BEFORE THE COMMISSIONERS APPOINTED ON BEHALF OF THE OTAGO REGIONAL COUNCIL

UNDER	the Resource Management Act 1991 (the **Act** or **RMA**)
IN THE MATTER	of an original submission on the Proposed Regional Policy Statement for Otago 2021 (**PRPS**)
BETWEEN	**OTAGO WATER RESOURCE USER GROUP** **Submitter OS00235 and FS00235** **FEDERATED FARMERS NZ INC** **Submitter OS00239 and FS00239** **DAIRY NZ** **Submitter FS00601**
AND	**OTAGO REGIONAL COUNCIL** **Local Authority**

EVIDENCE IN CHIEF OF MIRANDA JANE HUNTER ON BEHALF OF THE SUBMITTERS

DATED 23 NOVEMBER 2022

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EVIDENCE IN CHIEF OF MIRANDA JANE HUNTER

Background And Qualifications

1. My name is Miranda Jane Hunter. I hold a Bachelor of Agricultural Science Degree from Lincoln College. I am member of the New Zealand Institute of Primary Industry Management and have been involved in the dairy industry in consultancy, practical farming and dairy industry leadership roles since 1986.

2. I am qualified to complete farm systems appraisals. I have developed my skills through 30 plus years working in dairy farm systems. This level of experience has been recognised nationally and internationally through judging roles, senior leadership roles and consultancy contracts.

3. I have completed the Sustainable Nutrient Management Courses, (Intermediate and Advanced) and am a Certified Nutrient Management Adviser (certified in 2014). I have also completed a course in Greenhouse Gases and am a certified Greenhouse Gas Advisor (certified in 2019).

4. I am a Director and Shareholder of South Coast Dairies Limited which has a shareholding in a 135 ha dairy platform in Southland. My involvement with this property, with my other business partners, has been to develop a sustainable farming business in all facets, including environmental. The business has been awarded several environmental awards including winner of the 2011 Environment Southland Farming Award.

5. I was previously employed by DairyNZ as Regional Leader for the Southern South Island. In this role I lead the extension team (of Consulting Officers) working with dairy farmers to achieve adoption of new practices and technologies on farm (including environmental).

6. I resigned from DairyNZ in June 2012 and I am now self employed as a Farm Consultant (trading as Roslin Consultancy Limited). I work with dairy farmers throughout Southland and Otago supporting them in analysing the environmental impact of their farm systems and

improving their on-farm management to meet their environmental goals. I also undertake environmental projects (contracted by Industry and Government Agencies) supporting the development of good practice resources for farmers and Overseer modelling to analyse effectiveness of mitigation practices at farm scale.

7. I have read the Code of Conduct for Expert Witnesses within the Environment Court Consolidated Practice Note 2014 and I agree to comply with that Code. This evidence is within my area of expertise, except where I state I am relying on what I have been told by another person. To the best of my knowledge, I have not omitted to consider any material facts known to me that might alter or detract from the opinions I express.

Scope Of Evidence

8. I have been engaged by Otago Water Resource User Group, Federated Farmers New Zealand and Dairy NZ to provide evidence regarding the processes that farmers will follow when they need to adapt to new regulatory requirements or undertake farm systems change for other reasons. The purpose of this evidence is to assist the Panel in understanding the on the ground consequences of the policy direction in the Proposed Otago Regional Policy Statement 2021.

9. This evidence addresses the following matters:

   (a) Farm systems complexity

   (b) Transitioning farm systems

Farm Systems

10. Farm systems are interlinked and complex. A farm system is both a biological system and a business system, many factors are outside the direct control of the farmer (such as weather, international prices for products, input prices).

11. In simple terms a farmer has a bundle of resources (land, climate, labour, capital, infrastructure), takes inputs (animals, feed, water, fertiliser) and makes management decisions (pasture management,

animal health and reproduction, financial, environmental and people management) to produce a product (meat, grain, fibre, milk). When boiled down like this, it seems quite simple. Straight forward even. But it is not.

12. Farmers have always adapted their farm systems in response to market prices and climatic conditions. Farmers take a considered approach to adapting their farm systems as poor decision-making places the farming business at risk. They are also being required to adapt as a result of other forces, such as regulatory change.

13. Farming has a low level of annual return, the mean percentage return on capital in farming is 2.5%[1]. Whilst commodity prices are currently strong, increasing farm costs driven by global conditions and inflation are reducing many of the recent gains. The last ten years milk price has averaged $6.56 per kg ms, the opening forecast for the 2022/23 season has a midpoint of $9 per kg ms. In the last 12 months input prices have risen. For example fertiliser, "prices had risen for superphosphate from $304 a tonne last April to $367-$369 now, urea had gone up from $639 to $1190, DAP from $893 to between $1295-$1320 and potash from $682 to $995-$1000"[2].

14. On farm debt levels are high, total farm debt in NZ is $62.8 billion – up 240% on 20 years ago[3], as quoted by the Government in 2019 when the Farm Debt Mediation Bill was approved. It is also worth noting the following comment in the press release:

> *"The failure of a farm business can lead to the farmer and their family losing both their business and their home. For many rural communities the failure of one farm can have a ripple effect through those communities and the regional economy."*

15. Over time farmers have developed the knowledge base to make decisions in response to market prices and climatic variables. These

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[1] The reality of net capital gains and annual profit on NZ primary producing businesses: data from a recent survey of all farm types. Bruce Greig, Peter Nuthall &Kevin Old, June 2018

[2] Limits to caps on fertiliser prices. ODT 2nd February 2022

[3] https://www.beehive.govt.nz/release/new-scheme-financially-distressed-farmers

are understood challenges that exist in the farming community, and through their skills and experience farmers work through these issues.

16. The challenges posed by regulatory change are slightly different in that they are often ‘new’ or unanticipated giving farmers less time to plan and adapt. When they do come into force, they need to be incorporated into the existing dynamic and variable system in some way.

Changing Requirements to Farm Systems

17. In the last five to ten years there has been an increasing level of change coming from consumer / community expectations and regulation. Examples include more stringent animal welfare requirements, water quality regulation, controlling water quantity, greenhouse gases, biodiversity, health and safety, and lending requirements.

18. Challenges for the farming community include:

    (a) Changes being discussed in silos (rather than in a whole farm systems context).

    (b) Lack of certainty and clarity about what is required.

    (c) “Solutions” offered are top down rather than from the ground up.

    (d) Speed of change.

    (e) This all results in a lack of knowledge about the response required at an individual farm level.

19. A recent example of this challenge for farmers has been the National Environmental Standards for Freshwater 2020. The intensive winter grazing rules have had to be revised and the implementation time extended as the original rules were not practical. In addition to this some of the regulation was not consistent with regional regulation which caused uncertainty for farmers regarding implementation.

20. Farmers are a broad group of people who are all responding differently to these challenges. Some take the fight approach, others are sitting and waiting for more certainty, others are trying to be proactive.

21. For farmers who turn to their advisor network, we are increasingly finding meaningful and effective conversations require engaging a diverse range of rural professionals around the table. For example: the farm systems specialist, the farm environmental consultant, the banker, accountant, vet and possibly the lawyer. Not only is this an expensive exercise for the farmer, but there are also a limited number of skilled rural professionals available.

22. The complexity only increases when there are multiple farming generations around the table and there are also succession planning challenges to be worked through.

Transitioning Farm Systems

23. Some change on farm is at the simpler end of the spectrum– for example implementation of good management practices. Some good management practices require little to no cost, such as applying fertiliser at the right time or implementing buffer zones for intensive winter grazing, while others require more significant investment or costs, such as constructing new effluent storage systems or upgrading off paddock structures such as standoff pads. One advantage is that in general good management practices have a reasonable level of clarity, and there is a good network of organisations providing advice and support in relation to them including industry bodies, councils, and catchment groups.

24. The next level up from good management practice is mitigating contaminant losses from current farm systems. Often these require significant farm investment, for example installation of a wintering barn. To make significant capital investment farmers need certainty that this will “future proof” their farm system.

25. Most farmers have been adopting good management practices and mitigations for several years. The research project “Assessing the

effectiveness of on-farm mitigation actions"[4] made the following key points:

(a) Our rivers would be in much worse condition today if farmers had not adopted better practices between 1995 and 2015.

(b) Significantly more nitrogen (45% more) and phosphorus (98% more) would have entered rivers from dairy-farmed land between 1995 and 2015 if farmers hadn't changed their practices.

(c) On sheep and beef farmed land, 30% more sediment would have entered rivers between 1995 and 2015 if farmers hadn't changed their practices.

(d) Researchers estimated that if all known and developing mitigation actions were implemented by all dairy and sheep and beef farmers by 2035, potential loads of nitrogen and phosphorus entering rivers might decrease by one-third, and sediment by two-thirds, compared to 2015. For many catchments, this will be enough to meet water quality objectives.

(e) At the same time on other farms land use changed and farming intensified. Land area used by dairy expanded 40% between 1995 and 2015, and together with changes on farm, total dairy production increased by around 160%. The land area occupied by sheep and beef contracted, but the intensity of production per hectare increased. This increased food production continued to put pressure on freshwater by increasing total nitrogen loss. Mitigations were not sufficient to offset these increased nitrogen loads.

26. If, to meet consumer / community expectations and regulation good management and / or mitigating current farm systems is not sufficient

[4] Research Findings Brief: Assessment of the effectiveness of on-farm mitigation actions, Our Land and Water (Toitū te Whenua, Toiora te Wai) National Science Challenge 2020

then farmers will need to consider new further adapted farm systems (which may include land use change).

27. Our Land and Water Challenge have been undertaking a project on "Supporting complex decisions on land – use changes"[5]. As a result of this project, they have developed a multi-criteria decision making (MCDM) framework. The domains and criteria of this framework illustrate the complexity of the decision-making process.

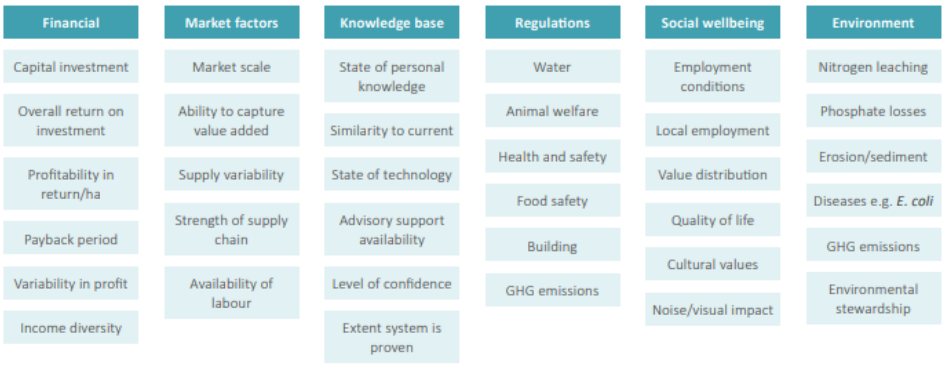

Fig 1 - MCDM domains and criteria

28. Farmers (and their supporting rural professionals) are trying to learn to adapt to change and uncertainty at a faster and more complex level. Part of this learning will be to evolve more resilient and adaptable farm systems. However, it is not a quick or simple process.

29. Implementation of changes on farm involves several steps:

    (a) Gather as much information as is available.

    (b) Understanding what is required.

    (c) Investigate options from a whole farm system perspective.

    (d) Pricing the different options.

    (e) Understand risk and fall-back positions.

    (f) Securing finance and regulatory requirements.

[5] Supporting complex decisions on land-use change. Prof Alan Renwick, Dr Robyn Dynes, December 2019

(g) Making the appropriate contacts / contracting services.

(h) Implementation of the change.

(i) Commissioning and fine tuning.

30. A simple and relatively straight forward example of the above would the installation of a new farm dairy effluent pond. The above steps are likely to take a minimum of 2 to 3 years (assuming financial approval and contractor availability). I have a client in Otago who have identified that they will need to obtain a consent for their effluent pond in 2024. The steps and costs they are currently working through are:

(a) Complete a dairy effluent storage calculation.

(b) Improvements required for system:

(i) Purchase a low-rate irrigation system

(ii) Commission irrigator (including application test)

(iii) Build up stone trap

(iv) Sump level warning system

(v) Upgrade silage / stand off sump

(c) Complete a visual inspection / drop test (desludge ponds).

(d) Update effluent management plan.

(e) Complete consent application.

31. There are several professionals they have needed to engage to complete the various components of this work. Timing is key, for example the pond needs to be near empty and desludged to complete a visual inspection and then filled back up to complete the drop test. During this time, they need to keep milking and apply effluent safely. The budgeted cost of the above process is $70-120K. As a result, their bank is a key part of the decision-making process. If the pond fails the drop test and needs remedial work / or a liner there will another significant cost in addition to this. While this is one

aspect of their business, they are working on they are also applying for an intensive winter grazing consent, water quality testing as part of the Pomahaka Project, riparian planting and fencing and updating their Tiaki Farm Environmental Plan. These are all in addition to the day-to-day farming requirements. This example is a common scenario throughout Otago currently.

32. A more complex example would be changing part of the farm to growing a new and innovative crop. In this case the required lead in time would be considerably longer. The farmer would also need to be making contracts to grow the crop, harvest the crop, process the crop and market the crop. Much of this could require specialist knowledge and equipment. Typically to reduce risk a farmer would start at a very small scale and scale up from there. To gain scale would take at least 5 to 10 years.

Risk

33. There are risks associated with implementing change. The things that concern farmers currently include the following:

    (a) If they move early (e.g., make improvements now) that may not be recognised in future regulatory processes.

    (b) If they invest now, they may end up with stranded capital assets (e.g. Installing a wintering barn, but be forced to reduce cow numbers going forward).

    (c) The change made today may be in the wrong direction.

34. Farmers need to consider risk carefully for the following reasons:

    (a) On average they have high debt levels.

    (b) There is a low annual return on capital.

    (c) Farm business, family home and community are all interlinked. Therefore, the consequences of failure are significant.

Conclusion

35. Policy and regulation need to take into account the complexity of the farm system.

36. Due to this complexity, and the number of factors involved farmers need time to transition when significant change is required. The period of time required cannot be determined until the extent of the change is known.

Miranda Hunter

23 November 2022