

FARM ENVIRONMENT PLAN



PORK ENTERPRISES GUIDE 2015



Farm Environment Plan Guidance Notes – NZPork

Introduction

Farm Environment Plans (FEPs) are becoming increasingly popular with regional councils throughout New Zealand as a means of measuring and minimising the effects of farming on the environment. In many regions, FEPs are required to ensure a preferred activity status is maintained or as a condition of a resource consent. NZPork has compiled the Farm Environment Plan template to assist pork producers in assessing and minimising the effect of their activities on the environment, meeting regulatory requirements and future-proofing their farm.

The best way to complete a FEP is with a farm walk. Try to view your operation through fresh eyes and take note of any potential risk to the environment, the likelihood it could occur and consequences that may result. Then work on strategies to avoid, remedy or mitigate that risk. Involving all staff in the development of your FEP allows for the contribution of fresh ideas and gives them ownership of the management practices on farm.

Farm Environment Plans should be reviewed at least annually to assess progress and any new issues that may arise. All staff should be aware of and understand the FEP and its importance in effective farm management and operation. A system where all staff are encouraged to report environmental incidents, risks or near misses should be developed to allow ongoing input into the FEP and ensure it is a dynamic document that accurately reflects farm management and allows for continuous improvement. This could be similar to accident and hazard registers, and be similarly reviewed during regular staff meetings.

Section 1

Farm and Owner/Manager Information

Fill in the property, resource consent, owner and contact person information completely. Ensure contact details are kept up to date and there is more than one contact person listed.

The farm description is intended to give someone unfamiliar with your operation a good overview of the activities that happen on farm. It doesn't need to be long, but should give details such as stock numbers, the main activities that occur and broad management style.

The person responsible for implementation of the FEP should be someone who is actively involved in management of the activities on site and has been intimately involved with development of the plan.

Summary of Actions

This section is a quick reference to actions identified in the plan that must be carried out as a priority. Fill this section in last.

Review/Audit

Even if there is currently no formal requirement for FEP auditing, a self-audit should be undertaken at least annually and involve all staff. Staff should be given the opportunity to provide feedback on how the FEP works for them and any potential improvements. Staff should also understand any resource consents held and how compliance with the conditions and regional rules is met. A clear process for self-audits should be developed and applied. This could consist of a team meeting to review any compliance reports, incidents and issues since the last audit, followed by a farm walk to visually assess environmental performance.

In some areas, formal audits will be carried out by the regulatory authority or an independent third party. You should discuss this process ahead of time with the person who will be performing the audit so that you can be prepared with any information they may require. The audit will likely include an assessment of performance against the objectives, targets, good practices and timeframes described; an assessment of the robustness of the nutrient budget(s) and an assessment of the efficiency of water use (if irrigated).

Farm Map and Management Areas/LMUs

If you do not currently have an accurate farm map or plan, your regional council may be able to provide you with one. Alternatively, Google Maps may have up-to-date aerial imagery for your area that can be used.

Also see:

<http://canterburymaps.co.nz/> (for Canterbury only)

<http://smap.landcareresearch.co.nz/home>

It is important that the map is clear, accurate and easy to interpret. It may be better to have more than one map if there are too many details to illustrate clearly on one. Show any relevant features on the map as listed in the FEP template:

- The boundaries of the property or land areas comprising the farm enterprise, including leased blocks.
- The boundaries of the land management units on the property or within the farm enterprise (should align with the blocks used in the assessment of environmental effects and risk, and the nutrient budget).
- The location of permanent or intermittent water bodies, including rivers, streams, lakes, drains, water races, ponds or wetlands.
- Any swampy areas or areas prone to flooding.
- The location of riparian vegetation and fences adjacent to water bodies.
- The location on all waterways where stock access or crossing occurs.
- The location of effluent storage facilities (ponds/sumps etc.), effluent discharge areas, piggery sheds, stock feeding or holding areas, offal or refuse disposal pits, raceways, tracks and crossings.
- Bores/wells.
- Tile drained areas and soakholes.
- Conservation or covenanted areas/indigenous bush/scrub or archaeological sites.
- The location of any areas within or adjoining the property that are identified in a District Plan as “significant indigenous biodiversity”.
- Any boundaries that are common with “sensitive activities” (these are activities that are sensitive to effects from the farming activity such as odour or noise.) Sensitive activities include dwellings, schools, meeting places, retail premises etc.
- Any other areas of risk or interest in environmental management.

Breaking the farm into management areas or land management units can assist in the preparation of the FEP. A land management unit (LMU) is defined in the NZ Fertiliser Association Code of Practice as “*A homogenous block of land that responds in a similar way under similar management.*” Areas that need different management or show different responses need to be separated for good planning.

LMUs are best assessed using a combination of physical factors (e.g. soil type, slope, and aspect), major management factors (e.g. dryland versus irrigated areas, different crops, effluent/compost application areas) and history of previous use and management. Some people will find that their

property has several LMUs while others can treat their whole property as a single LMU – simply add or delete extra LMU sections from the FEP template as required.

Clearly mark the LMUs on the farm map, and include a key with notes about what factors each unit represents.

Section 2

Adverse Environmental Effects and Risk Assessment

Assessing the risk of environmental effects on your farm involves looking at both the likelihood an effect will occur and the potential consequences of that effect. This is done through a risk matrix approach.

Block Strengths and Weaknesses

It is useful to first understand the inherent strengths and weaknesses associated with the land. Inherent risks are independent of farming activity as they are characteristic of the property – for example soil type (free draining to prevent mud), topography (sloped versus flat), presence and proximity of waterways, roads or sensitive activities, climate (high versus low average rainfall). These inherent characteristics influence the way the land is used and managed, as well as the risks of nutrient leaching. Include all strengths and weaknesses for each LMU as it relates to your farm, not just those related to nutrient management. Land and soils information can be sourced through the S Map database online (<http://smap.landcareresearch.co.nz>).

Environmental Risk Assessment

Affecting the inherent risks (strengths and weaknesses) associated with a property are the nutrient management risks associated with the particular farming activities occurring on site – for example fertiliser use, irrigation, effluent and compost application, cropping, stock access to waterways, winter grazing, location of offal and farm rubbish pits.

Assessing Significance

Once you've identified the environmental risks on your land, you need to decide on the significance of these risks. A risk is defined as the combination of likelihood and consequences of the effect.

For each risk identified on the property, consider the potential adverse effects and the likelihood of them occurring:

- Little chance of the effect happening (possible, but not aware of it happening previously on this property) = low likelihood;
- Some chance of the effect happening (happened in the past, but infrequently) = medium likelihood;
- Strong chance the effect will happen (it happens regularly) = high likelihood.

Now consider the consequences of the effect happening: will the effects be major or minor? Will they be localised or widespread? Will other people be effected? Will the effects be reversible?

- If the effect is unlikely to cause significant environmental damage, has minimal potential to affect other parties and/or would be easy to reverse, then the consequence is low.
- If the effect has some potential to cause damage or harm, is reversible but could affect the surrounding environment, then the consequence is medium.
- If the effect has the potential to cause significant environmental damage or harm, both in the immediate area and surrounding environment, is difficult to reverse and likely to concern the wider community, then you must consider the consequence high.

Now you can combine the likelihood and consequences to assess the overall significance of environmental risk as in the table below.

		Environmental Consequence		
		Low	Moderate	High
Likelihood	Low	Low Significance	Low Significance	Moderate Significance
	Moderate	Low Significance	Moderate Significance	High Significance
	High	Moderate Significance	High Significance	High Significance

Fill in the table for each LMU, stating the level of risk from each activity – whether that be high, moderate, low or not applicable (N/A). You may wish to add a short statement to qualify the risk assessment, such as “summer wind blow” for erosion risk due to stock grazing or lack of ground cover due to 3 month drought.

Once you have assessed the risks, think about management approaches to avoid, remedy or mitigate them. Any environmental risk with medium or high overall significance must be addressed in the next section of the Farm Environment Plan, with best management practices chosen to minimise the risk. Some, like following codes of practice, standard operating procedures or manufacturers’ instructions, may seem obvious, but it is important that they are all recorded.

Keep records and information used to determine adverse environmental effects and assess risk in your environmental file.

Section 3

Management Objectives and Actions

A description of how each of the management objectives included in the template will be met is a requirement of Environment Canterbury and other regional councils. If any of the listed activities do not occur as part of your farming operation, simply note that as being the case (for example, if you do not use an offal pit, replace the table under the offal pits section with a statement like “Offal pits are not used. All dead stock are removed by contractors/composted”). For each management objective, where relevant, the table should be completed and include:

- Detail commensurate with the scale of the environmental effects and risks
- Defined measurable targets that clearly set a pathway and timeframe (where applicable) for achievement, and set out auditable pass/fail criteria
- A description of good management practices together with actions required
- The records required to be kept for measuring performance and achievement of the target.

The table of suggested activities and risks in section 4 following, together with the *example* objectives and activities, are provided to help your formulate a plan for your farming operation. Some will not be applicable, and you will have others than have not been given as examples. Many of the objectives will be ongoing, but where applicable, dates to achieve objectives or complete actions should be included (for example, fence all waterways by a certain date).

If you farm pigs outdoors, the Good Management Practices (GMPs) in your FEP should include those agreed upon by the pork industry as part of the Matrix of Good Management (MGM) project. The

first of these is to undertake a farm environment plan including a farm environment risk assessment. The others are highlighted and appear first in the table below.

Activity	Potential risk/s (environment/operational/people)	Possible Management Approach	Records
Nutrient Management	<ul style="list-style-type: none"> • Contamination of ground and surface water (particularly nitrogen and phosphorus) • Runoff and leaching of effluent and fertiliser from paddock into waterways (including through tile and mole drains) • Over application/duplicated areas • Risk from stock wintering practices 	<ul style="list-style-type: none"> • No NPK fertiliser to be applied to the pig breeding unit • Apply any other fertiliser in accordance with the NZ fertiliser Code of Practice • If runoff from tracks has potential to enter a flowing waterway/drain, employ management to prevent runoff from entering waterway. Place troughs, drinkers and gateways away from flowpaths. • Prevent runoff from wallows entering waterways. • Outdoor pig production is on flat land – therefore minimising the risk of runoff • Offal pits/farm dumps are sited away from waterways and other sensitive areas such as bores (check with council for rules and guidelines) • An appropriate diet and feed levels for physiological (reproductive) states of animal – e.g. separate gestation diet and lactating diet (nutrition) • Stocking rate is managed for outdoor pigs according to industry agreed GMP (as defined below) • Farrowing Huts are shifted after each lactation • Use appropriately accredited agrichemical applicators. The current industry standard is Spreadmark. • Use soil test results to plan nutrient needs • Use nutrient budgeting and nutrient management plan • Manage applications e.g. to avoid waterways, timing for crop needs, rainfall etc. • Fertiliser not applied to severely compacted soils • Use split applications where the single rate of N would exceed 100kg/ha • Adjust wintering practices to minimise nutrient losses 	<ul style="list-style-type: none"> • Nutrient budget or recommendations from fertiliser consultant • Fertiliser Invoices / records • Record of fertiliser applications (amount, date, placement records/map) • Paddock records of pasture, soil moisture, temperature at time of application • Use of GPS technology to record fertiliser placement and soil test sites

		<ul style="list-style-type: none"> • Cultivation practices adjusted to minimise nutrient losses • Stock numbers adjusted to meet N target • Harvest and export supplements to reduce nutrient losses off block • Substitute supplement to reduce N applications • Identify critical nutrient source areas 	
Water Management	<ul style="list-style-type: none"> • Irrigation during or after rainfall • Ponding of irrigation water • Inefficient application • Drainage/flooding on other properties • Contamination of stormwater • Waste/wash-down water management 	<ul style="list-style-type: none"> • Use INZ code of practice for design • Use INZ evaluation code • Schedule and apply water taking into account: crop type, soil type, rainfall etc. • Soil moisture monitoring • Include wastewater and wash-down in effluent management plan 	<ul style="list-style-type: none"> • Rainfall, Irrigation, soil moisture records • Checks of irrigation equipment and maintenance • Annual bucket tests and supplier reports • Irrigation meter records and application records
Soils Management	<ul style="list-style-type: none"> • Soil compaction/pugging • Soil erosion • Soil health problems • Soil contamination • Maintenance of groundcover • Soil damage/loss from cultivation • Longer fallow periods accelerate nutrient losses 	<ul style="list-style-type: none"> • Maintain groundcover in accordance with industry agreed GMP (defined below) • Farm on lower rainfall area • Reduce fallow during and immediately after pig phase of rotation – e.g. by planting catch crops • Stocking rate is managed for outdoor pigs according to industry agreed GMP (as defined below) • Paddocks should be grazed top to bottom (down the slope) • Stock should not be left on break feeding paddock when wet, or concentrated on small areas of paddock for long periods • Avoid stock pugging – stocking rate, rotation, stand-off pads etc. • Use shelter planting and reduced tillage to avoid wind erosion 	<ul style="list-style-type: none"> • Cultivation records – dates, type. • Records of soil assessment and remediation of soil damage

		<ul style="list-style-type: none"> • Avoid irrigation during rainfall to minimise runoff, erosion and contamination of water • Use of direct drilling and minimum tillage • Cultivate across slope to reduce runoff 	
Wetlands and Riparian Management	<ul style="list-style-type: none"> • Damage to stream banks • Nutrient and faecal contamination of waterways • Sediment entry to waterways • Stock crossings 	<ul style="list-style-type: none"> • Exclude stock from natural waterways, drains, wetlands and water races that run through the property • Install culverts or bridges at stock crossings • If runoff from a paddock can get into a flowing waterway/drain, an effective planted riparian margin is required • Crop management, including buffer zone near waterways • Diversion of effluent from races to paddock rather than to crossing 	<ul style="list-style-type: none"> • Maps showing waterway fencing, riparian planting, wetlands
Collected Animal Effluent Management (including compost)	<ul style="list-style-type: none"> • Contamination of ground and surface water during storage (leachate, storage failure, spillage, over application etc.) • Human error and knowledge 	<ul style="list-style-type: none"> • No effluent to be spread on the pig breeder unit • Site composting areas away from waterways and flowpaths • Well-designed effluent system • Prepare effluent management plan • Include nutrients from effluent in nutrient budget and management plan • Preparedness plan for accidents/incidents • Fail safe protection • Staff training and knowledge up to date 	<ul style="list-style-type: none"> • Map showing effluent areas and placement • Effluent consent and management plan • Nutrient budget • Soil moisture records/effluent application records • Staff training records
Biosecurity Management (OPTIONAL)	<ul style="list-style-type: none"> • Introduction/spread of disease and unwanted organisms 	<ul style="list-style-type: none"> • Dispose of dead stock in biosecure manner • Farm biosecurity standard in place, including stand down periods • Signage informing visitors that the farm has biosecurity requirements and that all visitors must report to management before entering - contact numbers on signage • Designated washdown area for farm machinery and equipment 	<ul style="list-style-type: none"> • Written procedures for dead stock disposal • Biosecurity standard documentation • Signage • Visitor procedures

Good Management Practice for Outdoor Pigs – Stocking Rates

Less than or equal to 17 total breeding animals/ha for a dedicated pig farm with no rotation.

Less than or equal to 21 total breeding animals/ha for a pig unit on a pastoral farm with rotation every 2 years (minimum of 2 year return period).

Less than or equal to 24 total breeding animals/ha for a pig unit on a pastoral farm with rotation every year (minimum of 1 year return period).

Less than or equal to 32 total breeding animals/ha for a pig unit on an arable farm with rotation at least every 2 years (minimum of 2 year return period)

Good Management Practice for Outdoor Pigs – Definition of Ground Cover

For all dedicated outdoor pig units, or those in a pastoral rotation, the minimum ground cover is:

- For Dry and lactating sows: 40% cover on 75% of land, < 40% cover permissible of 25% land. Each paddock to have on average >10% cover, and for farrowing sows at least 70%.
- For all outdoor pig units that form part of an arable operation the minimum ground cover is: for dry and lactating sows: 25 % (100% to 0 % in 2 years), and for farrowing sows at least 70%)

Section 4

Odour Management Plan

The proposed Canterbury Air Regional Plan includes a permitted activity rule which requires an odour management plan for the application of animal effluent to production land. An odour management plan should also be prepared wherever a farming activity may have an odour effect. If the odour management plan is part of an FEP, the requirements are mostly fulfilled in section 3, and effluent application records must also be made and kept.

Section 5

Nutrient Budgets

OVERSEER nutrient budgeting can be used when effluent/manure is collected and applied to land, with modelling for outdoor pigs expected to be available late 2015. Until OVERSEER is able to be used for outdoor pig farming operations, the alternative mass balance method approved by the Chief Executive of Environment Canterbury in May 2014 should be used to estimate the nutrient flux on farm (available from NZPork). Budgets must be prepared by a suitably qualified person for each of the identified management areas and the overall farm or farm operation.

Resource Consents and Compliance Monitoring

Attach an up-to-date copy of all resource consents held for activities that are part of the farming operation. A copy of all results of monitoring or testing required, compliance monitoring inspection reports, complaints and follow-up, and correspondence with regulatory authorities should also be included. A complaints register should be kept detailing the date & time any complaints are received, specific activities to which complaints relate (including weather or other conditions that may be a factor), where the complaint originated and any response or follow-up actions.

Additional Information

If you have other environmental or sustainability initiatives on your farm, it is a good idea to keep records of those together with the FEP as a complete record of environmental management. Some of the additional information may include:

- Protection/covenants of native vegetation or important wildlife habitat

- Indigenous species of birds, animals or plants that may be present and how you manage for their protection.
- Wetland protection or restoration
- Pest management programmes (plant, animal, insect)
- Chemical storage, use and disposal
- Planting programmes (for shelter, erosion control, aesthetics or habitat)
- Waste management (recycling, reuse etc.)
- Greenhouse gas emissions
- Energy efficiency