

**BEFORE THE**

Canterbury Regional Council

**IN THE MATTER OF**

the Resource Management Act  
1991 and the Environment  
Canterbury (Temporary  
Commissioners and Improved  
Water Management) Act 2010

**AND**

**IN THE MATTER OF**

the hearing of submissions on  
the Proposed Canterbury Land  
and Water Regional Plan

**STATEMENT OF EVIDENCE ON BEHALF OF COMBINED CANTERBURY PROVINCES,  
FEDERATED FARMERS OF NEW ZEALAND**

Dated 31 May 2013

## Introduction

1. My name is Lionel John Hume. I am a Senior Policy Advisor, employed by Federated Farmers, based in Ashburton.
2. I hold B.Ag.Sc and M.Sc. (First Class Hons) degrees from Massey University and a Ph.D. (Plant Science) from Lincoln University. I am a member of the NZ Institute of Agricultural Science, the NZ Society of Soil Science and the Agronomy Society of NZ.
3. I previously worked as a scientist for the Department of Scientific and Industrial Research in the area of plant nutrition/soil fertility. Currently I am a member of Federated Farmers' Regional Policy team and have eight years experience of working with regional water planning processes, including: the Natural Resources Regional Plan process (from submission through to resolution of High Court appeals); development of the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 and membership of the implementation taskforce for those regulations; the development of catchment-based flow and allocation plans for several Canterbury catchments; the development of the Canterbury Water Management Strategy; and, recently, the Regional Policy Statement and Land and Water Regional Plan processes. I am a board member of Irrigation New Zealand.
4. With me is Christopher John Allen. Chris is President of the Mid Canterbury Province of Federated Farmers of New Zealand. He owns and manages a 360 ha mixed sheep, beef, arable and broad-acre horticulture property adjacent to the Ashburton River in Mid Canterbury. The property has on-farm water storage and is fully spray-irrigated, using both ground and surface water.
5. Chris assisted in setting up and is an active member of the Ashburton River Water User Group, whose function is to equitably manage the available water and to ensure that the river remains above its minimum flow for as long as possible. He also represents land holders on the Ashburton River Liaison Group, which deals with Environment Canterbury on flood control works in the Ashburton River and tributaries.
6. Chris has had involvement, at a governance level in a range of regional planning issues, particularly to do with water management. He has chaired the Canterbury Primary Sector Policy Group since its inception.

## Canterbury Primary Sector Policy Group

7. The issues addressed in the Proposed Land and Water Regional Plan (LWRP) are of vital importance to the entire primary production sector, and to the economic and social wellbeing of local communities and the wider region. Although the interests of the various primary sector groups do not always precisely coincide, there is a large measure of agreement on many of the key issues to do with the management of water quantity and water quality.
8. In order to assist the hearing panel to understand and take on board the needs and views of the primary sector, Federated Farmers convened the Canterbury Primary Sector Policy Group (representing over 20 primary sector interest groups) to form and consolidate common positions on some of the key LWRP issues (as outlined in our evidence statement presented on 26 February 2013).
9. In order to present a comprehensive and focused approach to the hearing process, which avoids unnecessary repetition, particularly by expert witnesses, the Group supported the expert evidence about Overseer and its use, submitted on 2 April and presented by Dr Ants Roberts and Dr Doug Edmeades on 7 May.
10. Therefore, Federated Farmers adopts the evidence presented by expert witnesses Dr Ants Roberts and Dr Doug Edmeades.
11. It is our intention now to present further evaluative evidence on the “Farming” (nutrient management) provisions of the plan, focusing on issues of particular importance to Federated Farmers’ members.

## Nutrient Management

### Overall analysis

12. In the part of the section 42A report entitled “Overall analysis” (p 70), it is stated that *it is difficult to avoid the simple logic of increased irrigation leading to increased water and nutrient leaching*. This statement is, at best, only partly true. Increase in irrigated land area, if it leads to intensification (as it usually does), may increase the potential for nutrient loss (depending on a variety of management factors). However, having said that, compared with a similar, equally intensive, rain-fed system, an irrigated system should lose less nutrients because there is a much greater ability to manage water

application and, therefore, to manage both plant growth (to maximise nutrient uptake) and drainage (to minimise nutrient losses). If there is no drainage there will be no leaching of nutrients.

13. Further, an increased volume of water used to increase the reliability of supply for irrigation will almost certainly lead to more efficient use of both water and nutrients by enabling more reliable crop growth (and therefore nutrient uptake), by enabling more precise irrigation scheduling (to match plant need and soil water deficit), by supporting the growth of high value crops and by encouraging investment in highly efficient infrastructure (which, if well managed, will reduce drainage), thereby enabling more effective and efficient use of water and nutrients.

## **Nutrient Definitions**

### **Definition of Changed (p 77-83)**

14. Federated Farmers is opposed to the definition of *changed* recommended in the s42A report (p 82-83). We are opposed to parts 1 and 2 of the s42A recommendation (new irrigated land area and increased consented volume) for the reasons given in paragraphs 12 and 13, above. We are opposed to items 3 and 4 (10% increase in stock units and 20% increase in horticultural or arable yield) because increases in productivity are often the result of good management, efficient use of resources or favourable climatic conditions, and may bear no relationship with nutrient loss. Farmers should not be penalised for good performance. In addition, a 10% increase in stock units is too small and would capture variations that are not genuine land-use change (we refer to the evidence statement of Kerry Harmer on behalf of Castleridge Station in this regard). If the nutrient management provisions of the plan are to be effective, they must, as much as possible, be aligned with farmers' economic imperatives.
15. Consistent with our support for expert evidence on the use of Overseer, presented by Dr Roberts and Dr Edmeades, we also support the suggestions (requested by the hearing panel) put forward by Dr Roberts on alternative ways to define land use, given that there is consistent evidence that the uncertainty around Overseer estimates is +/- 30%.
16. Dr Roberts' suggestions for defining land-use change are as follows:
  1. Any land use leaching, as estimated by Overseer, less than 15 kg N/ha (range 10-20 kg N/ha given  $\pm 30\%$  uncertainty around the estimate) has no requirement to demonstrate change.

2. Trigger value is +30% for all land uses (based on Overseer uncertainty term)

Or an alternative:

3. Category 1 land uses (expected to have relatively low N loss): Sheep, beef and deer farms, arable farms, mixed arable/livestock farms (including those farms which winter dairy cows or graze young dairy stock) and perennial horticultural crops – Trigger value is +30% change in N loss.

Example: a mixed arable/livestock farm leaching 18 kg N/ha would have undergone material change in N loss if it increased to 23 kg N/ha or more (increase in 5.4 kg N/ha) as estimated by Overseer.

Category 2 land uses (which may have relatively high N loss): Dryland and irrigated dairying, commercial vegetable production -

Trigger value is +10% change in N loss.

Example: an irrigated dairy farm on shallow, stony soils leaching 60 kg N/ha would require a new consent if N loss increased to 66 kg N/ha (increase of 6 kg N/ha).

17. Federated Farmers supports the use of item 1 combined with item 2, above, to define land use change because this approach is consistent with the 30% uncertainty around Overseer estimates. If more than one trigger value is desired (the possibility of which was raised by the hearing panel in its questioning of Dr Roberts) then the alternative approach (item 1 combined with item 3) could be used. However, this alternative approach would not be consistent with the acknowledged uncertainty around Overseer estimates.

### **New Definition of Advanced Mitigation Measures**

18. The definition (p 86) lists techniques to minimise nutrient losses. Several of the techniques listed may not do that, depending on context. For example:
  - Reduced/nil fertiliser (item 6) may result in reduced vegetation cover which would make land more vulnerable to loss of sediment and P.
  - Item 6 may also interact with item 15, because nutrient deficiency will result in less biological activity in the soil and therefore less organic matter.
  - Reduced water use (item 13) may result in reduced vegetation cover which would make land more vulnerable to loss of sediment and P.

- Item 13 may also interact with item 15, because significant water deficit would result in less biological activity in the soil and therefore less organic matter.
- Low solubility P fertiliser (or low solubility fertiliser of any kind) makes it difficult to match application with demand. A sparingly soluble fertiliser may not be sufficiently available (in solution) when it is needed by plants, and, conversely, may be in solution when it is not needed e.g. after the growing season.

### **New Definition of High Nutrient Risk Farming Activity**

19. The definition of *High nutrient risk farming activity* contains a list of such activities which is of questionable usefulness (p 87). It has blanket inclusions which are not justified. For example it includes *arable farming or horticulture (excluding grapes)* (item 2). Much of arable farming, if well managed, is relatively low risk. Similarly, grape growing is not the only horticultural activity which should be excluded from the high risk definition. Most perennial horticultural crops (such as fruit and berry crops) are relatively low risk. The definition includes *irrigated dairy* (item 4). Based on the argument used in paragraph 12, irrigated dairy, if well managed, should pose less nutrient risk than rain-fed dairy because there is a much greater ability to manage water application and, therefore, to manage both plant growth (to maximise nutrient uptake) and drainage (to minimise nutrient losses).

### **Policies**

20. Federated Farmers opposed the presumption in proposed Policy 4.28 (p 89) that nutrient discharge allowances will be used to minimise the loss of N to water. As stated in our submission, it is likely that introduction of nutrient discharge allowances is not the most effective or efficient way to achieve water quality outcomes, and that other means such as the universal improvement of environmental performance via implementation of good management practice is both more effective and more efficient. In addition, individual nutrient discharge allowances will inevitably lead to a cap and trade regime and, consequently, a property right to contaminate will be established. Any such regime, once established, will make it difficult to make future adjustments in the light of new information, greater understanding of processes, improved technology etc. Therefore, we support the recommended deletion of the proposed policy and the recommended new Policy 4.28.

21. Federated Farmers supports the adoption of Good Management Practice (GMP) as the most effective means of addressing water quality issues. Good Management Practice is farm-specific and would be based on features such as soil type, topography, climate, nature and sensitivity of receiving environments, and land-use. What constitutes GMP in any particular location would be defined in a Farm Environmental Plan (FEP) and accountability would be via the content and implementation of that plan. The use of Farm Environmental Plans would ideally be managed within a framework of audited self-management and permitted activity rules. This is consistent with the reports of the Land and Water Forum which state that:

*One major way of achieving standards and targets will be through the good management practice of individual land users.<sup>1</sup>*

*GMP can be nested in the regulatory framework, and contains a suite of methods and tools which collectively manage the range of contaminants from a particular land use in an integrated way. GMP should be adopted in all catchments.<sup>2</sup>*

*Audited self management schemes allow industry and regulators to put in place templates of good practice developed with wide stakeholder involvement, and assure themselves that outcomes are being met.<sup>3</sup>*

22. Federated Farmers supports the prioritisation of performance improvement in catchments containing water bodies which are relatively sensitive to nutrient enrichment (Policy 4.29, p 105). However the policy would benefit from re-wording and we have concerns, expressed above, about the definition of *High nutrient risk farming activity*. The policy should be re-written as follows:

*Prioritise improvement in nutrient management in catchments containing water bodies which have relatively greater sensitivity to nutrient enrichment.*

There is no need to refer to a problematic definition of high nutrient risk farming activities, although such activities would be an obvious starting point in any catchment-based approach.

23. The recommended new Policy 4.32 (p 106) states that, in red areas on the map of Nutrient Allocation Zones (which includes much of the Canterbury plains), a changed or new farming activity will be required to show no net increase in nutrients discharged from the property or that advanced mitigation practices are applied such that *the property operates in the top 10% of nutrient discharge minimisation practices*.

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<sup>1</sup> Land and Water Forum 2010: *Report of the Land and Water Forum: A Fresh Start for Fresh Water*

<sup>2</sup> Land and Water Forum 2012: *Third Report of the Land and Water Forum: Managing Water Quality and Allocating Water*.

<sup>3</sup> Land and Water Forum 2010: *Report of the Land and Water Forum: A Fresh Start for Fresh Water*

Federated Farmers supports the principle of this rule but not the 10% figure. One concern we have is that it will be difficult to determine whether or not an individual farmer is in the top 10%. It is also not clear whether this is a broad-spectrum requirement or whether the policy be focused on a particular nutrient of most concern (such as N)? If the focus is on N, then it must be remembered that the uncertainty around Overseer N-loss estimates is +/- 30%.

24. The recommended new Policy 4.33 (p 106) prioritises the development of sub-regional plans in areas where water quality outcomes are not being met, and specifies methodology for reducing discharges. Federated Farmers supports the prioritisation of collaborative limit-setting, as part of a sub-regional plan process, in areas which are deemed to be most at risk from nutrient discharge. However, it must be remembered that a key part of the process is for local communities to recommend limits for their catchments by weighing the social, economic, cultural and environmental values associated with water in their catchments. It should not be assumed that the limits will closely reflect Table 1 of the proposed LWRP or its map of nutrient zones. Secondly, it is unnecessary to specify methodology for reducing discharges and particularly inappropriate to specify nutrient discharge allowances at the top of the list. Our concerns about the use of nutrient discharge allowances are stated in paragraph 20, above.
25. Where it is determined that nutrient discharge needs to be reduced, based on a collaborative catchment-based community process, a Good Management Practice (GMP) based process will work to achieve that. GMP is not a one-size-fits-all approach. GMP is designed to be appropriate for particular sets of circumstances. As stated previously, it is based on factors such as soil type, topography, climate, sensitivity of the receiving environment and land-use. Therefore, if it is determined that particular, identified environmental impacts are crucial in a particular catchment, GMP can be designed accordingly.
26. Federated Farmers supported the notified Policy 4.35 and we support the amendments to form the recommended Policy 4.34 (p 106).
27. Federated Farmers supported the notified Policy 4.36 subject to the implementation of good management practice with regard to the discharges. We support the amendments to form the recommended Policy 4.35 (p 106).
28. Federated Farmers sought amendment to the notified Policy 4.37, to refer to water quality limits, consistent with the NPS for Freshwater Management, rather than nutrient



load limits and nutrient allowances. This would enable more flexibility as to how limits could be crafted in a particular catchment (for example it would enable the option to use nutrient concentration as well as load (mass)). The policy has been amended to form the new recommended Policy 4.36 (p 106) but specific reference is still made to load limits and nutrient allowances. Therefore, the concerns expressed in our submission remain, and we would be particularly concerned if any nutrient discharge allowance was expressed in terms of, or led to, individual nutrient discharge allowances, for the reasons given above (paragraph 20).

29. Federated Farmers sought amendment to the notified Policy 4.38, to refer to water quality limits, consistent with the NPS for Freshwater Management, rather than nutrient load limits, for reasons given previously. We are opposed to the continued references in the recommended Policy 4.37 (p 106) to not only load limits but now also nutrient discharge allowances, for the reasons given above (previous paragraph and paragraph 20).
30. Federated Farmers supports use of Farm Environmental Plans as a primary means of delivering good practice across a range of farming activities. Therefore, we support the recommended Policy 4.38 (p 106).
31. Item 3 of the recommended Policy 4.38A (p 107) requires clarification. It states that a consent is required *where the potential effects of nutrient discharges are greater*. The question that arises is: greater than what? Presumably the policy is aimed at the situation where potential effects are greater than in most other situations, and are also cause for concern in an absolute sense. Item 3 should be amended to reflect this.
32. Federated Farmers supports the recommended Policy 4.38B (p 107).

### **Nutrient Management Rules**

33. Federated Farmers made general submissions about the use of Overseer in nutrient management in the context of the LWRP. We refer to the expert evidence presented by Dr Ants Roberts and Dr Doug Edmeades in this regard and ask that the concerns raised in their evidence, including the uncertainty (+/- 30%) around Overseer estimates, are had regard to when making final decisions on the nutrient management rules.
34. Federated Farmers supports the recommended new Rule 5.39 (p 129) and the permitted activity status of activities covered by Rules 5.39 – 5.42. This status is appropriate because of the relatively low level of risk of the activities or the need to have

and implement a Farm Environmental Plan, with requirements for the content of the plan, and performance against it, increasing with increase in perceived environmental risk.

35. Federated Farmers generally supports the recommended new Rule 5.40 (p 129) which covers the permitted use of land for an existing activity, which is in an orange, green or pale blue area. However, the rule states a requirement that *information on the farming activity, in accordance with Schedule 7 Part D is provided to the Canterbury Regional Council*. Federated Farmers is supportive of this requirement only if Schedule 7 is amended in line with Federated Farmers' earlier evidence on Schedule 7 (supplementary statement of evidence by Michael Bennett, presented on 7 May 2013). Consistent with that evidence statement, and with that presented by Kerry Harmer on behalf of Castleridge Station, we are opposed to the Schedule 7 (Part C) requirement for annual auditing of Farm Environmental Plans. We request less frequent auditing which would be much more meaningful in a practical sense and would considerably reduce the administrative burden for both regulator and land-user. We suggest an initial audit after two years, followed by five-yearly audits. The provision of more regular or one-off catchment audits could also be allowed for, depending on the progress towards achieving water quality goals in a particular catchment or water body.
36. Federated Farmers also generally supports the recommended new Rule 5.41 (p 129) which covers the use of land for an existing activity, which is in a red area. However, we have the same reservations with regard to Schedule 7 in relation to this rule, as we expressed for Rule 5.40, in the previous paragraph. Therefore, our support for the rule is conditional on the amendment of Schedule 7, as requested.
37. Federated Farmers also generally supports the recommended new Rule 5.42 (p 129) which covers the use of land for an existing activity, which is wholly or partly in a Lake Zone. However, we have the same concerns with regard to Schedule 7 in relation to this rule, as expressed for Rules 5.40 and 5.41 in the previous two paragraphs, and our support for the rule is conditional on amendment of Schedule 7 as requested.
38. The recommended new Rule 5.43 (p 130) covers existing *high nutrient risk farming activities* occurring within a Lake Zone. Federated Farmers supports the rule and its restricted discretionary activity status, provided the definition of *high nutrient risk farming activity* and Schedule 7 are amended as requested. However we do have concerns about matters for discretion 3 and 4. Our concern about matter for discretion 3 is regarding the appropriateness of the values in Table 1 and the justification for the

coloured areas on the Nutrient Zone map. Hence we have an overall concern about the justification for nutrient allocation status. We have a similar concern with regard to matter for discretion 4, particularly in relation to the very demanding outcomes stated in Table 1 and the scope for impacts on water quality from sources other than farming, as stated in the evidence of Kerry Harmer on behalf of Castleridge Station. We continue to have concerns about Schedule 7 in relation to this rule, as expressed above, and our support for the rule is conditional on amendment of Schedule 7 as requested.

39. Federated Farmers supports the recommended new Rules 5.44 – 5.47 (p 130-131). Again, this support is conditional on amendment of Schedule 7 as requested.
40. Federated Farmers supported the proposed Rules 5.50 and 5.51 which deal with the discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA. Changes to both rules have been recommended in the s42A report. Rule 5.50 has been amended to reflect the changed rules and, therefore, changed numbering recommended in the s42A report (p 131). As recommended, condition 1 of Rule 5.50 refers to Rules 5.39 to 5.46. It would make more sense, and would follow the pattern established in the notified plan, if condition 1 encompassed all of the preceding nutrient management Rules 5.39 to 5.47. Therefore, Federated Farmers requests that condition 1 of the recommended Rule 5.50 be amended encompass all of the preceding nutrient management Rules 5.39 to 5.47.
41. Rule 5.51 deals with discharges which do not meet condition 1 in the permitted activity Rule 5.50. It is recommended in the s42A report that the activity status of this rule be amended from discretionary to non-complying (p 131). Federated Farmers does not believe that non-complying status is appropriate. The concern being addressed by the rule is well defined, namely single or cumulative effects of nutrient discharge to land. Therefore restricted discretionary status would be appropriate.

#### **Schedule 7 (p 132-138)**

42. Federated Farmers supports the use of Farm Environmental Plans in combination with a GMP framework, in preference to other management tools, to improve environmental performance. This approach would be applied through a permitted activity rule framework. Our responses to changes recommended in the s42A report are given in the supplementary statement of evidence by Michael Bennett, on behalf of Federated Farmers, presented on 7 May 2013.

### **Schedule 8 (p 139-140)**

43. In its submission, Federated Farmers sought that Schedule 8 be developed in line with the following key points:
- Retain flexibility as to what the values in Schedule 8 represent and how they are to be used because thinking is evolving along with increased information and improved understanding of relevant processes.
  - Aim to improve the environmental performance of primary industries - for individuals this must be reasonable and able to be achieved in a cost effective manner.
  - Define good practice based on productive, profitable farms.
  - Focus on all critical factors relevant to water quality outcomes (at least N, P & sediment).
  - Provide flexibility to allow for the adjustment of farming systems.
  - Allow for 90% of farms to be a permitted activity post-2017.
44. We support the first s42A recommendation with regard to Schedule 8 because the title *Nutrient Management* indicates a broader water quality focus, rather than a focus solely on N. The remainder of the text, stating that the schedule will be established to articulate good practice nutrient management, is problematic because what constitutes GMP in a particular situation (specific location and land-use) will depend on a range of factors, as outlined above (e.g. paragraph 21), and will change over time, as new information becomes available and technology improves. No single Schedule will be able to articulate GMP in a comprehensive manner. The best that can be expected is that the schedule will assist with or support the articulation of GMP, perhaps by providing guidelines or assisting with benchmarking.

### **Nutrient Allocation Zone Mapping (p 141-144)**

45. It is recommended in the s42A report “that the Nutrient Allocation Zone mapping be retained without amendment”. As stated in our submission, Federated Farmers believes that there is not adequate justification for the nutrient allocation zones given their potential economic impact. Much of the Canterbury Plains is mapped red and within the red areas change of land use is non-complying under the proposed plan. Depending on how the map and its Nutrient Allocation Zones are used, there is potential for a major adverse social and economic impact. The benefits of irrigation development

are large and well known<sup>4&5</sup>, and the benefits of land use change have been quantified by Geoffrey Butcher in his expert evidence (which Federated Farmers supports) presented in both the Group 1 and Group 2 hearings. Such development will be largely prevented by the Nutrient Allocation Zone map in combination with the proposed LWRP provisions. (However the situation is improved if the s42A recommendations for amendment of the nutrient management rules (particularly Rules 5.45 & 5.46) are adopted.)

46. There are many anomalies within the red zones. For example, between the Rakaia and Ashburton Rivers, the red zone runs into the foothills and includes land with topsoil over several metres of clay over more than 100 m of alluvial gravel, with little opportunity for N (or other nutrients) to enter water bodies. A further example is the Waipara catchment. Land in this catchment is largely used for forestry and grape growing with some sheep and beef but no dairying. The catchment has a geology (tertiary sediment) which is a source of P and other minerals to waterways. Any water quality issues (such as periphyton) will be related to water quantity rather than nutrient discharge. It makes little sense to manage this catchment as a red area when nutrient discharge is not the critical issue.
47. The approach used to derive nutrient allocation zones is described as an “expert opinion” approach based on “knowledge of nutrient sensitive values” (Section 32 Report, Appendix 6). Description of the process fails to provide sufficient detail to allow examination of the framework or data used in the assessments. There are inconsistencies in the classification of catchments which make it difficult to have confidence that the approach provided a robust and consistent framework for evaluating nutrient allocation zone status.
48. In her expert evidence for the Group 2 hearing, Shirley Hayward made a number of observations with regard to the Nutrient Allocation Zone mapping:
  - Estimates of periphyton and macrophyte cover have a low level of accuracy (but do provide a reasonable indication of the incidence of nuisance growths).
  - There is insufficient region-wide data on periphyton chlorophyll a to allow comparison with Table 1a.

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<sup>4</sup> Harris, S.; Butcher, G.; and Smith, W. 2006: *The Opuha Dam: An ex post study of its impacts on the provincial economy and community*. Aoraki Development Trust.

<sup>5</sup> The Agribusiness Group 2010: *The Economic benefit to the Community of the North Otago Irrigation Scheme*. Waitaki Development Board.


- The Waipara catchment is in a red zone, even though its reasons for being there result from natural processes.
  - Macrophytes would possibly be more effectively controlled through management of fine sediment than the setting of nutrient limits.
  - With regard to nitrate concentrations in groundwater, the dataset of wells which are monitored quarterly are relatively few. Therefore, this dataset “will not be able to monitor average nitrate concentrations spatially very well”.
  - The larger, annual-monitoring dataset has better spatial coverage but contains samples taken in spring-time when nitrate concentrations tend to be greatest.
  - In some areas, red zones are largely indistinguishable from orange zones in terms of their compliance with the water quality outcomes in Table 1 – namely the Ashley-Waimakariri, Temuka and Waikakahi zones.
49. The nutrient allocation zones, in combination with the nutrient discharge rules, have the potential to severely restrict irrigation development, and therefore the development of water infrastructure, including water storage, contrary to the intentions of the Canterbury Water Management Strategy (CWMS)<sup>6</sup>. The CWMS has a philosophy of “parallel development” and requires a “total solution” to water management issues. This involves working towards objectives in 10 different target areas together, or in parallel. This means that water infrastructure development will take place alongside environmental protection and restoration. This is crucial to the whole strategy, because the development of water infrastructure will assist with achievement of some of the environmental targets as well as the obvious target areas such as irrigated land area, and Regional and National Economies. In the context of the nutrient allocation map, it is vital that a cost-effective path to land use change is available throughout Canterbury because this is necessary in order to implement, and pay for, the CWMS vision for development of regional-scale infrastructure<sup>7</sup>. If significant areas are off-limits (e.g. because of Nutrient Allocation Zone they are in), this sort of development will be extremely difficult.
50. Therefore, it is crucial that the Nutrient Allocation Zones are based on sound data and a thorough understanding of relevant processes. It is also crucial that the map is used appropriately, to identify priority areas for the setting of water quality limits via sub-regional plan processes.

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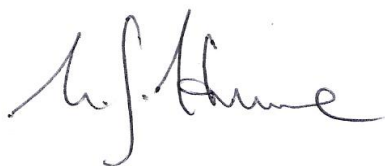
<sup>6</sup> Canterbury Mayoral Forum 2009: *Canterbury Water Management Strategy*.

<sup>7</sup> Whitehouse, I.; Pearce, A. and Mc Fadden, G. 2006: *Canterbury Strategic Water Study (CSWS) Stage 3 – Multi-stakeholder evaluation of water storage options*.

On behalf of Federated Farmers, we thank you for the opportunity to present these submissions.

A handwritten signature in black ink, appearing to read 'C. Allen', with a long horizontal stroke extending to the right.

Chris Allen  
Mid Canterbury President  
Federated Farmers of New Zealand

A handwritten signature in black ink, appearing to read 'L. Hume', with a long horizontal stroke extending to the right.

Lionel Hume  
Senior Policy Advisor  
Federated Farmers of New Zealand