



FOUNDATION FOR ARABLE RESEARCH



Farm Environment Plan Template for Arable Enterprises

The Planning Process

Before you begin to fill in the template, save it to your computer hard drive. Remember to keep saving as you work your way through it - at the end of each page or management section would be a good idea. Once it is completed you will need to file your plan and supporting documents in one place. An easy practical solution is to keep all the information in a single, indexed ring-binder.

This template will enable you to create an individual farm environment plan. Refer to the Template Guide for more information.

The template has nine sections

- Property details
- Soil management
- Irrigation management
- Nutrient management
- Effluent management
- Livestock management
- Point sources from sources such as offal pits, rubbish dumps, silage stacks and compost heaps
- Biosecurity management
- Documentation

Other sections relating to environmental management may be added at a later stage.

The **documentation section** is for copies of:

- A list of all the resource consents you hold for your farm operation
- Soil tests, nutrient budgets, invoices and all other paperwork relating to your management plans.
- Nutrient budgets; Overseer® or otherwise

Fill in all the sections that are relevant to your farm business.

The planning process is;

1. Identify environmental risks: Risks may be associated with topography, soils and/or farm management practices.
2. Respond to these risk: Develop a response plan with specific actions and targets which may include prioritizing the work, developing a time frame and costing for the work. Some of the responses to the identified risks may be simple and have no cost, others may involve capital investment.
3. Document your progress: Keep the information relating to your response and progress. Records might include invoices for work completed, soil test results.
4. Record your current management practices.

The template guides you through the process. Use the guiding notes to help with your risk assessments.

You will need farm maps to complete your plan.

Filling in the Template

Completing the template

Fill in the template for each of the management areas.

1. You will need to identify the environmental risks associated with that management practice on your farm.
2. The template lists the management practices you could use to reduce the risk of an environmental loss. Use the tick-box to mark the practices you do use.

Note: In some instances, the listed management recommendations may differ from your local regional rules (e.g. the width of a riparian strip). It is important that you are familiar with your consent conditions and local rules.

As a general rule

- The first reference point is your consent conditions.
- The second reference point is your local regional council rules.
- Otherwise, follow good management practice recommendations.

Indicate your current management practices by clicking the tick box.

If your management practice is not listed, write it in, using the additional blank lines.

3. Consider what you might do differently and fill in the “Management changes to reduce environmental risks” section of the template.

The columns marked “Evidence supplied” and “Auditor’s notes” are for the auditor to fill in. There are suggestions for the sort of evidence an auditor might like to see.

If there is a management section which has no relevance to your farm, leave it blank. The biosecurity management information is not part of the requirements for a regional council FEP so you can choose to leave it blank.

Descriptive Farm Maps

Refer to page 5 and 6 in the Template Guide.

Use an aerial photograph of you farm or generate one with Google Earth or ProductionWise®. Copy a number of these maps. They will be used throughout the plan in different sections.

Some councils are using a land use capability (LUC) approach for classifying land and there may be LUC maps available for your farm. If available, a **land-use capability (LUC)** map provides useful insight into the productive capability of your soils.

Map 1 Property Information

Draw in

- The boundaries of the property or the land areas comprising the farm enterprise.
- The location of permanent or intermittent rivers, streams, lakes, drains, ponds or wetlands.
- The location of riparian vegetation adjacent to water bodies.
- The location of waterways where stock access or crossing occurs.
- The location of any areas within or adjoining the property that are identified as “significant indigenous biodiversity”.

Add the map scale and orientation to north.

Map 2 Farm buildings and tracks, management blocks, irrigators and offall pits

Management blocks might be as small as a single paddock, or the aggregation of a number of paddocks that are managed in the same way.

Blocks are defined by differences in soil type, irrigation and dryland management. Blocks with differing crop rotations, stock management and nutrient losses can be set up.

The blocks will align with the blocks set up in the Overseer nutrient budget.

The environmental risks on your farm may only be on part of the farm and some management units. It is important that you can identify where they are. This map will be a useful reference point.

- Draw the management block boundaries.
- Draw in dryland and irrigated areas.
- Draw in the position of the irrigators.
- Draw in the farm buildings and permanent tracks.

Map 3 Critical Source Areas: Nutrient and sediment loss hot-spots

Use a map marked with paddocks, suitable for drawing on.

On the map, and with reference to the soils on your farm and the risk of N, P and sediment losses, mark the locations where there is a potential risk for environmental losses (refer to the Guidance notes to assess potential risk).

- Identify any Point Sources or “Hot-spots” for nutrient losses.

Information about soils

Refer to pages 7-10 in the Template Guide.

The soil management section is a key component of your farm environment plan.

The environmental risks associated with managing nutrient losses from crops and stock movements on the farm are linked to the characteristics of your soils.

The exercise of finding out about the strengths and weaknesses of your soils will make it easier to assess the environmental risks in the other sections of your plan.

Draw on all your soil resource information such as farm soil maps and your personal experience to identify the soil types on your farm. If you are uncertain about the soils on your farm; a useful free resource is **S-maps** at <http://smap.landcareresearch.co.nz/home>

Fill in the HIGHLIGHTED parts of the template

Property Details and Farm Maps

Refer to page 5 in the Template Guide

Property name:

Property size:

Address:

Legal Description of the land.

<http://www.linz.govt.nz/survey-titles/find-out/info-property-owners>

Farm identifier
(GPS co-ordinates)

Owner:

Contact Details:

Manager:

Contact Details

Resource consents held Tick the relevant ones		Consent Number	Nutrient Management Indicators	
Ground water take	<input type="checkbox"/>		N Baseline (2009-13) kgN/ha	<input type="checkbox"/>
Ground water take	<input type="checkbox"/>		Overseer version	<input type="checkbox"/>
Ground water take	<input type="checkbox"/>		Completion date for Overseer nutrient budget	<input type="checkbox"/>
Surface water take	<input type="checkbox"/>		Nitrogen leached: kgN/ha/year	<input type="checkbox"/>
Surface water take	<input type="checkbox"/>		Phosphorus leached: kgP/ha/year	<input type="checkbox"/>
Effluent	<input type="checkbox"/>			<input type="checkbox"/>
Other	<input type="checkbox"/>			<input type="checkbox"/>
Other	<input type="checkbox"/>			<input type="checkbox"/>

Brief description of the farm enterprise (crops and stock)

Responsibility for implementing the Farm Environment Plan

The farm environment plan has been prepared by;

Note if you have prepared your own plan please indicate whether you have attended a FEP workshop

I have attended a FAR FEP workshop

As the person responsible for implementing this plan, I confirm that the information provided is correct:

Name (Plan implementer):

Signature:

Position (e.g. owner/manager):

Date:

Insert your farm maps here

Refers to pages 5-6 in the Template Guide.

Management Area Soils

Refers to pages 7-10 in the Template Guide.

Management Objective	To maintain or improve the physical and biological condition of soils on the farm in order to minimize the movement of sediment, phosphorus and other contaminants to waterways.			
Identified Risks				
Good management practices currently employed to address environmental risks		Level (Indicate answer)	Examples of Evidence to supply	Auditor Note
Reduce cultivation intensity by adopting strip tillage or direct drilling. Minimise the number of passes over the paddock. This is particularly important if your paddocks are sloping or your soils are light and easily eroded by the wind. <i>Make deliberate decisions about your cultivation practice. There may be times when you need to increase cultivation intensity or bring out the plough to deal with soil constraints and weed and pest issues.</i>		Yes Sometimes No NA		
Manage crop rotations to maintain soil organic matter levels. <i>The Organic Matter (OM) in the soil is a source of many plant nutrients, particularly nitrogen. OM also plays a major role in determining soil physical characteristics such as structure, moisture retention and water infiltration. Most of the soil organic matter in intensive cropping rotations is derived from the breakdown of the old roots. This can be a slow process.</i>		Yes Sometimes No NA	Soil test results (organic C %, organic matter % C/N ratio)	
Reduce run-off from soils by improving infiltration, e.g. remediate soil compaction and surface crusting.		Yes Sometimes No NA		
Manage irrigation to avoid ponding and run off. <i>Applying too much water, too quickly is a risk for most soils, but particularly risky for soils with low infiltration rates.</i>		Yes Sometimes No NA		
Maintain soil cover with crop or crop residue. <i>Minimise the fallow periods between crops. Leave crop residues on the soil surface during the winter or use winter cover crops.</i>		Yes Sometimes No NA		
If you are cultivating sloping ground, work across the slope face rather than up and down the slope. <i>If the rows are oriented up and down the slope, restrict their length to 200m. Use contour drains to break the rows up.</i>		Yes Sometimes No NA		

<p>Cultivation methods are used to slow water flow across paddocks and between crop rows. <i>Even flat and well-drained paddocks are susceptible to the effects of runoff and erosion. Use wheel track ripping and wheel track dyking to slow run off and reduce erosion. Contour drains are temporary drains used to collect runoff water, they control the speed of runoff water when the correct gradient is used.</i></p>	<p>Yes Sometimes No NA</p>			
<p>Silt traps and/or soil containment systems are used to prevent soil and sediments reaching waterways.</p>	<p>Yes Sometimes No NA</p>			
<p>Buffer zones and/or riparian strips are used between cultivated soils and waterways.</p>	<p>Yes Sometimes No NA</p>			
<p>Stock are kept out of waterways and away from stream edges. <i>Ensure the 3m buffer is fenced to protect it from stock and comply with the winter grazing rules.</i></p>	<p>Yes Sometimes No NA</p>			
<p>Intensive grazing is managed to reduce the risk of pugging and sediment run-off <i>Where possible choose paddocks away from waterways to plant winter crops. Break-feed towards waterways as this provides a wider buffer for filtering runoff and retaining nutrients within the paddock than if grazing beside the waterway first.</i></p>	<p>Yes Sometimes No NA</p>			
<p>Management practices other than those listed above.</p>				
<p>Key Actions Management changes to reduce environmental risks relating to soil management</p>	<p>When</p>		<p>Evidence of completion</p>	

Management Area Nutrient Management

Refers to pages 11-14 in the Template Guide.

Management Objective	To maximize nutrient use efficiency while minimizing nutrient losses to water			
Identified Risks				
Good management practices currently employed to address environmental risks		Level (Indicate answer)	Examples of Evidence to supply	Auditor Note
Develop a soil testing strategy to ensure all paddocks have regular soil tests and the sample collection is representative of the cropped area.		Yes Sometimes No NA	GPS plan for soil testing and time-frame. Soil test results	
Test the soil before preparing a crop nutrient budget for available N (AMN test) and/or mineralisable N (Deep N test). <i>The AMN test is a measure of Nitrogen mineralised under specific laboratory conditions. The actual amount of nitrogen that will be mineralised in the field depends on soil temperature and moisture. The deep N test measures the nitrate-N and ammonium-N levels at the time of sampling.</i>		Yes Sometimes No NA	Soil test results	
Prepare a pre-season nutrient budget for each crop, taking into consideration a realistic crop yield (use your long term average yield as a guide) and likely soil supply of N (from soil tests) and amount of residue from the previous crop. <i>Your fertiliser consultant or farm advisor will prepare pre-season crop budgets for you if required.</i>		Yes Sometimes No NA	Crop nutrient budgets	
Prepare a post-season nutrient budget to show how well your risk assessment and management practices are improving the nutrient management on your farm. An Overseer nutrient budget is an example of a post – season nutrient budget. <i>Overseer nutrient budgets also provide useful information about nutrient flows on the farm.</i>		Yes Sometimes No NA	Overseer Nutrient Budget	
Use a decision support tool to predict N demand for the crop. <i>Decision support tools use soil test and crop information to prepare a nutrient budget and predict the fertiliser requirements for the expected yield.</i>		Yes Sometimes No NA	Decision Tool report	
Soil and weather conditions are considered before fertiliser is applied. Fertiliser is applied when the risk of run-off, volatilization and leaching is low. <i>Nitrogen fertiliser is not applied when the ground is saturated and/or when the tile drains are running. Nitrogen is not applied when the 10cm soil temperature at 9am is less than 6 degrees Celsius.</i>		Yes Sometimes No NA		

Soil constraints and other limiting factors are taken into consideration when determining fertiliser requirements. <i>Soil restraints include shallow soils, soils that are poorly drained and/or compacted soils and soils where structural constraints will limit crop yield.</i>	Yes Sometimes No NA				
Use a certified (Spreadmark) fertiliser spreader or calibrate your own spreader before use to deliver the correct rate for the crop. <i>Do not spread fertiliser onto riparian strips and into waterways.</i>	Yes Sometimes No NA		Application and/or calibration records		
Avoid storing and applying fertiliser near waterways: drains, streams, wetlands, ponds, lakes and rivers. Do not apply fertiliser within 10m of a waterway or wetland. <i>Leave a riparian margin of at least 1-2m on flat land and 5m or more on sloping land.</i>	Yes Sometimes No NA		Fertiliser placement map		
Plant deep rooted crops such as maize to utilise or 'mop up' nutrients from high fertility soils, e.g. in soils cultivated after long term pasture or soils that have had regular effluent applications or have been heavily grazed.	Yes Sometimes No NA				
Intensive grazing is managed to reduce the risk of nitrogen leaching. Where possible choose paddocks away from light stony soils. Use on-off grazing to distribute urine patches more widely, and if you can, use a quick growing mop-up crop in late winter/early spring to take up soil nitrate to reduce leaching.	Yes Sometimes No NA				
Test the nutrient content of manure, slurry, compost or effluent before application. <i>The release of N from organic sources can be difficult to predict. Usually the mineral forms of N are immediately available to the crop, whereas the organic forms are released slowly through microbial activity.</i>	Yes Sometimes No NA		Analysis report		
Measure and record Olsen P levels regularly. Reduce phosphorus fertiliser applications if levels are above the target levels for your soil-type and crop. <i>Your fertiliser consultant will advise on the crop requirements for P.</i>	Yes Sometimes No NA		Soil test		
Consider the type of phosphorus fertiliser being applied. Losses are more likely from products with readily soluble forms of P. <i>Examples of the more common forms of soluble phosphorus fertilisers include; superphosphate, triple superphosphate, sulphur super, MAP, DAP and compound fertiliser formulations.</i>	Yes Sometimes No NA		Fertiliser records		
Management practices other than those listed above.					

Key Actions Management changes to reduce environmental risks relating to nutrient management	When	Evidence of completion

Management Area Irrigation Management

Refers to page 15 in the Template Guide.

Management Objective	To operate irrigation systems efficiently, ensuring that the water is supplied where and when it is needed.				
Identified Risks					
Good management practices currently employed to address environmental risks	Level (Indicate answer)		Examples of Evidence to supply		Auditor Note
The system has been designed with site specific knowledge of the soil, climate and crop needs. <i>Refer to Design Standards for Piped Irrigation Systems in New Zealand (Irrigation NZ, October 2012); Code of Practice for the Design of Piped Irrigation Systems in New Zealand (Irrigation NZ, October 2012).</i>	Yes No NA		Design spec for system		
All staff involved in the operation and maintenance of the irrigation system are suitably trained.	Yes No		Training records		
The irrigators and pumps are regularly maintained.	Yes Sometimes No		Irrigator maintenance record		
The system is checked regularly for blocked nozzles, leaking hydrants or hoses, irrigator alignment and any problems are fixed.	Yes Sometimes No		Maintenance check record		
The water distribution is even and checked annually. (Distribution uniformity DU describes how evenly irrigation is applied to the crop).	Yes Sometimes No		DU calibration record		
Application rates have been checked at the start of the season and results recorded. Application uniformity is at least 85% <i>This and DU can be checked by collecting and measuring water in buckets placed under the nozzles.</i>	Yes Sometimes No		Application check record		
During irrigation, there are regular checks for excessive runoff or ponding and the system is adjusted or turned off if excessive runoff and/or ponding occurs.	Yes Sometimes No				
Non-productive areas such as tracks, impermeable surfaces, rivers streams are not irrigated.	Yes Sometimes No				

<p>All irrigation applications are justified by monitoring and/or other assessment or information. Water is not wasted. <i>Rainfall and soil temperature is measured and recorded.</i></p>	<p>Yes Sometimes No</p>		<p>Rainfall records</p>		
<p>Soil moisture levels are assessed and used to track soil deficits.</p>	<p>Yes Sometimes No</p>		<p>Soil Moisture records</p>		
<p>Crop growth and development is monitored.</p>	<p>Yes Sometimes No</p>		<p>Crop diary</p>		
<p>Soils are well-managed to optimise infiltration and minimise runoff. <i>Soil compaction is remediated</i> <i>Heavy machinery restricted to specified pathways</i> <i>Some crop residue is left in the soil</i></p>	<p>Yes Sometimes No</p>				
<p>Management practices other than those listed above.</p>					
<p>Key Actions Management changes to reduce the environmental risks associated with irrigation practice</p>			<p>When by</p>		<p>Evidence of completion</p>

Management Area Collected Effluent Management

Refers to page 16 in the Template Guide.

Management Objective	To minimise risk of contamination of water bodies from stored and applied effluent.				
Identified Risks					
Good management practices currently employed to address environmental risks	Level (Indicate answer)	Examples of Evidence to supply		Auditor Note	
Design effluent storage to meet the industry specific Code of Practice or equivalent standard.	Yes Sometimes No NA				
Have suitable storage available to enable farm effluent and waste water to be stored when soil conditions are unsuitable for application.	Yes Sometimes No NA				
There is a backup system for managing effluent when ponds are full and/or application to land is not possible because of unfavourable conditions.	Yes No NA				
Staff are trained to manage effluent applications.	Yes No				
Ensure equipment for spreading effluent and other organic manures is well-maintained and properly calibrated.	Yes Sometimes No		Maintenance record		
Apply effluent to pasture and crops at rates and times to minimise risk to water bodies.	Yes Sometimes No		Application records		
Test the nutrient content of manure, slurry, compost or effluent before application. <i>The release of N from organic sources can be difficult to predict. Usually the mineral forms of N are immediately available to the crop, whereas the organic forms are released slowly through microbial activity.</i>	Yes Sometimes No		Effluent test results		

Management practices other than those listed above.

Key Actions Management changes to reduce the environmental risks associated with effluent management.	When by	Evidence of completion

Management Area Livestock Management

Refers to page 16 in the Template Guide.

Management Objective	To manage wetlands and water bodies so that stock are excluded as far as practicable. To avoid damage to the beds and margins of water bodies. To avoid the direct input of nutrients, sediment and microbial pathogens to water bodies.				
Identified Risks					
Good management practices currently employed to address environmental risks	Level (Indicate answer)		Examples of Evidence to supply		Auditor Note
All intensively farmed stock are excluded from waterways and other stock are excluded from waterways whenever possible.	Yes Sometimes No				
Use vegetative buffer strips or riparian plantings to reduce to filter sediment and microbial run-off	Yes No NA				
Manage areas where animals congregate to reduce pugging and run-off. <i>For example tracks, troughs, gateways and feeding out areas.</i>	Yes Sometimes No				
Consider the paddock selection for winter grazing. <i>Wherever possible, select paddocks with soils that are not vulnerable to leaching, pugging and compaction, and do not have significant artificial drainage via mole and tile drains, waterways, temporary streams or natural drainage channels.</i>	Yes Sometimes No NA				
Manage grazing to minimise losses from critical source areas (CSA). <i>For example, graze lower lying areas and areas closest to waterways last. If soils are saturated in a critical source area, avoid grazing it.</i>	Yes Sometimes No NA				
Key Actions Management changes to reduce the environmental risks associated with livestock management	When by		Evidence of completion		

Management Area Point Sources for Nutrient Losses

Refers to pages 16 in the Template Guide.

Management Objective	To manage the number and location of offal pits, rubbish pits, silage bunkers and compost heaps to minimise the risk to health and water quality.				
Identified Risks					
Good management practices currently employed to address environmental risks	Level (Indicate answer)	Examples of Evidence to supply		Auditor Note	
The design, construction and siting of the offal pit adheres to any regional council regulations.	Yes No NA				
The offal pit is sited more than 50m from waterways, wetlands, bores and property boundaries and is in an area that is not prone to flooding and ponding.	Yes No NA				
The offal pit is sited such that the bottom of the pit is 3 m above the expected groundwater level.	Yes No NA				
Surface runoff water is directed away from the offal pit.	Yes No NA				
Animals and rodents do not have access to the pit.	Yes No NA				
The offal pit is only used for waste originating from this property.	Yes No NA				
Leachate is contained and unable to enter ground or surface water.	Yes No NA				
Point sources are managed to reduce odour.	Yes No NA				

Key Actions	When by	Evidence of completion
Management changes to reduce environmental risks associated with all point sources		

Management Area Biosecurity Management

Refers to pages 17-18 in the Template Guide.

Management Objective	Use this table to record the biosecurity management practices you are using on the farm. This part of you FEP is not auditable by the regional council but biosecurity risks should not be ignored. There are well documented instances of pests getting out of control giving farmers ongoing aggravation and cost.	
Identified Risks		
Recommended practices		Level
There is a biosecurity sign to inform visitors and contractors that the farm has biosecurity protocols.		Yes No
The biosecurity sign requests visitors to report to the management.		Yes No
There is a contact number on the biosecurity sign.		Yes No
There is a designated parking area for visitor's vehicles.		Yes No
There is a designated wash-down area for farm machinery and equipment.		Yes No
The wash-down area has a sump to collect weed seeds and prevent run-off into waterways.		Yes No
The area around the wash down area is inspected every 4 months for unwanted pests.		Yes No
Farm personnel, consultants and regular visitors are aware of the farm biosecurity protocols.		Yes No
Farm contractors are aware of the farm biosecurity protocols.		Yes No
Farm employees are aware of weeds, pests and diseases that are not wanted on the farm.		Yes No
Farm employees know where to report unwanted or exotic pests weeds and diseases if they spot them.		Yes No
Contractors are informed if there are weeds, pests and diseases on the farm which may be a risk for their next clients.		Yes No
All machinery and equipment entering the farm is inspected for soil and plant material and is cleaned down before entering paddocks.		Yes No

Machinery is cleaned down before it leaves the property.	Yes No	
Vehicle movements are confined to farm tracks where practicable.	Yes No	
All grain and fodder bought for animal feed is certified as being disease free and free of weed seeds.	Yes No	
Purchased animal feed is fed out in the same area. This area is regularly inspected for new weeds.	Yes No	
All livestock movements on and off the farm are recorded with a stock diary.	Yes No	
Newly purchased stock are isolated in a holding paddock for seven days. This paddock is regularly checked for unwanted weeds.	Yes No	
Crops and pastures are regularly inspected for unwanted weeds, diseases and insect pests.	Yes No	
Crop inspection details are recorded in a crop diary or recording sheet. ProductionWise has this option.	Yes No	
There is a containment/extermination plan for unwanted weeds and pests.	Yes No	
All new seed is certified or has a seed purity certificate. These records are kept.	Yes No	
Bins of seed and grain are covered during transport.	Yes No	
Plant propagation material is certified or inspected before it is planted out.	Yes No	
All farm personnel and visitors returning from overseas have clean clothing and footwear before going onto the farm.	Yes No	
You work collaboratively with neighbours and pest control groups to control the spread of weeds and pests.	Yes No	
Key Actions		
Management changes to reduce environmental risks associated with biosecurity		

Documentation

Refers to page 19 in the Template Guide.

Collect documents together to support your farm environment plan – these may be viewed during the auditing process.

Your list may contain some of these listed below:

Document	
Regional Council Consents:- water, land use, and discharge consents	
Overseer nutrient budget	
Soil test results	
N baseline calculation	
Crop nutrient budgets - fertiliser recommendations based on soil test results	
Fertiliser placement maps	
Training records	
Soil moisture monitoring records	
Irrigation records	
Irrigator maintenance records	
Fertiliser spreader calibration records	
Crop diaries (ProductionWise reports)	

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