

- This Envirolink project details the development of a Whole farm plan (WFP) template for Horizons Regional Council and includes the critical components in a WFP, the minimum data sets and documentation of the protocol to be used in the development and implementation phases of the WFP with land owners.
- The template will be used to guide the preparation of all WFP produced as a part of the Sustainable Land Use Initiative (SLUI).
- Comment is also made on the land evaluation and planning skill sets required by a land manager to complete the environmental component of the plan.
- A draft audit and review process is also included in the report for evaluating the quality, consistency and effectiveness of delivery of the 40 plans at the end of 2006/07 and in future years.

2. Objective

Develop a Whole farm plan (WFP) template for Horizons Regional Council that includes the critical components in a WFP, the minimum data sets and documentation of the protocol to be used in the development and implementation phases of the WFP with land owners. The template will be used to guide the preparation of all WFP produced as a part of the Sustainable Land Use Initiative (SLUI). Comment will also be made on the skill sets required by a land manager to complete the environmental component of the plan. A draft audit process will also be included in the report for evaluating the quality and consistency of delivery of the 40 plans at the end of the 2006/07 year.

3. Background

Horizons Regional Council are in the first year of implementation of the Sustainable Land Use Initiative (SLUI), born out of the devastating February 2004 storm event. The initiative aims to increase communities and environmental resilience to future extreme events by (1) Protecting people & assets from future storms, (2) Protecting the soil asset upon which our rural economy depends, and (3) Reducing the Region's reliance on government relief in the future.

In 2005/06 six prototype whole farm plans (WFP) were produced as part of the delivery of the initiative to individual farms. Whole Farm Plans are targeted as the key vehicle to deliver future proofing assistance to the Region's land owners. 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. Over the next 10 years 1500 WFPs will be completed. Horizons has budgeted to complete 40 WFPs in the current financial year (2006/07), with double that number in 2007/08. Before committing the already budgeted resources in 2006/07, Horizons would like advice on the essential components in the whole farm plan(WFP), the minimum specification on the data sets used in the plans and documentation of the protocol to be used in the development and implementation phases of the WFP with land owners. We would also like the advice in a form we can use to inform both Regional Council staff and independent contractors. In

addition we would like the critical steps highlighted to ensure consistency and effective uptake. This consistency will enable Horizons to gain sound underlying data and information for planning at the farm scale and beyond.

This advice will be implemented immediately via the 40 WFP that Horizons are committed to deliver through SLUI in this financial year. This will ensure consistency in the preparation and implementation of WFP's. This consistency leads to other opportunities such as the ability to use the information collected in the WFP for science and planning purposes beyond the farm scale. Horizons is planning to complete 1500 WFP over the next 10 years and this approach is a way of standardising and optimising the information collection and implementation in a way that optimises the chances of achieving sustainable land use.

Horizon's is going to work with AgResearch to prepare a technical report to document best practice for preparation of WFP's. This will then be used to guide the preparation of all WFP produced as a part of the SLUI program. Input and comment will be sought from other regional councils on the environmental component of the plan and from farm consultants on the farm business analysis contained in the plan.

Comment will also be made on the skill sets required by a land manager to complete the environmental component of the plan. A draft audit process will be included for evaluating the quality and consistency of delivery of the 40 plans at the end of the 2006/07 year. A draft audit process will be included for evaluating the quality and consistency of delivery of the 40 plans at the end of the 2006/07 year. The report will be made available to all regional councils and to other regional councils upon request and supplied to Massey University Soil Science Department who teach and offer training in the area of Whole farm planning.

4. Development of Whole-farm-plan template and protocols

A draft whole farm plan template was developed from the experienced gained in producing the six prototype whole farm plans in 2005/06. The draft template pulled the common elements from each of the six plans together into a document that was used in a round table discussion with land management staff from Horizons Regional Council lead by Grant Cooper, Lachie Grant and Sarah Dudin from

Landvision and Greg Sheppard from Sheppard agriculture. The elements in the prototype WFP included a (1) Review of the existing farm business using benchmarking, (2) Assessment of land, water, living heritage and farm production resources, (3) Identification of environmental issues and recommendation of tailored best practice, (4) Planning of an integrated long-term farm business plan and 5-year environmental programme, and (5) Design of a follow up procedure to clarify responsibilities, monitoring, maintenance and support.

In addition to discussing the content of the WFP, discussion also covered the following issues

- The minimum specifications on the data sets used for developing the plans.
- Documentation of the protocol to be used in the development and implementation phases of the WFP with land owners.
- The roles and responsibilities of the players involved in developing a plan
- A check list to ensure the WFP contain the required data and included an assessment of farm resources and business, a set of plans, time bound actions and a monitoring programme.
- Limiting the business assessment in section 2.1 to an Accounts analysis and benchmarking exercise, except in situations where the works programme is substantial and the economic implications are significant.
- Inclusion of consents within the WFP.
- The need for an audit and review process.

5. Whole-farm-plan template and protocols

5.1 WFP Template

A hard and electronic copy of the whole farm plan template is attached in appendix 1. In Appendix 2 an example of a completed WFP, the prototype whole farm plan prepared for Ruth and Jim Rainey in 2006, is included to provide working examples for each of the sections.

5.2 Protocol for developing and implementation of a WFP with land owners

The following is a brief outline of the protocol to be used in first developing a WFP and secondly in ensuring an ongoing relationship between an Environmental Management Officer (EMO) of Horizons and the landowner in the implementation of the works programme. The use of independent contractors in the development of the WFP by Horizons Regional Council adds an additional dimension to the protocol.

The first and ongoing point of contact for a landowner who has expressed an interest in a WFP for the property is the local EMO from Horizons. At all stages communication is critical. If the landowner has any issues or queries the first point of contact is the local EMO of Horizons.

Protocol

- Initial contact of landowner by Horizons Regional Council if considered in a high priority area, or through a landowner contacting Horizons.
- The local EMO will visit, assess needs (priority), may go out on the farm, give an information pack on the SLUI and a WFP (Appendix 3) and explain the steps in developing and implementing a WFP.
- Horizons needs to prioritise the needs of one landowner against others in the catchment. We would let you know when you could expect the on-farm work to start.
- Once confirmed the EMO will ask for the following information from the landowner:
 - A map will be provide to the landowner to draw in the farm boundaries and paddocks
 - The landowners contact and property details will be collected. These will be forwarded to the independent contractors if employed
 - The landowner will be asked to forward a copy of the audited accounts of the farm to the agribusiness contractor.
- At this stage a file will be created for the landowner.
- Close to the start date for developing a WFP a meeting will be arranged (if necessary) to introduce the landowner to the people who will carry out the on-farm mapping. At this time access issues, timing, opportunities for the landowner to participate in field work, etc, will be clarified.

- Farm mapping commences involving travelling over the property to assess land, based on rock type, soil, slope, vegetation and erosion, to produce a Land Resource Inventory. Information will also be collected on water resources, biodiversity and farm infrastructure.
- Farm mapping and the land owners involvement Landowners will be encouraged to assist and be present for some of this work, if possible. (Mapping depending on the size and complexity of the property will take 2 – 3 people to 2 – 3 days.
- The land manager mapping the farm will also collect detailed information from the landowner on fertiliser use and application, soil test data, stock numbers and policy and farm management history. Some of this information will be forwarded to the agribusiness consultant to assist in the business analysis.
- The initial business analysis will establish if a full business case needs to be developed for the farm. The triggers are listed in the next section (5.3) of the report.
- The landowner will be closely involved in the development of the draft land and environment plan with the land manager and with the draft business plan with the agribusiness consultant.
- There could be a number of contacts and interactions of the WFP at this stage, depending upon how complex the property plan is. Meetings could involve the land owner, land management consultant (private contractor or EMO from Horizons), agribusiness consultant and Horizons staff in order to ensure good understanding by all parties and to negotiate a programme/plan that is acceptable to everyone. To ensure on farms where the EMO from Horizons was not involved in developing the environmental plan the hand over for implementation is efficient and effective.
- Once an agreement has been reached the final plan information will be forwarded to Horizons to produce the final document. This will be returned to the landowner by the local EMO for sign-off. (At this stage a letter of intent will be signed explaining the commitments).
- The work programme set out for the first year in the WFP can begin. This is developed with the landowner by the local EMO and signed off by a senior Horizons staff member. The local EMO will also organise a meeting to discuss a programme to monitor progress and changes over time. This could include monitoring of soil, water and biodiversity.

- A visit to review progress will occur before developing the annual plan each year. The annual plan will include a summary of the information collected as part of the monitoring program in previous years.
- The local EMO from Horizons will be in regular contact with the landowner to ensure the programme is successful
- In the event of a change in ownership, storm event, major change in business direction, the local EMO will revisit the farm and review and update the work programme with the landowner.

Notes:

1. At any stage, up until the sign-off of the plan the land owner can pull out of the WFP process. Once signed off there is an expectation that the agreed programme will be undertaken, accepting that circumstances can change for both the Regional Council and the land owner, so it can be difficult to plan specific activities and support for extended durations. 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 and a concise operational plan. The relationship between the landowner and the local EMO is critical to the ongoing progress of SLM.

2. The WFP could be in three forms when delivered to Horizons. Final and active, Final and Inactive and Draft plan. The draft plan are those plans with significant work and /or /attracting significant community support. These may require additional visits and require the involvement of senior staff within Horizons.

3. The resource information collected as part of the process of developing the WFP will be in the public domain. This includes the LRI (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 program) will be used for reporting at the district and regional scale. The identity of individual properties will not be provided.

4. All the business information (infrastructure, livestock, production information, financial data, business plans) remains the ownership of the land owner. This information will not be available under any circumstances to the public. .

5. Shared responsibilities. Rate-payers have ultimately funded the preparation of the WFP as an investment for the good of the local and regional community. While implementation is entirely voluntary, there is a moral expectation that agreed recommendations and actions will be undertaken by the landowner. However, it is recognised that farming situations and circumstances can change markedly during a year, and that sometimes there are just too many other concerns and jobs that need doing. It may

not always be possible or practical for every farmer to adhere to the recommended actions of this plan. Horizons Regional Council has a responsibility to the landowner and the regional community (i.e. rate payers). Our role is to help with implementation, monitoring and annual renewal of the plan. Monitoring and renewal is to help keep the plan on track, and is critically important to ensure that rate-payers' money is being invested effectively and efficiently. 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 landowner work closely with their business development consultant. Business strategies should be revisited and evaluated at least annually

6. Support from Horizons. The eligibility for support from Horizons for a landowner, which may take on the form of financial grants (if eligible), the provision of some materials (e.g. poplar poles), labour and technical support, is set out in the programme of work for the land management group in Horizons in the 2006/07.

5.3 Business Assessment

On properties where the works programme is limited to a small part of the farm and the implications to the farming operation and financial position of the landowners are small the business analysis will be limited to a Level One Business Assessment as outlined in Section 2.1 of the Whole Farm Plan Template.

1. Level One Business Assessment

- Standard APM Accounts Analysis and benchmark of financial performance with farms of a similar type and environment
- Standard Farm Management Business Review summarizing
 - Existing farm operating policies and performance levels
 - Personal and business goals of the farm owners
 - Strategies to realize goals taking account of the land management and works programme recommended

2. Level Two Business Assessment

A more comprehensive Business Assessment will occur when one, or a combination of key indicators are triggered either as a result of the land management plan or the APM Accounts Analysis.

Trigger points include:

- Low farm profitability as assessed by the Earnings Before Interest and Tax calculation (<6% of total capital value of the business)
- Economic Farm Surplus (EFS) of less than \$150/ha
- Low Gross Farm Income/ha (less than \$600/ha)
- The generation of a cash loss from farming
- Interest and rent costs greater than 25% of Gross Farm Income (GFI)
- Farm Working Expenses (FWE) greater than 60% of GFI
- Term borrowings of more than \$150/stock unit
- Times Interest Covered of less than 1.3
- Recommended area for removal from pastoral use greater than 15% of the effective area
- Amount of community infrastructure at risk
- Less than 1.3kg/su of phosphate fertilizer applied annually

The additional analysis will include;

- A more detailed strategic business plan for the farm owner
- Complete further physical and financial analysis of the business to identify with greater specifics the opportunities the owner needs to capture to ensure the respective needs of the property owner and Horizons Regional Council are met
- Provide additional financial cost benefit analysis (where necessary) of a range of options for the owner to consider for long term business viability
- Support the owners adopt and implement new policies as required.

5.4 Minimum specifications for the data sets

1. GIS data base layers

- LRI (Scale 1:5,000-15,000)

- Landuse (Pastoral, exotic forestry, Indigenous forestry, woody pasture, Gorse, Spaced trees)
- Riparian zones, Dams, Streams, major culverts
- Catchments
- Tracking
- Farm Plan boundary and proposed works

2. Annual input data

- Annual works activities. Replaces proposed works activity
- Data from monitoring. E.g. Soils, water, vegetation, etc
- Variation to the proposed works programme.

5.5 Qualifications for Whole Farm Planning

In separate discussions with the Horizons Regional Council the need to build the Whole Farm Planning capacity of current and any new EMO's employed by Council and the requirement for all of the independent contractors to have a minimum set of qualifications in land evaluation and planning to ensure a consistent delivery of WFP have been addressed.

In recognition of the short comings in the skill sets of some staff currently employed by Horizons and the national shortage of land managers at the present time, and for the foreseeable future Council are offering continuing education to existing and new staff in Land Evaluation and Planning and offering scholarships at Massey University to encourage undergraduates to take 300-level papers in the fields of soil science, land use mapping and land management in an attempt to increase the number of graduates available in the workforce. Scholarships are also aimed at encouraging advanced, specialised study at the Honours level or higher. Students completing an honours course under scholarship would be expected to complete three Land Use Plan under Horizons Regional Council's SLUI initiative of which two will examine one of the following issues, testing of new technology (e.g. mapping and GIS), tackling a challenging land use issue (e.g. managed regeneration of native species) or investigating new reporting or monitoring systems.

Papers would also be offered in a basic course structure that could be taken individually or together to credit toward a qualification in Land Use and Planning for the existing workforce in Land Management not only in Horizons, but all Councils. Discussions have been held through the Land Managers Forum on the need for not only ongoing education, but capacity building in Land Management. Some in house capability building is already in place, including the LUC courses run by Hawke's Bay Regional Council by Garth Eyles and Simon Stokes.

Agribusiness consultants used by Horizons should be registered farm consultants and members of their professional body.

5.6 Inclusion of consents within the Whole Farm Plan

The opportunity exists to include current and future activities that require consent in the WFP. Activities currently requiring a consent include:

- 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 WFP's into the One Plan policy. Properties participating in the farm planning process will not need a consent for works approved by their EMO. 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, creeks, diversions, etc.

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

5.7 Audit and review

A draft audit and review process is proposed for evaluating the quality, consistency and effectiveness of delivery of the 40 plans at the end of 2006/07 and in future years.

Elements of an audit and review process would include

1. A desktop check of a random sample (5% or a minimum of 10 plans) of the completed plans against the WFP template.
2. A field check of a random sample (1% or a minimum of 3 WFP's) of completed plans in differing geographic Districts against the WFP template.
3. A field assessment and review of a random sample (1% or a minimum of 3 WFP's) of completed plans in differing geographic Districts by experts. This would be followed by a debrief with EMO's of Horizons and the independent contractors on any potential improvements or changes to procedures.
4. Assessment of the works programme (e.g. plantings, fencing, release, pruning, etc) implemented by independent contractors and landowners on a random selection of farms in differing geographic Districts.
5. A review of the effectiveness of a random selection of WFP after 5 years (1% or a minimum of 3 WFP's) in differing geographic Districts by experts, followed by a debrief with EMO's of Horizons and the independent contractors on any potential improvements or changes to procedures.

In initial years of the SLUI the focus of the audit and review process will be limited to elements 1-3, but in time more emphasis should be given to elements 4 and 5.

6. Appendix – Accompanying documents

6.1 Appendix 1 Whole farm Plan Template.

6.2 Appendix 2 Example of a completed WFP

6.3 Appendix 3 SLUI Newsletter