



Challenges and opportunities in farming regulations

NZIER report to Thriving Southland

July 2024

About NZIER

New Zealand Institute of Economic Research (NZIER) is an independent, not-for-profit economic consultancy that has been informing and encouraging debate on issues affecting Aotearoa New Zealand, for more than 65 years.

Our core values of independence and promoting better outcomes for all New Zealanders are the driving force behind why we exist and how we work today. Our purpose is to help our clients and members make better business and policy decisions and to provide valuable insights and leadership on important public issues affecting our future.

We are unique in that we reinvest our returns into public good research for the betterment of Aotearoa New Zealand.

Our expert team are based in Auckland and Wellington and operates across all sectors in the New Zealand economy and combine their sector knowledge with the application of robust economic logic, models and data and understanding of the linkages between government and business to help our clients and tackle complex issues.

Authorship

This report was prepared at NZIER by Dr Bill Kaye-Blake and Dr Andrew Dickson (independent researcher).

It was quality approved by Chris Nixon.

The assistance of Sarah Spring, Thriving Southland and the workshop participants is gratefully acknowledged.

How to cite this document:

NZIER. 2024. Challenges and opportunities in farming regulation. A report for Thriving Southland.

Registered office: Level 13, Public Trust Tower, 22–28 Willeston St | PO Box 3479, Wellington 6140
Auckland office: Level 4, 70 Shortland St, Auckland
Tel +64 4 472 1880 | econ@nzier.org.nz | www.nzier.org.nz

© NZ Institute of Economic Research (Inc). Cover image © Dreamstime.com
NZIER's standard terms of engagement for contract research can be found at www.nzier.org.nz.

While NZIER will use all reasonable endeavours in undertaking contract research and producing reports to ensure the information is as accurate as practicable, the Institute, its contributors, employees, and Board shall not be liable (whether in contract, tort (including negligence), equity or on any other basis) for any loss or damage sustained by any person relying on such work whatever the cause of such loss or damage.



1 Project scope and approach

1.1 Project scope

This report provides an insight into farmers' view on regulations, and some guidance to southern farmers and regulators on how to maximise opportunities.

Thriving Southland, a community-led organisation that supports catchment groups in Southland, engaged NZIER to investigate farmers' attitudes towards regulations. NZIER had done prior work on regulation for Thriving Southland, cataloguing the number of regulations that farmers face.

1.2 Disclaimer

We thank the farmers involved in this study for their openness and honesty about their feelings, perceptions and experiences. These findings reflect 20 farmer voices, and we recognise that this could be a limited lens. In no way are we suggesting that this represents all farmer experiences and opinions, or everyone's experience of regulations. And we are not suggesting that regulators did not know or take some these points into consideration at the time of drafting new regulation. However, the material in this report does represent a perception and a viewpoint and therefore is an important basis to provide insights and advice to both farmers and to regulators.

1.3 Approach to the project

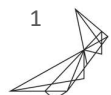
We conducted three in-depth workshops with members of the farming community across three different catchment areas in Southland. The workshops were approximately two hours long and were conducted in a semi-structured manner with the authors acting as facilitators.

One workshop was conducted in each catchment area, with each participating group having four to ten participants, recruited by Thriving Southland from existing connections with local farmers in each catchment.

Participants were both male and female and included a broad range of ages. Their farming operations were primarily dairy and/or sheep and beef farming. We did not collect demographic data, in order to maintain anonymity as far as possible in communities that are relatively small and well connected.

The workshops were structured by three main topics. First, participants were asked to come up with examples of regulation that they deemed legitimate and examples of regulation that they considered unreasonable. Second, participants were asked what they considered to be an 'ideal' government in terms of regulation and how they would know that their voices were heard. Third, participants were asked about practical actions – what they would need to see 'on the ground' to understand what was happening with regard to regulation.

The facilitators each took personal notes and recorded participants' comments on flipcharts in collaboration with participants. The notes were transcribed to create raw data text files which were used to generate the results presented in this report.



2 Findings from the workshops

The workshops provided valuable insights into the challenges and opportunities surrounding farming regulation in New Zealand. The discussions revealed a farming community that cares deeply about environmental stewardship and wants to do the right thing but feels overwhelmed and at times unfairly targeted by a confusing web of regulations.

We talked with around 20 Southland farmers across three catchment areas over three workshops. We discussed examples of regulations that worked and didn't work. We talked about the process of regulation development and implementation, and we discussed how things could be done differently – how farmers could be more engaged with the process of regulation development and implementation on their farms.

While farmers expressed frustration with the current regulatory regime, they also offered constructive suggestions for how the process could be improved through greater collaboration, clearer communication, more outcome-focused rules, and better alignment between good farming practices and sensible regulation.

Underpinning their feedback was a desire for a more pragmatic, contextual and farmer-engaged approach to developing and implementing rules in ways that work on the ground.

By addressing the identified themes and implementing the recommended strategies, policymakers can foster a more collaborative, efficient and effective regulatory environment that supports the long-term success of the farming industry while balancing the needs of all stakeholders.

With improved partnerships between government, industry groups and farmers, there is an opportunity to craft an agricultural regulatory system that better achieves environmental and economic objectives while giving farmers the certainty and voice they need to thrive.

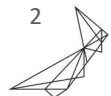
Both farmers and regulators have a role in making this a better situation and realising the opportunities that have been identified through this workshop. There are some very simple actions that can be taken to support this:

Farmer opportunity

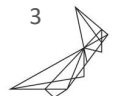
- Sign up for government and regional council updates on regulation and policy changes and opportunities to submit so there is greater visibility to farmer input and consideration
- Connect with a local catchment group to bring in 'experts' that can shed light on regulations and policy and so they can engage on farmer viewpoints
- Connect with a sector group so they understand the position of farmers (that they represent) on specific regulations and policy

Government (national and regional) opportunity

- Work with sector groups as a key communication channel to farmers to share regulation and policy changes
- Engage with local catchment groups to shed light on regulations and policy and to listen to farmer viewpoints

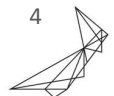


- Offer clear policy and regulation explanations so everyone understanding the drivers and the 'why' they are being implemented
- Work with the farming community and sector groups to define 'genuine and open' farmer consultation.



3 Key points identified by farmers

- **Farmers identified a number of opportunities:**
 - **Opportunity to align government regulation and farmers' autonomy better**
 - **Opportunity to reduce frustrations related to rapid change and create better clarity around regulations**
 - **Opportunity for regulations to better represent good farming practice**
 - **Opportunity to increase farmer input into the regulatory process**
 - **Opportunity for more information and greater collaboration on regulations.**
- **When looking for evidence of having a voice – of being heard by policymakers – farmers tended to be outcome-focused.**
- **Market demands and customer preferences are accepted as drivers of change.**
- **Thriving Southland, along with Sector Groups, could be one avenue to share information and host speakers to discuss new or developing regulations.**



4 Recommendations based on workshop themes

4.1 Engagement and consultation

4.1.1 Better definition of genuine engagement and collaboration

The workshops included discussion of how farmers would know that they have a voice in regulatory processes and that voice is being heard. They tended to be outcome-focused rather than process-focused. They would know they had a voice when the regulation clearly reflected their input, feedback or consultation.

The different types of participation, from “informing” to engaged “collaboration”, have been described by researchers (Cornwall, 2008). The relationship of participation to power and control have also been explored (Cornwall, 2008). The relationship between government’s action and community responses in the context of community consultation has even been explored in New Zealand (Sinner, et al., 2015; Turner, et al., 2020). The point of highlighting the prior work, including in New Zealand, is that examples of engagement and collaboration are available to address the concerns of farmers that were raised in these workshops.

4.1.2 The sector’s role in communication and information delivery

The comments from workshop participants raise the question of the role of industry and levy bodies, such as Dairy NZ, Fonterra, Beef & Lamb New Zealand and Federated Farmers. These organisations appear to have two functions with regard to regulation. First, they are interacting with various levels of government in relation to regulation development and implementation. The levy bodies directly acknowledge their role as an advocate for farmers. For example, DairyNZ explains how members’ levies are spent:

“Grounded in research and development, the programmes funded by your levy help create practical on-farm solutions, promote dairy as a career and advocate for farmers with central and regional government”

Second, these organisations help inform farmers about regulations. There appears to be a disconnect someplace between government regulation and on-farm practices. There is opportunity to (continue to) share regulations and their associated processes directly with farmers clearly and consistently to farmers, and through multiple channels, including industry and levy bodies, media, catchments groups, forums, open meetings and more. This multi-pronged approach will help ensure that farmers are well informed and can properly implement the required changes. Participants recommended communication via the industry and levy bodies, articles in Farmer's Weekly and other rural publications, and word-of-mouth and local meetings such as those facilitated by the catchment groups.

This is an area where Thriving Southland, as a trusted, local organisation, is well positioned to share information about new and developing regulations so that members of catchment groups know about them. It may also be able to attract speakers from government or industry groups to discuss regulations.



4.1.3 Opportunity to reduce pace of change and offer greater clarity around regulations

Workshop participants expressed frustration with unclear, changing regulations, a complaint recorded in other farmer research (Stock & Forney, 2014). They highlighted the rapid pace of regulatory change 2017 and felt it led to confusion and uncertainty regarding what regulations are in force at any one time. Farmers reported that this constant flux makes it “almost impossible” for farmers to plan for the future and feel confident they are in compliance with regulations. As one farmer put it:

*“So much regulation change, but we don't actually know what those changes are!
Very confusing.”*

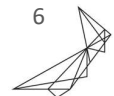
Farmers talked frequently about the different levels of regulators and located their confusion at the boundaries between these. They experienced local, regional and central regulators as often “completely at odds” with each other. The central government would make rules and then local and/or regional councils would be expected to implement and enforce these. However, farmers were not at all confident that the different levels of government understood each other. This makes implementation and enforcement of regulations “piecemeal, unfair and confusing”.

4.1.4 Increase farmer input in the regulatory process

The tension farmers feel with regulations is further exacerbated when regulations are developed without perceived sufficient consultation with the farming community. Participants expressed intense frustration because they felt that their voices and expertise were not being heard and not valued in the decision-making process, a concern often seen amongst farmers (Emery & Franks, 2012) and an important motivator for community catchment groups (McIntyre, et al., 2022). This lack of engagement is likely to contribute to the fact that regulations are often difficult to implement or costly, or fail to address the unique challenges faced by farmers in different regions or sectors.

Participants emphasised the importance of genuine consultation and collaboration among government officials, industry and levy bodies, and the farming community in the development and implementation of regulations. They felt that their input and unique regional circumstances were often overlooked, leading to a perceived unfairness in the regulatory process. These concerns have been raised before in different regulatory processes in New Zealand (McIntyre, et al., 2022; Sinner, et al., 2015; Turner, et al., 2020). Distinguishing between genuine collaboration and ineffective participation exercises has also been explored by several researchers (Cornwall, 2008).

Specific unique regional circumstances discussed in the workshops were different soil types among farms in Southland, the Southland climate being different generally from other regions, and significantly different local ecosystems, climates and geographies. All of these differences require farm management practices that work locally. Farmers felt that it is essential that these be taken into account when developing regulations, which is supported in the wider literature (Dwyer et al., 2007). Further, they feel that a one-size-fits-all approach to regulation fails to consider the practical realities and challenges faced by farmers in other parts of the country as well. Their networks around New Zealand report the same thing. This lack of regional flexibility can lead to regulations that are difficult to implement, costly, or fail to achieve their intended environmental or social outcomes (Lobley & Potter, 2004).



One way to address this issue involves the establishment of collaborative approaches to regulation development actioned at a regional level. This includes:

- Offering opportunities for all farmers to be involved in consultation processes
- Taking consideration of local knowledge and context
- Supporting development of flexible, outcome- or output-based regulations.

This approach would allow farmers to innovate and adapt while still meeting environmental and social objectives (Blackstock et al., 2010; de Loë et al., 2015; McIntyre, et al., 2022).

As part of this collaborative approach, participants stressed the crucial role of industry involvement in regulation development. They suggested that industry bodies such as Beef & Lamb, Dairy NZ and Fonterra, continue to be closely involved in regulation development and implementation.

Participants expressed intense frustration with the siloed nature of different government ministries and the lack of coordination between various ministries and the different levels of government involved in regulating agriculture. One farmer noted:

“Ministries are siloed, and do not seem to understand how regulations from different areas relate to each other and impact on the farmer. MPI and MfE for instance, in relation to animal welfare and waterway protection.”

This fragmentation leads to confusion about who is responsible for interpreting and enforcing rules.

In New Zealand’s central government, several agencies together make up the Natural Resources Sector (Treasury, 2023) and they have in the past met regularly and collaborated on advice to government (MfE, et al., 2017). These agencies include MfE, MPI, Department of Conservation and others. There may be an opportunity for better communication within government by using this type of existing network.

4.2 Regulation considerations

4.2.1 Opportunity to leverage technology and streamline processes

There is an opportunity to further embrace user-friendly technology solutions. As one farmer noted, “Central government could play a large role here in building better systems to support regulations.”

A note of caution should be included. Technology and tools rely on data, including farm scale data. Making systems work that simplify tasks for farmers and provide them with additional information inevitably involve some amount of access to data. However, access to data – who has access and for what purposes – can be an important stumbling block when developing new decision support tools (PwC, 2019; Scarlatti, 2023).

4.2.2 Consider all the factors: e.g., international trade regulations

When developing new regulations, farmers highlighted that it felt as though policymakers could take more account of existing international trade regulations to maintain consistency and avoid placing New Zealand farmers at a competitive disadvantage in the global market. As one farmer emphasised:



“All New Zealand regulation should be made in careful consideration of the international rules, particularly those of our markets -- they are the important ones.”

The implication is that regulations should not be more restrictive than required to meet the country's international obligations.

4.2.3 Opportunity to align government regulation and farmers' autonomy

The workshops revealed tension between government regulation and farmers' desire for autonomy in their operations. This is a long-standing issue in the agricultural sector (Campbell, 2022; Stock & Forney, 2014). It is particularly evident when farmers perceive regulations as unclear, constantly changing, or impractical to implement on the ground.

Farmers argue that they need the flexibility to adapt to market demands and make timely decisions to remain competitive in an increasingly globalised agricultural market (Greiner & Gregg, 2011; Stock & Forney, 2014). Participants specifically mentioned the synthetic nitrogen fertiliser cap which was introduced in July 2021 as potentially hindering their ability to remain competitive. Their concerns here were that the regulation was at the wrong end of the process. It prevents the input of nitrogen fertiliser when it should be limiting the output from the farm.¹

Farmers also view the synthetic nitrogen fertiliser cap as an example of a regulation that infringes on their freedom to make decisions about their land and livestock management practices (Lockie, 2013). Farmers do not want free rein, as they feel is often misrepresented in the media or believed by 'townies', but they do want their local conditions to be properly taken into account (McIntyre, et al., 2022). For instance, some farms can tolerate more synthetic nitrogen input without the output being impacted due to the local conditions on their farm. But they are caught up in a national ban that does not recognise local conditions.

4.2.4 Regulations can represent good farming practice

Farmers believe that good farming practices should align with and be supported by sensible regulations. However, they feel that many regulations are overly complex, prescriptive or impractical. These beliefs may result from a particular view of how agriculture should work and the proper role of government (Campbell, 2022), in particular that regulation is in farmers' way of running their farms properly (Stock & Forney, 2014).

Farmers feel they have a good understanding of what good farming practice is, and they believe that regulation should support this. As one farmer said: "Good farming practice should equal good regulation". Sometimes this is the case, for instance with regulations around health and safety. Farmers specifically mentioned the regulations around the necessity to cool milk to meet health requirements, and the regulations controlling inductions in dairy herds. These they felt were regulatory equivalents of good farming practice.

The concept of good farming practice aligning closely with regulation goes in both directions. This means, for the farmers in the workshops – if someone was in violation of a regulation, it should mean they were doing something that they knew they shouldn't be

¹ We recognise that the discussion around regulating inputs (such as fertiliser) or outputs (such as nitrogen in waterways) includes cost and measurement issues: which is easier and cheaper to measure?



doing. Viewed from another perspective, good regulations actually gave the farming community a tool for getting the worst farmers to improve their practices.

However, farmers often feel that many regulations are against good farming practice as they fail to consider the practical realities and economic pressures they face. For instance, regulations have been established to try to protect fresh water from pollution caused by stock, such as requiring the fencing of streams. Farmers were generally in support of some kind of regulation around the protection of fresh water, they explained that this has always been a concern for them. But the blanket application of a regulation can pose an animal welfare concern if it prevents stock from accessing water or shelter when other options are not available. This conclusion by farmers that environmental regulations are no longer achieving their intended ends has been found in other research (Stock & Forney, 2014).

Another example is intensive winter grazing, which was referenced so frequently and by all participants that we have drawn this out as a case study below.

4.2.5 Market demands and customer preferences as drivers of change

The workshop discussions highlighted the crucial role of market demands and customer preferences in shaping farming practices. Farmers acknowledged the need to balance regulatory requirements with the evolving expectations of consumers and retailers to remain competitive in the market.

Farmers emphasised the importance of pragmatic regulations that are aligned with market demands. As one farmer framed it, “Government ideally should be focused on international representation and trade, not creating regulation against what the market wants, but creating regulation that works for trade.” Regulations that put New Zealand producers at a competitive disadvantage or restrict their ability to meet consumer demands are not seen as sensible or sustainable. As noted above, the synthetic nitrogen fertiliser cap was specifically named as a regulation that limited farmers ability to meet market demand.

The discussions highlighted the crucial role of market demands and customer preferences in shaping farming practices. Although farmers talked about the issues with synthetic nitrogen fertiliser caps, they also acknowledged the need to adapt farming practices in the context of the evolving expectations of consumers and retailers. But rather than have these interpreted by the government in the form of blanket national regulations they preferred to let the market ‘set the regulation’.

In practice this means that as consumer interest and preferences in relation to animal welfare, environmental protection, the use of fertilisers, food quality, safety, freshwater management and sustainability change, farm practices would also change to meet these changing demands. This is certainly something seen in the wider literature (Grunert, 2005; Verbeke, 2005). Farmers would like to see the central government take a step back and ‘trust the market’. In the workshops, we did not discuss in detail how this approach would look across the different types of regulation that are being put in place in key market such as the European Union (Tompkins, et al., 2023).

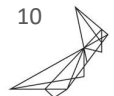
However, farmers did discuss what the central government could do; this took the form of ‘support for’ rather than ‘regulation of’ farmers. A number of specific items were discussed:

- Developing and improving technology (for instance the National Animal Identification and Tracing (NAIT) system and Overseer) that enable farmers to better understand their farm systems.



- Working with industry bodies to develop production methods.
- Seeking or developing certifications that demonstrate compliance with specific international standards.

International supply chains act to coordinate the demands of retailers and consumers with how farmers manage their businesses. Retailers often have their own standards and requirements for food quality, safety, and sustainability, which can be more stringent than government regulations (Clapp & Fuchs, 2010; Henson & Reardon, 2005). Farmers who are unable to meet these standards may find themselves excluded from certain markets or facing economic pressure to change their practices (Schulze, et al., 2019).



5 Intensive Winter Grazing: an example of regulatory process

In the workshops, we discussed the example of winter grazing regulations and reactions from farmers in Southland. This section reflects that discussion and is not intended to represent a complete picture of the regulations themselves or the process for creating and adjusting them.

In 2019, the New Zealand government introduced new regulations aimed at addressing the environmental impacts of intensive winter grazing (IWG) practices. IWG involves grazing livestock on paddocks of forage crops specifically grown for winter feed. The practice can lead to soil erosion, nutrient runoff and animal welfare concerns (Ministry for the Environment, 2020a).

The proposed regulations, part of the National Environmental Standards for Freshwater 2020 (NES-F), set out rules for IWG. They include restrictions on the area of land used, the slope of the land, and the management of pugging (soil damage caused by animal hooves) (Ministry for the Environment, 2020b).

However, the regulations faced significant backlash from farmers, particularly in the Southland region, where IWG is a common practice. Farmers argued that the rules were impractical, lacked local context, and were developed without sufficient consultation with the farming community (RNZ, 2021).

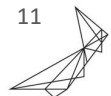
The workshops revealed that the wintering regulations “pissed off all the farmers all at once”. This occurred despite farmers knowing that there were some people in the region whose wintering practices did need to improve. But the poor implementation of unworkable regulation led to farmers organising, including with the industry and levy-funded bodies – Federated Farmers, Beef & Lamb, Dairy NZ (DNZ), and Fonterra. Officials from MPI and MfE had to turn up in person and explain the government’s actions.

In response to the concerns raised by farmers, the government delayed the implementation of the IWG regulations until May 2022, allowing more time for consultation and refinement (Beehive.govt.nz, 2021a). The government also established an Intensive Winter Grazing Action Group to provide advice on the implementation of the regulations and to support farmers in adopting best practices (Ministry for Primary Industries, 2021).

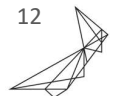
Despite these efforts, tensions between farmers and the government persisted. In early 2022, Southland farmers organised protests against the IWG regulations, arguing that they still failed to consider the unique challenges faced by farmers in the region (Stuff.co.nz, 2022).

As a result of the ongoing pressure from farmers and agricultural organisations, the government announced further changes to the IWG regulations in March 2022. The revised rules provided more flexibility for farmers. They allow farmers to apply for resource consents to continue IWG practices where they could demonstrate good management practices, which include good access and grazing strategies and reducing impacts on critical source areas (Beehive.govt.nz, 2022; NZ Landcare Trust, 2022).

While the amendments to the regulations were welcomed by some farmers, others maintained that the rules remained overly restrictive and failed to strike the right balance between environmental protection and the practical realities of farming in Southland (NZ Herald, 2022).

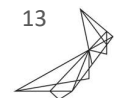


The case study highlights the importance of genuine consultation with farmers, consideration of local context, and the involvement of trusted industry bodies in the development and implementation of regulations.



6 References

- Beehive.govt.nz. (2021, April 21). Government delivers improvements for winter grazing. <https://www.beehive.govt.nz/release/government-delivers-improvements-winter-grazing>
- Beehive.govt.nz. (2022, March 24). Government announces changes to intensive winter grazing regulations. <https://www.beehive.govt.nz/release/government-announces-changes-intensive-winter-grazing-regulations>
- Blackstock, K. L., Ingram, J., Burton, R., Brown, K. M., & Slee, B. (2010). Understanding and influencing behaviour change by farmers to improve water quality. *Science of the Total Environment*, 408(23), 5631-5638. <https://doi.org/10.1016/j.scitotenv.2009.04.029>
- Campbell, H. (2022). *Farming inside invisible worlds: modernist agriculture and its consequences*. Sydney: Bloomsbury Academic.
- Clapp, J., & Fuchs, D. (2010). Agrifood corporations, global governance, and sustainability: a framework for analysis. In J. Clapp & D. Fuchs (Eds.), *Corporate power in global agrifood governance* (pp. 206-208). Cambridge: The MIT Press.
- de Loë, R., Murray, D., & Simpson, H. C. (2015). Farmer perspectives on collaborative approaches to governance for water. *Journal of Rural Studies*, 42, 191-205. <https://doi.org/10.1016/j.jrurstud.2015.10.005>
- Dwyer, J., Baldock, D., Beaufoy, G., Bennett, H., Lowe, P., & Ward, N. (2007). *European Rural Development Contrasts and Comparisons*. CABI.
- Emery, S. B., & Franks, J. R. (2012). The potential for collaborative agri-environment schemes in England: Can a well-designed collaborative approach address farmers' concerns with current schemes? *Journal of Rural Studies*, 28(3), 218-231. <https://doi.org/10.1016/j.jrurstud.2012.02.004>
- Greiner, R., & Gregg, D. (2011). Farmers' intrinsic motivations, barriers to the adoption of conservation practices and effectiveness of policy instruments: Empirical evidence from northern Australia. *Land Use Policy*, 28(1), 257-265. <https://doi.org/10.1016/j.landusepol.2010.06.006>
- Grunert, K. G. (2005). Food quality and safety: Consumer perception and demand. *European Review of Agricultural Economics*, 32(3), 369-391. <https://doi.org/10.1093/eurrag/jbi011>
- Henson, S., & Reardon, T. (2005). Private agri-food standards: Implications for food policy and the agri-food system. *Food Policy*, 30(3), 241-253. <https://doi.org/10.1016/j.foodpol.2005.05.002>
- Lobley, M., & Potter, C. (2004). Agricultural change and restructuring: Recent evidence from a survey of agricultural households in England. *Journal of Rural Studies*, 20(4), 499-510. <https://doi.org/10.1016/j.jrurstud.2004.07.001>
- Lockie, S. (2013). Market instruments, ecosystem services, and property rights: Assumptions and conditions for sustained social and ecological benefits. *Land Use Policy*, 31, 90-98. <https://doi.org/10.1016/j.landusepol.2011.08.010>



- McIntyre, J., Mager, S., & Connelly, S. (2022). Can catchment groups fill the democratic deficit? Catchment groups as a hydrosocial phenomenon in Waikaka, Southland. *New Zealand Geographer*, 78(1), 76-86.
- Ministry for Primary Industries. (2021). Intensive Winter Grazing Action Group. <https://www.mpi.govt.nz/animals/animal-welfare/intensive-winter-grazing-action-group/>
- Ministry for the Environment. (2020a). Intensive winter grazing. <https://environment.govt.nz/what-government-is-doing/areas-of-work/freshwater/e-coli-and-pathogens-in-freshwater/intensive-winter-grazing/>
- Ministry for the Environment. (2020b). National Environmental Standards for Freshwater. <https://environment.govt.nz/acts-and-regulations/regulations/national-environmental-standards-for-freshwater/>
- Ministry for the Environment, Te Puni Kōkiri, Ministry for Primary Industries, Ministry of Transport, Land Information New Zealand, Internal Affairs, Ministry of Business, Innovation & Employment, and Department of Conservation. (2017, December). Natural Resources Briefing to incoming Ministers. <https://www.beehive.govt.nz/sites/default/files/2017-12/Natural%20Resources.pdf>
- NZ Herald. (2022, March 25). Southland farmers say winter grazing rule changes don't go far enough. <https://www.nzherald.co.nz/the-country/news/southland-farmers-say-winter-grazing-rule-changes-dont-go-far-enough/N6XJCGPIYF3RUVVWV46IU2DWWB4/>
- NZ Landcare Trust. (2022, September). Good management practices: Southland's farmer driven community catchment groups. <https://www.landcare.org.nz/wp-content/uploads/2022/09/GMP-Southland-A2.pdf>
- PwC. (2019, September). Pointing the way: indicators for a better Aotearoa New Zealand: final report of the Indicators Working Group for the Our Land and Water National Science Challenge. Wellington.
- RNZ. (2021, July 5). Southland farmers protest against winter grazing rules. <https://www.rnz.co.nz/news/country/446656/southland-farmers-protest-against-winter-grazing-rules>
- Scarlatti. (2023, May). A pathway to Multilateral Data Sharing (MLDS): understanding and overcoming barriers to MLDS in New Zealand's primary industries. Report to Our Land and Water National Science Challenge.
- Schulze, M., Spiller, A., & Risius, A. (2019). Food retailers as mediating gatekeepers between farmers and consumers in the supply chain of animal welfare meat-studying retailers' motives in marketing pasture-based beef. *Food Ethics*, 3, 41-52.
- Sinner, J., Newton, M., & Duncan, R. (2015). Representation and legitimacy in collaborative freshwater planning: stakeholder perspectives on a Canterbury zone committee. Report 2787 for Landcare Research. Nelson: Cawthron Institute.
- Stock, P. V., & Forney, J. (2014). Farmer autonomy and the farming self. *Journal of Rural Studies*, 36, 160-171.
- Stuff.co.nz. (2022, February 16). Southland farmers protest 'unworkable' winter grazing rules. <https://www.stuff.co.nz/business/farming/127767095/southland-farmers-protest-unworkable-winter-grazing-rules>



- Tompkins, T., Schorn, A., Hutchings, J., & Smith, J. (2023, May). EU Green Deal: impact on New Zealand's land-based primary producers. Report for Our Land and Water. Auckland: Organics Aotearoa New Zealand.
- Treasury. (2023). Budget 2023: the estimates of appropriations for the Government of New Zealand for the year ending 30 June 2024. Wellington.
<https://www.treasury.govt.nz/sites/default/files/2023-06/est23-v8-intro.pdf>
- Turner, J. A., Allen, W., Fraser, C., Fenemor, A., Horita, A., White, T., Chen, L., Atkinson, M., & Rush, M. (2020). Navigating institutional challenges: design to enable community participation in social learning for freshwater planning. *Environmental management*, 65, 288-305.
- Verbeke, W. (2005). Agriculture and the food industry in the information age. *European Review of Agricultural Economics*, 32(3), 347-368.
<https://doi.org/10.1093/eurrag/jbi017>

