Ministry for Primary Industries
Manatū Ahu Matua

Primary producers' perspectives on New Zealand's primary industries advisory services system

MPI Technical Paper No: 2021/01

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Manaaki Whenua – Landcare Research

ISBN No: 978-1-99-004352-9 (online)
ISSN No: 2253-3923 (online)

January 2021

New Zealand Government

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MWLR Contract Report:	LC3889

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1 Summary

New Zealand's Ministry for Primary Industries contracted Manaaki Whenua – Landcare Research to undertake quantitative and qualitative research to gain a better understanding of how producers (farmers, growers and foresters) are using the primary industries advisory services (PIAS) available to them, and how the PIAS system could be improved to help transition the primary sector to more sustainable and productive land use.

Our research shows that producers and Māori land governors are responding to increasingly complex on-farm pressures and seeking advice on a diverse range of sustainable and productive land-use topics, and that they want more advice and information on these topics. To access advice and information on sustainable land-use topics, producers are drawing on sources predominantly outside the PIAS system, such as online material. This appears to be due to perceptions of a production-focused PIAS system, concerns about a lack of expertise and experience in advisors, as well as expectations about who should pay for the advice needed to implement policy changes that keep changing (i.e. government, not producers).

We found that producers value advice and information that is independent, non-biased, evidence-based, underpinned by practical knowledge and experience, and presents options. We also found that age, experience, life stage and a producer's values, vision and financial situation influence both advice topics and the sources they choose to seek advice from, and when. We also identified how trigger events influence advice seeking and utilisation.

While it is widely recognised that relationships and trust are the foundations of advice provision, we found that these are eroded due to concerns about:

- the politicised context of advice provision
- a 'telling rather than listening' approach from advisors
- perceptions of bias, vested interests and tunnel vision in advisors
- a lack of follow-through and follow-up by advisors, in particular by product-based advisors
- a lack of practical knowledge and experience in advisors
- perceptions that advisors can make things too complicated.

This erosion of relationships and trust appears to be influencing how producers use the PIAS system. In particular, they are embarking on a multi-step process that involves multiple advice sources to assess advice before they decide to make a change. This is a time-consuming process that cannot be delegated. We have found that producers' informal networks of peers, who are trusted and indispensable for sharing ideas, are central to this assessment process. Indeed, we conclude that these networks are integral to the functioning of the PIAS system.

We also found that the expanding regulatory compliance burden across the agricultural sector is resulting in spouses taking on administrative roles on-farm and working less off-farm.

Advice provision issues are different for Māori landowners and producers, and there remain significant gaps in knowledge about the advisory services they need and the current capacity within the PIAS system to address these needs. We found that Māori land governors often have limited knowledge of primary production and have become heavily reliant on fee-for-service advisors, who they engage in an ongoing and often long-term basis. Due to this, concerns were raised about advisor capture and the role of advisors in making decisions about options and practices on Māori land. Concerns were also raised about lazy advice provision, the cultural competency of predominantly Pākehā advisors and the lack of Māori PIAS advisors.

Māori land governors also value advice that is independent, non-biased, evidence-based, and based on practical knowledge and experience, but it is the presentation of options that is very important to enable them to choose the best opportunities for their whenua and whānau.

2 Introduction

New Zealand's Ministry for Primary Industries (MPI) contracted Manaaki Whenua – Landcare Research to undertake research to gain a better understanding of how producers (farmers, growers and foresters) are using the primary industries advisory services (PIAS) available to them, and how the PIAS system could be improved to help transition the primary sector to more sustainable and productive land use. This research contributes to the Ministry's Productive & Sustainable Land Use programme, which is seeking to build capability and capacity within the PIAS system.

We have conducted an advice providers' workshop, a systematic literature review, a nationwide survey, focus groups with producers who do and do not regularly use advisors, and hui with Māori land governors.

Through these research processes we have examined how producers are currently using the PIAS system and what does and does not work from their point of view in terms of advice provision and utilisation. Understanding producers' perspectives is important to help MPI identify barriers and opportunities for the development of a more effective PIAS system to meet future producer needs and aspirations, and the requirements of a future-focused primary sector.

MPI include the following organisations and actors within the PIAS system (Figure 1). Although peers are not considered to be part of the PIAS system, research from New Zealand (see review from Duncan & Kirk 2020) and internationally (Black 2000; Blackstock et al. 2010; Duncan & Kirk 2020; Knook et al. 2020; Sutherland et al. 2013) shows that they are an important source of information and advice for producers. Hence this research includes an examination of the role of peers in the provision and utilisation of advisory services.

Figure 1: Organisations and actors included in New Zealand's PIAS system (Source: MPI).

With producers at the heart of the PIAS system, understanding how they encounter, perceive and use advisors and advisory services, and what influences their decisions about whether to accept, adapt, file for future reference, or ignore advice, are important topics for research, both nationally and internationally (Black 2000; Blackstock et al. 2010; Knook et al. 2020; Sutherland et al. 2013).

3 Methods

To understand how producers are using PIAS, what works and what does not in advice provision, and how the PIAS system could be improved to transition the primary sector to more sustainable and productive land use, the research was conducted in four stages:

1 advice providers' workshop
2 literature review
3 survey
4 focus groups and hui.

Findings from the advice providers' workshop and literature review were used to design the survey, and insights from both the literature review and the survey were then used to inform questions for the focus groups and hui, and our analysis. The literature review (with insights from the advice providers' workshop) has been published and is available from the MPI website at the following link https://www.agriculture.govt.nz/funding-and-programmes/farming/productive-and-sustainable-land-use/. Given the literature review is publicly available, this report will simply present its key findings and recommendations and focus on the survey, focus groups and hui.

3.1 Research process and structure

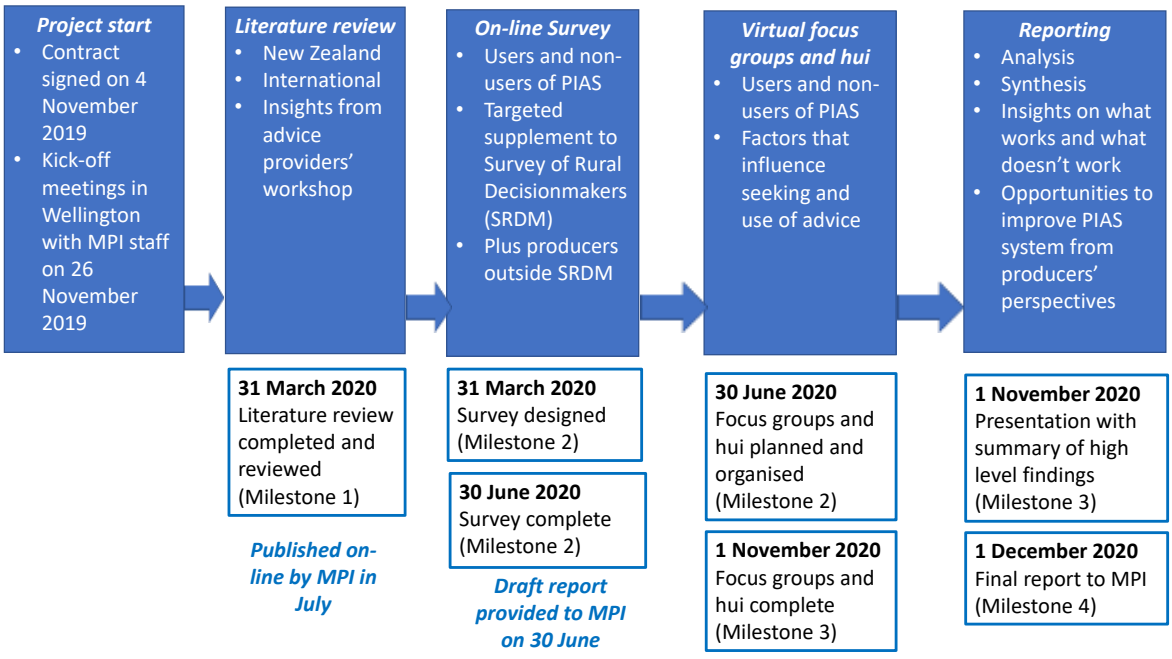

Figure 2: Research process and structure

3.2 Defining advisory services

The focus of this research is *advice provision* by advisors within the PIAS system. However, it is important to acknowledge that primary producers engage with a range of information, advice and extension sources and activities (Casey et al. 2015) that do not involve direct contact with advisors but that are accessible from the actors and organisations set out in Figure 1. Hence, in the survey we did not ask respondents to separate how they use *advice* from how they use *information*, as this is a distinction they might not ordinarily make or be aware of.

To ensure we captured the most complete picture of how producers use PIAS, we used the term 'advisory services', which encompasses the seeking and/or receiving of advice and/or information in a range of formats and from a range of sources (Box 1). Broadly defining advisory services helped us to identify producers who do not regularly use advisors to invite them for further discussion about why they do not use advisors.

What are advisory services?

Advisory services are defined as advice or information provided by and/or available from fee-for-service rural consultants, financial advisors (e.g. accountants, bank managers, insurance providers), business services and sales advisors (e.g. from seed and fertiliser companies), government organisation advisors (e.g. from regional councils, MPI), industry levy bodies (e.g. DairyNZ), industry suppliers (e.g. Fonterra), Māori land advisory organisations, researchers, and veterinarians.

The advice and information covered by the term 'advisory services' includes producer-initiated assessments, studies and reports, fact sheets, best practice guidelines, websites, publications, newsletters, workshops, conferences, field days, one-on-one discussions, on-line forums, industry reports and research.

Box 1: Our definition of advisory services in the survey.

3.3 Literature review

We conducted a systematic review of peer-reviewed international and national research on primary producer advice provision and behaviour change in the agricultural sector. To capture insights not easily accessible through the peer-reviewed literature, we supplemented our literature review with a scoping workshop with advice providers. At the workshop we asked primary industry advisors to share their experiences of engagement with producers, and any research they had undertaken in New Zealand, to assess the effectiveness of their advisory services from producers' perspectives. See section 4 of the literature review for an account of our literature review methods, and its Appendix 1 for a list of participating organisations.

3.4 Survey

The survey was designed through an iterative process informed by the literature review, the advice providers' workshop, consultation with MPI, and piloting with industry and survey experts. The objectives of the survey were to answer the following questions:

- On what topics have producers sought advice and/or information in the last 5 years?
- What sources have producers used to access advice and/or information in the last 5 years?
- What factors contribute to seeking and using advice and/or information?
- On what topics would producers like to receive advice and/or information in the future?
- What type of producer is more or less likely to use advisory services?

The survey was conducted using the computer assisted web-interviewing program Qualtrics. This program allows for complex adaptive logic within the survey to show respondents relevant questions based on previous answers.

The survey was open for 4 weeks in May and June 2020. Respondents were recruited through Manaaki Whenua – Landcare Research's Survey of Rural Decision Makers (SRDM) as well as through promotion of the survey by advice providers, industry groups and levy organisations. We received 382 responses, including 237 recruited through the SRDM. The average response rate among those recruited through the SRDM was 41%, including 57% of sheep and beef farmers and 37% of dairy farmers contacted. The average response rate among those not recruited through the SRDM is not known.

The survey included predominantly multiple-choice and single-choice scale questions, but it did have a few optional open-ended questions. It covered the following topics.

- Topics of advice

  Respondents were asked, ‘In the past 5 years, on what topics have you sought or received advice or information on managing your land use, business and/or personal well-being?’ Respondents were provided with a list of 18 high-level topics and could choose all topics they sought and/or received advice and/or information on within the last 5 years.

- Sources of advice

  Respondents were asked, ‘Where did you obtain this advice or information?’ for up to three topics. The three topics were randomly chosen from all the topics the respondent sought advice or information on within the last 5 years. There were 15 possible sources respondents could choose from, and they could choose more than one source for each topic.

- Relevance and trustworthiness of sources

  Respondents were asked, ‘How relevant is advice or information from these sources? How trustworthy are these sources?’ Respondents were also asked to rate the relevance of advice or information and the trustworthiness of all 15 sources on a three-point scale (1 = low, 2 = medium, 3 = high).

- Agree/disagreement statements

  Respondents were asked to what degree, on a five-point scale (1 = strongly disagree,…, 5 = strongly agree), they agree with statements on access to information, quality of information, experience of advisors, Māori land management, and reasons to use advice (e.g. independent advice).

- Topics of advice that are needed

  Respondents were asked, ‘Overall, on what topics would you like advice or information to help you respond and adapt to future changes?’ Respondents were provided with the same list of 18 high-level topics, plus an additional ‘Other’ category where they could write alternatives.

- Demographics

Results were processed and analysed using the statistical software Stata. Results were discussed by demographics. Please see our full survey report (Appendix 1), which provides detailed information on methods and insights in relation to how the use of advisory services differs across sectors, regions, farm management structures, performance, age education and ethnicity.

3.5 Focus groups and hui

Our plan to conduct face-to-face focus groups and hui in various regions was affected by the global COVID-19 pandemic, which required New Zealand to enter into a quarantine lockdown between March and May of 2020, with Auckland City re-entering quarantine lockdown between August and October of 2020. Given the restrictions placed on travel and freedom of association, we investigated alternatives to replace face-to-face, kanohi ki te kanohi*,* interaction.

In consultation with MPI, we pursued online focus groups and hui using video conferencing software (Archibald et al. 2019; Chen & Neo 2019; Gregory 2018). There are a number of benefits and drawbacks associated with online focus groups and interviews. One of the benefits is that they did not require participants to travel to and from a specific location (Farnsworth & Boon 2010). This gave producers, who often have little spare time and live in remote locations, the ability to attend focus groups from home. A related benefit was that it helped us reach producers over a geographically dispersed area at one time (Rupert et al. 2017), for example, hosting focus groups with producers from Northland to Southland simultaneously This is something that would not have been possible with face-to-face focus groups. Finally, online focus groups are well suited to conversations on sensitive topics, particularly if anonymity of participants is important but interactions between participants is still desired (Forrestal et al. 2015).

There are also a number of drawbacks of hosting focus groups and hui online. First, research has shown that data collected during online focus groups is less rich than data collected during face-to-face focus groups. For example, online focus groups have been found to generate lower word counts (i.e. words spoken per minute, or typed per minute) (Brügen & Willems 2009; Schneider et al. 2002). Also, the responses from online focus groups appear to be shorter, more immediate, and include less

explanation and detail (Schneider et al. 2002; Woodyatt et al. 2016; Abrams et al. 2015). However, other researchers have found that online focus groups generate data that are comparable to face-to-face focus groups (Kite & Phongsavan 2017; Abrams et al 2015; Flynn et al. 2018). Second, participants in online focus groups have been found to respond less frequently to each other compared with face-to-face focus groups (Abrams et al. 2015). Third, it has been found that the online setting is harder for the mediator and facilitator to control than a face-to-face setting (Adams-Hutcheson & Longhurst 2017). For example, participants might be interrupted by family members during the video conference (Daniels et al. 2019).

We followed best practice principles for conducting online focus groups from Forrestal et al. (2015). Specifically, we kept groups small but over-recruited by two or three participants (because people choose not to come at the last moment, or forget). We scheduled focus groups with participants in mind (e.g. in the middle of the day and later in the day, or outside calving time for dairy farmers). We asked participants to test software, provided detailed instructions, and sent reminders. During the focus groups we used a round robin format for introducing participants and asking for responses to questions. We kept the focus groups short (i.e. 1 hour) and ensured we adhered to this time commitment as far as possible.

Taking into account the various pros and cons of following these best practice principles, we found the virtual focus groups and hui to be highly successful, with all producers open and willing to share their views and with all appreciating the opportunity to be involved from the convenience of their own home.

Focus group recruitment

Focus group participants were recruited using two different methods. First, we recruited participants through the survey by asking people to indicate whether they would be willing to be contacted via email about potential follow-up involvement. We split those who agreed for follow-up participation into two groups: those who indicated they regularly use advisors and those who indicated they do not use advisors.

Producers who do not use advisors were identified as survey participants who did not seek any advice in the last 5 years ('none of the above' to question 7 of the survey) or respondents who sought advice in the last 5 years, but that advice only came from peers, internet, events, farming magazines and/or TV documentaries. This meant that 17% of total participants were considered not to use advisors. Some of these participants put their names forward to participate further in the research. We contacted these people via email. However, given the lack of response to emails, we had to use the White Pages to find and telephone potential participants. This was highly effective, but time consuming.

As there were far more producers who use advisors than those who do not, we supplemented the small number of people who do not use advisors with three one-on-one interviews with producers who were unable to attend the focus group.

To supplement survey-based recruitment, we also approached industry bodies and organisations and requested their assistance in recruitment. Beef + Lamb NZ and DairyNZ sent information on the focus groups to their members via their newsletters. However, we did not receive any direct responses from these communications. We also contacted the Bragato Institute, which was willing to make direct contact with a number of producers to help us arrange a focus group specifically consisting of viticulturalists.

We were able to recruit participants across a range of different production sectors in New Zealand. Table 1 shows the focus group attendees by sector (these do not include hui).

Table 1: Focus group attendees, by sector (not including hui).

Primary sector	Focus group attendees
Sheep and beef	9
Horticulture/viticulture	5
Dairy	6
Grazing livestock that is not owned (including dairy support)	3
Forestry	3
Deer	2
Vegetable/flowers	2
Kiwifruit	2
Fruit/nuts	1

These participants were drawn from across New Zealand. Table 2 shows attendance by region.

Table 2: Region of focus group attendees (does not include hui)

Region	Attendance
Northland	2
Auckland	3
Bay of Plenty	3
Waikato	1
Hawke's Bay	4
Manawatū–Whanganui	1
Wellington	2
Tasman/Nelson	1
Marlborough	1
Canterbury	8
West Coast	1
Otago	2
Southland	4

We did our best to ensure a gender balance during the focus groups and attempted to recruit at least one woman to each of the focus groups. Table 3 below shows the gender balance within the focus groups (minus hui).

Table 3: Gender of focus group attendees

Male	Female
26	7

Hui recruitment

We also held two hui with participants associated with governing and/or managing collectively owned Māori land holdings in the following regions: Chatham Islands, Gisborne, Manawatū–Whanganui, Canterbury and Wellington. Five men and two women were present during the hui. Six were Māori land governors and one was a commercial manager of land owned by a Trust. These participants were recruited via the survey and through snowball sampling. Our hui were conducted in a way that

was respectful of tikanga, with each meeting beginning and closing with a karakia, and the lead researchers introducing themselves to the group through mihi. Like the focus groups, each hui was held online using video conferencing software.

3.6 Data analysis for focus groups and hui

We divided the qualitative data into three components:

1 producers who do not regularly use advisors
2 producers who do regularly use advisors
3 perspectives of Māori governors from our hui.

We have separated the results from our focus groups and hui because the issues for Māori and non-Māori producers are quite different and need to be discussed separately.

For each component, an inductive and deductive approach was used in the analysis (Cope 2005; Merriam & Tisdell 2015; see also Fereday & Muir-Cochrane 2006). We used NVivo software, which can help with the organisation, synthesis and analysis of large qualitative data sets. Using NVivo, the researcher can identify key themes through an iterative process of identifying what is significant to participants, what is appearing important to them, and what meaning is being conveyed. The software allows the researcher to name, rename, move, combine, aggregate and disaggregate categories and sections of data under what are referred to in the software as 'nodes'. Working with the data in NVivo in this way allows the researcher to assemble key ideas and insights that reflect issues of concern to participants and what they mean within the context of the research project.

Our analysis started with the transcription of the digital recordings of the focus groups, hui and related interviews by the research team into Word documents. The first step was to establish a coding framework to organise the collected data in NVivo. This was developed from an initial scan of the transcripts. Using this framework, a second more in-depth step generated many descriptive codes (i.e. nodes) from the data to capture the multiple perspectives of our research participants. Our deductive step was to assemble the nodes to align with our research questions, which brought into view a number of additional themes and dimensions. Following these steps, our descriptive nodes were aggregated, refined and developed into key themes that structure our results, set out below.

3.7 Research limitations for focus groups and hui

As noted, the global COVID-19 pandemic meant that focus groups and hui could not be conducted in-person and so we used video conferencing. Recruitment for the focus groups and hui, and organising suitable times with participants, was challenging and time consuming. This limited the number of focus groups and hui we were able to hold and the number of participants who were able to attend the focus groups and hui. Nevertheless, we were hearing similar reflections and themes from participants who do and do not regularly use advisors and across the focus groups. We recommend further discussions with Māori land governors, trustees, landowners and producers to more fully understand their advisory service needs and aspirations.

We conducted two sector-specific focus groups involving dairy farmers and viticulturalists. These focus groups highlighted the fact that each sector has a unique context, which shapes producers' use of PIAS. Given this, having more sector-specific focus groups for forestry, horticulture, and sheep and beef farming, for example, might have been a helpful supplement to the focus groups conducted with a mix of different primary industries. Even so, having participants across sectors was useful for participants to make comparisons, and for us to see what issues are similar and different across sectors.

It is also important to recognise that the majority of producers we spoke to in the focus groups were owner-operators (the exception being a corporate-based winegrower). As a result, a corporate perspective on advisory service provision and use is lacking from this research.

4 Results

Below we first summarise the findings from the literature review and survey, followed by our findings from the focus groups and then our hui.

4.1 Literature review

The literature review presents an overview of the last 10 years of research internationally and nationally on primary industries advisory services and behaviour change. We supplemented the systematic peer-reviewed literature review with insights from primary industry advice providers in New Zealand and their assessments of producers' perspectives on PIAS. The overarching findings of our literature review are as follows.

- Relationships and trust are the foundations of PIAS system provision.
- New Zealand's PIAS system is optimised to provide advice on production, productivity and efficiency, but less so for integrating production, regulation and environmental management.
- Producers perceive advice to be relevant if it is focused on production, productivity and efficiency.
- Producers perceive advice to be legitimate if they have an established or long-term relationship with an advisor.
- Producers need to be provided with compelling evidence to be confident there is a financial return or benefits to be gained by the practice or system changes they are being encouraged to make.
- Producers perceive advice to be credible if they respect the experience and expertise of the advisor. However, this expertise is recognised by producers as bounded (e.g. veterinarians are highly trusted for their advice on animal welfare, but not genetics).
- Product-based advisors (e.g. fertiliser company representatives) have a high level of access to producers, which influences the relevance and legitimacy of their advice.
- Producers value the advice of peers, but there are sensitivities relating to this.
- Conventional, productivity-based advisory services are insufficient and potentially counter-productive for Māori landowners and producers.
- There are significant gaps in knowledge about the advisory services needs of Māori producers and the current capacity within the PIAS system to address these needs.
- Families, in particular spouses, are key decision-makers and should be included in advisory activities.
- There is evidence that advisory services are resulting in producers gaining new knowledge, awareness and motivation. However, these changes do not easily or straightforwardly translate into on-the-ground action.
- Over the past 10 years there is only limited evidence in the international literature to attribute producer behaviour change directly to advisory services.
- The extent to which advice is perceived by producers to be credible, salient and legitimate is helpful for understanding how producers might engage with different sources and topics of advice.

While there is limited evidence of behaviour change directly attributable to advisory services, there is evidence that advisory services are building awareness of new practices and approaches, encouraging new motivations, and building knowledge.

Our literature review also identified that it is important to recognise that not all topics of advice are equal, and that advice provision can result from both:

- endogenous pressures on the internal farm or production system ('pull advisory services')
- exogenous pressures on the farm system, such as imperatives to invest in public goods like biodiversity ('push advisory services').

This means that different advisory provision approaches are likely to be required depending on whether the advice being provided is perceived by a producer as welcome, no-choice or optional (see Sutherland et al. 2013).

Table 4: Categories of advice and advice provision set out in the literature review (Duncan & Kirk 2020, p. 15).

What sort of advice, goods and advisory service?	Relates to what topic?	What facilitates advice provision?
Welcome advice Private goods A pull advisory service	Production, productivity and/or efficiency	• Long-term relationship • Expertise and experience of advisors • Access to producers (e.g. through product supply) enables relationship development and knowledge of a producer's agricultural system • A body of research from which to draw strong evidence of return on investment and/or benefits
No-choice advice Making public goods private goods A pull advisory service	Regulations, consents	• Expertise and experience • Understanding a producer's agricultural system, business circumstances and context
Optional advice Public goods A push advisory service	Ecosystem services, biosecurity	**Current approaches to advice provision** • Communication strategies to raise awareness • Measuring attitudes and motivations • Methods often distant from producer • Costs highly visible, but not benefits

We concluded from the literature review and the advice providers' workshop that New Zealand's current PIAS system is well suited to providing advice to producers that delivers private benefits, such as increased productivity, efficiency and profit. These productivity and/or efficiency-focused advisory services are being used widely by producers, with many producers paying for these services. However, it was recognised this is no longer sufficient.

The following recommendations were drawn from the literature review.

1 View the PIAS system in terms of relationships rather than technology or knowledge transfer.
2 Examine the implications for producers of New Zealand's PIAS system being optimised for advice on production, productivity and efficiency (e.g. a lack of capacity for the integration of production, regulation and environmental management).
3 Consider what bodies of evidence exist, beyond production, productivity and efficiency, for providing compelling evidence to producers so that they can be confident there is a financial return or benefits to be gained by practice or system changes they are being encouraged to make. The evidence base influences the credibility and relevance of advice.
4 Identify opportunities to illustrate to producers the multiple benefits of productive *and* sustainable land use and what that looks like in different settings so that performance in terms of productivity, environmental management and well-being are seen as mutually reinforcing attributes of a primary sector business rather than mutually exclusive.
5 Provide pathways and support for new or retraining PIAS advisors to gain the experience, expertise and networks required to build credibility and legitimacy with producers.
6 Given that producers value the advice of peers, find ways to capitalise on this but recognise the identified sensitivities to this approach.
7 Develop new ways of supporting Māori landowners, in recognition of the fact that conventional productivity and/or efficiency-based advisory services are insufficient and potentially counter-productive for Māori producers.
8 Address the significant gaps in knowledge in regard to how Māori producers use advisory services, what their unique needs are in terms of advisory services, how these differ from non-Māori producers and the implications of these differences for current advice provision capacity and pathways to build Māori advisor capability.
9 Given that families, in particular spouses, are key decision-makers, seek to include them in advisory activities.
10 Shape New Zealand's PIAS system with the knowledge that a 'one-size-fits-all' approach to advice will not be as effective as advice tailored to a specific context and farm system.
11 Recognise there is tension for producers between private and public goods, and they are often receiving messages from different actors and organisations to achieve both. Developing

incentives and schemes that encourage producers to create both private and public goods on their land could be beneficial, although doing so would require much further investigation.

Given that the literature review identified that not all advice topics are equal and that knowledge, awareness and motivation do not easily or straightforwardly translate into action on the ground, the next stages of our research sought to examine what this means for how producers engage with different sources and topics of advice.

4.2 Survey

The survey was designed to provide quantitative information on advisory services, segmented by sector, region, farm management structure, performance, age, education and ethnicity. The objectives of the survey were to explore the following questions.

- On what topics have producers sought advice and/or information, including from advisory services, peers, support groups and/or popular media (e.g. TV documentaries)?
- From whom and/or where have producers sought or accessed advice and/or information? This includes advice or information from advisory services, peers, support groups and/or popular media (e.g. TV documentaries).
- What factors contribute to seeking and using advice and/or information?
- On what topics would producers like to receive advice and/or information in the future?
- What type of producer is more or less likely to use advisory services?

Below are the overarching findings from the survey.

- Over the past 5 years respondents sought or received advice or information on an average of five topics. The most common topics included farm environment plans, managing water quality and use, on-farm biosecurity and pest management, and changing production, productivity or efficiency (Figure 3).
- Respondents sought or received this advice or information from an average of five different sources. The most common sources used were the internet, peers and peer-support groups, farming magazines, local or regional councils, and industry or levy organisations (Figure 4).
- A small percentage of respondents have not used advisory services within the past 5 years. These respondents tended to be from Wellington, Auckland, Hawke's Bay / Taranaki, or over 70 years of age.
- Younger producers (18–39 years of age) tended to seek advice on a broader range of topics compared with producers older than this. The proportion of respondents who sought information or advice on any topic decreased as they got older.
- The relevance and level of trustworthiness of a source were positively correlated. For most sources, the likelihood of using that source increased as the relevance of advice and perceived trustworthiness increased. The majority of respondents said that advice or information from research institutions and veterinarians was highly relevant and that these sources were highly trustworthy. However, the likelihood of using veterinarians and research institutes was higher than average among respondents who thought their advice was highly relevant.
- The likelihood of respondents using local or regional councils, industry or levy organisations, fee-for-service rural consultants, and accountants, bank managers or insurance providers was highest among respondents who thought that advice provided by these sources was highly relevant and that these sources were highly trustworthy.
- The likelihood of respondents using ministries (e.g. MPI and Ministry for the Environment) as a source of advice was highest among respondents who said that ministry was highly trustworthy.
- The majority of respondents agreed they preferred independent advice.
- The majority of respondents agreed they had access to the resources they needed.
- The majority of respondents were reluctant to accept advice from an advisor they did not know.
- Respondents in arable or vegetable/flower sectors think experienced advisors are lacking in their industry.
- Respondents would like more advice or information on environmental sustainability, farm system changes, ecosystem services, biodiversity and/or covenants, becoming resilient to severe weather or climate change, managing greenhouse gas emissions, and/or stewardship/kaitiakitanga.

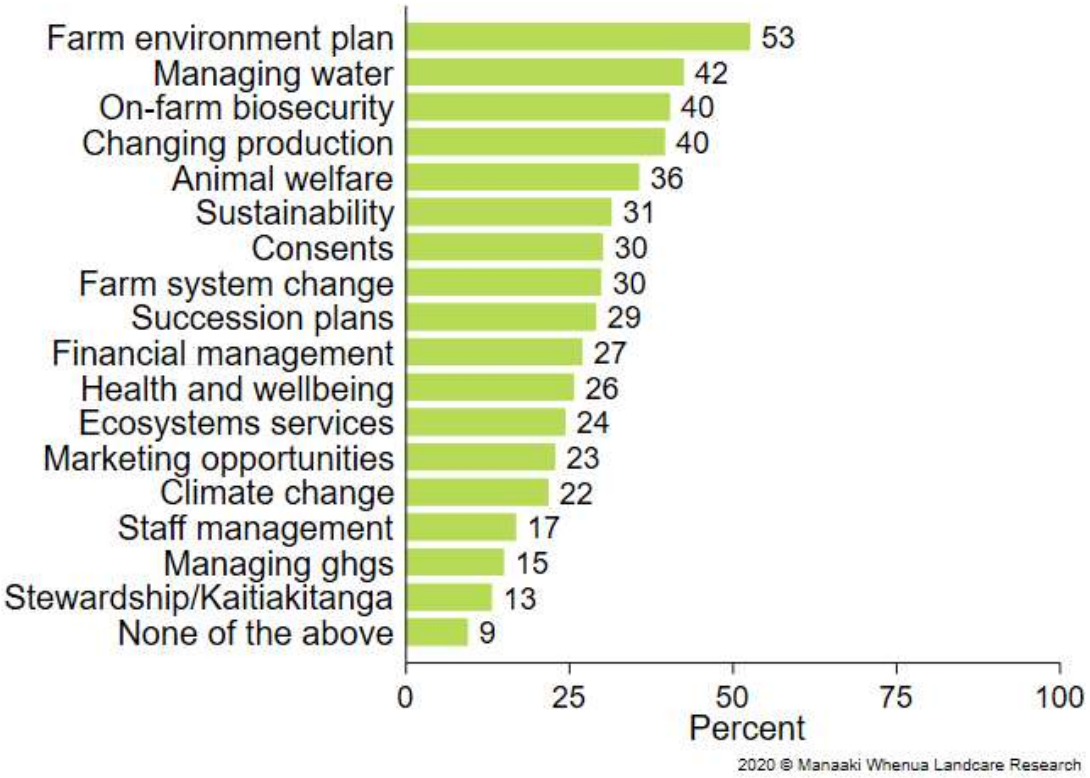

Figure 3: Proportion of respondents who have sought or received advice or information on these topics within the past 5 years.

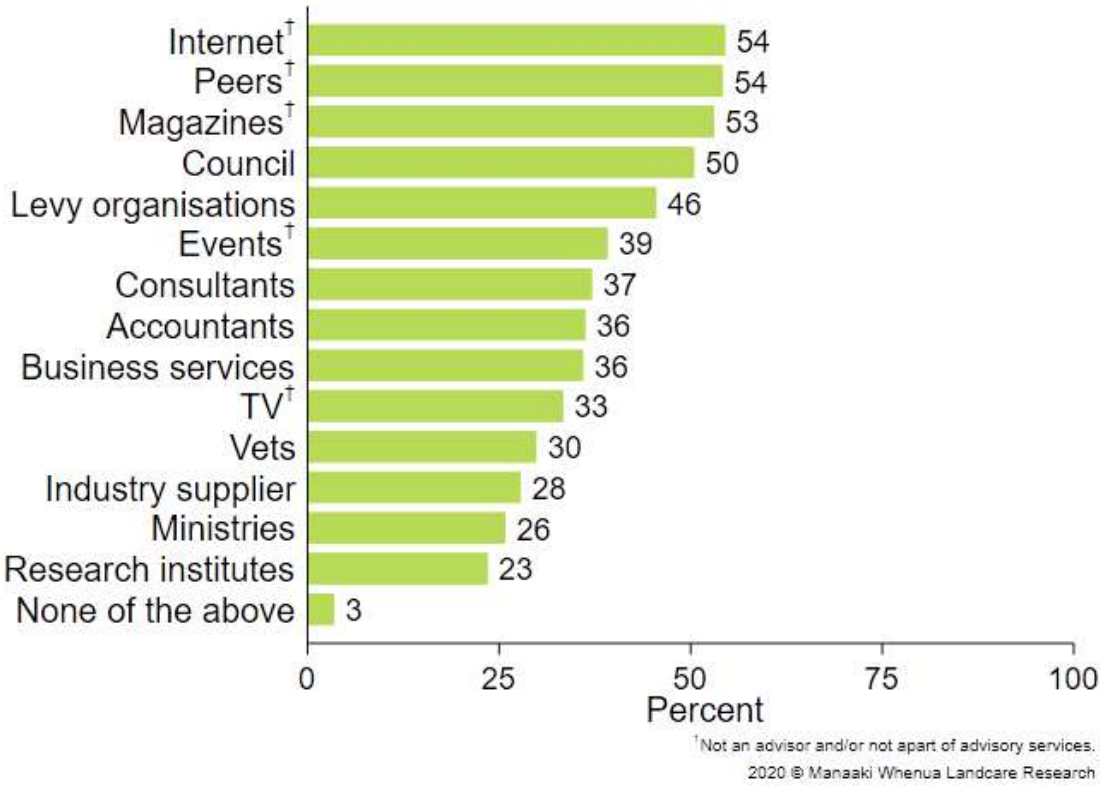

Figure 4: Proportion of respondents who have sought or received advice or information from these sources.

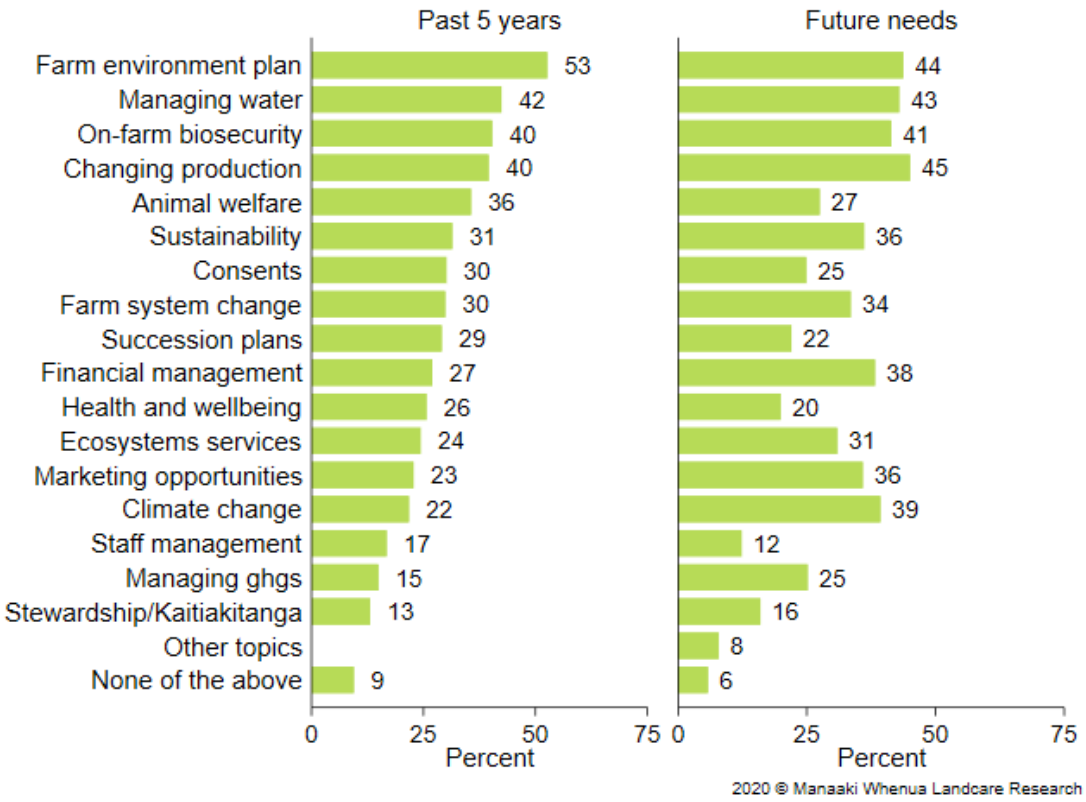

Figure 5: Proportion of respondents who sought or received advice or information in the past 5 years (left panel), and who said they would like advice or information on these topics to help them respond and adapt to future changes (right panel).

4.3 Focus groups and hui

The focus groups and hui were important for gaining a deeper understanding of the findings of the advice providers' workshop, literature review and the survey. In this section we have divided our results into five sections:

1 Producers' perspectives on how information and advice are different
2 Why producers are not using advisors
3 How producers who regularly use advisors are using the PIAS system
4 What works and what does not work in advice provision and utilisation
5 How Māori land governors are using advisors

4.3.1 Producers' perspectives on how information and advice are different

As discussed in the Methods section, in the survey we defined advisory services broadly to include both advice and information to ensure we captured all topics in which producers are interested in relation to productive and sustainable land use.

In the focus groups we narrowed our investigation to producers' use (or not) of advisors to identify what does and does not work within the PIAS system, and what factors contribute to advisors bringing about practice change. It became evident from the survey that understanding whether producers thought information and advice were the same or different things would be important to examine during the focus groups. We found this was the case, and that this was an important distinction from the perspective of producers and Māori land governors. Indeed, it provided insight into why producers use the PIAS system in the way they do.

Information is 'straight from the oven'

We consistently heard from producers that information is factual (e.g. numbers, technical details, science) and that it should be evidence-based. A sheep and beef farmer described advice as subjective, whereas information is 'straight from the oven'. We were told information is usually written and something you go looking for. We got the impression that producers see information as something they can take or leave and work through at their own pace.

Notably, while the internet is the most used source, producers recognise its limitations (e.g. it was often general and not tailored to a producer's circumstances, and sometimes not specific to New Zealand). Hence, judgement was needed to use it. Others discussed how there is an enormous amount of information out there and that it takes considerable effort to narrow things down. Another participant (a winegrower) described it in terms of a 'smorgasbord', which meant it was often hard to choose which direction to go in, especially if you are just starting out.

Nevertheless, we were told that looking for information (usually through the internet) is 'the first place you go' when you decide to do something or you find you need to do something (sheep and beef farmer). These insights are reflected in the survey in response to questions about sources and their relevance and trustworthiness.

Advice is opinion

We were told that 'information is a noun. Advice is telling you to do something, more like a verb' (beef farmer). We also heard that advice is about specifics: it is localised, often verbal but 'not rock solid' (sheep farmer). It was widely maintained that advice is opinion, which has negative connotations:

> [Advice and information] are quite different! Information is, one hopes, factual and backed up by good evidence. Advice, to me, is opinion. That, to me, is the difference. Advice is someone's subjective judgment and so not clear-cut. (forester)
>
> Information is what you go looking for and advice is from people that can tell you this is what I tried, it might or might not work. Advice is opinion and information is everything about all your different options. (sheep and beef farmer)

It was also recognised there can be risks putting the advice you gather into action:

> [The conversation] reminds me of a grower we had who would ask for lots of advice about the same thing and would take a bit of advice from here and there and cobble the advice together, which were never designed to work together but work only within the context of that person who had provided it. You need to be specific about what you're asking and how the advice you've been given is couched to you. (winegrower)

Hence, there is awareness that advice is dependent on the context in which it originated and, as is the case with information, judgment is needed to use it.

Another participant highlighted how information becomes advice when the producer moves from gathering information, anecdotes and experiences that might be relevant, to asking targeted questions about what to do:

> [You can gather] a lot of information through those discussion groups. You've got ideas being thrown around and sometimes one of those ideas will gel with the problem you've got or something you're considering. It becomes advice when you essentially, in your head or verbally to someone, ask what should I do or how should I go about this? That's when you're not just seeking information, you're into the realm of seeking advice. (winegrower)

While producers made important distinctions between advice and information, it was also recognised that advice is a subset of information, and a range of factors are involved in transforming one into the other: 'Anyone can take information [and present it to you] but skills, maturity and experience [are] needed to turn that information into advice' (winegrower). It was clear from the focus groups that producers have concerns about the skills, maturity and experience of advisors.

Advice is not to be trusted, whereas information is 'the first place you go'

Notably, as mentioned, producers' reflections on advice came with a negative tone when using terms like 'subjective', 'someone's opinion', 'not rock solid' and 'not clear-cut'. The negative tone and the description of advice as merely opinion gave the impression that advice is encountered as something

not to be trusted without verification. Information, on the other hand, while recognising there is an overwhelming amount of it 'out there', was described positively; for example, in terms of 'facts', 'evidence' and the 'first place you go'. The conversations suggest that information is seen by producers as less ambiguous − and potentially less intrusive − than advice.

Summary

These perspectives on the differences between information and advice were consistent across the focus groups and provide an important context for understanding how producers and Māori land governors use the PIAS system (or not), and their reflections on what works and what does not in terms of advice provision and utilisation.

4.3.2 Why producers are not using advisors

We spoke to producers who do not use advisors in order to understand their reasons why, and to ask what might be needed for them to use advisors.

Misalignment of values

A key issue identified by this 'do not use advisors' group was the misalignment of values between them and advisors. For example, an organic beef farmer noted a bias of advisors towards offering what he described as 'commercial advice': 'They [advisors] are just interested in it for the money and we're more in it for lifestyle, so different reasons'. A sheep and beef farmer stated, 'I sometimes find that farm consultants, or the ones I've seen, their values don't line up with mine. Their values might be focused on economic gain, or they might be trying to push their values onto you, which doesn't work'.

Paying for advice is not value for money

While some producers felt that the cost of advisors is prohibitive, others were more concerned it was not value for money. Hence, rather than hiring an advisor or consultant, they relied on their own ingenuity, experience and access to information to solve problems. One sheep and beef farmer stated, 'I hate spending money on something frivolous that won't add any value. We know our farm better than any consultant'. Advisors not being able to know a producer's farm as intimately as they themselves do was a common theme for this group of producers.

We were also told that deer farming has far less regular cashflow than a dairy farm, and given the financial pressures of the former, farmers were choosing not to seek paid-for advice. Indeed, several producers talked about how they are actively keeping things as simple as possible, which means there is no need for advice.

A telling rather than listening approach

These producers have had negative experiences with advisors in the past, particularly in regard to their attitude and mannerisms. One sheep and beef farmer stated that 'if someone comes in with the wrong mannerisms, saying 'you should do this, you should do that", it doesn't sit too well because they don't know your farm'.

A deer farmer provided a useful analogy to describe the producer–advisor relationship: '[an advisor] is someone coming into your house, and saying something needs to be changed, but you – the homeowner – [have] yet to see the value in it personally. Advisors need to come in realising that's the position they are putting farmers in'.

Lack of expertise and a holistic perspective

Participants seeking to adopt regenerative and/or organic agricultural practices were concerned that advisors were unable to provide what was described as 'holistic' advice (i.e. focused on the agricultural system as a whole rather than just one part of it). Hence, participants were concerned that advisors lack knowledge, skills and experience in the broad range of possible land uses and land-use practices. For example, an organic beef farmer was of the opinion that no advisor he had come across had the right experience and expertise in organic production.

A sheep and beef farmer stated, in relation to his switch from conventional to regenerative farming, that 'No advisors [in New Zealand] have the skills that can help us through that, so [I have been] getting advice from overseas from people that have been doing it'. Another criticism of advisors was that they lack 'the full picture' to offer adequate advice. A participant spoke of advisors having 'book knowledge' obtained from university, knowledge which, in their opinion, did not always translate well to practice on the farm.

Negative perceptions of advisors

Another explanation for not using advisors was that they are 'failed farmers':

> [S]ometimes they [advisors] are also failed farmers and there is a general trend I've seen in the past, where farm consultants were farmers who had gone broke. So that was your source of advice! (sheep and beef farmer)

Accessing advice and expertise from various channels

Several producers who do not use advisors own farms that are multi-generational. While these producers accepted that farming 'is not the same as it was 100 years ago', they maintained they had access to a wealth of knowledge to draw on for their particular property and land use. Hence, these producers did not see the need to seek outside advice.

This 'do not use group' indicated they are using the internet (in particular YouTube) to access information and following people up through these channels for advice. They are utilising activities provided through industry/levy organisations, universities and other groups. They are also attending conferences and workshops they find out about through their networks, where they access other farmers and experts.

What would be needed to use primary industry advisors?

Participants were asked what would be needed for them to consider using advisors in the future. The theme of the responses was that producers would need to see a tangible and visible benefit from employing an advisor, but they felt this was unlikely. For example, 'There has to be some benefit. Benefit needs to outweigh the cost.' Furthermore, 'I have no problem using advice if it's a good return on investment. If I'm struggling in some area, grazing or business management, I'll certainly pay for it if it adds value. But so much doesn't add value...' (sheep and beef farmer). A concern for this producer was that advice and available expertise were far too focused on production rather than profitability, which was letting everyone down.

A deer farmer argued they would seek out advice if it was provided for free. Free advice potentially resolves the cost–benefit calculations that stop these producers from paying for advisors. Another suggestion made by our 'do not use advisors' participants was that they would be more willing to use advisors if they were more like 'coaches':

> If we had more advisors or coaches that had understanding of [the] ecology of the whole system rather than narrow-minded thinking, we'd get more buy-in from future generations of farmers. (sheep and beef farmer)

> If people come in and say, 'you've got to do this, this and this', I'm going to go 'piss off'. But if someone puts it more in a coaching style, like 'have you tried this' or 'have you considered this' or 'what have you done in this space in the past, and what's the result been', it's much less, probably not the right word, but offensive. And you can automatically build a relationship with the person. If they come in and realise that you actually know the most about your farming business, and use a broad theme, and they are willing to learn, then that's the difference. (sheep and beef farmer)

This suggestion reinforces the earlier point about mannerisms and how advisors interact with producers. The coaching approach was seen as a way to help farmers develop their ideas and build clarification around their ideas rather than telling farmers what to do, which is what advisors are perceived to be doing. It was felt that a 'coach' would bring the right approach and attitude towards producers and what they want to achieve.

A sheep farmer said they would consider using an advisor if their commercial operation began to struggle. They maintained that they were fairly successful as they were 'doing it on their own', were

keeping things simple, and did not need any help: 'If tides turned and we started to struggle, then, yes, maybe, but we aren't'. While recognising it was a simplification, this participant also conveyed the perception that people who use advisors 'seem to struggle and that's why they use them'.

Summary:

Producers who are not using advisors raised concerns about a misalignment of values between them and the advisors they had experience with, perceptions that paying for advice is not value for money, a 'telling rather than listening' approach by advisors, concerns about a lack of expertise in topics related to organic and regenerative agriculture that require a holistic perspective, and negative perceptions of advisors and the experience they offer. These producers believe they are able to access the advice they need via a range of channels (e.g. family and the internet). Keeping things simple was another way to avoid the need to pay for advice.

4.3.3 How producers who regularly use advisors are using the PIAS system

Producers who regularly use advisors recognised that a range of advisors across the PIAS system have been playing an important role in helping them make critical decisions about their production systems. They further recognised that these decisions are becoming increasingly difficult given the many technologies, products, systems and practices that are now recommended to them. To understand how producers who regularly use advisors are using the PIAS system to navigate this increasing complexity, we focused on answering four questions:

- why are producers seeking advice?
- when are producers seeking advice?
- where are producers seeking advice from?
- how are producers seeking advice?

Why are producers seeking advice?

Identifying the reasons producers seek advice is important for understanding how they are using the PIAS system.

Advisors are useful, but are they value for money?

While they are believed to be useful, producers explained that consultant advisors do not provide enough value to engage on a full-time basis. This was a consistent message across the focus groups:

> On and off we've engaged with a farm consultant. We've tried three. I found them to be good but maybe not that good to engage on a regular basis. I didn't see the value they were adding to engage them on a regular [full-time/retainer] basis. We still use them from time to time for something specific, e.g. when we installed a bull finishing system. (sheep and beef farmer)

Hence, while producers recognised that advisors play an important and useful role, they raised concerns that they are not value for money. As a result, producers are using advisors for specific tasks, such as where there is a knowledge gap or a particular problem needs to be solved.

At our workshop, advice providers also raised concerns about the value they bring to a producer's operation and maintained that this value needs to be in terms of financial return, otherwise producers are not interested.

Producers value independent advice

An example is using an advisor in an adjudication role to provide independent advice. According to the survey and the focus groups, this is highly valued by producers. The following producer is clearly willing to pay for independent advice because he is overwhelmed by conflicting claims about a product:

> I'm currently using an advisor because I want somebody who is independent because everybody's product is better than everybody else's and I'm just totally bombarded and all at

> sea. I need somebody who is independent that knows the products I'm interested in and who is able to give me an opinion without any bias. That's my main reason for using an advisor. (dairy grazer)

Producers seek advice for specific tasks

The focus groups identified that producers engage the services of advisors in order to:

- have ideas, practices, proposals or new systems checked and/or assessed for pitfalls, appropriateness and/or meeting required standards
- obtain independent, non-biased advice
- access expertise and experience
- fill knowledge gaps
- make improvements
- solve specific problems
- make things simpler
- identify options
- access up-to-date information
- help resolve conflicting advice.

We also heard that advisors are being used for issues not related directly to farming. According to one dairy farmer, 'we use advisors for specific things that we don't have a background in but not really around farming. Our accountant was really useful'.

Specialisation is important

We explained earlier that participants seeking to adopt regenerative and/or organic agricultural practices who do not use advisors were concerned that advisors are unable to provide what they described as 'holistic' advice (i.e. focused on the agricultural system as a whole rather than just one part of it). In contrast, a producer who was using advisors was adamant that he needs advisors who are specialists in the areas in which he needs advice rather than one person who can provide advice across multiple topics:

> Researcher: When multiple people [are] doing things for you, do you think it's hard to get them thinking holistically and you're the one left doing the integrating?
>
> Dairy farmer: It has to be that way. Given [the types of] problems, I get specific people to do what I want. For the farm I have two or three farm advisors depending on what skill I'm looking for. For me, it's not the one person but the skill I'm looking for.

This producer mentioned that one of these consultants was providing carbon accounting services. He commented that specialist consultants such as these are not cheap, 'but you're paying for something worthwhile'. It was noted by a forester that there is quite a big difference in the knowledge and skills required to provide advice on agronomy, which is highly technical, compared to forest policy. A dairy farmer participant conveyed that when advisors try to do everything, they provide bad advice.

These contributions highlight how primary production systems have become more complex as environmental regulations (and opportunities that arise from addressing them, e.g. carbon accounting) have become internalised within the production system. Hence, it is important to differentiate the advisory needs of producers between the production system related to productivity, production and efficiency and its regulatory context. As foreshadowed in the literature review, advice that might have been 'optional' in the past is increasingly 'no choice', and, depending on what is at stake, producers are seeking specialist advice, not only to ensure they are complying but also to identify opportunities now and for the future.

These reasons illustrate how producers are engaging advisors for quite specific purposes and to address quite specific tasks that producers believe they are unable to address themselves. However, it should be noted that we spoke to several spouses who are now taking on administrative and compliance roles so that these issues can be addressed in-house rather than seeking outside advice. The information and advice provided by industry/levy organisations has been key to them being able to undertake these roles. A deer farmer explained that 'people think they know until they realise they don't know. That's when they seek advice. If I need to know something, I'm smart enough to find out'.

When are producers seeking advice?

We found that *when* producers seek advice is an important consideration for advice provision, because timing has implications for how producers operate their systems, what advice is sought, and the sources they rely on.

Advisors are useful when you're doing something new

We heard from producers that they seek advice when they are embarking on a new endeavour or aspect of their business (e.g. buying land and establishing a kiwifruit farm and busines, or deciding to change forest plantings from pine to native trees).

Producers seek advice on topics they do not know or topics where they lack background knowledge. In these situations, we were told that the risks and consequences of failure are high, and so seeking advice is very important for managing those risks and avoiding detrimental consequences.

Topics and sources of advice change with age, experience, life stage and financial situation

A participant explained how experience and life stage influence his motivations for different actions and who he seeks advice from:

> As a young farmer, a young businessman, it's always about profitability and increasing production. But the older you get, you temper that with broader life views and start to look for advice that reflects that. You grow old together: the network changes and evolves and relationships develop. Things evolve. Family. Things become broader … I don't use consultants per se as much as I used to. At 57, now I'm surrounded by a network of people I respect and continually draw down from. (sheep and beef farmer)

Given the evolution of life, this producer explains he has less need for consultant advisors than was previously the case and now relies more on his peer network (which could include consultants, but he does not formally engage them or pay for their advice given the relationships he has developed with them).

Another participant from this focus group agreed that life stage influences motivation, in particular the pressure of financial commitments, which is an important reason why younger farmers are highly motivated by production, productivity and efficiency:

> As you get older you certainly aren't pushing the farm as much. Not battling the bank! When you're battling the bank and you have a massive mortgage, it does get you out of bed in the morning, that's for sure, and makes you motivated. When you don't, you back off. Animals are looked after better too. (dairy farmer)

These insights elucidate the results of the survey, which showed that producers between the ages of 18 and 39 years seek advice on a larger number of topics. The survey also found that as producers get older they seek advice on fewer topics. The focus groups suggested this is related to gaining experience and building networks outside the PIAS system.

Comfort levels with adopting advice evolve over time

We also heard that getting comfortable with ideas and the perceived commitments that flow from putting those ideas into action takes time, and what one feels comfortable with evolves as one gains knowledge, experience and confidence:

> We started our planting programme about 5 years ago and we were talking with [a consultant] who was talking about all these new technologies, steel posts, underground irrigation, but I was too scared at that stage. I didn't have the knowledge or understanding of any of them. It all sounded good and it all made sense but I wasn't comfortable with doing it. Five years down the track we're putting in a half hectare block and putting all that in and different stuff like plastic posts, and those sorts of things. That's an evolution for me, personally, I'm comfortable. I've seen, I've heard, it makes sense, I've had time to ask the questions but I want to trial it for myself before I put it into full production. (winegrower)

For this winegrower, his thinking has evolved over a lengthy period of time. With experience, gathering more information, seeking advice, and asking questions this producer became comfortable with what the change might involve. Nevertheless, he is still cautious and is doing a trial to make sure

the change is likely to work before he puts these new ideas he first heard about 5 years ago into full production.

Assessing consequences and managing risks

Another consideration in the utilisation of advice is the scale of the decision and the perceived risks, which influence when advice is used:

> Some things I adopt straight away. Depends on what it is. Sometimes I try it at a small level, on a paddock at a small scale, where you can afford for it to not be as you expect, you can afford to lose. You try it and gain experience to do more. Other decisions, where there is trust and it ties in with your own knowledge, you'll probably jump in and take the calculated risk based on what you believe to be good advice. (beef farmer)

For this producer too, trying things out on a small scale is an important starting point when there is uncertainty about outcomes and the risks of changing things are potentially high. A trial allows the producer to see what might happen and gain experience. The producer also notes that when trust is high, uncertainty is perceived to be lower. Under these circumstances he is willing to take the risk.

These insights suggest that seeking advice and deciding when and how to use it is a multi-faceted, iterative and evolving process that is more akin to a journey than a decision to take advice and make a change. This journey appears to be shaped by a producer's age, life stage, financial burden, experience, information and advice gathering, confidence, assessment of risks and consequences, working out what makes sense, comfort levels and, finally, trying it out at a scale that reflects the producer's assessment of the trustworthiness of the advice, the risks, and the consequences should it go wrong.

Where are producers seeking advice?

The survey findings indicate the following order for the top five most-used sources of advice and/or information:

1 = internet

2 = peers/peer support groups

3 = farming magazines

4 = regional councils

5 = industry/levy organisations, etc.

The focus groups confirmed these findings through producers repeatedly referring to their use of these sources. Our conversations allowed us to gather further information on why these sources are used so frequently and we found there is considerable cross-over between them.

The internet

The internet is an indispensable source of information for many people. Focus group participants reported that YouTube is an especially popular source of advice and information. The internet is also regularly used to access information from PIAS sources; for example, industry/levy organisations, councils, veterinarians, and government ministries. This means of communication is clearly enabling producers to access important information and advice from multiple sources within and outside the PIAS system.

For producers adopting regenerative and/or organic agricultural practices, we were told that the internet is a much better source of advice and information than fee-for-service consultant advisors.

Peers and peer support groups

Producers highlighted peers and peer support groups (e.g. discussion groups) as especially helpful sources of information and advice because they allow producers to hear from other producers. A producer explained that these groups are not so much about advice, but a way of collecting other people's experiences and thinking about how they might work for you. Notably, it was maintained by a dairy grazer that discussion groups are far more useful and of more value than consultants:

> I've used consultants in the past, I used to get one in about every 3 years to make sure I was on the right track. But I get more out of discussion groups than advisors because everybody's tried things and they know what fails and what works, which is really good.

It was mentioned that a useful feature of some peer support groups is that producers are able to have a say in what experts are called in by facilitators as guest speakers. This means a broad range of topics are covered, including important but often overlooked issues such as staff management.

We heard from female participants that there is a range of women's forums and networks they access via the internet, and that information and advice on primary production as well as policy changes are conveyed through asking and answering questions.

Farmer magazines

Farmer magazines are a well-utilised source of advice and inspiration. However, a sheep and beef farmer provided important reflections on their upside and downside:

> [We were] trying to get lambs to grow better. You read in farming magazines and things about amazing growth rates on plantain or chicory or something. So, you think you'll give it a go. We've tried various crops and then you've got to get into a rotation and then you have to get expertise on that. That's been disappointing. We're not into cropping now. We're back to keeping it simple. (sheep and beef farmer)

It would appear these magazines encourage farmers to try new things but sometimes expectations are not met. This reflection indicates that when expectations are not met, there can be unwillingness to try other things, in a bid to 'keep things simple'. It also highlights the challenges for sheep and beef farmers who are not experts in cropping.

Regional councils

Regional councils with land management advisors were identified as particularly useful because they have been helping farmers on an individual, face-to-face basis with new requirements and practices through farm visits and workshops. Furthermore, while a number of producers talked about going to the internet first and doing research upfront, which is seen as an essential precursor to seeking advice, they acknowledged that there is nothing quite like having someone on your property to talk to. The personal face-to-face interaction appears key to producers using regional councils for the provision of advisory services:

> Where it's an area that's new to me is when I seek advice. I had a land management officer from the regional council come out and help us understand where risks were and where policy changes might affect us. When you're in a new space, that's when you need advice. Being able to talk to someone on your property is really important. I'd done a lot of reading, but it makes a difference to have someone walk the property and understand your land. (kiwifruit grower)

This face-to-face and 'walk the property' service is well regarded by producers.

Industry/levy organisations

We heard that producers use many sources of information and advice provided by industry/levy organisations (e.g. newsletters, workshops, seminars, courses, videos). It appears these organisations and the resources they provide are especially important for keeping producers up to date with existing and potential policy changes, new practices, and regulation requirements. We also heard that these activities have directly resulted in practice change:

> I went onto a course last year on grazing regimes. Chewed it over, it made sense and it's paid dividends. I could see the sense in it and the logic in it and it made a massive difference in the way I run the place. [The groups] are well run and get good speakers. About a dozen of us. It works really well. … At the end of the day, I like free advice as it's the same price as bad advice. (dairy grazer)

Other sources of advice

In terms of advice sources beyond those we included in our survey, we heard from dairy farmers that they are seeking and paying for services from engineers, who are specifying and providing advice on

effluent management and dairy systems. Incidentally, dairy farmers also spoke more than others about their use of financial advisors (e.g. accountants and bank managers) as well as business consultants and lawyers.

In terms of emerging issues, we heard from several producers from different sectors (i.e. sheep and beef, dairy, and forestry) that they are seeking advice from carbon consultants. Only one participant, a dairy farmer, referred to an environmental NGO as providing advice to him for his farm operations, and this had been sought by the farmer. In the viticulture sector, several producers talked about water and soil monitoring information they pay for and receive through dedicated providers.

How are producers seeking advice?

The above insights on why, when and where producers are seeking advice shows that producers are seeking advisory services and using the PIAS system in a far more complex way than is captured by conventional conceptions of one- or two-way communication relationships between advisors and producers. Examining how they are seeking advice adds further insights to this complex picture.

Producers are doing their research before they seek advice from professionals

There was wide and emphatic agreement that producers need to do their own research before they seek advice from anyone, so that they can make sure they are getting the right advice or at least have the background to ask the right questions. The following contribution explains how producers go about seeking advice:

> We do all the research beforehand. We make sure we know exactly what the regulations are. We try to make sure we're not going to have surprises. Then we go and source people. We talk to other farmers who have used different people. We do all the research. Then we go to professionals. (dairy farmer)

In this case, it was explained that doing the research is an essential risk mitigation measure on several fronts; for example, to ensure there are no surprises down the track, to make sure they are able to solve their problem, to ensure they get value for money, and to make sure they are 'not sold a dud', as one dairy farmer put it.

Producers need to have a good filter and know what won't work

We heard that producers are continually bombarded with new products, technologies, systems and practices they should adopt and options to improve production. Given these circumstances, a participant maintained that producers need to have a filter and to know what will *not* work in their operation:

> [W]hen you search for advice you have to apply a filter. You hear about something but you don't think it will work in your situation. Having a good filter and understanding what won't work is important. (winegrower)

A finely tuned filter would appear to be essential for producers. It would help producers discern between welcome, no-choice, and optional information and advice, and to make decisions about what to pursue, what to ignore and what to flag for future reference.

Producers are drawing on multiple sources

The following example illustrates the negative advisory experience producers are having in seeking advice, and why it is important to do their research first:

> [W]e got advice from three different people and all of them tried to sell us a pump that was never ever going to work. It was never going to be able to get the effluent up the hill. There was just no way. You just do the maths and it doesn't work. We had people forget to take into account the friction of the pipes. … When we were trying to get the cost down the advice was always to go down a pump size, but the pump we got only just does the job. Half of the system would have been defunct if we'd followed the advice. … It astounds me when I'm explaining to them the friction of a pipe and that's their job. … We find talking to other farmers who have put systems in helps. (dairy farmer)

We also heard that seeking advice involves several steps and, as explained above, requires drawing on multiple sources within and outside the PIAS system:

> When I get advice from the vet, that's the first step. Then I go and check with others or do some reading before accepting that advice. Advice is not rock solid. Perhaps it's specialised information, but it's not the answer at that point. (sheep farmer)

Another producer, a dairy grazer, described this multi-step process as a way to verify the advice he had received: 'once I've got the advice I then go and bounce it off the neighbours and various members of the discussion group and say, "what do you reckon?" I get it ratified by peers'. Drawing on the knowledge of 'others whose opinion you trust or have helped in the past' is important in helping producers assess whether the advice they are receiving is good advice and worth considering, according to one kiwifruit grower.

Informal networks are indispensable

The above insights illustrate how the informal networks of peers and peer support groups have become indispensable sounding-boards for producers. These networks have become integral to their decision-making on seeking, considering and (if ratified) using the advice they receive from advisors. Their networks include other producers, neighbours and contractors, who would be considered to sit outside the PIAS system (Figure 1). Producers use the internet, direct contact, discussion groups, events, field days and conferences to access these people and to have the conversations they need, and want, to have about what they could and/or should do.

Producers are the ultimate decision-makers

We heard many times that producers see themselves as the ones who have to make the call on whether to accept or reject advice, and subsequently whether they should take action (or not) to solve a problem or address an issue. It was widely agreed that advisors should not be relied on to make decisions about their businesses; rather, it was the producer's responsibility to make decisions based on their own research, knowledge and experience:

> We're getting the factual information first and then seeking advice to find out about other pitfalls we haven't discovered. That's pretty much what we use advisors for now. It doesn't mean we'll follow their advice, but if they know of a potential pitfall that we haven't come across in the information we've sought then that is money well spent. But these days we try to avoid spending the money because we're finding they're telling us they're giving us information [i.e. facts], but really they're just giving us advice [i.e. opinion] and not taking any responsibility for it. (dairy farmer)

Understanding why producers seek advice, when, where, and how they are seeking advice provides important insights into how producers are using the PIAS system.

Summary:

Producers are using the PIAS system for specific tasks, which are related not only to the technical aspects of the biological farm system (e.g. crop growing or animal husbandry), but also to broader issues such as environmental regulations, staff management and safety. This distinction between the farm and other elements of the business was made by a number of producers. Indeed, we heard that husband and wife teams are now dividing up the workload, with husbands doing the day-to-day running of the farm and wives doing the paperwork, which now involves understanding and addressing requirements for an increasing number of rules and regulations. We also heard that the latter had become an almost full-time workload for spouses, which means they no longer have the time to work off-farm.

Like producers who do not use advisors, producers who do use advisors are concerned about the value of engaging consultants, and many are not doing so on an ongoing basis. Producers maintain they are able to access much of the advice they need via a range of sources, usually at their fingertips. Producers are preferring to address issues 'in-house' as far as possible given the access they now have to advice.

We found that producers are doing their own research (drawing on multiple sources), and are involved in a multi-faceted and iterative process of information and advice gathering and assessment before they decide to use advice and change what they are doing. This process is more akin to a journey than a decision. Informal networks of peers and peer support groups are clearly central to this assessment process.

4.3.4 What works and what does not work in advice provision and utilisation?

In the midst of the multi-faceted, multi-step process described above, we have identified a number of factors that can hinder the success of advisors and the use of their advice.

Factors that hinder the success of advisors and the utilisation of advice

A telling rather than listening approach

As was the case with the 'do not use advisors' group, the 'telling rather than listening' approach from advisors and government representatives was identified as a common experience of producers. A producer maintained it arises from an unfortunate underlying policy culture that assumes farmers do not know what they are doing, which in this producer's opinion is patently wrong:

> A really important thing is the underlying culture of people thinking farmers don't know what they're doing. This whole rubbish about 'oh we're going to bring farmers along on this journey'. Actually, let's start from the recognition that farmers have been driving this journey for decades. … Anyone who comes onto my farm from an attitude of 'we need to show you, we need to teach you', I just want to tell them to bugger off. We've had environmental officers start from that point of view. You can't go onto a farm and tell people this is how it needs to be done without asking what have you done so far? … To have someone come on the farm and start from 'you need to up your game', sorry 'you need to leave my farm'. If you go into a lot of places … they're there for farmers and paid for by farmers but they seem to think that farmers don't know what they're doing. (dairy farmer)

A lack of respect for producers, what they do, how they do it, and why

A related concern raised by another dairy farmer was that advisors (and government representatives) do not respect farmers' knowledge, nor do they recognise the complexity of what farmers deal with on a daily basis:

> [Advisors and government representatives who make policies and give advice] need to respect the farmers, their knowledge and what they know. … I'm more a practical experience person in the way I do things on farm. They don't respect that. I find it really difficult to work within their systems, and they are throwing more and more systems at us … they're not trying to understand the system we work with. They don't respect that. They don't respect the variable workplaces we work in and how many things we have to think about in a given day. They've got no idea of the complexity of a farming operation. It's almost like farming is the dumb man's game and it's so much not. … They need to understand, they need to respect the system and to understand that and the way it works is for a reason and sometimes the reasons are not obvious to them. (dairy farmer)

A lack of producer-centred communication

We heard from producers that they are more willing to listen to advisors and take on board what they say if the advisor takes the time to listen and understand both the producer's situation and their operation, rather than having a 'carte blanche opinion' and not being willing to change it, according to a winegrower. As alluded to already, producers maintained that advisors should ask questions rather than tell producers what they should be doing.

We also heard that advisors should recognise there is often a large gap between the practicalities of what gets worked out on paper and how it might actually be implemented on farm. It is clear that producers value practical experience and advice based on a good understanding of their farm rather than what should or could work based on theoretical office-based or paper-based calculations.

It was felt that advisors should have some idea what producers are doing before they enter a producer's property:

> As a consultant, you can look across the fence and see what the farmer's up to before you get there, and see how well he's doing and what he's got and, yeah, that first, maybe not 30 seconds but five minutes is very important. (dairy farmer)

Producers explained that the lack of producer-centred interaction on the part of advisors (e.g. not spending the time to ask questions to find out what producers are doing or want to do, what their vision is and what barriers they face) has consequences; for example:

- advice does not address a producer's problem
- inadvertent non-compliance
- producers are given incorrect advice
- producers are sold (or advised to buy) the wrong tool or system
- producers end up having to spend money to correct problems arising from incorrect or out-of-date advice.

We heard examples of each of these consequences from producers, with a number coming from the dairy sector.

A perceived lack of producer-focused interaction is fostering negative perceptions of advisors, such as that advisors:

- are not value for money
- often have tunnel-vision
- make things complicated
- do not understand when producers want things kept simple
- end up costing producers money
- do not have sufficient local knowledge or experience
- cannot know a producer's farm or situation in any depth
- present expensive or unrealistic options that do not suit the producer
- do not consider the capability and capacity (financial and mental) of producers to implement advice
- often lack practical experience.

A lack of accountability from product-based advisors

Producers also have concerns about a lack of accountability from advisors on the advice they provide; in particular, advice provided by product-based advisors. In relation to fertiliser company representatives, a sheep and beef farmer maintained that 'essentially, they often over-promise and under-deliver. You're left wondering if it's your fault or were your expectations realistic?'

Producers are clearly expecting more from product-based advisors:

> It's really good to have follow up. It's really important. Not just selling seeds and see you next year. It's about being disappointed if its patchy. Building with you. It has to be ongoing. (sheep and beef farmer)

On this basis, from a producer's perspective advice provision needs to be less transactional and more accountable for the advice *and* the results arising from that advice.

Our literature review suggested that producers are likely to have a high level of trust in product-based advisors given that they have a high level of access to producers and their advice has direct relevance. It would appear from our discussions with producers that this is not the case. We heard that producers need to take advice from product-based advisors 'with a grain of salt' given that these advisors benefit from providing advice but share no risk of the consequences if their advice does not meet expectations. Indeed, one producer maintained it was his general observation that 'the more skin in the game [of an advisor], the more I need to look around for the right answer'. In other words, if the advisor has a vested interest in the producer using a recommended product or system, the more wary a producer needs to be.

Inability to access expertise

We were told it is often difficult for producers to access specialist advisors when they are needed. This is because, as is the case for any primary industry sector, there are specific windows of opportunity when producers have time to organise and make on-farm changes without disrupting routines, schedules and systems. For example, we heard from a kiwifruit grower who wanted to minimise water use, given his concerns about changing climate, that getting access to expertise to develop new systems is difficult. This is because many producers want access to the same consultants at the same time, and because he is a relatively small grower he is not a priority for the consultants.

We were also told it is often hard to access 'the good guys' because they are always busy. It was also mentioned that access is sometimes limited to the 'good guys' because they often suffer burn-out.

Producers who want to adopt regenerative and/or organic farming practices were concerned it is hard to find advisors who take these farming systems seriously and have the expertise to provide sound holistic advice. We heard that this advice needs to focus on interactions that work with rather than against the socio-ecology of their system. An organic farmer in the Hawke's Bay–Gisborne region regretted that he had few networks of like-minded people to link into in his area.

Too much focus on box-ticking compliance

A producer also raised concerns about how the regulatory push to address health, safety, biosecurity and environmental issues has the potential to create lots of work for consultants, but in the process could further alienate producers from advisors and those seeking to help producers. The concern was that bringing in consultants might result in policy compliance, but it could also mean that producers do not have ownership over the problems or solutions:

> There is, I suspect, going to be more money spent on consultancy than we've probably spent previously as farmers start to knuckle down and do their land plans ... There is going to be a professional component that's going to be really important to landing all that in a way that matters, is accurate and functioning. It's really important that during the process that the farmer is connected to the planning and doesn't defer to a third party. I've seen it with the health and safety stuff, where the consultant comes in to write the plan and the farmer still has no ownership but he's compliant. It's the connection that the farmer makes in regard to what he needs to do to change the dial environmentally – that's going to drive change, not a box-ticking exercise. Yes, we have to pay for expertise, but [what is important] is making sure that we are connected to that expertise so we get the outcomes we're all looking for. (sheep and beef farmer)

Factors that hinder the success of advisors include:

- a 'telling rather than listening' approach
- a lack of respect for producers, what they do, how they do it, and why
- a lack of producer-centred communication
- a lack of accountability from product-based advisors
- inability to access expertise, in particular by small producers
- too much focus on box-ticking compliance.

Factors that help the success of advisors and the utilisation of advice

Seeing is believing, it cuts through 'a sea of noise'

When we asked participants what had influenced them in adopting advice, we heard that seeing results, seeing how things might work, and being shown how things work were effective. For example, a flower grower told us she changed the way she farms when she saw disappointing soil test results (i.e. soil chemistry was adequate, but not its biology).

Producers also spoke about the importance of doing their own trials to see what works and what does not work, as well as the importance of monitoring any changes made from taking advice. Not surprisingly, seeing things with one's own eyes plays a crucial adjudication role in helping producers decide what advice to accept or follow up, and to help them make an assessment of whether the idea will work or not in their operation:

> We're surrounded by information generally and specifically in relation to our business. The seeing is believing aspect reinforces uptake and focus because it cuts through a sea of noise or data. (winegrower)

The success of field days and similar events was attributed to this tangible aspect of advice:

> If we look at the wine industry and what is most successful, I think we would find that it is those seeing, feeling, touching days, when we get people out. It's fields days actually. It's a very effective model for our industry. … Also when you go onto someone else's orchard or vineyard you see a lot of other things and take in a lot of other information that you pick up on the way, so you pick up lots of strings of information, not just the one you're there to look at. (winegrower)

Alignment of values

We also heard how crucial it is for advisors to understand a producer's values before they start giving advice. For example, a kiwifruit grower had the following experience:

> [When we started out] we were wandering around with one guy and he was saying 'what we should do is rip out this natural shelter and put in artificial shelter belts and possibly roof the whole thing; that's where you're going to get your best production'. I'm saying, 'Hang on, no, no thank you. We didn't move from the city to here [for that], we like trees'. He was smart enough to say, 'So do I, that's cool, let's do it your way', but some others perhaps wouldn't have been quite as flexible as he was. (kiwifruit grower)

This example highlights the importance of advisors first seeking to understand the values and vision of producer clients, and what they want to achieve, before assuming maximum production is what is most important for producers.

We also heard that a producer's values help adjudicate whether to accept and/or use advice:

> For me, at the end of the day, you have to weigh up the credibility of the advice, which is a personal thing, and then you have to go with what sits with your values and your vision for your own business and property. (winegrower)

Trust is everything

The issue of trust is an important and complex theme that emerged from our focus groups about what influences the success of an advisor and the utilisation of advice. Trust was recognised by our participants as an essential part of advice provision. Indeed, a winegrower made the point that 'trust is everything, it's absolutely fundamental and not unique to the advisor situation but part of our social life'. Everyone agreed.

A sheep and beef farmer made the point that 'relationships are measured in trust, and if you trust deeply, you share a lot'. Another producer (a winegrower) maintained that trust 'is the critical piece' as it helped producers make decisions and 'if you don't have that you're buggered'. A sheep and beef farmer also maintained that if there was trust, and what was being proposed tied in with a producer's knowledge, a producer was more likely to take a 'calculated risk based on what you believe to be good advice'.

In the survey, veterinarians were identified as the most trusted source of advice by the most producers. The following reflection indicates why:

> Trust is a pretty important one. If you're going to take someone's advice you need to trust that it's true and correct and that you'll get the results you both expect and understand. The vet's a great example. There is a lot of trust there. We've had a good relationship with the vet for maybe the last five years. My brother uses him. There is a relationship that has built over time which does build that trust, I guess, which is a big help. (sheep and beef farmer)

Producers agreed that trust is built over time and is based on a range of factors. In the above reflection the length of time was important. Trust is also contingent on successful relationships with trusted others.

Summary of factors that influence trust:

- credible and relevant evidence
- met expectations from advice
- recommendations from others
- multiple points of verification
- farm-specific advice
- empathy and respect for producers
- longevity of relationships
- practical experience.

Producers talked about the 'first 30 seconds' they interact with an advisor being critical for developing trust, and that there is an intangible element to trust:

> You're dead right, it's the first 30 seconds that are the most important. If you walk into a car dealership, and if the car salesman comes out and greets you and if he's got the right approach, you'll buy the car. And if he hasn't, unless it's a product that you really want and he's the only car dealer in town and he's got that car you want, you're going to go somewhere else. I don't know what it is they've got, but when you first meet someone you either strike up a relationship with them or it's just, nup, it's not working for me. (dairy farmer)

Hence, as well as gathering multiple perspectives, producers recognised that trust is critical in any decisions about the assessment of advice and what advice to use, and that this requires judgement:

> If you're uncertain [about which direction to take], that's when you get external advice and you make a judgment about your willingness to trust. You also probably talk to your neighbours and do what most people do, which is get a variety of points of view. (winegrower)

Trust is about skin in the game

It is well known that trust is easily lost. As already discussed, we found that vested interests – or too much skin in the game – are of concern to producers. For example, a sheep and beef farmer conveyed that trust was eroded for him when he discovered his fertiliser company was paying

tonnage incentives to staff. This changed the producer's view of the fertiliser company and its representative, and subsequently the producer saw this person as playing a sales role rather than an advice role. This producer was 'baffled' and 'annoyed' because he was unaware his goal of putting on cost-recovery fertiliser to meet his budget was at odds with the goal of his fertiliser company, which was incentivising the sale of as much fertiliser as possible. This producer maintained that 'when you erode trust it takes away loyalty'. He also made the point that he now goes to 'multiple places for the same advice'.

For another sheep and beef farmer, trust was diminished by advisors not having enough 'skin in the game'. In this case, 'the skin' relates to the consequences of using the advice, which are always borne by the producer:

> Trust is about skin in the game. Advisors don't have skin in the game in terms of consequences of using advice. It's our skin. Fertiliser is our biggest bill each year. When we don't have much money we buy as much fertiliser as we can but we can't do any more than that. It's an extensive not intensive operation. We don't have the money to get them to do soil samples and work out what's needed and do what they say – we don't have that sort of money. So, we had $80,000.00 and we went to a fertiliser company, a regenerative type company to give them a go, but they could only fertilise one-third of our farm and so two-thirds didn't get any at all. We went with it for a couple of years but ended up feeling less comfortable with it but [the advisor] kept saying it's going to be amazing. … We did that for four years. In the fifth year my husband said, 'I can't keep doing this, I can't watch two-thirds of the farm not getting anything'. We just lost trust in him. He had this belief that it was going to be amazing, but we couldn't see the difference. We rang another company.

In this case, these farmers stuck with this advisor for several years, but eventually trust was lost as they could not see the results, which links to the importance of seeing is believing.

Enforced trust

Giving 'dud' information or selling a dud product was also mentioned. It was emphasised that if the advisor knew the advice or product was a 'dud', trust would be lost forever. There was also a feeling that because there are so many new technologies and so much is changing, producers have little choice but to trust advisors. One dairy farmer explained that 'in the past you didn't ask as you'd get sold something at high cost that you probably didn't' need, but these days you need to trust these guys'.

This reflection illustrates how producers are in a difficult situation. They need to trust advisors because the knowledge gaps of producers are getting larger by virtue of so much changing and expanding around the agricultural system. Yet finding who to trust and discerning what information and advice to trust is a complex and time-consuming process.

Paying for advice is not always a major consideration

It was expected that paying for advice would be a major consideration and barrier for producers. While several participants did say they struggled to pay for advice and wanted free advice, we also heard that even when advice is paid for, it becomes just one part of a producer's big picture: 'We paid for that [specific advice when setting up our business]. I don't have any objection [to paying for advice]. But I also rely a hell of a lot on my network. I know lots of people and talk to them'. (forester)

An important point about paying for advice was raised by a dairy farmer, who said, 'We're paying for advice from DairyNZ … We're paying for that advice through our levy. We do know that, and so it needs to be good quality and consistent'. Hence, producers are likely to reject any suggestion they are not paying for advice if they do not use fee-for-service advisors. The importance of consistency of advice mentioned here was also an important theme across the focus groups.

Factors that help the success of advisors include:

- being able to see results and how things are done
- alignment of values
- fostering trust and trusting relationships
- follow-up and follow-through
- taking responsibility for the consequences of advice
- disclosure of vested interests
- providing independent, non-biased advice
- consistency of advice
- providing producers with realistic options

4.3.5 How Māori landowners are using advisors

The literature review found that there are significant gaps in knowledge about the advisory services needs of Māori landowners and producers and the current capacity within the PIAS system to address these needs. While our hui provided important insights, further research is required.

Māori land ownership is different

The hui discussions confirmed our concerns about gaps in knowledge on advisory needs. They also confirmed that there are important differences between Māori producers and non-Māori producers that relate to land ownership and governance. Our hui participants were typically governors or trustees of collectively owned Māori land holdings, rather than owner-operator producers, as was the case in the focus groups. This meant that most of our hui participants were not involved in day-to-day production activities but were in key decision-making roles.

Hui participants were of the view that governors and trustees are often overlooked by government in decisions that are made that affect Māori land. As one participant stated:

> I don't think that government agencies have clicked that Māori farming looks different; we don't actually farm our land, [the] people in charge of the land are trustees or directors or governors. They [government agencies] keep going on to land and talking to farmers and farm consultants, but they are not the decision makers of the land. (Hui 2)

Concerns about advisor capture

A hui participant explained that people elected to Māori land entities often have limited knowledge of farming or primary production (Hui 2). It appears that this lack of knowledge can have quite an influence on the relationship between Māori land decision-makers and advisors. For example, we heard that governors and trustees have become highly reliant on advisors and have limited means by which to verify the advice they are given or to ask the right questions. We were told that this situation allows advisors to 'capture' trustees and governors, effectively telling them what to do with the land they govern. As one participant from Hui 2 noted, 'we're vulnerable … in our governance roles … and we often don't back ourselves enough and [consequently] rely on the advisor'.

Another factor contributing to advisor capture would appear to be that trustees take on roles, which are often unpaid, in the midst of many other roles they feel obligated to play. Hence, trustees and governors have limited time to look at issues in depth and have little choice but to rely on advisors.

Nevertheless, one participant explained the importance of getting involved and learning, even though a number of trustees did not see this as their role:

> We get elected to trusts and we don't know anything about farming. Over the years I've learnt. I've got out there and gone to field days and gone to farmers' meetings to learn. I'm clear about my role as governor. My experience is that many of us don't. … Inevitably the weakness is the governance, and it's because governors don't understand their role and half of them don't believe they need to be involved either. (Hui 2)

Our participants explained some of the ways they avoid advisor capture. For example, on one property converting to mānuka, 'We sought advice from three different providers to make sure we were working laterally across [what] each had to say' (Hui 1). Another participant maintained it is 'not so much [about] the right advice, but are we being given options?' (Hui 2). To evaluate the benefits of implementing different types of advice, one participant sought 'peer review' on advice given about land conversion, about which the advisor was reluctant but had little choice but to accept (Hui 2). Others reported using their experience to filter good advice from bad (Hui 1). More systematically, one participant required their farm consultants to give a monthly report to trustees in which the consultants detailed progress towards specific targets within a budget (Hui 2).

Use of fee-for-service advisors is high

As mentioned, Hui participants emphasised it was very important to them and their whānau that they be presented with options (Hui 1 and 2). It was noted that these large decisions require a lot of paperwork to be put together to help governing bodies make decisions, as well as provide evidence to their whānau about how decisions have been made. We heard that because decisions can be contested (which can involve lawyers), consultants have to ensure the necessary paperwork is in order and decisions have to be fully explained and justified. Hence, in the Māori land context, the use of advisors appears far more intensive and follows more of a corporate governance model of tabling reports and decisions being made through formal meetings and based on those reports.

Our hui participants also spoke about seeking advice on topics beyond the farm production system, such as advice on regulations, valuations, land-use analysis, tax, finances, and legal issues (Hui 1). It would appear that there are many consultants, with a range of expertise, working with Māori landowners.

Lazy advice provision

An important expectation expressed by hui participants is that they receive advice that is independent (which is also highly valued by our focus groups participants). A concern was raised that a lot of advisors and consultants 'have jumped on the gravy train' arising from government funding, and that it is the consultants who are benefiting, not Māori landowners. Indeed, we heard that not only do some consultants 'provide poor advice', 'some just regurgitate advice and still charge the same amount. Some have even forgotten to change the name of the entity in their advice' (Hui 1). These kinds of poor practices are doing little to inspire confidence and foster trust in advisors.

Lack of cultural competency in advisors

Another theme identified in the hui was the lack of cultural competence among advisors. One participant said they receive good commercial advice, but although progress was being made in acknowledging tikanga and protocols there is still a long way to go (Hui 1). Another participant indicated that 'you have to teach advisors' about cultural competency (Hui 1).

In the second hui the participants acknowledged that most advisors are Pākehā, and that sometimes these advisors 'get so caught up in being diverse or culturally sensitive that they miss the mark, but they do it in such a way where it becomes offensive'. This participant added that they would prefer it if advisors act with integrity towards relationship building, rather than being inauthentic.

Concerns about a lack of cultural competency were exacerbated by a lack of Māori advisors. As one participant noted:

> PWC [Price Waterhouse Coopers], out of hundreds of partners, only two are Māori. Other big four accounting firms are the same. Cultural capability and competence are really important but often lacking. (Hui 1)

A related point is that the participants want advisors who can 'connect with the whenua, as it's a visceral thing' (Hui 1). Importantly, it was emphasised that tangata whenua and their issues are different across the country, and this needs to be understood by advisors. It means that what might be culturally appropriate in one place might not be the same in another. The importance of local knowledge and experience of advisors was also noted at the first hui.

On a related point, the importance of value alignment between advisors and trustees and governors was also noted at the hui. One participant at Hui 1 said, 'It's going to be clear after one or two hours of kōrero to see if they share a common set of values and understanding. If not, it's a short relationship.'

There was some disagreement about whether value alignment was something that could be perceived quickly, as above, or if it was built over time. For others, value alignment is built by an advisor 'coming with an open mind and willingness' to consider how their advice fits with the values and world view of the Māori trustees and governors (Hui 1). If the advisor is Māori, it was noted that from the start you would expect values to align (Hui 2).

Trust

Similar to the focus groups, our hui participants argued that trust in an advisor is crucial. One participant recalled being forced to choose an advisor through a government scheme (Hui 1). They maintained this was particularly difficult because they did not know any of the advisors on the list they were required to choose from, and thus felt they were unable to seek advice from a trusted advisor.

Advisors need to provide options

Similar to those producers who regularly use advisors, hui participants stressed the importance of being given options from advisors and not being told by advisors what to do on their own land (Hui 2). In other words, a listening rather than telling approach is essential.

Summary

Although there are overlaps in the themes identified in the focus groups and hui, for the most part the hui conversations were different – for important reasons. The advisory needs of Māori trustees and governors, who make decisions on collectively owned land, significantly differ from those of owner-operator producers, who were primarily the participants of the focus groups. The use of fee-for-service advisors by Māori land governors is high, and there are concerns about 'advisor capture' given the lack of experience governors have with primary production and their lack of time.

Māori land governors have experienced lazy advice provision practices. They also raised concerns about the lack of cultural competency in the predominantly Pākehā advisors they use, and that there are not enough Māori advisors in the PIAS system. Māori land governors want independent advice and value advice on options.

Concerns that advisors are benefiting more from government interventions than Māori landowners were unique to the hui discussions, and this is an important issue for follow-up by MPI.

5 Discussion

Through this research MPI is seeking to gain a better understanding of how producers (farmers, growers and foresters) are using the PIAS system, and what does and does not work from their point of view, particularly in terms of behaviour and practice change. Understanding producers' perspectives is important to help MPI identify barriers and opportunities for the development of a more effective PIAS system to meet future producer needs and aspirations, and the requirements of a future-focused primary sector.

Key reasons why producers don't use advisors

Negative perceptions of fee-for-service advisors (e.g. that they lack the experience and expertise producers value and need, the use of a 'telling not listening' approach to advice provision, and perceptions that advisors are often failed farmers) were reasons given by producers for not using advisors. There were also concerns about the value they can bring, the cost, and a misalignment of values between producers and advisors.

Producers on multi-generational farms believe they have the experience and knowledge they need within their family or trusted others and see no need to engage fee-for-service advisors. These producers maintained it was not possible for an advisor to know their property and operation like they do.

An imperative to keep things simple was another important reason for not using advisors, given concerns that fee-for-service advisors make things too complicated, and when things are simple there is no need for an advisor.

These producers who do not use advisors are seeking and accessing advice but they are doing so via a range of means, which typically centre on informal peer networks.

Producers are seeking advice on sustainable land-use topics predominantly outside the PIAS system

The survey shows that producers are seeking advice on sustainable land-use topics largely outside the PIAS system, such as through the internet, peers and peer support groups, and farming magazines (the top three sources). Within the PIAS system, the highest proportion of participants identified councils (50%) and industry/levy organisations (45%) as the most popular sources of advice.

The lack of reliance on fee-for-service consultants for the top-ranking sustainability topics (i.e. farm environment plans, managing water, and on-farm biosecurity) highlights the production-focused legacy of the PIAS system. The experience of the kiwifruit grower, whose fee-for-service advisor recommended pulling out trees to install artificial shelters to boost fruit growth, illustrates the production focus of the PIAS system and the assumptions advisors appear to be making about what producers want to hear.

Another reason why producers are seeking advice on sustainability topics outside the PIAS system (and within it predominantly from councils and industry/levy organisations) is that they are not prepared to pay advisors for advice on these topics. For example, we heard in our focus groups that producers consider they are already paying for advice through rates and industry levies.

We also heard that there is an expectation that advice on such topics should be provided free by government as part of policy implementation and extension services. An important factor in this expectation is that the rules keep shifting, and producers feel they should not have to shoulder the burden of paying for advice when the goalposts keep shifting.

Welcome, no-choice and optional advice

The literature review concluded that different productive and sustainable land-use advice topics are unlikely to be considered equally by producers. The difference in how topics are encountered and considered relates to different pressures experienced by producers and perceptions of their benefits (Doudna et al. 2015; Duncan & Kirk 2020; Eanes et al. 2017; Gabel et al. 2018; Schroeder et al. 2015; Vanclay 2004).

There are endogenous pressures on the internal farm system, which are largely production related or focused on the biological production system; for example, the need for advice on genetics to improve

breeding, or on new grasses to improve the productivity of pasture and animal growth. Advice related to topics such as these would be classed as 'pull advisory services' which have a potential financial return through increased production (Sutherland et al. 2013).

There are also exogenous pressures on production systems, where producers have been experiencing an increase as the collective environmental, social, cultural and economic impact of intensive agriculture has become more visible and political (Duncan 2017); for example, the need to implement biosecurity regulations or management practices to meet imposed nutrient limits. Under these circumstances, external actors encourage or require producers to seek out advisory services and would be classed as 'push advisory services'. Importantly, there is unlikely to be an immediate financial return, or action is likely to be perceived as a cost (Sutherland et al. 2013).

Given the different pressures and financial returns, we argued in the literature review that advice related to production, productivity or efficiency is likely to be classed by producers as welcome advice. Advice to address changing regulations to gain or sustain access to natural resources for production is likely to be classed as no-choice advice. Advice to invest time and resources to address environmental management issues, for example, could be classed as optional advice if they involve voluntary commitments. We also concluded that changes in environmental and biosecurity policy and regulations were shifting what might have been deemed optional advice in the past into the no-choice zone (see Table 4).

To examine this proposition, in the survey we asked producers to tell us on what topics they had sought advice and on what topics they would like advice in the future. The survey results show a greater demand for advice on sustainable land-use topics over the past five years than for production, productivity and efficiency. This demand for advice on sustainable land use topics was surprising in light of advisors telling us at the beginning of our research that it was their experience that producers are reluctant to consider advice that is not production-focused or cannot show a financial benefit. In terms of using advice, our focus groups indicated that improving production, financial returns and value for money are important considerations – but they are not the only ones.

Nevertheless, the survey shows that producers have been seeking and using advice on both productive and sustainable land-use topics, with the latter to a larger degree. Hence, it appears that water management policy changes that have been ongoing since 2011, and requirements to address on-farm biosecurity and pest management given a number of incursions, for example, have had flow-on effects in terms of a higher demand for advice on related sustainable land-use topics (i.e. the top three topics of farm environment plans, water quality/use, and on-farm biosecurity and pest management) compared to production, productivity and efficiency, which was the fourth most popular topic. However, note the future needs for changing production in Figure 5.

In any case, the 'welcome, no-choice and optional advice' schema (Table 4) is useful for differentiating the wide range of advice that producers are increasingly encountering and how producers are likely to respond in different ways. As such, this schema highlights the importance of recognising that different categories of topics are likely to require different approaches and strategies to engage with producers. However, the schema in Table 4 suggests that the threshold for acceptance of advice on welcome topics would be lower than that for optional advice. This is not what was found from the focus groups. Indeed, we found that *all* advice, whether it is welcome, no-choice or optional, is subject to an ongoing assessment process by producers.

Peers and peer support groups are indispensable for bouncing around ideas and ratifying advice

The survey identified that peers and peer support groups are an important source of advice (second only to the internet). The focus groups have helped us understand why. We heard that producers use and rely heavily on other producers, neighbours and discussion groups for bouncing around ideas, filling knowledge gaps, understanding what does and does not work in particular situations and farm contexts, checking the veracity of information and advice, verifying the trustworthiness of advisors, checking up on other people's experiences, and finding out how others have gone about doing things, the issues they have faced, and how they have overcome the problems.

Clearly, producers have access to networks that allow them to closely scrutinise the performance of advisors, the advice they receive, and the ideas that producers themselves have put together from their own gathering of information and/or advice. The focus groups also made it clear that within the PIAS system, industry groups, followed by regional councils, are providing important and highly useful advice and information to producers (even though the survey indicated varying degrees of trust in

these sources). It is the face-to-face interaction provided by regional councils that is an important feature of their service.

What we heard through the focus groups about the access producers have to sources inside and outside the PIAS system helps explain why so many producers indicated in the survey that they want more information on a range of topics, but they believe they have access to the resources they need to improve both productivity and ecosystem services, and to face future challenges in the primary sector. In other words, they want more information and advice, and they know where they can get it.

Utilisation of advice is linked to many factors

We found that the utilisation of advice is linked to a range of factors, such as the alignment of values between a producer and an advisor, the age, experience and life stage of the producer, and their financial situation. For example, the survey confirmed that younger producers sought advice on more topics than older producers. We were told in the focus groups that as producers get older, financial burdens often lessen and their values broaden beyond production. We also heard that with age comes experience and comfort levels with new ideas. Interestingly, we also heard that advice networks change with age, experience and values, which consequently changes the topics on which producers seek advice (e.g. more focus on sustainability and animal welfare than production).

These insights illustrate how producers' advice networks can evolve over time, and while they might start out as highly connected within the PIAS system, over time they can extend outside it as producers gain experience and find less need to seek formal advice as their systems become established and change, and they intuitively draw on their trusted peer networks, which are likely to be easily accessible. They also highlight that financial pressure is a key reason why production systems are run hard and, potentially, how the PIAS system has become optimised for production, productivity and efficiency.

The erosion of trust and relationships is influencing how producers use the PIAS system

The survey showed varying levels of trust in advice sources within and outside the PIAS system (see Section 5.5 Appendix 1). The focus groups and hui helped explain the variability and indicated that trust and relationships are being eroded by a range of concerns, such as producers' perceptions of a 'telling rather than listening' approach by advisors, bias and vested interests, a lack of follow-up and follow-through, perceptions that advisors make things too complicated, a lack of practical knowledge and experience in advisors, and lazy advice provision practices.

The erosion of trust and relationships, which we heard about in considerable detail across the focus groups and hui, is influencing how producers are using the PIAS system. For example, producers are using fee-for-service advisors for specific tasks that require specialist expertise that producers believe they do not have a background in or do not have time to develop, rather than engaging advisors on an ongoing basis (which would allow advisors to develop relationships with producers and build an understanding of their operations).

Given that producers have access to many information sources (e.g. via the internet) and can seek advice on issues related to policy changes and regulations through industry/levy organisations and regional councils, they are in a position to be able to find things out for themselves, and they are doing so. Indeed, we were told that spouses are taking on responsibility for ensuring that compliance and administrative tasks related to regulations are addressed, which included working less off-farm and enrolling in a university course to gain the qualifications to do farm environment plans.

Producers are at the centre of the PIAS system

During our focus group discussions, producers were adamant that they are the ones that have to be responsible for making decisions about their operation. This means they have to make sure the advice they are receiving (and will potentially use) is to be trusted and worth pursuing. Given that producers view advice somewhat negatively (e.g. as 'opinion' and 'not clear cut'), they are engaging in a lengthy assessment process to 'ratify' advice before they decide what to do and how to do it. These circumstances place producers at the centre of the PIAS system, not only as potential users of PIAS system advice (as depicted in Figure 1), but also as integrators or curators of the advice they seek and/or choose to use.

The assessment process we identified producers using is complex and time-consuming. It involves multiple steps, multiple advice sources, and varying degrees of consideration of risks and consequences, which are influenced by perceptions of trust in an advisor and feedback from peers. Importantly, we found that peers and peer discussion groups play a key role in this assessment process. Indeed, it appears that producers' peer networks have become indispensable and integral to the functioning of the PIAS system given the role they play in helping producers bounce around ideas and ratify advice with people who share their values and identity, and have the practical knowledge and experience that producers value so highly. This finding has implications for how producers might be helped, given it is not a task that can be delegated.

Trigger events can catalyse incremental change and system change

As well as raising questions about how to help producers, this multi-step assessment process also raises the question about what starts it? The 'trigger event cycle' (Sutherland et al. 2012) is a useful conceptual framework for helping to understand what instigates active information- and advice-seeking. It also helps explain how advice provision is sometimes translated into on-the-ground action and sometimes not.

Sutherland et al. (2012, p. 142, citing Wilson 2007, 2008) argue that farm trajectories are 'bounded and path dependent, and that change occurs at key points in these trajectories'. This is due to path dependencies and lock-ins that become embedded technologically, socially, culturally and economically within farm systems over time. Notably, lock-in includes skills and knowledge that can shape particular (often productivist) trajectories and influence farmers' reliance on certain types and sources of information, which can reinforce farm trajectories, their path dependencies and associated lock-ins. In other words, the legacy of past conditions, skills, capital, knowledge, technologies, contracts and decisions forges particular farm trajectories and practices that can be difficult to shift without major, and potentially risky, changes.

Sutherland et al. (2012) have focused on understanding what leads to changes in these trajectories and how they have been navigated by producers, in particular farmers and farm managers who have switched to organic farming in the United Kingdom. In terms of advisory services, these authors found that change 'involve[s] a shift from relatively passive to active appraisal of options and resources', which corresponded to major changes on farms in response to 'trigger events' that can influence when and what type of advice might be needed and at different times.

Sutherland et al. (2012) argue that 'farm managers maintain a steady course of minor incremental changes to the farm operation, until an event or opportunity occurs which leads to a decision to actively consider a major change' (Sutherland et al. 2012, p. 144). A trigger event can be a single event or, more likely, a series of cues (e.g. an injury or sudden death within the farm family, loss of staff, new market opportunities, recognition of long-term financial loss, involvement of a successor. Sutherland et al. (2012, citing Wilson 2007, 2008) have developed the 'triggering change cycle' to capture the accounts of change they heard in their study and several others they have conducted with farmers in the United Kingdom (Figure 6).

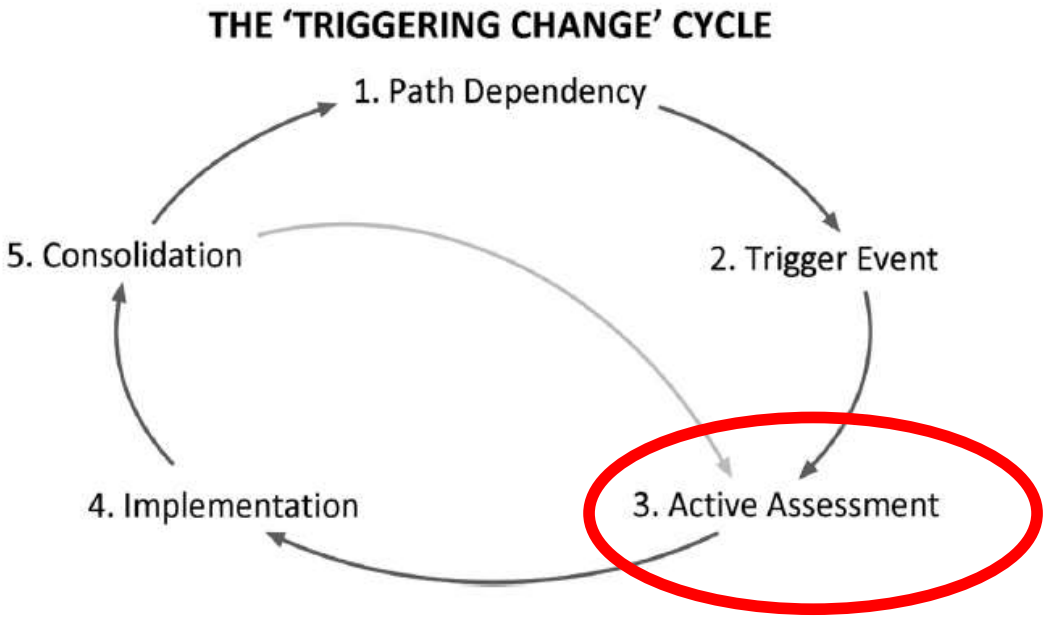

Figure 6: The 'triggering change' cycle (source: Sutherland et al. 2012, p. 144) highlighting (in red) the active assessment phase.

In relation to advice provision and utilisation, during the path dependency phase producers are involved in what is described as 'peripheral route processing' (i.e. passively receiving information and insights) (Sutherland et al. 2012, p. 147). This means producers might be storing information for potential later use. After a trigger event, producers are involved in an active assessment phase, which requires highly active 'central route processing' (Sutherland et al. 2012, p. 147). Having made a decision to change, instigated by a trigger event, producers start looking for information, exploring and assessing options, talking with other producers, and seeking advice from experts.

Sutherland et al. (2012) maintain that the implementation and consolidation phases require the development of new skills, knowledge, social and business networks, and connections. Importantly, in phases 4 and 5 businesses are highly vulnerable, and the need for advice, support and backup is high. If the change or new system is unsuccessful, the producer needs to return to active assessment. However, financial commitments made in the implementation phase could inhibit their capacity to make further changes. If successful, a new path dependency will be in place and the imperative for seeking information and networking is likely to diminish until the next trigger event.

Sutherland et al. (2012) conclude that there are distinct periods of time when producers could be influenced to change and when they will be seeking different types of information. For example, advice related to changing farm trajectory would be influential after a trigger event (producers are likely to be central route processing), but this information is likely to be ignored in the path dependency phase. However, while farm managers might not seek advice in the path dependency phase, they could still benefit from knowing where information could be obtained for a later time.

Importantly, the authors maintain that when major policy reforms occur, or when there are major disease outbreaks, for example, this is the time to increase advice and incentives to enable people to make changes, and to begin providing support so they can do so and maintain their new farm trajectory.

Sutherland et al. (2012) argue that decisions to make major changes on farms (i.e. to change trajectory) are made at the family level, while incremental changes are made at the business/operational level. This finding has important implications for who might be the target of advice and initiatives seeking to change behaviour. In particular, it highlights the role of spouses and other family members, and how advice and initiatives might be tailored to help them contribute to farm-level decision-making and how they might be involved to unlock path dependencies.

Rose et al. (2018) argue that Brexit, and calls for sustainability, have been 'trigger events' for the United Kingdom's agricultural sector. Arguably, similar 'trigger events' have occurred in New Zealand with a series of policy reforms over the past decade increasingly shifting advice topics from being seen by producers as optional to no-choice (e.g. farm environment plans, water quality and biosecurity management practices) (Table 4).

Sutherland et al. (2012) argue that trigger events catalyse the active assessment of advice for *system change*, and it is system change that shifts an operation's path dependency. In contrast, it is clear from the producers we spoke to that they are actively assessing advice and advisors when making major incremental changes to their operations as well as system changes. These changes have been in response to a variety of trigger events, for example:

- disappointing soil test results
- finding no micro-fauna in the soil
- concerns about the effects of chemicals on family and pets
- being overwhelmed by the level of debt and not seeing a way through
- quality of life imperatives (e.g. spend more time with family)
- compliance with regulations
- concerns about future access to resources.

Figures 7–9 draw on our focus group discussions with producers to illustrate how the active assessment process identified by Sutherland et al. (2012) requires multiple steps and different sources of advice and decision-making for both a) incremental change (Figure 7) and b) system change (Figures 8 & 9).

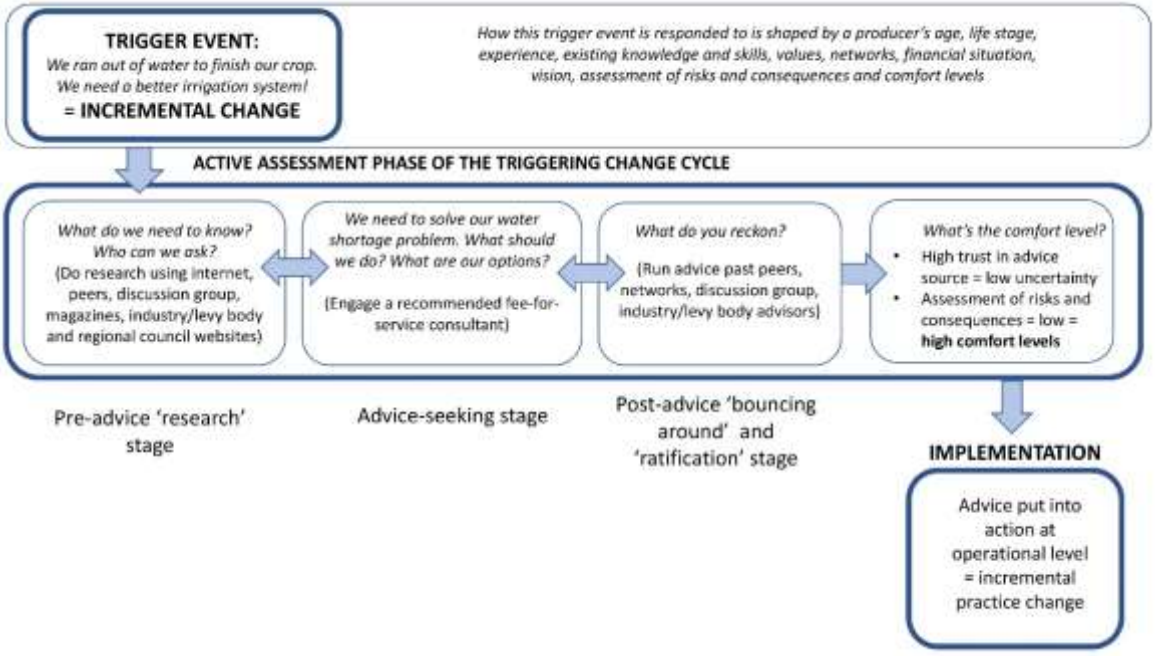

Figure 7: Multi-step active assessment phase of 'triggering change' cycle for *incremental* change, drawing on reflections from our research participants.

In Figure 7, the trigger event of not having enough water to finish a crop was influenced by the existing trajectory and responded to by deciding a better irrigation system was needed. Nevertheless, the response involves a multi-step assessment process.

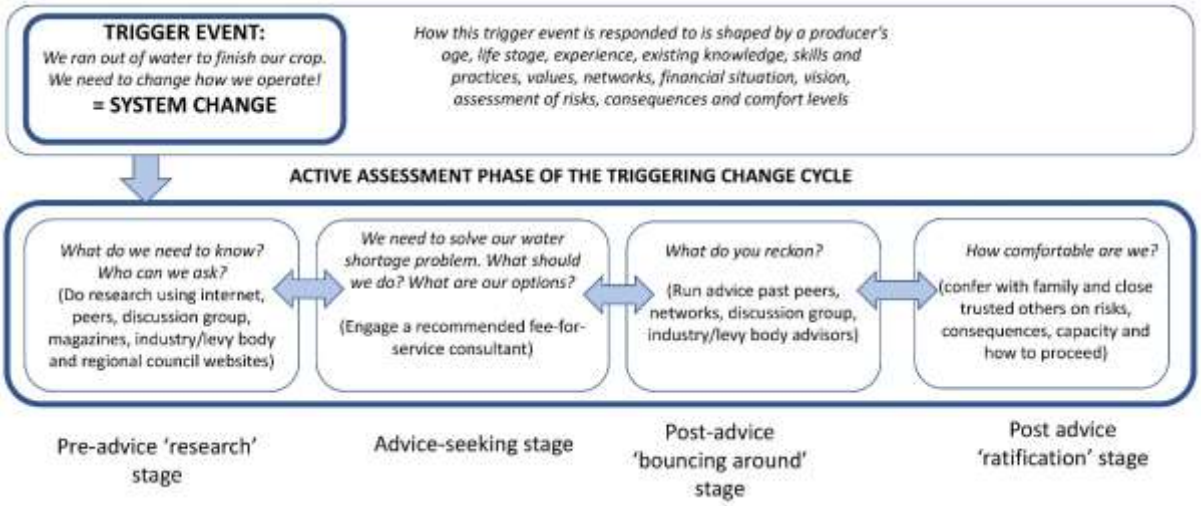

Figure 8: Multi-step active assessment phase of 'triggering change' cycle for *system* change drawing on reflections from our research participants (continued in Figure 9).

In Figure 8 the trigger event of not having enough water to finish a crop instigated a decision for system change. Whether a producer responds to the trigger with incremental or system change is influenced by a producer's age, life stage, experience, existing knowledge, skills and practices, values, network, financial situation and vision, which culminate in an assessment of risks and consequences and decisions about how comfortable a producer is about change. For system change, the risks and consequences are always high and an intense active assessment process would be required.

In either scenario, however, the multi-step active assessment of advice still occurs (Figure 9). Accordingly, for either incremental or system change, the assessment of uncertainty, risks and consequences dictates comfort levels and how to proceed (e.g. trial the change before proceeding further, or reject the advice). Importantly, peers and peer support groups are central to this multi-step active assessment process and producers' decisions about whether to do a trial or reject advice (Figure 9).

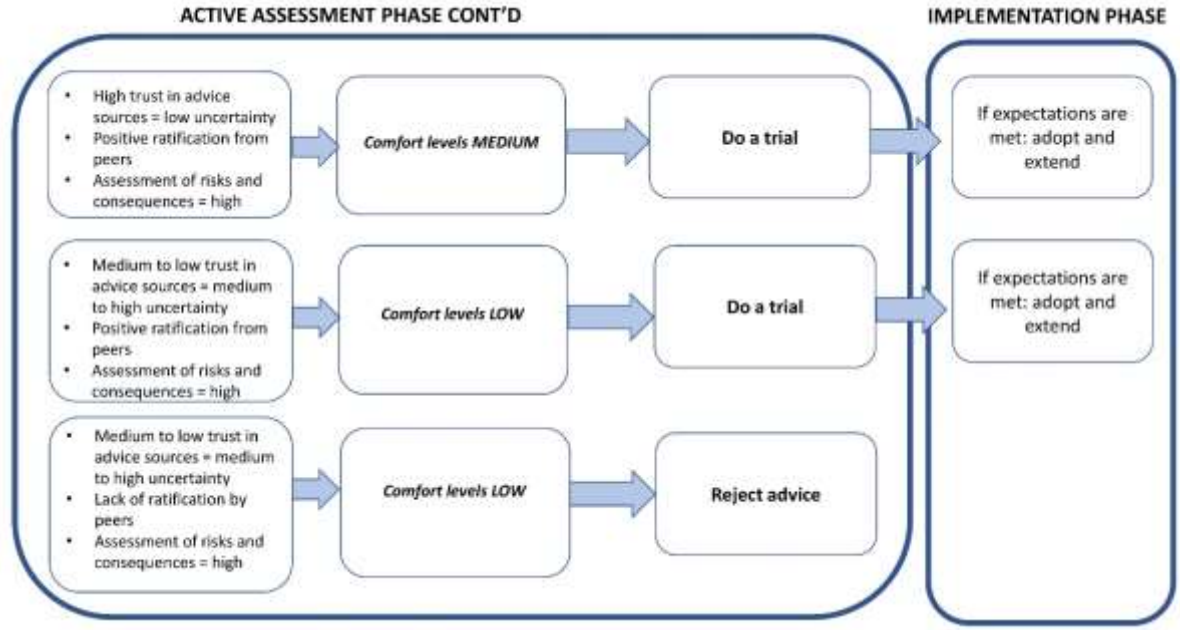

Figure 9: Multi-step active assessment phase of 'triggering change' cycle drawing on our research participants with consequences for implementation phases.

As discussed, producers are experiencing a range of trigger events for both incremental and system change in response to increasingly complex pressures on the primary sector. Some responses are perpetuating a production system's path dependency. However, we also heard about system trajectories changing – some slightly and some more significantly. In any case, in terms of advice provision and utilisation, producers are engaging in an ongoing, multi-step active assessment process to assess the many technologies, systems, practices, policies and options they are constantly required to engage with.

While it appears this assessment process cannot be delegated, strategies to help advisors across the many segments of the PIAS system to build trust and relationships with producers could help. The literature review concluded that the 'credibility, legitimacy and salience' framework (Cash et al. 2006) could be useful for understanding how producers assess trust, and helpful for advisors to foster trust with producers. The survey identified that the relevance of advice, relationships, as well as the experience and independence of an advisor, are important to producers. The focus groups confirmed these findings and identified further factors. Table 5 links this framework to the various factors identified by producers as important for fostering trust.

Table 5: Linking the factors identified by producers to credibility, legitimacy and salience framework (source: Cash et al. 2006)

Credibility	Legitimacy	Salience (i.e. relevance)
Credibility is about the adequacy of technical evidence and arguments: were defensible methods, concepts and models used and properly employed?	Legitimacy is about process: were the right people involved?	Salience is about relevance: does the knowledge answer the right questions, and is it in a form and provided at a time that is useful?
• What's the evidence? • Where did the evidence come from? • Is it independent advice? • Does this advisor have a vested interest? • Is the advice sounding biased? • Do I trust this advisor? • Does the advisor have the expertise I'm looking for?	• Who else uses this advisor and what was their experience? • Does the advisor have practical knowledge and experience? • Is the advisor prepared to follow through and follow up?	• Does the advisor understand my situation, values and vision? • Does the advisor understand my land and operation? • Is the advisor listening to me and asking the right questions? • Is the advice tailored to my operation? • Am I being presented with realistic options?

Furthermore, the following questions (box below), also asked from the standpoint of a producer, embody a number of factors that focus group participants identified as helping in advice provision and utilisation. These questions could be used by advisors to help them assess how well they are communicating and engaging with producers.

Questions a producer might ask about an advisor

- Is the advisor on the same wavelength as me?
- Is the advisor listening to me and asking questions?
- Does the advisor fully understand my situation and my operation?
- Is the advisor helping me understand the risks and potential consequences of not following the advice?
- Does the advisor have the skills, maturity and experience to transform information into robust, useful and context-specific advice?
- Is the advisor breaking things down into small steps?
- Does the advisor have practical experience to know what he/she is talking about and, to know that what works on paper can be quite different when applied in reality?
- Is the advisor presenting me with a range of options?
- Is the advisor independent, and is the advice unbiased?
- Is this advice based on local information and knowledge?
- Does this advice make sense to me? Can I see the logic in it?
- Have I gathered enough information to make a decision?
- Am I feeling comfortable with this proposal based on what I know, and know I can do?
- Is this the right time?

6 Conclusions

Making a change in a primary production system might appear, at first glance, to be straightforward. However, this research shows that gathering information and advice is a multi-step journey that occurs well before any material change occurs. The journey from recognising a need for change (e.g. trigger events) to information seeking, to advice gathering, to a change on-farm evolves and is shaped by a range of factors. Importantly, it can take a very long time.

We heard how producers need to build confidence, which occurs through talking things over, bouncing around ideas, seeing how things are done, conducting trials, gaining experience and feeding results back to a producer's network. Other factors include how producers assess the risks and consequences, and whether what they are hearing makes sense and they can see the logic in it. Assessments of risks and consequences are influenced by age, life stage, experience, existing knowledge, skills and practices, values, network, financial situation, vision and, ultimately, a producer's level of comfort.

These findings extend the conclusion from the literature review that advisory services (broadly defined) merely build awareness, encourage new motivations, and build knowledge (Duncan et al. 2018; see also Ibbotson 2020; Knook et al. 2020). Focus group discussions show that advisory services are central to practice change and/or system change but in a complex way.

Our research examined how producers are currently using the PIAS system, what does and does not work from their point of view in terms of advice provision and utilisation, and what factors help and hinder the success of PIAS advisors. Below, we summarise some conclusions from this research.

1 Producers are seeking advice and information on topics related to both productive and sustainable land use. The survey confirmed that producers want more advice on these topics; sustainable land use in particular. The focus groups revealed producers' concerns about a lack of advisory services related to sustainable land-use practices. This gap appears to be at least partly attributable to the production-focused legacy of New Zealand's PIAS system, which was identified at the advice providers' workshop.
2 Producers perceive 'information' and 'advice' to be different. In brief, producers consider information to be factual whereas advice is opinion. This belief helps explain the multi-step active assessment process producers go through to filter advice before they adopt land-use practice changes or system changes, and the key role peers in this process.
3 Most producers currently use advisors. However, we identified several reasons why some producers are currently not using advisors. The reasons included a misalignment of values between producers and advisors, advisors adopting a telling rather than a listening approach, negative perceptions of advisors (e.g. they are failed farmers), and the belief that paying for

advice is not value for money, especially when so much information is available from so many sources, which producers are already paying for via levies and rates.

4 For producers who do regularly use advisors, trust and relationships are being eroded, which is influencing how producers use the PIAS system. For example, they seek advice for specific purposes, such as to fill knowledge gaps, to solve specific problems, and to have ideas, practices, or proposals checked and/or assessed for risks or compliance. A key time for seeking advice is when producers are embarking on a new endeavour or aspect of their business.

5 The topics, sources of advice, and frequency of advice seeking change with age, experience, and life stage. For example, younger producers were found by the survey to be more likely to seek advice than older producers. This can be explained by older producers obtaining knowledge and gaining experience throughout their career, as well as older producers having different goals, values and financial imperatives from younger producers.

6 The way producers use the PIAS system is more complex than the conventional conception of one- or two-way communication between an advisor or a producer. We found that producers seek a lot of advice and information from sources outside the MPI-defined PIAS system, such as the internet, peer support groups, and farmer magazines. They research alternatives before they seek advice, they draw on multiple sources of advice, and they are the ultimate decision makers about any potential land use practice change. Thus, producers go through a multi-step process in which they research a topic prior to seeking out advice, and once advice is received, they ratify this through their peer networks, or through their spouses and families.

7 Advisors will struggle to influence producers if their values do not align, if they adopt a telling rather than a listening approach, if they are perceived to lack respect for producers, and if they do not centre their communications on producer concerns. Advisors will be more successful at influencing producers if they can illustrate practically the benefits of practice changes, if their values align with those of the producer, and if they can foster a trusting relationship.

8 Māori land governors have different advisory needs from the owner-operator farmers of this study. For example, there is a risk of inexperienced land governors being captured by advisors, a concern not raised by non- Māori producers. Māori land governors were also concerned about a lack of cultural competency in advisors and the lack of Māori advisors within the PIAS system.

7 Recommendations

During our focus groups and hui, we asked participants for their recommendations to improve PIAS provision. Their thoughts are summarised below.

1 More use of Zoom and electronic video conferencing to share advice and information. It was conveyed that COVID has shown this is possible and incredibly useful.

2 It was maintained there is a need for much more research to be translated into practical resources and made available on-line so that farmers can easily access and use them. A producer mentioned this was the case with agricultural universities in the U.S.

3 Train advisors to operate as ‘coaches’ who adopt a ‘listening, not telling’ approach. By extension, farmer champions could be encouraged to act as coaches. An example would be Organic Winegrower New Zealand mentoring programme (https://www.organicwinenz.com/mentoring).

4 Producers recommended that MPI boost funding for industry bodies, and that extension and advice services are more appropriately delivered through industry bodies. Producers also recommended that MPI partner with industry bodies to tell farmer stories and advocate for farmers. It was also suggested that MPI should fund research to occur outside levy organisations to make sure producers’ voices are being heard, similar to this research.

5 The PIAS system needs to focus on personalising advice for individual farmers, adopting a supportive and enabling approach.

6 Producers agreed that meeting advisors one-on-one and building relationships is the most effective way to connect with farmers. Hence, while it was recognised that group workshops and field days were good, face-to-face is best for getting true engagement and building relationships with advisors.

7 Advice should be tailored to specific types of farming and land use rather than being general.

8 Scientists involved in the PIAS system should provide facts, not advice.

9 More ‘blue sky’ agricultural research is needed that draws on ideas from farmers rather than vested interests within the agricultural sector. Several producers also recommended more links between them and research institutions, such as having scientists involved in helping producers

understand changes on-farm, doing trials and working with them to undertake monitoring and trials.

10 A related suggestion was to have a system whereby farmers could apply for free sampling or trials to happen on-farm to test whether interventions are working or not.

11 Better and easier access to researchers was also mentioned (e.g. a farmer talked about wanting to talk to researchers about biochar).

12 Producers seek advisors that have practical experience. It was maintained that advisors with experience and a proven track record have more credibility with producers and are morely likely to be able to convey ideas that resonate with producers.

13 A hot line was suggested so that anyone can make a call to find out if new regulations are relevant to them as it is very difficult to know.

14 Advice on environmental regulatory compliance ought to be provided free by government as a step in policy implementation.

15 Help Māori land governance bodies to develop and implement a code of ethics for advisors working with tangata whenua

16 Train more Māori advisors to ensure Māori land governors, trustees and producers are working with advisors that have the necessary cultural and commercial context of Māori land.

17 It was suggested that a way needs to be found for Māori land entities to share advice to reduce costs. The concern was raised that advisors are providing similar advice to Incorporations and Trusts but charging fees as if each report stands alone (while sometimes forgetting to change the name of the entity in their reports).

18 Concerns about insufficiently resourced engagement by government departments on policy changes was also raised by Māori land governors which could be rectified with more resources to ensure a wider group of Māori land governors, landowners and producers are involved in important conversations that affect their whenua and whanau.

What follows are our general recommendations for how MPI could strengthen New Zealand's PIAS system.

Building relationships and trust is key to fostering the credibility, legitimacy and salience of advisors and advice

- Even though authentically connecting with producers is somewhat intangible, it could be honed by training to improve communication and listening skills. This would be very important for novice advisors. The standpoint of a 'coach' rather than an 'advisor' could be a way to improve communication and interaction with producers.
- Producers are concerned about the political context of advice provision. To help address producers' concerns about a 'telling rather than listening' approach, advisors, advisor organisations and government ministries should reflect on how they frame producers in their communications and interactions. It will be important to consider the implications of the narratives that flow from these framings for the well-being of producers and their willingness to engage with and participate in policy implementation. These reflections could also identify ways to develop a 'coaching' style to advice provision, as suggested by producers.
- Where possible, face-to-face on-farm interaction should be standard practice for advice provider organisations. If this is not possible, conversations via video conference would still allow face-to-face interactions between producers and advisors to gather information about each other and build rapport.

Understanding what is important to producers

- The more time an advisor can spend understanding a producer's values, vision, operation, and the operation's context and peculiarities would appear to be time well spent. Although this comes at a cost to the advisor, it sets a useful foundation for talking to producers about what they are doing, the challenges they face, what they want to do, and what role the advisor could play. This intelligence gathering could ensure advisors are not recommending changes that are beyond the capacity of producers to adopt, too expensive to implement, or too complicated to sustain. It would also allow advisors to understand the options producers are wanting to consider and what kind of trigger events producers are experiencing.
- Support for courses or workshops to help producers articulate their values and visions to others is also recommended.

Disclosure of interests and incentives

- While producers recognise that advisors often need to sell products (e.g. fertiliser representatives and veterinarians), it was the lack of disclosure of interests and incentives that was of most concern. This issue could be addressed by advisors disclosing interests and incentives through the kind of documentation that already passes between producers and advisors.

Building practical knowledge and experience within the PIAS system

- To have credibility and legitimacy with producers, fee-for-service advisors, in particular, need to have a considerable depth of practical knowledge and experience in the relevant primary production sector. Producers suggested apprenticeships and mentoring programmes could help graduates gain knowledge and experience. However, producers maintained that advisor organisations need to ensure graduates or apprentices are accompanied by experienced advisors when interacting with producers.
- Building relationships and trust with producers could be fostered with more follow-up and follow-through after advice has been given or a product has been sold or designed. Working with producers to undertake trials and to measure comparative performance is another way to foster trust and relationships and build the credibility of advice and advisors.

Linking research and the advisory system to build the evidence base for sustainable land-use options

- Demonstrating the independent evidence base of advice is important to producers and underpins trust in advisors and advice. The survey indicated that producers want to access more information and advice on a range of sustainable land-use topics. However, given the production-oriented PIAS system, far more research needs to be done to build the evidence base and research capacity for sustainability. Without research on different land-use options and sustainability practices, it is going to be difficult for advisors to present producers with the independent and practical advice and options they seek, which producers and Māori land governors are more likely to view as value for money.
- MPI could consider making funds available to help producers, advice provider organisations and research institutions conduct trials and monitor changes made to production systems to assess the costs and benefits of sustainable land use systems and practices. Apprenticeships and mentoring for novice advisors could be involved in these trials and evaluations. Conducting research to understand the social and cultural dimensions of these changes is also recommended. Ultimately, this research could contribute to the sustainable land use evidence base.
- Building or augmenting links between research institutions, advice provider organisations, and producers who are already implementing sustainable land-use practices, will be important for building this evidence base.
- Figure 10 shows the advice sources across the PIAS system that producers can potentially interact with, which is a substantial number. Given this, building links across the PIAS system that could help producers through their multi-step active assessment process is recommended.

Figure 10: Organisations and actors included in New Zealand's PIAS system with an added connecting element (in black) to illustrate the need for more interaction between them (Source: MPI).

- MPI could consider the creation of a 'clearing house' that gathers research and resources and makes them available to producers, advisors, advice provider organisations (including research institutions) and the media. Alternatively, a 'one stop shop' or an 'I'm looking for' on-line portal could be created that brings together PIAS system organisations, actors and resources such as has been done in the provision of social services to improve access and limit the number of people a person seeking services needs to contact. For example, see http://www.strengtheningfamilies.govt.nz/ and https://communitynetworks.co.nz/

More support for advice on sustainable land use topics

- One-on-one, face-to-face advice, on-farm, is highly valued by producers. MPI could consider establishing a free advisory service for producers looking to adopt voluntary sustainable land use practices and change their systems, similar to the advisory system established by the Irish Agriculture and Food Development Authority (Burke 2020). In the Irish system, advisors recommend ways producers can improve their environmental performance. Importantly, this advice is not linked to selling a product or service, nor is it to ensure producers are compliant with regulation. Simply, the advice is to help producers who wish to transition to more sustainable land-use practices. These types of advisors are already present in New Zealand's PIAS system; for example, in the work of Professor David North and Dr Adam Forbes, who are advising North Canterbury farmers on indigenous restoration plantings (Hill, 2020). Of course, these advisors would need to be able to build relationships and trust with producers, and they would need a strong evidence base, which is currently limited. Supporting and expanding similar roles that already exist within regional councils and industry/levy organisations would be another way to provide this desired format of advice provision.
- We found that producers are using the PIAS system for specific tasks, and these often require in-depth knowledge on particular topics or issues. Given the expansion of primary production beyond the growing system to issues of safety, biosecurity and environmental regulations and

initiatives, it would appear that specialisation is increasingly necessary and favoured to ensure producers are given correct advice on the array of complex issues they now need to contend with. Supporting the development of specialised expertise for advice provision on complex policy issues (e.g. carbon accounting) and system change is recommended.

Continue to support success

- Our research shows several areas of success within the PIAS system. For example, the information and advice provided by industry/levy organisations to keep producers informed and up to date with the changing policy landscape is considered to be highly relevant and trustworthy by producers. MPI could consider partnering with or supporting these organisations to ensure producers are receiving information and advice on sustainable land use topics such as those identified as future needs in this research (Figure 5).
- It is also clear that discussion groups and programmes that have linked up producers in particular locations and in many sectors have been an outstanding success. They have become integral to the PIAS system and should continue to be supported. Ensuring up-to-date information about how to access and/or join these many groups would be useful for newcomers and latecomers
- Continued support for activities that give producers opportunities to tangibly interact with new practices and systems are recommended.
- We found that the Rural Support Trusts and the Agri-Women's Development Trust are playing a crucial well-being support and education role in the agricultural sector. We recommend these trusts continue to receive support and that this should be extended if possible.
- We recommend education and financial support, mentorship and the creation of pathways for rural women to take on PIAS advice provider roles.
- Financial and mentoring support could also be provided for rural women to gain or continue education and training to contribute to responding to the expanding requirements of living and working in the agricultural sector.

Advice provision issues are different for Māori land governors:

- Given that Māori land governors often lack knowledge and experience with farming, there are opportunities to encourage a change in this situation by finding ways for governors to get involved and learn. Learning across Trusts and Incorporations could be invaluable.
- Training governors to critique the advice they are presented with could help build their confidence and capacity and encourage better advice provision practices from advisors.
- These initiatives could help lessen advisor capture and ensure advisors are presenting options. However, the time-poor aspect also needs to be addressed.
- To increase the number of Māori advisors within advice provider organisations, cadetships and apprentices could be funded or co-funded by MPI, or encouraged via other funding mechanisms.
- Changes in practices and systems on Māori land will be important for building the sustainable land use and systems evidence base as well as the inclusion of novice Māori advisors, apprentices and cadets in trials and evaluations.
- Funding other educational and research pathways would also contribute to more Māori advisors, which are clearly needed.
- Advice provider organisations need to be building the cultural competency of their management and staff if they are engaging with Māori land governors, landowners and producers.
- MPI could consider working with Māori land governors and PIAS advisors to identify ways to share advice and insights to reduce the costs of advisors and advisory services to Māori land entities.

Further research recommendations

- The 'trigger event cycle' identifies implementation and consolidation phases beyond the active assessment phase of advice provision (Figure 6) that this research has been able to focus on. These phases are critical for system change and require new knowledge, skills and networks. Understanding how producers who have embarked upon system change are navigating these issues and challenges, socially and economically, is recommended.
- Understanding the challenges and lessons learned in terms of advice provision and use of advisors from those governing Māori land is recommended.

- Examining how the roles of spouses are changing and what challenges and opportunities these changes present is recommended.
- Further research is needed to examine the perspectives of corporate producer entities on the PIAS system, and what does and does not work in advice provision from their perspective.
- Current environmental policy, institutional settings and extension approaches to advice provision are individual-based and embody the assumption that the actions of many will, ultimately, accumulate to a required target, limit or outcome. However, natural resource management requires collaboration between individuals to manage collectively. More research is needed to extend the repertoire of approaches and governing practices beyond individuals to collectives. Insights from such research will be an important evidence base for sustainable land use and collective action that could be disseminated and enabled through existing or new advice provision channels (see the following for examples: Duncan & Diprose 2020 https://www.landcareresearch.co.nz/uploads/public/Publications/Working-papers-and-reports/Collaboration_practice_change_resource_management_Otago.pdf and https://ourlandandwater.nz/incentives-for-change/new-models-of-collective-responsibility/
- It is recommended that future research focus on practice change rather than behaviour change. The former draws attention to how policies, institutions and infrastructures, for example, constrain and facilitate what producers do on their land and, potentially, how they might work together to address collective issues and problems. Calls for behaviour change have become highly politicised and research to achieve it tends to focus on the psychology of individual producers (Spurling et al. 2013). Practice-based research is developing internationally and will be important to consider in the future (see Cronin et al. 2012; Shove, Pantzar & Watson 2012; Hoolohan & Browne 2020), in particular, for understanding and developing governing practices for collective action that could be facilitated through existing advice provision activities and channels (e.g. discussion groups, co-developed trials).

8 Acknowledgments

We sincerely thank our research participants, who dedicated their valuable time to participate in our survey, focus groups and hui and provided invaluable insights. We also sincerely thank the advice providers who attended our scoping workshop in January 2020.

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Appendix 1 – Survey Report

Ministry for Primary Industries
Manatū Ahu Matua

Survey of producers' usage of advice and advisory services in the primary sector

Prepared for Ministry for Primary Industries' Productive and Sustainable Land Use programme

by Pamela Booth; Manaaki Whenua – Landcare Research

November 2020

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MWLR Contract Report:	LC3870

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Summary of survey findings

Manaaki Whenua–Landcare Research conducted a survey on behalf of the Ministries for Primary Industries (MPI) as part of its Productive and Sustainable Land Use programme. The survey focused on primary producers' usage of advice, information, and advisory services available to the primary sector.

Survey respondents were recruited through the 2019 Survey of Rural Decision Makers, through the network of advisors who participated in a workshop in January and through a network of other contacts associated with the primary sector. The survey was open for 4 weeks in May and June 2020. There were 382 complete responses.

The survey covered topics of advice or information, sources of advice or information, relevance and trustworthiness of sources, opinions on access to information and other themes, and topics of advice or information needed in the future. Results were analysed by region, primary industry, role in the operation, overall performance of the operation, age, education level and ethnicity.

Key findings

Over the past 5 years, respondents sought or received advice or information on an average of five different topics related to managing land use, business and/or personal well-being. The most common topics included farm environment plans, managing water quality and use, on-farm biosecurity, and pest management, and changing production, productivity or efficiency.

Respondents sought or received this advice or information from an average of five different sources. The most common sources used were the internet, peers and peer-support groups, farming magazines, local or regional councils, and industry or levy organisations.

A small percentage of respondents have not used any advisory services in the past 5 years. These respondents tended to be from Wellington, Auckland, Hawke's Bay/Taranaki, or over 70 years of age.

Younger producers (18–39 years of age) tended to seek advice on a broader range of topics compared with producers older than them. The proportion of respondents who sought information or advice on any topic decreased as they got older.

Relevance and level of trustworthiness of a source were positively correlated. For most sources, the likelihood of using that source increased as the relevance of advice and perceived trustworthiness increased.

The majority of respondents said that advice or information from research institutions and veterinarians was highly relevant and these sources were highly trustworthy. However, the likelihood of using veterinarians and research institutions was higher than the average among respondents who thought their advice was highly relevant.

The likelihood of respondents using local or regional councils, industry or levy organisations, fee-for-service rural consultants, and accountants, bank managers or insurance providers was highest among respondents who thought that advice provided by these sources was highly relevant and the sources were highly trustworthy.

The likelihood of respondents using ministries (e.g. MPI and Ministry for the Environment) as a source of advice was highest among respondents who said the ministry was highly trustworthy.

The majority of respondents agreed they preferred independent advice.

The majority of respondents agreed they had access to the resources they needed.

The majority of respondents were reluctant to accept advice from an advisor they did not know.

Respondents in arable or vegetable/flower sectors think experienced advisors are lacking in their industry.

Respondents would like more advice or information on environmental sustainability, farm system changes, ecosystem services, biodiversity and/or covenants, becoming resilient to severe weather or climate change, managing greenhouse gas emissions, and/or stewardship/kaitiakitanga.

Glossary of terms

Terms	Text used in the questionnaire
Advice	Advice and/or information
Accountants	Accountants, bank managers, insurance providers
Animals welfare	Animal welfare
Biosecurity	On-farm biosecurity and pest management
Business services	Business services and sales advisors (e.g. from fertiliser)
Climate change	Increasing resilience to severe weather patterns and/or climate change
Consents	Resource consents
Consultants	Fee-for-service rural consultants (e.g. Farm consultants)
Council	Local/regional council
Changing production	Changing production, productivity, and efficiency
Ecosystem services	Ecosystem services, biodiversity, and/or covenants
Events	Industry events, shows or field days
Farm system change	Changing the farm system (e.g. diversification or change of land use)
FEP	Farm environment plan
Financial management	Financial management including accessing grants or subsidies
Managing GHGs	Managing greenhouse gas emissions
Governance of Māori land	Governance of Māori land
Industry supplier	Industry company/supplier (e.g. Fonterra)
Internet	Internet
Sought	Sought or received [advice or information]
Stewardship/Kaitiakitanga	Stewardship/Kaitiakitanga
Levy organisations	Industry/levy body organisations (e.g. Dairy NZ)
Magazines	Farming magazines
Managing water	Managing water quality and water use
Māori land advisory organisations	Māori land advisory organisations
Marketing opportunities	Marketing and business opportunities
Ministries	Ministries (e.g. MPI, MfE)
Peers	Peers or peer support groups
Research institutes	Research institutes (e.g. AgResearch)
Staff management	Staff management
Succession plan	Succession plans
Sustainability	Environmental sustainability (e.g. going organic, integrated farm-environment)
TV	TV documentaries (e.g. Country Calendar)
Vets	Veterinarians
Well-being	Health and well-being

1 Purpose

This report summarises the results from a survey conducted during May and June 2020 by Manaaki Whenua – Landcare Research (MWLR) on behalf of the Ministries for Primary Industries (MPI) as part of its Productive and Sustainable Land Use programme. The survey focused on primary producers' usage of advice, information, and advisory services available to the primary sector.

2 Objectives

The survey was designed to provide the following quantitative information:

- On what topics have producers sought advice and/or information including from advisory services, peers, support groups and/or popular media (e.g. TV documentaries)?
- From whom and/or where have producers sought or accessed advice and/or information? This includes advice or information from advisory services, peers, support groups and/or popular media (e.g. TV documentaries).
- What factors contribute to seeking and using advice and/or information?
- On what topics would producers like to receive advice and/or information in the future?
- What type of producer is more or less likely to use advisory services?

3 Advisory services

3.1 Definition

Advisory services system (thereafter 'advisory services') as defined by MPI (Fig. 1) includes advice or information provided by and/or available from fee-for-service rural consultants, financial advisors (e.g. accountants, bank managers, insurance providers), business services and sales advisors (e.g. from seed and fertiliser companies), government organisation advisors (e.g. regional councils, MPI), industry levy body organisations, industry suppliers (e.g. Fonterra), Māori land advisory organisations, researchers and vets. The advice and information covered by the term 'advisory services' includes producer-initiated assessments, studies and reports, fact sheets, best practice guidelines, websites, publications, newsletters, workshops, conferences, field days, one-on-one discussions, on-line forums, industry reports and research. However, for the purposes of this analysis, the internet, farming magazines, and media (e.g. TV documentaries) are not considered a part of advisory services but are considered sources of information potentially used by advisors from advisory services. Therefore the survey includes all sources of advice and information and the post-survey analysis in this report makes the distinction between advisory services and non-advisory services as defined by MPI.

3.2 Use and non-use of advisory services

One of the objectives of this survey is to understand differences between those who use or do not use advisory services. We define users of advisory services as respondents who sought or received (thereafter `sought') advice or information (thereafter `advice') from sources considered a part of advisory services, as defined above, within the last 5 years. Implicit in the definition of user is that the respondent did receive or seek advice in the last 5 years, which may or may not be the case. Therefore, we define non-users of advisory services as respondents who did not seek any advice in the last 5 years or respondents who sought advice in the last 5 years, but that advice did not come from any source considered a part of advisory services as defined by MPI (Fig. 1).

Figure 11: Organisations and actors included in New Zealand's PIAS system (Source: MPI).

4 Methods

4.1 Questionnaire

The survey was designed through an iterative process informed by a literature review, a workshop with advisors in February 2020, consultation with MPI and piloting with industry and survey experts. The survey was designed in March and April 2020 and was piloted in early May 2020. The questionnaire is in Appendix B.

The survey was conducted using the computer assisted web interviewing programme Qualtrics. The program allows for complex adaptive logic within the survey to show respondents relevant questions based on previous answers. There was a total of 33 questions, but respondents saw between 14 and 27 questions.

The survey included predominately multiple choice and single-choice scale questions, but it did have a few optional open-ended questions. The survey covered the following topics:

1 **Topics of advice**
   - Respondents were asked, "In the past five years on what topics have you sought or received advice or information on managing your land use, business and/or personal well-being?" Respondents were provided with a list of 18 high-level topics and could choose all topics on which they sought advice within the last 5 years.

2 **Source of advice**
   - Respondents were asked, "Where did you obtain this advice or information?" for up to three topics. The three topics were randomly chosen from all the topics that the respondent sought advice or information on within the last 5 years. There was a total of 15 possible sources that respondents could choose from and they could choose more than one source for each topic.

3 **Relevance and trustworthiness of sources**
   - Respondents were asked, "How relevant is advice or information from these sources? How trustworthy are these sources?" Respondents were asked to rate the relevance of advice or information and the trustworthiness of all 15 sources on a 3-point scale (1 – Low, 2 – Medium, 3 – High).

4 Agree/disagreement statements

- Respondents were asked to what degree, on a 5-point scale (1 – Strongly disagree,…, 5 – Strongly agree), they agree with statements on access to information, experience of advisors, Māori land management, and reasons to use advice (e.g. independent advice).

5 Topics of advice that are needed

- Respondents were asked, "Overall, on what topics would you like advice or information to help you respond and adapt to future changes?" Respondents were provided with the same list of 18 high-level topics plus an additional 'Other' category where they could write in alternatives.

6 Demographics

4.2 Survey sample

Survey respondents were recruited through the 2019 Survey of Rural Decision Makers (SRDM), through the network of advisors who participated in the January workshop and through the network of other contacts associated with the primary sector (e.g. Beef+Lamb New Zealand). Examples of invitational emails are included in Appendix C.

A subset of respondents who responded to the 2019 SRDM and who said they would be willing to participate in other surveys related to the primary sector were invited to participate with personalised emails containing individual survey links. This group of respondents received up to two reminder emails. The questionnaire that these respondents received did not include demographic questions as this information was already available in the SRDM.

Respondents who were not associated with the SRDM were invited to participate with an invitational email containing an anonymous survey link. Some contacts also distributed the anonymous survey link via their newsletter or social media instead of through invitational emails.[1]

Participation in the survey was voluntary and respondents could withdraw from the survey at any time. For respondents recruited through the SRDM, survey responses were confidential. For respondents not recruited through the SRDM, survey responses were anonymous unless the respondents provided contact details in-survey in which case the survey responses were confidential. For each of the first 300 responses, $10 was donated to the Rural Support Trust. Two $250 supermarket vouchers were also given to two randomly chosen survey respondents as a prize draw.

The survey was open for 4 weeks in May and June 2020. There were 382 complete responses,[2] 237 of which were recruited through the SRDM. The response rate among those recruited through the SRDM was 41%, including 57% of sheep and beef and 36.6% of dairy farmers who were contacted. The average response rate among those not recruited through the SRDM is not known.

4.3 Data analysis

Survey data were processed and analysed using the statistical software Stata. Results were analysed descriptively and were tested for statistical significance using t-tests. Where noted, results from t-tests were considered statistically significant at the 90% level.

[1] The invitational email was sent to a network of organisations and contacts arising from the advice providers workshop and other contacts. The following organisations and contacts confirmed in writing that they would distribute the survey invitational email and/or link via their networks: Agri-women's Development Trust, Amuri Irrigation Co Canterbury, Apiculture NZ, Beef & Lamb, Potatoes NZ, Regenerative Agriculture network, Veterinarian Association, Red Meat Profit Partnership, Foundation for Arable Research, HortNZ, LandPro, Postquake Farming, Kaikoura Dairy Project, TPK Whenua Advisory Services.

[2] 'Complete' was defined as a participant finishing at least the first question on topics of advice.

5 Results

5.1 Demographics

The average survey respondent was a male (74%), 58 years old, a sheep and beef farmer (41%) from Canterbury (20%) with at least a bachelor's degree (26%), and of NZ European descent (88%). He was the owner of an operation (75%) whose farm performance relative to operations of similar size in sheep and beef farming was in the middle 50%. Additionally, while the majority of respondents have stock (sheep, beef, deer, diary, grazing or other stock), 13% are growers (arable, veg/flower, kiwifruit, wine grapes or fruit/nuts) and 8% are foresters. Respondents were also evenly split across the North (56%) and South (44%) Islands. See Appendix A for all demographic figures and table.

5.2 Topics of advice

Common topics that respondents sought advice on within the past 5 years are outlined in Figure 2. The survey responses are then disaggregated and discussed by region (Table 1), primary industry (Table 2), role on farm (Table 3), relative farm performance (Table 4), age (Table 5), education (Table 6), and ethnicity (Table 7). In each of these discussions I highlight significant differences between groups (e.g. respondents in Northland vs not in Northland) for selected topics related to sustainable land use. Significance was determined by comparing the proportion of respondents in that group (e.g. respondents in Northland) who sought advice on that topic with the proportion of respondents not in that group (e.g. respondents not in Northland) who sought advice on that same topic using a t-test. The t-tests were run for all topics and any significant results are reported in the tables. See 'Glossary' for full definition of topic terms.

Respondents sought advice on an average of five topics over the past 5 years. The most common topics of advice sought were Farm Environmental Plans (FEPs) (53%), managing water (42%), on-farm biosecurity (40%), and changing production (40%; Fig. 2). Among respondents who are a representative of a Māori land trust/incorporation or of a post-settlement governance entity (*N*=8), 50% sought advice related to governance of Māori land.

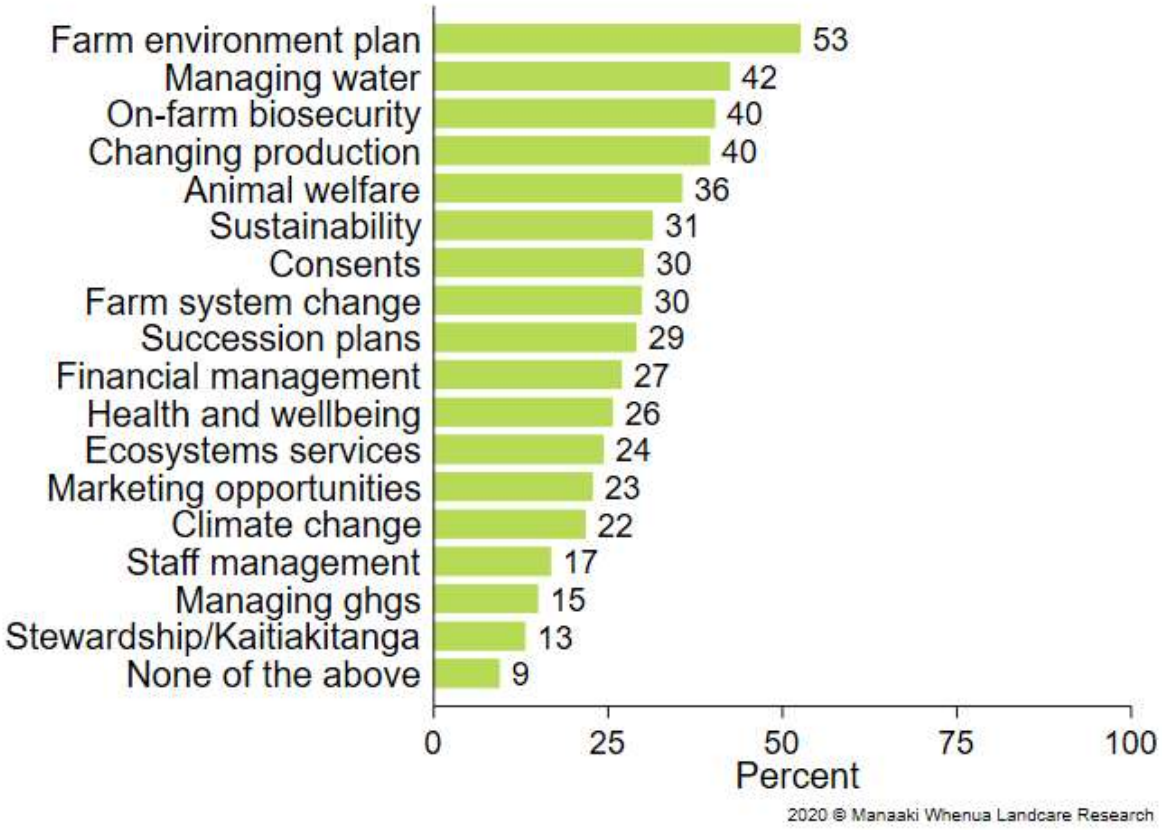

Figure 2: Proportion of respondents who have sought advice on these topics within the past 5 years. Notes: Some descriptors of topics in this figure are shortened versions of those in the questionnaire. Refer to Glossary for full definition of topics.

5.2.1 Topics of advice sought by region

Table 1 shows the topics on which respondents sought advice by region. Advice on FEPs was a common topic for respondents in Waikato, Hawke's Bay / Taranaki, Canterbury, and Otago/Southland. Advice on managing water was a common topic for respondents in Canterbury and Otago/Southland. Advice on on-farm biosecurity and changing production was a common topic for respondents in Bay of Plenty/Gisborne. A few of the significant differences in preferences for topics of advice between regions include, for example, respondents in:

- Northland (p<0.01) and Manawatu-Wanganui (p<0.01) were both less likely to have sought advice on FEPs than respondents in other regions.
- Bay of Plenty and/or Gisborne were less likely to have sought advice on farm system change (p<0.10) than respondents in other regions.
- Auckland were less likely to have sought advice on managing water (p<0.01) than respondents in other regions.
- Canterbury were more likely to have sought advice on FEPs (p<0.01) and ecosystem services (p<0.10) than respondents in other regions.
- Otago and/or Southland were more likely to have sought advice on FEPs (p<0.05) and managing water (p<0.05), but less likely to have sought advice on ecosystem services (p<0.10) than respondents in other regions.

Table 1. Proportion of respondents who have sought advice on these topics within the past 5 years by region

Topics	Northland (26)	Auckland (14)	Waikato (41)	Bay of Plenty/ Gisborne (40)	Hawke's Bay/ Taranaki (34)	Manawatu-Wanganui (43)	Wellington (17)	Upper South Island (27)	Canterbury (77)	Otago/ Southland (62)	Total (382)
Farm environment plan	**19*** **	29*	63	38**	62	**35**	18***	30**	**81*** **	**66** **	53
Managing water	42	**7*** **	37	45	41	30*	35	37	**51***	**55** **	42
On-farm biosecurity	35	36	29	50	38	33	41	37	47	45	40
Changing production	42	14**	34	53*	35	37	35	30	46	44	40
Animal welfare	35	29	29	25	27	47	24	22	46*	44	36
Sustainability	31	14	22	43	27	21	18	33	39	39	31
Consents	27	7*	32	33	12**	23	18	44*	44***	29	30
Farm system change	31	14	39	**18***	32	35	29	30	33	27	30
Succession plans	12**	21	29	28	32	21	18	11**	42***	39*	29
Financial management	27	29	17	30	29	28	24	22	38**	19	27
Well-being	19	21	20	15	35	12**	35	22	29	40***	26
Ecosystem services	23	36	27	18	21	19	41	26	**33***	**16***	24
Marketing opportunities	12	7	17	23	21	12*	24	26	34**	31	23
Climate change	19	14	22	30	21	21	18	11	22	24	22
Staff management	12	7	22	20	15	7*	24	15	20	19	17
Managing GHGs	8	7	22	15	12	12	18	7	17	18	15
Stewardship/Kaitiakitanga	8	7	17	5	18	7	12	22	17	13	13
None of the above	19	21	12	5	21	9	12	4	5	5	9
Average number of topics	4	3	4.8	4.9	4.8	4	4.3	4.3	6.4	5.7	5

Notes: Number of respondents in parentheses. Upper South Island includes Marlborough, Tasman/Nelson, and the West Coast. Average number of topics is out of 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents in that region who sought advice on that topic was compared with the proportion of respondents not in that region who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.2.2 Topics of advice sought by primary industry

Table 2 shows the topics on which respondents sought advice by primary industry. Advice on FEPs was a common topic for those with livestock and arable growers. Advice on managing water was a common topic for dairy farmers or dairy grazers. Advice on on-farm biosecurity was a common topic for those in arable farming, vegetable/flower growers and 'other sectors'. Advice on changing production was a common topic for those in horticulture/viticulture. A few significant differences in preferences for topics of advice between industries include, for example, respondents who are primarily:

- Dairy farmers or dairy grazers were more likely to have sought advice on FEPs (p<0.01), managing water (p<0.01), farm system change (p<0.05), and climate change (p<0.10) than respondents in other industries.
- Horticulturalists and/or viticulturalists (p<0.01) and foresters (p<0.01) were less likely to have sought advice on FEPs than respondents in other industries.
- Foresters were less likely to have sought advice on climate change (p<0.01) and more likely to have sought advice on managing GHGs (p<0.05) than respondents in other industries.

Table 2: Proportion of respondents who have sought advice on these topics within the past 5 years by primary industry

Topics	Sheep, beef or deer (212)	Dairy or dairy grazing (76)	Arable or veg/flower (19)	Horticulture/ viticulture (32)	Forestry (32)	'Other stock or sectors' (8)	Total (382)
Farm environment plan	57*	**74*** **	53	**19*** **	**19*** **	13**	53
Managing water	42	**55*** **	37	41	**28***	13*	42
On-farm biosecurity	40	38	21*	53	44	50	40
Changing production	40	40	37	59**	25*	25	40
Animal welfare	45***	38	11**	9***	13***	13	36
Sustainability	29	36	47	41	22	25	31
Consents	25**	40**	47*	38	28	13	30
Farm system change	29	**40****	42	16	25*	0	30
Succession plans	30	33	32	22	22	13	29
Financial management	30	24	11*	25	25	25	27
Well-being	26	38***	26	16	6***	25	26
Ecosystem services	24	29	32	16	28	0	24
Marketing opportunities	22	11***	37	28	44***	25	23
Climate change	22	**29***	26	22	**3*** **	0	22
Staff management	12**	29***	21	25	3**	25	17
Managing GHGs	13	16	16	9	**28****	0	15
Stewardship/Kaitiakitanga	14	16	11	9	13	0	13
None of the above	10	5	0	13	13	13	9
Average number of topics	5	5.9	5.1	4.5	3.8	2.7	5

Notes: Number of respondents in parentheses. 'Other stock or sectors' includes pig farming, poultry farming, other livestock, beekeeping, and tourism. Average number of topics is out of 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents in that industry who sought advice on that topic was compared with the proportion of respondents not in that industry who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.2.3 Topics of advice sought by primary role in the operation

Table 3 shows the topics on which respondents sought advice by primary role in the operation. Advice on FEPs was a common topic for owners, managers/supervisors, and representatives of a trust. Advice in managing water was a common topic for managers/supervisors, representatives of a trust and those in other roles. Advice on on-farm biosecurity was a common topic for representatives of a trust and those in other roles. Advice on changing production was a common topic for representatives of a trust and lessees. A few significant differences in preferences for topics of advice between primary roles including, for example, respondents who are:

- Farm owners were more likely to have sought advice related to FEPs ($p<0.05$) than respondents who in other roles.
- Representatives of a trust were more likely to have sought advice related to changing production ($p<0.05$) than respondents in other roles.
- Equity partners were less likely to have sought advice related to FEPs ($p<0.05$), sustainability ($p<0.10$), and ecosystem services ($p<0.10$), but more likely to have sought advice related to managing GHGs ($p<0.10$) than respondents in other roles.

Table 3: Proportion of respondents who have sought advice on these topics within the past 5 years by primary role in operation

Topics	Owner (285)	Equity partner/ partnership (16)	Manager/ supervisor (27)	Representative of a trust (21)	Lessee (15)	'Other role' (15)	Total (382)
Farm environment plan	**56****	**25****	52	57	20**	46	53
Managing water	41	31	52	57	20*	56	42
On-farm biosecurity	40	38	37	52	27	55	40
Changing production	38	13**	48	67**	53	45	40
Animal welfare	36	19	44	38	33	30	36
Sustainability	30	**13***	41	48	27	45	31
Consents	31	31	37	33	7*	26	30
Farm system change	29	25	33	33	33	45	30
Succession plans	30	19	19	48*	7*	48	29
Financial management	27	19	30	33	13	42	27
Well-being	23*	25	37	29	33	45	26
Ecosystem services	25	**6***	37	14	13	31	24
Marketing opportunities	21*	25	37*	29	33	29	23
Climate change	20	6	26	14	33	49*	22
Staff management	15	6	30*	24*	7	37	17
Managing GHGs	14	**31***	15	19	0	26	15
Stewardship/Kaitiakitanga	12	6	19	5	20	30*	13
None of the above	9	13	4	10	27	15	9
Average number of topics	4.9	3.4	5.9	6.2	3.8	6.4	5

Notes: Number of respondents in parentheses. 'Other role' includes respondents who said they are a 'Share milker'. 'Representative of a trust' includes 'Representative of a Māori trust/incorporation' and 'Representative of family trust'. Average number of topics is out of 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents in that role who sought advice on that topic was compared with the proportion of respondents not in that role who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.2.4 Topics of advice sought by relative overall farm performance of the operation

The topics on which respondents sought advice were similar between operations of different overall farm performance (Table 4). The most common topic on which respondents sought advice regardless of their farm performance was FEPs (61 and 52%). A higher proportion of respondents whose operations are in the top 25% sought advice on succession plans (p<0.05) and managing GHGs (p<0.01) than respondents whose farm performance is in the middle 50% or lowest 25%.

Table 4: Proportion of respondents who have sought advice on these topics within the past 5 years by relative farm performance

Topic	Top 25% (153)	Middle 50% and lowest 25% (144)	Total (297)
Farm environment plan	61	52	57
Managing water	47	41	44
On-farm biosecurity	46	40	43
Changing production	42	42	42
Animal welfare	37	42	39
Sustainability	35	33	34
Consents	30	32	31
Farm system change	33	31	32
Succession plans	**35****	**24**	**30**
Financial management	31	27	30
Wellbeing	30	26	28
Ecosystem services	28	24	26
Marketing opportunities	27	24	26
Climate change	27	21	24
Staff management	22	15	18
Managing GHGs	**22*****	**10**	**17**
Stewardship/Kaitiakitanga	16	15	15
None of the above	7	6	6
Average number of topics	5.7	5	5.4

Notes: To determine relative farm performance respondents were asked, "We are wondering how the overall performance of your operation compares with other operations of similar size in your industry?". 'Top 25%' includes respondents who said their operation was in the 'Top 10%' and 'Next 15%' of farm performance. Number of respondents in parentheses. Average number of topics is out of 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents whose operation's performance is in the top 25% who sought advice on that topic was compared with the proportion of respondents whose operation's performance is in the middle 50% or lowest 25% who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.2.5 Topics of advice sought by age of respondent

Table 5 shows the topics on which respondents of different age groups sought advice. Overall, the number of topics on which respondents sought advice decreased as age increased. Younger respondents (18–39) sought advice on an average of eight topics, while respondents 40 years and older sought advice on fewer than six topics on average. The proportion of respondents who sought advice on any topic also decreased as they got older. A few significant differences in preferences for topics of advice between age ranges include, for example, respondents aged:

- 18–39 were more likely to have sought advice on FEPs (p<0.01), sustainability (p<0.05), farm system change (p<0.01), and ecosystem services (p<0.05) than respondents older than them.

- 60–69 were less likely to have sought advice on farm system change (p<0.01) and ecosystem services (p<0.01) than respondents of other ages.
- 70+ were less likely to have sought advice on FEPs (p<0.01) and farm system change (p<0.10) than respondents younger than them.

Table 65: Proportion of respondents who have sought advice on these topics within the past 5 years by age

Topics	18 to 39 (22)	40 to 49 (63)	50 to 59 (82)	60 to 69 (101)	70+ (56)	Total (382)
Farm environment plan	**82*** **	57	57	50	**38*** **	53
Managing water	59*	44	44	36	39	42
On-farm biosecurity	55	48	39	39	32	40
Changing production	55	52**	42	33*	34	40
Animal welfare	46	27	40	35	34	36
Sustainability	**55****	43**	32	28	23	31
Consents	36	29	31	34	30	30
Farm system change	**68*** **	46***	27	**21*** **	**21***	30
Succession plans	46**	25	28	25	23	29
Financial management	50**	27	32	30	13***	27
Well-being	41*	29	26	25	20	26
Ecosystem services	**46****	33*	31	**13*** **	20	24
Marketing opportunities	55***	22	24	15**	20	23
Climate change	36	32*	23	18	16	22
Staff management	32**	21	22*	12	4***	17
Managing GHGs	27*	14	15	10	18	15
Stewardship/Kaitiakitanga	27**	22**	15	8*	5*	13
None of the above	0	6	10	9	18	9
Average number of topics	8.2	5.7	5.2	4.3	3.9	5

Notes: Number of respondents in parentheses. Average number of topics is out of 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents in that age range who sought advice on that topic was compared to the proportion of respondents not in that age range who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.2.6 Topics of advice sought by education

Table 6 shows topics on which respondents sought advice by education levels. Advice on FEPs was a common topic among those with a certificate (level 1–6), a diploma and a bachelor's degree. Advice on changing production was a common topic among those with a bachelor's degree. Advice on farm system change was a common topic among with some secondary schooling. A few significant differences in preferences for topics of advice between education levels include, for example, respondents with:

- A certificate were more likely (p<0.05), but a post-graduate diploma/certificate were less likely (p<0.05) to have sought advice on climate change than respondents with other education levels.
- Secondary schooling were less likely (p<0.05) and a bachelor's degree more likely (p<0.05) to have sought advice on managing GHGs than respondents with other education levels.

Table 6: Proportion of respondents who have sought advice on these topics within the past 5 years by education

Topics	Some sec school (11)	Secondary school (54)	Certificate (lev 1–6) (36)	Diploma (lev 5–7) (64)	Bachelor's degree (84)	Post-grad dip/cert (43)	Masters or Doctoral (29)	Total (382)
Farm environment plan	36	46	67*	56	57	44	41	53
Managing water	18	33	47	47	46	40	31	42
On-farm biosecurity	36	30*	39	41	48	42	41	40
Changing production	46	32	39	33	50**	42	45	40
Animal welfare	18	43	31	42	32	40	21*	36
Sustainability	18	20*	28	39	38	30	35	31
Consents	18	33	22	25	38	33	24	30
Farm system change	55*	24	31	28	30	37	35	30
Succession plans	27	20	42*	30	25	23	24	29
Financial management	36	26	19	27	36*	28	17	27
Well-being	9	19	42**	30	24	30	17	26
Ecosystem services	27	19	25	25	29	33	17	24
Marketing opportunities	27	13*	22	17	29	37**	7**	23
Climate change	36	17	**36****	25	21	**9****	31	22
Staff management	9	6	28**	17	17	21	10	17
Managing GHGs	27	**6****	14	17	**21****	14	3*	15
Stewardship/Kaitiakitanga	9	4**	19	13	19*	16	3*	13
None of the above	18	11	8	9	10	12	3	9
Average number of topics	4.5	3.9	5.4	5.1	5.6	5.2	4.1	5

Notes: Number of respondents in parentheses. Average number of topics is out of 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents with that level of education who sought advice on that topic was compared with the proportion of respondents who do not have that level of education who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.2.7 Topics of advice sought by ethnicity of respondent

Table 7 shows the topics on which respondents sought advice by ethnicity. Respondents who identify as Māori sought advice on an average of seven topics and those who identify as NZ European or other European sought advice on an average of five topics. A few significant differences in preferences for topics of advice between ethnicities include, for example, respondents who identify as:

- NZ European were less likely to have sought advice on sustainability ($p<0.05$), farm system change ($p<0.05$), ecosystem services ($p<0.01$), climate change ($p<0.01$) and stewardship/kaitiakitanga ($p<0.05$) than respondents who do not identify as NZ European.
- Māori were more likely to have sought advice on sustainability ($p<0.01$), farm system change ($p<0.05$), climate change ($p<0.01$), and stewardship/kaitiakitanga ($p<0.05$) than respondents who do not identify as Māori.

Table 7: Proportion of respondents who have sought advice on these topics within the past 5 years by ethnicity

Topics	NZ European (282)	Māori (19)	Other European (11)	'Other ethnicity' (20)	Total (382)
Farm environment elan	52	58	46	70	53
Managing water	41	63**	36	45	42
On-farm biosecurity	40	37	36	50	40
Changing production	39	58	27	50	40
Animal welfare	36	32	46	35	36
Sustainability	**30****	**68*****	55	40	31
Consents	31	37	36	30	30
Farm system change	**29****	**53****	36	40	30
Succession plans	27	37	18	30	29
Financial management	26**	58***	36	25	27
Well-being	26	32	9	35	26
Ecosystem services	**23*****	42*	27	40*	24
Marketing opportunities	22	26	18	35	23
Climate change	**20*****	**63*****	36	30	22
Staff management	16	37**	0	15	17
Managing GHGs	14	26	9	20	15
Stewardship/Kaitiakitanga	**12****	**32****	0	30**	13
None of the above	10	0	0	10	9
Average number of topics	4.8	7.8	4.7	6.2	5

Notes: Number of respondents in parentheses. 'Other ethnicity' includes respondents who identify as Chinese, and any other ethnicity not listed in the survey. Respondents could choose more than one ethnicity. Average number of topics is out of all 382 respondents. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Topics and proportions mentioned in text are **bolded**. The proportion of respondents who identify as that ethnicity who sought advice on that topic was compared with the proportion of respondents who do not identify as that ethnicity who sought advice on that same topic using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.3 Sources of advice

Similar to topics, common sources of advice from which respondents sought advice are outlined in Figure 3. The responses are then discussed by region (Table 8), primary activity (Table 9), role on farm (Table 10), relative farm performance (Table 11), age (Table 12), education (Table 13), and ethnicity (Table 14). In each of these discussions I highlight significant differences between groups (e.g. respondents in Northland vs not in Northland) for selected advisory service sources. [3] Significance was determined by comparing the proportion of respondents in that group (e.g. respondents in Northland) who sought advice from a specific source with the proportion of respondents not in that group (e.g. respondents not in Northland) who sought advice from that same source using a t-test. The t-tests were run for all sources of advice and any significant results are reported in the tables. See 'Glossary' for full definition of sources.

Respondents sought advice from five sources on average and the majority of respondents used between one and four advisory services sources. The most common advisory service source used was council (50%) and the most common non-advisory service sources used were the internet (54%), peers (54%), and magazines (53%; Fig. 3). Interestingly, among the four sources used by the majority

[3] The definition of advisory services and which sources are and are not considered part of advisory services is in Section 3.

of respondents, three are not considered a part of advisory services, suggesting producers may be seeking informal advice either alongside or in lieu of formal advice coming from advisory service sources.[4] Among respondents who are a representative of a Māori Land Trust/Incorporation or of a Post Settlement Governance Entity (N=6), 33% sought advice from Māori land advisory organisations.

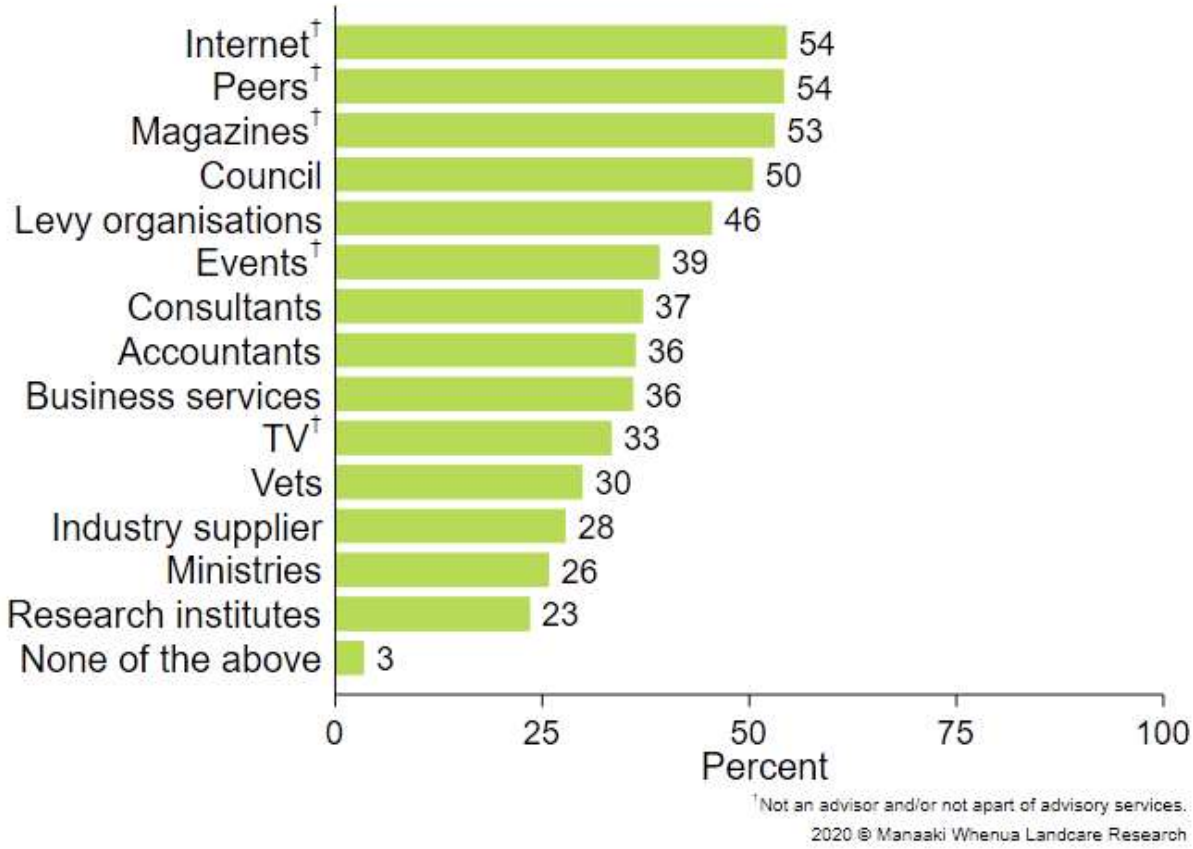

Figure 3: Proportion of respondents who have sought advice from these sources. Notes: Some descriptors of sources in this figure are shortened versions of those in the questionnaire. Refer to Glossary for full definition of sources and section 3.1 for definition of advisory servcies.

5.3.1 Sources of advice by region

Table 8 shows the sources of advice that respondents used by region. Councils, levy organisations, and consultants were common advisory service sources and peers, the internet, events, and magazines were common non-advisory services sources that respondents used for advice. Respondents in Auckland and Wellington used the fewest sources while respondents in Bay of Plenty/Gisborne, Canterbury and Otago/Southland used the most sources. A few significant differences in advisory service sources use between regions include, for example, respondents in Canterbury used levy organisation (p<0.05) and consultants (p<0.01) more for advice and respondents in Bay of Plenty/Gisborne used industry suppliers more (p<0.05) for advice than respondents in other regions.

[4] Appendix D investigates the relationship between using peers for advice alongside using advisory service sources by region, industry, and age.

Table 8: Proportion of respondents who have sought advice from these sources by region

Sources	Northland (21)	Auckland (11)	Waikato (36)	Bay of Plenty/ Gisborne (38)	Hawke's Bay/ Taranaki (26)	Manawatu-Wanganui (38)	Wellington (15)	Upper South Island (26)	Canterbury (73)	Otago/ Southland (60)	Total (344)
Internet	52	36	61	63	42	53	40	54	55	60	55
Peers	67	18**	44	58	42	37**	60	65	66**	57	54
Magazines	57	45	39*	56	46	50	33	50	62	62	53
Council	48	45	58	50	62	61	33	50	44	50	51
Levy organisation	52	45	53	45	31	32*	27	46	**56****	47	46
Events	57*	9**	44	39	35	18***	20	35	45	48	39
Consultants	19*	18	39	32	42	32	33	27	**52*****	37	37
Accountants	19*	18	31	45	50	39	27	19*	41	40	36
Business services	33	18	33	32	46	39	20	38	37	40	36
TV	33	9	31	21	35	24	20	31	30	42**	30
Vets	29	27	22	26	31	37	13	15	29	32	28
Industry supplier	14	9	25	**42****	19	26	13	23	29	27	26
Ministries	33	18	19	29	23	21	27	27	19	27	24
Research institutes	19	9	22	26	31	18	20	12	29	27	24
None of the above	5	0	3	3	8	5	13	0	4	0	3
Avg. number of advisory service sources	2.7	2.1	3	3.3	3.5	3.1	2.5	2.6	3.4	3.3	3.1
Avg. number of sources	5.3	3.3	5.2	5.7	5.6	5	4.5	4.9	6	6	5.4

Notes: Number of respondents in parentheses. Upper South Island includes Marlborough, Tasman/Nelson, and the West Coast. Average number of sources include 'Māori land advisory organisations'. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents in that region who sought advice from that source was compared with the proportion of respondents not in that region who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.3.2 Sources of advice by primary industry

Table 9 shows the sources of advice that respondents used based on their primary industry. Councils, levy organisations, consultants, and business services were common advisory service sources, and the internet, peers, magazines, and events were common non-advisory service sources. A few significance differences in advisory service sources used between industries include, for example, respondents who are primarily:

- Sheep, beef, or deer farmers used consultants less (p<0.05), accountants more (p<0.05), vets more (p<0.01), and industry suppliers less (p<0.01) for advice than respondents in other industries.
- Dairy farmers or dairy grazers used consultants (p<0.01) and industry suppliers (p<0.01) more for advice than respondents in other industries.
- Arable or vegetable/flowers growers used business services less (p<0.01) than respondents in other industries.
- Horticulturalists/viticulturalists used vets less (p<0.05) and industry suppliers more (p<0.01) for advice than respondents in other industries.
- Foresters used vets less (p<0.05) and ministries more (p<0.01) for advice than respondents in other industries.

Table 9: Proportion of respondents who have sought advice from these sources by primary industry

Sources	Sheep, beef, or deer (190)	Dairy or dairy grazing (72)	Arable or veg/flowers (19)	Horticulture/ viticulture (28)	Forestry (27)	'Other stock or sectors' (7)	Total (343)
Internet	54	53	68	64	44	43	55
Peers	54	47	53	71*	59	71	55
Magazines	57*	50	42	43	52	43	53
Council	54	54	42	43	41	14*	50
Levy organisations	44	53	26*	57	44	14*	45
Events	38	38	53	46	33	29	39
Consultants	**31****	**51*****	42	39	33	29	37
Accountants	**41****	29	26	32	37	14	36
Business services	39	35	**5*****	50	33	0**	36
TV	30	25	32	29	44	29	30
Vets	**34*****	31	11*	**7****	**11****	14	28
Industry supplier	**17*****	**40*****	32	**46*****	22	14	26
Ministries	21	25	11	29	**44*****	14	24
Research institutes	25	24	32	18	19	0	23
None of the above	5	1	0	7	0	0	3
Avg. number of advisory service sources	3.1	3.4	2.3	3.3	2.8	1.1	3.1
Avg. number of sources	5.5	5.6	4.7	6	5.2	3.3	5.4

Notes: Number of respondents in parentheses. 'Other stock or sectors' includes pig farming, poultry farming, other livestock, beekeeping, and tourism. Average number of sources include 'Māori land advisory organisations'. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents in that industry who sought advice from that source was compared with the proportion of respondents not in that industry who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.3.3 Sources of advice by primary role in the operation

Table 10 shows the sources of advice that respondents used by primary role in the operation. Council, levy organisations, accountants and business services were common advisory service sources, while the internet, peers, magazines, and events were popular non-advisory services sources. Managers and representatives of a trust used an average of four advisory service sources and all other roles used an average of three advisory service sources. A few significant differences in advisory service sources between roles include, for example:

- Farm owners used ministries less (p<0.05) for advice than respondents in other roles.
- Equity partners used ministries more (*p*<0.10) for advice than respondents in other roles.
- Managers/supervisors used ministries (*p*<0.10) and research institutes (*p*<0.01) more for advice than respondents in other roles.
- Representatives of a trust used councils more (*p*<0.05) for advice than respondents in other roles.

Table 10: Proportion of respondents who have sought advice from these sources by primary role in operation

Sources	Owner (259)	Equity partner (14)	Manager/ supervisor (26)	Representative of a trust (22)	Lessee (11)	'Other role' (12)	Total (344)
Internet	51***	57	62	64	82*	83**	55
Peers	53	50	58	64	64	50	54
Magazines	52	43	50	55	73	75	53
Council	49	50	54	**73****	27	50	51
Levy organisations	45	43	38	59	45	50	46
Events	37	36	38	50	73**	33	39
Consultants	37	36	38	45	27	33	37
Accountants	36	36	27	50	45	25	36
Business services	36	21	50	32	55	25	36
TV	28	36	35	45*	27	25	30
Vets	28	29	27	27	27	17	28
Industry supplier	27	21	23	18	18	42	26
Ministries	**20****	**43***	**38***	32	18	33	24
Research institutes	22	14	**46*****	18	27	33	23
None of the above	4	0	8	0	9	0	3
Avg. number of advisory service sources	3	2.9	3.6	3.6	2.9	3.2	3.1
Avg. number of sources	5.3	5.1	6.1	6.4	6.1	5.8	5.4

Notes: Number of respondents in parentheses. 'Other role' includes respondents who said they are a 'Share milker'. 'Representative of a trust' includes 'Representative of a Māori trust/incorporation' and 'Representative of family trust'. Average number of sources include 'Māori land advisory organisations'. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents in that role who sought advice from that source was compared with the proportion of respondents not in that role who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is *p*<0.01, ** is *p*<0.05 and * is *p*<0.10.

5.3.4 Sources of advice by relative overall farm performance of the operation

Overall, sources used for advice were similar between operations of difference farm performance (Table 11). The majority of respondents regardless of farm performance size used councils for formal advice (53 and 52%) and the internet (56 and 57%), peers (56 and 51%), and magazines (58 and 54%) for informal advice.

Table 711: Proportion of respondents who have sought advice from these sources by relative overall farm performance

Sources	Top 25% (143)	Middle 50% and lower 25% (135)	Total (280)
Internet	**56**	**57**	57
Peers	**56**	**51**	53
Magazines	**58**	**54**	56
Council	**53**	**52**	53
Levy organisations	49	46	48
Events	40	44	42
Consultants	38	35	36
Accountants	39	32	35
Business services	38	33	36
TV	31	30	30
Vets	29	31	30
Industry supplier	27	26	26
Ministries	22	26	24
Research institutes	29	21	25
None of the above	2	2	2
Avg. number of advisory service sources	3.2	3	3.1
Avg. number of sources	5.6	5.4	5.5

Notes: To determine relative farm performance respondents were asked, “We are wondering how the overall performance of your operation compares with other operations of similar size in your industry?”. ‘Top 25%’ includes respondents who said their operation was in the ‘Top 10%’ and ‘Next 15%’ of farm performance. Number of respondents in parentheses. Average number of sources include ‘Māori land advisory organisations’. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents whose operation’s performance is in the top 25% who sought advice from that source was compared with the proportion of respondents whose operation’s performance is in the middle 50% or lowest 25% who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.3.5 Sources of advice by age of respondent

Table 12 shows the sources of advice that respondents used by different age groups. Councils, levy organisations, and consultants were common advisory service sources, and the internet, peers, events, and magazines were common non-advisory service sources across all age groups. Younger respondents (18–39) used an average of seven sources, while respondents 40 years and older used fewer than six sources, on average. Some significant differences in advisory service sources used between age ranges include, for example, respondents aged:

- 18–39 used consultants (p<0.01) and research institutes (p<0.01) more for advice than respondents older than them.
- 50–59 used council (p<0.01), levy organisations (p<0.05), and business services (p<0.01) more for advice than respondents of other ages.
- 60–69 used levy organisations (p<0.05) and research institutes (p<0.01) less for advice than respondents of other ages.
- 70+ used consultants less (p<0.05) for advice than respondent younger than them.

Table 12: Proportion of respondents who have sought advice from these sources by age

Sources	18 to 39 (22)	40 to 49 (59)	50 to 59 (73)	60 to 69 (93)	70+ (45)	Total (292)
Internet	68	64*	58	45*	42	53
Peers	68	66**	59	47	38**	54
Magazines	73**	47	51	53	51	52
Council	45	41	**67*****	45	47	50
Levy organisations	**64***	46	56**	33**	36	44
Events	64**	41	49**	28***	31	39
Consultants	**64*****	39	32	38	**20****	36
Accountants	45	31	42*	28	31	34
Business services	36	37	**48*****	29	24*	35
TV	50**	20	30	23	40*	29
Vets	36	24	25	29	27	27
Industry supplier	36	22	32	24	24	26
Ministries	18	24	21	22	24	22
Research institutes	**45*****	25	27	**13*****	20	23
None of the above	9*	2	0*	4	4	3
Avg. number of advisory service sources	4	3	3.5	2.6	2.7	3
Avg. number of sources	7.2	5.4	6	4.6	4.8	5.3

Notes: Number of respondents in parentheses. Average number of sources include 'Māori land advisory organisations'. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents in that age range who sought advice from that source was compared with the proportion of respondents not in that age range who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.3.6 Sources of advice by education

Table 13 shows sources of advice that respondents used by education levels. Councils and levy organisations were common advisory service sources, and the internet, peers, magazines, and events were common non- advisory services sources. Respondents with a bachelors or a post-graduate diploma/certificate used the most sources – nearly six sources on average. However, a similar number of advisory services sources were used, on average, by all education levels. A few significant differences in advisory sources used between education levels include, for example, respondents with:

- A certificate (level 1–6) used industry suppliers (p<0.01) and levy organisations (p<0.10) more for advice than respondents with other education levels.
- A masters/doctoral degree used business services less (p<0.05) for advice than respondents with other education levels.

Table 13: Proportion of respondents who have sought advice from these sources by education

Sources	Some sec. school (9)	Sec. school (47)	Certificate (lev 1-6) (34)	Diploma (lev 5-7) (57)	Bachelor's degree (76)	Post-grad. dip/cert (38)	Masters/ Doctoral degree (28)	Total (289)
Internet	33	51	50	47	57	66	61	54
Peers	56	43*	47	56	58	66	54	54
Magazines	33	47	50	53	57	63	50	53
Council	56	43	50	54	57	45	43	50
Levy organisation	22	34	**59***	42	51	47	36	45
Events	22	28*	50	33	45	58**	21**	39
Consultants	33	34	41	26	41	39	32	36
Accountants	44	34	21*	39	36	39	32	35
Business services	33	43	35	37	33	42	**18****	35
TV	22	23	24	30	30	37	29	29
Vets	11	38*	26	28	25	26	21	27
Industry supplier	22	19	**44*****	23	29	24	18	26
Ministries	0*	23	18	28	29	21	14	23
Research institutes	0*	17	35*	18	24	32	25	23
None of the above	0	2	6	4	4	3	4	3
Avg. number of advisory service sources	2.2	2.9	3.3	3	3.3	3.2	2.5	3.1
Avg. number of sources	3.9	4.8	5.5	5.3	5.8	6.1	4.7	5.4

Notes: Number of respondents in parentheses. Average number of sources include 'Māori land advisory organisations'. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents with that level of education who sought advice from that source was compared with the proportion of respondents who do not have that level of education who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.3.7 Sources of advice by ethnicity of respondent

Table 14 shows the sources of advice that respondents used by ethnicity. Councils were a common advisory service source, and the internet, peers, magazines, and events were common non-advisory service sources. A few significant differences in advisory service sources used between ethnicities include, for example, respondents who identify as:

- NZ European used business services less (p<0.01) for advice than respondents who do not identify as NZ European.
- Māori used councils (p<0.10) and research institutes more (p<0.05) for advice than respondents who did not identify as Māori.

Table 14: Proportion of respondents who have sought advice from these sources by ethnicity

Sources	NZ European (253)	Maori (19)	Other European (11)	'Other ethnicity' (17)	Total (290)
Internet	52	63	55	71	53
Peers	53	74*	64	65	54
Magazines	53	42	55	59	52
Council	48	**68***	46	53	49
Levy organisations	45	37	27	53	44
Events	38	58*	55	41	38
Consultants	35	37	45	29	36
Accountants	33	32	27	29	33
Business services	**32*****	47	45	41	35
TV	30	37	45	18	28
Vets	29	16	36	18	27
Industry supplier	27	26	18	29	27
Ministries	22	37	18	18	23
Research institutes	22	**42****	36	18	22
None of the above	3	11*	0	6	3
Avg. number of advisory service sources	3	3.7	3	3.1	3
Avg. number of sources	5.2	6.3	5.7	5.8	5.3

Notes: Number of respondents in parentheses. 'Other ethnicity' includes respondents who identify as Chinese, and any other ethnicity not listed in the survey. Respondents could choose more than one ethnicity. Average number of sources include 'Māori land advisory organisations'. Darker green shading in blocks indicate higher proportions where the lightest green is <25%, the next light green is 25–49.9%, the middle green is 50–74.9%, and the darkest green is 75%<. Sources and proportions mentioned in text are **bolded**. The proportion of respondents who identify as that ethnicity who sought advice on from that source was compared with the proportion of respondents who do not identify as that ethnicity who sought advice from that same source using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.4 Non-use of advisory services

Less than 10% of respondents did not seek or receive any advice over the past 5 years, and a further 7% of respondents who sought advice over the past 5 years sought this advice from sources that would not be considered part of the primary industries advisory services system as defined by MPI (see Fig. 1).[5] Together, 17% of all respondents did not use the primary industries advisory services system.

The proportion of respondents who did not use advisory services are discuss below by region (Table 15), primary industry (Table 16), role in the operation (Table 17), relative farm performance (Table 18), age (Table 19), education (Table 20), and ethnicity (Table 21). In each discussion I highlight any significant differences between groups (e.g. respondents in Northland vs. not in Northland). Significance was determined by comparing the proportion of respondents in that group (e.g. respondents in Northland) who did not use advisory services with the proportion of respondents not in that group (e.g. respondents not in Northland) who did not use advisory services using a t-test.

5.4.1 Use of advisory services by region

The proportion of respondents who did not use advisory services ranges from 5% in Bay of Plenty/Gisborne to 36% in Auckland (Table 15). Fewer respondents in Auckland (p<0.05), Hawke's Bay/Taranaki (p<0.01), and Wellington (p<0.05) and more respondents in Bay of Plenty/Gisborne (p<0.10) and Canterbury (p<0.10) used advisory services than respondents in other regions.

Table 15: Proportion of respondents who use and do not use advisory services by region

	Do not use advisory services	Use advisory services
Northland (26)	19	81
Auckland (14)	36**	64**
Waikato (41)	15	85
Bay of Plenty/Gisborne (40)	5*	95*
Hawke's Bay/Taranaki (34)	32***	68***
Manawatu-Wanganui (43)	14	86
Wellington (17)	35**	65**
Upper South Island (27)	7	93
Canterbury (77)	9*	91*
Otago/Southland (62)	15	85
Average (381)	**16**	**85**

Notes: Number of respondents in parentheses. Upper South Island includes Marlborough, Tasman/Nelson, and the West Coast. The proportion of respondents in that region who did not use advisory services was compared with the proportion of respondents not in that region who did not use advisory services using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

[5] The definition of advisory services and which sources are and are not considered part of advisory services is in Section 3.

5.4.2 Use of advisory services by primary industry

The proportion of respondents who did not use advisory services ranges from 11% in dairy or dairy grazing and arable or vegetables/flower to 38% in other stock or sectors (Table 16). Fewer respondents in 'other stock or sectors' used advisor services (p<0.10) than respondents in other industries.

Table 16: Proportion of respondents who do not use advisory services by primary industry

	Do not use advisory services	Use advisory services
Sheep, beef, or deer (212)	16	84
Dairy or dairy grazing (76)	11	89
Arable or veg/flowers (19)	11	89
Horticulture/viticulture (32)	19	81
Forestry (32)	19	81
'Other stock or sectors' (8)	38*	63*
Total (379)	**15**	**85**

Notes: Number of respondents in parentheses. 'Other stock or sectors' includes pig farming, poultry farming, other livestock, beekeeping, and tourism. The proportion of respondents in that industry who did not use advisory services was compared with the proportion of respondents not in that industry who did not use advisory services using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.4.3 Use of advisory services by primary role in operation

The proportion of respondents who did not use advisory services ranges from 8% of representatives of a trust to 29% of respondents in 'other roles' in the operation (Table 17). However, there is no significance difference in use of advisory services between different primary roles in the operation.

Table 17: Proportion of respondents who do not use advisory services by primary role in the operation

	Do not use advisory services	Use advisory services
Owner (285)	15	85
Equity partner (16)	13	88
Manager/supervisor (27)	15	85
Representative of a trust (24)	8	92
Lessee (15)	27	73
`Other role' (14)	29	71
Average (381)	**16**	**86**

Notes: Number of respondents in parentheses. `Other role' includes respondents who said they are a 'Share milker'. 'Representative of a trust' includes 'Representative of a Māori trust/incorporation' and 'Representative of family trust'. The proportion of respondents in that role who did not use advisory services was compared with the proportion of respondents not in that role who did not use advisory services using a t-test. Stars represent a significant t-test where *** is p<0.01, ** is p<0.05 and * is p<0.10.

5.4.4 Use of advisory services by relative overall farm performance of the operation

A similar proportion of respondents whose operation is in the top 25% did not use advisory services (10%) compared with respondents whose operation is in the middle 50% and lowest 25% (8%) (Table 18).

Table 18:8 Proportion of respondents who do not use advisory services by farm performance

	Do not use advisory services	Use advisory services
Top 25% (153)	10	90
Middle 50% and lowest 25% (144)	8	92
Average (297)	**9**	**91**

Notes: To determine relative farm performance respondents were asked, "We are wondering how the overall performance of your operation compares with other operations of similar size in your industry?". 'Top 25%' includes respondents who said their operation was in the 'Top 10%' and 'Next 15%' of farm performance. Number of respondents in parentheses. The proportion of respondents whose operation's performance is in the top 25% who did not use advisory services was compared with the proportion of respondents whose operation's performance is in the middle 50% or lowest 25% who did not use advisory services using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.4.5 Use of advisory services by age

The proportion of respondents who did not use advisory services ranges from 4.5% of 18–39-year olds to 29% of 70 years and older (Table 19). In general, the proportion of respondents who do not use advisory services increases with age. The proportion of respondents 70 years and older who do not use advisory services is higher than that of respondents 40–69 years old ($p<0.01$) and higher than the proportion of the youngest 18–39 years old respondents ($p<0.05$) who do not use advisory services.

Table 19: Proportion of respondents who do not use advisory services by age

	Do not use advisory services	Use advisory services
18 to 39 (22)	4.5	95
40 to 49 (63)	14	86
50 to 59 (82)	12	88
60 to 69 (101)	15	85
70+ (56)	29***	71
Average (324)	**16**	**84**

Notes: Number of respondents in parentheses. The proportion of respondents in that age range who did not use advisory services was compared with the proportion of respondents not in that age range who did not use advisory services using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.4.6 Use of advisory services by education

The proportion of respondents who do not using advisory services ranges from 11% of those with a certificate to 27% of those with some secondary schooling (Table 20). A similar proportion of respondents regardless of education level do not use advisory services.

Table 20:9 Proportion of respondents who do not use advisory services by education

	Do not use advisory services	Use advisory services
Some sec. school (11)	27	73
Sec. school (54)	19	81
Certificate (lev 1–6) (36)	11	89
Diploma (lev 5–7) (64)	19	81
Bachelor's degree (84)	13	87
Post-grad. dip/cert (43)	16	84
Masters/Doctoral degree (29)	14	86
Average (321)	**16**	**84**

Notes: Number of respondents in parentheses. The proportion of respondents with that level of education who did not use advisory services was compared with the proportion of respondents who do not have that level of education who did not use advisory services using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.4.7 Use of advisory services by ethnicity

The proportion of respondents who did not use advisory services was highest among respondents who identify as 'other ethnicity' (20%), while 17% of respondents who identify as NZ European did not use advisory services and 11% of respondents who identify as Māori did not use advisory services (Table 21).

Table 21: Proportion of respondents who do not use advisory services by ethnicity

	Do not use advisory services	Use advisory services
NZ European (282)	17	83
Maori (19)	11	89
Other European (11)	0	100
'Other ethnicity' (20)	20	80
Average (317)	**16**	**84**

Notes: Number of respondents in parentheses. 'Other ethnicity' includes respondents who identify as Chinese, and any other ethnicity not listed in the survey. Respondents could choose more than one ethnicity. The proportion of respondents who identify as that ethnicity who did not use advisory services was compared with the proportion of respondents who do not identify as that ethnicity who did not use advisory services using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.5 Relevance and trustworthiness of sources

This section covers respondent's perceptions of relevance of advice from sources and trustworthiness of sources and how those perceptions influence the likelihood of using that source. Respondent's perceptions of level of relevance of advice and degree of trustworthiness for each source is outlined in Figure 4. To test the significance of the level of relevance, t-tests are run for each advisory service source comparing the proportion of respondents who said the advice from that source (e.g. councils) had a high degree of relevance to the proportion of respondents who said advice from that same source had a low degree of relevance, excluding respondents who were 'unsure'. The same process was used for degree of trustworthiness of sources. The relationship between level of relevance, perceived trustworthiness, and likelihood of using an advisory service source is then discussed (Table 22).

Respondents who thought sources had a high degree of relevance usually thought the level of trustworthiness of that source was also high (Fig. 4). The majority of respondents said advice from research institutes and vets was highly relevant (51 and 61%, both $p<0.01$) and that these sources' trustworthiness was also high (57 and 67%, both $p<0.01$). A similar proportion of respondents thought

advice from sources in advisory services such as accountants (45%, p<0.01), levy organisations (45%, p<0.01), and consultants (42%, p<0.01) was highly relevant. Respondents also said advice from business services (p<0.01) and industry suppliers (p<0.01), was highly relevant and advice from councils (p<0.05), levy organisations (p<0.01), consultants (p<0.01), accountants (p<0.01), vets (p<0.01), and industry suppliers (p<0.01) was highly trustworthy.

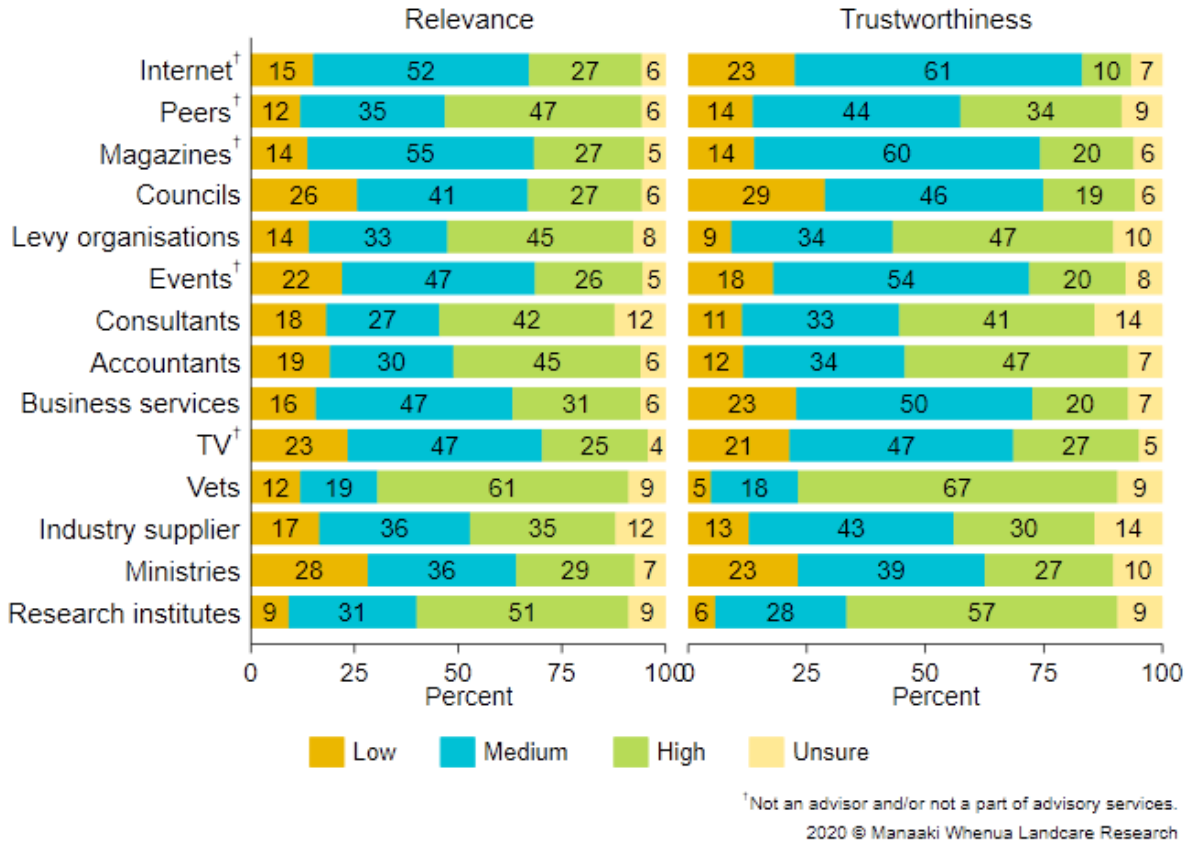

Figure 4: Relevance and perceptions of trustworthiness of sources of advice. Note: Proportions out of 350 responses.

For most sources, the likelihood of using that source increased as the relevance of advice and perceived trustworthiness increased (Table 22). A few significant differences in likelihood of using an advisory service source based on level of relevance and perceived trustworthiness include, for example:

- Respondents who said that advice from council, consultants, or industry suppliers was highly relevant and these sources were at least of medium trustworthiness, were more likely to use that source for advice than respondents who said that the level of relevance and/or perceived trustworthiness of these sources was lower.
- Respondents who said that advice from councils, levy organisations, consultants, accountants, vets or research institutes was highly relevant and these sources were highly trustworthy, were more likely to use that source for advice (all p<0.01) than respondents who said that the level of relevance and/or perceived trustworthiness of these sources was lower.
- The proportion of respondents using ministries was highest among respondents who said that advice from ministries was highly trustworthy.
- Despite the majority of respondents saying the relevance of advice and level of trustworthiness of vets and research institutes was high (see Fig. 4), neither attribute increased the proportion of respondents using those sources above 50%. However, the likelihood of using vets or research institutions was higher than the average among respondents who thought their advice was highly relevant (both p<0.01).

Table 22: Proportion of respondents who have sought advice from these sources dependent on relevance and perceived trustworthiness of source

		Sources													
Relevance	**Trust**	**Internet**	**Peers**	**Magazines**	**Council**	**Levy orgs.**	**Events**	**Consultants**	**Accountants**	**Business services**	**TV**	**Vets**	**Industry supplier**	**Ministries**	**Research institutes**
Low	Low	29***	31***	8***	20***	5***	40	-	17**	9***	12***	-	8**	6***	-
Low	Med.	18**	14**	43	50	17**	23	13**	5***	-	27	6**	-	8*	-
Low	High	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Med.	Low	52	36	59	61	-	21	-	-	34	18	-	-	9	-
Med.	Med.	51	40***	56	56	37*	40	20***	30	37	37**	13**	25	27	22
Med.	High	-	64	92***	50	61	36	-	48	-	32	17	40	41*	23
High	Low	-	-	-	45	-	-	-	-	-	-	-	-	-	-
High	Med.	84***	70**	71**	65*	50	54	58*	42	61***	53**	29	57***	38	38
High	High	77**	70***	73***	81***	64***	58***	65***	51***	44	38	41***	43***	41***	32***
Obs.		321	321	321	322	322	321	321	321	321	322	321	321	321	321
Average		55	55	55	51	47	40	37	36	36	30	28	27	24	25

Notes: Shading in blocks indicate proportions relative to the average proportion of respondents who used that source. The lightest blue is less than the average, the next light blue is equal to the average, the middle blue is higher than the average, and the darkest blue is the highest proportion for that source. Where the number of respondents who used that source was less than 10, the proportion was supressed. The proportion of respondents who sought advice from a source and said advice from that source has that level of relevance and that degree of trustworthiness (e.g. high and high) was compared with the proportion of respondents who used the same source, but said advice from the source did not have that level of relevance and that degree of trustworthiness using a t-test. Stars represent a significant t-test where *** is $p<0.01$, ** is $p<0.05$ and * is $p<0.10$.

5.6 Agree/disagreement statements

This section has seven statements on access to information, experience of advisors, Māori land management, and reasons to use advice. Respondents were asked to what degree they agree with each statement. Any significant differences in proportion of respondents who agree or disagree to each statement is mentioned. To test the significance across levels of agreement, t-tests are run for each statement comparing the proportion of respondents who agree or strongly agree ('agree') with the proportion of respondents who disagree or strongly disagree ('disagree'), excluding respondents who were 'unsure'. The same process is run for the proportion of respondents who strongly agree ('strongly agree') or strongly disagree ('strongly disagree') with a statement.

Overall, the majority of respondents said they have access to the resources they needed, were reluctant to accept advice from an advisor with whom they did not have an established relationship, and preferred independent advice (Fig. 5). Respondents agreed (p<0.01) and strongly agreed (p<0.01) that they preferred independent advice over advice from product-based consultants. Respondents agreed (p<0.01) and strongly agreed (p<0.01) that they are reluctant to accept advice from an advisor with whom they do not have an established relationship. Respondents agreed and strongly agreed that they have access to the resources they need to improve both productivity and ecosystem services (p<0.01) and to face future challenges in the primary sector (p<0.01). However, 18% of respondents disagreed that they had access to the resources they needed to face future challenges.

Respondents were split as to whether advisors in their industry have experience in those issues that are important to the respondents (Fig. 5). Respondents in dairy or dairy grazing disagreed that experienced advisors are lacking in their industry (p<0.05) and 26% of respondents in forestry strongly disagreed that experienced advisors are lacking in their industry (p<0.10). By contrast, 6% of respondents in the arable or vegetable/flower sectors strongly disagree that experienced advisors are lacking in their industry and a similar proportion of respondents in sheep, beef or deer agreed (35%) or disagreed (34%) with that statement (Fig. 6).

The majority of respondents strongly agreed that Māori land issues require advisors with a unique set of skills (Fig.7). Respondents were more split as to whether, as a Māori landowner or entity, they had access to the resources they needed to face future challenges.

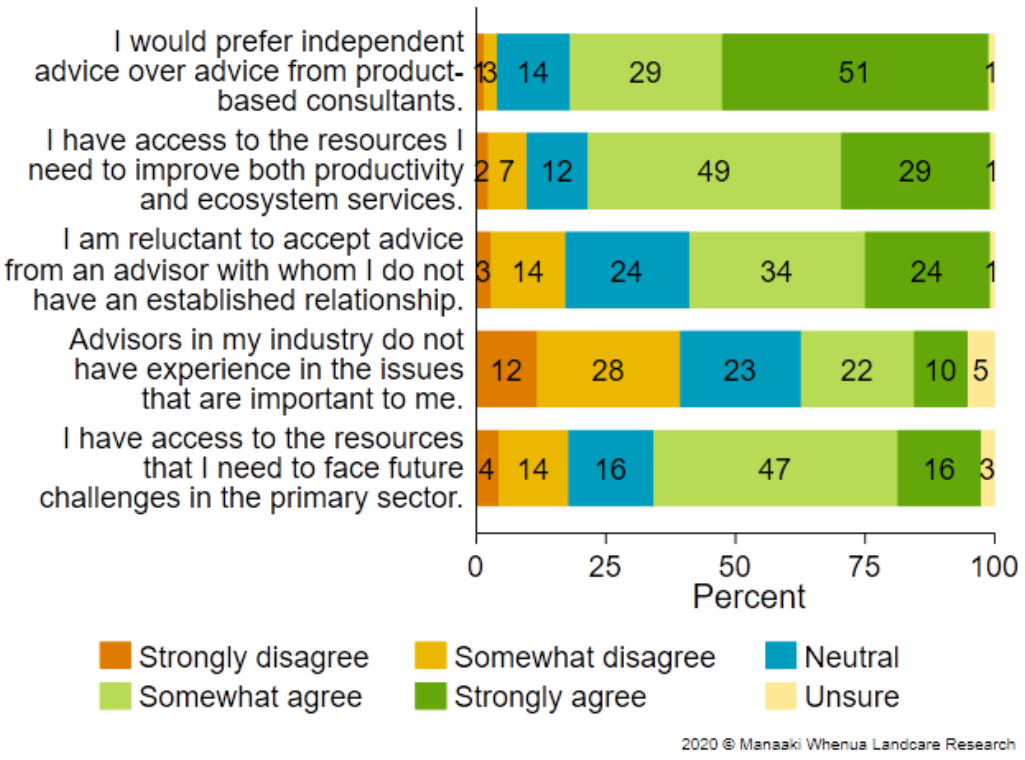

Figure 5: Level of agree to statements on access to information, experience of advisors, and reasons to use advice (e.g. independent advice). Note: Proportions out of 348 responses.

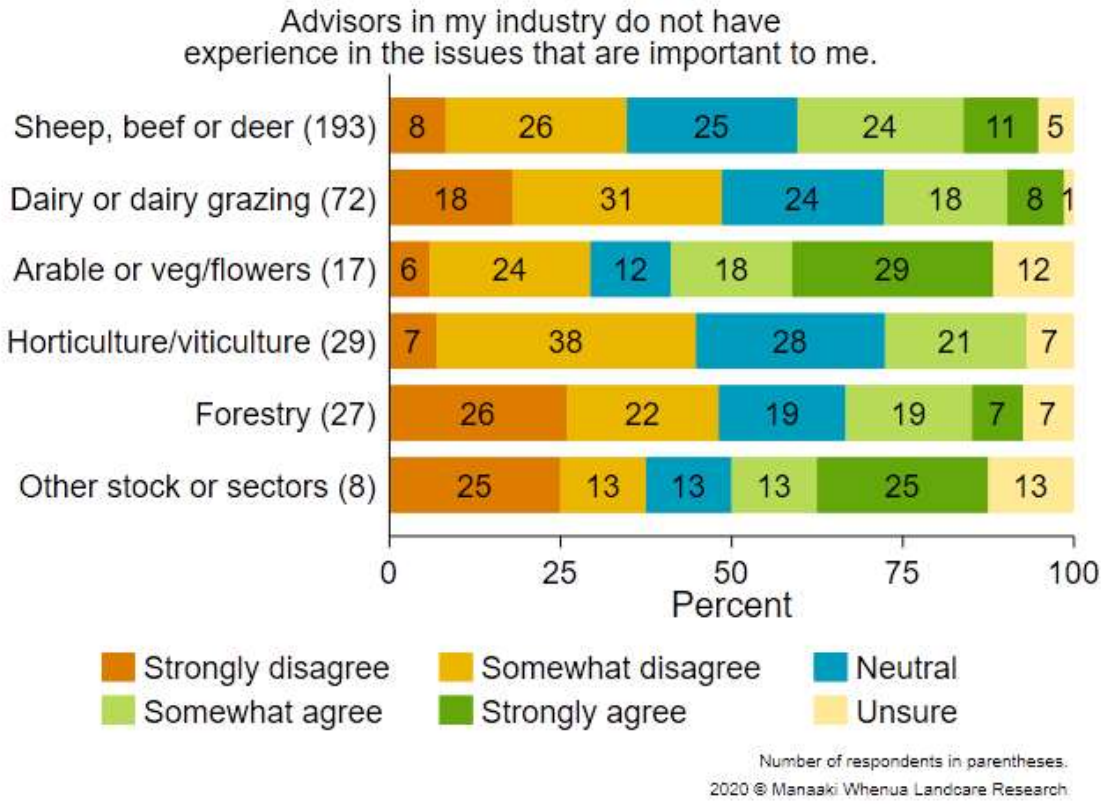

Figure 6: Level of agree to statement, "Advisors in my industry do not have experience in the issues that are important" (by primary activity). Note: Number of respondents in parentheses.

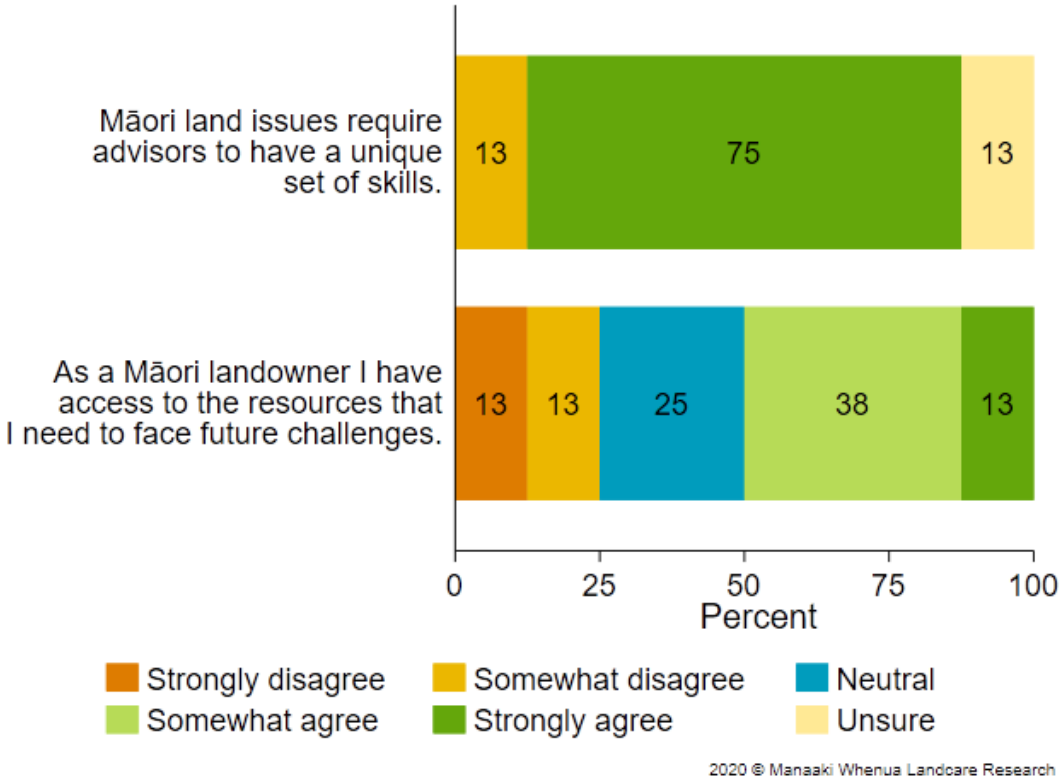

Figure 7: Level of agree to statements on Māori land management. Note: Proportions out of 8 respondents who are a representative of a Māori Land Trust/Incorporation or of a Post-Settlement Governance Entity.

5.7 Topics of advice that are needed

Topics on which respondents would like advice to meet future challenges are slightly different from the topics on which they have sought advice in the past (Fig. 8). Respondents would still like advice on FEPs (44%), managing water (43%), on-farm biosecurity (41%), and changing production (45%). However, more respondents would like advice on sustainability (+5%, $p<0.10$), farm system change (+4%), financial management (+11%, $p<0.01$), ecosystem services (+7%, $p<0.01$), marketing opportunities (+13%, $p<0.01$), climate change (+15%, $p<0.01$), managing GHGs (+10%, $p<0.01$), and stewardship/kaitiakitanga (+3%).

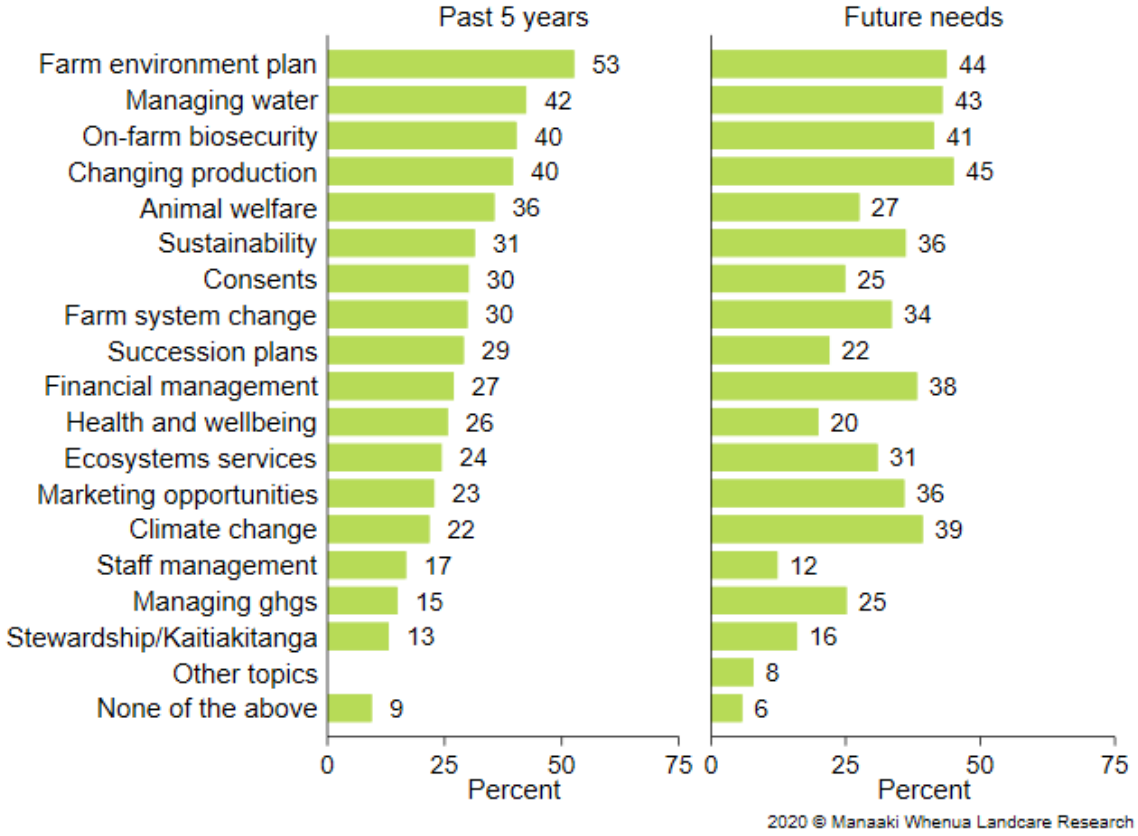

Figure 8: Proportion of respondents who sought advice in the past 5 years (left panel) and who said they would like advice on these topics to help them respond and adapt to future changes (right panel).

Roughly 8% of respondents said there are other topics on which they would like most advice. Below is a selection – in the respondents' own words – of these topics:

- integrated whole catchment improvement
- regenerative agriculture and biological farming to sequester more carbon into the soil
- transitioning to regenerative agriculture
- facilitating evolving the farm systems towards regenerative agriculture
- nutrient management plans etc. with a regenerative lens
- landscape management both on farm and in a catchment
- supportive step-by-step learning resources and workshops/field days and booklets to take home and refer to for transitioning away from synthetic fertilisers and the use of pesticides towards the use of biologically sustainable farming and soil systems to support my farming and land kaitiakitanga
- land diversification
- specific environmental challenges
- technical support for new innovative ideas, like drone use, in avocado production

- block chain technology.
- what best practice looks like for the horticulture industry
- advice from other countries with the same problems (e.g. Israel with dry summers)
- we are a small boutique forester, and the forest is not our main business. We have kept out animals and done pest control for decades and it is now a pristine environment with some areas set aside by council controls. We need advice about harvest for the future, and most new policy or legislation is all about the big players
- drought management and planning
- how to write and present submissions [to regulations]
- carbon trading scheme
- I'd only be looking at any change if increased revenue or less costs were a result.
- data management
- more integrated advice that takes an integrated approach to the overall sustainability of farming businesses from an environmental, animal, and human welfare, and financial perspective.
- equipment for small-scale harvesting [of planted forest]. Growing special purpose hardwood species, re-establishing silver pine and grants for planting trees
- on-farm water storage
- information on how I am going to sustainably farm my land to maintain a break-even cash flow

6 Discussion

The purpose of this survey was to understand primary producers' use of advisory services. A small proportion, 17%, of respondents did not use the primary industries advisory service system. Breakdowns across demographics of respondents who did not use advisory services reveals the largest variation in magnitude of use by region and age, although there are also some notable differences across primary industries and primary role in the operation. In particular, the proportion of respondents not using advisory services was highest in Auckland, Hawke's Bay/Taranaki, and Wellington, and among those over 70 years of age. This last demographic is not surprising, given that the number of sources respondents used dropped substantially as they got older. However, even given that trend, the proportion of over 70s not using advisory services was 14 percentage points higher than respondents 60–69 years old, signalling a potential area for further exploration.

Producers use a combination of non-advisory services sources and sources considered a part of advisory services. The most commonly used advisory services source is councils, but at least one third of respondents used levy organisations, consultants, accountants, and/or business services. The majority of respondents, however, used multiple sources, from both advisory and non-advisory services, suggesting producers are seeking informal advice either alongside or in lieu of formal advice coming from advisory service sources. A large proportion of respondents who used advisory service also used peers for advice, with some variation across demographics. For example, nearly all respondents in forestry and nearly all respondents in Northland who use their levy organisations for advice also use peers for advice.

Relevance of advice, trustworthiness of a source, independence of advice, and established relationships matter whether a source will or will not be used. Intuitively, a source with highly relevant advice will be used more often than a source with advice that is less relevant. Relevance of advice increased the use of some advisory services sources, namely councils, levy organisations, consultants, accountants, business services, industry suppliers, vets, and research institutes. However, trust was key for respondents to increase use of ministries for advice. Interestingly, while having an established relationship with an advisor (which is usually an indicator of trust) was important for respondents to potentially accept advice, a higher proportion of respondents said they prefer independence of advice over advice from product-based consultants. These results indicate that producers are thinking in multiple dimensions – i.e. trustworthiness, relevance, relationships, independence – when they consider whether to use a source.

Respondents sought advice on a variety of topics over the past 5 years and generally believed they have access to the resources they need to deal with future challenges, but they were split on whether advisors in their industry had the necessary experience. They would like more advice on a variety of topics, some of which were not covered in the survey. The preferences for topics across primary industries and regions were relatively intuitive, given regional differences, e.g. 82% of respondents in Canterbury sought advice on FEPs given changes in council rules, or events that impacted certain industries more than others, e.g. 55% of dairy or dairy grazing farmers sought advice regarding

managing water in response to water quality regulations. Additionally, the topics on which producers want more advice are intuitive, given the increasing complexity of on-fam pressures, e.g. more respondents would like advice on sustainability, farm system change, financial management, ecosystem services, marketing, climate change, managing GHGs, and/or stewardship/kaitiakitanga. Respondents also want more advice on additional topics, such as regenerative agriculture, new technologies like drones and block-chain, and applying current knowledge and regulations to small, boutique operations. One interesting demographic pattern emerged in the age groups: younger respondents (18–39 years of age) sought advice on a larger variety of topics, than did older respondents. The proportion of respondents who sought advice on any topic decreased as they got older. This trend could be explained by an increased reliance on one's own experience in a primary industry by those with more experience (i.e. older) as opposed to outside advice (i.e. younger) needed before that experience had been gained.

Limitations

This analysis and its conclusions are based on the responses and the distribution of demographics of respondents. While all efforts were made to engage with a diverse group of primary producers, engagement with different groups often requires different engagement methods. Online, quantitative surveys, such as this one, are only one method of engagement. As a result, our final group of respondents mean there is an over sample and under sample for various regions, primary industries, ethnicities, ages, etc. The conclusions from this analysis should therefore be considered as one part of the larger project that explores how primary producers use advisory services. These quantitative results are one step in that project and feed into qualitative focus groups.

Appendix A – Demographic figures and table

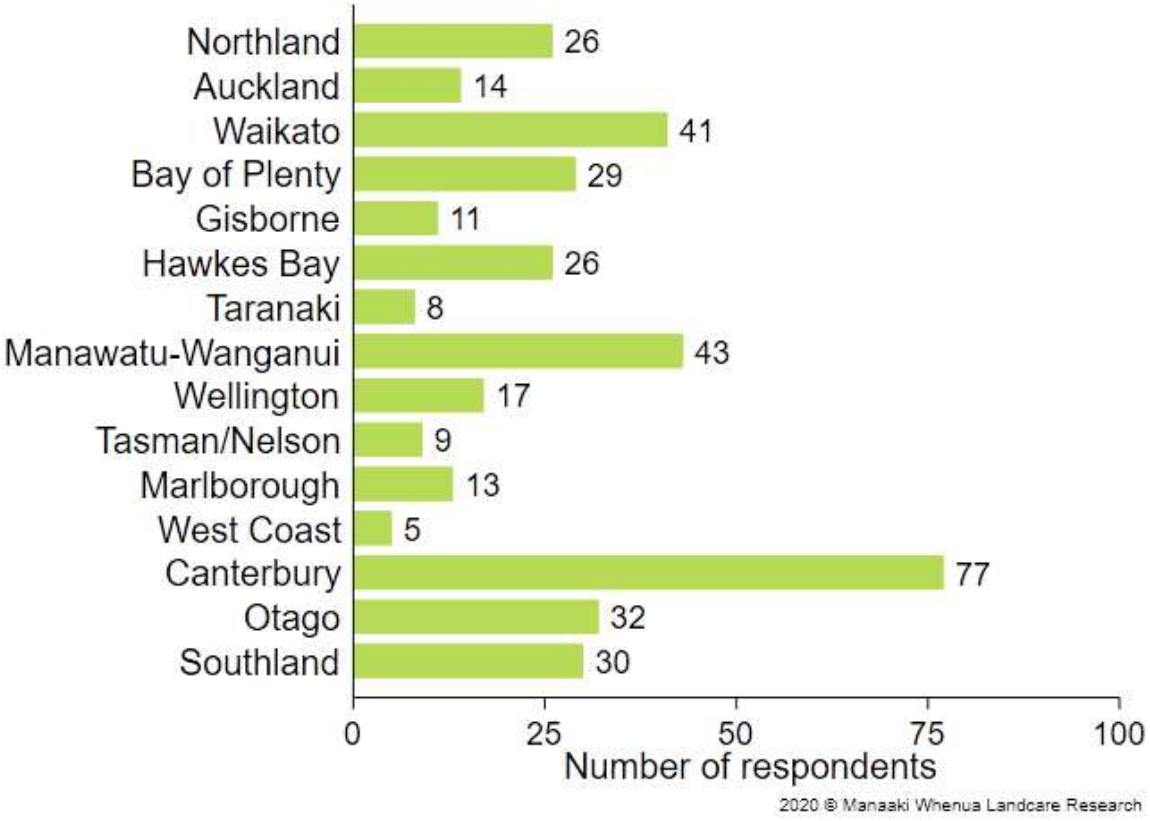

Figure A1. Region of largest operation of respondent.

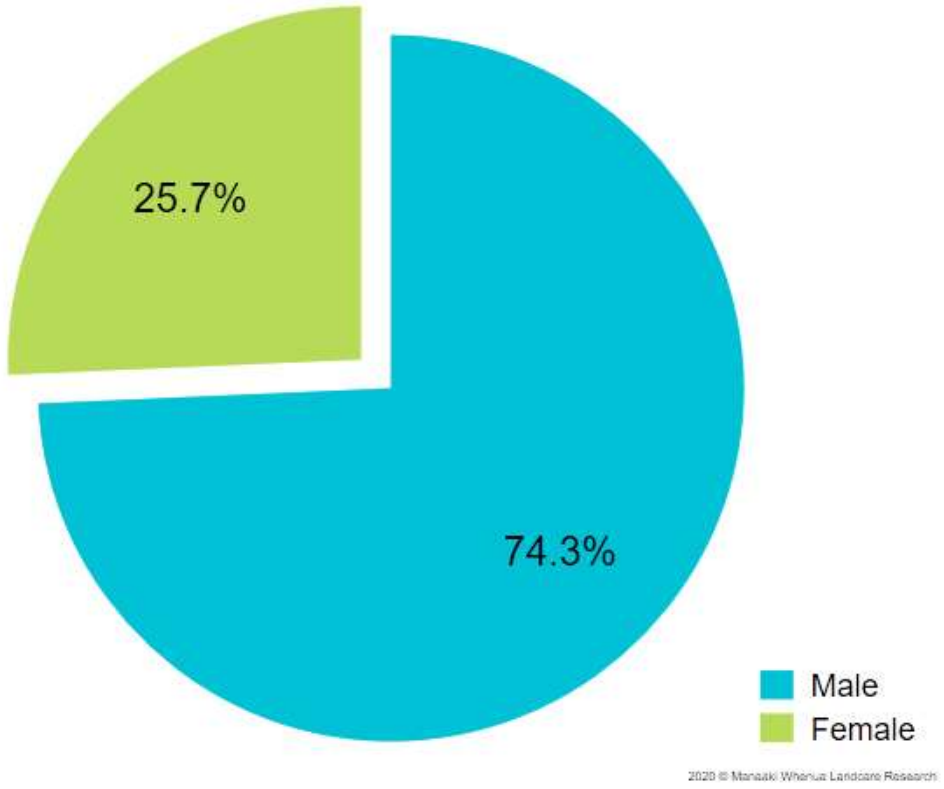

Figure A2. Gender of respondent.

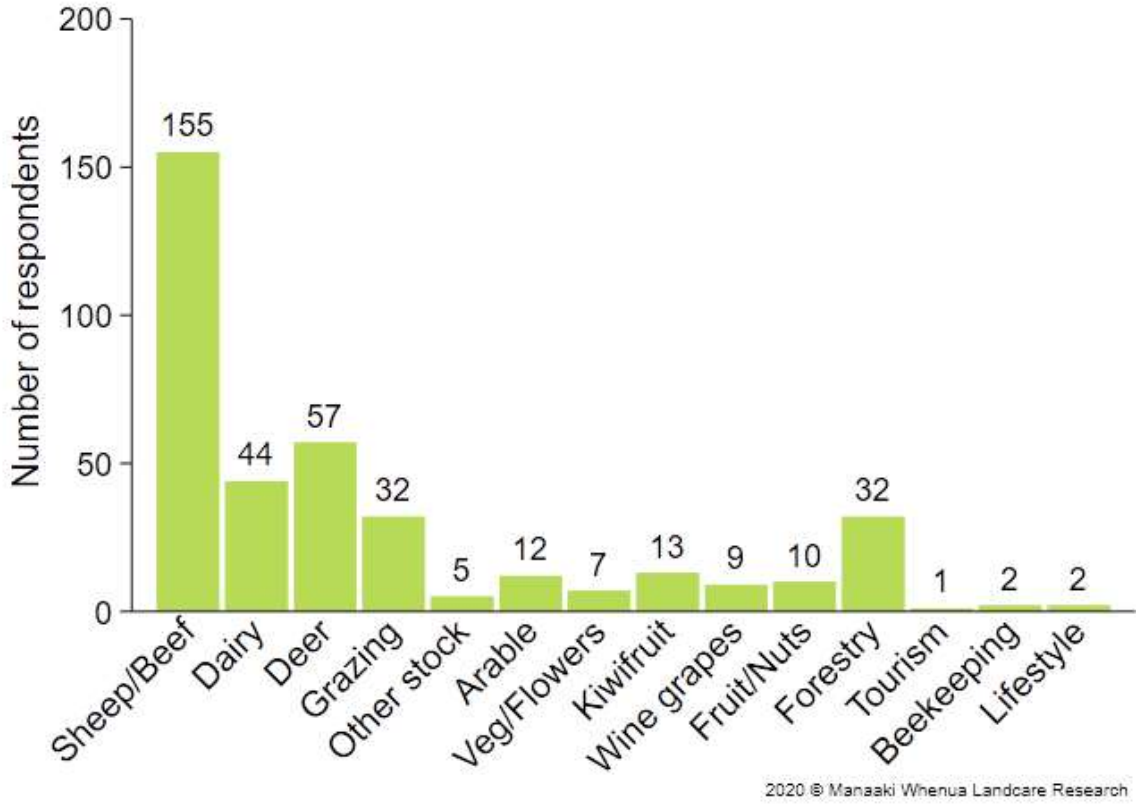

Figure A3. Primary activity of respondent. Note: 'Grazing' includes dairy support.

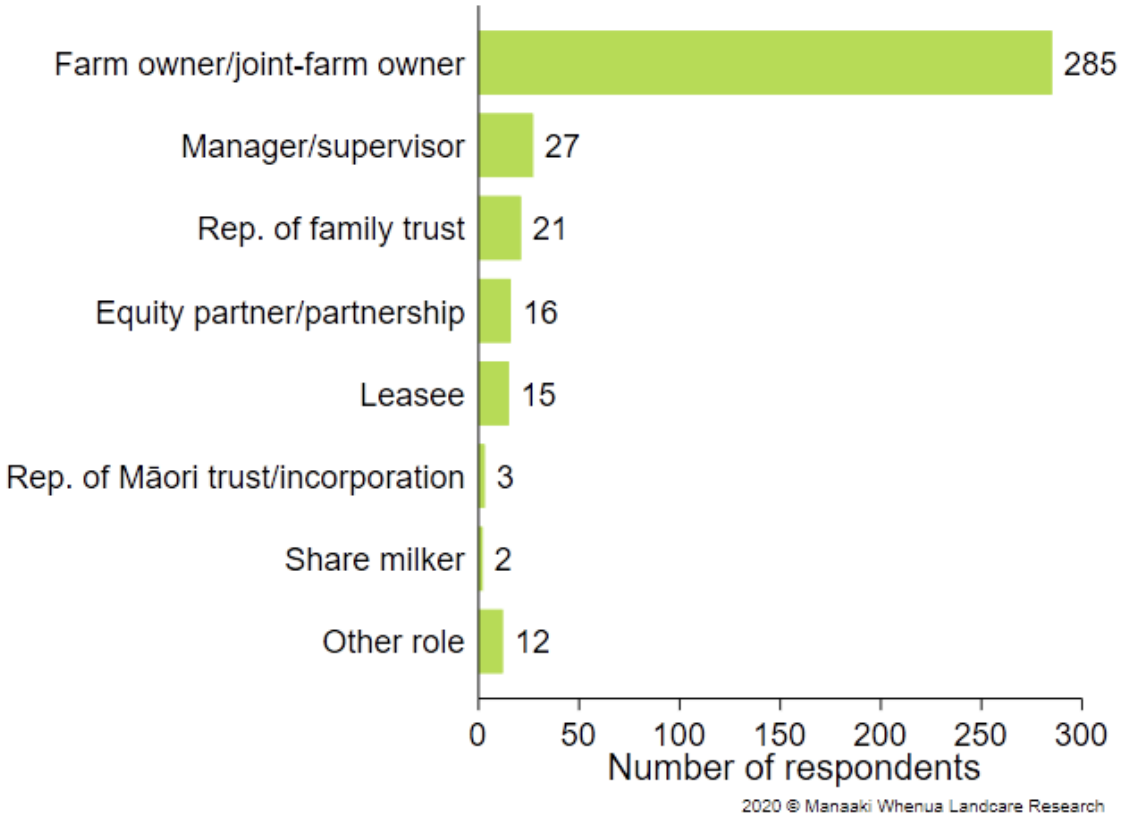

Figure A4. Primary role of respondent in operation.

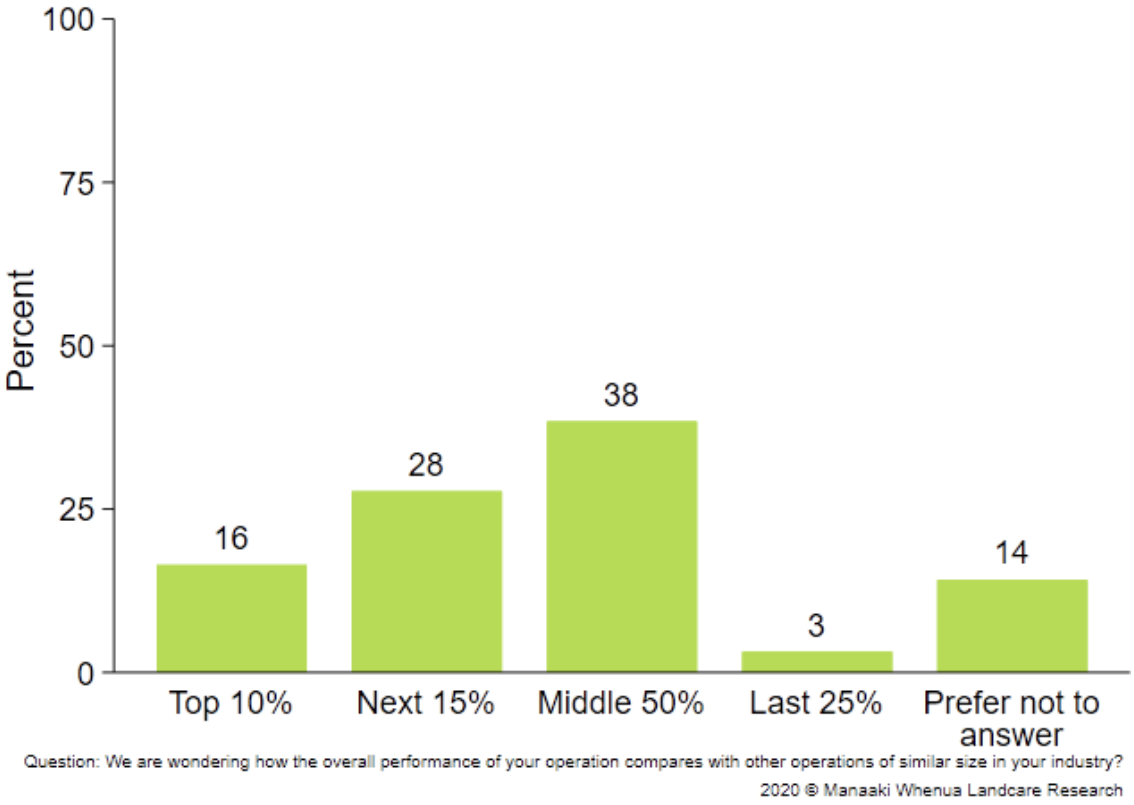

Figure A5. Stated relative performance of operation. Note: Proportions out of 346 responses.

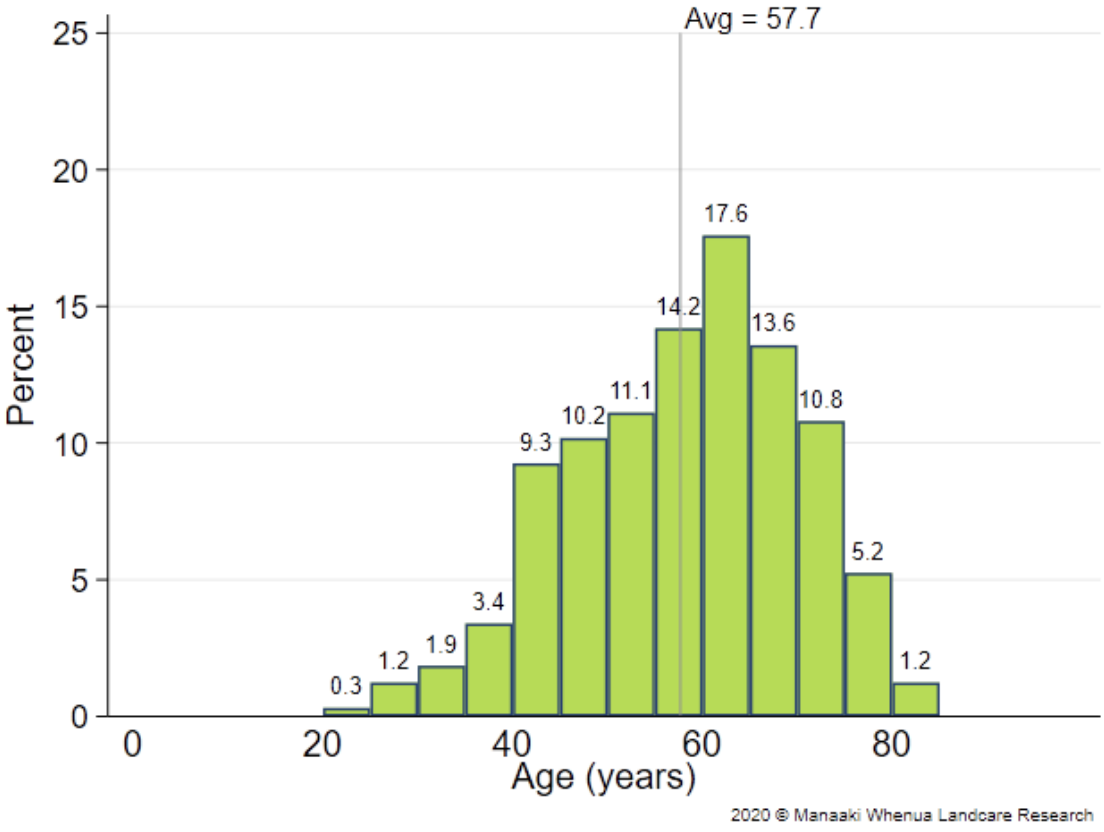

Figure A6. Distribution of age in year of respondent. Note: Proportions out of 324 responses.

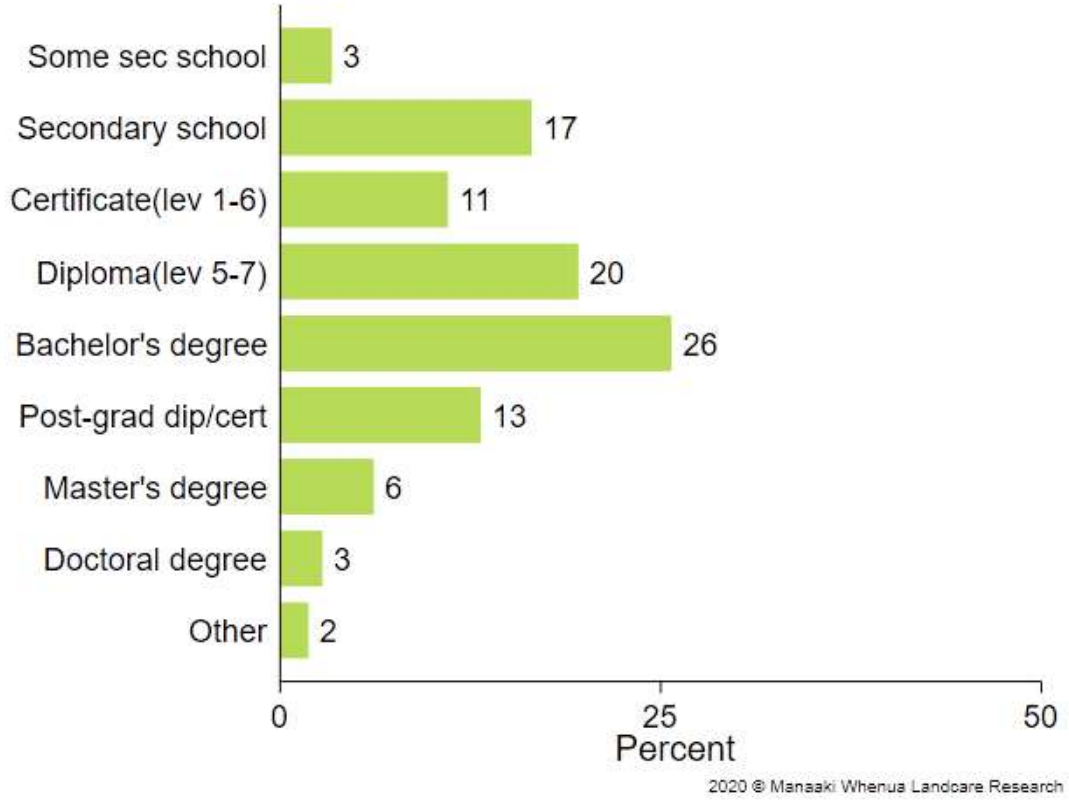

Figure A7. Highest educational attainment by respondent. Note: Proportion out of 327 responses.

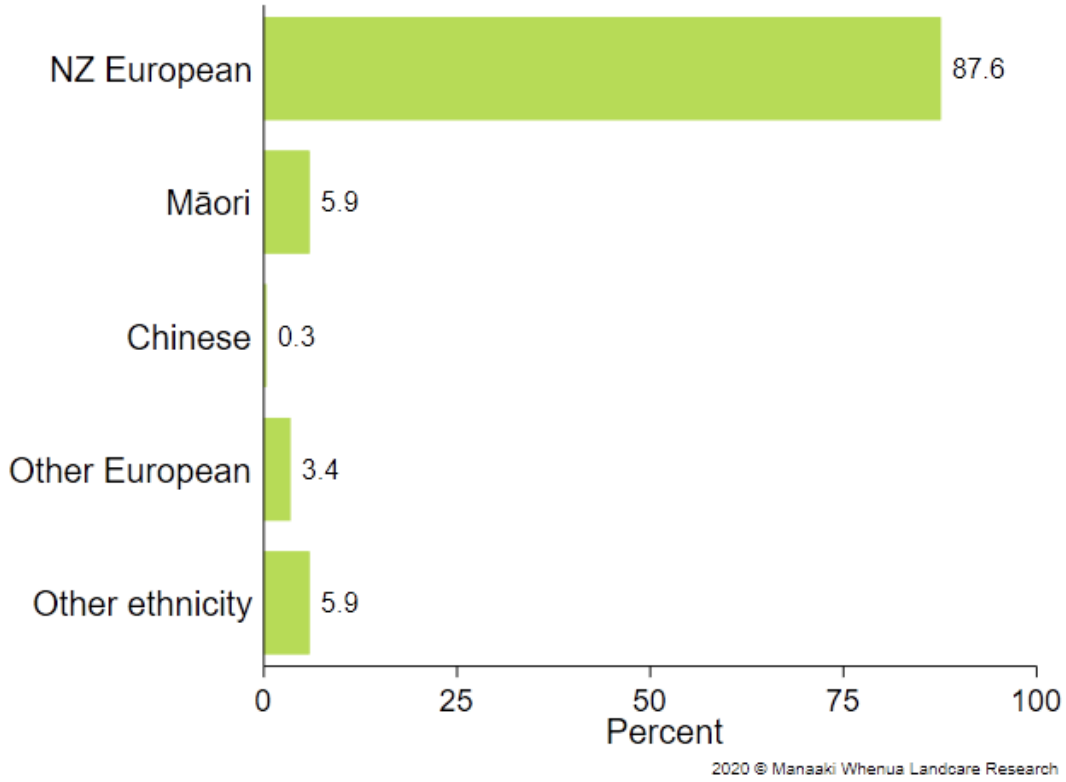

Figure A8. Ethnicity of respondent. Note. Proportions out of 322 responses. Respondents could choose more than one ethnicity. Additional ethnicities were available as options but were unchosen by any respondent.

Table A1. Number of respondents and proportion of total respondents by region and primary industry

Region	Primary activity														Total N	Proportion of total sample (%)
	Sheep/ Beef	Dairy	Deer	Grazing	Other stock	Arable	Veg/ Flower	Kiwifruit	Wine grapes	Fruit/ Nuts	Forestry	Tourism	Beekeeping	Lifestyle		
Northland	14	2	-	1	1	-	1	2	-	1	4	-	-	-	26	6.8
Auckland	4	2	3	1	1	-	1	-	-	1	1	-	-	-	14	3.7
Waikato	14	11	4	8	1	1	1	-	-	-	1	-	-	-	41	10.8
Bay of Plenty	5	3	2	1	-	-	1	11	-	4	2	-	-	-	29	7.6
Gisborne	6	-	-	1	-	-	-	-	1	2	1	-	-	-	11	2.9
Hawke's Bay	13	-	6	1	-	1	-	-	-	2	2	-	-	1	26	6.8
Taranaki	3	2	-	2	-	-	-	-	-	-	1	-	-	-	8	2.1
Manawatu-Wanganui	25	4	4	3	-	2	-	-	-	-	4	-	-	1	43	11.3
Wellington	8	2	1	1	-	-	-	-	1	-	4	-	-	-	17	4.5
Tasman/Nelson	4	1	1	-	1	-	-	-	-	-	2	-	-	-	9	2.4
Marlborough	2	2	1	-	-	-	-	-	4	-	2	1	1	-	13	3.4
West Coast	-	-	-	1	-	-	-	-	-	-	4	-	-	-	5	1.3
Canterbury	26	8	20	7	1	8	2	-	2	-	3	-	-	-	77	20.2
Otago	18	1	9	1	-	-	1	-	1	-	-	-	1	-	32	8.4
Southland	13	6	6	4	-	-	-	-	-	-	1	-	-	-	30	7.9
Total N	155	44	57	32	5	12	7	13	9	10	32	1	2	2	381	
Proportion of total sample (%)	40.7	11.5	15.0	8.4	1.3	3.1	1.8	3.4	2.4	2.6	8.4	0.3	0.5	0.5		

Note: 'Grazing' includes dairy support.

Appendix B – Questionnaire

Block: Introduction

Manaaki Whenua - Landcare Research is conducting this survey on how advice and advisory services are used across the primary sector.

Participation in the survey is voluntary. The results are confidential. Click here to read Manaaki Whenua's statement on survey privacy and ethics.

We'll donate $10 to the Rural Support Trust for every completed survey, up to $3000 in total. The Rural Support Trust provides free and confidential support for rural people and farming families facing challenges, such as drought across, New Zealand. We also have two $250 grocery vouchers to give away to randomly chosen survey participants.

Below is some information about taking the survey:

- The survey can be taken on a computer, a tablet, or a smart phone. We think it works best on a computer.
- Blue text can be clicked to show additional information.

Additional information may include definitions or an explanation of why a question is being asked. Click this text to hide the additional information.

- Click the right arrow to move forward. If you don't see the right arrow, please scroll down. You cannot always move backward, so please click carefully.

Q1. Please click YES to participate in the survey.

- YES, take me to the survey (1)
- No, I do not want to take the survey (2)

Block: Do not participate

Q2. We're sorry to have disturbed you.

If you change your mind and would like to participate at some future time, please get in touch with Ronlyn Duncan at DuncanR@landcareresearch.co.nz.
Learn more about Manaaki Whenua Landcare Research by visiting http://www.landcareresearch.co.nz.

Block: Contact - NON-SRDM ONLY

To begin the survey, please enter your email address.
The survey is confidential and your email will not be connected to your answers.

So why do we ask for your contact information? First, everyone who completed the survey will be entered into a prize draw for two $250 grocery vouchers. Second, we can also use this email to re-open the survey if you are unable to finish it. We will not use your email address in any other way without your permission.

- First name: (recipientfirstname) _____
- Surname: (recipientlastname) _____
- Email address: (recipientemail) _____

Block: Demographics 1 - NON-SRDM ONLY

Q3. In what region and district is your operation located?
If your farm spans multiple regions/districts, please indicate the region and district of the largest area (whether a single block or many blocks).

- ▼Region (1)
- ▼District (2)

Q4. Which of the following best describes the primary activity undertaken in your operation?

- Lifestyle block (1)
- Grazing livestock that are not owned (2)
- Farming sheep and/or beef (3)
- Raising and/or finishing prime cattle (4)
- Dairying (5)
- Deer farming (6)
- Pig farming (7)
- Poultry farming (8)
- Other farmed livestock (9)
- Arable farming (10)
- Vegetables production (11)
- Growing flowers, bulbs, nursery crops (12)
- Kiwifruit production (13)
- Wine grapes production (14)
- Growing other fruits, nuts, and edible tree crops (15)
- Exotic forestry for commercial harvest (16)
- Native forest/bush for commercial harvest (17)
- Farm-based tourism (18)
- Beekeeping for honey harvest (19)

Q5. Which of the following best describes your primary role in the operation?

Why do we need to know your primary role? We'd like to know your primary role on the farm because some of the later questions in the survey only apply to owners, some only apply to partners, some only apply to managers, some only apply to trusts, etc.

- ▼ Farm owner/joint-farm owner (1) ... Other (8)

Q6. Are you a Representative of a Māori Land Trust/Incorporation or a Representative of a Post Settlement Governance Entity (PSGEs)?

Why are asking this? We'd like to know if you are a representative because some of the later questions in the survey only apply to a Maori Land Trust/Incorporation or a PSGEs.

- Yes (1)
- No (2)

Block: Advisory services being used

Q7. In the past five years, on what topics have you sought or received advice or information on managing your land use, business and/or personal wellbeing? Choose all that apply.

This includes advice or information from advisory services, peers, support groups and/or popular media (e.g. TV documentaries).

What are advisory services? Advisory services are defined as advice or information provided by and/or available from fee-for-service rural consultants, financial advisors (e.g. accountants, bank managers, insurance providers), business services and sales advisors (e.g. from seed and fertiliser companies), government organisation advisors (e.g. regional councils, MPI), industry levy bodies, industry suppliers (e.g. Fonterra), Māori land advisory organisations, researchers and vets. The advice and information covered by the term advisory services includes producer-initiated assessments, studies and reports, fact sheets, best practice guidelines, websites, publications, newsletters, workshops, conferences, field days, one-on-one discussions, on-line forums, industry reports and research.

- Animal welfare (1)
- Changing the farm system (e.g. diversification or change of land use) (2)
- Ecosystem services, biodiversity, or covenants (3)
- Environmental sustainability (e.g. going organic, integrated farm-environment) (4)
- Managing water quality and water use (5)
- Farm environment plan (6)
- Financial management including accessing grants or subsidies (7)
- (Q6 = 1) Governance of Māori land (8)
- Changing production, productivity and efficiency (9)
- Marketing and business opportunities (10)
- Health and wellbeing (11)
- On-farm biosecurity and pest management (12)
- Managing greenhouse gas emissions (13)
- Increasing resilience to severe weather patterns and/or climate change (14)
- Resource consents (15)
- Staff management (16)
- Stewardship/Kaitiakitanga (17)
- Succession plans (18)
- ⊗None of the above (20)

(If Q7 = 20) Block: Non-use

Q8. Did you seek or receive advice or information on other topics?

- Yes (1)
- No (2)
- Unsure (3)

Q9. (Q8 = 1 | 3) Please describe what advice or information you sought or received.

- _____

Q10. (Q8 = 1 | 3) Where did you obtain this advice or information?

- _____

Block: Sources

Q11. Thank you for telling us the topics about which you have sought advice. We are going to ask about only three of them here.

Where did you obtain this advice or information? Choose all that apply.

	Topic 1	Topic 2	Topic 3
Fee-for-service rural consultants (e.g. Farm consultants) (1)			
Accountants, bank managers, insurance providers (2)			
Business services and sales advisors (e.g. from fertiliser) (3)			
Local/regional council (4)			
Ministries (e.g. MPI, MfE) (5)			
Industry/levy body organisations (e.g. DairyNZ) (6)			
Industry company/supplier (e.g. Fonterra) (7)			
(If Q6 = 1) Māori land advisory organisations (8)			
Research institutes (e.g. AgResearch) (9)			
Vets (10)			
Peers or peer support groups (11)			
Internet (11)			
Industry events, shows or field days (12)			
TV documentaries (e.g. Country Calendar) (13)			
Farming magazines (15)			
None of the above (16)			

(If Q8 = 16) Block: Other sources

Q12. (Optional) Where else did you obtain this advice or information?

- _____

Start of Block: Trust

Q13. We are interested to understand your opinions about the sources of advice or information that you use and don't use.

How relevant is advice or information from these sources? How trustworthy are these sources?

	Relevance (1)				Trustworthiness (2)			
	Low (1)	Medium (2)	High (3)	Unsure (4)	Low (1)	Medium (2)	High (3)	Unsure (4)
Fee-for-service rural consultants (e.g. Farm consultants) (1)								
Accountants, bank managers, insurance providers (2)								
Business services and sales advisors (e.g. from fertiliser) (3)								
Local/regional council (4)								
Ministries (e.g. MPI, MfE) (5)								
Industry/levy body organisations (e.g. Dairy NZ) (6)								
Industry company/supplier (e.g. Fonterra) (7)								
(If Q6 = 1) Māori land advisory organisations (8)								
Research institutes (e.g. AgResearch) (9)								
Vets (10)								
Internet (11)								
Industry events, shows or fieldays (12)								
TV documentaries (e.g. Country Calendar) (13)								
Peers or peer support groups (14)								
Farming magazines (15)								

Block: Agree/disagree statements

To what degree do you agree with each of these statements?

Q14. I have access to the resources I need to improve both productivity and ecosystem services.

- ▼ Strongly disagree (1) ... Unsure (6)

Q15. I have access to the resources that I need to face future challenges in the primary sector.

- ▼ Strongly disagree (1) ... Unsure (6)

Q16. (If Q6 = 1) As a Māori landowner, I have access to the resources that I need to face future challenges in the primary sector.

- ▼ Strongly disagree (1) ... Unsure (6)

Q17. (If Q6 = 1) Māori land issues require advisors to have a unique set of skills.

- ▼ Strongly disagree (1) ... Unsure (6)

Q18. I would prefer independent advice over advice from product-based consultants.

- ▼ Strongly disagree (1) ... Unsure (6)

Q19. Advisors in my industry do not have experience in the issues that are important to me.

- ▼ Strongly disagree (1) ... Unsure (6)

Q20. I am reluctant to accept advice from an advisor with whom I do not have an established relationship.

- ▼ Strongly disagree (1) ... Unsure (6)

Block: Future

Q21. Overall, on what topics would you like advice or information to help you respond and adapt to future changes ${e://Field/Industry}? Choose all that apply.

- Animal welfare (1)
- Changing the farm system (e.g. diversification or change of land use) (2)
- Ecosystem services, biodiversity, covenants (3)
- Environmental sustainability (e.g. going organic, integrated farm-environment) (4)
- Managing water quality and water use (5)
- Farm environment plan (6)
- Financial management including accessing grants or subsidies (7)
- (If Q6 = 1) Governance of Māori land (8)
- Changing production, productivity and efficiency (9)
- Marketing and business opportunities (10)
- Health and wellbeing (11)
- On-farm biosecurity and pest management (12)
- Managing greenhouse gas emissions (13)
- Increasing resilience to severe weather patterns and/or climate change (14)
- Resource consents (15)
- Staff management (16)
- Stewardship/Kaitiakitanga (17)
- Succession plans (18)
- Other (please specify): (19) _____

Block: Demographics 2 - NON-SRDM ONLY

Q22. In what year were you born?

- ▼ 2002 or after (1) ... Prefer not to answer (84)

Q23. What is your gender?

- Male (1)
- Female (2)
- Gender diverse (3)
- Prefer not to answer (4)

Q24. What is your ethnicity? Choose all that apply.

- New Zealand European (1)
- Māori (2)
- Chinese (3)
- Indian (4)
- Samoan (5)
- Cook Island Māori (6)
- Tongan (7)
- Niuean (8)
- Other European (e.g. British) (9)
- Other (please specify): (10)_____
- ⊗Prefer not to answer (11)

Q25. What best describes the highest level of education completed so far?

- ▼ Some secondary school (1) ... Prefer not to answer (10)

Q25_text. (Q25 = 9) Please describe the highest level of education completed so far.

- _____

Block: Demographics 3

Q26. We are wondering how the overall performance of your operation compares with other operations of similar size in your industry?

Why are we asking this? We recognise that every operation has different needs. So we want a better understanding of how operations of different sizes and ways of working use and don't use different types of advice and information.

- ▼ Top 10% (1) ... Prefer not to answer (5)

Block: Charity & voucher

Thank you for telling us about your experience with advisory services. The answers that you provide will help to extend knowledge on the current services provided by primary industry advisors and advisory services in New Zealand, as well as to identify the needs of a primary sector confronted by multiple and interacting challenges. They will also help inform potential changes to the advisory services as MPI considers how to better support primary industries adapt to these various changes.

Q27. We plan to talk to a small number of survey respondents to further explore the use of advisory services and what might be needed in the future. If selected, would you be willing to participate?

- Yes (1)
- No (2)
- Unsure (3)

As a token of our appreciation, Manaaki Whenua - Landcare Research will donate $10 to the Rural Support Trust for each of the first 300 responses that we receive up to $3000 in total.

In addition, 2 randomly selected respondents will each receive a $250 grocery voucher.

(NON-SRDM ONLY: If no contact details above) If you would like to be eligible for this drawing, please enter your name and contact information below. Your survey responses will still be confidential and we won't share your personal details with anyone.

- First name: (recipientfirstname) _____
- Surname: (recipientlastname) _____
- Email address: (recipientemail) _____

Block: Followup - NON-SRDM ONLY

Q29. Finally, the next round of the Survey of Rural Decision Makers will take place in 2021, but we also plan to conduct other surveys of rural industry between now and then. Would you be willing to participate in those surveys?

What is the Survey of Rural Decision Makers? The Survey of Rural Decision Makers is a biannual online survey that covers both commercial production and lifestyle farming in all 16 regions in New Zealand. The survey is designed to build a better picture of decision-making at the farm level and to be used as a resource for policy makers, regional councils, industry groups and businesses to explore questions related to values, land use and land-use change, farm management and climate outlook, to name a few topics. Results from the survey are published on our website after each survey. Check out the results here: https://www.landcareresearch.co.nz/science/portfolios/enhancing-policy-effectiveness/srdm

What other types of surveys does Manaaki Whenua - Landcare Research conduct? We run scientific surveys about primary industry. In addition to the Survey of Rural Decision Makers, we run the NZ (Bee) Colony Loss Survey. In the last year or so, we have also run surveys about wilding conifers, adoption of new farming technologies, and pest management.

- YES, it's fine to contact me about any future surveys, including the 2021 Survey of Rural Decision Makers. (1)
- YES, it's fine to contact me again, but only for the 2021 Survey of Rural Decision Makers. (2)
- No, please don't contact me again. (3)

Please click SUBMIT at the bottom of the page to record your responses.

Appendix C – Invitational emails

A Invitational email for participants recruited through 2019 SRDM

Kia ora ${m://FirstName} ${m://LastName},

Thanks very much for completing the Survey of Rural Decision Makers last spring. We appreciate you sharing your expertise with us! At the end of the survey, you indicated you would be interested in related surveys on primary industry.

This survey focuses on **advice and advisory services**. Manaaki Whenua - Landcare Research is conducting this survey on behalf of the Ministry for Primary Industries as part of its Productive and Sustainable Land Use programme. Better understanding these areas will help the Ministry improve services and support for producers and advisors in the future.

We would like to ask how you are using advice and advisory services in a **10-minute survey**. ${l://SurveyLink?d=Please%20click%20here%20for%20the%20link%20to%20the%20survey}.

As always, we'd like to show our appreciation for your time, so we will **donate $10 to the Rural Support Trust** for each completed survey, up to $3000 in total. The Rural Support Trust provides free and confidential support for rural people and farming families facing challenges such as drought across New Zealand. We also have **two $250 grocery vouchers** to give away to randomly chosen survey participants.

Thanks for supporting our research into primary industries. If you have any queries about the survey, feel free to contact Pamela Booth at BoothP@landcareresearch.co.nz or Ronlyn Duncan at DuncanR@landcareresearch.co.nz.

Cheers,

Pamela Booth

Pamela Booth
Associate Economist
Landscape Governance and Policy Team
T + 64 4 382 6643
www.landcareresearch.co.nz

Manaaki Whenua
Landcare Research

${l://OptOutLink?d=To%20opt-out%20of%20the%20survey%20click%20here}

B Invitational email for participants recruited through advisors and other contacts

Kia ora,

Manaaki Whenua - Landcare Research is conducting a survey on **how advice and advisory services are used across the primary sector.** We are conducting this survey on behalf of the Ministry for Primary Industries as part of its Productive and Sustainable Land Use programme. Understanding how advisory services are used across New Zealand's primary sector will help the Ministry improve services and support for producers and advisors in the future.

The survey covers all types of land-based primary industry including livestock, horticulture, viticulture, nurseries, forestry, growing grain and seed crops. It does not include fisheries.

We would like to ask how you are using advice and advisory services in a **10-minute survey**. To show our appreciation for your time, we will **donate $10 to the Rural Support Trust** for each completed survey, up to $3,000 in total. The Rural Support Trust provides free and confidential support for rural people and farming families facing challenges such as drought across New Zealand. We also have **two $250 grocery vouchers** to give away to randomly chosen survey participants.

Please click here for the link to the survey:
https://survey.landcareresearch.co.nz/jfe/form/SV_eRTjA759vx98uwZ

If you have any queries about the survey, feel free to contact Pamela Booth at BoothP@landcareresearch.co.nz or Ronlyn Duncan at DuncanR@landcareresearch.co.nz.

Cheers,

Pamela Booth

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Manaaki Whenua
Landcare Research

Appendix D – Use of peers and advisory service sources

Respondents sought advice from 5 sources on average, and an average of 3 sources considered advisors in advisory services (Fig. 2). As the three sources used most by respondents are not considered a part of advisory services, this suggests producers may be seeking informal advice either alongside or in lieu of formal advice coming from sources that would be considered to be a part of advisory services. We investigated the relationship between use of peers and use of advisory service sources for regions, primary industries, and age. We only note a few proportions for each demographic as examples.

D.1 Use of peers and advisory service sources by region

Overall, those in Auckland and Manawatu-Wanganui who used advisory service sources also used peers less than respondents in other regions. Those in Bay of Plenty/Taranaki and Canterbury who used advisory service sources also used peers more than respondents in other regions. For example, among the 61% of respondents in Manawatu-Wanganui who used council for advice, 36% also used their peers; whereas among the 50% of respondents in Bay of Plenty/Gisborne who used council for advice, 74% also used their peers for advice (Table D1 and D2).

Table D1 shows the proportion of respondents who use peers for advice in the North Island. A few examples include, among respondents in:

- Northland who use levy organisations, 91% also use peers for advice, who use accountants, 75% also use peers for advice, and who use ministries, 71% also use peers for advice.
- Waikato who use business services, 75% also use peers for advice,
- Bay of Plenty/Gisborne who use business services, 92% also use peers for advice, who use industry supplier, 81% also use peers for advice, and who use ministries, 82% also use peers for advice.
- Hawke's Bay/Taranaki who use levy organisations, 75% also use peers for advice, who use vets, 88% also use peers for advice, and who use research institutes, 88% also use peers for advice.
- Manawatu-Wanganui who use vets, 64% also use peers for advice and who use industry supplier, 60% also use peers for advice.
- Wellington who use levy organisations, 75% also use peers for advice and who use accountants, 75% also use peers for advice.

Table D2 shows the proportion of respondents who use peers for advice in the South Island. A few examples include, among respondents in:

- Upper South Island who use levy organisations, 75% also use peers for advice, and who use consultants, 86% also use peers for advice.
- Canterbury who use levy organisations, 76% also use peers for advice, who use industry supplier, 76% also use peers for advice, who use ministries, 93% also use peers for advice, and who use research institutes, 90% also use peers for advice.
- Otago/Southland who use accountants, 75% also use peers for advice, and who research institutes, 81% also use peers for advice

Table D1. Proportion of respondents who sought advice from peers among respondents who sought advice from these advisory services sources by North Island regions.

Sources	Northland	Waikato	Bay of Plenty/ Gisborne	Hawke's Bay/ Taranaki	Manawatu-Wanganui	Wellington
Council	70	43	74	50	35	40
Levy organisation	91	58	76	75	42	75
Consultants	-	57	58	55	33	60
Accountants	75	55	76	54	33	75
Business services	57	75	92	67	40	-
Vets	67	-	60	88	64	-
Industry supplier	-	-	81	-	60	-
Ministries	71	-	82	-	-	-
Research institutes	-	-	80	88	-	-
Peers	67	44	58	42	37	60

Notes: Auckland excluded due to too few observations. Where the number of respondents who used that source was less than 10 or the proportion of respondents using that source was <25%, the proportion was excluded. See Table 8 for proportion of respondents who use individual sources.

Table D2. Proportion of respondents who sought advice from peers among respondents who sought advice from these advisory services sources by South Island regions.

Sources	Upper South Island	Canterbury	Otago/Southland
Council	46	72	50
Levy organisation	75	76	68
Consultants	86	71	68
Accountants	40	70	75
Business services	70	70	58
Vets	-	71	68
Industry supplier	67	76	50
Ministries	43	93	63
Research institutes	-	90	81
Peers	65	66	57

Notes: Upper South Island includes Marlborough, Tasman/Nelson, and the West Coast. Where the number of respondents who used that source was less than 10 or the proportion of respondents using that source was <25%, the proportion was excluded. See Table 8 for proportion of respondents who use individual sources.

D.2 Use of peers and advisory service sources by primary industry

Overall, those in dairy or dairy grazing who used advisory service sources also used peers less than respondents in other industries, whereas those in horticulture/viticulture who used advisory service sources also used peers more than respondents in other industries. For example, among the 54% of respondents in dairy or dairy grazing who used councils for advice, 46% also used their peers; whereas among the 46% of respondents in horticulture/viticulture who used councils for advice, 75% also used their peers for advice. Table D3 shows the proportion of respondents who use peers for advice across industries. A few examples include, among:

- sheep, beef, or deer farmers who use their industry supplier, 79% also use peers for advice, and who use research institutes, 79% also use peers for advice.
- dairy farmers or dairy grazers who use ministries, 78% also use peers for advice, and who use research institutes, 76% also use peers for advice,
- growers in arable or veg/flower who use levy organisations, 100% also use peers for advice.
- growers in horticulture/viticulture who use consultants, 91% also use peers for advice, and who use accountants, 89% also use peers for advice.
- foresters who use levy organisations, 92% also use peers for advice.

Table D3. Proportion of respondents who sought advice from peers among respondents who sought advice from advisory services sources by primary industry.

Sources	Sheep, beef, or deer	Dairy or dairy grazing	Arable or veg/flowers	Horticulture/ viticulture	Forestry
Council	55	46	50	75	55
Levy organisation	68	58	100	75	92
Consultants	61	57	50	91	67
Accountants	63	48	80	89	60
Business services	68	44	-	86	67
Vets	66	64	-	-	-
Industry supplier	79	48	67	85	-
Ministries	68	78	-	75	58
Research institutes	79	76	67	-	-
Peers	54	47	53	71	59

Notes: Where the number of respondents who used that source was less than 10 or the proportion of respondents using that source was <25%, the proportion was excluded. See Table 9 for proportion of respondents who use individual sources.

D.3 Use of peers and advisory service sources by age

Overall, younger respondents who used advisory service sources also used peers more than older respondents. For example, among the 45% of respondents aged 18–39 years who used council for advice, 60% also used their peers; whereas among the 45% of respondents aged 60–69 years who used council for advice, 41% also used their peers for advice.

Table D4 shows the proportion of respondents who use peers for advice across ages. A few examples include, among respondents aged:

- 18–39 years old who use research institutes, 80% also use peers for advice.
- 40–49 years old who use business services, 86% also use peers for advice, and who use research institutes, 87% also use peers for advice.
- 50–59 years old who use ministries and/or research institutes, 80% also use peers for advice.
- 60–69 years old who use industry supplier, 73% also use peers for advice, and who use research institutes, 75% also use peers for advice.
- 70+ years old who use levy organisations, 56% also use peers for advice, and who use vets, 58% also use peers for advice.

Table D4. Proportion of respondents who sought advice from peers among respondents who sought advice from these advisory services sources by age.

Sources	18 to 39	40 to 49	50 to 59	60 to 69	70+
Council	60	71	63	40	19
Levy organisation	71	74	71	61	56
Consultants	64	70	70	54	33
Accountants	70	83	61	62	50
Business services	75	86	71	48	55
Vets	75	71	67	59	58
Industry supplier	63	85	74	73	36
Ministries	-	79	80	50	55
Research institutes	80	87	80	75	56
Peers	68	66	58	48	38

Notes: Where the number of respondents who used that source was less than 10 or the proportion of respondents using that source was <25%, the proportion was excluded. See Table 12 for proportion of respondents who use individual sources.