

BEFORE THE

Canterbury Regional
Council

IN THE MATTER OF

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

AND

IN THE MATTER OF

Submission and Further
Submission on Proposed
Plan Change 7 to the
Proposed Canterbury Land
and Water Regional Plan

**STATEMENT OF EVIDENCE OF LIONEL JOHN HUME, JASON AARON GRANT AND
CAMERON JOHN HENDERSON ON BEHALF OF THE COMBINED CANTERBURY
PROVINCES OF FEDERATED FARMERS OF NEW ZEALAND**

Dated 26 November 2020

Introduction

Qualifications and Experience

1. My name is Lionel John Hume. 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 employed as a Senior Policy Advisor, by Federated Farmers, based in Canterbury.
2. I previously worked as a scientist for the Department of Scientific and Industrial Research (New Zealand Soil Bureau/DSIR Land Resources) in the areas of plant nutrition and soil fertility. Specific areas of scientific research experience include:
 - a. nutrient uptake and use by plants – particular emphasis on nitrogen and phosphorus;
 - b. nutrient availability from soils;
 - c. effects of soil acidity (particularly aluminium toxicity) on nutrient uptake and symbiotic nitrogen fixation;
 - d. nutrient, water and management factors affecting the growth and competitiveness of major weed species;
 - e. effects of soil physical properties on plant growth; and
 - f. experimental design and data analysis.
3. I have been a board member of Irrigation New Zealand for over 10 years (2006 – 2018).
4. I am a member of the NZ Institute of Agricultural and Horticultural Science, the NZ Society of Soil Science and the Agronomy Society of NZ.
5. Currently I am a member of Federated Farmers' Regional Policy team and have ten years experience of working with regional planning processes, including the Canterbury Natural Resources Regional Plan (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; the Canterbury Regional Policy Statement and Land and Water Regional Plan processes, including several catchment based limit-setting processes culminating in the establishment of sub-regional plans.

6. Jason Grant and his wife Anna live near Fairlie. With the help of their 10 staff they operate a dairy and dairy support business with three farms located around South Canterbury.
7. They milk a total of 1750 cows from two dairies and one support farm.
8. McClelland Dairies situated at Rangitata is 200 hectares in area, milking 750 cows and is fully irrigated with water from the Rangitata South Irrigation scheme.
9. Leslie Downs situated in the Fairlie basin is a 1250 hectare hill country farm with a 300 hectare milking platform on the flats milking 1000 cows. The farm is not irrigated.
10. Kerry Downs, situated at Albury, is 290 hectares dry land used for grazing young stock and wintering cows.
11. Jason has been farming all his life, leaving school to work on the family farm then gaining experience working around the country. He has worked in most of the farming industries New Zealand has to offer, from growing vegetables to high country fine wool, dairying to beef and lamb finishing.
12. In more recent times Jason has taken on more off-farm roles. Below is a list of his qualifications and current governance roles:
 - Dip Farm Management, Lincoln University
 - Kellogg Rural Leadership Program
 - President, South Canterbury Province, Federated Farmers of NZ
 - Chair, Canterbury Regional Policy Committee, Federated Farmers of NZ
 - Co-opted board member, South Canterbury Chamber of Commerce
 - Director, Rangitata South Irrigation Ltd
 - Chair, Opuha Catchment Group
 - Deputy Chair, Board of Trustees, Timaru Boys High School
13. Cameron Henderson and his family live and farm near Oxford. With the help of four families, they operate a dairy farm and dairy support farm just south of Oxford.

14. Both farms sit on the Canterbury Plains and utilise groundwater for irrigation. Both farms operate at an 'A' grade audit standard with ECan and the dairy farm is certified as Gold Plus standard with Synlait.
15. Cameron was educated as a robotics engineer before working as a strategy and modelling analyst at Fonterra. Cameron began farming in Canterbury in 2009 and has been a land owner since 2011. Since then Cameron has worked as a farm systems developer for DairyNZ and contributed towards the development of the Dairy Environment Leaders programme in Canterbury.
16. Since 2007 Cameron has been a member of the Waimakariri Zone Committee and since 2019, has served as deputy chair.
17. In more recent times Cameron has taken on more off-farm roles. Below is a list of his qualifications and current governance roles:
 - BE (Hons) Robotic Engineering, BCom - University of Auckland
 - Kellogg Rural Leadership Scholar 2017
 - Nuffield Scholar 2019
 - President, North Canterbury Province, Federated Farmers of NZ
 - Member National Advisory Board, Dairy Environment Leader, DairyNZ
 - Member Canterbury Dairy Leaders Group
 - Member Waimakariri Landcare Working Group

Part A of Plan Change 7: Region-wide Provisions and Section 13 (Ashburton)

National Policy Statement for Freshwater Management (NPSFM)

18. On pages 58 – 73 of the s42A report, under the heading *National Policy Statement for Freshwater Management* there is discussion about alignment between the water quality outcomes and limits in the in the Canterbury Land and Water Regional Plan (CLWRP) and the attributes states in the National Policy Statement for Freshwater Management (NPSFM).

19. In addition to the consideration of alignment with the NPSFM, consideration must also be given to the Canterbury Water Management Strategy (CWMS).
20. The Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010 (ECan Act) states (in s63) that:

“In considering any proposed regional policy statement or plan, ECan must have particular regard to the vision and principles of the CWMS in addition to the matters relevant under the RMA to its decisions made under clause 10(1) of Schedule 1 of that Act.”
21. The vision of the CWMS is as follows:

To enable present and future generations to gain the greatest social, economic, recreational and cultural benefits from our water resources within an environmentally sustainable framework.
22. Beneath the vision statement is a list of features which will be evident (within 10 years) if the strategy is successful. These make specific reference to:
 - protection of ecosystems, habitats and landscapes;
 - protection of water quality;
 - access to reliable water;
 - primary production and employment;
 - value added by irrigation; and
 - rural community viability.
23. CWMS target areas are as follows:
 - Environmental Limits
 - Ecosystem Health/Biodiversity
 - Natural Character of Braided Rivers
 - Kaitiakitanga
 - Drinking Water
 - Recreation and Amenity Opportunities
 - Water Use Efficiency
 - Irrigated Land Area
 - Energy Security and Efficiency
 - Indicators of Regional and National Economies

24. The CWMS prescribes integrated management based on water management zones. It states that the targets will give the strategy a sense of direction and balance, and ensure that all aspects of the solution are advanced in parallel. It states a philosophy of parallel development whereby targets are to be achieved in parallel (not one at the expense of another). Therefore, it envisages that infrastructure development will occur alongside environmental protection and restoration.
25. Federated Farmers believes that the vision and principles of the CWMS should be given particular regard to (as required by the ECan Act) throughout consideration of the various provisions of Proposed Plan Change 7. There are key provisions, notably the re-setting of flow and allocation regimes and the introduction of requirements to reduce N discharge from farming operations, which will present a challenge with regard to how the CWMS targets can be achieved in parallel e.g. targets to do with ecosystems and water quality on the one hand and targets to do with reliability of water supply and regional and national economies on the other.
26. With regard to the National Policy Statement for Freshwater Management 2020, August 2020 (NPSFM 2020), it is stated in Part 4, under the heading *Timing and transitionals*, that *Local authorities must publicly notify any changes to their regional policy statements, regional plans and district plans that are necessary to give effect to this National Policy Statement as required under the Act.*
27. Therefore, Federated Farmers believes that this hearing process is not the appropriate process for giving effect to the NPSFM 2020. Instead, this process should be guided by the ECan Act (still in force when PC7 was notified) and the CWMS.
28. In addition, it should be noted that Environment Canterbury has already fulfilled its immediate requirements to implement the NPSFM 2020 by giving notice that, in accordance with s55(2) of the Resource Management Act 1991, a number of regional plans have been amended to incorporate clauses from the NPSFM 2020. (Included within the NPSFM 2020 are directions to regional councils to include these specific clauses.)

Indigenous freshwater species habitat

29. Federated Farmers opposed the definition *Indigenous freshwater species habitat* because, as proposed, it was much too broad and had not been widely consulted on before notification. We noted that indigenous freshwater species are ubiquitous, so *Indigenous freshwater species habitat*, taken to its logical extreme, could encompass all freshwater in the Canterbury Region. The recommended amendment, to *Critical Habitat of Threatened Indigenous Freshwater Species*, is more appropriate because it is much more explicit and targeted towards the real purpose of protecting the diversity of indigenous freshwater species, in conjunction with the list of freshwater species that forms part of the definition.
30. Federated Farmers requested the deletion of Policy 4.101 because of the loose definition of *Indigenous freshwater species habitat*, as discussed above, and because it had not been widely consulted on before notification. We support the use of the amended definition in Policy 4.101 but are concerned about loss of the ability to remedy, mitigate or offset (parts a and b of the policy). While it is often highly desirable from a biodiversity standpoint to safeguard original habitat, there may be situations where this is not the best option or where it is simply not possible. Therefore, we believe that parts a and b of Policy 4.101 should be retained.
31. Federated Farmers opposed the proposed amendment to Policy 4.31 (livestock exclusion from water bodies) again because of the loose definition of *Indigenous freshwater species habitat*. The tightening of the definition (as discussed above) makes the proposed amendment to the policy more acceptable.
32. Federated Farmers opposed the amendment of Rule 5.71 (livestock exclusion) again because of the loose definition of *Indigenous freshwater species habitat*. The tightening of the definition (as discussed above) makes the proposed amendment to the policy 5.71 more acceptable.

Fish Passage

33. Policy 4.102 seeks to ensure that in-stream structures enable the safe passage of indigenous fish while preventing the passage of invasive, pest or nuisance species.

Federated Farmers sought amendments introducing the notion of practicality for ensuring the passage of indigenous fish while removing that notion for prevention of the passage of invasive, pest or nuisance species.

34. Fish & Game stated that the management of species should be separated from the management of habitat, and that it is not the role of regional councils to manage species. In response to this, Federated Farmers suggests that the two things are intertwined, and that it is not possible to manage habitat without impacts on species composition and wellbeing. Salmonid species predate on small indigenous species¹, so any facilitation of trout and salmon passage will inevitably have an adverse impact on indigenous biodiversity. We would also point out that under s30 of the RMA, regional councils have the function of controlling the use of land for the purpose of maintaining and enhancing ecosystems in water bodies and coastal water. They are also responsible for objectives, policies and methods for maintaining biological diversity.
35. While we are not vehemently opposed to the deletion of policy 4.102, we are concerned that one of the principal reasons for doing so is concern about potential restrictions on the passage of sports fish.

Managed Aquifer Recharge (MAR)

36. Policies 4.99 and 4.100, along with Rules 5.191, 5.192 and 5.193, are designed to set a framework for the use of MAR to increase groundwater levels and stream flows and to reduce nutrient concentrations.
37. Federated Farmers supports the use of MAR and supported Policies 4.99 and 4.100, and Rules 5.191, 5.192 and 5.193. Further, we requested an amendment to Policy 4.100 to clarify conditions for the use of water for MAR where the flow and allocation limits are exceeded.
38. There was widespread support for MAR, but there was a school of thought among some submitters that MAR should only be used as a last resort, were other measures to improve water quality had failed, and then only on a temporary basis.

¹ Hayes, J. Hill, L. 2005: The Artful Science of Trout Fishing. Canterbury University Press.

39. Federated Farmers has the view that MAR is a perfectly legitimate tool for improving water quality or enhancing water quantity. Water quality depends on concentrations of contaminants (among other factors), and a reduction in contaminant concentrations achieved via the use of MAR is no less legitimate or valuable than that same reduction achieved by other means.
40. However, we also take the view that farmers should be operating at Good Management Practice (as per Plan Change 5) and that techniques such as MAR should be used, as appropriate, to mitigate environmental impacts from that point. MAR should not be used to mask poor practice.
41. Therefore, we support the view of the s42 reporting officer that MAR has a legitimate role in the achievement of freshwater outcomes, limits and targets, alongside other measures such as the adoption of GMP.
42. In response to submissions seeking that MAR should be a temporary measure, Federated Farmers again supports the view of the reporting officer, that the appropriate duration for MAR will be considered via the consenting process and determined on a case by case basis.
43. Federated Farmers supports the recommended amendment to Rule 4.99 c, which specifies how “unnatural mixing of water” is to be dealt with. However, we are opposed the recommended change to Rule 4.100 a, which would remove the possibility of allocation of water for MAR which would result in exceedance of the environmental flow and/water allocation limit, regardless of the environmental benefits to be gained.
44. Federated Farmers believes that it is important not to completely remove this possibility because there may well be situations where the environmental benefit does outweigh the environmental cost of exceeding the limit. Obviously any such activity would need to be subject to rigorous scrutiny via the consenting process.
45. The reporting officer states that the taking of additional water from over-allocated surface water catchments is contrary to the NPSFM. This is true but elevated nutrient concentrations in groundwater or spring-fed streams is also contrary to the NPSFM. This is the sort of difficult situation where wisdom needs to be able to be exercised, based on reliable information and sound understanding of relevant biophysical processes.

46. Fish & Game suggested adding a requirement (to Policy 100 b) to surrender a portion of the consented water, the use of which is transferred to MAR, in over-allocated catchments. Federated Farmers is strongly opposed to this suggestion, and also to the reporting officer's recommendation that the surrender requirement should instead be an additional matter for discretion for Rule 5.191. We see no sense in either Fish & Game's request or the reporting officer's recommendation (the reporting officer's recommendation is a slightly better option). Both are simply disincentives for an activity designed to provide environmental benefit. The reference by the reporting officer to Policy 4.50 which specifies that, for over-allocated catchments, a reduction in over-allocation is achieved by the replacement consent being no greater than 90% of the previously allocated rate, is not directly relevant to the situation being discussed here. Water transferred to MAR is transferred to provide environmental benefit, whereas Policy 4.50 is designed simply to address over-allocation, where there would be no associated loss of an environmental benefit.
47. Federated Farmers supported Rules 5.191, 5.192 and 5.193, as notified, because they provide for the construction and use of MAR systems to improve the quality and/or quantity of freshwater. MAR is potentially a powerful tool for the management of specific water quality and water quantity issues in Canterbury and nationwide². Initial trials in Canterbury have been promising and the technique is widely used internationally.
48. Federated Farmers believes the requirement to surrender a portion of water whose use is transferred to MAR makes no sense. Therefore, we oppose the addition of matter for discretion 16 to Rule 5.191.
49. Federated Farmers opposes the recommended amendments to Rules 5.192 and 5.193. As discussed above, the taking of water from an over-allocated catchment for use in MAR needs to be able to be considered, so that the environmental gains and losses can be carefully assessed and compared. Therefore, we believe that non-complying activity status is more appropriate than prohibited.

² Williamson, J. and Sheppard, M. 2010: Managed Aquifer Recharge: Sustainable Water Resource Management on the Canterbury Plains. Report by Sinclair Knight Merz for Environment Canterbury.

MAR and TSA (Targeted Stream Augmentation)

50. There is discussion about MAR and TSA on pages 150 – 152 of the s42A report.
51. Federated Farmers supported the definition of *Augmenting* in Section 13 of PC7 (Ashburton) because the definition makes sense in the context in which it is used and has the support of the Hinds Drains Working Party. We oppose the request of Forest and Bird, based on their view that the definitions of MAR and TSA overlap. We would argue that this is not an issue because there is an overlap in reality.
52. As stated in our submission, it is Federated Farmers' understanding that the definition of *Augmentation* (Section 11 Definitions) has been amended to refer only to the addition of water to *surface water* because the addition to surface water carries less risk, and therefore has different consenting requirements, than the addition of water to groundwater.
53. However, the degree of risk is also dependent on the source of the water (e.g. surface or groundwater), which is not addressed by this definition of *Augmentation* or the region-wide definition of *Managed aquifer recharge*. Both the source and the nature of the target water body will need to be taken into account in any consent application, on a case-by-case basis. Therefore, we are not sure what is achieved by narrowing this definition. The definition, as written, would also not allow the reduction in nitrate concentrations as a justification for augmentation (unlike the definition of *Augmenting* in Section 13).
54. Further, Federated Farmers believes that the desire to manipulate the definitions to distinguish between MAR and TSE is both futile and unnecessary. The two processes overlap in reality, partly because there is often not a clear boundary between surface and ground water. In reality, MAR will contribute to surface water bodies (most obviously spring-fed streams) and TSE will contribute to groundwater (via leakage from surface water bodies).

Submission of Water Quality Data

55. Policy 4.103 requires the submission of water quality data to ECan. As notified it required the submission of *all* water quality data. Federated Farmers submitted that the policy should only require the sample data required by a consent condition. We support and appreciate the recommendation to amend Rule 4.103 as requested by us.

Part C of Plan Change 7: Waimakariri

S42A Report: 1 Executive summary

56. It is stated in part 1.4 that the NPSM 2017 and recent caselaw reinforce greater focus on the concept of Te Mana o te Wai and that consequently some recommendations made in this section will go beyond what was recommended by the Waimakariri Zone Committee. In response, Federated Farmers reiterates the earlier discussion in this evidence statement, under the heading *National Policy Statement for Freshwater Management (NPSFM)*. We particularly ask that due consideration be given to the CWMS, as required under the ECan Act, and that care is taken to distinguish between the requirements of the NPSFM 2017 and those of the NPSFM 2020. As discussed above and stated in the NPSFM 2020, *Local authorities must publicly notify any changes to their regional policy statements, regional plans and district plans that are necessary to give effect to this National Policy Statement as required under the Act.*

Section 8 Waimakariri - Introductory Material

57. Under the heading *Zone Committee*, Outcome 9 states that: *Land and freshwater management in the Waimakariri Water Zone supports, over time, maintenance of current high-quality drinking water in Christchurch's aquifers.* Following Outcome 9, it is stated that *a proportion of recharge to Christchurch's deep aquifer system is likely to be derived from an area within the Waimakariri sub-region.*
58. Federated Farmers requested that, for balance, additional context needs to be provided, as follows³:

³ Based on information given to the Waimakariri Science Stakeholder Advisory Group, prior to notification of PC7.

- 1) The term “likely” only applies to Belfast and North Christchurch. Any effect on aquifers below the main part of Christchurch is much less certain:
 - 2) Even over a 50-100 year timeframe, any increases in nitrate concentration would be below the Maximum Acceptable Value for safe drinking water; and
 - 3) Any effect would be long term (timeframe of 50 – 100 years).
59. Further, based on the evidence statement of Dr Helen Rutter to this hearing, dated 17 July 2020, we cannot discount the hypothesis that there is flow at depth under the Waimakariri River. However, the work done so far has not proven that there is such flow. It is further stated that flow at depth under the Waimakariri River is not the only hypothesis that could be supported by the available data. Therefore, there is considerable uncertainty around any assertions that nutrient discharge from farming in the Waimakariri Zone could end up in the aquifers which provide Christchurch’s drinking water.
60. The reporting officer recommended rejecting our submission on Outcome 9 on the basis that it is inconsistent with the style and level of detail included in this part of section 8. At a superficial presentation level that may be true, but the contention that nutrient discharge from the Waimakariri Zone will adversely affect groundwater quality under Christchurch City needs to be critically examined. Therefore, Federated Farmers continues to request that context is attached to Outcome 9. We also ask that the extreme uncertainty about whether or not water, along with dissolved nutrients, is likely to flow at depth under the Waimakariri River is borne in mind when considering the need (or not) for and extent of reductions in nutrient discharge from farming in the Waimakariri Zone.

Drinking Water Quality and Christchurch Aquifers

61. When considering requests for more stringent controls to protect Christchurch aquifers e.g. on nutrient concentrations in water bodies, such as the amendments sought by Christchurch City Council to Table 8-5, we ask that very careful consideration is given to the large degree of uncertainty attached to ECan’s modelling, including the unproven nature of ECan’s hypothesis that there is flow at depth under the Waimakariri River towards the aquifers beneath Christchurch⁴.

⁴ Evidence Statement by Dr Helen Rutter dated 17 July 2020.

62. In addition we advise caution around the Danish research study that claims to have identified a link between nitrates in groundwater and colorectal cancer. Much more work needs to be done to test its credibility and what it means in the New Zealand context. Until that work is done it should not be given undue prominence.

Efficient Allocation in Accordance with Schedule 10

63. Policy 8.4.24 requires the consideration of records of past water use when determining an efficient allocation for the replacement of a lawfully established water permit using Schedule 10. Federated Farmers submitted that the determination of reasonable allocation should not be confined to consideration of previous use because previous use (essentially Method 1 of Schedule 10) does not necessarily indicate need in a dry year. Allocation in Canterbury is designed to provide 90% reliability i.e. to be fully used only in a one in ten dry year. The full range of methodologies in Schedule 10 of the CLWRP should be freely available to determine efficient allocation, including the field validated model approach (effectively the Irricalc daily water balance model), which is probably the most reliable approach because it is not dependent on the weather experienced in the previous few years.
64. The reporting officers recommended rejection of our submission based on the reasoning that the policy does not confine the determination of seasonal demand for irrigation to just one method under Schedule 10 (records of past use). They state that the policy merely requires that “records of past use be considered when determining an appropriate demand for a replacement water permit regardless of which method is adopted within Schedule 10”.
65. This response doesn't entirely make sense. If any method in schedule 10 can be used (which we agree should be the case) then what is the point of considering records of past use? For example, if method 2 (field validated model such as Irricalc) is used, then what is the purpose of considering records of past use? Would some adjustment of the Irricalc result be required?
66. As notified, Policy 8.4.24 could easily be interpreted as steering readers towards method 1 of Schedule 10 (records of past use moderated to give 90% reliability). In our opinion, if we are truly seeking efficient allocation, which will result in reliable supply, then the best options are probably methods 2 or 3 of Schedule 10. Using records of

past use is problematic because appropriate records, covering a range of climatic conditions over sufficient time, simply may not exist.

67. With regard to effective and efficient use, the most effective approach is to allocate the amount of water that is actually needed for reasonable use in a dry year. Under-allocation can lead to inefficient use, as well as over-allocation, including by causing sub-optimal plant growth or crop failure. Rather than promoting efficient allocation of water, the use of records of past use could lead to unreliability and therefore inefficiency.
68. Therefore, we continue to ask that policy 8.4.24 is amended as requested, to remove the requirement to consider records of past use.

Surface Water Quantity

69. To “avoid flows in surface water bodies falling below the minimum flows in 8-1 and 8-2 due to water abstraction” Policy 8.4.12 requires pro rata restrictions on all takes except those for community water supplies or stock drinking water. Federated Farmers submitted seeking addition wording to say seek to avoid because it is not always possible to prevent flows falling below specified minimum flows. Preventing abstraction may not prevent further decreases in flow. Despite the reporting officer’s recommendation, we continue to seek this change.
70. Federated Farmers also supported (via further submissions) the submissions from Bowden Environmental seeking to extend the exemption from pro rata restrictions to other essential uses such as dairy shed washdown, animal welfare and individual domestic needs. In response, the reporting officer stated that an individual’s domestic needs are covered by s14(3)(b)(ii) of the RMA but that water for dairy shed washdown is not considered essential. We continue to have the view that dairy shed washdown is essential for several reasons, including animal and human welfare, and food hygiene (the latter because milk gets used for human food, both as milk and further processed products). Therefore, we oppose the recommendation that the submission from Bowden Environmental be rejected.
71. Federated Farmers supported a similar submission by Bowden Environmental in relation to Policy 8.4.16. The submission was rejected for the reasons given in the

previous paragraph. Again, we continue to have the view that dairy shed washdown is essential for several reasons, including animal and human welfare, and food hygiene (the latter because milk gets used for human food, both as milk and further processed products). Therefore, we oppose the recommendation that the submission from Bowden Environmental be rejected.

Nitrate Priority Sub-areas and Reductions in Nitrogen Loss

Table 8-9

72. Federated Farmers supported the cumulative nitrogen loss targets for 1 January 2030 (15% for dairy and 5% for “all other” farming types). However, we submitted that loss targets beyond 2030 (if needed) should be adaptively managed, based on rigorous and comprehensive environmental monitoring and the development of cost-effective management strategies and technologies to limit nitrogen loss.
73. Requirements for reductions in nitrogen loss beyond 2030 (if/as necessary) should be dealt with during future plan reviews, using an adaptive management approach, based on rigorous and comprehensive environmental monitoring.
74. In response to our submission, and a number of other similar submissions, the reporting officers recommended that Table 8-9 be retained as notified.
75. Federated Farmers opposes that recommendation. We recognise the wisdom of an initial reduction in N discharge (which we supported). However, we believe that the case for an adaptive management approach is considerably stronger now given the uncertainty around ECan’s modelling highlighted by the evidence of Dr Helen Rutter including the unproven nature of ECan’s hypothesis that water flows at depth under the Waimakariri River towards the Christchurch aquifers.
76. The information available to us strongly supports the wisdom of an adaptive management approach along with rigorous environmental monitoring and developing hydrological knowledge.

Stock Exclusion

77. Rule 8.5.34 proposes that within the Waimakariri sub-region, Regional Rule 5.71 (prohibiting livestock access to the beds and banks of lakes and rivers) applies within the Ashley-Waimakariri Plains Area.
78. Federated Farmers requested deletion of the rule because in our view it essentially miss-uses rule 5.71. Rule 5.71 was designed to target particular high value, sensitive sites, such as salmon spawning sites, inanga spawning habitats, community drinking water zones, listed bathing sites and plains spring fed rivers. It was not designed to provide a blanket prohibition. Rules 5.68A - 5.71, as currently written, provide more than adequate protection from livestock.
79. Therefore, Federated Farmers continues to request deletion of Rule 8.5.34.

Targeted Stream Augmentation

80. Policy 8.4.20 prevents the abstraction of water discharged for the purpose of targeted stream augmentation, in all circumstances. Federated Farmers is opposed to this blanket constraint. Targeted stream augmentation should also be able to be appropriately and responsibly used to support reliability of supply. To that end, Federated Farmers submitted that Policy 8.4.20 should be deleted or amended to enable consideration of augmentation, partly or wholly, for the purpose of improving reliability of supply. It should be noted that increased reliability of supply does have environmental benefits e.g. in enabling more efficient and effective use of irrigation water.
81. There is also a practical difficulty in implementing this policy because it would be impossible to distinguish that water discharged for the purpose of targeted stream augmentation from any other water that it might mix with in the water body concerned. (Even if there is no current abstraction from the water body concerned, the discharged water will eventually reach a water body from which there is abstraction.)
82. The reporting officers have recommended rejection of our submission and queried our assertion that reliability of supply has environmental benefits. Increased reliability increases efficiency of water use in the sense that it enables greater output per unit of

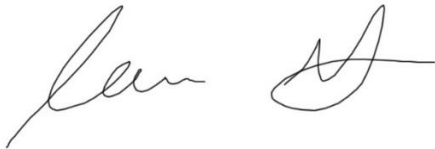
water⁵. It and reduces drainage (and therefore nutrient loss) by enabling precise placement and timing of the application of irrigation water, which in turn guarantees an actively growing crop to take up nutrients^{6&7}.

Conclusion

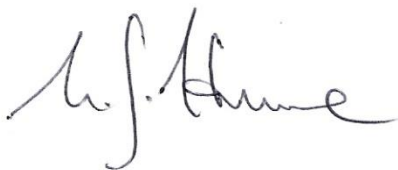
Federated Farmers thanks the Hearing Panel for the opportunity to present this evidence statement.



Jason Grant
President, South Canterbury Province
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Cameron Henderson
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⁵ Howell, T.A. 2001: Enhancing Water Use Efficiency in Irrigated Agriculture. Agronomy Journal Symposium Paper.

⁶ Foundation for Arable Research 2017: Irrigation is good for the environment. On-line Article 30.

⁷ Environment Guide 2018: Environmental impacts of agriculture. Environment Foundation, Auckland, NZ.