BEFORE THE FRESHWATER COMMISSION

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 FPI043** **FEDERATED FARMERS NZ INC** **Submitter FPI026 and FSFPI026** **DAIRY NZ** **Submitter FPI024 and FSFPI024**
AND	**OTAGO REGIONAL COUNCIL** **Local Authority**

EVIDENCE IN CHIEF OF JENNIFER ANNE MCGIMPSEY: ADDITIONAL EVIDENCE FOR FRESHWATER PARTS

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1. This brief of evidence is the same as the brief filed in relation to the Otago Regional Policy Statement 2021 - non freshwater parts. New evidence not previously provided to the non-freshwater panel is added in text that is shaded grey for ease of identification.

2. I have been given a copy of the Environment Courts code of conduct for expert witnesses. I have reviewed that document and confirm that this evidence has been prepared in accordance with it and that all opinions that I offer in this evidence are within my expertise. I have not omitted to refer to any relevant document or evidence except as expressly stated. I agree to comply with the code and in particular to assist the Commissions in resolving matters that are within my expertise.

Introduction

3. My full name is Jennifer Anne McGimpsey. I live in Alexandra with my husband.

4. I graduated with a Bachelor of Horticultural Science (Honours) from University of Canterbury (Lincoln College) in 1988.

5. For the last 15 years I have been employed by Beef + Lamb New Zealand (B+LNZ) and its predecessor Meat and Wool New Zealand. My present role is Southern South Island Economic Service Manager, gathering and analysing data for the Sheep and Beef Farm Survey. In a previous role I managed an extension programme for sheep and beef farmers in the Southland region. My career started as an agronomist with Crop and Food Research (a Crown Research Institute) before we went farming.

6. I farmed in partnership with my husband at Moa Flat, in West Otago for 18 years. The farm ran 4,800 sheep and beef stock units.

7. Six years ago, we restructured our farm business into an equity partnership with an unrelated young farming family.

8. We are current shareholders in the farm and saw the restructuring as an opportunity to give a younger generation a good start in farming as well as allowing us to pursue other interests off-farm.

Code Of Conduct for Expert Witnesses (where relevant)

9. I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This evidence is within my area of expertise, except where I state that I am relying upon material produced by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express. I am providing evidence in response to the Proposed Otago Regional Policy Statement 2021. My evidence will detail:

    (a) The different farm classes in Otago and the features of each farm class; The diverse farming systems in Otago;

    (b) The process that is required to change a farming system;

    (c) The time and financial limitations of changing a farming system in Otago.

My role at Beef + Lamb New Zealand

10. My role as an Economic Service Manager for Beef + Lamb New Zealand (B+LNZ) involves me visiting a group of randomly selected Sheep and Beef farms each year across the Southern South Island to gather and analyse data for the B+LNZ Economic Service Sheep and Beef Farm Survey (the Survey).

11. The Survey collects and analyses detailed data from more than 500 New Zealand sheep and beef farms each year. The Survey started in 1950 and the information collected is used for benchmarking, production and financial forecasting, on-line tools and policy development and sector advocacy.

12. The survey farmers' names and individual information are confidential. They are voluntary participants selected in a random stratified sample to reflect all types of sheep and beef farming and all sheep and beef farm systems from the main production regions throughout the country.

13. I visited 66 farms across Otago and Southland for the most recent survey season, but this number has reached 80 farms in some previous seasons.

14. Over the 15 years that I have been gathering and analysing farm data for the Survey, I have visited 155 unique farming businesses in Otago and Southland, most for three or more consecutive years. 76 of these farms are in Queenstown-Lakes, Central Otago, Dunedin City and Clutha Districts.

15. For my role, every year I interview (face-to-face) those 66 (or more) survey farmers, during a two to four-hour on-farm visit. This comprehensive interview covers a wide range of topics gathering factual data on farm management practices and farm production.

16. Economic Service Managers complete a full financial analysis of each farm business, which requires careful analysis of their accounts. Physical production and financial data are reconciled to ensure robust, credible and accurate survey results.

17. The annual on-farm survey generates about 2000 pieces of information per farm, covering physical production data, financial returns, and capital structure. The data is subject to a rigorous validation process to further ensure accuracy.

18. Only aggregated data is published to ensure anonymity and confidentiality of individual farm data and the farmers who contributed it is preserved.

19. We also carry out two additional interim surveys. Every year, in July, we gather data on livestock numbers as of 30th June, and, after tailing, we gather lamb numbers, as well as information on pasture covers and weather conditions.

20. Information from the Survey is combined with data gathered from other NZ and international sources. The resulting information provides "building blocks" that are used in a wide variety of bespoke analyses to meet sector needs. Six reports are published each year: New Season Outlook, Lamb Crop Report, Mid-Season Update, On-Farm Inflation, the Compendium of Farm Facts[1] and Stock Number Survey[2]. It is used for farmer benchmarking, forecasting meat and wool production and the industry's financial health, and whole-of-sector policy development.

Farm Classes

[1] Compendium 2021 digital.pdf (beeflambnz.com)
[2] Economic reports | Beef + Lamb New Zealand (beeflambnz.com)

21. The Economic Service uses a system called “Farm Classes” to categorise the different farm types across New Zealand. There are currently 8 different farm classes[3].

22. The Otago region has Farm Class 1 (South Island High Country), Farm Class 2 (South Island Hill Country), Farm Class 6 (South Island Finishing Breeding), and Farm Class 7 (South Island Finishing).

23. The farm classes in Otago are described in Table 1:

Table 1: Farm Class Descriptions

Farm Class	**Title**	**Description**
Class 1	South Island High Country	Extensive run country located at high altitude. These farms run a diverse mix of operations which include breeding sheep, often fine wooled, breeding cows and deer. Stocking rate is typically up to three stock units per hectare. Located mainly in Marlborough, Canterbury and Otago.
Class 2	South Island Hill Country	Traditionally store stock producers with a proportion sold prime in good seasons. Carrying between two and seven stock units per hectare, they usually have a significant proportion of beef cattle.
Class 6	South Island Finishing Breeding	Farms which breed or trade finishing stock and may do some cash cropping. A proportion of stock may be sold store, especially from dryland farms. Carrying capacity ranges from 6 to 11 stock units per hectare on dryland farms and over 12 stock units per hectare on wetter or irrigated farms. Mainly in Canterbury and Otago, this is the dominant farm class in the South Island.
Class 7	South Island Finishing	High producing grassland farms carrying about 9 to 14 stock units per hectare, with some cash crop. Located in Southland, South and West Otago.

[3] The Farm Classes system used by the B+LNZ Economic Service is different to the “Land Use Classification or LUC” used elsewhere by B+LNZ and others.

24. Farm Classes describe broad farming systems and are influenced by physical factors such as topography and climate as well as farming practices. For example, Farm Class 1 farms (South Island High Country) are in the driest and/or highest altitude parts of Otago such as Central Otago, Queenstown-Lakes and Waitaki Districts and run low stocking rates of less than three stock units/hectare, and sometimes less than one stock unit/hectare. Some of these farms are Crown Pastoral Lease land.

25. Farm Class 2 farms can be located in a wider range of environments but still have significant climatic or topographic challenges. Many can be found in Central Otago, Dunedin City District, Waitaki District, and parts of Clutha District.

26. Farm Class 6 farms are on easier hill country and generally more reliable rainfall. This is the most predominant farm class in Otago and occurs on hill country through Clutha, Dunedin City and Waitaki Districts. Irrigation can be present in areas with less reliable rainfall. Typically, these farms breed and finish their own stock and may trade some stock to finish too. In dry seasons they may sell store stock. However, a wide range of farming policies operate in this Farm Class.

27. Farm Class 7 farms are located on the easiest hill country and plains in areas with reliable rainfall and good soils. These generally have the highest stocking rate and typically finish stock to heavy weights.

28. Farms with a higher carrying capacity (more animals per hectare) tend to be smaller in area than those with a lower carrying capacity.

29. The farm classes are broad categories to define the different farming businesses across the region. However, the farming systems in Otago are diverse. The “edges” of the farm classes are not sharp. That is, the decision on whether a farm fits better into Farm Class 2 or 6, for example, can be difficult to make. Then, the farming policies in use, and the overall size of the farm may be the deciding factors of which Farm Class is the better fit.

30. Farm Class 1 farms are very diverse, depending on their natural resources. Some may have areas of valley floor that can be irrigated, while others have barely any flat land at all and no potential for irrigation.

31. Those Farm Class 1 farms that can put in irrigation to increase their production through increasing the number of stock units per hectare are able to increase the certainty of being able to finish[4] at least some stock. This provides more resilience.

32. A farming system that is able to introduce other infrastructure (like irrigation on flat land) enables a farming operation to be more resilient and less exposed to the vagaries of regional climate or topographical challenges.

33. Farm Class 1 farming systems are typically on hard country (that is, harsher more extreme climate such as dry, cold), often steeper hill country, with less pasture growth and therefore lower stocking rates. This in turn can affect the decision of what breeds of stock are chosen. For example, historically merino sheep were the sheep breed of choice for the high-country landscapes as they did well in dry climates, producing high-quality wool. Merinos are not well suited for lowland farms with high rainfall as rain discolours and downgrades the wool and the animals are more prone to diseases such as footrot and parasite burdens.

34. Merino sheep grow the fine wool associated with clothing and textiles. Other sheep breeds, often collectively known as crossbreds, are typically found on Farm Class 6 and 7 farms and have a coarser grade wool, which is often used in the manufacture of carpet. A third group of breeds produce mid-micron wool, which can be used in textiles.

35. To illustrate the diversity that can be found amongst sheep and beef farms, not all Farm Class 1 farms have merino sheep. Historically, revenue from fine wool was the predominant source of income for this Farm Class. As market drivers changed, revenue from meat production increased and farmers on some of these farms changed systems to take advantage of this. Some farms in this Farm Class changed breeds entirely to crossbred with a strong focus on meat production. However not every farmer whose farm is in this Farm Class has this option because of the geographic location and physical landscape limitations (such as very low annual rainfall).

[4] To finish stock means to provide optimum conditions to allow the farm to have the animal on the property for the minimal amount of time before it is sold for processing.

36. By contrast, with Farm Class 7, meat production is the predominant income stream. Historically wool contributed a useful proportion of revenue, giving rise to the term 'dual-purpose' sheep – one that produces both meat and wool. In recent years, prices for coarse wools have decreased to the point that the income from wool sales has not covered the expense of harvesting it (shearing and crutching). Therefore, farmers' focus has turned to meat production with wool being regarded as little more than a by-product.

37. In turn, farmers are choosing rams with traits related to increased meat production with much less emphasis on wool-related traits. In a few cases, farmers are choosing self-shedding or wool-free breeds of sheep, concentrating on meat production only. Such a change will take multiple generations and many years to fully convert a flock to the new breed perhaps up to 20 years depending on other breeding objectives for the flock. There are insufficient animals available in New Zealand to simply buy in the desired type of ewe, so rams with the appropriate genetics will be used to crossbreed with the existing ewe flock.

38. The same principles apply to any sort of genetic change across a sheep flock or beef herd, for example, lower methane emitting sheep genetics, improved internal parasite resistance, facial eczema tolerance, improved lamb survival, increased ewe efficiency and so on.

39. There are approximately 600 recorded stud sheep flocks in New Zealand. These flocks are spread across the country and data is recorded on all these animals across a variety of different traits (eg lamb survival, meat yield, meat quality, number of lambs born, facial eczema, wool, parasite resistance). The traits recorded are based on the type of flock/breed, and traits the breeder is targeting. Information is recorded in detail electronically and is based (depending on the breeder) on DNA testing for specific traits and parentage recording. Data is recorded in detail on rams, ewes and the resulting progeny.

40. Data from the 600 flocks is uploaded to a national genetic 'engine' called Sheep Improvement Limited (SIL). SIL was established in 1998 to provide a central database and genetic evaluation service for the sheep industry. The genetic evaluation process involves a large scale across flock and breed genetic evaluation that involves more than 280 ram breeding flocks from within the SIL database. The SIL Advanced Central

Evaluation objectively compares the performance for various traits and provides a comparative list of rams' performance on those traits.

41. SIL is a powerful genetic evaluation that provides essential information for commercial farmers in making selection decisions about which rams to buy.

42. Commercial farmers are then able to select rams for the specific traits that they are interested in (eg lamb survival, production and/or performance, maternal trait, terminal traits (meat quality or yield).

43. If a commercial farmer wishes to change the fundamental basis of their flock, genetic change takes time, but changes are cumulative. Each year the rams available for selection from SIL are based on improved genetic merit, so rams purchased based on SIL evaluation have improved merit on rams from the previous year. A commercial farmer deciding to change genetic focus from one set of traits to a completely new focus will take many years to see that full change come through their flock. Farmers are not buying new maternal ewes but expressing genetic improvement via the rams that they buy. A ram's progeny (ewe lambs) first become part of the maternal flock when they reach 2 years of age. If a commercial farmer was selecting for maternal traits like lamb survival, those traits would not be measurable on farm until the progeny of those rams are having their own lambs – at least 3 years down the track from purchasing the rams. A selection decision to change an entire flock would take many years of careful planning and decision making.

44. Commercial farmers are also balancing their requirements on farm – so their genetic focus will not be on just one trait. If they focus on one trait, it may be at the expense of other traits that they value as well.

45. Genetic selection decisions are just one example of the complexity of decision making on farm. Another example from our own farm was the decision-making process for us in purchasing a seed drill – that is, the choices between a roller drill or a direct drill. We had to factor in environmental, agronomic production, time management and economic considerations, and our own values. Each consideration had its pros and cons, but we needed to balance each based on our farm system needs. To illustrate further, environmental considerations included soil and paddock management to minimise any soil losses, carbon balances in

soil, use of agrichemicals, machinery hours and associated fuel use. Avoiding the need to resow seed, efficient time management and growing feed economically were also important. We finally purchased a drill in 2008.

46. Farm income is derived from the sale of products grown on a sheep and beef farm. Meat processors have the connection with the international markets where most of our agricultural products are sold. Both farmers and processors respond to consumer signals. Income streams on farm can be very diverse, with revenue also gained from other animal species (such as deer and goats), arable crops, sales of feed, dairy support, honey, tourism and accommodation, rentals, royalties, contracting, timber, carbon units and others.

47. However, any increase in farm costs (including cost of inputs and non-discretionary compliance or regulatory cost increase) must be absorbed by the farm business and cannot be passed on in prices received by the farm. On average, over 90% of farm production is exported from New Zealand. Performance in overseas markets, which are highly competitive, combined with capital flows determines the value of the New Zealand dollar, which in turn affects the revenue earned at the farm gate.

Farm Systems are Complex and Diverse

48. Farm systems in the Otago sheep and beef sector are diverse. That diversity can be described by a combination of physical, economic, and social characteristics (for example, location, topography, altitude, climate, soil, stockmanship, financial skill and farm profitability, farm infrastructure, history, indebtedness, personal values and skills, generational factors, family needs, community factors etc). The result is a matrix for each farm that makes it unique. Farms that are geographically neighbours, could be very different farming systems at very different stages of a farming life cycle.

49. This diversity means that any policy can have widely different impacts on individual and unique sheep and beef farms. An absurdity would result if the same policy were adopted for farms in hill country behind Roxburgh where the majority of farms are Farm Class 2 and rolling downs and flats near Clydevale where the majority of farms are Farm Class 7.

50. Sheep and beef farm businesses do not operate in isolation but are closely connected to other parts of the primary sector. Producing meat and wool requires a path to market and each step of the chain intrinsically depends on every other part of that chain. In turn, inputs are required to produce outputs and supply of those inputs to farm businesses adds to the complex web of business interactions that is the primary sector in Otago.

51. There are strong linkages between the farms themselves, for example feed (hay or baleage) moving between entities. Not all animals born on a farm will remain on that farm for life. Many young stock born in the hill or high country (breeding farms) will be moved to farms on easier country for finishing.

52. The farms themselves should also not just be thought of as farmers as individuals – but of families, parents, children, and often grandchildren who are involved in farming communities. Not just the farming families themselves, but the wider connected industries (shearers, transport operators, contractors, diggers, stock agents, vet services and trades people just to name a few).

53. Revenue from sale of products to export markets brings offshore revenue into the New Zealand (and Otago) economy. Much of this is cycled through the economy multiple times – an effect that can be described as "the money-go-round". Dollars earned for sale of farm produce pays for farm inputs from companies who employ staff who are paid wages and then spend those wages on goods and services from other companies who employ staff – and so on, through the primary sector and rural communities, local towns and cities throughout the region and beyond.

54. As discussed throughout my evidence, farming businesses are complex systems. Farmers manage a complex set of projects and objectives and, while they are responsive to market and policy signals, those businesses are not easily or quickly changed. For example, a farming system located in the higher steep hill country cannot shift to arable or dairy production – as the farming operations require specific criteria for production, that is, the most efficient use of resources available (water, climate, social, environmental). Arable and dairy farms require reliable and consistent rainfall or irrigation, and gentle contour, which is not a characteristic of higher steep hill country.

55. There may be some elements of a farming system that can change relatively quickly. For example, a higher steep hill country farm may be able to change its stock policy from sheep to deer. However, that will require all the fences on the farm to be changed over as well as the stock yards. This would be financially impossible for many farming systems, even with years of planning.

56. What works for one farm system, may not work for another – due to the matrix combination of physical, economic, environmental, and social factors.

57. On-farm changes at a practical level take time, planning, and money. Requirements for fencing and riparian planting all take time and planning. The practicalities of fencing require consideration of the type of environment, the typography, the different stock types (sheep, beef, and deer, all require different types of fencing). It is not always clear that a prescriptive approach will achieve the outcome envisaged by the policy decision maker. Riparian planting requires access and availability of plants. Native plants seem to be preferred for planting in riparian areas at present. These are slower growing, and hence need ongoing weeding and maintenance. Choosing appropriate species is important to avoid unintended consequences. Larger trees require ongoing maintenance in case of fallen branches on fences etc. It is important to remember that the process for the farmer does not end once the fence or riparian strip is planted – because there are longer term management implications that the farmer needs to factor into their farm planning.

58. However, over time, farming systems do change and adopt new methodologies and processes. Farmers adopt changes where there are clear guidelines and benefits to the overall farming systems and the wider community. On-farm production improvements have been a cornerstone of the New Zealand farming sheep and beef sector and reflect the capability and resilience of NZ farmers. However, changes take time and need to be planned, financially prudent, and be managed carefully.

Date: 28 June 2023

Jenny McGimpsey

Beef + Lamb New Zealand

Appendix A

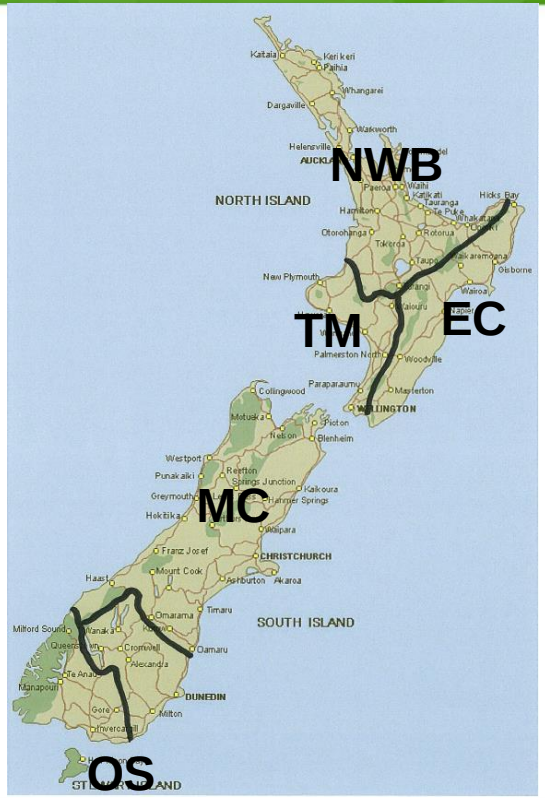
B+LNZ Economic Service

Farm Classes

Sheep and Beef Farm Survey

Production Regions

NWB	Northland-Waikato-BoP
EC	East Coast
TM	Taranaki-Manawatu
MC	Marlborough-Canterbury
OS	Otago-Southland



Sheep and Beef Farm Survey

Stratification by farm class

		North Island				South Island			
		class	su/ha	farms	eff ha	class	su/ha	farms	eff ha
Extensive	High Country					1	<3	200	8374
	Hard Hill	3	6-10	920	836	2	2-7	620	1,497
	Hill	4	7-13	3,055	446	6	6-11	1,820	509
	Finishing	5	8-15	1,045	283	7	9-14	1,040	258
Intensive	Mixed cropping					8	10-30	465	367
	Total (9,165)			**5,020**				**4,145**	

Sheep and Beef Farm Survey
Otago-Southland Farm Classes

Farm Class 1 – SI High Country

- Extensive systems, often large-scale
- Diverse, but fine wool features
- Sheep, cattle, deer and other enterprises
- Up to 3 SU/ha

Sheep and Beef Farm Survey
Otago-Southland Farm Classes

Farm Class 2 – SI Hill Country

- Traditionally store stock producers
- Finish some stock
- Significant proportion of beef cattle
- 2 – 7 SU/ha

Farm Class 6 – SI Breeding Finishing

- Dominant SI farm class
- Some stock sold store but most finished
- Some cash crop, especially Canterbury
- 6 – 11 SU/ha dryland; 12+ SU/ha irrigated

Sheep and Beef Farm Survey
Otago-Southland Farm Classes

Farm Class 7 – SI Finishing

- Breeding and finishing, own and trade stock
- Sheep dominate
- Some cash crop, feed sales, dairy support
- 9 – 14 SU/ha

Sheep and Beef Farm Survey

Farm Class 8 – SI Mixed Finishing

- Located mainly on Canterbury plains
- Most revenue from grains and small seeds
- Stock finishing and grazing

Farm Class 3 – NI Hard Hill Country

- Steep hill country
- Larger scale
- Predominantly breeding, sell stores
- 6-10 SU/ha

Sheep and Beef Farm Survey

North Island Farm Classes

Farm Class 4 – NI Hill Country

- Easier rolling to moderate hill
- Some cultivatable country
- Forward stores, prime stock
- 7-13 SU/ha

Farm Class 5 – NI Finishing

- Easy contour, some cash crop
- Smaller scale
- Stock finished prime with trading focus
- 8-15 SU/ha