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Subject: Plan Change 5 to the Canterbury Land and Water Regional Plan - Submission from NZ Deer Farmers Association
Date: Friday, 11 March 2016 1:50:09 p.m.
Attachments: [NZDFA PC5 Submission 2016-03-11.pdf](#)

Please find attached a submission on Plan Change 5 to the Canterbury Land and Water Regional Plan from the New Zealand Deer Farmers Association Canterbury/West Coast Branch and South Canterbury/North Otago Branch

Kind regards
Lindsay Fung

cc:

- Kelly Bennett (South Canterbury/North Otago Branch Chair)
- Malcolm Gilbert (Canterbury/West Coast Branch Chair)
- Kris Orange (National Executive Committee Chair)
- Edmund Noonan (NZDFA Canterbury MGM Representative)
- Tony Pearse (Deer Industry New Zealand Producer Manager)





Submission on Proposed Plan Change 5 to the Canterbury Land and Water Regional Plan

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Submitter ID:

File No:

Form 5: Submissions on a Publicly Notified Proposed Policy Statement or Regional Plan under Clause 6 of Schedule 1 of the Resource Management Act 1991

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Trade Competition

Pursuant to Schedule 1 of the Resource Management Act 1991, a person who could gain an advantage in trade competition through the submission may make a submission only if directly affected by an effect of the proposed policy statement or plan that:

- a) adversely affects the environment; and
- b) does not relate to trade competition or the effects of trade competition.

Please tick the sentence that applies to you:

- I could not gain an advantage in trade competition through this submission; or
- I could gain an advantage in trade competition through this submission.

If you have ticked this box please select one of the following:

- I am directly affected by an effect of the subject matter of the submission
- I am not directly affected by an effect of the subject matter of the submission

Signature:  Date: 11 March 2016

(Signature of person making submission or person authorised to sign on behalf of person making the submission)

All information contained in a submission under the Resource Management Act 1991, including names and addresses for service, becomes public information.

- I do not wish to be heard in support of my submission; or
- I do wish to be heard in support of my submission; and if so,
- I would be prepared to consider presenting your submission in a joint case with others making a similar submission at any hearing

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Introduction

The South Canterbury/North Otago Branch and the Canterbury/West Coast Branch of the New Zealand Deer Farmers' Association welcomes the opportunity to provide a submission on the Proposed Plan Change 5 (PC5) to the Canterbury Land and Water Regional Plan.

The New Zealand Deer Farmers' Association (NZDFA) is a voluntary subscription funded incorporated society representing the regional and national interests of approximately 1400 financial members of an estimated total of 1850 active farmers and an estimated 75 % of farmed deer. NZDFA expresses a political and functional view on behalf of all deer farmers and for industry good. It is governed by a national executive committee and has a strong regionally based network of 20 autonomous branches.

The South Canterbury/North Otago (SCNO) Branch of the NZDFA represents the national and regional interests of over 300 deer farmers in South Canterbury, while the Canterbury/West Coast (CWC) Branch represents approximately 400 deer farmers in the Canterbury region (north of Ashburton – Mount Somers). Combined this is the largest and dominant deer farming region in the country.

The Significance of Canterbury to the New Zealand Deer Industry:

While deer farming is a small primary industry in New Zealand, the New Zealand industry is the world's largest exporter of venison and deer velvet and the biggest producer and export of deer velvet antler. The industry's resource is predominantly based in the South Island (over two thirds of the national herd) with Canterbury having the largest herd size (30 % of the national herd). The region also serves as the major collection, grading and processing hub for velvet antler, is a significant venison processing region (with four out of the eleven specialist venison plants in the country) and has industry-leading deer stud specialisation. The region is also the dominant location for the large Asian co-products industry and deer skin tanning and processing through to luxury leather.

With the largest regional herd size and the greatest number of NZDFA farmer membership, Canterbury provides scale for the deer industry and associated support services including specialized deer transport operators, veterinarians, stock and station agency and other servicing and manufacturing support infrastructures.

The Deer Industry Canterbury:

Deer farming systems are pastorally based on the annual production of venison, velvet and deer co-products; as such they share many similarities with sheep and beef systems and can be focused on breeding or finishing, and located in fertile plains or South Island high country areas. It is estimated that about 75-80 % of deer farms are actually mixed livestock (sheep, beef or dairy grazing) and arable cropping can also be incorporated. In recent times under the pressure of land use change fuelled by dairy expansion in the region, much of the plains and lowland finishing and breeding finishing country no longer support intensive deer farming. In turn that has created larger, more diverse deer enterprises on the region's hill and high country land classes.

Both CWC and SCNO have a long association with Environment Canterbury (ECan) in approaching environmental and land care challenges and have shown notable industry leadership in implementing solutions. There have been many deer industry national environmental award winners from SCNO and the branch was a key participant in the development of the industry's 2003 and 2012 Landcare Manuals and the branch participated in a Sustainable Farming Fund project examining the use of nitrogen in high country to develop native tussocks. CWC has provided a deer industry representative to many ECan environmental fora, most recently being for the Matrix of Good Management Project Reference Group as well as participating in the Farm Environment Plan auditing workshops. A 2009 survey of our high country deer farmers (Peoples and Asher, 2012) as well as a recent Landcare Research survey of rural decision makers (Brown, 2015) indicate a high level of awareness of environmental issues, management and expectation amongst deer farmers. Many deer farms in Canterbury are in intergenerational family ownership, as a result our farmers take particular pride in farm stewardship and have proactively sought to understand the issues and respond with good practices and extensive communication efforts to raise awareness and encourage innovative solutions.

General Comments on PC5

NZDFA notes that deer farming covers a wide range of farm systems, commonly with other livestock and use of arable cropping. Specialised components such as irrigation, animal management of other livestock species or crop production will be covered by those organisations with relevant expertise. This submission is consequently restricted to Part A of PC5 and activities that are generic to all deer farmers and the variety of deer farm production systems.

The NZDFA seeks clarification from ECan in relation to PC5:

- *Land uses in short-length, coastal catchments are subject to management targets for marine and coastal environments rather than inland freshwater waterbodies.*

NZDFA acknowledges and that all farms should be aiming to operate at good management practice levels, regardless of geographic location. However land use in short-length coastal catchments that discharge to marine environments should be subject to nutrient management requirements that are designed to meet marine and coastal environment objectives rather than freshwater objectives for inland waterbodies. It is not clear in PC5 if this is a consideration for coastal land use.

- *The use of nitrogen loss rate estimates under good management practice is not a major focus for consent compliance as it is unlikely to be accurate for individual farms. The major focus via a Farm Environment Plan (or Management Plan) is ensuring that the most appropriate good management practices are being applied on-farm.*

The ability to estimate nitrogen losses under good management practices for different farm systems is a significant advance for catchment scale modelling but has some challenges when modelling individual farms. In line with the intent of nutrient management policies 4.34 and 4.36 NZDFA wishes to see PC5 rules focus on encouraging on-farm *behaviour change* (by ensuring that land users identify high risk areas or practices and then implement the most appropriate mitigation measures). A reliance on Baseline GMP Loss Rate may ignore actual on-farm activities and play down any empirical on-farm evidence of sustained reductions in nutrient losses.

NZDFA is concerned that the intent of the policies may be lost by overly prescriptive rules and conditions in Schedules 7 and 7A and supports other submissions from primary industries (such as Beef + Lamb New Zealand and Horticulture New Zealand) that seek to positively foster behaviour change.

- *Access to the portal and ability to use the portal is not onerous for farmers.*

A small number of deer farmers have been involved in testing in development versions of the portal and it is expected that the portal will be easy to use for most farmers. NZDFA would wish to see that ECan is able to ensure that access to the portal is not a barrier for deer farmers, particularly where farms may be located in areas with limited or no internet service. While it is recognized that the portal is a cost-effective method to allow ECan to gather information that will assist in both implementing PC5 as well as National Policy Statement on Freshwater Management requirements, this does represent a change in how many farmers (particularly those operating as permitted activities) will interact with ECan and how they will maintain farm records and information.

NZDFA would welcome further engagement with ECan to assist deer farmers that may struggle to have access to the portal or provide necessary information.

- *Status of audit manual and audit form.*

The “Canterbury Certified Farm Environment Plan (FEP) Auditor Manual” is not part of PC5, although it is referenced in Schedule 7, Part C. Given that the manual prescribes how FEPs will be audited for evidence of good management practices, it is a significant document that does not appear to be under any form of stakeholder scrutiny or oversight. Further, given the concerns cited by ECan for the inclusion (in PC5) of modelling rules in OVERSEER as proxies for good management practice, it is surprising that the manual is not also afforded a level of certainty or transparency for possible changes.

NZDFA wishes to seek explicit statements from ECan regarding the status of the audit manual and the extent of any industry input into the current and future versions. Notwithstanding, NZDFA also have provided a specific comment for submission in the table below requesting more meaningful industry collaboration in the design and

content of the manual and audit form.

The NZDFA opposes the following provision in PC5:

- *The use of Phosphorus Risk Zones to determine on-farm management for minimising phosphorus loss.*

PC5 introduces new areas called “Phosphorus Risk Zones” and requires farms located in these zones to identify critical source areas for phosphorus losses from farms in either a Farm Environment Plan (as specified in Schedule 7) or a Management Plan (as specified in Schedule 7A).

It is unclear how this approach will improve understanding of mechanisms and processes of phosphorus loss and conversely may serve to create an additional and academic exercise in referencing a farm’s location relative to the Phosphorus Risk Zones on the planning maps. As there is no readily available information that allows evaluation of the veracity of these risk zones, this creates a perception that the classification is arbitrary thereby undermining encouragement of on-farm good management practices to reduce phosphorus losses. The original Landcare Research report (Partitioning land according to vulnerability to runoff and leaching losses of phosphorus in Canterbury – Webb *et al.*, 2015) that forms the rationale for using these zones recommended that further work be undertaken that indicates the approach still has limitations at the farm-scale and may be more appropriate at the catchment level (page 25 of Webb *et al.*, 2015)

Further the definition (provided in PC5 Part A, page 3-2) of “Phosphorus Risk Zone” is given as *“the area shown as the ‘High Runoff Risk Phosphorus Zone’ on the Planning Maps.”* This implies that only runoff risk is considered and ignores high risk areas where phosphorus leaching may occur. The Webb *et al.* 2015 report included leaching, and indeed this was a key classification consideration (page 19): *“Runoff is considered to be the pathway that can lead to the highest P losses, hence those soils with high runoff vulnerability are identified first (R1). Leaching is considered to be the next most significant pathway. This is separated into two slope-based classes (L1 and L2). Class L1 land occurs on flat to undulating land where percolating leachate is expected to continue through substrata and enter groundwater. With irrigation, this land has potential for intensive production and enhanced leaching. Class L2 land occurs on rolling to steep terrain and generally overlies fractured greywacke rock. L2 soils are invariably in low rainfall areas and therefore do not experience high runoff. They have low P retention and have a low threshold for accumulation of P before P will pass beyond the root zone.”*

PC5 does not appear to make any distinction in policy approach between phosphorus loss through runoff or leaching, but the Section 32 Evaluation Report for Plan Change 5 states that only the R1 zone has been mapped.

By classifying the zones as “High Runoff Risk” and directing the focus to the zone areas only, PC5 ignores the well-established practical approach that identifies *on-farm* critical source areas for runoff and soil (and phosphorus) loss that are at a finer scale than the risk zone maps. A similar issue for targeting soil erosion in the

Horizons region identified and mapped highly erodible land which was then used to prioritise catchments and then properties within the catchments for targeted advice. The properties were then encouraged to undertake detailed farm planning to look at critical source areas and farm management practices (i.e. the highly erodible land mapping was not used at this scale).

Conversely phosphorus leaching may occur over a wider area than runoff from critical source areas and will depend on both soil type and farm practices typically associated with intensive farming activities. The use of risk zone maps may have more applicability in these situations that then guide a land manager to consider all factors that might contribute to phosphorus leaching (irrespective of which part of the property lies within the zone).

NZDFA seeks that Phosphorus Risk Zones are removed from PC5 until there is credible, expert analysis that justifies the use of the zones for on-farm planning purposes as opposed to catchment or property prioritisation.

The NZDFA also supports specific submissions from Beef + Lamb New Zealand:

- *Amended definition of “Audit” to reflect the focus on good management practices.*
- *Amended definition of “winter grazing” in respect to feed types and quantities.*
- *Amendments to policies 4.32, 4.36, 4.37, 4.38, 4.38C, 4.38D, 4.41B and 4.41C to reflect the focus on good management practices.*
- *Amendment to rule 5.42A b to reflect properties that fall within more than one Nutrient Allocation Zone but the proportion of the property area within a zone is small.*
- *Beef + Lamb New Zealand’s submission that “Grandparenting” has not been removed and that high leaching farms still keep a high rate of nitrogen loss albeit under good management practice constraints, while low leaching farms remain at low levels.*

The NZDFA wish to note that the limited (minimum required) timeframe for submissions following notification serves to disadvantage small industry organisations. With limited resources, it is difficult for NZDFA to undertake a thorough analysis of the proposed plan changes as well as consult on a representative position from the Canterbury membership. It is hoped that ECan will demonstrate good faith in allowing sufficient time for the remainder of the process so that smaller organisations and individual stakeholders are able to participate to the best of their abilities.

Specific Comments on PC5

Requested amendments follow the same formatting conventions as described on page 1-3 of PC5.

Specific provisions of the Proposed Plan:	<p>Schedule 7, page 6-4, Part B, Points 2(g) and 2(i):</p> <p><i>A map(s) or aerial photograph at a scale that clearly shows:</i></p> <p><i>(g) The location of any critical source areas for phosphorus or sediment loss for any part of the property within the Phosphorus Risk Zone.</i></p> <p><i>(i) Public access routes or access routes used to maintain the rivers, streams, or drains.</i></p>
Oppose/support (in part or full):	Oppose
Reasons:	<p>2(g) adds extra complexity in requiring the identification of the relevant Phosphorus Risk Zone and conversely may result in ignoring other critical source areas that are not in a Phosphorus Risk Zone. See General Comments section above for more concerns regarding the use and terminology of the zones.</p> <p>2(i) has no relevance to a Farm Environment Plan aimed at reducing nutrient, sediment and faecal bacteria losses to waterbodies. Public access and maintenance of waterways are separate issues.</p>
I seek the following decisions from Environment Canterbury:	<p>Amend 2(g) as follows: <i>(g) The location of any <u>known</u> critical source areas for phosphorus or sediment loss for any part of the property within the Phosphorus Risk Zone.</i></p> <p>Delete 2(i)</p>

Specific provisions of the Proposed Plan:	Schedule 7, page 6-5, Part B, Point 5, Management Area objectives and targets
Oppose/support (in part or full):	Oppose
Reasons:	<p>The proposed wording contains Objectives and Targets that may well be difficult to attain under Good Management Practice.</p> <p>As an example the Management Area for Nutrient Management has the Target: <i>“(3) The amount and rate of</i></p>

	<p><i>fertiliser applied does not exceed the agronomic requirements of the crop.</i>” While this might be an appropriate target for mobile nutrients such as nitrogen, phosphorus is generally applied infrequently on many non-intensive livestock farms with the aim of achieving a soil concentration of phosphorus that will allow good pasture growth. This may well be above the agronomic requirements of the pasture at time of fertiliser application, but will have less environmental risk due to the relative immobility of phosphorus.</p> <p>Similarly the Objectives appear to combine on-farm economic efficiencies with environmental outcomes.</p> <p>Better objectives would focus on environmental outcomes thereby allowing the land manager to determine management practices that suit the farming operation (e.g. soils may be managed to minimise the movement of contaminants to waterways, irrespective of their physical and biological condition).</p> <p>Targets may also be interpreted in a restrictive manner while ignoring additional practices that mitigate other activities (e.g. wallowing as a natural behaviour will exacerbate erosion, but construction of sediment traps or wetlands can mitigate much of the environmental impact).</p> <p>The Section 32 Evaluation Report for Plan Change 5 justifies the revision to Schedule 7 as “Option 2 - include GMP requirements within Plan provisions” (see page 7-2 of the Section 32 Evaluation Report for Plan Change 5) with the good management practices as <i>specific targets</i>. The proposed wording is at best limited and selected use of the industry-agreed good management practices, devoid of context and guidance and at worst a rather superficial consideration of management targets that meet both management objectives (and by proxy a good environmental outcome) and are merely readily measurable for audit purposes. The proposed wording achieves the latter but is likely to fall short of the former given that the fundamental basis for undertaking a Farm Environment Plan is to <i>evaluate and identify</i> environmental risks, thereby allowing the land manager to <i>choose the most appropriate</i> good management practice.</p>
<p>I seek the following decisions from Environment Canterbury:</p>	<p>Schedule 7, Part B, Point 5 is re-worded in partnership with primary industry organisations to better reflect good management practices aimed at environmental outcomes.</p> <p>A suggested revised Point 5 is provided as Appendix 1 to this submission. This revised version has not been endorsed by NZDFA or DINZ but is included to illustrate that a more collaborative approach between ECan and primary industries will result in a more focused and practical outcome.</p>

<p>Specific provisions of the Proposed Plan:</p>	<p>Schedule 7, page 6-7, Part C</p> <p><i>The Environment Canterbury Certified Farm Environment Plan Auditor Manual sets out the standards and methods to be used by a Certified Farm Environment Plan Auditor to demonstrate proficiency and competency in the auditing of Farm Environment Plans.</i></p>
<p>Oppose/support (in part or full):</p>	<p>Oppose in part</p>
<p>Reasons:</p>	<p>While there has been extensive input by industry organisations to develop agreed good management practices, including industry organisation governance approval, industry input in the Auditor Manual has been minimal – this being technical/practitioner input into auditing requirements. The manual does not form part of PC5 but will be a crucial method for implementing much of PC5. Having industry involvement and agreement will ensure that the manual (and the standards and methods) is more defensible and adopted by industries.</p> <p>It seems strange that an important document that sets standards for auditing of Farm Environment Plans does not form part of PC5 while proxies used for modelling good management practices in OVERSEER are contained in Schedule 28 of PC5. Potentially this creates more uncertainty for auditing as the Manual may be subject to unmonitored/reviewed change within ECan and more rigidity in applying approximations for good management practices that may be inaccurate (and more likely to be improved over time as experience and research provides actual modelling rules or better proxies for good management practices).</p> <p>It is also noted that the actual manual is titled: “<i>Canterbury Certified Farm Environment Plan (FEP) Auditor Manual</i>”</p>
<p>I seek the following decisions from Environment Canterbury:</p>	<p>ECan re-engage with industry organisations to seek agreement on standards and methods contained in the Canterbury Certified Farm Environment Plan (FEP) Auditor Manual.</p>
<p>Specific provisions of the Proposed Plan:</p>	<p>Schedule 7A, page 6-9, Point 2(g):</p> <p><i>A map(s) or aerial photograph at a scale that clearly shows:</i></p> <p><i>(g) The location of any critical source areas for phosphorus loss for any part of the property within the High</i></p>

	<i>Runoff Risk Phosphorus Zone.</i>
Oppose/support (in part or full):	Oppose
Reasons:	2(g) adds extra complexity in requiring the identification of the relevant Phosphorus Risk Zone and conversely may result in ignoring other critical source areas that are not in a Phosphorus Risk Zone. See General Comments section above for more concerns regarding the use and terminology of the zones.
I seek the following decisions from Environment Canterbury:	Amend 2(g) as follows: <i>(g) The location of any <u>known</u> critical source areas for phosphorus loss for any part of the property within the High Runoff Risk Phosphorus Zone.</i>

Specific provisions of the Proposed Plan:	Schedule 7A, page 6-9, Point 3 table
Oppose/support (in part or full):	Oppose
Reasons:	<p>From the Section 32 Evaluation Report for Plan Change 5 it appears that the intention for the table is to have a list of “<i>basic set of ‘Good Practices’</i>”. In effect these are rules (rather than good management practices) which require land owners to self-police and will be subject to scrutiny by the council at its discretion. Some justification for selecting these rules with regards to expected environmental impacts is required to provide confidence that these practices should be specifically targeted across all (permitted activity) farms.</p> <p>The Section 32 Evaluation Report for Plan Change 5 provides some context for the aim of Schedule 7A (page 4-5): “<i>Landowners on properties over 10 ha that are a permitted activity would be required to implement a simplified set of GMP, referred to in Schedule 7A as Good Practices. Schedule 7A would require a landowner to identify the major features of their property and to describe actions that have been undertaken annually to implement the Good Practices in the Schedule.</i>” While the council should be acknowledged for the pragmatic intent to minimize requirements for permitted activities, the selection of the “Good Practices” (which are not in themselves good management practices as per the industry-agreed good management practices) requires some explanation as they may not necessarily be the most appropriate good practices for each and every farm (that is a permitted activity).</p> <p>Further, the requirement to describe actions relating to the good practices on an annual basis may be</p>

	excessive or redundant (e.g. silage/rubbish/offal pits may only need to be sited, designed and managed to avoid discharge of leachate into surface water bodies once at construction/establishment). If the intent is to have land managers regularly review activities that may have an environmental impact, this should be explicitly stated and more appropriate good management practices specific to the permitted activity should be selected by the land manager rather than arbitrarily prescribed in the schedule.
I seek the following decisions from Environment Canterbury:	Delete the table in Point 3 and refer to the list of industry-agreed good management practices or re-word the table in partnership with primary industry organisations to better reflect good practices aimed at environmental outcomes.

Specific provisions of the Proposed Plan:	Schedule 28
Oppose/support (in part or full):	Oppose
Reasons:	<p>Schedule 28 fixes the modelling proxies used in OVERSEER for good management practice as part of the plan unless there is a plan change – effectively excluding farmers demonstrating good management practice effects that may differ to what the proxies estimate.</p> <p>The Section 32 Evaluation Report for Plan Change 5 justifies the creation of Schedule 28 as it provides legal certainty (page 7-32 of the report): <i>“The inclusion of modelling proxies in the plan would provide certainty for all plan users, including resource consent holders, and any revisions to those proxies would be scrutinised and tested through a plan change process. The modelling proxies, as currently written in the MGM overview report (MGM, 2015b), are not expressed with sufficient precision to satisfy the regulatory requirements for a regional plan and require editing before they could be used in a plan schedule.”</i> It however dismisses an alternative option to leave <i>“modelling proxies outside the CLWRP, supported by a quality assurance and change process involving a collaborative process comprising the project team, a technical working group, peer review, and final sign off by the Chief Executive Officer of the Regional Council.”</i></p> <p>While the rationale for excluding this alternative option was that it had <i>“the effect of reserving to the Council, a discretion to determine how the MGM outputs would be updated in the future, with no ability for members</i></p>

	<p><i>of the public to be heard on the effect of any proposed changes”,</i> this same discretion appears to be provided to ECan in determining audit standards and methods as contained in the Canterbury Certified Farm Environment Plan (FEP) Auditor Manual – a manual that was developed with input from a range of stakeholders but without the process of consultation within industries and approval from industry-good organization governance.</p> <p>The argument for public involvement is somewhat spurious if appropriate governance and consultative procedures are put in place as was the case for the development of the industry-agreed Good Management Practices.</p>
I seek the following decisions from Environment Canterbury:	Remove Schedule 28 from PC5 and ECan put in place a collaborative structure to oversee ongoing refinements to incorporating new information into modelling good management practices using OVERSEER.

References

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- Webb, T.H.; Lilburne, L.R.; Lynn, I.H.; Cuthill, T. 2015. **Partitioning land according to vulnerability to runoff and leaching losses of phosphorus in Canterbury**. Environment Canterbury Report No. R15/121. <http://tinyurl.com/zepkwqg>

Appendix 1 – Example of revised Schedule 7, Part B, Point 5

Suggested amendments follow the same formatting conventions as described on page 1-3 of PC5. Additional commentary is provided as italicised text enclosed in square brackets.

- 5 A description of how each of the following objectives and targets for each Management Area will, where relevant, be met and the specific actions that will be undertaken to implement the Good Management Practices:

Management Area: Nutrient Management

Objective: To ~~maximise nutrient use efficiency while~~ minimising nutrient losses to water.

Targets:

- (1) ~~Modelled N~~ nitrogen losses from farming activities are at or below Good Management Practice Loss Rates for the property.
- (2) Phosphorus and sediment ~~losses~~ transport to water bodies from farming activities are minimized. [*Note: This is repeated under the Soils Management section below*]
- (3) ~~The amount and rate of fertiliser applied does not exceed the agronomic requirements of the crop.~~

Management Area: Irrigation Management [*Note: This is best co-designed with irrigation experts*]

Objective: To operate irrigation systems efficiently ensuring that the actual use of water is monitored and is efficient.

Targets:

- (1) New irrigation infrastructure is designed, installed and operated in accordance with industry best practice standards.
- (2) Existing irrigation systems are calibrated, maintained and operated to apply irrigation water at the optimal efficiency.
- (3) All applications of irrigation water are justified on the basis of soil moisture data and climatic information.
- (4) The timing and rate of application of water is managed so as to not exceed crop requirements or the available water holding capacity of the soil.
- (5) Staff are trained in the operation, maintenance and use of irrigation systems.

Management Area: Soils Management

Objective: To ~~maintain or improve the physical and biological condition of~~ manage soils in order to minimise the movement of sediment, phosphorus and other contaminants to waterways.

Targets:

- (1) Farming activities are managed so as to not exacerbate erosion. [Note: use of engineered sediment traps, detainment bunds, constructed wetlands and the like may also be effective in some situations. These do not influence the risk of erosion but can mitigate the effect on waterbodies]
- (2) Farming practices are implemented that optimise infiltration of water into the soil profile and minimise run-off of water, sediment loss and erosion. [Note: Infiltration of water may result in nitrogen and phosphorus leaching]

Management Area: Collected Animal Effluent Management [Note: This is best co-designed with effluent management experts]

Objective: To manage the risks associated with the operation of effluent systems to ensure effluent systems are compliant 365 days of the year.

Targets:

- (1) ~~Effluent storage facilities and effluent discharges comply with regional council rules or any granted resource consent.~~ [Note: This is redundant]
- (2) The timing and rate of application of effluent ~~and solid animal waste~~ to land is managed so as to minimise the risk of contamination of groundwater or surface water bodies. [Note: solid waste is not part of effluent management]
- (3) Sufficient and suitable storage is available to store effluent and any wastewater when soil conditions are unsuitable for application.
- (4) Staff are trained in the operation, maintenance and use of effluent storage and application systems.

Management Area: Waterbody Management (wetlands, riparian areas, drains, rivers, lakes)

Objective: To manage wetlands, riparian areas and surface waterbodies to avoid damage to the bed and margins of a water body, and to avoid the direct input of nutrients, sediment, and microbial pathogens.

Targets:

- (1) Stock are excluded from waterbodies in accordance with regional council rules or any granted resource consent.
- (2) Vegetated riparian margins are maintained to minimise nutrient, sediment and microbial pathogen losses to waterbodies.
- (3) Farm tracks, gateways, water troughs, self-feeding areas, stock camps wallows and other sources of run-off (that contribute to losses of sediment, nutrient and faecal bacteria) ~~microbial loss~~ are located so as to minimise the risks to surface water quality.

Management Area: Point Sources (offal pits, farm rubbish pits, silage pits)

Objective: To manage the number and location of pits to minimise risks to health and water quality.

Target:

- (1) All on-farm silage, offal pit and rubbish dump discharges are managed to avoid direct discharges of contaminants to groundwater or surface water.

Management Area: ~~Water-use Management (excluding irrigation water)~~ [Note: Other than irrigation water and water for dairy sheds – covered under consents – water use on farm will be for stock drinking. Monitoring efficient use is not applicable here]

~~**Objective:** To use water efficiently ensuring that actual use of water is monitored and efficient.~~

Target:

~~(1) Actual water use is efficient for the end use.~~

The plan shall include for each objective and target in section 5 above:

- (a) detail commensurate with the scale of the environmental effects and risks;
- (b) -a description of the actions and Good Management Practices (and a timeframe within which those actions will be completed) that will be implemented to achieve the objectives and targets.
- (c) -records required to be kept for measuring performance and achievement of the targets and objectives.