



Experiences of Buying, Selling and Consuming Raw Milk: Survey Report

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1 Executive summary

1.1 INTRODUCTION

During 2014 the Ministry for Primary Industries (MPI) sought feedback from interested people and organisations on options to change the requirements for the sale of raw milk to consumers.¹ During consultation, MPI conducted an anonymous online survey of people's experiences with buying, selling and/or drinking raw milk. A total of 2,668 responded. Most respondents (86%) described themselves as consumers of raw milk. A small group (74 respondents) stated they sold raw milk to consumers.

As the survey was self-selecting, it is not necessarily representative of all raw milk buyers, consumers and sellers in New Zealand. Respondents did not necessarily respond to every question in the survey; therefore the quantitative analysis in this report does not always reflect all 2,668 respondents.

1.2 SUMMARY OF FINDINGS

1.2.1 General knowledge and attitudes about raw milk

A belief in free and informed choice appears to be a strong factor influencing attitudes to raw milk. A large majority of survey respondents (nearly 90%) felt strongly that consuming raw milk is a personal choice, not a public health issue. A similarly substantial majority believed that the benefits of raw milk outweigh any health risks, and that the safety of raw milk is not inherently a risk but depends on the farmer and/or consumer following safe and hygienic procedures. Most of this group (again, nearly 90%) considered themselves knowledgeable about the risks and benefits of using raw milk.

1.2.2 Drinking or consuming raw milk

Nearly 2,300 respondents identified themselves as current drinkers of raw milk. These respondents were from 2,000 households made up of approximately 7,000 people who drink or otherwise consume raw milk, including those who use the milk to make products such as cheese and yoghurt. All of these consumers of raw milk said they consider it is a safe product and that they are keen to continue buying and drinking it. The most common reasons respondents gave for choosing to use raw milk is its taste, quality and health benefits, and because it is a natural product.

Most of those who drink raw milk, nearly one in eight, do so on at least a daily basis. An average of three people per household is reported to consume raw milk, and the majority of these fell in the age range of 19 to 70 years. In 40% of the households covered by the survey, raw milk is consumed by people who are under five years of age, older than 70 years, pregnant or immune deficient. These 2,000 households together consumed just under 45,300 litres per month, or approximately 543,350 litres of raw milk per year.

The survey reveals how raw milk is used and handled by consumers. Few consumers heat-treated their raw milk before drinking it – although it is heated when used in hot drinks, cooking or to make dairy products. Most consumers (just over half) keep their raw milk for three to six days before disposing of it. The most common way of obtaining raw milk (for

¹ Raw milk is untreated milk. It has not been processed to kill any pathogens that may be present by, for example, pasteurising it.

over 40%) is directly from a farm, and nearly 60% collect raw milk in their own reusable containers.

1.2.3 Buying raw milk

The survey reveals that the majority of respondents buy their raw milk rather than obtaining it for free. They usually buy raw milk at least weekly in volumes of 6 to 20 litres per month. Most raw milk sells for \$1.50 to \$4.00 per litre, with nearly a third of respondents usually paying \$2.50 per litre for their raw milk (in comparison, the price of standard pasteurised milk ranges between \$1.70 and \$2.75 per litre²). Many are happy to buy raw milk in small quantities – up to 5 litres at a time – but wish to be able to buy it frequently so it stays fresh. Nearly a quarter would buy up to 10 litres at a time; many of these respondents indicated they specifically buy raw milk so they can use it for cheese-making.

Over half of respondents are buying raw milk for between two and four people, usually their own family members, while nearly a quarter buy it for just one person, generally themselves.

Nearly two-thirds have to travel for between five and 20 minutes by car to collect their raw milk, while a quarter travel for more than 20 minutes.

A large number of these buyers of raw milk stated that they would like better access to raw milk. Many want to be able to buy raw milk in greater quantities than presently allowed; others are happy to buy in smaller amounts if they can obtain it more frequently.

1.2.4 Selling raw milk

Of the 74 sellers³ of raw milk who responded to the survey, nearly half were dairy farmers, and one in four (40%) were small-scale “hobby” farmers raising small numbers⁴ of cows. A small number of respondents were sellers who milk farmed deer, goats, sheep or (Dexter) cattle.

The market is young: over half of the sellers who responded (55%) reported selling raw milk for five years or less.

Almost all of the respondents selling raw milk said that they inform their customers about the quality of the raw milk they sell, as well as how to store it safely. Many provide advice about the risks of illness from drinking raw milk, as well as about its health benefits.

Most of the sellers who responded sell raw milk daily. They sell it mainly in small quantities – nearly 60% of respondents sold 40 litres of raw milk or less per week. Most sell direct to the public at the farm gate. Based on what respondents reported about the volumes they sell, it can be estimated that 20,000 litres of raw milk are being sold a week, amounting to around 1,040,000 litres a year.

² Standard supermarket prices for regular pasteurised milk.

³ Seventy-one of these also consume raw milk within their own household.

⁴ Usually just one or two “house cows” for milking for the house, but some described themselves as “hobby farmers” when they have up to 25 cows.

1.2.5 Respondents' backgrounds

The majority of respondents (just over 90%) described themselves as New Zealand European or Pākehā. Most (70%) said they currently live in an urban area but half of this group said they have lived in a rural area at some point in their life. Three-quarters of respondents were in the age range of 30-59 years and the average number of people living in a respondent's house was three.

2 Methodology

The Ministry for Primary Industries (MPI) publicly consulted on policy options for the sale of raw milk to consumers from 27 May to 8 July 2014. During consultation, the public were also invited to participate in an MPI online survey that sought information on people's experiences with buying, selling and/or drinking raw milk. The purpose of the survey was to gather information to help define the raw milk market and to use the findings as a baseline for future monitoring.

The public was made aware of the survey when they accessed MPI's web page about the consultation on the sale of raw milk to consumers. The web page was promoted through the media. MPI also directly contacted, by email or letter, 1,685 people and organisations that had made submissions to a previous consultation on raw drinking milk in 2011.

The survey was anonymous to encourage open and accurate insights. As respondents were self-selecting, the findings cannot be interpreted as necessarily representative of all raw milk buyers, consumers and sellers in New Zealand.

The survey questionnaire was developed internally using Survey Monkey and included pre-testing with a sample of raw milk drinkers, sellers and food safety advocates. It took approximately 20 minutes to complete and consisted of five sections. The sections asked questions that related to respondents':

1. general knowledge and attitudes to raw milk;
2. experiences of drinking and/or consuming raw milk products;
3. experiences of buying raw milk;
4. experiences of selling raw milk;
5. demographic background.

Most of the survey questions were multiple choice. The survey also included open-ended questions to provide respondents with an opportunity to qualify their personal experiences or situations in more detail.

Respondents were able to skip questions and to provide more than one answer to some questions; therefore the base sample size varied from question to question. Results are reported on the base of respondents who answered each question.

Some responses to specific questions were outside the range of plausibility; typically these were only one or two cases. Where appropriate, these responses were omitted from the analysis to avoid skewing the overall results.

3 Detailed findings from the Experiences of Raw Milk Survey

MPI received a total of 2,668 completed responses to the survey.

3.1 GENERAL KNOWLEDGE AND ATTITUDES ABOUT RAW MILK

Asked to assess a series of statements against a scale ranging from “strongly agree” to “strongly disagree”, respondents provided information about their attitudes and beliefs regarding the use of raw milk, ease of access to raw milk, and their knowledge of safety issues around the use of raw milk.

Table 1 shows that the vast majority of respondents (nearly 90%) believed that raw milk is an issue of personal choice rather than a public issue. Almost as many considered themselves knowledgeable about the risks and benefits of raw milk, and just over 80% believed the benefits of raw milk outweigh any risks. In contrast, consensus was lacking on the question of whether respondents can tell if raw milk is fit to consume (that is, it contains pathogens); a third said they can tell while another third said they cannot tell.

About half of respondents said their beliefs about raw milk are based on their having grown up with it.

Just over half of respondents believed that it is currently difficult to get raw milk.

Table 1: General attitudes and beliefs about raw milk

Statement/belief about raw milk	% of respondents who agreed/strongly agreed	% of respondents who disagreed/strongly disagreed
Raw milk is an issue of personal choice, rather than a public issue	88	6
I know a lot about raw milk, its risks and benefits	87	2.5
The benefits of raw milk outweigh any risks	83	5
My beliefs about raw milk are based on growing up with it	46	37
I can tell if raw milk is not fit to consume, i.e. it contains pathogens	32	33
It is easy to get raw milk in New Zealand	26	53

Respondents were then asked specifically about their beliefs regarding the health risks from drinking or using raw milk.

Table 2 illustrates that, overall, respondents consider raw milk a safe food. A large majority believed that the risk of illness from drinking raw milk is low (88%) and disagreed with the statement, “Research shows drinking raw milk is a health risk” (71%). In addition, most respondents did not consider that illnesses where raw milk is a factor are increasing (67%).

When asked to consider the relative risk associated with raw milk, most respondents believed that not all raw milk has the same risk, but rather the risk depends on the safe and hygienic practices of the farmer (93%) and the consumer (85%). They also considered that raw milk

carries about the same health risk as other raw foods that potentially contain pathogens (69%).

Respondents' views, however, were more divergent in regard to the severity of milk-related illnesses. More people considered milk-related illnesses are unlikely to be severe (that is, requiring hospitalisation) (42%) but many people held the opposite view (24%).

Table 2: Beliefs about the health risks associated with raw milk

Statement/belief about health risk from raw milk	% of respondents who agreed/strongly agreed	% of respondents who disagreed/strongly disagreed
Not all raw milk has the same risk; it depends on the farmer having safe and hygienic practices	93	3
Not all raw milk has the same risk; it depends on the consumer having safe and hygienic practices	85	7
The chance of illness from drinking raw milk is low	88	5
Raw milk has about the same health risk as eating other raw foods that can potentially contain pathogens (e.g. raw oysters)	69	14
Any milk-related illness is unlikely to be severe (i.e. require hospitalisation)	42	24
Research shows drinking raw milk is a health risk	11	71
Illnesses where raw milk is a factor are increasing	6	67

Some respondents provided comments that expanded on the above responses. The most common themes reflected in these comments are summarised below.

Risks

- The risk from consuming raw milk is over-stated.
- All food, raw or processed, carries potential risk, including, for example, pasteurised milk, poultry, raw oysters, seafood, and food from take-away outlets or restaurants.
- The risk of consuming raw milk is relative and should be seen in the context of other situations that carry inherent risk, such as travelling in a car.
- Research linking raw milk consumption to foodborne illness is unconvincing, as is the suggestion of a correlation between increasing consumption of raw milk and increasing illness.
- The safety of raw milk intended for human consumption is different to that of pasteurised milk.
- Raw milk requires different handling to pasteurised milk: raw milk for drinking from a “specialist” supplier is more likely to be safe compared with raw milk that is intended to be processed.
- Buying locally from a known farmer or premises reduces the risk from unsafe raw milk.

Benefits

- The benefits of raw milk outweigh the risks, especially for those with allergies or food sensitivities that make them intolerant to processed milk.
- Raw milk contains components that kill pathogens or strengthen the immune system.
- Raw milk does not “go off” like pasteurised milk, but sours naturally (for example, for use as yoghurt).

Control measures.

- Raw milk production facilities should be rigorously inspected, tested or regulated.
- The supplier should educate or inform consumers about the safe handling, transport and storage of raw milk.
- The health and diet of the animals are important factors in determining the safety of the raw milk they produce.
- Illness from drinking raw milk is a result of poor handling by the supplier or consumer and can be mitigated if strict hygiene standards are applied.
- The size of the production facility may be a factor in the safety of raw milk. (Small or “boutique” suppliers, or certified organic farms, were considered less risky than larger milk processors.)

Choice

- Consuming raw milk should be a matter of informed choice or personal responsibility by the individual consumer.

The survey asked respondents for evidence on the risks and benefits associated with raw milk. However, as such evidence was separately captured in the public submissions on the MPI consultation paper,⁵ it has not been repeated in this report.

3.2 RAW MILK CONSUMPTION

All survey respondents were asked if they currently drink raw milk. The majority (86%) of respondents identified themselves as current drinkers of raw milk. This group of respondents includes those who use raw milk to make products such as cheese or yoghurt, and is sometimes referred to as “consumers”.

3.2.1 Consumers of raw milk

Respondents who identified themselves as consumers were asked a series of behavioural questions regarding their (and their household’s) use of raw milk, such as where they source it, how much of it they buy and how frequently they buy it.

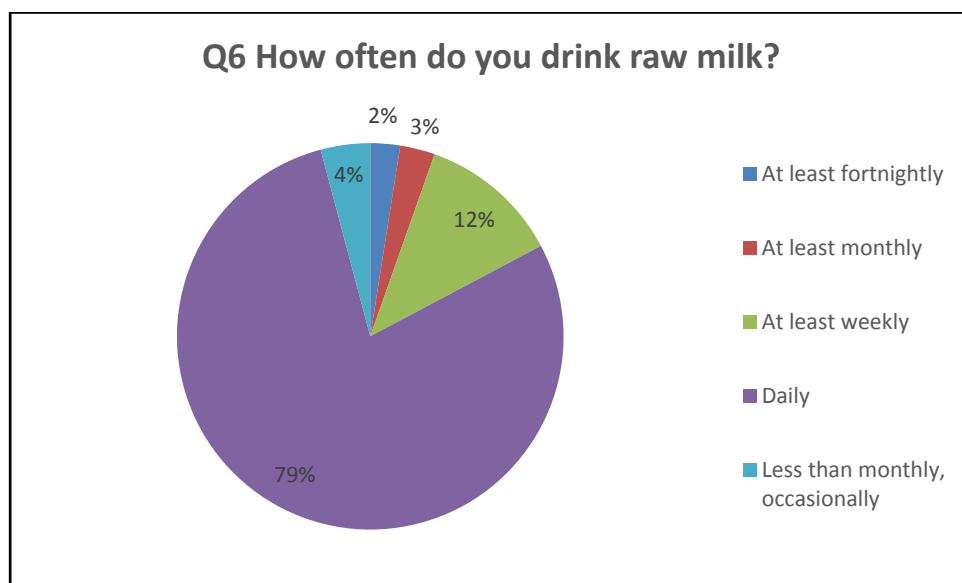
Frequency of raw milk consumption

Most consumers said they drink raw milk at least daily (79%), while a small number said they drink it at least weekly (12%) (Figure 1). A small group of consumers (nearly 10%) indicated they drink raw milk less frequently than once a week.

A number of consumers noted that they would drink raw milk more frequently or in greater quantities if it was more easily available. Some also pointed out that the availability of raw milk was seasonal, and this affected their frequency of use.

⁵ The relevant weblinks are: www.foodsafety.govt.nz/industry/sectors/dairy/raw-milk/ for industry; and www.foodsmart.govt.nz/food-safety/high-risk-foods/raw-milk/rawmilk.htm for consumers.

Figure 1: Frequency of drinking raw milk



Amount of raw milk consumed

Respondents were asked how many litres of raw milk they and their household consume on average per month. Table 3 presents these findings. The average amount consumed **per respondent** was 8 litres per month.

Table 3: Consumption of raw milk per respondent per month

Number of litres	% of respondents
1–10	79
11–20	15
21–30	3
31–100	2

The average amount of raw milk reported to be consumed **per respondent’s household** was 21 litres per month. The range of consumption within households is indicated in Table 4.

Table 4: Consumption of raw milk per household per month

Number of litres	% of respondents
1–10	36
11–20	31
21–30	14
31–100	19
101–120	1

The survey showed that, in total, 6885 people in 2,170 households currently drink 45,279 litres of raw milk per month. This equates to a total consumption of 543,348 litres of raw milk per year.

Respondents indicated that on average three people per household consume raw milk. Table 5 shows that most households (82%) had two to five people who consume raw milk, with the

most common number being two people per household (33%). These numbers, however, did not necessarily represent the entire household.

Table 5: Number of people consuming raw milk per household

Number of people per household	% of total households
1	11
2	33
3	17
4	21
5	11
6–20	7

The questionnaire also asked respondents about the number of people they are aware of who drink raw milk, outside of their own households. Three-quarters of respondents said they knew of more than five other people who drink raw milk and another 20% reported they were aware of between one and five other people who drink raw milk. Only 2% said they did not know of anyone else who drinks raw milk. The rest were unsure.

Most of the known consumers outside of their household were family, friends or fellow members of raw milk clubs, who shared similar views on the benefits of natural foods such as raw milk.

Some demographics on raw milk consumers

Consumers were asked for details of how many of those in their household who currently drink raw milk are aged five years or under, six to 18 years, 19 to 70 years, older than 70 years, or are pregnant or immune deficient. Table 6 presents the findings.

The majority of people consuming raw milk were between 19 and 70 years old (specifically, 96% of respondents had people in their households in this age range drinking raw milk in their house). Many households (39%) included consumers who were six to 18 years of age.

A quarter of households included consumers who were five years or under (a total of 759 children), and nearly 7% of households included consumers older than 70 years (252 individuals). Just under 5% of households include people with immune deficient systems who are raw milk drinkers (102 individuals) and just over 3% included raw milk drinkers who were pregnant (74 women).

Table 6: Information about people in households who drink raw milk

People in households who drink raw milk and are:	% of total households
5 years or under	25
6–18 years	39
19–70 years	96
Older than 70 years	7
Pregnant	3
Immune deficient	5

3.2.2 Non-drinkers of raw milk

A small group of survey respondents (13% or 354 people) stated that they do not currently consume raw milk. Most of them (77% or 268 people) indicated they have drunk raw milk in the past (although 60 of them had only drunk raw milk once or twice). Nearly half of the group of non-drinkers (160 people) indicated an interest in trying raw milk.

Only 36 people said they have never drunk raw milk.

Three of the 74 people who sell raw milk said they do not currently drink it themselves.

3.2.3 Use, treatment and handling of raw milk

Consumers were asked about the way they use, handle and treat raw milk.

Labelling

Slightly more than half of consumers (56%) stated that their raw milk is not labelled although some noted their containers are date stamped. Forty percent of consumers said their raw milk is labelled (for example as either “raw milk” or “unpasteurised milk”).

Some consumers stated that they use their own, unlabelled containers to collect their raw milk while others said they store their milk at home in a way that clearly distinguished raw from processed milk. Some respondents said they make it clear (to visitors, for example) that only raw milk is used in the home.

Treatment of raw milk

Nearly 60% of consumers said that they make products, such as cheese or yoghurt,⁶ from raw milk. Many other respondents commented that, while they do not currently make such raw milk products, they would like to in the future.

Few respondents (5%) claimed to heat raw milk before drinking it. Many pointed out that heating raw milk would destroy its taste and health benefits. Some explained that while they do not routinely heat raw milk, they heat it when using it in hot drinks or puddings and making cheese or yoghurt. Other respondents noted that they immediately freeze their raw milk for use later.

Storage

Table 7 shows that the majority of consumers (52%) reported keeping raw milk from between three and six days before throwing it out. Nearly a third (31%) indicated they keep raw milk for six or more days before disposing of it, while a smaller group (12%) said they dispose of it within three days.

⁶ Ice-cream and kefir were other popular products mentioned by consumers.

Table 7: Length of time consumers keep raw milk before throwing it out

Number of days raw milk is kept	% of consumers
1–2 days	3
2–3 days	9
3–4 days	16
4–5 days	15
5–6 days	21
6+ days	31
Unsure	3

Containers

Consumers were asked about the type of containers they used to carry their raw milk. A number of choices were provided and consumers were asked to tick as many choices as applied. The results indicate that some respondents use a variety of containers for their milk.

Over half of consumers (57%) indicated they use their own reusable containers for collecting raw milk – either plastic (21%) or glass (36%). Many people also use new containers (40%), either in plastic (37%) or glass (2%). A significant group (19%) used the seller’s reusable container (plastic for 5% and glass for 14% of consumers). Other containers included stainless steel milk billies, buckets and milk jugs (4%).

3.2.4 Sources of raw milk

The questionnaire asked consumers to indicate, via multi-choice answers, where they procured their raw milk. Respondents were able to tick as many choices as they considered appropriate. The most common response (44%) was that raw milk is collected directly from a farm. Nearly 30% said they obtain raw milk from a raw milk club that uses a collection point such as a local health food store. Twenty percent of consumers said they collect it from a raw milk vending machine, and a little over 14% obtain it from their own farm or property.

A very small number (4%) said they get raw milk from a friend, relative or neighbour who is not associated with a farm. A similar number have their raw milk delivered by a farmer. Only 1% of respondents reported obtaining their supplies from a farmers’ market, and even fewer claimed to use online orders.

Other sources of raw milk identified by respondents in separate comments included:

- a farm shop;
- an informal or formal arrangement involving friends collecting raw milk on behalf of others;
- an “organic” shop, health food shop or other central collection point that had refrigeration and was not associated with a raw milk club;
- the workplace;
- a local restaurant (raw milk is stored in a commercial refrigerator);
- own house cow (not associated with a farm they own);
- a supermarket.

In commenting on this question, a number of respondents complained about the current lack of easy access to raw milk, and the inconvenience, for example, of having to drive long distances to collect their supplies from a farm.

3.2.5 Safety of raw milk

Consumers were asked how much they agreed or disagreed with a series of statements related to the safety and benefits of raw milk.

Almost 90% of people agreed that food safety is an important issue for New Zealand's global reputation and trade.

Nearly everyone (97%) reported that neither they, nor anyone they knew, had ever been sick from drinking raw milk. In responding to a follow-up open-ended question, the small group (2%) that had been sick or knew people who had been ill attributed it to a variety of reasons, including:

- poor hygiene practices by the seller, or poor handling/hygiene by the consumer at home;
- the affected person having food or dairy allergies;
- drinking contaminated milk;
- the affected person being from a vulnerable group (for example, the person was under five years old or elderly).

All consumers said they trust the raw milk they obtain is safe and hygienic to drink and are keen to continue buying and drinking raw milk.

Most respondents (89%) did not consider raw milk a high-risk food. A smaller but still significant group (66%) said they recall having read or talked about the risks of drinking raw milk and would report an illness from a food-related source, which affected themselves or their household, to a doctor or public health authority.

Many more respondents (nearly 90%) said they recall reading or talking about the benefits of raw milk. A large majority (79%) stated they have personally experienced its benefits and a similarly large majority (75%) said they have seen the health benefits in other people.

In additional comments provided in support of the perceived benefits of drinking raw milk, some respondents noted that raw milk:

- is better for those with allergies or prone to conditions such as asthma, eczema or arthritis;
- is good for those with lactose intolerance;
- is generally better tolerated by those with food sensitivities, and especially by young children;
- is more easily digested;
- has beneficial health effects on, for example, energy levels, skin and teeth;
- tastes better than processed milk;
- averts the negative effects of homogenisation and pasteurisation on milk.

Comments about the relative safety of raw milk included:

- that raw milk is no more of a risk than other foods, if properly handled;
- that any risk from drinking raw milk can be mitigated through good hygiene practices;
- a reluctance to accept evidence from health experts or science about the risks of raw milk;
- suspicions about the influence that corporate dairy companies have on food safety rules.

3.2.6 Information about raw milk

Awareness of raw milk

Consumers were asked in an open question how they found out about raw milk. Comments revealed that they most commonly heard about raw milk through:

Personal experiences

- word of mouth (mainly from family, teachers, neighbours, colleagues or friends);
- personal (or family members') experience of growing up, living or working on a farm;
- living overseas (particularly in Europe, where the use of raw milk is considered to be more common);
- personal/academic research;

Recommendations from raw milk advocates

- information given by a nutritionist or health practitioner (such as at a health or nutrition seminar);⁷
- information from a health shop;
- the Weston Price Nutrition Education Foundation;

Media

- the internet;
- pages on Facebook;
- newspaper articles or other literature;⁸
- television reports;
- media advertisements or brochures;⁹

Other

- road-side signs advertising raw milk sold locally;
- participating in a cheese-making course.

Information about the benefits and risks of raw milk

Consumers were asked whether the farmer, or other person supplying their raw milk, provided information on various issues. Respondents were able to select all applicable answers from a list of issues on which information might be provided.

The majority of consumers reported that the person supplying their raw milk provided them with information about:

- the quality of their raw milk (90%);
- how to store and how long it was safe to keep raw milk (87%);
- the safety record of their raw milk supply (74%);
- the risks of foodborne illness from raw milk and who was most susceptible (64%);
- the health benefits from drinking raw milk (59%).

Some noted additionally that information was also sometimes provided about:

- health practices relating to the farmer's herd;
- the farm's organic and biodynamic practices and certifications;
- recommended hygiene and cleanliness practices – for example, relating to handling raw milk and containers.

⁷ A number of comments referred to clinical nutritionist Ben Warren.

⁸ A number of comments specifically mentioned Sally Fallon's *Nourishing Traditions*.

⁹ A number of comments referred to promotional material from Hohepa farms (Hawke's Bay), or Village Milk (Takaka based).

Sources of information

Respondents were asked how this information was shared, and again they selected applicable answers from a list. Nearly two-thirds of respondents (63%) said that the farmer or person they get raw milk from shared information face-to-face. Just over half (53%) reported that information was provided in written form such as in an information pack or order form or contract. About a third of respondents (35%) said information was displayed on signs at the supplier's business. Less than 10% received information on labels on the raw milk containers.

Consumers, responding to an open-ended question, further reported that information about raw milk was variously made available:

- online via websites or Facebook;
- in newspaper articles;
- by telephone;
- by regular email updates or newsletters from the supplier;
- via a video at the point-of-sale;
- via a "guest book" at the point-of-sale;
- by word of mouth from people other than the supplier.

3.2.7 Reasons for using raw milk

Consumers were asked to indicate how much they agreed or disagreed with a series of statements about their reasons for drinking raw milk. Table 8 shows that the most important reasons were considered to be: the taste (96%), the quality compared with processed milk (95%), that it is a natural product (94%) and the health benefits (92%). A high degree of importance was also attributed to people's dislike of how processed milk is treated (86%).

A majority of consumers considered raw milk to be better for the environment than processed milk (62%) and some based their choice on raw milk being easily available (49%). The price of raw compared with processed milk, and nostalgic memories (for example, of drinking fresh milk in childhood) did not appear to be significant factors in people's choice to drink raw milk, with only a quarter of respondents agreeing these reasons were important to them.

Table 8: Relative importance of reasons for drinking raw milk

Reasons for drinking raw milk	% of respondents for whom this is important	% of respondents for whom this is not important
It tastes good	96	1
It is better quality than processed milk	95	1
It is natural	94	1
For health benefits	92	1
I don't like what happens to processed milk	86	4
It is better for the environment than processed milk	62	6
It is easily available to me	49	35
It is cheaper than processed milk	27	48
It is a nostalgic reminder of the past, e.g. childhood, living on a farm, drinking fresh milk	26	39

Respondents were also asked to comment on any other reasons they might have for drinking raw milk. Many of these comments echoed those given in response to earlier questions about the safety of raw milk (Section 3.2.5). These focused on raw milk being: better tasting, better tolerated by those with allergic conditions or those intolerant to processed milk, a natural “whole” food, more “organic”, easier to digest and generally beneficial for health.

Additional reasons that influenced respondents’ choice to drink raw milk included that:

Politics

- drinking raw milk is a “right”, or a matter of personal choice or liberty;
- buying raw milk is a way to support local producers and small businesses;
- buying raw milk is a way to demonstrate opposition to big corporate dairy companies;
- buying raw milk is a way to demonstrate opposition to government regulation of natural food products;

Health

- raw milk is better for weight control as it does not contain sugar;
- raw milk contains beneficial probiotic bacteria;
- raw milk is more nutritious than processed milk, with no loss of vitamins or minerals;
- raw milk is a “living” product whereas pasteurised milk is perceived as “dead”;
- raw milk comes from healthier, better cared for animals;

Taste and cooking

- raw milk is better in cooking or baking;
- raw milk is better for making natural dairy products such as cheese, yoghurt, butter, kefir and ice-cream;
- people like the “cream” that comes with raw milk;
- raw milk keeps better than processed milk;

Environment

- raw milk is environmentally friendly as it promotes the use of recyclable containers and leaves a minimal carbon footprint (locally produced so no “food miles”);
- raw milk is pure and contains no residues (“milk the way nature intended it”).

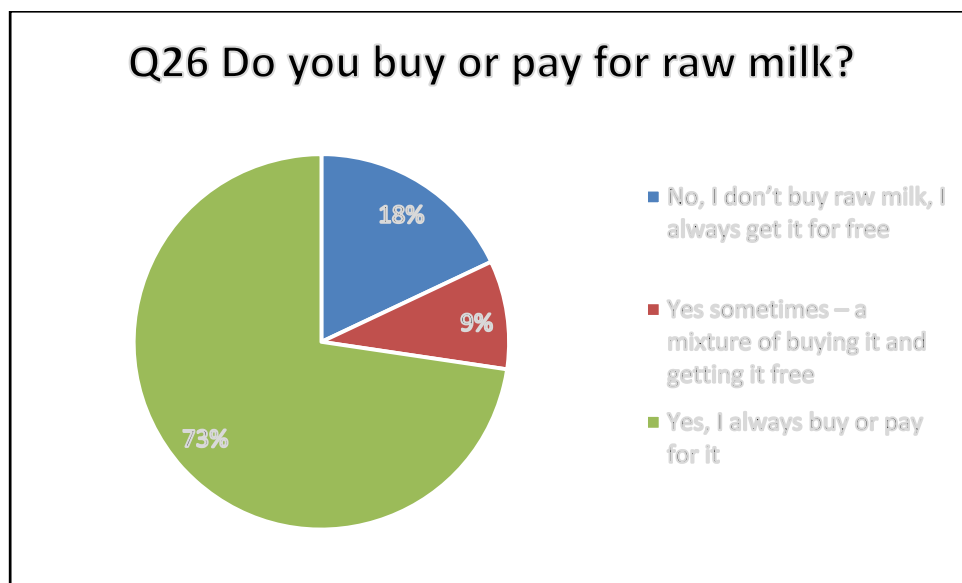
3.3 BUYING RAW MILK

In this part of the survey, consumers were asked about their experience with buying raw milk, including how often they buy it and where they buy it from.

3.3.1 Numbers purchasing raw milk

Nearly three-quarters of respondents (73%) said they always pay for raw milk. A small but significant group (18%) reported getting it for free: 50 (or 11%) of these respondents were sellers of raw milk, or people with house cows for milking (Figure 2).

Figure 2: Number of respondents buying raw milk



3.3.2 Frequency of purchase

Table 9 shows that the majority of consumers (59%) said they buy their raw milk four to five times a month – that is, approximately weekly. Nearly 16% reported buying raw milk less frequently than weekly and 25% buy more frequently.

Table 9: Frequency of purchase of raw milk per month

Number of times raw milk respondent purchased per month	% of total respondents
Once or less	6
2–3 times	10
4–5 times	59
5–10 times	21
11–20 times	3
21–30 times	1

3.3.3 Amount of raw milk purchased

Table 10 indicates that over two-thirds of consumers (69%) said they buy up to 20 litres of raw milk per month (or up to approximately 5 litres per week). Nearly a quarter (23%) reported they buy 21 to 40 litres per month and 7% said they buy more than 40 litres per month.

Table 10: Amount of raw milk purchased per month

Number of litres of raw milk respondent purchased per month	% of total respondents
2 litres or less	6
3–5	9
6–10	23
11–20	31
21–30	13
31–40	10
41–60	4
61–100	2
More than 100	Less than 1

Consumers were additionally asked about what they would see as the ideal amount of raw milk to purchase at a time (if there were no restrictions). As shown in Table 11, two-thirds said that they would be happy to buy amounts of up to 5 litres at a time – with many in this category noting they would like to buy small amounts frequently, so the raw milk stays fresh. Nearly a quarter would like to buy six to 10 litres of raw milk at a time (approximately 40% of this group specifically said they would like to buy 10 litres at a time for cheese-making). Less than 10% said they wanted to buy more than 10 litres per purchase.

Table 11: Ideal amount of raw milk to be purchased at a time

Number of litres of raw milk respondent would ideally purchase at a time	% of total respondents
Up to 5 litres	66
6–10	22
11–20	5
21–100	3
No limits on amounts purchased	4
Happy with current limitations	1

3.3.4 Price

Table 12 shows the price that consumers currently pay for raw milk. The majority (88%) reported that they pay between \$1.50 and \$4.00 per litre for their raw milk. Within this range, the price paid by the single largest number of people (29%) was \$2.50 per litre.¹⁰

¹⁰ In comparison, the price of standard pasteurised milk ranges between \$1.70 and \$2.75 per litre

Table 12: Price paid per litre of raw milk

Price range per litre	% of total respondents
Under \$1.50	4
\$1.50–\$2.49	35
\$2.50	29
\$2.51–\$4.00	24
\$4.01–\$5.00	5
More than \$5.00	2

3.3.5 Travel time

Consumers were asked how much time they spend travelling from their home to the place where they obtain their raw milk (that is, how long a one-way trip by car takes). Table 13 illustrates the findings.

Nearly two-thirds of consumers (63%) said they spend five to 20 minutes travelling one-way to collect their raw milk. About a quarter stated they spend more than 20 minutes travelling one-way while 12% spend less than 5 minutes.

Table 13: Travel time one-way by car to collect raw milk

Travel time	% of total respondents
Under 5 minutes	12
5–10 minutes	36
11–20 minutes	27
21–30 minutes	11
31–60 minutes	10
1–2 hours	3
More than 2 hours	Less than 1
Milk is delivered to home or work	1
Within walking distance from collection point (unspecified)	Less than 1

3.3.6 Number of people for whom raw milk is collected

Consumers were asked how many people they collect raw milk for. As indicated in Table 14, over half (56%) said they collect milk for two to four people (generally for family members). Nearly a quarter (23%) collect raw milk for just one person (generally themselves) and 15% collect for five or more people.

A small number of respondents gave answers relating to the number of families or households they collect milk for, rather than the number of people. Five percent said they collect raw milk for just one family or household (in most cases their own), while a few people (less than 1%) collect raw milk for more than two families (with 10 households as the highest number collected for).

Table 14: Number of people for whom raw milk is collected

Number of people for whom raw milk is collected	% of total respondents
1 (usually, self)	23
2–4	56
5–10	14
10–20	1
Just one family or household	5
2–10 families or households	Less than 1

In response to an open-ended question, some consumers provided additional comments on their experience of buying raw milk. The main trends reflected in these comments were:

The need for greater access

- opposition to increased government regulation of raw milk sales for consumers, including further restrictions on volumes that can be purchased at a time;
- a wish to see the current limit on the volume that can be purchased at a time raised to (at least) 10 litres to accommodate those who use raw milk for cheese-making;¹¹
- a desire to be able to buy raw milk more frequently, in smaller amounts, so it stays fresher;
- a wish to see greater local access to raw milk (for example, by increasing the number of central collection points or points-of-sale in local towns) to reduce the travel time and distance required to obtain raw milk;

Current experiences

- that visiting a farm to collect raw milk was a pleasant or positive experience;
- that raw milk was bought in larger amounts than immediately needed and frozen for use later;

Vending machines

- that buying raw milk from vending machines was favoured, including some that were centrally located in towns.

3.4 SELLING RAW MILK AND FOOD SAFETY

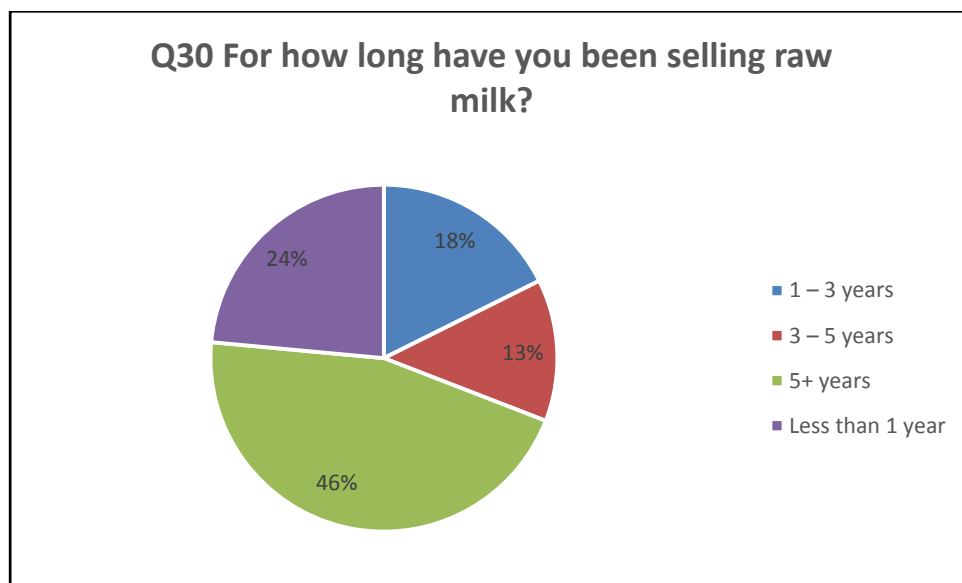
This section summarises information provided by 74 respondents (3% of the total number who completed the survey) who described themselves as current sellers of raw milk. It explores their experiences relating to the sale of raw milk to consumers. The database is relatively small so percentage results should be interpreted with caution.

The majority of raw milk sellers were either dairy farmers (48%) or small-scale “hobby” farmers (40%). Most of the “hobby” farmers described themselves as keeping one or two house cows for milking for their own household’s use – any excess was usually on-sold. Six of them said they sell goat’s milk and a further four stated they were small farmers who keep small numbers of (Dexter) cattle, sheep or does for milking.

Figure 3 shows the length of time sellers have been supplying raw milk to consumers. It appears that the market is young because over half of them (55%) reported selling raw milk for five years or less. Nearly a quarter said they have been selling for less than a year.

¹¹ Ten litres of milk is required to make 1kg of cheese.

Figure 3: Length of time suppliers have been selling raw milk



3.4.1 Frequency and quantity of raw milk sold

Over half (53%) of sellers reported selling raw milk daily and about a quarter (26%) sell it at least weekly. One of the respondents selling raw milk daily said they have customers on a waiting list and could sell more if the rules permitted.

The remaining 21% either sell raw milk fortnightly (3% or two sellers) or monthly (9% or six sellers), or they no longer sell raw milk because their cows are not presently producing enough milk for sale (9% or six sellers).

Table 15 shows the volume of raw milk currently being sold to consumers. The majority of sellers (nearly 59%) stated they sold small volumes of 40 litres or less per week. Only a third of sellers (34% or 25 sellers) claimed to sell volumes of over 100 litres per week.

Table 15: Volume of raw milk sold per week

Number of litres sold per week	% of total respondents
Less than 20	39
21–40	20
41–100	9
101–300	5
301–1000	20
More than 1000	9

On the basis of the above information, it can be *estimated* that approximately 20,000 litres of raw milk are being sold nationwide a week, equating to 1,040,000 litres a year.¹²

¹² These figures are calculated by multiplying the top of the range by the number of sellers in that range for all ranges (except the 301–1,000 range where the midpoint (650) was used, and the 1000+ range where the bottom of the range (1,000)) was used. Results were rounded up to take into account sellers who did not complete the survey question and sellers who are selling significantly more than 1000 litres per week.

3.4.2 Method of selling

Respondents who sell raw milk were asked where or how they sell their raw milk. The questionnaire allowed them to tick as many choices as they considered appropriate. The majority of sellers (80%) said that they sell direct to the public from the farm gate (Table 16). The second-most common method of sale was via home delivery (9%, corresponding to six sellers). Overall, only a relatively small group of sellers claimed to sell through collection points such as via a raw milk club (6%) or to a common pick-up point such as a local health food store (6%). Similarly only a small group of sellers stated that sales are online (5%).

Table 16: Method of selling raw milk

Where or how sold	% of total respondents
At the farm gate (direct to public)	80
Home delivery	9
At the farm gate (vending machine)	8
Through a “club” of dedicated customers	6
Delivery to a common collection point	6
Online orders	5
Farmers’ market or other public event	2

A number of sellers referred to other methods of selling their raw milk, including:

- mainly selling to friends locally;
- taking orders from workplaces;
- allowing “self-service”, with customers filling their own containers from refrigerated collection vats at the farm.

Sellers were asked about the containers in which they supply raw milk to their customers (and, again, they selected as many choices of answer as applicable). Half of them reported supplying raw milk in a reusable glass container, while 40% said they use a reusable plastic container. Nearly 20% said they supply raw milk in a new plastic container, and 5% use a new glass container for the raw milk they supply. A quarter of the sellers said they supply the milk in their customers’ containers, usually reusable glass or plastic.

3.4.3 Information about customers

Customer numbers and types

Sellers were asked how many people they sell raw milk to each week. Of the 46 who responded:

- 17 (37%) sell to 1 to 4 people;
- 13 (28%) sell to 5 to 10 people;
- 7 (15%) sell to 11 to 100 people;
- 9 (19%) sell to over 100 people.

Sellers were asked about the number of people they give raw milk to each week. Raw milk is only given to family or household members, except in one case where it is also given to the seller's staff. Of the 46 people who responded:

- 19 (40%) do not provide raw milk free;
- 21 (46%) provide raw milk free to 1 to 5 people;
- 4 (9%) provide raw milk free to 6 to 20 people.

Other information provided by 58–60 sellers, depending on the question, showed that:

- the majority (75%) said they sell on average 2 to 6 litres of raw milk per customer;
- the average price charged is about \$2.20. The majority (43%) stated they charge their customers \$1.00 to \$2.00 per litre. Nearly 30% charged under \$1.50, nearly 20% charged \$2.50 per litre, and 8% charged \$3.00 to \$6.00 per litre;
- nearly two-thirds (63%) thought that all or nearly all of their customers are buying raw milk only for their own household;
- nearly all (96%) believed that none, or very few, of their customers are buying raw milk on behalf of others outside their own household;
- nearly all (98%) believed that none of their customers is on-selling raw milk;
- only 10% thought any of their customers are buying raw milk to make and sell their own raw milk products;
- over 60% believed most or all of their customers are urban-based, while 10% thought only about half of their customers are urban-based. A quarter of sellers believed that most of their customers are not urban-based.

Sellers were invited to comment in this section about their experiences of selling raw milk. Some mentioned the regular demand from customers for raw milk. A few noted they could not fully supply this demand. Many also reported that they receive positive feedback from their customers who were appreciative of the opportunity to buy raw milk and who enjoy their buying experience (including being able to visit the farm from where they buy their raw milk and see the animals).

3.4.4 Health and safety practices of sellers of raw milk

Sellers were asked about the length of time they usually keep raw milk before throwing it out (that is, if not sold prior). The results are shown in Table 17. Only 41% of sellers who responded to this question reported keeping their raw milk for one to two days before discarding it. A large group of sellers (35%) keep raw milk for three or more days before discarding it.

Table 17: Length of time sellers keep raw milk

Time for which raw milk is kept (days)	% of total respondents
1–2	41
2–3	25
3–5	16
5–6	5
More than 6	14

In terms of awareness, almost all of the sellers in this survey (95%) reported that they are not aware of any safety-related incidents or suspected foodborne illness arising from their raw

milk since they began selling it. Only three sellers mentioned having been contacted about a possible illness, but said that the cause was ultimately proven not to be their raw milk.

Sellers were asked, by way of an open-ended question, to describe the animal health and food safety practices they follow with regard to their raw milk. Practices cited by the 41 raw milk sellers who responded included:

Animal health

- animals are regularly checked and tested (for example, for tuberculosis and mastitis) and only healthy animals are milked;
- animals are vaccinated (for example, against clostridial-related disease and leptospirosis);
- animals' teats are regularly cleaned and dried;
- animals are grass fed;
- animals/farm meet certified organic standards.

Food safety

- milk is regularly (daily, weekly, fortnightly or monthly) tested for pathogens (such as *Listeria*, *E-coli*, *Salmonella*, *Staphylococcus aureus*) and via coliform tests;
- Fonterra's code of practice is followed;
- milking premises operate under a risk management programme (RMP) or a food safety programme (FSP);
- premises, equipment, vats and containers are thoroughly cleaned and sterilised;
- sound hygiene standards are maintained on premises;
- milk is filtered;
- milk is immediately chilled/refrigerated;
- foremilk is stripped;
- premises are food-hygiene certified or regularly inspected (for example, by the local regional council, or a verification agency such as AssureQuality);
- the seller runs a small or family business with its own code of practice.

Sellers were further asked whether there were any animal health and food safety approaches, or official standards, that they thought should be required as a minimum to be followed by sellers of raw milk. Among the 33 sellers who responded, the following were the main requirements they would like to see covered.

Animal health

- Raw milk for sale should only come from healthy, well-nourished, grass-fed animals.
- Tuberculosis testing and vaccination should be mandatory.
- Records should be kept of animals' illnesses and treatments.

Food safety

- RMPs (and/or FSPs), backed up by regular testing, should be required to ensure herd health, milking and hygiene best practice.
- Mandatory records of raw milk sales should be kept.
- Basic standards, backed up by regular auditing, should be in place for all premises selling raw milk and should cover, for example, hygiene, refrigeration and testing for pathogens.
- Official/prescribed standards should apply – but only to regulate non-direct sales.
- Fonterra-set standards governing dairy companies should apply to premises selling raw milk.
- Dairies selling raw milk should be registered or subject to organic farm certification.

- Education (for example, via websites) and information on best practices for raw milk safety should be provided to consumers and/or sellers.
- “Best practice” food handling guidelines should be followed (such as the Raw Milk Producers’ Association guidelines, or Weston Price standards).
- No official regulation should apply (especially to small-scale sellers): the consumer will decide where they are happy to buy.

3.4.5 Information about raw milk provided to customers

Among those who responded to these questions, sellers reported that they provide information to their customers about:

- the quality of the raw milk they sell (89%);
- how to store and how long it is safe to keep raw milk (93%);
- the safety record of their raw milk supply (81%);
- the risks of foodborne illness from raw milk and who is most susceptible (68%);
- the health benefits of drinking raw milk (66%).

A few sellers also commented that:

- their customers already seem well informed about the risks and benefits of raw milk;
- they like to show their customers their farm, animals and production methods so the customers can judge safety aspects themselves;
- they do not think that young children or infants are at risk from drinking raw milk (arguing instead that growing children can particularly benefit from drinking raw milk);
- they advise pregnant customers to seek medical advice before drinking raw milk.

All 57 of the sellers who responded to a question about how they provided information about raw milk (selecting all applicable answers from a list of choices) said they tell their customers in person. A quarter of them also displayed information about raw milk on signs at their business premises. Eleven of them (20%) said they provide information in writing such as on the order form, or in a leaflet, and two of them reported providing information on the label of the raw milk containers.

Some sellers also provided information to their customers via Facebook or a website, while some email information or send a (usually quarterly) newsletter. One seller additionally provided an information sheet annually to customers, asking them to read and sign it. On the sheet customers acknowledge that they have understood and accepted the health risks associated with drinking raw milk.

3.4.6 Consumer demand and food safety awareness

Sellers were asked to indicate how much they agreed or disagreed with a series of statements, which were designed to explore their views and perceptions of customer demand for raw milk, and of customer awareness of food safety issues around raw milk. Of the 62 who responded, nearly all (95%) believed there is a growing demand by consumers for raw milk, with nearly two-thirds noting they have a steady increase in new customers (Table 18). Nearly all also believed that most of their customers drink raw milk for its health benefits, quality and taste.

The majority of sellers (69%) thought their customers are unconcerned about any food safety issues associated with the raw milk they buy. Three-quarters of them said that most of their

customers do not heat-treat raw milk before using it. Nearly all of them stated they have not heard from any customers about people becoming ill from drinking raw milk.

Nearly all of the sellers claimed they know how best to handle raw milk to ensure it is safe. Only 18% said they are aware of farmers not practising safe hygiene with the raw milk they sell. Almost two-thirds stated they are worried that one “bad egg” farmer selling raw milk could ruin their own reputation and that of the wider sector.

Overall, sellers were more divided in their views of the government’s understanding of the risk factors around raw milk: less than a third thought the government is well informed while nearly a half believed it is not well informed.

Table 18: Sellers’ perceptions of raw milk: demand and safety awareness

Statement/perception about raw milk	% of total respondents who agree/strongly agree	% of total respondents who disagree/strongly disagree
Consumer demand for raw milk seems to be increasing	95	0
I have a steady increase in new customers	63	11
Most of my customers drink raw milk for its health benefits	94	0
Most of my customers drink raw milk for its quality and taste	95	2
Most of my customers seem unconcerned about any food safety risks with my raw milk	69	16
Most customers heat-treat raw milk	2	75
Some customers have told me that they (or someone in their household) have become ill from drinking raw milk	2	92
I know how best to handle raw milk to make it safe	87	2
I worry that one “bad egg” farmer selling raw milk could ruin my reputation and the wider sector’s	63	18
Government is well informed about the risk factors around raw milk	31	48
I am aware of some farmers not practising safe hygiene around the raw milk they sell	18	42

A few sellers provided additional comments in support of their answers to the above questions, which indicated that:

- some sellers (or their customers) believe that the risks of drinking raw milk are over-stated;

- consumers would be “self-selecting” and only patronise raw milk sellers using safe handling practices;
- some sellers have strong concerns about the reputational risk resulting from some farmers selling unsafe milk, and one seller had reported cases to the regulator.

3.4.7 Future plans for selling raw milk

The survey asked about plans for selling raw milk in the future.¹³ Only the responses from farmers – those who currently sell and those who do not currently sell raw milk – were considered. The data set for this question was therefore 216.

Eighteen percent of these respondents (39 people) were dairy farmers who said they had no intention of selling raw milk to consumers.

Among those respondents who are current sellers of raw milk:

- 34% said they intend to continue selling raw milk only to dairy processors;
- 19% intended to continue selling raw milk only to consumers;
- 12.5% intended to continue selling raw milk to both dairy processors and consumers.

Sixteen percent of farmers who responded (35 people) said they intended to start selling raw milk directly to consumers for the first time.

3.5 INFORMATION ON RESPONDENTS’ BACKGROUNDS

The questionnaire asked respondents about their backgrounds via a series of standard multiple choice questions.

Location

Just under 70% of respondents said they currently live in an urban area: half of these have lived in a rural area at some point in their life. Almost half (48%) of respondents answered that they currently live or work on a farm or lifestyle block.

The highest number of respondents stated they live in the Manawatu–Whanganui region, with slightly lower numbers living in Auckland, Hawke’s Bay, Canterbury, Waikato and Wellington. Nearly two-thirds (65%) of respondents come from these six regions.

Table 19: Region where respondents live

Region	% of total respondents
Manawatu–Whanganui	13
Auckland	13
Hawke’s Bay	12
Canterbury	11
Waikato	9
Wellington	8
Other ¹	33

Note

¹ Includes Northland, Bay of Plenty, Gisborne, Taranaki, Tasman, Marlborough, Nelson, West Coast Southland and Chatham Islands.

¹³ The question was intended for farmers who were current or potential sellers of raw milk. Responses from the 1,259 consumers of raw milk who answered this question were not included.

Age

Table 20 shows that most respondents were 30–50 years old (73%). Seventeen percent were aged 60 years or over. Approximately 10% were under 30 years of age.

Table 20: Respondents' age

Age (years)	% of total respondents
Under 18	Less than 1
18–24	2
25–29	7
In their 30s	24
In their 40s	26
In their 50s	23
In their 60s	13
70 or older	4

Household size

Table 21 outlines the distribution of the number of people living in respondents' households. The average number of people was three, although the largest group of respondents lived in households of two people (34%).

Table 21: Number of people living in each respondent's household

Number of people per household	% of total respondents
1	7
2	34
3	17
4	23
5	13
6–20	6

Ethnicity

Respondents were asked about their ethnicity and were able to choose as many categories as applied (Table 22). Most respondents (91%) described themselves as New Zealand European or Pākehā. Just under 7% were Māori. Other ethnic groups – Pacific Islanders, followed by Chinese and Indian – each constituted less than 1% of total respondents.

Table 22: Ethnic group of respondents

Ethnic group	% of total respondents
New Zealand European/Pākehā	91
Māori	7
Pacific Islander ¹	Less than 1
Chinese	Less than 1
Indian	Less than 1
Other (unspecified)	8

Note

¹ Includes Samoan, Cook Island Māori, Tongan and Niuean.

Income

Table 23 shows that respondents were fairly evenly distributed across the categories for annual income up to \$100,000.

Table 23: Annual income of respondents

Income range	% of total respondents
\$30 000 or less	21
\$30 001–\$50 000	20
\$50 001–\$70 000	21
\$70 001–\$100 000	19
\$100 001–\$120 000	8
Over \$120 000	11

4 Final comments

Respondents were invited to share any final comments on the survey or the issues it raised. The majority of comments advocated strongly for the continuation of raw milk sales to the public. Other significant themes reflected in the comments included:

- a call for increasing the accessibility of raw milk;
- a questioning of the need for further regulation of raw milk sales, or a call to limit regulation only to common-sense, clear guidelines sufficient to ensure food safety;
- a belief that many consumers make informed choices to drink raw milk;
- a reiteration of the view that drinking raw milk is a matter of personal choice and freedom;
- a concern that commercial interests of large dairy companies have had undue influence on the raw milk issue;
- a reiteration of the view that drinking raw milk is not a health risk (or is no riskier than other food products such as poultry or seafood) as long as proper hygiene and handling procedures are followed;
- a view that the risks of consuming raw milk are minor compared with the risks of consuming other products with high health impacts such as sugar, tobacco and alcohol;
- concerns about the safety of pasteurised milk, or a questioning of whether pasteurisation is needed today given modern refrigeration technology;
- an emphasis on the importance of informing or educating consumers about the potential health risks of raw milk.

A few additional comments arising during various stages of the survey are worth noting separately.

A significant number of comments were critical of the survey itself. Many noted that it was too long or complicated, that some of the questions were repetitive or irrelevant, or that the survey was biased.

A small number of respondents consistently expressed strong concerns about the health risks of drinking raw milk, and warned against allowing any sales. This group urged particular caution in giving raw milk to vulnerable groups such as young children or infants, the elderly, the immune deficient, and pregnant women.

A number of comments concerned the A1/A2 milk debate. Some respondents advocated that raw milk from “A2 cows” could generally be considered healthier or safer than processed milk.