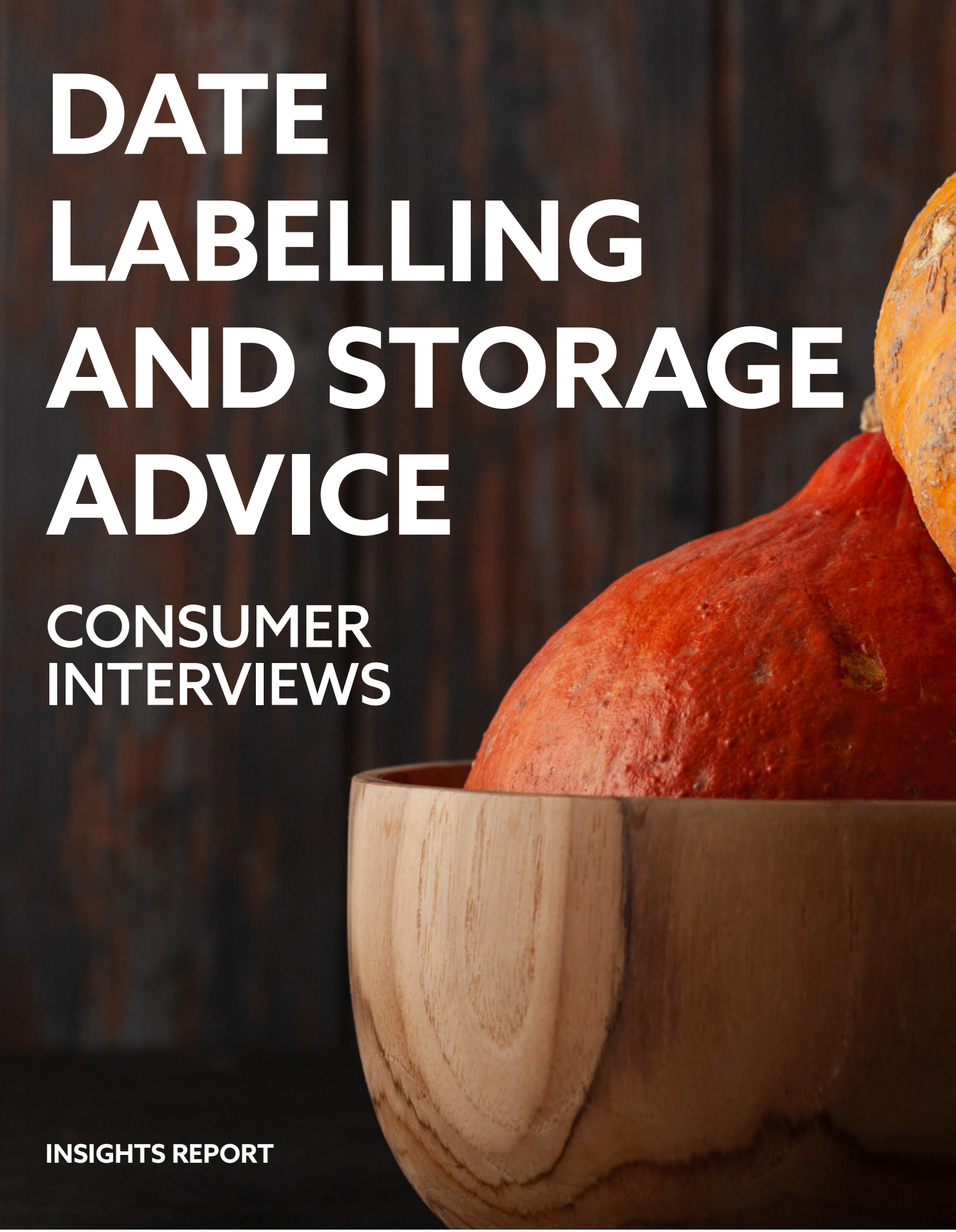
DATE LABELLING AND STORAGE ADVICE

CONSUMER INTERVIEWS



INSIGHTS REPORT

ENDFOODWASTE COOPERATIVE RESEARCH CENTRE

RMIT UNIVERSITY

Australian Government
Department of Industry, Science and Resources

AusIndustry
Cooperative Research Centres Program

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Executive Summary

This report discusses the findings from 125 consumer interviews conducted as part of the End Food Waste Australia Project 1.2.4, National Date Labelling and Storage Advice (Phase 1). Project 1.2.4 is part of the 'Reduce' program at End Food Waste Australia and aims to explore how consumers use (or do not use) existing food date labelling and storage advice to determine food freshness.

In summary, the results highlight a complex picture of consumers' perceptions of date labels and storage advice. Different food categories elicited different behaviours: date labels on lower-risk categories (Fruits & Vegetables, Bakery, or Packaged & Processed Food) were often ignored. In these categories, consumers relied on sensory evaluation (self-test) to determine edibility and freshness of the food. In contrast, date labels on higher-risk categories (Dairy & Eggs or Meat & Seafood) were followed more closely.

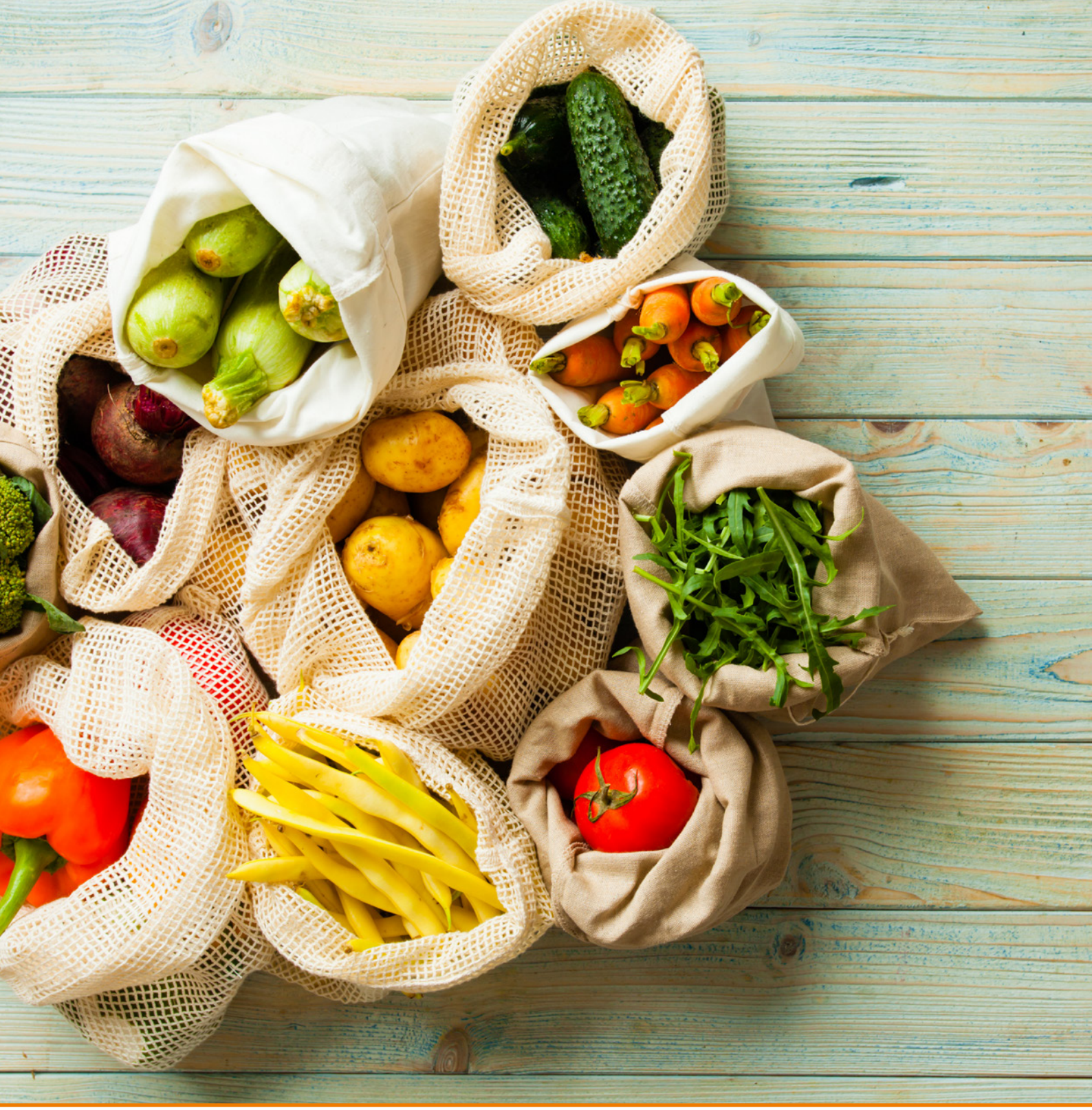
Many consumers theoretically understood the difference between "Use by" and "Best before" date labels. However, practically, they were often treated the same, with food being disposed of when it reached either date.

Storage advice was often interpreted as vague and unclear. Consumers wanted more information about how to extend the product's shelf life through freezing.

There is a need for clearer date labels and storage advice to assist consumers in reducing food waste.

Key findings include:

- There were two groups of participants: those who closely followed date labels and those who were only minimally aware of the existence of those labels. Participants who were minimally aware of date labels might tend to keep food longer, possibly risking food safety but reducing immediate food waste.
- In low-risk categories, participants favoured "Best before" dates over "Use by" dates. However, the buffer zone of the "Best before" date leaves consumers unsure about how to accurately assess the edibility of the food and how long the food should be stored, leading to unnecessary disposal.
- Consumers want clear, consistent and easy-to-read information. Date labels should be in a large font with contrasting colours so that they are easy to find and interpret.
- Date labels are often removed after the packaging is opened, leaving many consumers unsure about the freshness.



- Advice such as "Store in a cool, dry place" was interpreted as vague and unhelpful. Specific temperature guidelines were seen as more helpful.
- Practical tips on properly storing food and sealing packaging were universally appreciated across all food categories.
- Date labels were less likely to be perceived as reliable or trustworthy for warmer and more humid climates, like in Queensland and the Northern Territory.

Solutions proposed by consumers

There were a wide range of solutions proposed by consumers to solve the issues they have encountered when making decisions related to food edibility and disposal. Some solutions were quite straightforward, whereas others would require significant change to current industry practices.

Provide clear, legible information that won't be lost

- Improve the visibility and clarity of date label and storage advice, using clear and concise language
- Use larger print and place the date label and storage advice in more visible areas on the packaging
- Implement consistent and standardised date labels and storage advice across all products in the same category to reduce confusion
- Standardise date label and storage advice placement across products of the same category so that they are easy to find
- For products that have removeable date labels and storage advice, provide a 'back up label' in case it goes missing

Improve date labels to prevent unnecessary disposal

- Include the period that the product can be eaten after opening/defrosting in the date label
- For fresh fruit and vegetables that do not have a date label, provide information at the Point of Sale about how long the food will last
- Consider stating a buffer period after the "Best before" date during which the product is still safe to consume (for example, "Safe to consume until X")
- Consider using technology to create dynamic date labels that can adjust based on real-time weather data

Provide more detailed storage advice

- Provide more detailed advice on how to store items in different climates, including specific temperature and humidity recommendations
- Include clear and detailed advice on freezing and thawing including information about when, how, and how long food needs to be frozen or thawed. This could also include recommended packaging and freezing duration
- Text-only instructions may not be as effective as those accompanied by symbols and icons
- Consider using QR codes or links to online resources where consumers can access detailed storage advice and tips

Provide education and information

- Education about the differences between "Best before" and "Use by" date for each food category
- Introduce self-testing instructions on-pack or at the Point of Sale

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01

Food waste represents a critical global issue with profound environmental, economic, and social ramifications. In Australia, annually, around one-third of all food intended for human consumption is either lost or discarded (FIAL, 2022). Food waste is persistent throughout every link of the food supply chain, with households accounting for 60% of the total food wasted (FIAL, 2022). Effective packaging plays a crucial role in mitigating food waste by providing vital information for consumption (Brennan et al., 2021; Brennan et al., 2023a, 2023b), including "Use by" and "Best before" dates, along with storage guidelines (Yu & Jaenicke, 2020; Ayalon, 2023).

In Australia, food products are predominantly labelled with "Use by" and "Best before" dates. "Use by" suggests that the food should not be consumed after the stated date, whereas "Best before" indicates that the food remains safe to eat beyond the date, provided it has not spoiled or deteriorated. Clear labelling enables consumers to make well-informed choices, thereby reducing unnecessary food disposal (Haque et al., 2021). Nonetheless, misunderstandings concerning date labels and storage recommendations significantly contribute to food wastage (Schinkel, 2019). Adopting optimal date labelling practices could potentially prevent approximately 83,600 tonnes of food waste over the next decade in Australia (FIAL, 2022).

Consequently, it is imperative to examine consumer perceptions of date labels and storage instructions to identify necessary changes for minimizing confusion and subsequently reducing food waste (Barker et al., 2023). The current report builds on previous research and extends the initial literature review conducted as part of this broader End Food Waste Australia project. The findings from this report will help determine possible packaging design solutions and shed light on consumers' perceptions of date labels in Australia.

This research focuses on the qualitative aspects of date labels and storage solutions across five primary food waste categories:

1. Bakery
2. Dairy & Eggs
3. Packaged & Processed Foods
4. Fresh Fruits & Vegetables
5. Fresh or Frozen Meat & Seafood

Examining these categories will facilitate a deeper understanding of how consumers can be encouraged, persuaded, or directed towards saving food through informative packaging (Langley et al., 2021; Patel et al., 2021).

This module of Project 1.2.4 aims to provide a qualitative understanding of how consumers perceive and use on-pack information regarding:

1. Existing date labelling in terms of "Best before" and "Use by" terminology, and
2. Storage advice systems and consumer methods for determining the freshness of food products.

02

2.1 Impact of date labels and storage advice on consumer food waste

Types of date labels impact food waste differently, with safety-related labels like "Use by" leading to increased waste (Patra et al., 2022; Wilson et al., 2017, 2018). Research indicates that consumers are often confused by the various types of date labels or have diverse interpretations of their meanings (Langley et al., 2021a, 2021b; Brennan et al., 2023b). The literature also suggests that consumer responses to date labels vary depending on the product (Langley et al., 2021b).

A significant challenge is the absence of clear, consistent, and universal standards for date label formats and regulations, which exacerbates consumer misunderstandings (Fan et al., 2022; Patra et al., 2022). Differences in label definitions across countries lead to varied interpretations and consumer confusion. For instance, in the UK, WRAP recommends including clear storage advice on food labels, supported by symbols or graphics where possible (WRAP, 2023).

These recommendations have led to industry changes, such as the removal of "Best before" labels on fresh produce by major UK retailers like Waitrose and Marks & Spencer. These changes are estimated to prevent significant amounts of food waste annually, highlighting both financial and environmental benefits. A recent report indicates that 60% of food waste in the UK originates from households, costing residents £17 billion annually for uneaten food and contributing to 18 million tonnes of greenhouse gas emissions (WRAP, 2023).

In Australia, storage advice on packaged food is often missing, inconsistent, or misunderstood by consumers (Langley et al., 2021a, 2021b). Ineffective communication about storage advice leads to improper storage, refrigeration, and freezing practices, contributing to unnecessary food waste. A national benchmarking study reported that 32% of respondents could not determine food safety by appearance, smell, or taste; 11% discarded food they believed had been stored too long; 32% stored food correctly only half the time or less; and 61% froze food to extend its life, but 18% did so only half the time, and 20% rarely did (Fight Food Waste CRC, 2020).

The 2021-2022 NSW Love Food Hate Waste Tracking Survey found that the most common reason for food waste was food being left too long in the fridge or freezer, affecting 27% of food-wasting households, while 18% reported food spoiling before the "Use by" or "Best before" date (LFHW, 2022).

Both academic and industry literature underscore the importance of clear date labelling and storage advice on packaged food to reduce food waste.

2.2 Gaps in existing research

The extent to which consumers value or utilise storage information on food labels remains unclear. A comprehensive research approach is required to understand how consumers integrate date labels into their broader food practices (Patra et al., 2020). Additionally, merging theoretical knowledge into innovative date labelling and storage information designs is essential to reducing food waste.

A previous literature review on the topic noted a lack of studies focusing on storage advice (Chu et al., 2020). Therefore, qualitative insights into date labels would be beneficial to elucidate consumer confusion and guide industry practices. A systematic review that we conducted in a previous phase of the End Food Waste Australia National Date Labelling and Storage Advice project highlighted that consumer uncertainty is likely due to the sparse availability of such information and the absence of global labelling standards (Llagas et al., 2024). The review found that up to 82% of consumers do not understand "Best before" labels, and 62% are confused by "Use by" labels. The interchangeable use of these terms, combined with interpretation complexity, unstandardised placement, poor legibility, and unclear meanings, adds to the confusion.

The systematic review further indicated that date labels and storage advice significantly impact consumer decisions about food waste, reaffirming that labels can be confusing (Llagas et al., 2024). To help consumers make informed choices about food purchases, storage, usage, and disposal, packaging must be more informative and fit for purpose. However, designing such packaging necessitates qualitative consumer data to deeply understand consumer needs and behaviours.

Scholars also highlighted the need to standardise labelling terminology (Patra et al., 2022). There is a need to broaden scholarly research to explore how date and storage information effect consumer decisions regarding food. Research should incorporate visual language, design, and communication elements that improve consumer decisions about household food waste. These aspects are explored in the current module of Project 1.2.4 and will be further developed in a subsequent module, followed by the insights derived from this report.

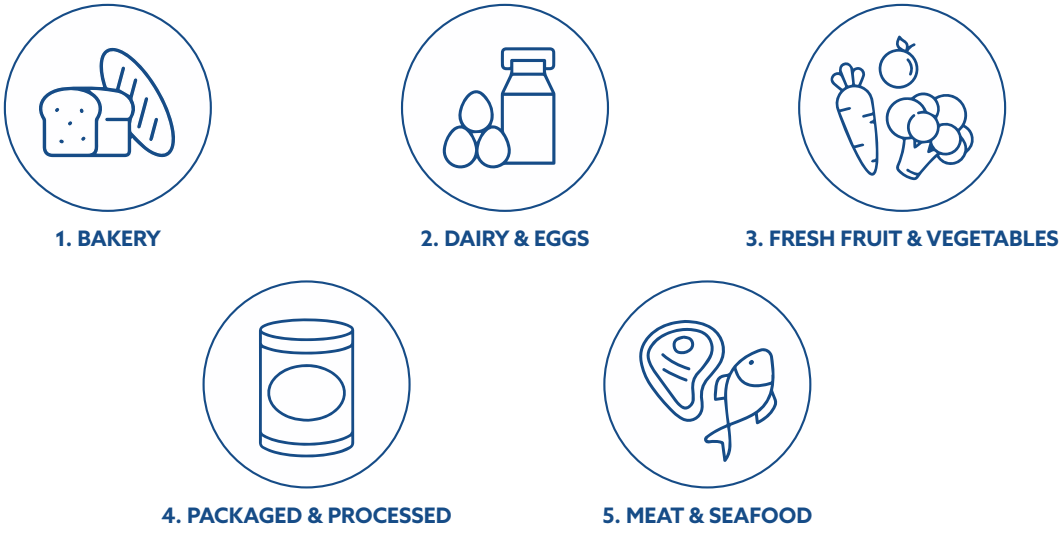
Finally, from a governmental perspective, following the developments in the literature and scholarly research, the Australian Government has acknowledged the need for date label reform. The Senate Select Committee Inquiry Report into Supermarket Prices (APH, 2024) advocates updating the 2017 National Food Waste Strategy to include a nationwide, best-practice approach to tackling food waste in supermarkets. This updated strategy should address the reform of "Use by" and "Best before" labels to mitigate food wastage and consumer confusion.

03

This research reports on a series of online, in-depth, semi-structured interviews. The interviews focused on consumers' experiences with the packaging labels they routinely encounter in their everyday lives. The consumers also provided specific examples sourced from retail environments. The research design was informed by both the existing literature and qualitative findings from a prior project conducted by End Food Waste Australia (formerly Fight Food Waste Cooperative Research Centre) – Project 1.2.2.

Participants were interviewed about on-pack information for foods across the five food categories identified in the earlier stages of the broader project:

Food categories



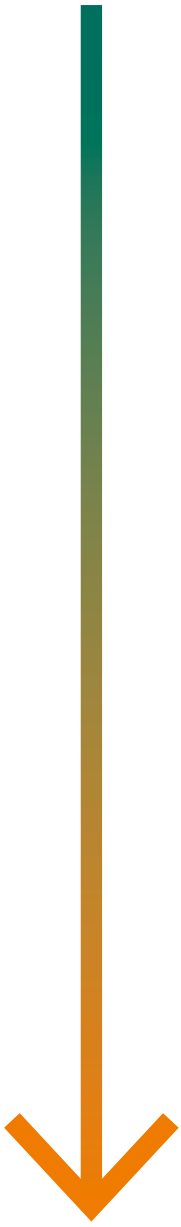
3.1 Participants

The recruitment of participants and the execution of online, in-depth interviews were managed by Wallis Social Research agency, based in Melbourne. A total of 125 consumer participants from across the nation were selected, ensuring a representation of a diverse demographic. Selection criteria were used to identify participants who were:

- Over 18 years of age
- Located across Australia
- Primary or joint food purchasers/preparers
- Both male and female
- Indicative of a cross-section, in terms of age, education level, household income and household structure
- Having purchased food from at least two of the five designated food categories.

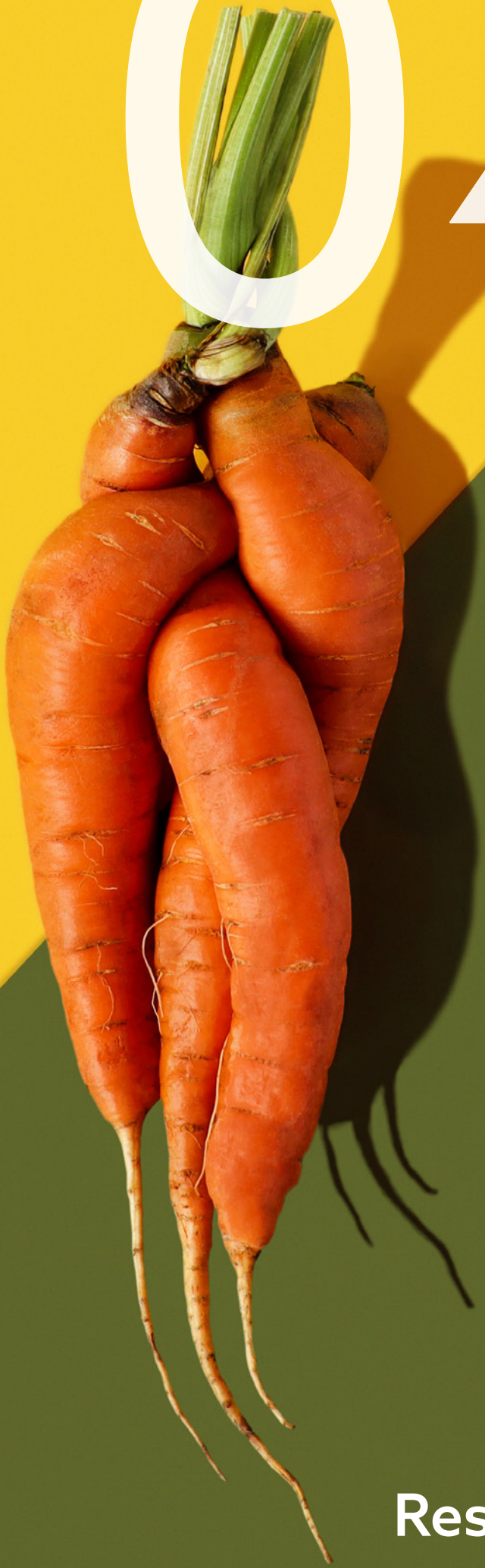
3.2 | Interviews

The interviews were conducted online using audio-visual technology and were both audio-recorded and transcribed using OtterAI, an AI-based transcription service, with research assistants undertaking thorough validation of transcripts. Packaging labels were not shown to participants; instead, the consumers were asked to recall and describe labels from memory. Interviews focused on one primary food category and one secondary food category for comparison for each participant. This meant that each of the five food categories was discussed in a total of 50 interviews, culminating in a qualitative dataset of 250 discussions across the five food categories. The interview process features six elements as follows:



1. Interviews conducted via digital communication platforms
2. Explore participants' perspectives, experiences and insights
3. Semi-structured design following a flexible interview guide
4. Interviewer ensures that key topics are covered while also adapting to the flow of the interview
5. Encourage participant to engage with the topic and share their viewpoints
6. Interviews recorded, transcribed, and subjected to expert qualitative analysis

04



4.1 Participant profile

A total of 125 participants were involved, with a balanced gender distribution of:

- Females: *n*=66 (52.8%)
- Males: *n*=59 (47.2%)

There were a range of age groups, including:

- 18-24 years: *n*=15 (12%)
- 25-34 years: *n*=26 (20.8%)
- 35-44 years: *n*=28 (22.4%)
- 45-54 years: *n*=25 (20%)
- 55-64 years: *n*=21 (16.8%)
- 65+: *n*=10 (8%)

In terms of diversity, the sample included:

- Culturally and Linguistically Diverse: *n*=19 (15.2%)
- Aboriginal and Torres Strait Island: *n*=3 (2.4%)
- Identified as having a disability: *n*=13 (10.4%)

Participants were distributed across various Australian states and territories:

- Victoria: *n*=58 (46.4%)
- New South Wales: *n*=30 (24%)
- Queensland: *n*=12 (9.6%)
- South Australia: *n*=11 (8.8%)
- Western Australia: *n*=6 (4.8%)
- Tasmania: *n*=4 (3.2%)
- Northern Territory: *n*=2 (1.6%)
- Australian Capital Territory: *n*=2 (1.6%)

The household structure of participants varied:

- Living with family: *n*=71 (56.8%)
- Living with a partner: *n*=33 (26.4%)
- Living with alone: *n*=17 (13.6%)
- Living with friends or in a share house: *n*=4 (3.2%)

4.2 General Date Labelling Information

Table 1. Results of participants' discussion about date labelling information

Results	Bakery	Dairy & Eggs	Fruits & Vegetables	Packaged & Processed	Meat & Seafood
Notice and read date labels	-	-	✗	✓	✓
Follow date labels closely	✗	-	✗	-	✓
Preference of "Best before" date over "Use by" date	✓	-	-	✓	✗
Understand the differences between "Best before" date over "Use by" date	✗	✗	✗	-	-
Know how long the food is edible after passing "Best before" date	✗	✗	✗	✗	✗
Know how long food can be frozen after passing "Best before" date	✗	✗	✗	✗	✗
Believe that "Period after opening/ Harvesting/Handling" is more useful than "Use by" or "Best before" dates	✓	✓	✓	✓	-
Need guidance for self-testing system (visual, smell, taste, etc) to determine if food is edible	✓	✓	✓	✓	✓

✓ Most participants agreed

\- Participants had conflicting arguments or it was unclear whether they agreed or disagreed

✗ Most participants disagreed

There were two groups of participants: one who closely followed date labels and those who were only minimally aware of the existence of those labels. Participants who were minimally aware of date labels might tend to keep food longer, possibly risking food safety but reducing immediate food waste.

Participants also often struggle to differentiate between "Best before" and "Use by" dates in practice, leading to food waste due to concerns about food safety. While some consumers understand the distinction in theory, in practice, many still find it challenging to differentiate between them effectively.

In most categories, except high-risk foods (Meat & Seafood and Dairy & Eggs), participants favoured "Best before" dates over "Use by" dates. In cases where the label has both "Best before" and "Use by" dates, participants treat the gap in those dates as a buffer zone. The buffer provides psychological comfort, empowering participants to make decisions based on the look, smell, and taste of food.

However, the buffer zone of the "Best before" date leaves consumers uncertain about how to assess the safety of food once the date has passed. Many participants are left unsure about how to accurately assess the safety of such food and how long should the food be stored.

Some participants expressed uncertainty about the optimal time to freeze food relative to its "Use by"/"Best before" date. Some were unsure if food should be frozen before the date or if it could safely be frozen on the day of the date itself.

Participants also prefer labels to show the harvesting date, some participants recommended including the date the produce was removed from deep freeze or the date it arrived in the supermarket storeroom.

What worked well:

- Period after opening was perceived as more helpful than "Best before" or "Use by" date
- In most cases, participants prefer "Best before" date over "Use by" date due to the "Buffer zone"

What did not work well:

- "Use by" and "Best before" date were confusing and hard to differentiate in practice
- It was unclear how long the "Buffer zone" should be
- The optimal time to freeze food was rarely communicated
- Self-testing system was not included in date label
- Date label was sometimes not well-positioned and hard to read
- Date label was sometimes removed after the packaging was opened

Suggestions from participants:

- Education about the differences between "Best before" and "Use by" date for each category
- Include harvested/produced/ defrosted date
- Include period after opening/defrosting in the date label
- Introduce self-testing instructions

4.3 General Storage Advice Information

Table 2. Results of participants' discussion about storage advice information

Results	Bakery	Dairy & Eggs	Fruits & Vegetables	Packaged & Processed	Meat & Seafood
Exact temperatures for refrigeration (e.g., "Keep refrigerated at 4°C") is helpful to maintain freshness and prevent spoilage	-	✓	-	-	✓
Instructions on how to freeze and thaw food was clear enough to extend product's shelf life	✗	-	-	-	✗
Generic guidance such as "Store in dry and cool place" or "Keep refrigerated" are useful	✗	✗	✗	✗	✗
Prefer simple system and instructions to store food (may ignore the instructions if too complex or overcrowded)	✓	✓	✓	✓	✓
Storage advice was universally applicable for all weather	✗	✗	✗	✗	✗
Find tips on how to properly store food or seal packaging helpful to maintain freshness	✓	✓	✓	✓	✓
Require information regarding how food is stored and handled before consumption stage to determine freshness	✓	✓	✓	-	✓
Require scientific research/evidence for storage advice	-	✓	✓	-	-

✓ Most participants agreed

\- Participants had conflicting arguments or it was unclear whether they agreed or disagreed

✗ Most participants disagreed

For storage advice, participants stated that they did not use the advice unless it is the first time they bought a new food product. However, they also claimed some of the storage advice was helpful for them to avoid food waste.

Simplicity in storage instructions was a preference across all food categories. Participants also tend to avoid complex and overcrowded storage advice and favoured straightforward and uncomplicated storage systems.

Many participants in higher-risk categories (Dairy & Eggs and Meat & Seafood) found the specification of exact temperatures (e.g., "Keep refrigerated at 4°C") helpful, indicating a reliance on precise guidelines to ensure product safety. However, participants in other categories did not show a strong preference for exact temperature instructions, possibly due to the varied storage requirements within these categories or less sensitivity to precise temperatures.

Participants agreed that clarity in freezing and thawing instructions is needed to extend product shelf life. Clear and detailed advice is essential, particularly for high-risk categories.

Participants from all categories indicated that current storage recommendations might not account for regional or climatic differences (especially for hot and humid climates like the Northern Territory or Queensland).

Many participants also wanted to know the storage and handling practices prior to consumption to assess the freshness and safety of their food. This indicates a demand for greater transparency and traceability in the food supply chain.

Practical tips on properly storing food and sealing packaging were universally appreciated across all food categories. Simple yet effective tips can empower consumers to store their food correctly, thereby reducing waste and ensuring that products remain safe for consumption.

What worked well:

- Exact temperature and method to store food (e.g. "Keep refrigerated at 4°C") was perceived as very helpful
- User-friendly (easy-to-follow and simple) storage advice was mostly followed
- Simple and effective tips to store and re-seal packaging

What did not work well:

- "Store in a cool and dry place" was vague and not helpful
- Freezing and thawing instructions needed more clarification
- Current storage advice was not applicable for all climates in Australia (particularly hot and humid climates like the Northern Territory or Queensland)

Suggestions from participants:

- Include clear and detailed advice on freezing and thawing including information about when, how, and how long food needs to be frozen or thawed
- Include information about the handling process within the supply chain before consumption
- Improve the advice to make it simpler and more explicit
- Consider using QR codes or links to online resources where consumers can access detailed storage advice and tips

4.4 Bakery Results

Bakery was considered as a low-risk category. In this category, participants prefer "Baked on" over other date labels. Participants mostly relied on self-test systems (smell and look) to determine the freshness and edibility of bakery products. Freezing was commonly used to extend the shelf life of bakery items; however, clear guidelines on proper storage, freezing, and thawing were notably lacking. Additionally, date labels and storage instructions were often not visible to the participants.

4.4.1 Date labelling

What worked well:

- Including "Baked on" dates was highly valued by participants for bread baked in the supermarket. They found it helpful in understanding when the product was made, which informed decisions about freshness
- The "Best before" dates were perceived as more useful than "Use by" dates for bakery items

What did not work well:

- Some products had clear "Baked on" dates, while others only had "Best before" or "Use by" dates, making it difficult for consumers to understand the freshness of the product
- Date tags that were attached separately from the packaging or printed on easily detachable parts of the packaging could be lost once the package was opened
- Most products did not provide instructions on how to effectively perform self-tests (look, smell, and feel)
- Date labels were not well-positioned and too small/blurry to read or printed over creased areas of the plastic packaging

Suggestions from participants:

- Provide detailed and specific guidelines on how to perform self-tests. This can include checking for signs of staleness or changes in texture
- Standardise date labelling system for all bakery products, ensuring consistency and clarity. This could include using both "Baked on" and "Best before" dates on all products
- Provide "back up" label for if the date tag goes missing

4.4.2 Storage advice

What worked well:

- Instructions on refrigerating and freezing bakery items are seen as helpful. Consumers find this guidance valuable for extending the shelf life of bakery products
- Simple and effective tips to store and re-seal packaging were more likely followed

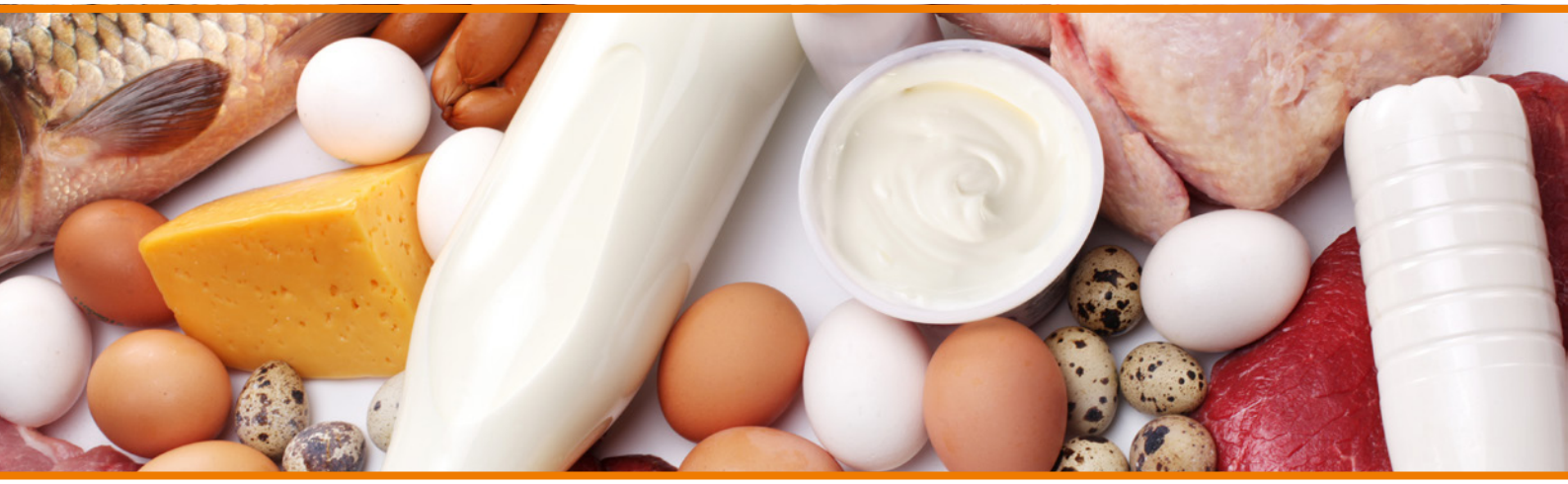
What did not work well:

- There is a need for more precise temperature advice for refrigeration and freezing. General instructions are not as helpful as specific temperature guidelines
- Current storage advice was not applicable for all climates in Australia (particularly hot and humid climates like the Northern Territory or Queensland)

- Participants felt that instructions on how to freeze and thaw bakery products were often unclear or missing
- There was inconsistency in the advice provided for different bakery products, leading to confusion among participants

Suggestions from participants:

- Improve the visibility and clarity of storage instructions on packaging, using clear and concise language
- Provide more detailed advice on how to store bakery items in different environments, including specific temperature recommendations
- Offer clear, step-by-step instructions on how to freeze and thaw bakery items. This could include recommended packaging, duration, and thawing methods
- Implement consistent and standardised storage advice across all bakery products to reduce confusion



4.5 Dairy & Eggs Results

Dairy & Eggs was considered a high-risk category, which means participants were quite reluctant to use products that passed the "Best before" or "Use by" due to food safety. Participants were more likely to follow the date for milk than for other dairy subcategories and were less concerned about dates for eggs. For dairy, participants preferred "Consume within X days of opening" over other date labels. Participants relied on self-test systems (smell) to determine the freshness and edibility of dairy & egg products. Refrigerating was the most common storage method.

4.5.1 Date labelling

What worked well:

- "Consume within X days of opening" was perceived as the most useful date label for dairy products

What did not work well:

- Date labels were often not well-positioned and were hard to read, especially for visually impaired consumers
- Date labels' position was not consistent across different dairy brands and subcategories
- Labels did not provide guidance for self-testing after dairy & eggs pass the date
- It was unclear how long after the "Best before" date dairy & eggs were safe to be consumed
- Misinterpretation of date labels, particularly confusing "Best before" with "Use by," leads to considerable food wastage

Suggestions from participants:

- Guidance on various usage options for different stages of dairy & eggs
- Standardise the position of date labels and font size across different brands to ensure the consistent visibility
- Include "Laid on" date for eggs across all brands
- Provide guidance for self-testing after products past "Best before" date

4.5.2 Storage advice

What worked well:

- Participants found specific refrigeration guidelines, with an exact temperature such as "Keep refrigerated at 4°C" was very helpful and easy to follow

What did not work well:

- Storage advice was unclear about how long dairy and eggs could be stored out of the fridge
- Current storage advice was questionable for hot and humid climates like the Northern Territory or Queensland
- Information about whether dairy products can be frozen and how to properly freeze and thaw them is often missing. This can lead to improper storage and reduced product quality
- Detailed advice on how to handle products after opening were missing. For example, whether it should be transferred to a different container or kept in the original packaging

Suggestions from participants:

- Include recommended refrigeration temperature ranges on packaging. For example, "Keep refrigerated at 1-4°C" to help consumers maintain the optimal environment for their products
- Offer clear guidelines on whether the product can be frozen. If so, provide detailed instructions on how to freeze and thaw the product without significantly compromising quality
- Provide specific advice on how to store products after opening

4.6 Fruits & Vegetables Results

Fruits & Vegetables was considered a low-risk category, which means participants did not rely much on date labels but preferred their self-test system (look and smell mostly) for judgement towards freshness and edibility. Participants said that they often could not find date labels and storage advice. They also found current date labels and storage advice not useful, generic, and not reliable. Therefore, most of them did not use the information on the label at all. Some participants suggested including "Harvested on" because this information was more relevant for them to judge the freshness of fruits & vegetables.

4.6.1 Date labelling

What worked well:

- Advice on self-testing fruits (i.e. ripeness) at the Point of Sale were found useful by participants (such as for avocados, bananas and mangos)

What did not work well:

- Participants perceived the "Best before" and "Use by" dates as unreliable due to their experiences where fruits and vegetables sometimes spoiled before these dates or remained fresh well beyond them
- Participants often could not find date labels on loose fruits and vegetables, signs at Point of Sale would be acceptable
- Participants felt that date labels did not account for varying weather conditions

Suggestions from participants:

- Combine "Harvested on" dates with other date labels like "Best Before" to give a more comprehensive overview of the product's freshness and quality timeline
- Include date labels or Point of Sale signage for loose fruits and vegetables or guidance on how to assess the ripeness of fruit
- Include more self-test guidance for fruits and vegetables
- Include suggestions to use fruits and vegetables at their different stages (e.g. Makro Life Extending Stickers)
- Consider using technology to create dynamic date labels that can change based on real-time weather data

4.6.2 Storage advice

What did not work well:

- Participants could not find storage advice on loose fruits and vegetables, except for some pre-packaged items
- Storage guidelines often did not differentiate between different types of fruits and vegetables, which have varied storage needs. For example, tomatoes and potatoes have very different storage requirements
- Storage advice such as "Store at room temperature", or "Best kept refrigerated", were perceived as vague. Participants expressed the need for more specific information (such as specific temperature)
- Storage instructions typically do not consider the climatic or seasonal variations which can significantly impact how products should be stored
- There was often insufficient advice on how to handle fruits and vegetables once they are taken home, such as whether and how to wash them before storage and whether to store them separately or in containers or with other items

Suggestions from participants:

- Provide more detailed and specific storage instructions on packaging, including optimal temperature and humidity conditions
- Include storage advice that adapts to local climates and seasonal changes, possibly through region-specific labelling
- Provide storage advice tailored to the specific requirements of each fruit and vegetable

4.7 Packaged & Processed Results

Packaged & Processed Food was considered as a low-risk category. Participants tended to follow storage advice but did not follow date labels closely. They also simply stored food as seen in supermarkets, rather than read labels. Participants also preferred a self-test system (look and smell) for judgement about edibility. For staple foods such as rice, flour, or pasta, participants tended to not follow date labels or storage advice because many used their own containers after opening the original package.

4.7.1 Date labelling

What worked well:

- For packaged & processed food, participants found the "Best before" and "Use by" dates were mostly easy to find
- Participants prefer "Best before" date over "Use by" date because they considered this category as low risk
- "Consume within X days of opening" was perceived as the most useful

What did not work well:

- Participants frequently mentioned that date labels are often printed in very fine fonts and colours, making them hard to read, or for specific subcategories like canned foods, they are over ridges and often mixed with other batch numbers making them hard to read
- Dates were often not in the same format across brands and categories
- "Use by" and "Best before" date were confusing and often hard to differentiate in practice
- Participants were unclear how long the "Buffer zone" should be and tended to use self-testing to determine edibility of products

Suggestions from participants:

- Participants suggested using larger print and placing the date labels in more visible areas on the packaging
- Provide guidance for self-test after opening products

4.7.2 Storage advice

What worked well:

- Reseal tools and tips after opening were considered very helpful
- Exact temperature and humid control advice such as "Keep refrigerated at 4°C" and "Prevent direct sunlight" was very helpful and easy to follow
- Storage advice once the product had been opened e.g., "Refrigerate at 4 °C after opening", was found to save food waste

What did not work well:

- Generic storage advice such as "Store in a cool and dry place" was unclear without specifying temperature ranges or what constitutes "cool" or "dry"
- Storage advice that did not account for varying environmental conditions could be less effective. What works in a cooler climate might not be suitable in tropical areas where humidity and temperature are higher

- Often, storage instructions were printed in a small font size making them difficult to read

Suggestions from participants:

- Include tips on how to properly seal packaging or how to store products after opening to keep air, moisture, and pests out, and to preserve the freshness of items like cereals, flours, and sugars
- Information regarding edibility and safety measures after opening processed/packaged food can help to reduce unnecessary food waste
- Text-only instructions may not be as effective as those accompanied by symbols and icons
- Ensure that the storage instructions are printed in a larger, bold font that stands out from other text on the packaging

4.8 Meat & Seafood Results

Meat & Seafood was generally considered as an extremely high-risk category. White meat and seafood were considered riskier than red meat. In this category, participants tended to follow the date labels and storage advice more strictly. They tended to discard meat and seafood that were past "Best before" or "Use by" dates. Freezing was a more common approach used in this category. However, participants found storage advice was unclear for freezing and thawing meat and seafood.

4.8.1 Date labelling

What worked well:

- Participants preferred "Use by" date over "Best before" date
- Participants found "Use by" and "Best before" dates were easy to find and easy to read

What did not work well:

- Freezing and thawing were the most popular methods for storing and preserving food in this category, but participants were unclear about how long meat and seafood should be frozen

- Most participants discarded meat and seafood that passed the "Best before" date because of the perceived high-risk, which might waste edible food
- Participants found that because date marks are printed on the sticker labels on the plastic film, they get lost after opening the package

Suggestions from participants:

- Clearly state a buffer period after the "Best before" date during which the product is still safe to consume (for example, "Safe to consume until X")
- Provide detailed instructions on how long the product can be safely frozen
- Add tips on how to extend the product's shelf life (for example, "Once opened, consume within 3 days" or "Store in an airtight container after opening")

4.8.2 Storage advice

What worked well:

- Exact temperature and humidity control advice such as "Keep refrigerated. Store at or below 5°C" was very helpful and easy to follow
- Clear preparation instructions with self-test tips was considered highly valued by consumers, as it helped them confidently determine the safety of meat and seafood for consumption

What did not work well:

- Most meat and seafood storage advice did not include instructions for freezing and thawing, which was the most popular storing approach in this category
- Participants were unsure if the storage advice is universally applied for all weather conditions, leading to confusion and improper storage

Suggestions from participants:

- Provide exact temperatures for refrigeration and freezing (e.g., "Keep refrigerated at 4°C" and "Freeze at -18°C")
- Include clear and concise instructions on how long the product can be safely frozen and the correct way to thaw it

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Conclusion 33

In conclusion, date labels and storage advice systems are often unclear and confusing to participants. The majority of participants wanted clearer information to help them make decisions about food safety, storage, and disposal. Four key messages were highlighted from the discussions with consumers.

5.1 Date labels are not straightforward

- There were different perceptions regarding date labels in the low-risk and the high-risk categories. For the low-risk categories, consumers want to be in charge of the decision, while in the high-risk categories, they wanted to strictly follow the date labels
- In the Bakery category, participants preferred a "Baked on" date over "Best before" or "Use by"
- Participants would prefer to have clear information provided that reflects the age of the products or how long the product will last. For example, "Harvested on X" or "Consume within X days after opening"
- Date labels were not perceived as reliable or trustworthy for warmer and more humid climates like in Queensland and the Northern Territory

5.2 The "Best before" and "Use by" conundrum

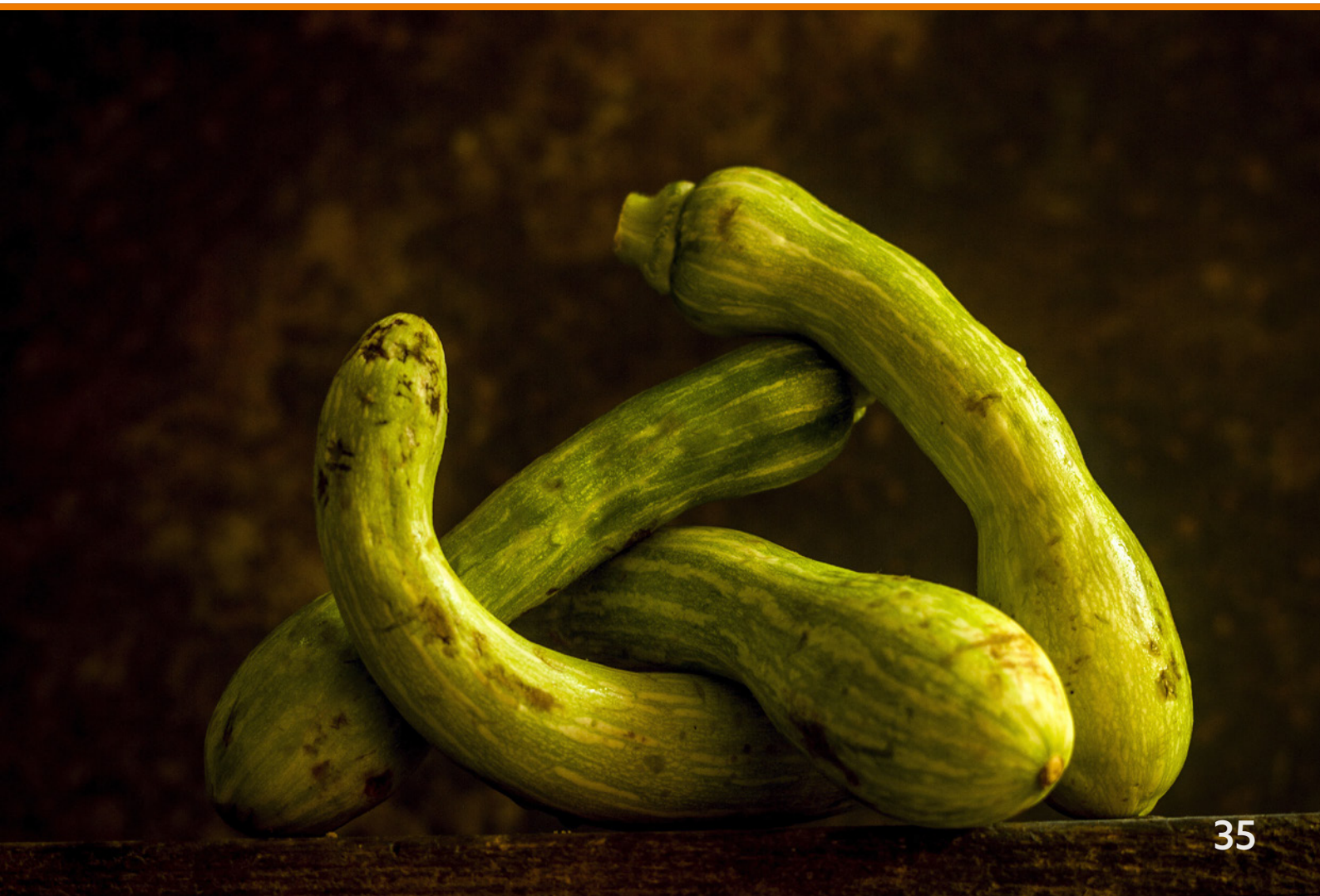
- "Best before" and "Use by" date labels do not provide enough decision-making information to consumers on their own, supplemental information would be helpful (e.g., QR codes)
- While some participants could reasonably differentiate between the "Best before" and "Use by", they often used both terms interchangeably
- Consumers are confused with all the variations and options of date labels, especially across the different categories

5.3 Package and label design are problematic

- Date tags that were attached separately from the packaging or printed on easily detachable parts of the packaging could be lost once the package was opened
- Placement, legibility, font size, format, and colour are issues. Participants suggested consistent placement and increased contrast (using bolder and larger sized fonts and high contrast colours) to improve visual standout and make date labels and storage advice easier to read

5.4 Storage advice is incomplete and insufficient

- Freezing and thawing advice need to be explicit, especially for meat and seafood. It should include information such as whether products can be frozen, the ideal temperature, for how long, and what consumers should do after that
- Storage advice needs to be reflective of different climate conditions
- Loose fruits and vegetables do not have date labels and storage advice, but additional information could be provided at the Point of Sale



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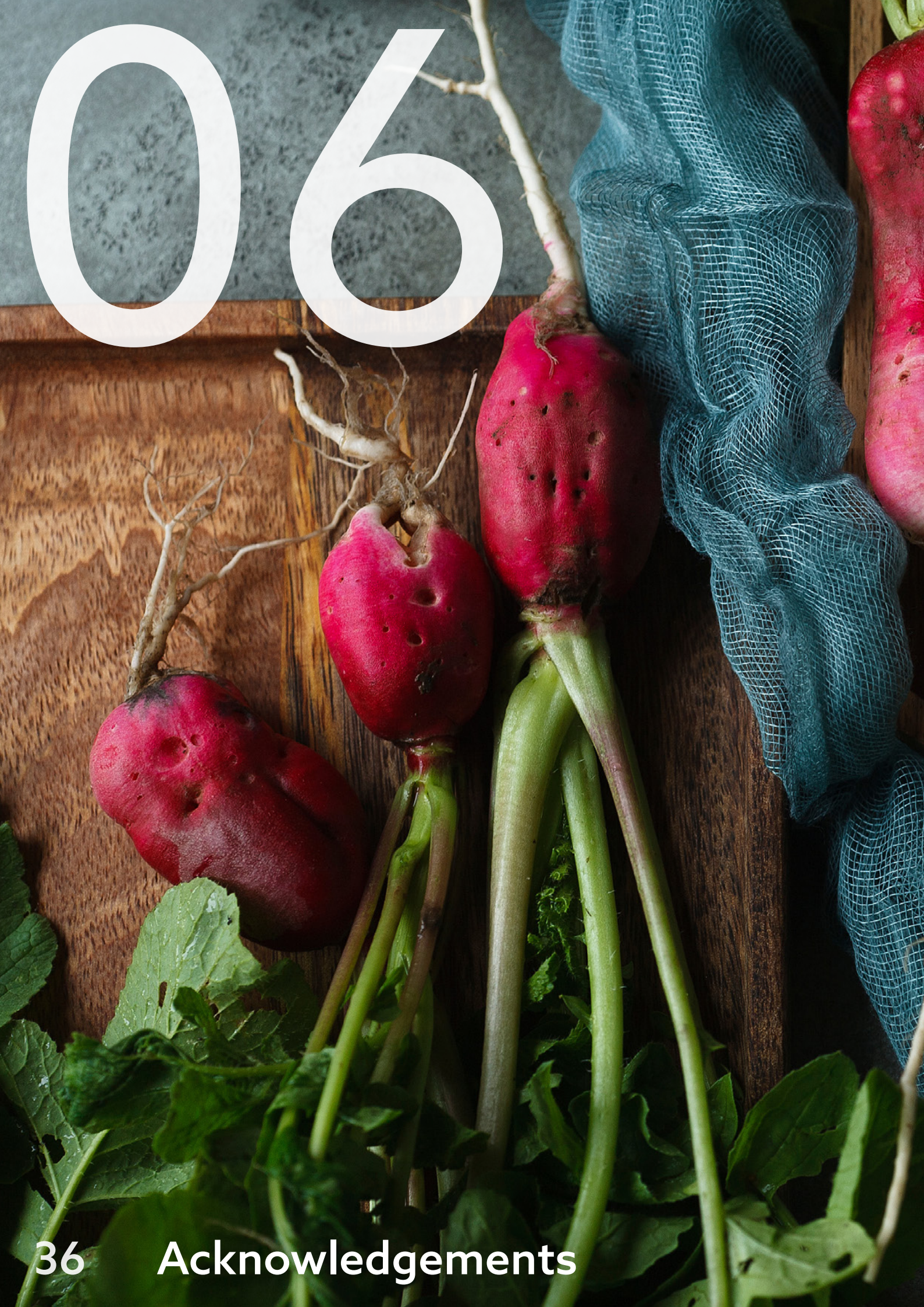

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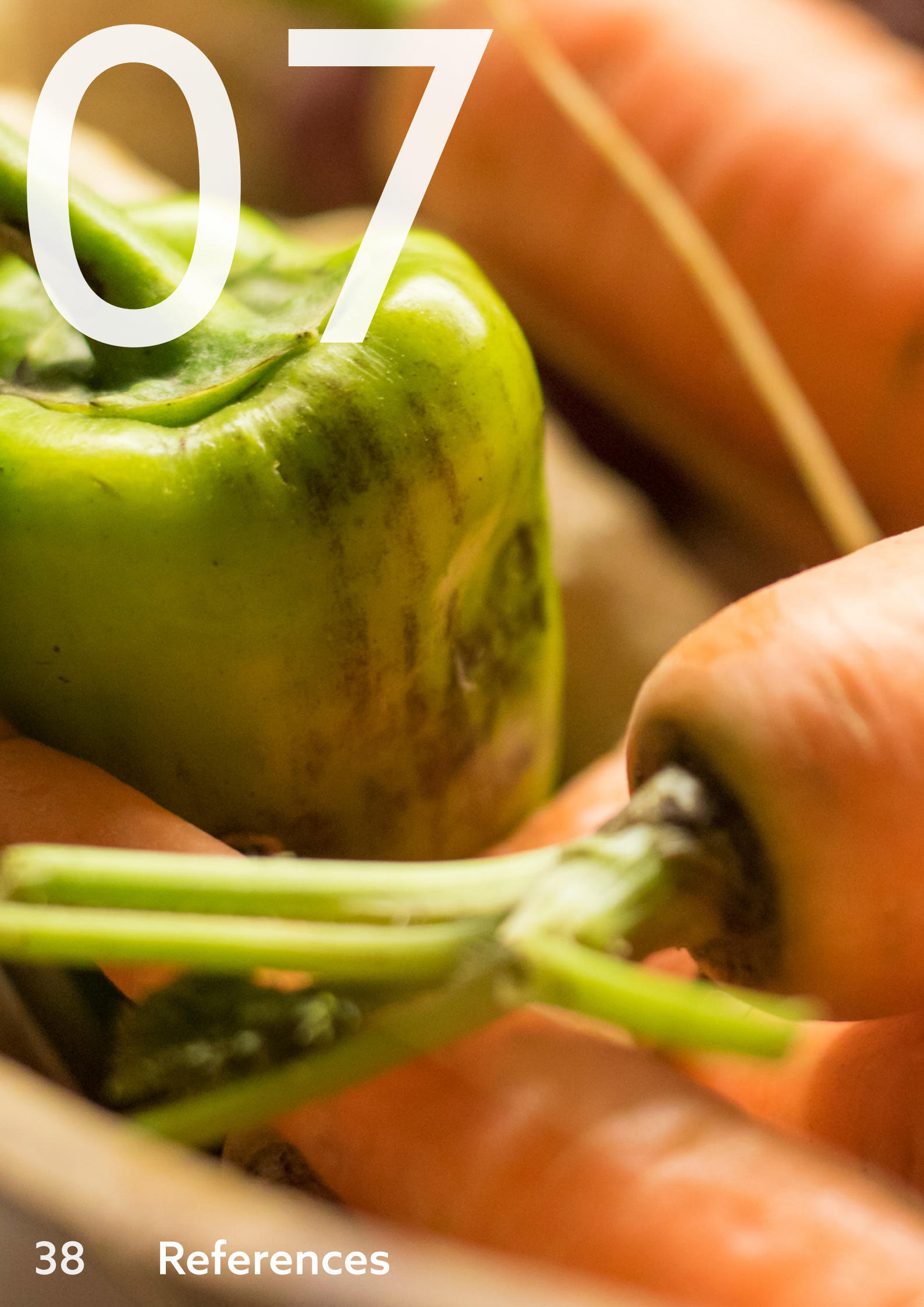
Find out more about End Food Waste Australia.



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About this project

The National Date Labelling and Storage Advice project 1.2.4 explores how consumers use (or do not use) existing food date labelling and storage advice to determine food freshness. Engaging industry stakeholders, policymakers, government, food industry representatives, and consumers, this project will establish the barriers and facilitators to change around the issue of date labelling and storage advice systems.

The project aims to:

- Understand consumers' perceptions of date labelling and storage advice systems
- Explore how date labelling and storage advice systems could be improved to reduce food waste
- Develop pilot packaging designs to explore how date labelling and storage advice systems could be reformed
- Explore the role of industry in creating change to date labelling and storage advice systems

The project partners are:

RMIT UNIVERSITY

Sustainability Victoria

VICTORIA State Government

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Government of South Australia
Green Industries SA

Queensland Government

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