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New Zealanders' Sentiments and Attitudes Towards a "Beyond Organic" Food Production System

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ABSTRACT

A novel consumer research methodology, text highlighting, was used to explore what New Zealand consumers like and dislike about a 20-sentence text describing a "beyond organic" food production system, based on biodynamic practices. The results were compared with those previously collected and published for Australian, Singaporean, British and German consumers. The method allows consumer sentiments (liking minus disliking) to be calculated for individual sentences, and New Zealanders' sentiments varied from +46.9 to −19.0. New Zealanders responded positively to sentences about "balanced ways of farming," "soil fertility and wellbeing," "biodiversity," "ecosystems," and "guardians of the land." The highest sentiment (+46.9) was for the sentence: "Beyond organic" farmers care for the soil, groundwater, and wildlife to build healthy ecosystems and rich biodiversity." Differences between countries, when they existed, suggest that New Zealanders are more supportive of farmers and the role of farming in local communities.

1 | Introduction

Food security is a global challenge, as the world's population is expected to increase to 9.8 billion in 2050 (United Nations 2019). To meet this challenge, increasing amounts of food will need to be grown in production systems that are sustainable, do not further compromise planetary boundaries, and do not exceed international agreements to limit greenhouse gas production (Steffen et al. 2015; Pereira 2017; United Nations Climate Change 2024). Exports from the Food and Fibre sector are a dominant part of the New Zealand economy, worth $NZ54.6 billion in the year to 30 June 2024 (Ministry for Primary Industries 2024) and, beyond its own domestic population of 5.3 million (Stats N. Z. 2024), feed an estimated 40 million people per annum (Proudfoot 2017). Analysis of Statistics New Zealand data indicates retail value of food within New Zealand for 2024 was $NZ44.2 billion, representing consumption of domestically produced and imported foods (personal communication, Lynne Scanlen, Operations Manager - Food Innovation Portfolio, Group Plant and Food Research, New Zealand Institute for Bioeconomy Research Ltd).

There are ongoing substantial increases in efficiency of New Zealand agricultural production (DairyNZ and LIC 2022; New Zealand Apples & Pears 2021). Nevertheless, without careful management, agricultural intensification can pose a risk to the environment, for example through the leaching into waterways of fertilizers applied to grasslands and crops (McDowell and Haygarth 2024; Norris et al. 2023). Recognition of these risks and, indeed, the observation of degradation of the environment and biodiversity have prompted debate in New Zealand (Feltham 2014; Prickett and Joy 2024), as in other parts of the world (Rabalais et al. 2002; Schaub 2021). For New Zealand consumers, food production is necessary for their own food security and the success of the export economy but, at the same time, if not managed may pose a risk to the environment and biodiversity. There is a body of recent literature on the "social license to operate" (SLO) for farming systems in New Zealand (Beban et al. 2023;

TABLE 1 | Sentences used for the text-highlighting task.

Sentence	Wording
S1	Most people have heard about organic foods: they know that they are not genetically modified, and that they are made without the use of artificial and chemical sprays.
S2	"Beyond organic" foods are less well known.
S3	Yet both types of food are organic, and both can be recognised by government-approved logos.
S4	However, "beyond organic" is more than just a way to produce food.
S5	It is a philosophy that wants to create and maintain healthy, varied and balanced ways of farming.
S6	The "beyond organic" mindset sees the farm as a single living organism where soil fertility, plant growth and farmers' wellbeing all influence one another.
S7	"Beyond organic" farmers care for the soil, groundwater, and wildlife to build healthy ecosystems and rich biodiversity.
S8	Often, a large part of the farm is held as a natural area with streams, native plants, animals and insects.
S9	This helps land and ecosystems to return to how they were before farming began.
S10	Farmers and farm workers are key to the "beyond organic" way of agriculture.
S11	Their wellbeing is important for the health of the living farm, and this thinking flows from the farm to local towns and back again.
S12	When local towns are strong, farms and farmers will be strong too.
S13	"Beyond organic" agriculture has a long-term outlook.
S14	A key idea among farmers is that they serve as guardians of the land.
S15	They aim to work in harmony with those who went before them, while protecting the land for future generations.
S16	This creates spiritual and cultural connections across generations.
S17	One way to think about "beyond organic" farming is as a positive change in agriculture.
S18	But it can also be seen as non-scientific with links to magical thinking.
S19	Farmers making decisions about when to plant and harvest based on the positions of the sun, moon and stars is one example.
S20	Another example is the use of mixtures of cow dung and herbs because they are seen to boost soil and plant fertility.

Booth et al. 2022, 2024). New Zealanders from different regions vary in the extent that they perceive farms' environmental performance (Booth et al. 2022). Even so, perceptions of the characteristics of "good farming" are relatively well aligned for the public and farmers (Booth et al. 2024). However, there remains little information about how consumers view food production systems and whether their views differ from those in other countries.

Sensory and Consumer Science draws from a broad range of disciplines with a primary interest in food consumption behavior, although many consider a broader definition (Jaeger and MacFie 2010; Jaeger et al. 2025a, Jaeger et al. 2025b). The study of consumption behavior has advanced as people's discretionary income increased over the last 80 years (Antonides and van Raaij 1998), and food choice behavior is complex and affected by combinations of many factors (Koster 2009). In the 1980s, Sensory and Consumer Science broadened its focus to include research on the food context (Meiselman et al. 2022). Within the broader topic, there is interest in how consumers' expectations about the food they buy and eat are influenced by the way it has been produced (e.g. Ares et al. 2021; Giacalone and Jaeger 2023), and it is with this framework that the current research was initiated.

Consumers' attitudes and perceptions regarding agricultural production systems are difficult to study, in part because of their limited understanding of food, food production, and food sustainability issues (e.g. Hutchings et al. 2024). A new consumer methodology, text highlighting, allows researchers to quantify attitudes to a topic that has been described in text (Jaeger et al. 2022; Jaeger et al. 2023a). Consumers are provided with an informational text describing the focal topic and related issues and asked to highlight the words or phrases that they like and dislike. Consequently, it is possible to undertake a sentiment analysis and to determine the phrases and words within the description that resonate more strongly/less strongly with consumers (Jaeger et al. 2023b).

This study leveraged an earlier online study in four countries (Germany, Australia, the United Kingdom, and Singapore) of consumer perceptions of an agricultural production system described as "beyond organic" (Jaeger et al. 2023b) to study New Zealand consumers. The text in this description describes aspects of farming that are often perceived positively by people. Although it is generated from this specific exemplar, it also reflects general themes promoted in production systems described as being regenerative, as well as those of farmers using conventional farming approaches. In this way, the information reflects environmental, social, and physical wellbeing outcomes associated with food production that are likely to resonate, immaterial of the specific farming system. Using the existing text developed by Jaeger et al. (2023b), two research questions are addressed: (1) How do New Zealand consumers respond to a text describing a "beyond organic" food production system? and (2) Do New Zealand consumers respond in a way that differs from those of consumers in other exemplar countries?

2 | Methods

Three hundred and five participants from diverse regions of New Zealand were recruited from a commercial database. The data were collected using an online survey methodology (Jaeger et al. 2023b) between March and April 2022. The study was implemented by an ISO 20 252:2019 (International Organization for Standardization 2019) accredited research provider. Participants answered the survey at a location of their choosing, using a desktop or laptop computer. The research was covered by Consumer Ethics Approval for consumer research at The New Zealand Institute for Plant and Food Research Limited. Participants were assured that their responses would remain confidential and gave voluntary consent to participate. As compensation, they earned reward points and promotional offers.

Participants were provided with an informational text, twenty sentences long, and asked to highlight words and phrases that they liked/felt positive about (in green) or disliked/felt negative about (in red), as described in Jaeger et al. (2023b). The text was purposefully written to include concepts that may be perceived positively and negatively and described an agricultural production system that was described as "beyond organic" (Table 1). Participants were also prompted to explain their reasons for selecting text as "like" or "dislike" through an open-ended response box immediately after the text-highlighting task. To minimise cognitive burden, 50% of the cohort were shown their "liked" comments and 50% were shown their "disliked" comments and asked to explain their reasoning.

In a follow-up task, participants were asked a series of eight attitudinal questions (using a randomised presentation order) about "beyond organic" agriculture:

1. I expect that fruits and vegetables from "beyond organic" farms will cost more than organic ones.
2. Fruits and vegetables from "beyond organic" farms will be better for me than organic ones.
3. Fruits and vegetables from "beyond organic" farms will taste good.
4. In my opinion, "beyond organic" farming is better for the environment than organic farming.
5. It appeals to me that biodiversity and ecosystem health matters a lot to "beyond organic" farmers.
6. I like that "beyond organic" farmers feel a deep connection to the land, both its past and future uses.
7. I reject the idea that farms are like factories and have inputs and outputs that should be optimised for profit.
8. I share many of the beliefs that guide "beyond organic" farmers.

Responses were collected using a seven-category scale: disagree strongly, disagree moderately, disagree slightly, neither agree nor disagree, agree slightly, agree moderately, and agree strongly, with scores 1–7, respectively.

3 | Statistical Analysis

All analyses were performed using R software version 3.6.1 (R Core Team 2023). A 5% significance level was considered for all analyses.

3.1 | Text Highlighting

For each respondent, each sentence was categorised as "liked" if at least one of the words were liked, and none disliked; as "disliked" if at least one of the words were disliked and none liked; or as "no response." The number of "mixed" responses (words both liked and disliked) was small (generally <2%), and these were combined with "no response." The percentages of participants "liking" and "disliking" each sentence were calculated. Average sentiment scores for sentences were calculated as the difference between the percentage of participants "liking" it and the percentage of participants "disliking" it. Positive scores represented a generally positive sentiment, and negative scores represented a generally negative sentiment toward the provided information. The scores could range between −100 and + 100, with the former

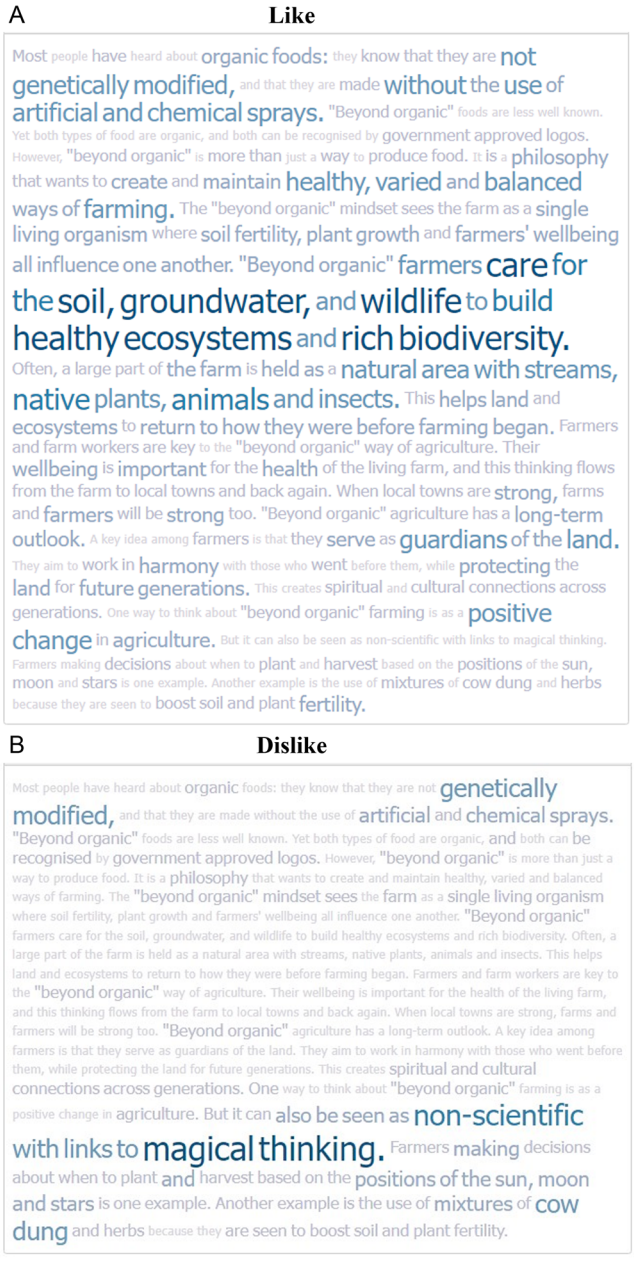

FIGURE 1 | Word clouds for likes (A) and dislikes (B) from a text-highlighting task (305 participants). The larger the font and darker the color, the more New Zealand consumers who highlighted that word.

representing a sentence for which all respondents used "dislike" highlighting, and the latter representing a sentence for which all respondents used "like" highlighting. In addition, word clouds were created to visually represent the percentages of participants who highlighted words as "like" and "dislike." For each of the 20 sentences, the Kruskal–Wallis test was used to compare the average sentiment scores of New Zealand consumers with those from the other four countries. Dunn's test was used for post hoc comparisons, with Bonferroni's correction to adjust for multiple testing.

3.2 | Attitude Questions

For each of the attitudinal questions, means and standard deviations of the Likert-scale scores were calculated. The Kruskal–Wallis test was used for evaluating significant differences among participants in the five countries. When differences were statistically significant, Dunn's test was used for post hoc comparisons, with Bonferroni's correction to adjust for multiple testing.

4 | Results and Discussion

4.1 | Text Highlighting by New Zealand Consumers

The word cloud in Figure 1 indicates the proportion of consumers who highlighted each word as being liked or disliked. For statistical analysis, this word-highlighting data was aggregated for each of the 20 sentence to provide input for the sentiment analysis presented in Figure 2. The highest sentiment score, 46.9%, was associated with Sentence 7, "*'Beyond organic farmers' care for the soil, groundwater, and wildlife to build healthy ecosystems and rich biodiversity.*" Additional sentences associated with "balanced ways of farming," "soil fertility and wellbeing," "biodiversity," "ecosystems," and "guardians of the land" all resonated with consumers and attracted sentiment scores between 24.3% and 32.1% (Figure 2: Sentences 5, 6, 8, 9, 14). As a reference, Sentence 1, "*Most people have heard about organic foods: they know that they are not genetically modified, and that they are made without the use of artificial and chemical sprays,*" contains themes known to resonate with many consumers and also attracted a sentiment score of 23.6%. Sentences associated with the wellbeing of agricultural communities (Sentences 11 and 12) also attracted sentiments of 25.9% and 18.0%, respectively. However, discussion of the role of farmers and farm workers (Sentence 10) attracted relatively lower sentiments, of 11.8%.

As the text purposely moved to spiritual and cultural connections, and examples of activities drawing from biodynamic practices (Sentences 16 onwards), the sentiment scores declined (Figure 2). Indeed, Sentence 18 attracted a strongly negative sentiment, although, as in the earlier study (Jaeger et al. 2023b), this reflected a mixture of responses. Recall that open-ended comments were obtained for selected samples of highlighted text, providing qualitative insights into the reasons why consumers liked or disliked sentences. For Sentence 18, some participants commented that they disliked that "magical thinking" should inform agricultural practices (e.g. "*I have a fundamental dislike for non-scientific thinking. It is primitive and backwards*"), while a few disliked the sentence because they perceived it to reflect western scientific bias (e.g. "*… It is narrow minded, not inclusive of or respectful to indigenous models that have been effectively used for millennia*").

4.2 | Comparisons of Text Highlighting with Those in Other Countries

The data for the four-country study (Jaeger et al. 2023b) were collected a year prior to the study presented here for New Zealand consumers. It was of interest to consider how New Zealand consumers might compare with those in the other selected countries, and consequently, the combined dataset was analysed. Consumer recruitment provided an identical age and gender split and similar household size, educational attainment, and employment status in New Zealand (Table 2) as in the other counties (Jaeger et al. 2023b, Supplementary information) – for all countries, the sample was

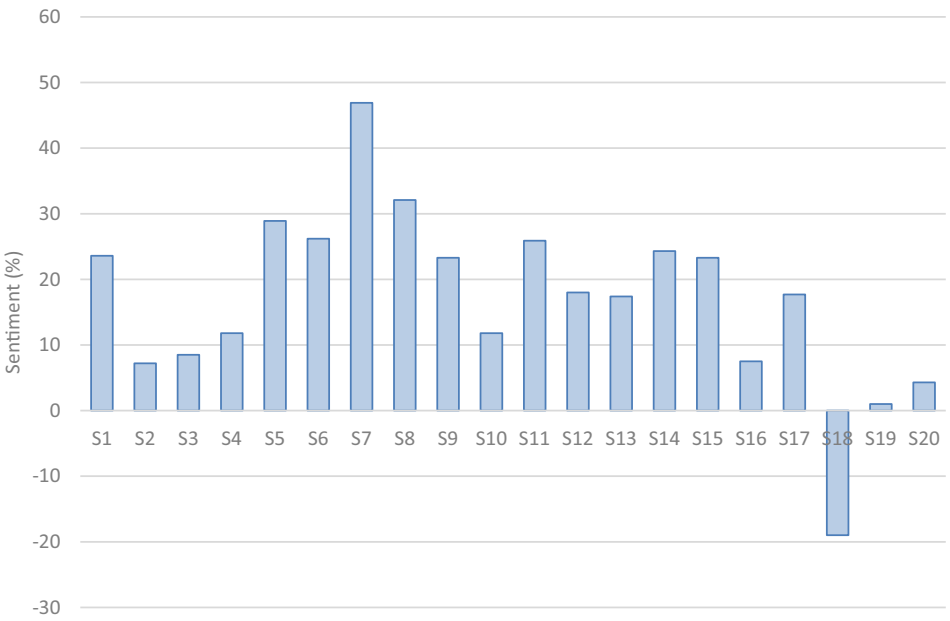

FIGURE 2 | Sentiment analysis of sentences from a text-highlighting task (305 New Zealand participants). Sentences are described in Table 1.

TABLE 2 | Summary of New Zealand participants' demographic and socioeconomic characteristics shown as percentages[a] of total sample ($N = 305$).

Participant characteristics	Percentage
Gender	
Male	50
Female	50
Age group	
Younger (18–45 years old)	50
Older (46–69 years old)	50
Place of living	
Auckland	33
Christchurch	13
Wellington	11
Other North[c]	31
Other South[d]	11
Ethnicity[b]	
New Zealand European	70
Māori	10
Pacific Island	3
European	4
Chinese	7
Indian	6
Middle Easter/Latin American/African	2
Other	6
Prefer not to answer	1
Annual household income, before tax ($NZ)	
Less than $100,000	51
$100,000 or more	42
Prefer not to answer	7
Household size	
1–2 people	52
3–4 people	39
5 or more people	9
Prefer not to answer	<1
Household members[d]	
No-one, I live alone	16
Spouse/partner	59
Child/ren aged under 18	29
Child/ren aged over 18	12
Parents	7
Flatmate/s	9
Other	3
Prefer not to answer	1
Educational attainment	
Below bachelor's degree	50
Bachelor's degree or higher	46
Other/prefer not to say	4
Employment status	
Working full time	53
Working part time	18
No-paid work/home duties	6
Student	4
Unemployed	5
Retired	11
Other	2
Prefer not to answer	2

Notes: [a]After rounding, some percentage values may not add to 100.
[b]Total responses may exceed 100% because multiple options can be selected.
[c]Includes: Manawatu-Wanganui (9%), Waikato (8%), Bay of Plenty (6%), Northland (4%), Hawke's Bay (4%), and Taranaki (<1%).
[d]Includes: Otago (7%), Southland (2%), Nelson (1%), Marlborough (<1%), and West Coast (<1%).

not representative of national demographics. The New Zealand consumer sample tended to be skewed to older, wealthier, more European, and from smaller households. Thus, the sentiments and attitudes were more likely related to samples of people of similar demographics in each country rather than being representative of each population. An advantage of using text highlighting is that it is a scale-free method, intuitive to consumers and little affected by cultural differences in scale usage and does not introduce response and other forms of consumer bias (Ares and Jaeger 2022; Jaeger and Ares 2022; Jaeger et al. 2022).

For nine of the 20 sentences, consumer sentiments were not statistically different for any country. For four of the sentences that attracted different responses between countries, New Zealand consumers provided responses that were not statistically different from those of consumers from the United Kingdom, Australia, Singapore, or Germany (Table 3). For the remaining sentences where significant differences were found, New Zealanders provided sentiments that tended to be highest or among the highest (Sentences 8, 9, 11, 12, 14, 16 and 20). For example, New Zealand consumers' sentiments were statistically higher than those of (1) German consumers for Sentences 11, 12, 14, and 16; (2) Singaporean consumers for Sentences 8, 12, and 20; (3) Australian consumers for Sentence 9; and (4) United Kingdom consumers for Sentence 12 (Table 3). Notably, the sentiments towards Sentence 12, *"When local towns are strong, farms and farmers will be strong too,"* were higher than in the United Kingdom, Singapore, and Germany, although not significantly different from Australian sentiments (Table 3). Broadly speaking, these results suggest that few differences occur between New Zealand, United Kingdom, Singaporean, and German consumers. However, for the few sentences where differences among countries exist, New Zealanders were more positively disposed to

TABLE 3 | Sentiment scores from a text-highlighting task in New Zealand (NZ; 305 participants) compared with scores from the United Kingdom (UK; 310 participants), Australia (AU; 309 participants), Singapore (SG; 309 participants), and Germany (DE; 307 participants) obtained in a prior study Jaeger et al. (2023b). Kruskal–Wallis *p*-values are presented, and, when statistically significant, sentiment scores are in bold; those for NZ are underlined when they are the highest or among the highest.

	Country					
Sentence	**UK**	**AU**	**SG**	**DE**	**NZ**	***p*-Value**
S1	19.4	18.3	27.2	17.3	23.6	0.331
S2	8.7	3.2	6.8	0.1	7.2	0.182
S3	**2.9^{a}**	**10.6^{ab}**	**16.2^{b}**	**4.9^{a}**	**8.5^{ab}**	**0.005**
S4	8.4	11.9	13.6	11.7	11.8	0.691
S5	27.1	22.8	33.7	23.8	28.9	0.058
S6	24.8	19.6	18.8	22.1	26.2	0.219
S7	47.7	38.9	44.7	45.6	46.9	0.194
S8	**26.1^{ab}**	**22.8^{ab}**	**15.5^{a}**	**32.6^{b}**	**32.1^{b}**	**0.000**
S9	**17.4^{ab}**	**13.5^{a}**	**16.8^{ab}**	**15.0^{ab}**	**23.3^{b}**	**0.042**
S10	12.6	12.5	10.0	9.4	11.8	0.793
S11	**18.4^{ab}**	**16.1^{ab}**	**20.7^{ab}**	**11.1^{a}**	**25.9^{b}**	**0.001**
S12	**8.4^{a}**	**13.2^{ab}**	**8.7^{a}**	**4.9^{a}**	**18.0^{b}**	**0.000**
S13	19.7	12.9	19.1	22.1	17.4	21.3
S14	**20.0^{b}**	**14.5^{ab}**	**18.8^{ab}**	**8.8^{a}**	**24.3^{b}**	**0.001**
S15	**23.2^{ab}**	**21.5^{ab}**	**31.4^{b}**	**14.7^{a}**	**23.3^{ab}**	**0.001**
S16	**7.1^{b}**	**3.2^{ab}**	**12.3^{b}**	**−4.2^{a}**	**7.5^{b}**	**0.000**
S17	**19.0^{ab}**	**12.2^{a}**	**23.6^{a}**	**13.7^{ab}**	**17.7^{ab}**	**0.037**
S18	**−12.9^{b}**	**−13.2^{b}**	**−18.8^{ab}**	**−25.4^{a}**	**−19.0^{ab}**	**0.012**
S19	1.6	−2.3	−3.9	−2.3	1.0	0.580
S20	**0.6^{b}**	**0.0^{b}**	**−13.6^{a}**	**−0.3^{b}**	**4.3^{b}**	**0.001**

Notes: Sentiment scores with different superscript letters are significantly different according to Dunn's test for a significance level of 0.05, considering Bonferroni's correction.

information about farms as contributing to ecosystems and biodiversity, farmers as guardians of the land, farming communities, multigenerational and spiritual connections to the land, and natural fertilizers. Speculatively, this may reflect the sample of consumers recruited and that the percentage of New Zealand consumers in the sample with moderate to high connections to agriculture (through their own activities and those of family and friends) was higher than those in the other four countries. However, information on consumers' links to agriculture were not collected in this study nor in Jaeger et al. (2023b). Other studies recruiting from the general New Zealand population have resulted in 64% of respondents having interacted with farmers (Booth et al. 2024). Furthermore, surveys assessing New Zealand public's perception of "a good farmer" are relatively well aligned with those of farmers, and "environmentally friendly," "welfare of stock," "complies with biosecurity," and "equitable care for staff" were characteristics perceived to be important by 75% or more of respondents (Booth et al. 2024).

4.3 | Attitudes to "Beyond Organic" Production

Recall that a series of attitudinal questions were asked regarding "beyond organic" fruits and vegetables and consumers' expectations of cost, better for me, good tasting, better for the environment, protection of biodiversity and ecosystems, connection to the land, farms as factories, and shared beliefs. Differences in attitudes of consumers from UK, Australia, Singapore, and Germany were as described in Jaeger et al. (2023b) and the incorporation of New Zealanders enabled some finetuning (Table 4). Across all statements, consumers provided mean Likert scores between 4.44 (i.e. between "neither agree nor disagree" and "agree slightly") and 5.77 (i.e. between "agree slightly" and "agree moderately"; Table 4). For each of the statements, differences in mean consumer Likert scores from the different countries were relatively small in magnitude and only the extremes were statistically different. For example, the statement that "… fruits and vegetables from 'beyond organic' farms will cost more than organic ones" was ranked highest for agreement in all countries was and the only significantly different between consumers from the UK (score = 5.77) and Singapore (score = 5.46) with consumers from other countries not being significantly different from either UK or Singapore, or each other (Table 4). In a similar way, there was consensus across countries, excluding Germany, that the statement "I reject the idea that farms are like factories and have input and outputs that should be optimised for profit" attracted the lowest mean agreement score for consumers from all countries, with only responses from consumers from

TABLE 4 | Attitudes in New Zealand (NZ; 305 participants) compared with those in the United Kingdom (UK; 310 participants), Australia (AU; 309 participants), Singapore (SG; 309 participants), and Germany (DE; 307 participants) obtained in a prior study Jaeger et al. (2023b). Values represent mean agreement with statements (± SE) on a category scale from 1 (disagree strongly) to 7 (agree strongly). Kruskal–Wallis *p*-values are presented; NZ mean scores for agreement with statements are in bold and underlined when they are among the highest or lowest in cross-country comparisons.

	Country					
Question	**UK**	**AU**	**SG**	**DE**	**NZ**	***p*-Value**
Q1: cost[c]	5.77 ± 0.07^{b}	5.59 ± 0.08^{ab}	5.46 ± 0.07^{a}	5.55 ± 0.07^{ab}	5.57 ± 0.08^{ab}	0.013
Q2: better for me[d]	4.85 ± 0.08^{b}	4.93 ± 0.09^{b}	4.86 ± 0.07^{b}	4.44 ± 0.08^{a}	4.65 ± 0.08^{ab}	0.000
Q3: taste good[e]	5.44 ± 0.07^{b}	5.41 ± 0.08^{b}	4.92 ± 0.06^{a}	5.23 ± 0.08^{b}	**5.20 ± 0.07^{b}**	0.000
Q4: environment[f]	5.30 ± 0.08^{b}	5.20 ± 0.09^{b}	5.19 ± 0.07^{ab}	4.87 ± 0.08^{a}	5.04 ± 0.08^{ab}	0.001
Q5: biodiversity[g]	5.65 ± 0.07^{b}	5.44 ± 0.09^{ab}	5.43 ± 0.06^{a}	5.41 ± 0.08^{ab}	5.39 ± 0.08^{ab}	0.023
Q6: land use[h]	5.56 ± 0.08^{a}	5.45 ± 0.08^{a}	5.41 ± 0.06^{a}	5.34 ± 0.08^{a}	5.25 ± 0.09^{a}	0.047
Q7: reject factories[i]	4.63 ± 0.09^{ab}	4.70 ± 0.09^{ab}	4.63 ± 0.08^{ab}	4.95 ± 0.09^{b}	**4.44 ± 0.09^{a}**	0.001
Q8: share beliefs[j]	5.12 ± 0.09^{b}	5.01 ± 0.09^{b}	4.97 ± 0.06^{ab}	4.94 ± 0.09^{ab}	**4.77 ± 0.09^{a}**	0.010

Notes: Attitude scores with different superscript letters (a, b, ab) are significantly different according to Dunn's test for a significance level of 0.05, considering Bonferroni's correction.
Full were:[c] I expect that fruits and vegetables from "beyond organic" farms will cost more than organic ones.
[d]Fruits and vegetables from "beyond organic" farms will be better for me than organic ones.
[e]Fruits and vegetables from "beyond organic" farms will taste good.
[f]In my opinion, "beyond organic" farming is better for the environment than organic farming.
[g]It appeals to me that biodiversity and ecosystem health matters a lot to "beyond organic" farmers.
[h]I like that "beyond organic" farmers feel a deep connection to the land, both its past and future uses.
[i]I reject the idea that farms are like factories and have inputs and outputs that should be optimised for profit.
[j]I share many of the beliefs that guide "beyond organic" farmers.

Germany (score = 4.95) and New Zealand (score = 4.44) being significantly different (Table 4). Mostly, the responses of New Zealand consumers were not significantly different from those of consumers in the United Kingdom, Australia, Singapore, and Germany. However, New Zealand consumers' responses to questions about farms and farming were different from those of consumers from other countries: 1) they were less likely than the Germans to reject the idea that farms are like factories and have inputs and outputs that should be optimised for profit (Q7); 2) they were less likely than consumers from the United Kingdom and Australia to share many of the beliefs that guide "beyond organic" farmers (Q8); and 3) while not significantly different for most countries, they were more likely than Singaporeans to agree that fruits and vegetables from "beyond organic" farms will taste good (Q3).

4.4 | Limitations

This study was framed within a consumer research perspective outlined in Jaeger et al. (2023b). The similarities in consumers' responses in all five countries argues that the New Zealanders (as with participants from other countries) responded to the protocol as consumers of food rather than as citizens from a country that exports food. Some may wish to also view the results in terms of "social licence to operate." There are several cautions for those seeking to interpret the information in this way. The method, text highlighting, is new and has an advantage that it does not introduce various forms of consumer bias. Nevertheless, increasing numbers of text highlighting studies on a broader range of consumer-relevant topics would improve understanding of the methodological strengths and weaknesses. Participants are not forced to highlight all relevant text. Therefore, the method is better viewed as being somewhat qualitative and caution exercised when interpreting data in a quantitative manner. The values are best considered in a relative and/or comparative sense.

5 | Conclusions

New Zealand consumers' likes and dislikes about an informational text describing aspects of a "beyond organic" food production system have been characterised. These mostly mirrored responses of consumers from the United Kingdom, Australia, Singapore, and Germany who were similar in age and gender, but not representative of populations in each country. It is argued that while reflecting the specific "beyond organic" description, the sentiments and attitudes may well apply to other agricultural food production systems. Where differences between countries existed, they suggest that this sample of New Zealanders consumers were more supportive of farmers and the role of farming in local communities than similar consumers from the other countries. Further research is required to understand why New Zealand consumers are more supportive of agriculture.

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Conflicts of Interest

The authors declare no conflicts of interest

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