QUICK SERVICE RESTAURANT SECTOR ACTION PLAN SURVEY REPORT 2026

END FOOD WASTE AUSTRALIA

Australian Government
Department of Climate Change, Energy, the Environment and Water

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Executive Summary

Food waste is a major global and national challenge associated with economic losses, environmental impacts and food insecurity. In Australia 7.6 million tonnes of food is wasted per year, of which 70% is edible (FIAL 2021a). Food waste costs the Australian economy $36.6 billion annually. It also generates 3.5% of the nation's total greenhouse gas emissions, using 2,600 gigalitres of water and a landmass greater than Victoria (27.3 million hectares). Meanwhile, food insecurity is an ongoing issue in Australia, with 33% of households affected in 2025 (Foodbank 2025). Greater action is needed to reduce food waste across Australia. End Food Waste Australia is leading the way through Sector Action Plans developed to reduce food waste across the different food industry sectors. Sector Action Plans work with key stakeholders across a food industry sector or along a food commodity supply chain to understand where food waste is generated, why it occurs and what can be done to reduce it.

The Quick Service Restaurant (QSR) Sector Action Plan (SAP) was developed to help address food waste in the QSR sub-sector and is part of a suite of foodservice or hospitality SAPs by End Food Waste Australia/Cooperative Research Centre. For this project, QSR refers to foodservice businesses that serve quickly prepared food with minimal table service, including fast food and takeaway outlets but not cafes. Included businesses may operate under a corporate franchise model and may provide food delivery through online platforms.

The QSR sector is a major player in the Australian hospitality industry. The sector generated $25.3bn in revenue in 2024, accounting for nearly a quarter of the total revenue in the wider hospitality industry (EMR 2025; IBIS World 2025). The sector is large and fragmented, with extremes in the concentration of market share, business types, and business locations. Business types include multinational-chain, Australian-chain and family-owned. The eastern seaboard contains the highest concentration of QSR business. There were 26,630 QSR businesses in Australia as of January 2025, employing 226,000 people. Major fast-food chains comprised the five largest QSR businesses, commanding 43.2% of the sector's market share in 2024 (IBIS World 2025).

The Australian foodservice and hospitality industry generates 1.2 million tonnes of food waste annually, with the majority disposed to landfill (FIAL 2021a) – over 324,000 tonnes are generated in hospitality. Of the total Australian hospitality sector, takeaway food outlets (incl. quick service restaurants) contributes 40% (130,600 tonnes) of food waste per year with 95% disposed to landfill (ARCADIS 2019, p. 76). Yet limited research has been conducted on food waste within QSRs (ARCADIS 2019; FIAL 2021b). This research project identified food waste hotspots within the QSR sector, focussing on insights from food/beverage retailers and corporate office/franchise outlets, to create a sector-wide action plan to address food waste. Reducing food waste within the QSR sub-sector will benefit businesses, decrease environmental impacts and help Australia to meet its objective of halving food waste by 2030 in line with Sustainable Development Goal (SDG) 12.3.

This report focusses on the survey stage of this research project, a part of the overall methodology which included:

- Literature review of existing research on food waste generated in QSRs, published in Australia and internationally.
- In-person interviews and onsite observations of food practices and waste for a QSR chain in Melbourne.
- Survey of individuals who work at QSRs across Australia.
- Survey of managers and owners of QSRs across Australia.

Key insights from the survey stage of this research include:

- The pre-preparation stage was identified as a significant hotspot, with food waste occurring due to overproduction and time-temperature reasons. Fresh ingredients requiring preparation were wasted more frequently than preprepared items that were ready to cook or serve. The storage stage was identified as a secondary hotspot, with waste food occurring due to short shelf life, improper storage, and lack of temperature control in ambient storage areas.

- Crew staff were motivated to reduce food waste but under-equipped in relation to training, tools and authority to act. Crew staff were less likely to receive ongoing training compared to managerial roles. Company protocols concerning time-temperature and food donation contributed to waste, especially in chain-based QSRs.
- Food waste tracking is widespread but inconsistent. The QSRs that tracked food waste often used spreadsheets or inventory software, but few recorded reasons for waste or linked it to specific food handling stages.

Addressing the food waste hotspots requires targeting the operational, behavioural, and structural factors that contribute. These include company protocols, staff, and equipment and unstructured limitations:

- Opportunities exist to review and revise these rigid company protocols to minimise waste in line with the Food Recovery Hierarchy. Food donation is a critical strategy within this multi-tiered approach.
- Opportunities exist to better support crew staff. This includes food waste specific training and regular refresher training . This also increases the number of crew staff to reduce mistakes made due to time pressures.
- Opportunities exist for QSR managers and owners to more highly prioritise investments in maintaining and upgrading physical infrastructure/equipment in stores. Such investment includes ensuring essential equipment such as cool rooms are well-maintained, and air conditioning is installed in ambient storage areas. It would help crew staff to run day-to-day operations more smoothly and help reduce avoidable waste.

By taking meaningful steps to reduce food waste, QSR business can align operational strategies with sustainability goals and contribute to Australia's efforts to halve food waste by 2030.

Please see the Quick Service Restaurant Sector Action Plan Final Report (Francis et al. 2026a) for the full project results and the complete QSR Sector Action Plan (Francis et al. 2026b).

End Food Waste Australia acknowledges the foundational funding provided by the Australian Government’s Department of Climate Change, Energy, the Environment and Water. This Sector Action Plan was supported by research conducted through the End Food Waste Cooperative Research Centre with funding support from the Australian Government’s Department of Industry, Science and Resources.

The Quick Service Restaurant’s Sector Action Plan was co-funded by the New South Wales Environmental Protection Authority and the Queensland Government. The research was conducted by RMIT University. Project partners included the Australian Retailers Association and National Retail Association.

1. Introduction

1.1 The Australian Quick Service Restaurant (QSR) industry

The Quick Service Restaurant (QSR) sector is a major player in the Australian hospitality and food service industry. In 2024, The Australian QSR sector generated $25.3bn in revenue, accounting for nearly a quarter of the total revenue in the wider hospitality industry (EMR 2025; IBIS World 2025). QSR is a term with a muddied definition, leading to varied perceptions of the types of businesses that fall into the category. For this project, QSR refers to foodservice business that serves quickly prepared food with minimal table service, including fast food and takeaway outlets but not cafes. Included businesses may operate under a corporate franchise model and may provide food delivery through online platforms.

QSR businesses in Australia serve a wide range of foods. Aside from burgers and chips, offerings include pizza, burritos, sushi rolls, rice paper rolls, salads, and grilled proteins. The sector also includes juice bars, smoothie bars, bubble tea shops, and ice-cream and frozen yogurt shops. This diversity reflects the sector's responsiveness to consumer demand for speed, convenience, and variety across dietary preferences and cuisines.

The Australian QSR sector is large but fragmented, with extremes in the concentration of market share, business types, and business locations. As of January 2025, there were 26,630 QSR businesses in Australia, employing 226,000 people (IBIS World 2025). Yet the five largest QSR businesses commanded 43.2% of the sector's market share in 2024 (IBIS World 2025). The largest QSR businesses in Australia are the parent companies of major fast-food chains. While QSR businesses are located across Australia, over three quarters of these businesses (specifically fast-food outlets) are concentrated in three states — Victoria, New South Wales and Queensland. New QSR businesses are also more likely to open in these three states. This distribution corresponds to the most highly populated states in Australia, where a larger population allows these businesses to access a larger consumer pool and gauge market acceptance more easily. The fragmented nature of the QSR sector makes it distinct from other hospitality and food service industry sectors in Australia.

1.1.1 Challenges affecting the QSR industry

The sector has remained strong despite significant challenges in recent years, including the COVID-19 pandemic, inflated food costs, the growth of online delivery, and competition from the wider hospitality and food retail sectors (IBIS World 2023). Continuing competition and inflation will drive businesses to seek ways to maintain profitability and minimise costs, while higher consumer consciousness about health and environmental concerns will continue to drive the industry uptake in sustainability initiatives (IBIS World 2023, 2025).

1.1.2 Effects of COVID-19

The Australian hospitality industry was significantly affected by the COVID-19 pandemic, bringing change to both the industry and consumer practices. The impact to QSRs has been mixed. Lockdowns meant that restaurants needed to pivot their offerings to include takeaway and home delivery options. The QSR sector was comparatively less affected as most providers had always operated under a takeaway business model. However, the competition to retain customers intensified as restaurants began to capture a large share of takeaway sales away from QSRs. There were additional challenges when lockdowns lifted. Continued remote work and online learning meant that foot-traffic to physical stores, a major source of revenue, was slow to recover but has risen since 2023 (IBIS World 2023).

Since the pandemic, consumer use of online food ordering and delivery platforms has continued to support the QSR industry with a sustained source of revenue. QSRs recognise that online food delivery platforms form a crucial part of their business, with many

larger businesses developing websites and mobile apps to improve the online ordering experience for consumers. However, a reliance on external platforms has also constrained QSR revenue due to high commission charges. Up to 35% of the order value is paid to the platform, an especially significant amount for smaller QSR businesses.

Food costs increased during the pandemic and have continued to do so due to inflation. QSR businesses have responded by examining cost saving measures such as waste reduction. Even so, increasing inflation has necessitated QSR businesses to raise their prices to consumers to cover food ingredient and labour costs. QSR businesses raising prices has had a mixed effect. While it has helped to increase revenue in the QSR sector, consumers are also choosing to moderate their spending amidst rising cost-of-living pressures.

Overall, the QSR industry has fared well despite the various challenges faced since the start of the pandemic, with revenue rising over the past 5 years at an average rate of 1.2% annually (IBIS World 2025).

1.1.3 Competition from restaurants, cafes, supermarkets and convenience stores

Restaurants, cafes, supermarkets and convenience stores are the key competitors to QSR businesses. Restaurants captured a large share of takeaway sales away from QSRs during the pandemic, but this is now easing due to cost-of-living pressures faced by consumers. Cost-of-living pressures have driven consumers to moderate or reduce their spending, trading down to favour more economical options. This trading down would ideally benefit QSR businesses. However, it has resulted in rising competition from supermarkets and convenience stores, with consumers opting for their ready-meal and takeaways options (IBIS World 2025). Cafes are another key competitor to QSR businesses, competing in the space of healthier food options. Demand in this space has increased due to heightened awareness by consumers over the nutritional content of food when eating out and a conscious effort to choose healthier options (IBIS World 2025). The QSR sector is responding by increasing the number of salad bars, juice bars, and sushi stores. Individual QSR businesses are responding by improving the nutritional content of their offerings and expanding their range of healthier options. By increasing the number of plant-based options offered to consumers, QSR businesses are also meeting a broader consumer demand for more environmentally friendly food options (Statista 2024). The QSR sector therefore continues to adapt to shifting consumer preferences and increased competition from the wider hospitality and food retail sectors.

1.2 Food waste in the QSR sector

1.2.1 Overview of food waste by quantity and type

There is currently a limited body of research that reports what and how much food is wasted in QSRs in Australia and internationally. At the time of writing this report, a search of publications from the past decade yielded only 7 studies with information specific to food waste in QSRs . Of these publications, two relate to Australia (ARCADIS 2019; Jayasekara et al. 2024). Additional publications beyond this set included information on food waste in the wider hospitality sector or in the restaurant and café subsectors (i.e., FIAL 2021a; NSW EPA 2017; SRA 2010; Sustainability Victoria 2021).

The Australian foodservice and hospitality industry generates 1.2 million tonnes of food waste annually, with the majority disposed to landfill (FIAL 2021a) – over 324,000 tonnes are generated in hospitality. Of the total Australian hospitality sector, takeaway food outlets (incl. quick service restaurants) contributes 40% (130,600 tonnes) of food waste per year with 95% disposed to landfill (ARCADIS 2019, p. 76). This 40% estimate likely does not fully represent the full extent of what is wasted, as it does not mention dine-in options from QSR outlets[1]. The Baseline was updated in 2021 with information for the hospitality sector (see FIAL 2021a), but it does not provide separate figures for the QSR industry due to limited data. The most recent Australian study published in 2024, covering 2 QSR outlets, reported a 25kg daily average of pre-consumer food waste (Jayasekara et al. 2024). Given the lack of published research on food waste in QSRs operating in Australia, there is a pertinent need for more research to understand the food waste hotspots in QSRs. Hence the importance of this project.

Food waste in the QSR sector can be divided into two main categories: front-of-house or consumer food waste, generated after the food is sold to consumers; and back-of-house or pre-consumer food waste, generated before food is sold to consumers (see Figure 1). The focus of the QSR Sector Action Plan and actions that QSR businesses can implement to reduce back-of-house food waste.

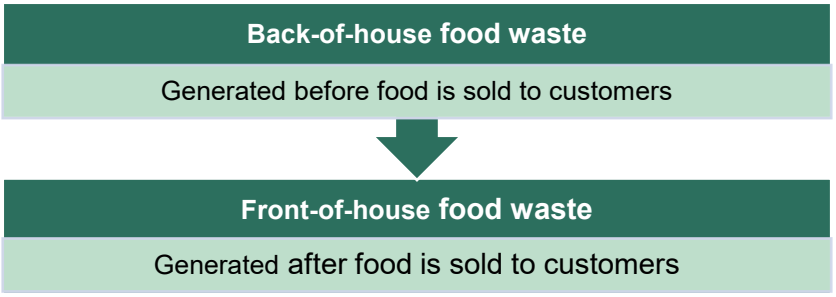

Figure 1: Division between front-of-house and back-of-house food waste

[1] The hospitality and food services sector in the 2019 National Food Waste Baseline is defined as including restaurants and cafes, hotels, catering, food courts and take-away food from quick service outlets.

1.2.2 Known drivers of food waste

There are multiple stages of food handling that can lead to food being wasted back-of-house in QSRs. In the literature, the most-mentioned stage associated with food waste was the pre-preparation stage, followed by service-ready stage, and finally the stock storage stage (see Figure 2).

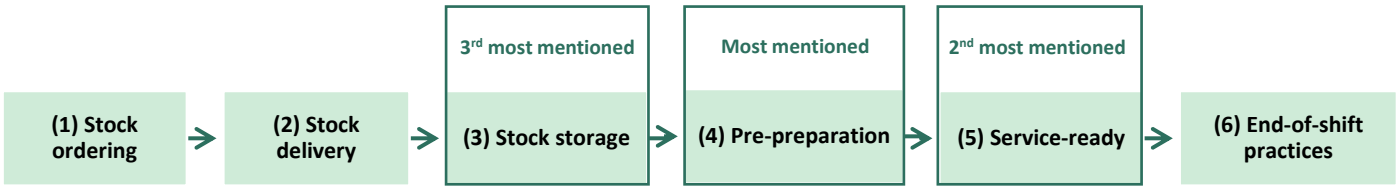

Figure 2: The food handling stages most mentioned in the literature in association with back-of-house food waste.

Reasons for food waste at the service-ready stage included food safety and hygiene concerns (Hirth et al. 2021) that are embedded in company policy, for example a major fast food chain ordering staff to dispose of fries within 7 mins of preparation (Gunders 2012). Human error in the service-ready stage, particularly for hot food, was a reason for waste (Whitehead 2020). Human error was another mentioned driver of food waste at the delivery and storage stage (Dzumbunu 2018), when team members inaccurately predict the shelf-life of products (Kisok Marketplace 2021). Mechanical breakdowns of freezers were also mentioned as a challenge that can occur at the storage stage (Dzumbunu 2018). For the pre-preparation stage, reasons for waste included off-cuts or trimmings and imperfect cooking (Filimonau and Ermolaev 2021; Jayasekara et al. 2024).

The five main categories (from most to least mentioned in the literature) as the reasons for food wasted in the back-of-house stages in QSR businesses are forecasting, hygiene, process, staff, and packaging (see Figure 3 overleaf). Under the forecasting category, the most-mentioned reason for food waste was 'prepared too much food' (i.e., Dhir et al. 2020; Jayasekara et al. 2024), while 'ordered too much stock' was another key reason (i.e., Filimonau et al. 2019; QSR Media AU 2022b). In the 'hygiene' category, the reasons of food waste related to storage period (i.e., Hirth et al. 2021), storage temperature (i.e., Emerson 2020), spoilage (i.e., Dzumbunu 2018), food recalls or faulty stock and dropped or spilled food (i.e., Dzumbunu 2018).

In the 'process' category, preparation offcuts (i.e., Jayasekara et al. 2024) and imperfect cooking (Filimonau and Ermolaev 2021) were the two most-mentioned reasons for waste. The amount of preparation waste generated at a particular restaurant is dependent on what is considered edible and inedible, which has a number of cultural connotations (i.e., Jayasekara et al. 2024). Other process related reasons included poor storage (i.e., Marx-Pienaar et al. 2020), mistakes in preparing food orders (i.e., Cherryh 2019), inability to donate food (i.e., Jayasekara et al. 2024), and machine maintenance issues (i.e., Dzumbunu 2018).

The action or inaction of staff also play a role in back-of-house food waste in QSRs, with staff training or lack thereof a key driver (Dzumbunu 2018; Kisok Marketplace 2021; McAdams et al. 2019). Investment in further staff training (McAdams et al. 2019) or training staff on equipment that saves them time (Kisok Marketplace 2021), can result in less food waste (Dzumbunu 2018). However, there are challenges in providing further training to staff in the hospitality sector due to high turnover rates and increasing costs of training (McAdams et al. 2019). Lesser-mentioned staff-related reasons for food waste was management or staff direction issues (Filimonau and Uddin 2021; Noone and Coulter 2012).

Packaging was least mentioned of the identified categories for back-of-house food waste in QSRs. The most-mentioned packaging reason was date labelling. This includes outdated date labelling practices, such as relying on staff to memorise the exact shelf life of products (Kisok Marketplace 2021). Although this literature review has not identified packaging as a frequently mentioned reason for back-of-house food waste in QSRs, the impact of packaging on reducing food waste is known (Wohner et al. 2019). Packaging's role in reducing household food waste has also been explored in recent years (Chan 2022a, 2022b). Packaging's role in generating/reducing food waste in the QSR and wider food service sector is an under researched area.

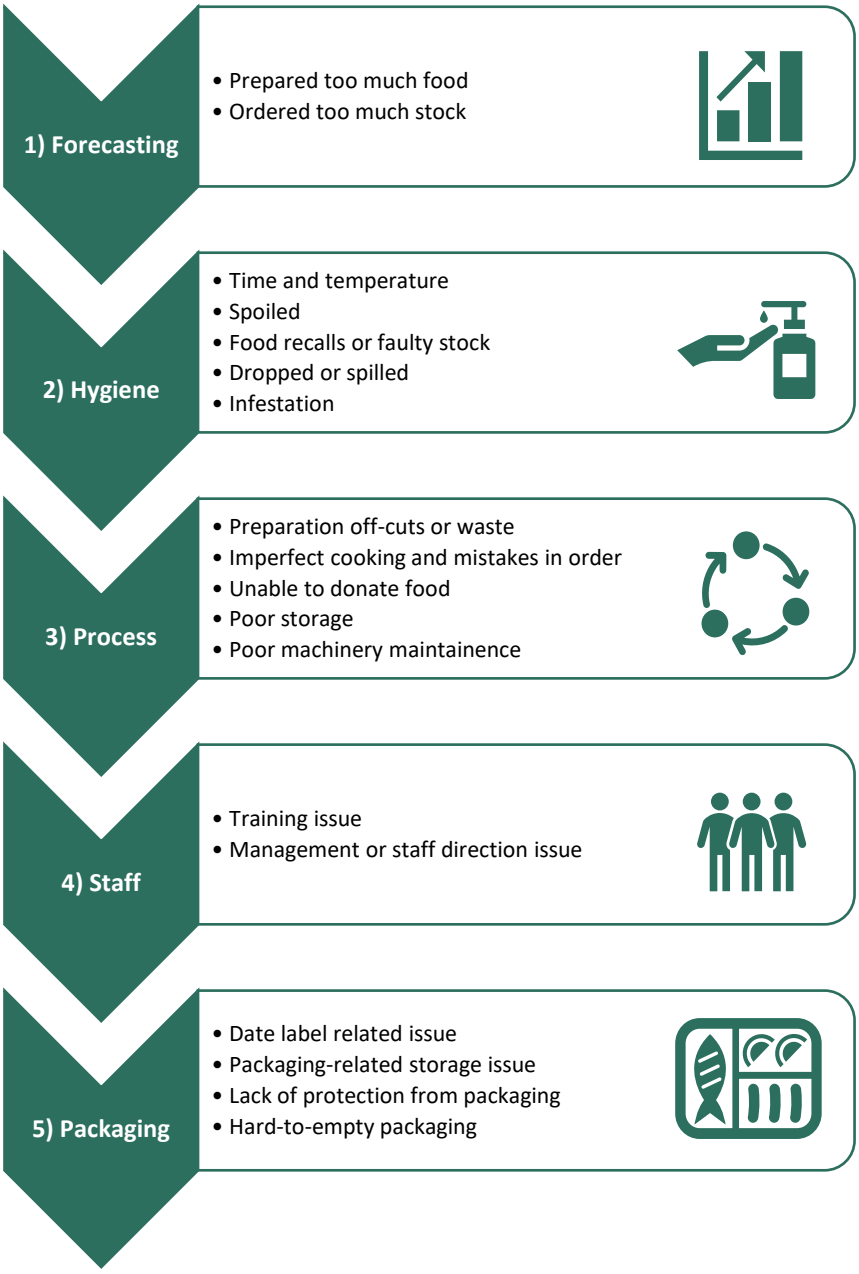

Figure 3: Key reasons for back-of-house food waste in QSRs, presented as five categories from the most to least mentioned in the literature

1.2.3 Suggested solutions to reduce food waste

The solutions suggested in the literature to reduce food waste in QSRs relate to tweaking existing practices across all the different back-of-house processes. As guided by the food recovery hierarchy (see Figure 4), solutions to prevent food waste or surpluses should be prioritised where possible (FIAL 2021b, p.3; Fight Food Waste CRC 2019). Most of the currently suggested solutions fall into this category, possibly owing to promoting good business sense where reducing food waste reduces money wasted (Hanson and Mitchell 2017).

The most suggested solutions to reduce food waste include forecasting for pre-preparation The most suggested solutions or strategies to reduce food waste include forecasting for pre-preparation (Oches 2018; WRAP and Guardians of Grub 2020), regulation of stock ordering (Dzumbunu 2018; Filimonau and Ermolaev 2021) and waste audits (Aytaç and Korçak 2021; Hollis 2019). These strategies assist in reducing food waste with the added benefit of reducing costs. Other waste reduction strategies pertain to proper management and efficient use of existing stock, including processes to improve storage practices (Dzumbunu 2018; WRAP and Guardians of Grub 2020), hygiene practices (Lal et al. 2021; Whitehead 2016), packaging (Martin-Rios et al. 2018; Marx-Pienaar et al. 2020), smart menu design (Dhir et al. 2020), stock rotation/labelling (Oches 2018; WRAP and Guardians of Grub 2020), protein cut to specification (WRAP and Guardians of Grub 2020), nose-to-tail cooking (NSW EPA 2017; Principato et al. 2021), machine guards to prevent spillage (Dzumbunu 2018), and dark kitchens to streamline production processes (WRAP and Guardians of Grub 2020). Staff play a crucial role as human behaviour is a factor behind the many ways food is wasted, so staff training (Hollis 2019; Marx-Pienaar et al. 2020) and employing a food waste manager (Principato et al. 2021) have been suggested to address this.

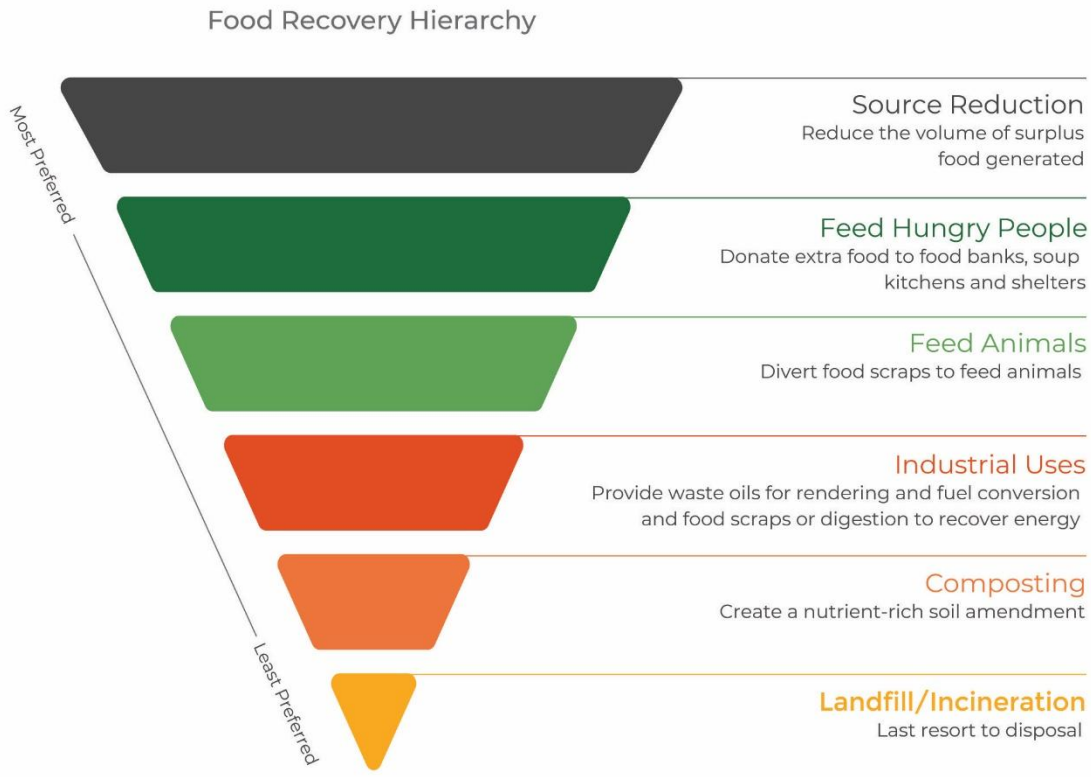

Figure 4: The Food Recovery Hierarchy, from Fight Food Waste CRC (2019) p.26

Where food waste cannot be avoided, the suggested solutions focused on increasing food waste diversion away from landfill or lower waste hierarchy solutions in favour of food donation (Martin-Rios et al. 2018; Sustainability Victoria 2021). Solutions include discounting surplus food (Jayasekara et al. 2024; Thong and Anich 2022) and tax benefits for doing so (Michalec et al. 2018; Thong and Anich 2022).

There are technological options available to help QSRs to implement several of the abovementioned solutions to reduce food waste. In fact, adoption of technology was the most-mentioned solution category (68% of relevant publications), with many of these technological options promoted in QSR industry publications. These technological solutions are wide ranging, from artificial intelligence (AI) and cloud-based solutions to smart technology. Following the adage of 'what gets measured gets managed' for food waste reduction (Champions 12.3 2020), cloud-based platform solutions can provide auditing capabilities for QSRs to track waste (QSR Media AU 2023a). Smart scales can give real-time feedback on what items are being wasted and in what quantities so businesses can adjust accordingly (Clowes et al. 2019; Daninhirsch 2022). Menu and recipe engineering capabilities offered by cloud-based AI platforms can help QSRs reduce waste through efficient use of food ingredients (QSR Media AU 2023b). Internet-of-Things (IoT) based AI systems can be trained to prevent food preparation and spoilage waste by up to 10% (Aytaç and Korçak 2021). Predictive AI can combine previous sales data and real-time weather forecasts to predict food preparation amounts and timings, reducing surplus (Groene and Zakharov 2024). Furthermore, modern robotics technology can assist production management and reduce order errors in QSRs (Noone and Coulter 2012). When there are surplus, social impact businesses such as Y-waste in Australia (Thong and Anich 2022) and Too Good to Go globally (QSR Magazine 2023a; Vo-Thanh et al. 2021) have offered a mobile app platform for QSRs to redistribute this surplus through discounted sales and donation. While Y-waste is no longer operational, the app provided a proof of concept for app-based food waste solutions in Australia. Too Good to Go entered the Australian market in 2024 and partnered with over 1300 businesses in the first year, a momentum that validates mobile apps as a sustainable solution for food waste reduction. Existing technological solutions therefore offer QSRs options to tweak their practices across the different back-of-house processes. As these technological solutions have been promoted in QSR industry publications as a 'quick fix' (QSR Magazine 2023a), there is an opportunity for research to explore their effectiveness in practice.

1.3 Knowledge gaps identified from the literature review

A review of the current literature on food waste in QSRs published in Australia and overseas revealed gaps in current knowledge (Chan et al. 2026a). These gaps represented research opportunities that guided the data collection of this research project. This research project responded to opportunities to conduct research specific to the Australian QSR sector, to better understand what foods are wasted, where waste hotspots occur, the reasons for waste, and the effectiveness of current solutions. By addressing these gaps, this research project contributes to building a more comprehensive overview of food waste in the Australian QSR sector, to inform targeted approaches to waste reduction. In particular, this research project focused on identifying food waste hotspots and root causes, supporting the development of a sector-wide action plan to reduce food waste across the Australian QSR sector. Please see the Quick Service Restaurant Sector Action Plan Final Report (Francis et al. 2026a) for the full project results and the complete QSR Sector Action Plan (Francis et al. 2026b).

1.3.1 Research specific to the QSR sector in Australia

This research project responded to an opportunity to conduct a greater number of food waste research studies that focus specifically on the QSR sector. To date, limited research has been conducted on food waste generated in the QSR sector, especially within the Australian context (ARCADIS 2019; FIAL 2021b). Existing research studies have mostly focused on the wider hospitality industry. This lack of distinction is an issue as the QSR sector has specific practices that set it apart from the other sectors in the hospitality industry (IBIS World 2023). Sector-specific studies are valuable in that the generated insights are deeper and more nuanced, useful to tailor solutions to reduce food waste across the sector — essential to developing a sector action plan.

1.3.2 Data on what foods are wasted and how much

This research project responded to an opportunity to identify the specific types of food wasted in the Australian QSR sector and quantify this waste. Current national data on food waste in QSRs is limited, lacking detail on food types and quantities wasted (ARCADIS 2019). Gathering such data aligns with a recommendation by FIAL (2021b, p. 28) to track waste volume and costs in the hospitality sector. Understanding the scale of a problem is an important step in managing it (Champions 12.3 2020). The additional nuance of understanding what foods are wasted forms a stronger foundation to identify hotspots and recommend solutions.

1.3.3 Information on what factors drive food waste

This research project responded to an opportunity to identify the reasons why food is wasted in the Australian QSR sector. Current information on food waste drivers is from studies conducted internationally, so this project responded to an opportunity to examine whether these drivers apply to the Australian context. This included exploring the role of kitchen staff in the processes across different food handling stages. The project also responded to an opportunity to explore whether the factors that drive food waste differ across multiple types of QSR businesses. Gathering this information helped to identify root causes to tailor targeted solutions.

1.3.4 Information on the effectiveness of current solutions

This research project responded to an opportunity for research that engages QSR businesses in dialogue about what strategies they have used to reduce food waste and perceptions of their effectiveness. While there are recommendations within academic and industry literature on ways to reduce food waste within hospitality settings (WRAP and Guardians of Grub 2020), there is currently limited information on the effectiveness of these solutions, especially within the QSR sector. Such research provides insights into the challenges QSR businesses experience when implementing solutions to reduce food waste, enabling a more nuanced and context-sensitive approach to recommending appropriate solutions.

2. Methodology

2.1 Overview of methodology

This project was a mixed methods study that identified hot spots and root causes of waste across the QSR sub-sector. Ethics approval was provided by the Human Research Ethics Committee at RMIT, approval number 2024-27340-24094 for the *Quick Service Restaurants (QSR) Sector Action Plan Chapter (Project 1.1.7).*

The overall methodology included:

- Literature review of existing research on food waste generated in QSRs, published in Australia and internationally. This literature review informed the questions asked during Survey 1.
- In-person interviews and onsite observations of food practices and waste for a QSR chain in Melbourne. The interview questions and observations guide were informed by the literature review. This research stage enabled the research team to directly engage with QSR staff and gather ground-level insight into day-to-day QSR operations.
- Survey of individuals who work at QSRs across Australia (Survey 1). The questions in Survey 1 was informed by the literature review.
- Survey of managers and owners of QSRs across Australia (Survey 2). Building upon the literature review and Survey 1, Survey 2 was designed to gain more depth on food waste practices in QSRs from managers and owners.

This report focusses on the two-part survey stage of this research project. Please see the Final Report (Francis et al. 2026a) for the details of the full project methodology.

2.2 Survey of individuals who work at QSRs across Australia. [Survey 1]

To understand how food waste is perceived and managed within QSRs, it was essential to gather insights from individuals working in these establishments across Australia. These staff members are directly involved in food preparation within the constraints of a QSR kitchen and can provide valuable perspectives that may not be as evident to higher management or corporate decision-makers.

Survey 1 was informed by the literature review (Chan et al. 2026b), which identified employees and managers as key actors associated with back-of-house food waste in QSRs. The literature review also highlighted that managers often attribute food waste to employees' lack of skill (McAdams et al., 2019). Given this, an anonymous survey was designed to allow employees to freely express their perspectives on food waste without managerial influence. See Appendix A1 for the questions in Survey 1.

The survey was conducted during July–October 2024 and aimed to collect insights from 200 participants currently or previously employed in the QSR sector. The research team used the online survey platform Qualtrics to conduct Survey 1. Qualtrics supported the research team with participant recruitment, survey distribution and data collection. Qualtrics recruited participants from its existing database, screened to meet the study's eligibility criteria:

- Compliance with the project's Human Research Ethics Approval (2024-27340-2409)
- Aged 18 or older
- Currently or previously working (limit of 2010) in a QSR setting

Qualtrics initially provided 220 responses to account for potential exclusions due to low-quality data. After reviewing the dataset, the research team identified 83 responses as low-quality and omitted them from analysis. The final dataset included 136 responses and the distribution of employees and employers is shown in Figure 5, consisting of:

- 125 respondents who identified as Employees (current or former)
- 11 respondents who identified as Employers (current or former)
- Of the 136 respondents to survey 1, 88% had worked for a QSR in the last 10 years, 70% in the last 5 years.

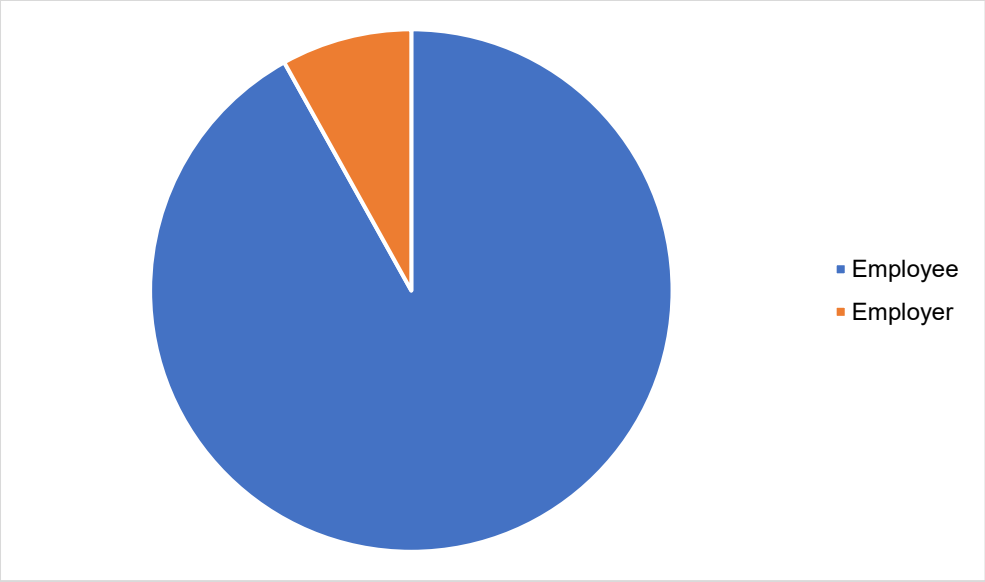

Figure 5: Distribution of Survey 1 respondents across the roles of employees and employers

Following data collection, the survey responses were exported into Excel for data checking and cleaning. This processed removed low quality responses (such as straight-lining and gibberish text) and ensured consistency in the spelling of business names or terminology. These refined data were then analysed via both Qualtrics and Excel to highlight valuable insights about the participants and attitudes and actions with regards to food waste in QSRs. The results of Survey 1 data are presented in Section 3.

2.3 Survey of managers and owners of QSRs across Australia. [Survey 2]

To gain deeper insights into organizational decision-making and operational challenges within the QSR sector, the research team built upon Survey 1 to conduct a second survey that focussed on managers and owners. As key stakeholders responsible for workforce management and overall business decision-making, their perspectives were critical in contextualising data from the initial survey of general staff (Survey 1). This targeted approach allowed for a comparative analysis and a more comprehensive understanding of the factors influencing food waste in the QSR sector. See Appendix A2 for the questions in Survey 2.

The survey was conducted during October–December 2024 and aimed to collect insights from 200 participants currently managing or owning a business in the QSR sector. The research team used the online survey platform Qualtrics to conduct Survey 2.

Qualtrics supported the research team with participant recruitment, survey distribution and data collection. Qualtrics recruited participants from its existing database, screened to meet the study's eligibility criteria:

- Compliance with the project's Human Research Ethics Approval (2024-27340-2409)
- Aged 18 or older
- Currently managing or owning a business in the QSR sector

Qualtrics initially provided 220 responses to account for potential exclusions due to low-quality data. After reviewing the dataset, the research team identified 110 responses as low-quality and omitted them from analysis. The final dataset included 110 responses and the distribution of managers and owners is shown in Figure 6, consisting of:

- 98 respondents who identified as 'managers'
- 19 respondents who identified as 'owners'

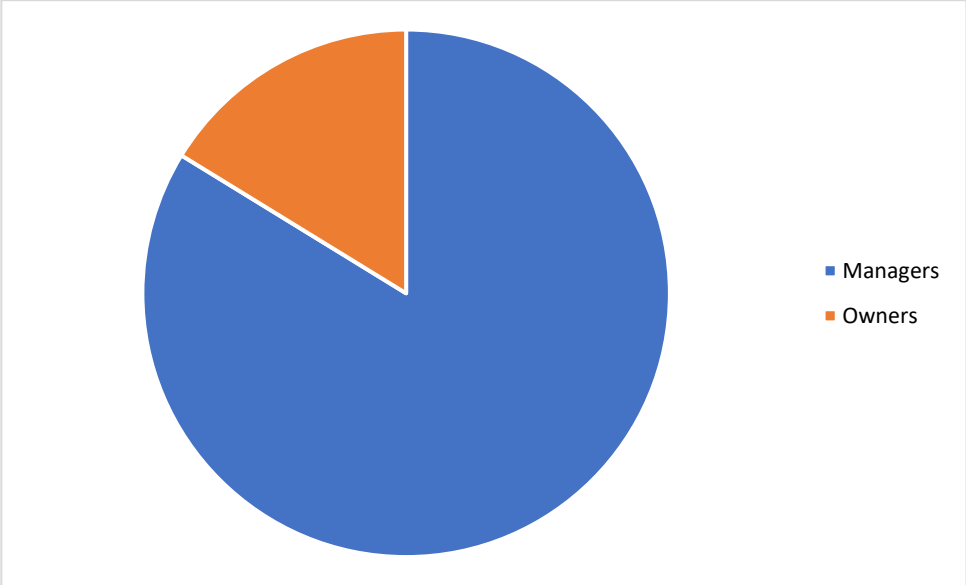

Figure 6: Distribution of Survey 2 respondents across the roles of managers and owners

Following data collection, the survey responses were exported into Excel for data checking and cleaning. This processed removed low quality responses (such as straight-lining and gibberish text) and ensured consistency in the spelling of business names or terminology. These refined data were then analysed using a combination of descriptive statistics and thematic analysis, for an overview of managerial and owner perspectives on food waste in the QSR sector. The results of Survey 2 data are presented in Section 4.

3. Survey 1 Results & Discussion of individuals who work at QSRs across Australia

3.1 Food Waste Account

The survey context presented in 3.1.1 provides a backdrop to the demographic makeup of the survey participants, which reflects the sector more broadly. Sub sections 3.1.2–3.1.3 provide an account of the business types in the QSR sector. Those sub sections also include an overview of food waste management practices, commonly wasted items, wasteful times of the day, and factors contributing to food waste — from the perspectives of individuals who work in QSRs.

3.1.1 Survey Contexts

Survey 1 received 136 responses and the majority (92%) were either current or former employees in the QSR sector (see Section 2.2). A significant portion of respondents (65%) were aged between 18–35, with 74% of respondents saying they were aged 35 or younger when they last worked at a QSR (see Figure 7). This aligns with industry data that highlights the Accommodation and Food Services sector as having the youngest workforce in Australia, with a median age of just 18 for occupations such as Fast-Food Cooks (ABS 2022). The nature of this youthful workforce is also associated with high job mobility, particularly given the highly casualised nature of employment in the sector (Fair Work Commission 2021). This trend was reflected in the survey results, where 77% of respondents reported an employment duration of three years or less in the sector (see Figure 8).

The survey sample was also predominantly women, with 68% of respondents identifying as female (see Figure 9). This distribution of female participants exceeds the national gender composition of the hospitality workforce, where women represent 56% (Fair Work Commission 2021). This highlights a potentially greater engagement from women in participating in this type of research, or it may specifically reflect gendered dynamics within the QSR segment.

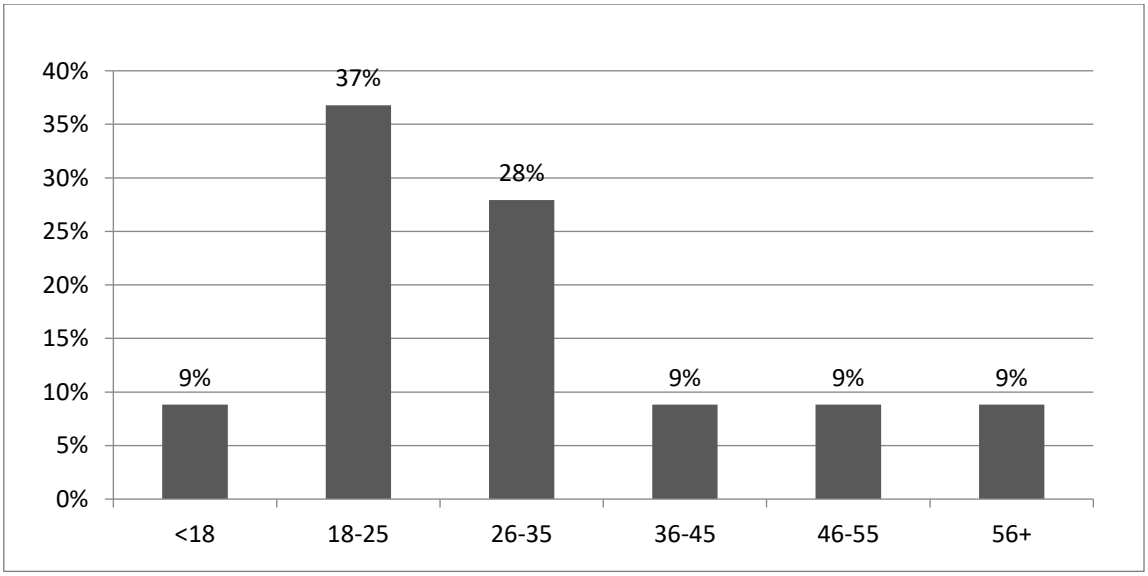

Figure 7: Breakdown of respondents age when last worked at a QSR

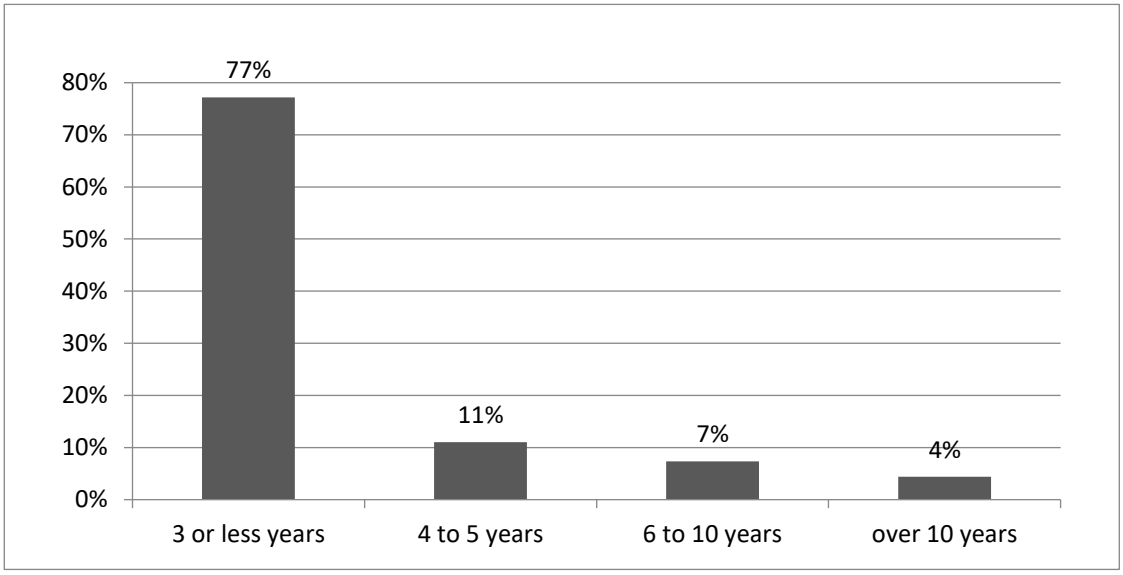

Figure 8: Length of time respondents have worked at QSR

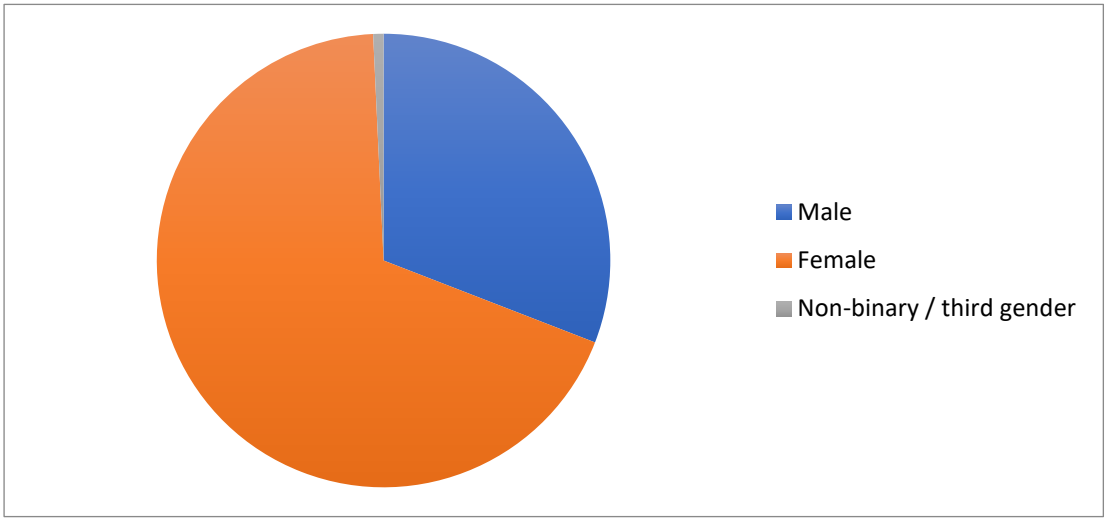

Figure 9: Gender breakdown of Survey 1 participants

Geographically, participants were primarily located along the east coast, with 34% from Victoria, 32% from New South Wales, and 15% from Queensland (see Figure 10). While representation from other states and territories was smaller, every jurisdiction in Australia was included in the survey. This geographic spread closely mirrors the national population distribution, which is concentrated along the eastern seaboard. Additionally, most respondents reported working in QSRs located in suburban city areas, with a majority indicating their workplace was a ‘standalone outlet’. A standalone outlet is a freestanding store in its own building and may feature a drive-thru and parking lot. There was limited evidence suggesting that these demographics had any relationship with food waste practices, but demonstrates this survey was representative of the industry.

Respondents were asked to select their 'main role' at their QSR (Figure 11). Respondents were directed to select all responses that applied, which saw 11 respondents select multiple roles. Approximately three quarters of respondents (76%) worked as 'crew staff', attending to frontline duties of the QSR restaurant — be it cooking, serving or working on the drive through taking orders. The roles of 'store manager'/'branch manager' and 'crew trainer' were next best represented, with both roles involving the operation of individual stores. 'Executive staff' and 'supply chain staff' were underrepresented in Survey 1.

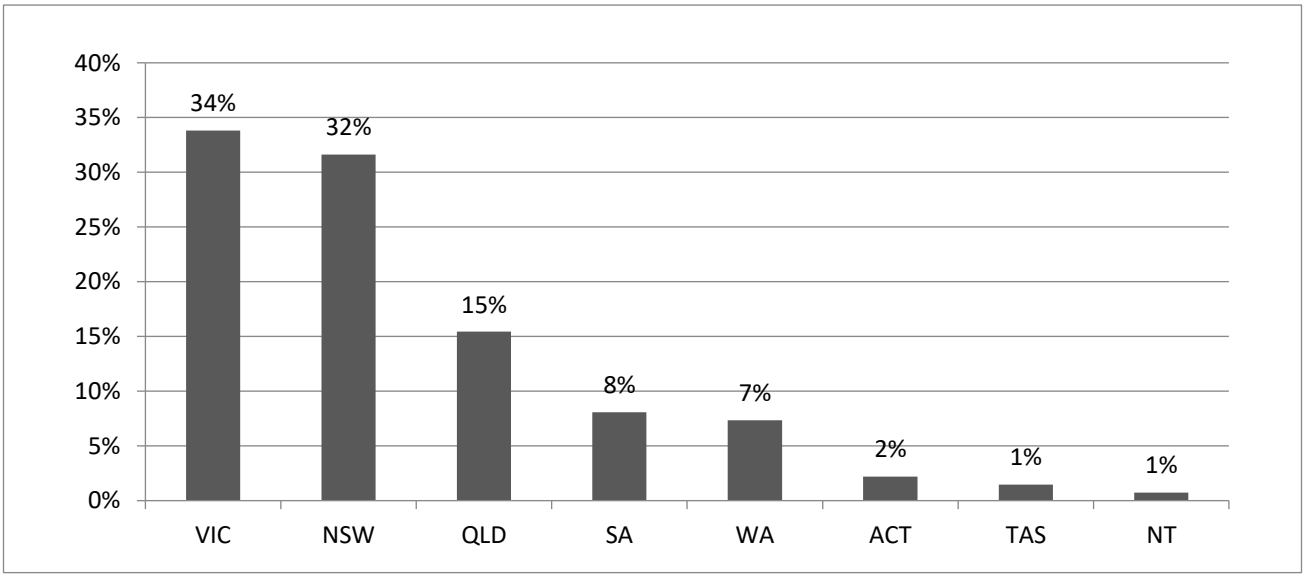

Figure 10: Location of Survey 1 participants

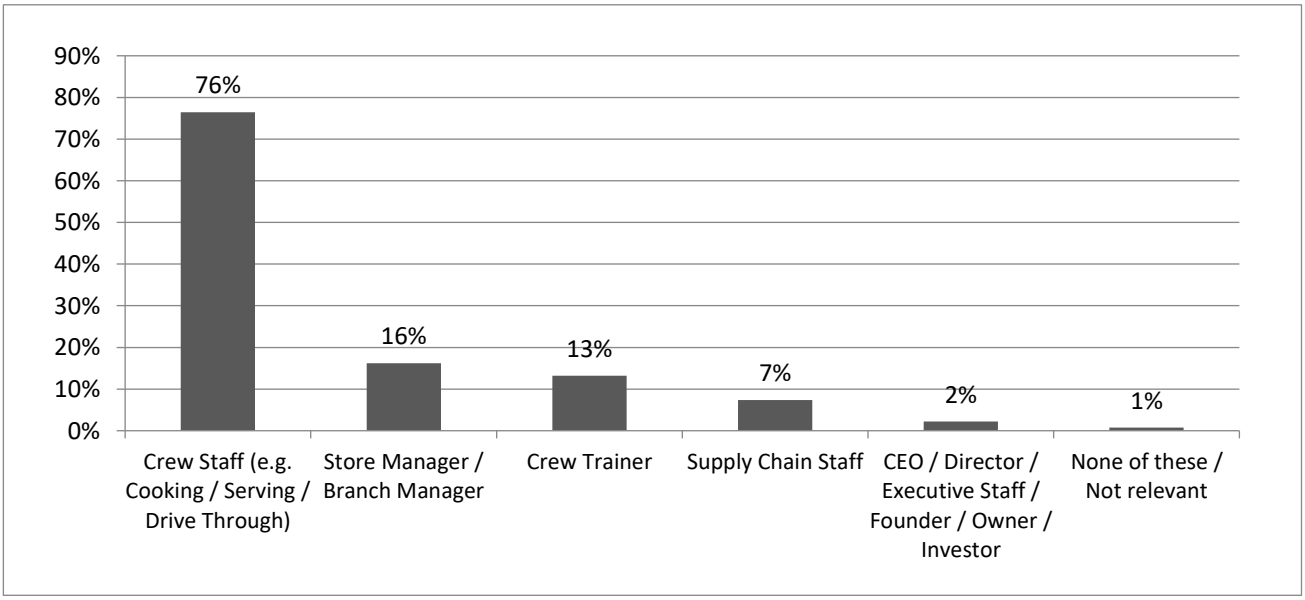

Figure 11: Role of survey respondents ("What is your 'main role' in your QSR business? Select all that apply")

3.1.2 Business types and food waste practices

A range of QSR business types were represented in Survey 1, with 47 individual QSRs captured across multinational chains, Australian-based chains and family-owned businesses (see Figure 12). The variation across businesses included location, physical structure and cuisine type. The represented businesses were located in the 'inner city' (24%), 'city suburbs' (62%) and 'rural' (14%) areas. In terms of physical structure, the businesses were either a 'stand-alone' premises (74%), part of a 'community shopping mall' (11%), or part of a 'large shopping mall' (15%). Cuisine types included 'burger meals' (63%), 'fried Chicken' (34%), and 'pizza/pasta' (13%).

A clear divide emerged between larger multinational/Australian-based chain businesses and family-owned stores (see Figure 12). Among the chain businesses, internationally owned multinational chains were most highly represented at 70%. Multinational chains can be defined as large QSR businesses with global headquarters and operations across multiple countries. Australian-based chains, which originated domestically and expanded to multiple outlets, accounted for 19%. Family-owned businesses — typically independent, single-site venues not linked to a franchise — comprised 11% of the respondents. Despite the large number of respondents, the multinational chains were represented by only 13 individual brands compared to the Australian chains (19 brands) and the family-owned (15) QSRs. One multinational chain business was represented by 53 survey respondents (39%), reflecting how larger multinational QSR chains dominate the sector.

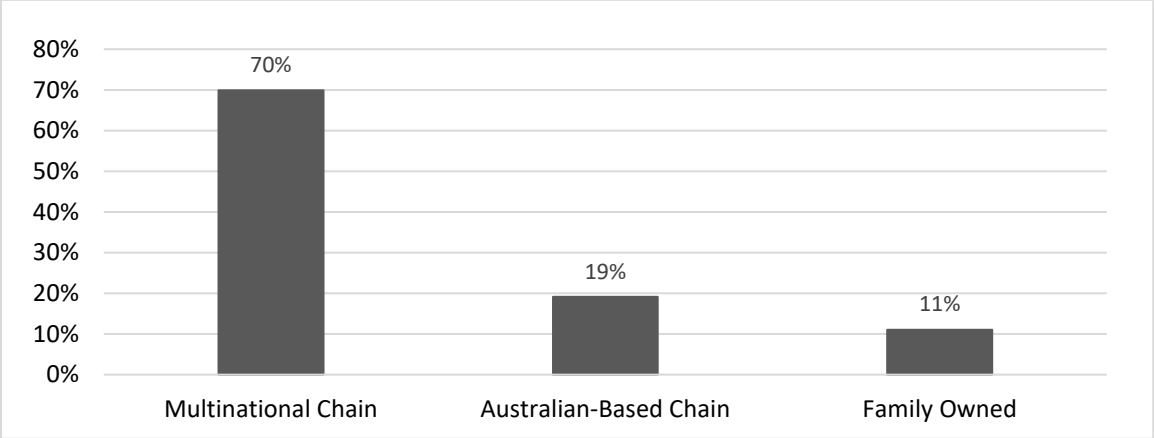

Figure 12: Breakdown of QSR types captured in Survey 1

There were meaningful differences in how the different QSR business types tracked and managed food waste. Overall, 64% of Survey 1 respondents indicated that their organisation tracked food waste. Table 1 indicates that this practice was more common among multinational (69%) and Australian-based chains (65%). Family-owned QSRs were less likely to measure waste (33%) and no respondents from this category compared their waste data to external benchmarks. Among those who did track food waste, 'stocktakes' was the most-mentioned measurement method. Daily estimates of bin counts and pen-and-paper reporting were also highly mentioned (Table 2). The most-mentioned waste quantification method was by weight or volume (size of bin) (Table 3). These two findings do somewhat contradict themselves as stocktakes are not typically done on a weight basis. Moreover, as was reported in the site visit observations (Chan et al. 2026c) and Survey 2 results (see Section 4), QSRs often use product-based metrics (e.g., 'one beef patty' or 'one chicken breast'). Survey 1 did not offer an option for this type of measurement, possibly underreporting its prevalence as waste tracking metric.

QSR Type	Yes, we track food waste internally only	Yes, we track food waste internally and compare our data to external benchmarks e.g. national & global targets.	No, we do not track food waste	Unsure
Australian Chain	46%	19%	27%	8%
Family-owned	33%	0%	53%	13%
Multinational Chain	38%	31%	22%	9%

Table 1: Food waste tracking practices across QSR types in Survey 1 (percentage by row)

Food waste tracking method	Percentage of respondents
Stock take compared to how much was sold	38%
Estimates at the end of the day, number of bin loads	29%
Pen and paper reporting	25%
Online reporting forms	24%
Scales (e.g. weighing bins)	15%
Automatic tracking (e.g. waste bins or trucks weighed)	11%
AI driven tracking	4%

Table 2: Methods used by Survey 1 QSRs to track food waste (respondents could select multiple methods)

Food waste quantification type	Percentage of respondents
Weight: e.g., Kilograms weighted	32%
Sizes: e.g., Bin bag sizes: Small, Medium, Large, Extra Large	29%
Units: e.g., Litres measured in buckets units	23%
Frequency: e.g., How often you have to empty bins	17%
Collections: e.g., Number of truck loads	10%

Table 3: Ways Survey 1 respondents quantified waste in their QSRs
("How do you quantify waste? e.g., what units do you measure in? Select all that apply")

The differences in edible food waste (leftover food) practices by QSR type is recorded in Table 4. Respondents from both multinational and Australian-based chains were most likely to say that their QSR disposed of leftover food via general waste (40% and 50% respectively). Multinational chains were also the most likely to have specific organics bins for food waste, with 18% of respondents from multinational chains indicating that they utilised organics bins. On the other hand, respondents working at family-owned QSRs were most likely to say that they were welcome to take leftover food to eat (53%). This suggests that family-owned businesses redirect leftover food into staff meals as a way reduce food waste to landfill (general waste). There is an opportunity for chain-based QSRs to follow suit, given that they were most likely to dispose of it via general waste.

Table 5 records some of the reasons why Survey 1 respondents disposed of food waste into the general waste or organics bin. Hygiene and legal risks were the most-mentioned reasons or factors for why edible food waste was disposed instead of being repurposed. Respondents from multinational chains were more likely to express concern about these factors, aligning with findings from the literature review (Gunders 2012; Hirth et al. 2021). While food safety and hygiene risks are universal concerns, QSR chains take greater care as they are more likely to be part of a franchise, which carries greater business risk if something was to go wrong (Emerson and Trautman 2019). Survey 1 did not explicitly offer response options like ‘easiest option’ or ‘saves time’. Even so, convenience is likely to be a factor behind the decision to discard food rather than to repurpose or donate it (Drewitt 2013).

QSR Type	All leftover food must be disposed of via General Waste	Leftover food is disposed of into a specific organics bin	Leftover food discounted to avoid disposal	Staff welcome to consume leftover food	Leftover food is donated	Other
Australian Chain	50%	8%	15%	12%	12%	4%
Family-owned	20%	7%	0%	53%	20%	0%
Multinational Chain	40%	18%	14%	11%	16%	2%

Table 4: Differences in edible food waste practices by QSR type (percentage by row)

QSR Type	Count of respondents	Damaged brand reputation / Bad reviews	Damaged food quality reputation	Over-production & wasteful practices	Hygiene risks	Threat of legal consequences	People waiting for handouts at the end of the day	No answer
Australian-Based Chain	14	14%	7%	7%	7%	7%	0%	58%
Family-owned	3	0%	33%	0%	0%	0%	0%	67%
Multinational Chain	55	7%	11%	9%	18%	16%	2%	37%

Table 5: Percentage by row of why respondents disposed of food waste via the general waste or organic waste bin. Limited data points means that conclusive results are limited to respondents from multinational chains.

3.1.3 Wasteful times of the day and areas where food waste was generated

Fluctuations in patronage, especially during peak periods, contribute to various drivers of food waste (Dzumbunu 2018). For this reason, survey respondents were asked to reflect on how time influences waste as well as highlighting the areas where food waste was generated.

3.1.3.1 Wasteful times of the day

Respondents were asked to rank different periods of the business day by how wasteful they perceived them. Both “busy times” and “quiet times” were considered the most waste-prone (see Table 6). Respondents were not asked to provide the exact reason why these times led to more waste, but busy periods can be associated with overproduction and mistakes (Dzumbunu 2018; Park 2024), whilst quiet times can also be associated with overproduction (Hirth et al. 2021). Respondents ranked ‘normal meal times’ third on average, reflecting literature that suggests in food waste is a part of doing business in a QSR (Hirth et al. 2021). Early opening and late closing periods were perceived as less wasteful overall or as having less of an influence on food waste. These findings suggest that food waste interventions need to be sensitive to the rhythms of QSR operations, addressing both the challenges of overproduction associated with both busy and quiet periods.

Variable	Average	Median
Busy times	2.68	3
Quiet times	2.82	2
Normal meal times	3.02	3
Unexpected rushes (e.g. a bus load of people)	3.36	4
Hours just before closing	4.44	6
Hours just after opening	4.68	5

Table 6: Times of highest food waste generation. Participants ranked most wasteful times from 1 (highest) to 6 (lowest).

3.1.3.2 Common causes of food waste

Respondents were given a list of potential causes of food waste and were asked if they thought these causes were significant contributors to food waste in their QSR. Table 7 displays these results. These findings align with literature which suggest that forecasting issues is a major reason for back-of-house food waste, including 'prepared too much food' (Dhir et al. 2020) and 'ordered too much stock' (Filimonau et al. 2019). Although these were not ranked as the top reasons by Survey 1 respondents, they were still ranked as a common reason for waste. Process-driven or staff-driven reasons for edible food waste such as 'mistakes in order' or 'poor handling' were much less prevalent in the literature, but were more likely to be highlighted by those responding to Survey 1. Less prevalent causes of food waste included 'poor storage', 'inadequate stock rotation', 'technology costs', and 'management oversight'. 'Infestation' and 'temperature' issues were the least mentioned causes, highlighting that Survey 1 participants felt that more food waste stemmed from preventable operational practices rather than infrastructure failure.

Causes of food waste	Agree	Disagree	Unsure / N/A
Mistakes in order / customer returns	68%	16%	15%
Lack of time to consider saving food	63%	20%	17%
Ordered too much stock	62%	16%	22%
Poor handling (dropped / spilled food)	59%	26%	15%
Prepared too much food (oversupply and expired)	58%	26%	16%
Lack of motivation to save food	57%	27%	16%
Training Issue	53%	31%	16%
Edible off-cuts not used	52%	27%	22%
Cannot donate leftover food	52%	30%	18%
Poor storage	50%	37%	13%
Lack of rotation of stock (date labels not checked)	49%	35%	16%
Too expensive to implement new technologies	49%	27%	24%
Management of staff issue	47%	32%	21%
Imperfect cooking	44%	38%	18%
Temperature Issues (freezer burnt ingredients or burnt foods)	39%	42%	19%
Infestation	19%	60%	21%

Table 7: Common causes of waste ranked by Survey 1 participants

3.1.3.3 Storage areas where food waste occurs

Survey 1 respondents were asked to identify where waste occurs in the food storage areas of their QSRs, highlighting hotspots of spoilage-related food waste. Figure 13 shows the storage areas where staff observed food waste. The most-mentioned areas stored 'fresh food', followed by 'chilled', 'frozen' and 'dry' food. This pattern of wastage in the storage areas reflects the relative perishability of the foods, aligning with literature that reports fresh food and bread as commonly wasted due to spoilage (Dzumbunu 2018; Hirth et al. 2021). There is an opportunity for QSRs to review and revise their storage practices to reduce spoilage waste, such as through improved temperature regulation and packaging solutions. In fact, 'canned' food was the least represented area in Survey 1. As canning is a preservation method, it highlights the potential of packaging to prevent food waste (Francis et al. 2024). Even so, Survey 1 QSR workers were less likely to consider 'poor storage', 'lack of stock rotation' and 'infestation' as major causes of food waste (see Section 3.1.3.2). This could be a matter of perception, given that Survey 2 respondents identified storage as a the second most-mentioned hotspot for food waste (see Section 4.1.3.2) and that the literature review identified storage as a third most-mentioned hotspot (Chan et al. 2026a). Still, some studies purport that spoilage waste account for a smaller proportion of total food waste in QSR businesses compared to other restaurant types, due to the pre-prepared nature of the food served at a typical QSR (McAdams et al. 2019).

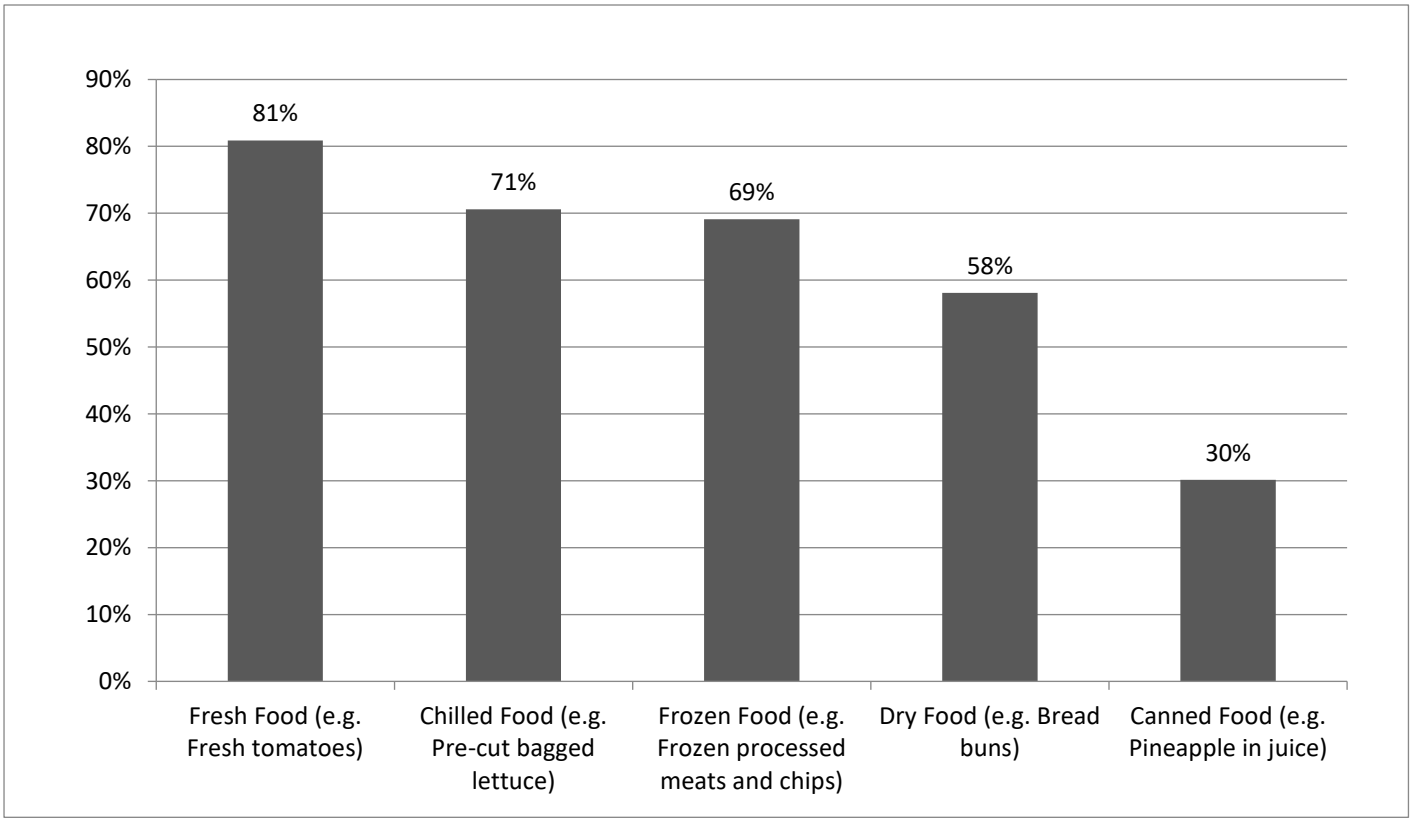

Figure 13: Food storage areas where Survey 1 respondents observed food waste. Respondents could select multiple areas. The percentage is the share of total respondents, i.e., 110 out of 136 (80.9%) selected 'fresh food'.

3.2 Root Causes

3.2.1 Motivations and agency to reduce waste

Understanding what drives food waste reduction behaviour among QSR workers is critical to design interventions that resonate with frontline staff. The literature highlights that management and employees are overwhelmingly the key actors associated with back-of-house food waste (Filimonau and Uddin 2021; Jayasekara et al. 2024), so it was important to survey their motivations and practices to reduce food waste. Figure 14 presents Survey 1 respondents' levels of motivation and know how to reduce food waste and perceptions of management's motivation and know how, at their respective QSRs. Conducing a sector-wide survey meant that it was difficult to capture granular insights that enabled comparing different roles within individual stores (i.e., employees vs managers), so the survey relied on the respondents' perceptions on their management. These insights are important as a culture of blame shifting has been observed in relation to food waste in QSRs (McAdams et al. 2019). Survey 1 responses reveal that motivation to reduce food waste is high among workers across all business types, but this motivation is not always matched with the tools, training, or support needed to act. Respondents consistently rated themselves as more motivated to reduce food waste, compared with their managers. However, a substantial portion of participants (52%) indicated they lacked the knowledge or resources to act on that motivation.

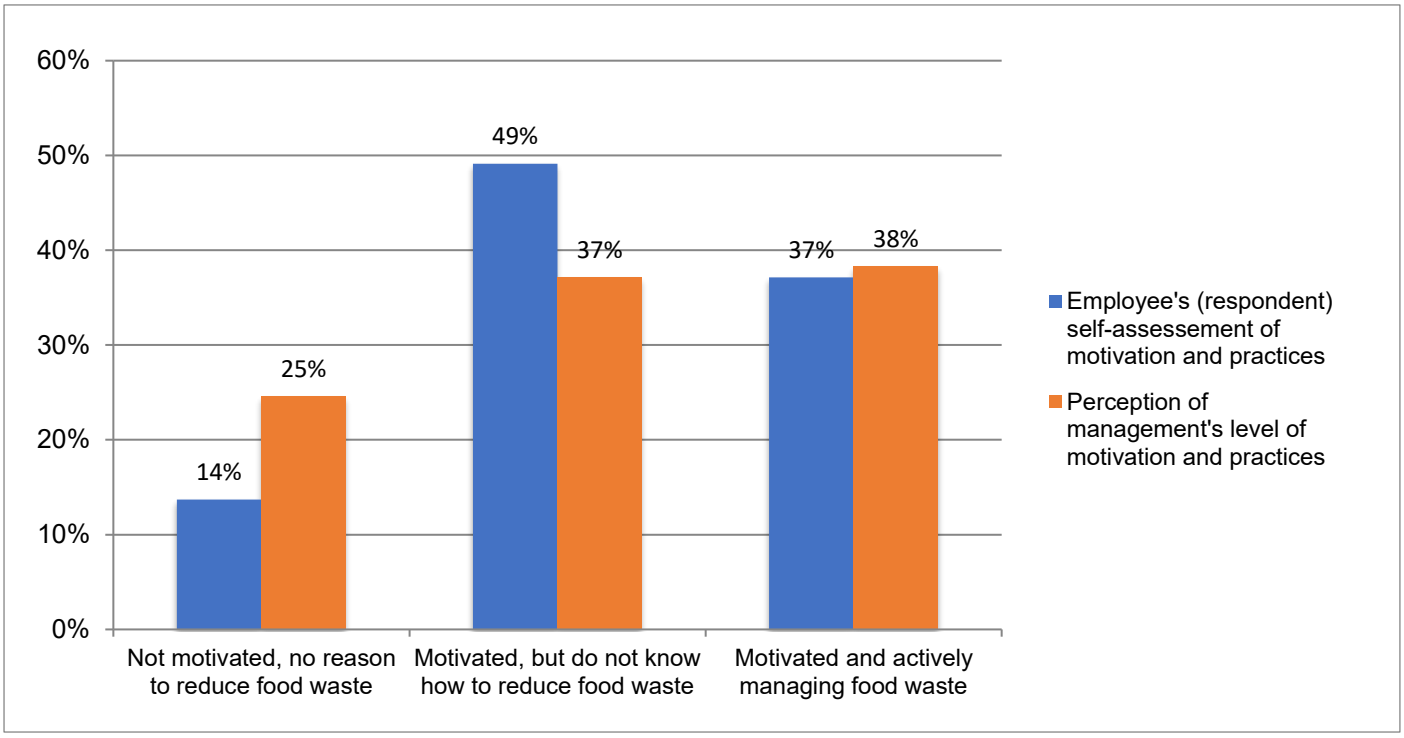

Figure 14: Survey 1 respondents' levels of motivation and know-how to reduce food waste and perceptions of management's perception and know-how. Respondents were asked to select one response per category.

Across all QSR business types, multinational chains, Australian-based chains, and family-owned businesses, between 46% and 60% of respondents said they were motivated but did not know how to reduce waste. Figure 15 show that this represents the majority segment in each group, suggesting a widespread gap between intent and capacity.

A smaller proportion, between 20% and 39% of respondents across business types, reported that they were both motivated and actively working to manage food waste. This proactive group likely reflects those with access to training, management support, or more formalised waste reduction procedures (see Section 3.2.2 for more on training). At the lower end, 13% to 20% of respondents said they were not motivated to reduce food waste, indicating that a portion of the workforce remains disengaged on the issue.

Importantly, there were slight differences across QSR types. Family-owned businesses had the highest relative proportion of staff who were motivated but lacked the know-how, and the lowest proportion of staff actively managing food waste. This highlights a key challenge: while the will to reduce waste exists in independent venues, these businesses may lack access to structured training, organisational capacity, or dedicated food waste systems that larger chains are more likely to implement. This insight supports the finding from Section 3.1.2 that family-owned QSRs were also the least likely to track waste or use benchmarks, reinforcing the notion that they are under-resourced in this space. It should still be noted though that the difference in motivations and level of ability to execute food waste reduction is quite level across the board. Despite having the resources to support staff motivation and training, chain-based businesses may not be fully leveraging these advantages. The gap in staff knowledge between family-owned stores and multinational/Australian based chains, while present, was not insignificant.

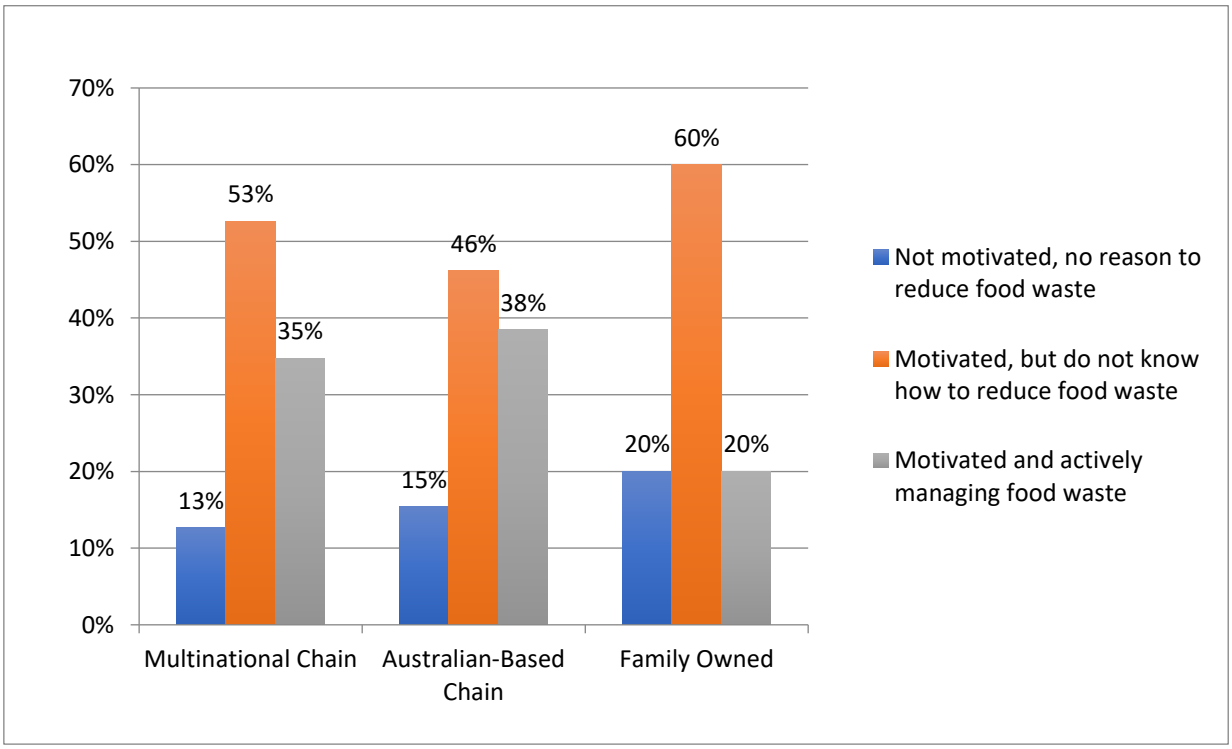

Figure 15: Levels of respondents' motivation to reduce food waste across the different QSR types.

Respondents were also given eight 'reasons to be motivated' to reduce food waste and asked to rank them (1 being the most motivating factor and 8 being the least motivating factor). These reasons are listed in Table 8. The results highlighted that the most-mentioned motivating reasons were 'saving money', 'saving time', and 'saving the planet'. These motivators reflect a blend of practical and ethical concerns, suggesting that financial considerations and environmental values both resonate with QSR workers. At the other end of the spectrum, the least motivating factors were 'being monitored' and 'it is part of my job'. These results, presented in Table 8 suggest that extrinsic enforcement or surveillance-based systems, which have been suggested by industry literature (QSR Web 2018), may not be as effective as intrinsic or value-aligned motivators in encouraging behaviour change.

This disconnection between motivation and ability, particularly in family-owned businesses, underscores the importance of pairing training and practical tools with existing motivation. The data shows that motivation is not the limiting factor; support and knowledge are. Future initiatives aimed at food waste reduction in QSRs must therefore address not just behavioural intent, but the capacity of workers and businesses to take effective action.

Reasons to be motivated to reduce food waste	Average	Median
Saving money	2.52	2
Saving time	3.15	3
Saving the planet	3.35	3
Doing the right thing	4.32	4.5
Easing guilt	4.68	4
Education (teaching kids)	5.38	5
It is part of my job	5.74	7
There is someone that monitors this in my workplace (e.g. a Sustainability Manager)	6.85	8

Table 8: Ranking of motivations to reduce food waste (1 = most motivating factor and 8 = least motivating factor)

3.2.2 Impact of training on food waste behaviour

The Survey 1 results highlight that training plays a pivotal role in shaping how QSR workers respond to food waste. While motivation to reduce waste was found across the board (as detailed in Section 3.2.1), the ability to act on that motivation was heavily dependent on whether respondents had received appropriate training and whether that training was ongoing. Overall, 70% of respondents reported receiving some form of food waste training. However, only 21% said they received ongoing or refresher training after the initial onboarding. Interestingly there was some correlation between the amount of training received and ensuing motivation to act on food waste. Among those who had received both initial and ongoing training, over 60% reported being both motivated and actively managing food waste, with no respondents stating they were not motivated to act. Those who received no training were much more likely to 'not be motivated to reduce food waste' and less likely to be 'motivated and actively managing food waste' (see Table 9). Training also had a clear influence on action (see Table 10); respondents who received thorough training were more likely to report food waste issues to managers, follow established procedures, and contribute to improved waste practices at their workplace. Respondents with no training or only one-time induction training were more likely to either ignore waste issues or be unsure how to respond. This disparity was especially evident when comparing crew staff (e.g., cooks, servers, drive-through attendants) to other roles (e.g., 'store manager', 'crew trainer', 'supply chain staff', 'executive staff').

	Not motivated, no reason to reduce food waste	Motivated, but do not know how to reduce food waste	Motivated and actively managing food waste
No training	24%	54%	22%
Yes, only when I started	13%	58%	28%
Yes, when I started the position and I received ongoing training	0%	39%	61%
Not applicable for my role	25%	25%	50%
(Note: Colour grading indicates frequency of answers. Green = more frequently, red = less frequent)			

Table 9: Respondents' level of motivation to reduce food waste (column) against whether they received food waste specific training. The percentages are ranked against the level of training (rows).

	No training	Yes, only when I started	Yes, when I started the position and I received ongoing training	Not applicable for my role
I ignore the issue	78%	22%	0%	0%
I follow my training but do not report it to my line manager	35%	65%	0%	0%
I follow my training and report it to my line manager	14%	59%	24%	3%
I document issues when they occur and look to headquarters for strategies	7%	60%	33%	0%
I document issues and make new processes, providing training to others	7%	33%	53%	7%
Not applicable for my role	72%	17%	6%	6%

Table 10: Levels of training against waste response behaviour. Percentages calculated by row.

Figure 16 illustrates that crew staff were far more likely to be motivated but lacked the knowledge to act. Nearly 58% of crew staff fell into the category of 'motivated but do not know how to reduce food waste', compared to only around 34% of non-crew staff. In contrast, over 56% of non-crew staff were actively managing food waste, while only just under 27% of crew staff reported doing the same. This suggests that crew staff — who are often the frontline workers directly handling food and managing service flow — are less equipped with the knowledge or tools to deal with food waste, despite being motivated to do so. The findings reflect a gap in

training provision by role type: crew staff were more likely to receive no training or only initial training, while non-crew staff (e.g., 'supervisors, managers, corporate roles) were more likely to receive ongoing or in-depth training. Table 11 presents the amount of training received by role type. These insights underscore the need for QSRs to invest in targeted, ongoing food waste training for crew-level staff, not just management. Given that crew staff are the ones preparing, handling, and disposing of food, empowering them with practical knowledge and clear procedures could lead to significantly better waste outcomes across the sector.

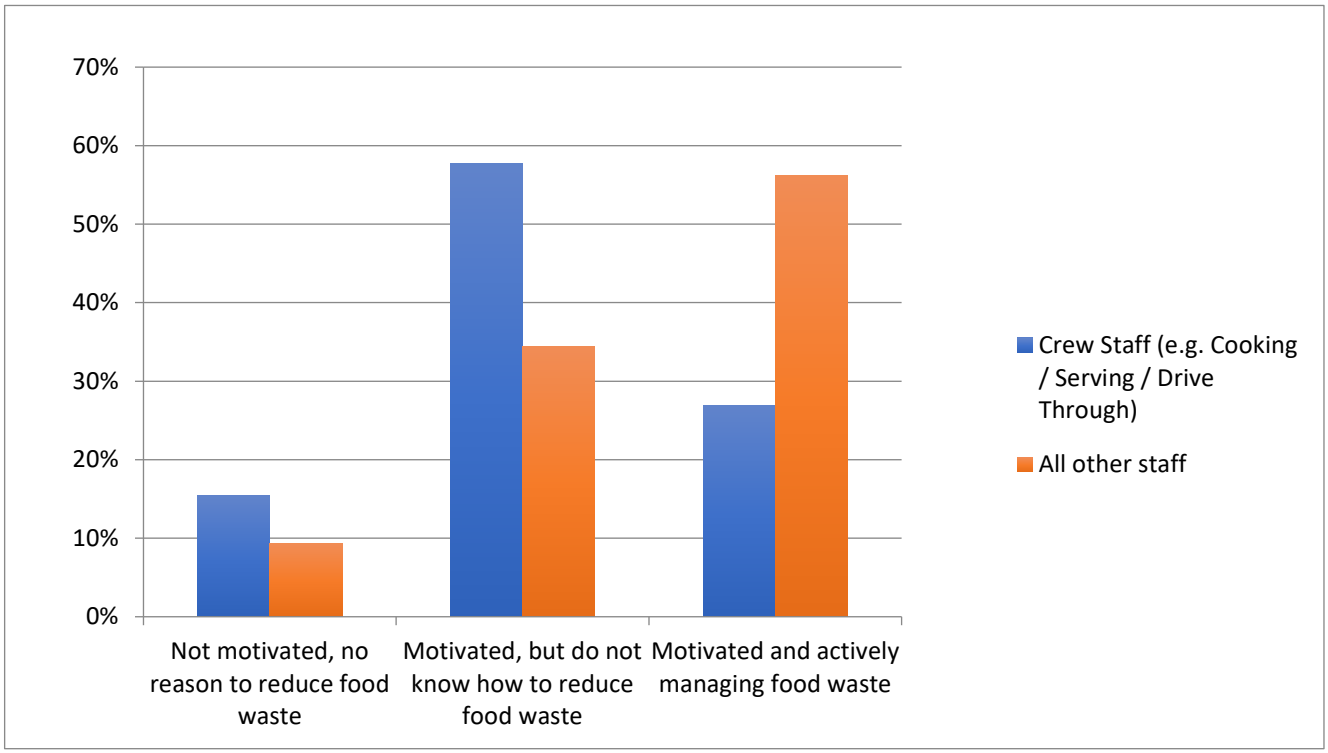

Figure 16: Motivation to act on food waste – crew staff vs. other staff ("How motivated are you to reduce food waste?")

	Crew Staff (e.g. Cooking / Serving / Drive Through)	All other Staff
No training	30%	19%
Yes, only when I started	52%	41%
Yes, when I started the position and I received ongoing training	15%	38%
Not applicable for my role	3%	3%

Table 11: Amount of training received by role type. Percentages per column

3.2.3 Technology implementation in QSRs

Technology is increasingly promoted as a solution to reduce food waste in commercial kitchens, with innovations such as Internet of Things (IoT) sensors, Artificial Intelligence (AI)-based forecasting tools, and real-time stock monitoring gaining attention in global food service literature (Aytaç and Korçak 2021; Groene and Zakharov 2024). However, the Survey 1 responses highlight that in practice, for the everyday QSR worker in Australia, the implementation of some of these technologies appears far more limited.

Table 12 presents the types of technologies used in QSR establishments to help manage or reduce food waste. The technology types identified from literature review were listed, and respondents were asked to select all the technologies used at their QSR. The findings revealed very low uptake of advanced or 'smart' technologies. Tools such as IoT devices, AI, and geofencing-based systems were rarely reported by participants**.** Instead, most respondents described manual or semi-digital methods, such as random sampling, smart menu design, and both online and DIY management systems to augment how food waste is managed.

While food waste technologies may be prominent in industry facing literature (Cherryh 2015; QSR Magazine 2022; QSR Media AU 2023b) they have not yet been widely adopted in the QSR sector, especially at the crew or store level. These technologies may be more frequently used at the management level or higher levels than what the crew/store level realise, due to a lack of exposure, training, or unfamiliarity with the technical vocabulary required to recognise or articulate their use. It also reinforces that food waste tracking and management is still largely driven by manual routines and organisational policies rather than automated systems.

What technologies do QSRs use to reduce food waste?	Percentage of respondents
Food waste audits (e.g. statistics - random sampling of food bins)	32%
Smart menu design (e.g. changes to promote meals using up high stock items)	29%
Online All-in-One Management Software Packages (for stock ordering, management, waste auditing, menu planning)	26%
Fridge door opening time tracker (e.g. alerting when the fridge has been opened too long)	26%
Management Software dedicated to food waste	24%
DIY Management Systems (e.g. Microsoft Excel spreadsheets, Google Sheets)	21%
Forecasting Software (to track and predict trends of demand and supply	18%
Internet of Things (IoT) (In store digitally connected packaging and systems)	11%
AI based solutions (e.g. mapping past sales to weather conditions or holidays)	10%
E-commerce (e.g. consumers pre-order through a website or an app)	10%
Geofencing and cameras around store (to have advance warning of incoming groups of customers)	7%
Other / Unsure / Not applicable	15%

Table 12: Technologies to manage and reduce food waste currently being used inside QSRs. (When considering these technologies available to reduce food waste, which ones does your QSR business use, if known? Select all that apply)

4. Survey 2 Results & Discussion of managers owners of QSRs across Australia

4.1 Food Waste Account

Section 4.1.1 presents the demographic makeup of the survey participants, providing context to interpret QSR managers' and owners' perspectives on food waste generated within their businesses. The next sub sections 4.1.2–4.1.3 provide an overview of the different business types and an account of food waste generated within these businesses. This account includes an overview of how these businesses manage food waste, commonly wasted food items, when food waste occurs, and contributing factors.

4.1.1 Survey Contexts

4.1.1.1 Job role at QSR

Survey 2 received 110 responses, with over 80% of respondents identifying as QSR managers and the remaining identifying as QSR owners (see Figure 17). This distribution of roles includes 7 respondents who say they are both managers and owners, of which half previously held a manager-only role. While the sample of respondents in Survey 2 is not representative, the distribution of respondent roles aligns with the structure of the Australian workforce and QSR business in general, where managerial roles are more prevalent than ownership positions (ABS 2016). The latest data from the Australian Bureau of Statistics reports that 18.1% of the employed workforce are business owners (ABS 2025).

Regarding employment status, the majority of respondents (78%) worked full time and included both managers and owners (see Figure 18). In addition, 77% of the total survey respondents said they previously held another role, with most of these respondents currently working in a managerial position. Over half of these managers have worked at the QSR for over 10 years, starting as a crew member and gradually taking on more responsibilities. This contrasts to the respondents who worked casual or part-time (9%), all of which are managers who have worked at the QSR store for 5 years or less. Even though the QSR workforce is characterised by high job mobility (see section 3.1.1 for Survey 1), businesses rely on experienced in-store managers to ensure operational consistency and customer service (IBIS World 2025). A reliance on experienced managers within QSR businesses can help offset the challenges of turnover and demonstrates the possibility of internal career progression.

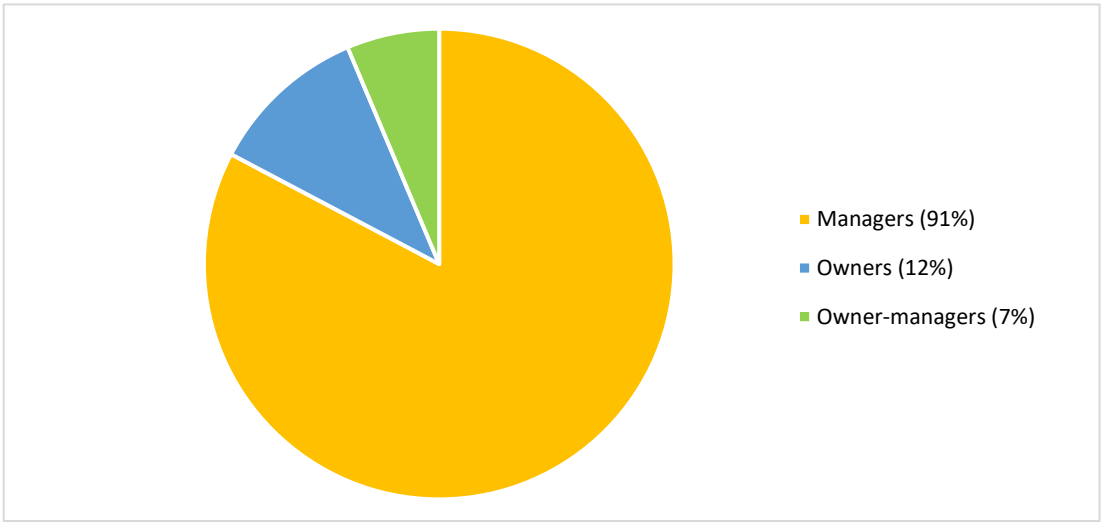

Figure 17: Distribution of respondent roles for Survey 2

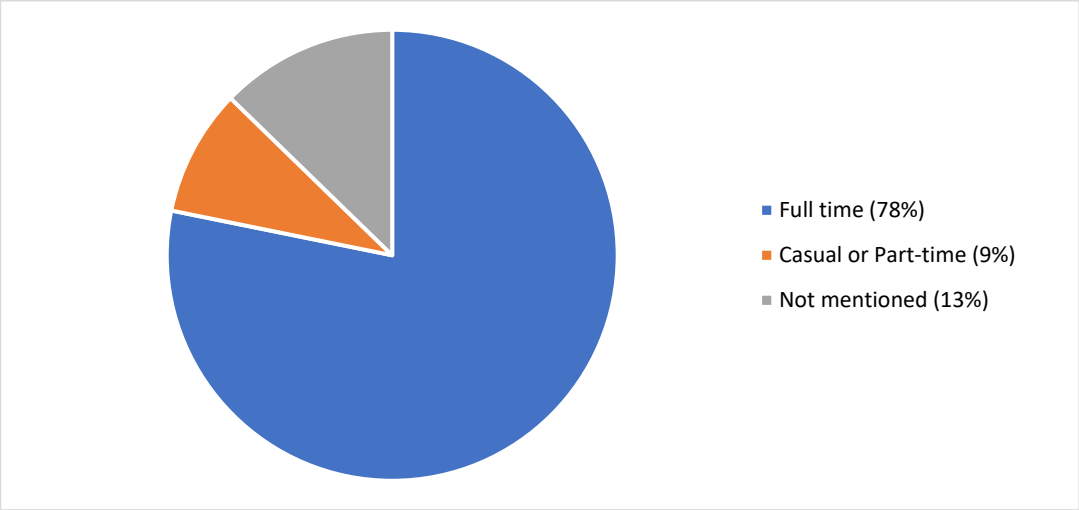

Figure 18: Employment status of Survey 2 respondents

4.1.1.2 Age and gender of respondents

The age profile of Survey 2 respondents reflects a slightly older demographic than that of Survey 1, despite both surveys capturing a predominantly young workforce. The age of respondents for Survey 2 — across both managers and owners — were between 18 and 65 years old. Figure 19 shows a breakdown of the number of respondents by age.

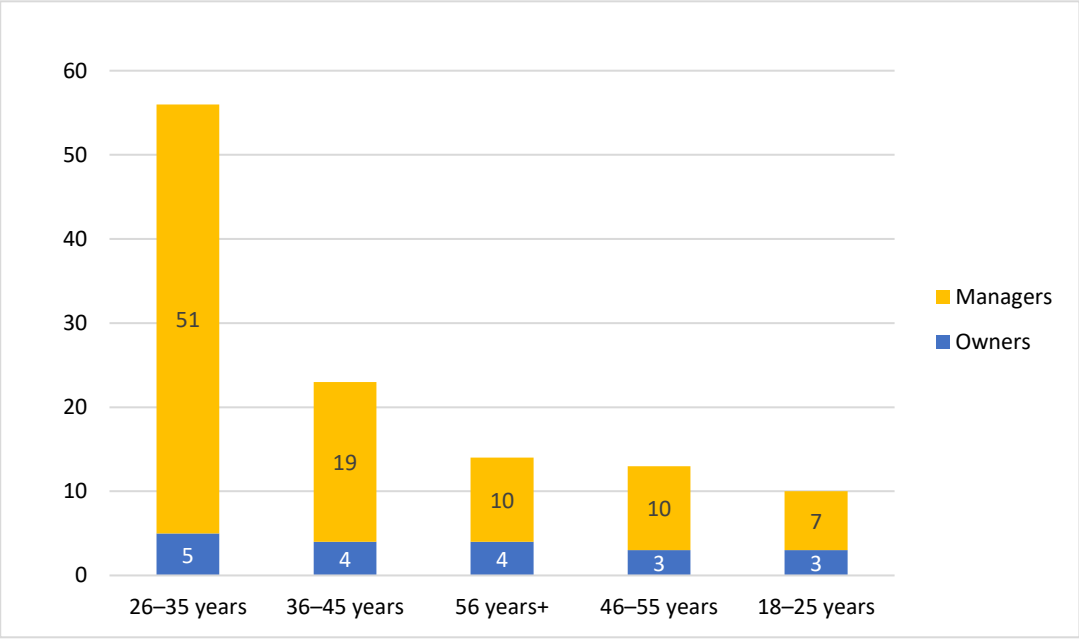

Figure 19: Number of Survey 2 respondents by age, compared by job role. Note an overlap where 7 managers also identify as owners, aged 26–35 years [5], 36–45 years [1], 56 years and over [1]

Most Survey 2 respondents were aged 35 years and under (see Figure 19). This finding aligns with Survey 1 (see section 3.1.1) and census data indicating that the accommodation and food services sector employs the youngest workforce in Australia (ABS 2022). However, closer examination revealed that most of the Survey 2 respondents were older than Survey 1 respondents. The highest and second-highest number of respondents for Survey 2 were within the 26–35 years and 36–45 years age groups, which ranked the second and third highest for Survey 1 respondents. Moreover, the lowest number of responses for Survey 2 was for the 18–25 age group, which ranked the highest for Survey 1. This difference in participant age groups may reflect the focus of Survey 2 on managers and owners, roles which typically require more experience than general crew.

Survey 2 results reflect a gender imbalance among respondents, particularly in management and ownership positions. Over half of the respondents were male (56.4%), while female respondents accounted for 43.6%. This contrasts with Survey 1, where a higher proportion of respondents were female. The lower female representation in Survey 2 also falls below the national gender composition of the hospitality workforce, where women represent 56% (Fair Work Commission 2021). This difference may reflect the focus of Survey 2 on managers and owners, roles in which women remain underrepresented in Australia (WGEA 2025). Figure 20 shows the gender distribution of respondents by role. A significant majority (89.5%) of owners were male, which aligns with national data showing that men own over half (63%) of SME businesses in Australia. Although the gender split among managers was more balanced, male respondents still outnumbered females. These results mirror broader patterns of gender imbalance in business ownership and management across the hospitality sector (ABS 2022).

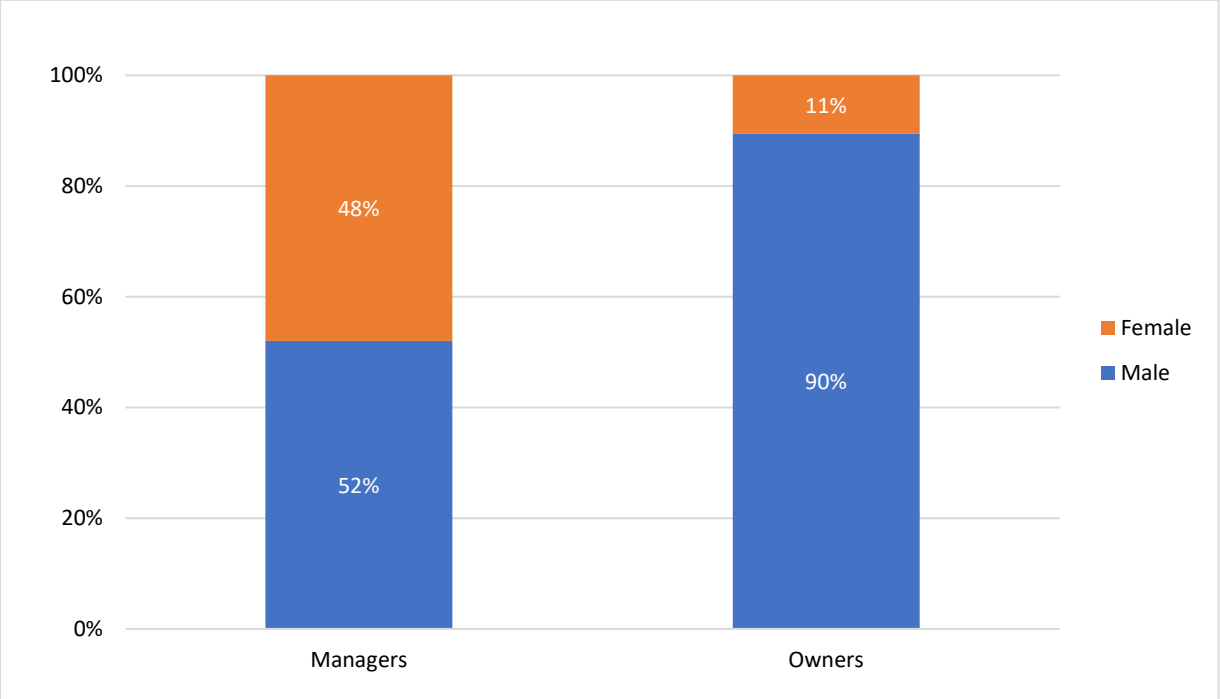

Figure 20: Gender distribution of Survey 2 respondents by role

4.1.1.3 Location and number of QSR businesses owned or managed

The geographic distribution of Survey 2 respondents reflects broader national trends in QSR location and concentration. Figure 21 shows the location of respondents by state. Most of the respondents for Survey 2 were primarily located along the east coast — in alignment with Survey 1 — 46.4% in New South Wales (NSW), 20.9% in Victoria (VIC), and 13.6% in Queensland. Notably, these three states account for over three-quarters of all QSR locations in the country (IBIS World 2025). This alignment highlights how the national distribution of QSRs closely mirrors population density, clustering in densely populated areas. In fact, just over half of Australians now live within 3km of 10 or more QSR brands (GapMaps 2023), highlighting continued growth of the QSR sector.

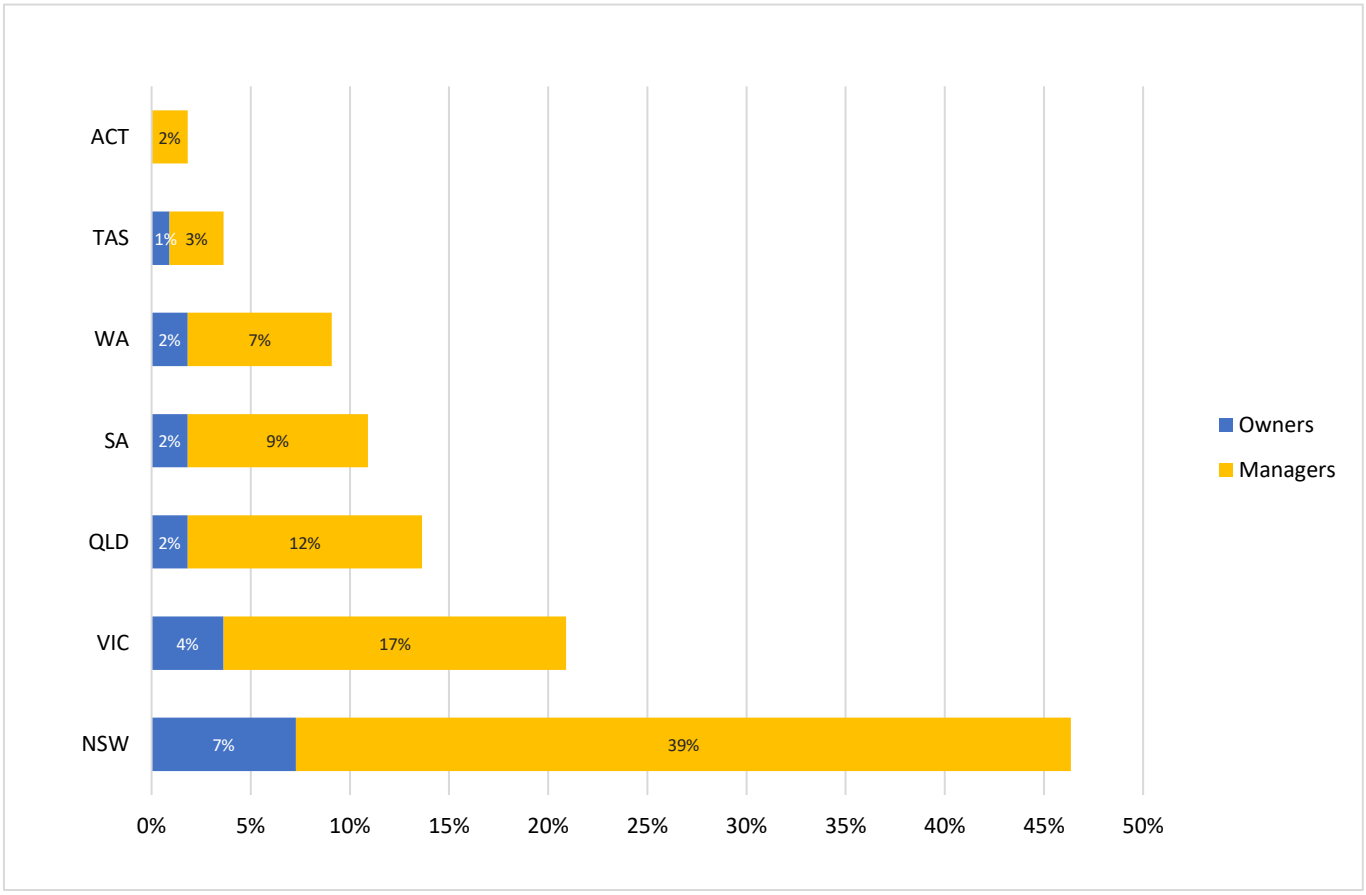

Figure 21: Location of Survey 2 respondents by job role

Most respondents were a manager of or owned 1 QSR business. Figure 22 provides a breakdown of the number of QSR businesses managed by participants. Figure 23 provides a breakdown of the number of QSR businesses owned by participants. Of the respondents who identified as managers, 90% (80 respondents) said they manage 1 QSR and 10% (9 respondents) said they manage 2-3 QSRs. Of the respondents who identified as owners, 79% (15 respondents) said they own 1 QSR and 21% (5 respondents) said they own 2-3 QSRs. The number of QSRs managed or owned by participants referred to different stores or locations for the same business, with exceptions. One participant said they managed 2 QSRs across 2 separate businesses (multinational and Australian chain). Two participants said they managed 3 QSRs across 3 separate businesses (family-owned and Australian chain).

This pattern of management and ownership reflects the broader structure of the Australian QSR sector, where many outlets remain operated by single-site franchisees or managers despite the dominance of large franchise networks (IBIS World 2025). Store-level decision-making is critical to network optimization in QSRs, particularly in suburban and regional areas where local knowledge influences customer engagement and delivery logistics (GapMaps 2023). Section 4.1.2. provides more detail into the QSR business types managed and owned by respondents.

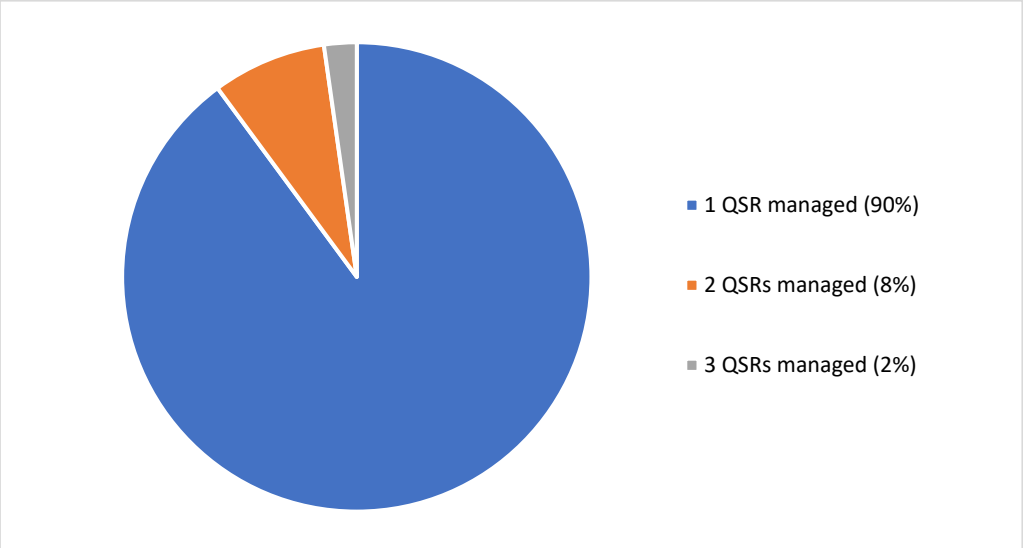

Figure 22: Number of QSR stores managed by Survey 2 respondents [Manager subset n = 98, inc. 7 owner-managers]

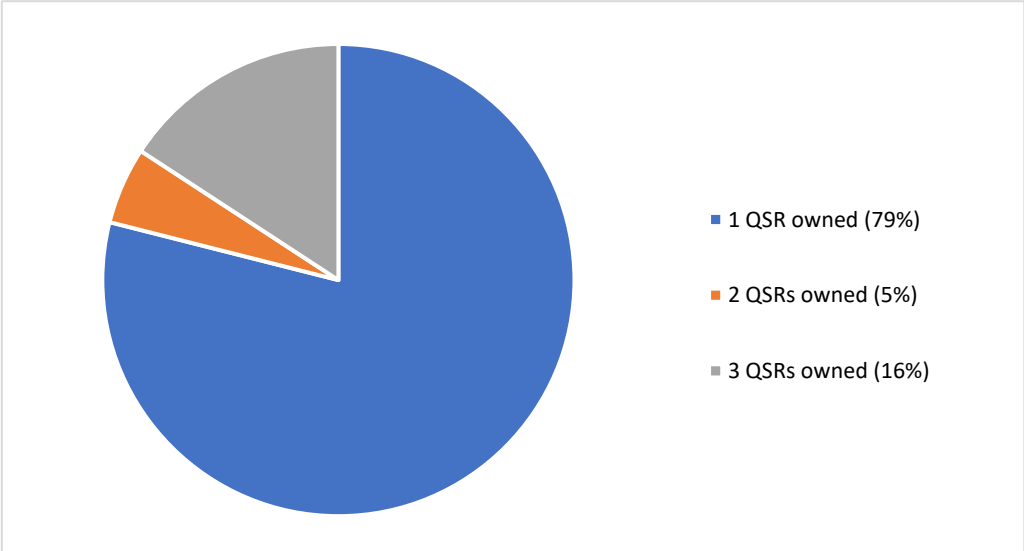

Figure 23: Number of QSR stores owned by Survey 2 respondents [Owner subset n = 19, inc. 7 owner-managers]

4.1.2 Business types and attitudes to food waste

4.1.2.1 Business types

The 44 QSR businesses represented in Survey 2 were classified into three categories — multinational, Australian chains, and family-owned. Figure 24 shows the distribution of these categories, by the number of individual respondents and by the total number of businesses represented.

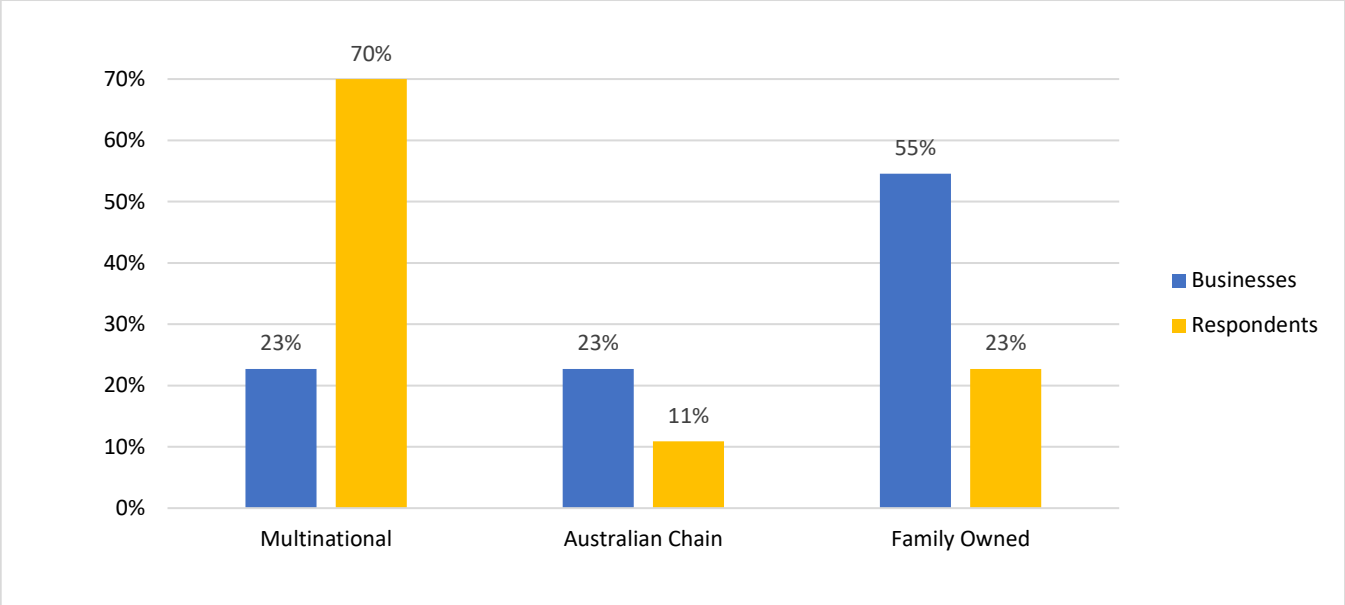

Figure 24: Sample of business classification types for Survey 2 QSRs, by number of respondents and businesses

When examining the distribution by the number of respondents, multinational businesses made up the largest portion of the Survey 2 sample at 70%. This mirrors the profile observed in Survey 1, where staff from multinational QSRs made up the largest portion of the sample. Australian chains were the least represented in Survey 2, comprising 23% of businesses and 11% of respondents. While Australian-owned QSR chains are expanding rapidly in Australia, they collectively operate fewer stores than multinational brands (GapMaps 2023). The top-5 multinational QSR brands in Australia operate 3,823 stores nationally (GapMaps 2023), highlighting the dominance of this category.

When comparing the number of businesses to the number of respondents, there was an inverse relationship for multinational chains and family-owned businesses. While multinational QSRs dominated the respondent sample (70%), this category represented only 23% of the business sample. Inversely, family-owned QSRs comprised more than half (55%) of the businesses but contributed a smaller proportion of total respondents (23%). This inverse relationship shows that multiple respondents were affiliated with individual multinational chains, whereas most family-owned QSRs were represented by a single participant. This also reflects a key difference between the QSR business categories: Multinational QSRs often operate at scale with multiple managers, whereas family-owned businesses may be a single store managed by one owner-operator with few additional management staff.

Highlighting the different QSR business categories and their distribution in Survey 2 provides context when interpreting their food waste practices, which are detailed in the next subsections.

4.1.2.2 Attitudes toward food waste

Relationship between QSR business type and concern for food waste

Survey 2 respondents were asked to rate their concern about food waste, with prompts across different categories (see Table 13). Respondents representing family-owned businesses expressed the highest level of overall concern about food waste, with 40% expressing “extreme concern”. This pattern of higher concern extended across other sub-categories. In contrast, levels of concern for food waste were consistently lower among respondents representing Australian and multinational chains.

		'Overall' concern for food waste	'Employee' concern for food waste	'Management' Staff' concern for food waste	Food waste: an 'Environmental' concern	Food waste: an 'Economic' concern
Multinational	Extremely concerned	10%	4%	ᵛ10%	**^27%**	**^29%**
	Very concerned	**^13%**	10%	23%	26%	27%
	Moderately concerned	6%	**^12%**	**^29%**	23%	22%
	Slightly concerned	5%	8%	18%	ᵛ10%	14%
	Not a concern	ᵛ1%	ᵛ3%	ᵛ10%	13%	ᵛ8%
Australian Chain	Extremely concerned	**^25%**	17%	**^33%**	**^25%**	**^25%**
	Very concerned	17%	17%	17%	17%	**^25%**
	Moderately concerned	17%	ᵛ8%	8%	**^25%**	8%
	Slightly concerned	**^25%**	**^25%**	25%	17%	**^25%**
	Not a concern	ᵛ0%	**^25%**	ᵛ0%	ᵛ0%	ᵛ0%
Family-owned	Extremely concerned	**^40%**	20%	**^36%**	**^48%**	**^40%**
	Very concerned	28%	**^36%**	32%	16%	28%
	Moderately concerned	8%	20%	12%	20%	20%
	Slightly concerned	16%	16%	ᵛ4%	12%	ᵛ0%
	Not a concern	ᵛ4%	ᵛ4%	12%	ᵛ0%	8%

Note that the symbol ^ marks the highest percentage in the subcategory and ᵛ marks the lowest percentage in the subcategory.

Table 13: Ratings by Survey 2 respondents regarding concern for food waste across multiple categories. Percentages marked against each concern rating represent the number of respondents who agree

While concern levels for food waste as an environmental and economic issue were rated at ‘extreme’ across all QSR business types, family-owned businesses were more likely to express extreme concern — at 48% for ‘environmental’ and 40% for ‘economic’ concerns. The ‘extreme’ rating for environmental concerns recorded across all the QSR business types reflects a growing trend of sustainability in the Australian QSR sector (IBIS World 2025). Family-owned businesses may express higher levels of concern to stay relevant to consumers and competitive within a growing Australian QSR sector (GapMaps 2023; Martin-Rios 2025). Businesses use ‘sustainability’ as a form of marketing to build brand reputation and customer loyalty, a strategy that balances profitability and social responsibility (Setyowati 2024). This is apt for family-owned QSRs, which may need to work harder to maintain a viable business. QSRs that fall under the smaller business category (including family-owned QSRs) are more likely to face tight financial margins (ATO 2025), a structural constraint that heightens sensitivity to cost-related inefficiencies such as food waste. Given that food waste directly impacts operating expenses through wasted inventory and disposal costs, the heightened concern expressed by family-owned QSRs over food waste may reflect common business sense within a financially constrained environment (WRAP and Guardians of Grub 2020). Financial losses for family-owned businesses may be felt personally by owners, a possible reason why management staff (including owners) of these businesses expressed the highest level of concern for food

waste — with 36% extremely concerned and 32% very concerned. On the other hand, management staff within multinational and Australian chains expressed less concern about food waste, possibly because the financial effects are rarely personal. Overall, the results suggest that business ownership structures play a role in shaping attitudes to food waste across the QSR sector.

Relationship between concern for food waste and tracking practices

Survey 2 results show that overall QSR businesses are likely (85%) to track food waste, though there are differences between the QSR business categories. Multinational chains (88%) were most likely to do so (see Figure 25), in alignment with Survey 1, followed by family-owned (76%) QSRs and Australian Chains (58%), which is different to Survey 1. While the surveys are not representative, a smaller sample size representing Australian Chains may explain this result.

Respondents working at QSRs that actively track food waste reported greater overall concern for food waste, extending across all QSR business types and concern categories (see Table 14 overleaf). This result suggests that the act of monitoring food waste transforms an abstract concept into a tangible and quantifiable problem, where visibility drives a heightened sense of concern and accountability (Eriksson et al. 2019; McGrath 2021). Tracking food waste as a means to raise awareness into how much food is wasted and its cost to a business, is a widely suggested way to prompt action to reduce it (Clowes et al. 2019; WRAP and Guardians of Grub 2020).

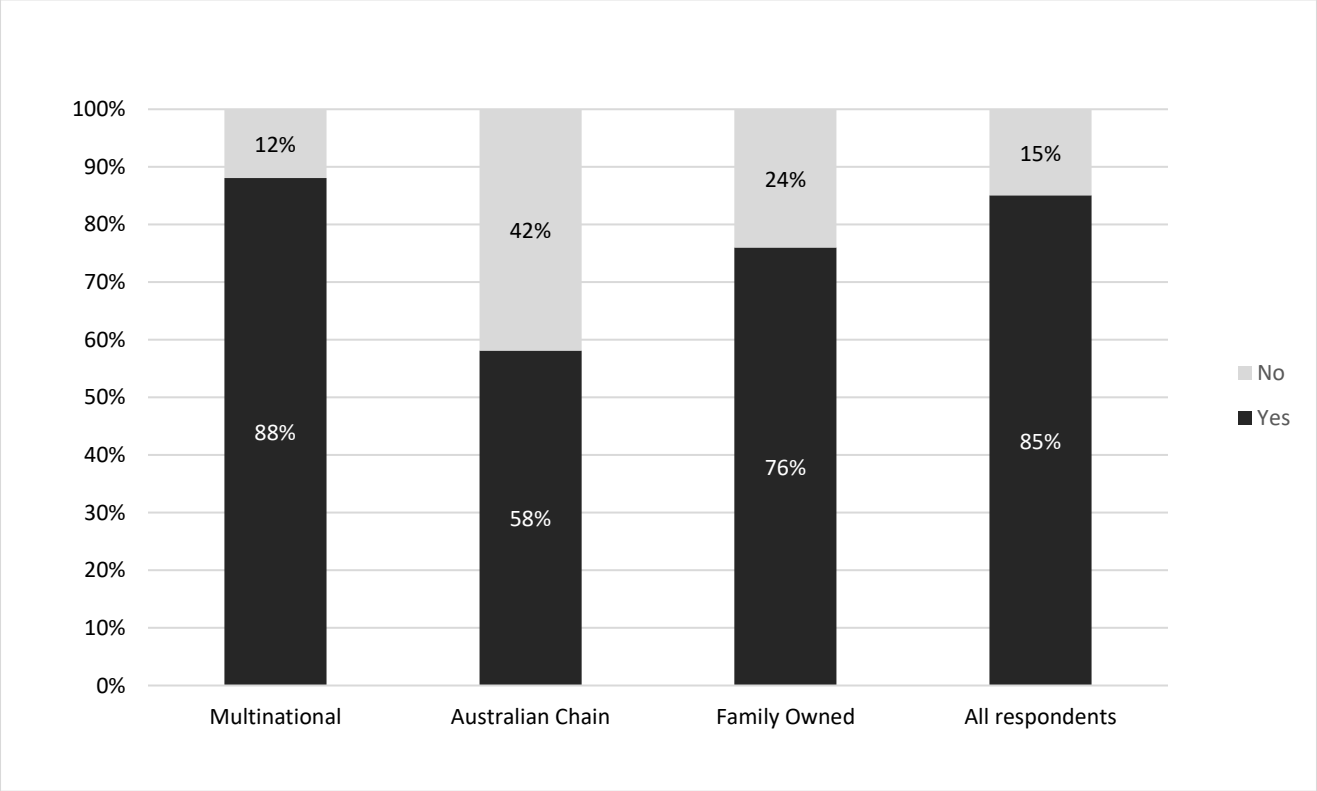

Figure 25: Food waste tracking and reporting status for the QSR businesses captured in Survey 2

		'Overall' concern for food waste		'Employee' concern for food waste		'Management' concern for food waste		Food waste: an 'Environmental' concern		Food waste: an 'Economic' concern	
		Tracks waste	No tracking	Tracks waste	No tracking	Tracks waste	No tracking	Tracks waste	No tracking	Tracks waste	No tracking
Multinational	Extremely concerned	**10%**	0%	4%	0%	9%	1%	**25%**	3%	**25%**	4%
	Very concerned	6%	**6%**	**9%**	1%	**21%**	3%	21%	**5%**	22%	**5%**
	Moderately concerned	3%	4%	6%	**5%**	23%	**5%**	19%	4%	19%	3%
	Slightly concerned	4%	1%	4%	4%	16%	3%	10%	0%	14%	0%
	Not a concern	1%	0%	1%	1%	10%	0%	13%	0%	8%	0%
Australian Chain	Extremely concerned	**25%**	0%	**17%**	0%	**33%**	0%	**25%**	0%	**25%**	0%
	Very concerned	17%	0%	**17%**	0%	17%	0%	17%	0%	**25%**	0%
	Moderately concerned	8%	**17%**	**17%**	**8%**	0%	0%	17%	8%	0%	8%
	Slightly concerned	8%	**17%**	**17%**	**8%**	8%	**17%**	0%	**17%**	8%	**17%**
	Not a concern	0%	0%	8%	**8%**	0%	0%	0%	0%	0%	0%
Family-owned	Extremely concerned	**32%**	**8%**	12%	**8%**	**28%**	**8%**	**40%**	**8%**	**32%**	**8%**
	Very concerned	20%	**8%**	**28%**	**8%**	24%	**8%**	8%	**8%**	28%	0%
	Moderately concerned	8%	0%	20%	0%	8%	4%	16%	4%	12%	**8%**
	Slightly concerned	12%	4%	12%	4%	4%	0%	12%	0%	0%	0%
	Not a concern	4%	0%	4%	0%	12%	0%	0%	0%	4%	4%

Note that blue marks the highest percentage in 'tracks waste' subcategory and red marks the highest percentage in 'no tracking' subcategory.

Table 14: Survey 2 respondents rate their concern for food waste, categorised by whether their QSR tracks food waste

Food waste tracking practices

The results from Survey 2 indicates that digital tools were most used by QSR businesses to track and report on food waste compared to manual methods requiring pen and paper (see Figure 26). This trend was observed across all business types and was especially pronounced for family-owned (80%) QSRs. See Appendix B for a breakdown of food waste tracking practices across the QSR business types (multinational, Australian chain and family-owned).

QSR businesses used multiple digital tools to track and report on food waste, shown in Figure 27. The top three digital tools included Excel spreadsheets, digital food waste tracking technologies, and inventory management software. Spreadsheets (e.g. Excel) were the most used tool (20%) for recording or reporting food waste. However, the data must be collected manually before it can be entered, similar in process to pen-and-paper methods. In comparison, other digital technologies used by respondents have built-in functionality to help QSRs track waste. With the aid of digital tools such as inventory management software (17%), stock takes (or comparing stocks to sales) was the second most used method to track food waste. This pattern extended across all business types, especially family-owned (47%) and multinational (34%) businesses. See section 4.2.3 for further discussion on the impact of digital technology on food waste.

Fewer respondents said that their QSR weighed food waste (7%) or conducted bin audits (7%) but among those that did, family-owned businesses were most likely to do so. In fact, family-owned businesses were the most likely to use a range of methods to track waste, possibly because such businesses do not have standardised ways of tracking waste compared to Australian and multinational QSR chains. Decisions to weigh waste or audit bins may also reflect closer financial accountability by family-owned businesses, where inefficiencies are felt directly at the ownership level (see section 4.1.2.2).

When tracking and recording food waste, information related to food type (57%), handling stage (57%) and number of items (37%) was more likely to be collected and recorded than weight (12%) and reason for waste (7%) (see Figure 28). This may reflect the practical constraints of busy kitchens, where time, labour limitations and perceived complexities over tracking food waste may dissuade staff from collecting more detailed information (Ezeanaka and Tran 2024; Filimonau and Uddin 2021). Recording food type, handling stage and item count may be easier to implement and perceived as ‘good enough’ to guide decision-making. This is especially so if reducing financial losses associated with food waste is a key motivation for businesses to track food waste (see Table 14). The types of information collected and recorded may also reflect the constraints of the digital software used to track food waste (See section 4.2.3). That said, tracking weight or reasons for food waste would provide QSR businesses valuable information to perform a root-cause analysis. Such an analysis would require additional staff training, time and consistency to be effective, so businesses would potentially be less likely to prioritise this unless the process is simplified (Ezeanaka and Tran 2024). Resources are available to guide hospitality businesses, such as QSRs, in ways to effectively track and reduce food waste. This includes resources by the Waste Resources Action Program (WRAP and Guardians of Grub 2020) and Love Food Hate Waste (NSW EPA 2017). See section 4.2.2 for discussion on the impact of staff training on food waste behaviour.

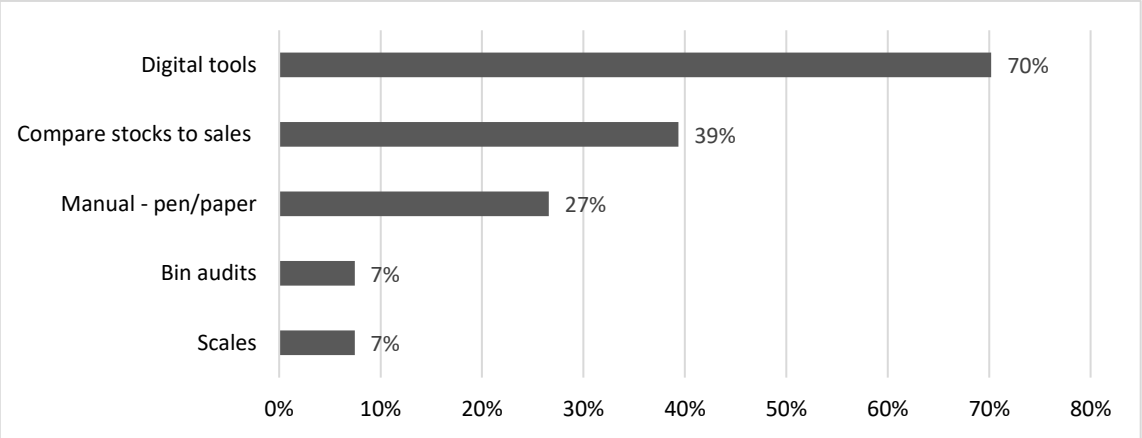

Figure 26: Ways that Survey 2 QSRs track and report on food waste

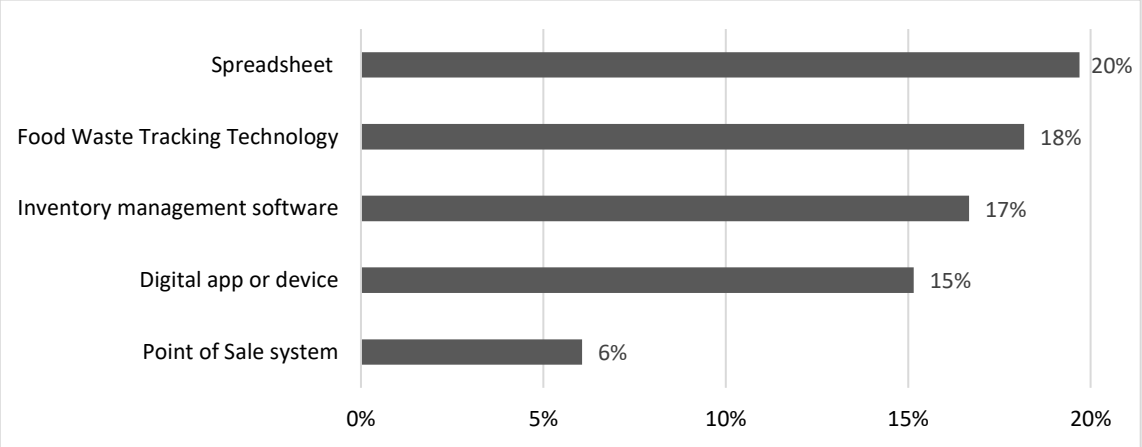

Figure 27: Types of digital technologies that Survey 2 QSRs used to track and report on food waste

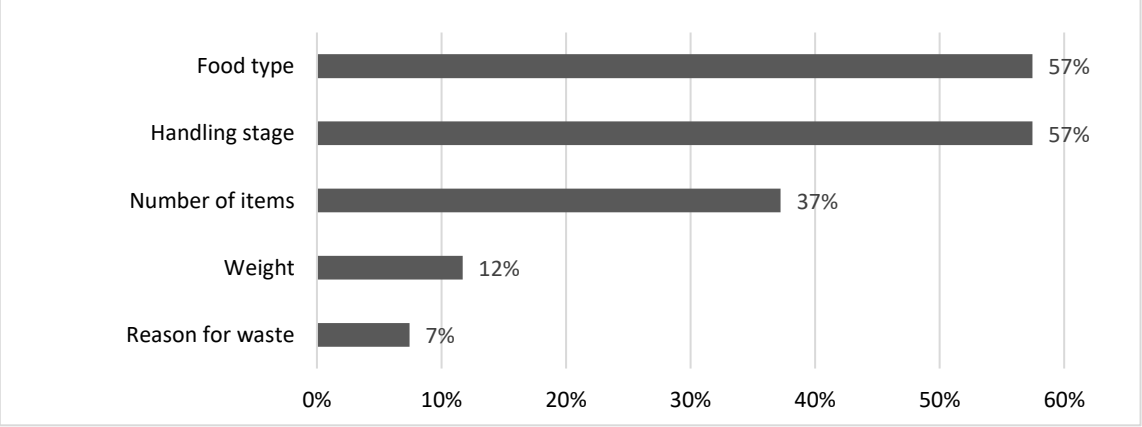

Figure 28: Food waste information recorded by Survey 2 QSRs

Use of KPIs in food waste tracking

Of the Survey 2 respondents representing QSR businesses that track food waste, 60% state that they use KPIs. Family-owned businesses (68%) were most likely to use KPIs, followed by multinational (51%) and Australian Chains (33%) (see Figure 29). Of the respondents that say their QSR uses KPIs, 27% say the KPIs are based on a set percentage of inventory, with a target of 5% or under being the most common (47%). KPIs or targets based on inventory aligns with the finding that stock takes are one of the most common ways that QSR businesses track food waste (see Figure 26).

Cost control and keeping staff accountable are some of the key reasons why QSR businesses use KPIs when tracking food waste (see Figure 30). KPIs are a way for QSR business to keep staff accountable to reduce food waste, a view shared by over one fifth (23%) of respondents representing family-owned businesses. A portion of respondents representing family businesses (15%) also said that reducing food waste is a way to control business costs. For respondents representing multinational businesses, 13% said KPIs are a way to control cost and 8% said it is to keep staff accountable to reduce food waste. Sustainability reasons and sales/inventory metrics were other reasons to use KPIs but were less common. There was limited data from respondents representing Australian Chains. A strong theme of controlling or reducing business costs underscores the tight financial margins such business face, especially by family-owned businesses, as discussed earlier in section 4.1.2.2. While controlling business costs is good business sense, the QSR industry as a whole are also facing additional financial pressures from inflated food purchase and store rental costs (Colliers 2024; IBIS World 2025). In this context, KPIs for food waste serve not only as a behavioural tool for staff, but as a strategic response to rising operational costs across the Australian QSR sector.

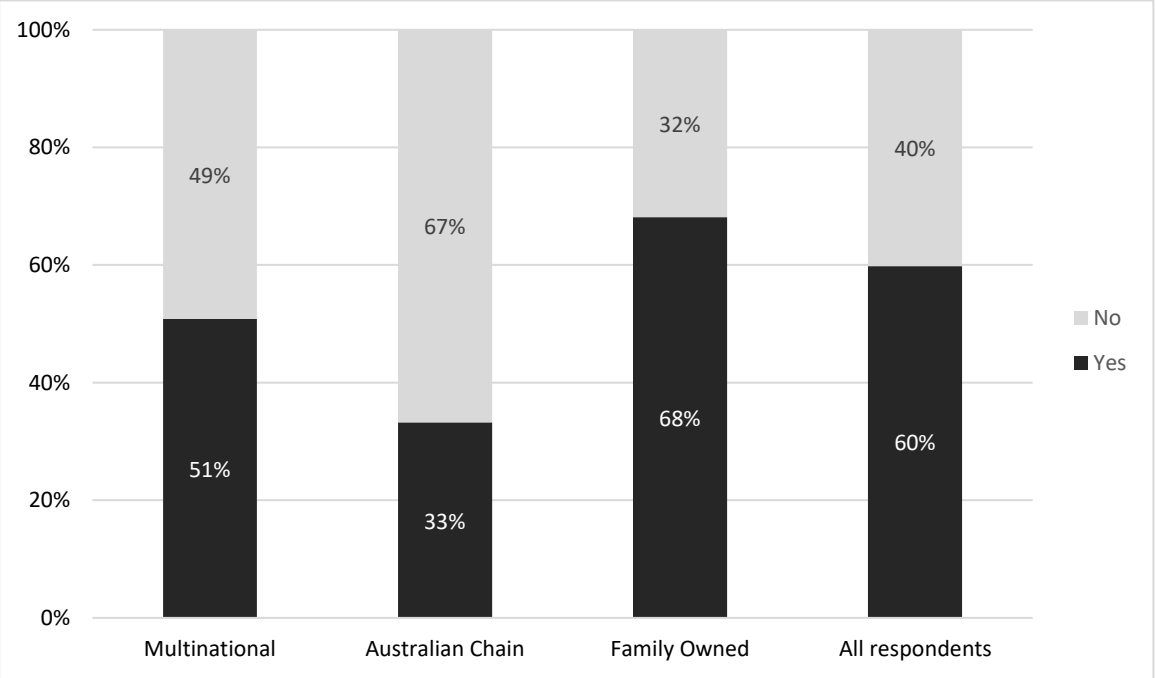

Figure 29: Use of KPIs in QSRs when tracking food waste

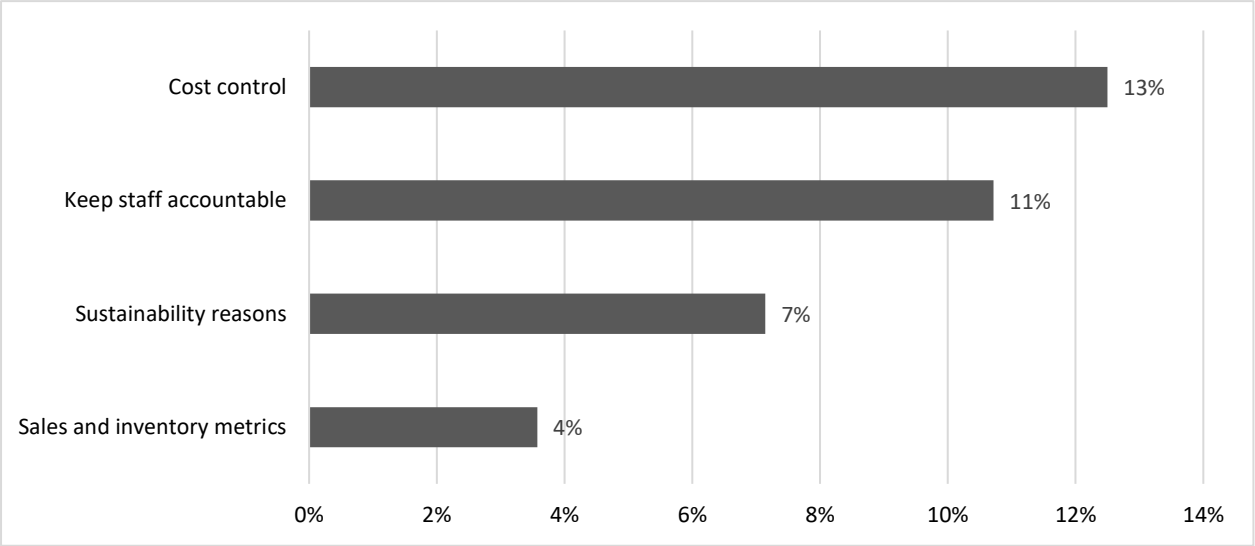

Figure 30: Why QSRs use KPIs when tracking food waste

Ways surplus food or food waste is handled

The different ways that the QSRs handle food waste is shown in Table 15, mapped against the food recovery hierarchy. Disposal to general waste was the most common way that the QSRs represented in Survey 2 handled food waste (46%), aligning with findings in Survey 1. The second most common way was through composting (36%). According to the food recovery hierarchy, composting is more ideal than disposing food to general waste, but still among the least ideal options. A tendency for owner/managers in QSRs to view food waste management as ways to dispose of waste rather than prevent waste is supported by Survey 1 results (see Table 4) and the literature (ARCADIS 2019; Filimonau and Uddin 2021). The National Food Waste Baseline indicates that nearly 95% of food waste generated in takeaway establishments (a subset of the QSR industry) is disposed to landfill and 5% is composted (ARCADIS 2019). A disposal-focused mindset toward food waste highlights the need to shift toward preventative practices in QSRs.

FOOD RECOVERY HEIRARCHY	Actions	Multinational	Australian Chain	Family-owned	All respondents
Prevention	Discounted	9%	8%	20%	12%
Redistribution	Donated	29%	8%	**^56%**	34%
	Offered to staff	5%	8%	˅8%	6%
Animal feed	Animal feed	˅3%	˅0%	˅8%	˅4%
Nutrient recovery	Composted	^^ 34%	**^ 42%**	36%	^^ 36%
Disposal	General waste	**^ 47%**	^^ 33%	**^ 48%**	**^ 46%**

- Symbol ^ marks the highest percentage in the subcategory, ^^ marks the second-highest percentage, and ˅ refers to the lowest percentage.
- Blue highlights notable percentages for solutions sitting high in the food recovery hierarchy and red highlights those low in the hierarchy.

Table 15: Ways that Survey 2 QSRs handle food waste, mapped against the food recovery hierarchy

According to the food recovery hierarchy, prevention and redistribution of surplus food would be the most ideal way to manage food waste. However, most respondents indicated that the QSR they owned/managed did not donate, discount or offer surplus food to staff. For those that did, QSR stores were less likely to discount surplus food (12%) or offer it to staff (6%) and more likely to donate it to charity (34%). The literature points to logistical barriers, food safety protocols, and liability concerns as common deterrents to donation in the QSR industry (Dhir et al. 2020). These structural constraints can discourage businesses from pursuing redistributive strategies to reduce food waste.

Family-owned businesses were most likely to offer surplus food to staff (8%) or donate it to charity (56%), surpassing all other QSR business types (see Table 15). The relative generosity of family-owned businesses depicted in Survey 2 aligns with Survey 1, but for the finding that family-owned businesses in Survey 1 were more likely to offer surplus food to staff than to donate. This divergence could stem from differences in respondent demographics or may reflect the inherent variation in how family-owned QSRs approach surplus food management. Nonetheless, family-owned businesses being more likely to offer surplus food to staff or donate it to charity could reflect their extreme concern toward food waste as a sustainability (environmental) issue (see Table 13). It may also reflect the values-driven and flexible approaches often associated with family-owned businesses, which can promote both social and environmentally sustainable practices (Duarte Alonso et al. 2018; Herrero et al. 2024).

Multinational businesses had the second highest number of respondents say that their store donated food (29%) but had had the fewest say they would offer it to staff (5%). One explanation offered by respondents representing multinational and Australian QSR chains is that a concern that offering surplus food to staff would incentivise food waste. These concerns reflect an emphasis on staff control and efficiency within QSR businesses, where the redistribution of surplus food is weighed against perceived operational risks (Butler and Hammer 2019; McAdams et al. 2019).

The findings presented in this section underscore a persistent gap between the ideals promoted in the food recovery hierarchy and the realities of on-the-ground practices in QSRs. There is an opportunity for QSR sector-wide support to increase the redistribution of safe and nutritious surplus food.

4.1.3 Wasted foods and common causes

4.1.3.1 Food waste reported by respondents who track waste

Survey 2 respondents who indicated that their QSR tracks food waste (see section 4.1.2.2) provided information on the most-wasted foods. Figure 31 shows this information by food category and Table 16 lists specific food items wasted within each category. Figure 32 shows reasons for waste per food category. The top three most-wasted food categories were ‘bakery’, ‘cooked food’ and ‘fresh produce’, with issues concerning quality/safety and forecasting being the most-mentioned reasons for waste.

The category of ‘bakery’ (33%) was the most represented, with ‘buns’ (16%) being the most-wasted item in the category. The top three reasons for waste within the ‘bakery’ category (aside from reason not given) include not fresh or spoiled (10%), short shelf-life (6%) and prepared too much (4%) This pattern of waste reflects broader issues recorded in the literature in relation to aligning production output with fluctuating demand (Jayasekara et al. 2024; Marx-Pienaar et al. 2020). Bakery items that are ready-made or baked on-site are nonetheless prone to staling and spoilage, so are often discarded if not sold within a certain timeframe. Even so, extant research suggests the waste of bakery items in hospitality sector is mainly avoidable (SFWA 2022; WRAP 2014). Interventions such as improved forecasting and storage strategies could help reduce losses in this category.

Fresh Produce		Fresh Meat		Dairy & Eggs		Bakery		Cooked Food		Other	
Vegetables	15%	Meat	2%	Milk	2%	Buns	16%	Fries	11%	Pickles	1%
Lettuce	10%	Chicken	1%	Cheese	2%	Wraps	1%	Cooked food	9%	Food scraps	1%
Tomato	9%			Eggs	1%	Cakes	1%	Chicken	5%		
Fruit	4%					Cookies	1%	Pizza	2%		
Salad	3%							Rice	2%		
Cucumber	2%							Fish	1%		
Bok choi	1%							Pasta	1%		
Capsicum	1%							Refried beans	1%		

Table 16: The specific foods that Survey 2 respondents say are most wasted, based on food waste tracking in QSRs. Percentages calculated by the total number of respondents [N= 94] who said their QSR tracks food waste

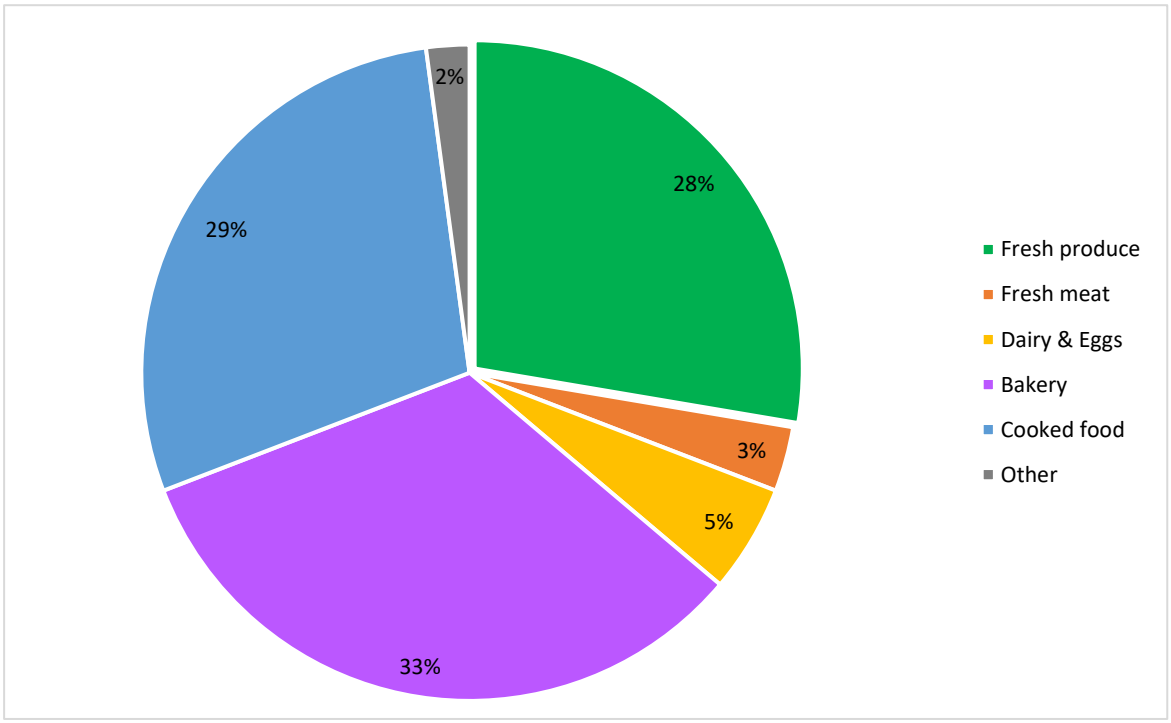

Figure 31: The food categories that Survey 2 respondents reported as most wasted, based on QSR waste tracking

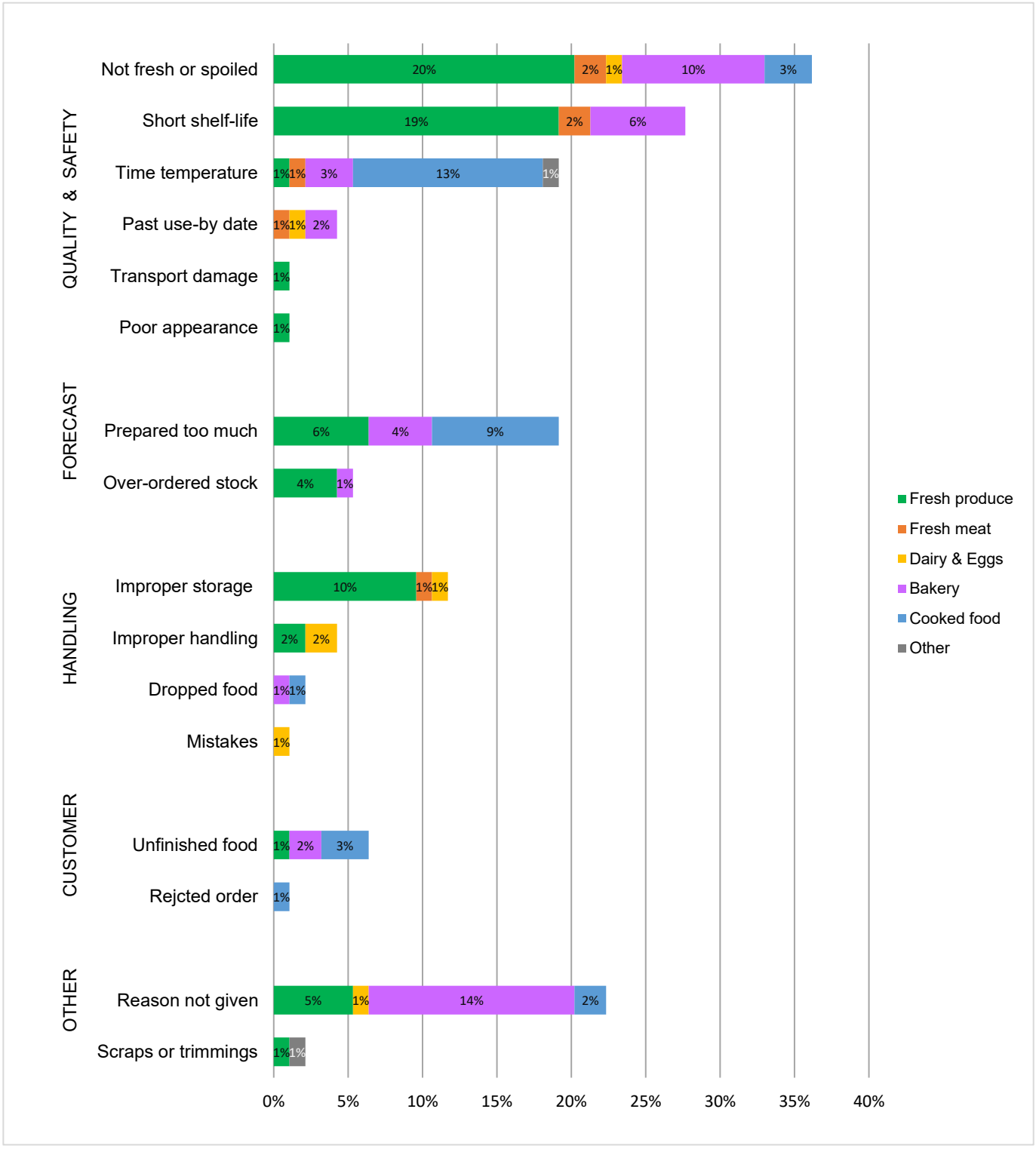

Figure 32: Key reasons for waste for the food categories Survey 2 respondents reported as most wasted

Cooked food' (29%) was the second-most represented category, with 'fries' (11%) being the most-wasted item in the category. The top three reasons for waste within the 'cooked food' category include 'time-temperature' (13%), 'prepared too-much' (9%) and 'not fresh or spoiled' (3%). High wastage of cooked food items highlights the tension between speed and quality in QSRs, where maintaining strict holding times (time-temperature) for hot food such as fries can lead to waste when turnover slows (Drewitt 2013; Gunders 2012). Aside from issues related to demand forecasting, food quality and safety are also central to the waste of cooked food. Strict procedures require staff to dispose of food out of caution, aligning with findings in Survey 1 (section 3.1.3.2), where staff mentioned hygiene risks and rigid protocols as common reasons for disposal, particularly during busy service periods.

'Fresh produce' (28%) was the third-most represented category, with 'vegetables' (15%), lettuce (10%) and tomato (9%) being the most-wasted items in the category. The most wasted fresh produce ingredients are often used in menu items commonly served in QSRs, from burgers to salad. Maintaining adequate stock and pre-prepared ingredients is therefore necessary, yet their perishability makes them vulnerable to spoilage if not tightly managed (Filimonau et al. 2019). The top three reasons for waste within the 'fresh produce' category (aside from reason not given) include not fresh or spoiled (20%), short shelf-life (19%) and improper storage (10%). Other reasons for waste included over-ordering stock, improper handling and preparing too much, aligning with extant research (Filimonau et al. 2019; SRA 2010). These reasons for waste highlight the high perishability of items in this food category and an opportunity to implement storage strategies. Strategies to extend freshness of in-storage and service-ready produce ingredients could include proper temperature regulation in cool rooms, tighter stock control and the addition of chilled storage in food preparation areas.

The literature on packaging and food waste supports that specially designed packaging and different product-packaging combinations can help to extend the freshness of ingredients, including modified atmosphere packaging, smaller packs or resealable packs (Chan et al. 2023; Lockrey et al. 2019). Even so, packaging was not mentioned by the survey respondents as a strategy to reduce food waste, possibly due to lack of awareness. An opportunity exists for staff training on food waste to include the role of packaging in protecting and extending the shelf life of food. An opportunity also exists for QSR head office or owners to consult with food suppliers on potential changes to packaging, to optimise packaging size and formats to minimise food waste (Francis et al. 2024).

Taken together, the insights presented in this section suggests that QSRs could benefit from integrating category-specific food waste reduction strategies that account for the distinct causes of food waste. Connections between food waste and food handling stages should also be considered and are discussed in the next section.

4.1.3.2 Food waste in relation to perceived connection with food handling stages

Survey 2 respondents indicated whether they perceived that certain food handling stages were more connected to food waste. Respondents were given a choice of ten stages from 'stock ordering' through to 'end-of day' (see Table 17). The results indicate that most respondents (62%) perceived no connection between food handling stages and waste, while 38% of respondents perceived that there is a connection (see Figure 33). The respondents who perceived a connection provided information on which food handling stages they thought were most connected (see Figure 33), estimates of how much food is wasted (see Table 18) and reasons for food waste (see Figure 34). The results identified the 'preparation' (Stage 4) and 'storage' stages (Stage 3) as food waste hotspots. Twice as many respondents mentioned the 'preparation' stage (23%) compared to the 'storage' stage (10%), highlighting its significance as a food waste hotspot that warrants greater attention. Nevertheless, food waste can occur across all food handling stages, so QSR managers and owners should be attentive and proactive.

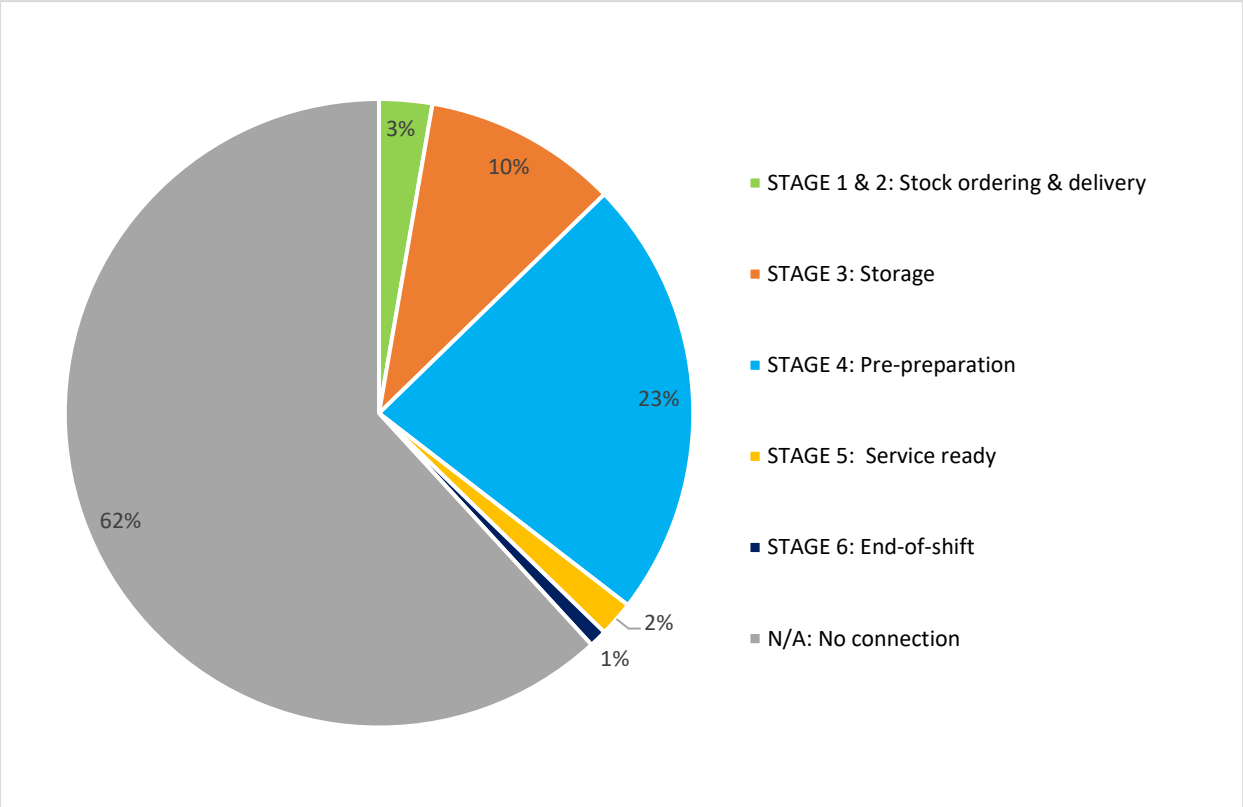

Figure 33: Connection between food handling stages and food waste, perceived by Survey 2 respondents

Food Handling Stage		Stage	Activities
STOCK ORDERING	→	Stage 1	Supplies ordered
STOCK DELIVERY	→	Stage 2	Supplies delivered
STORAGE	→	Stage 3	Supplies stored Supplies moved to prep area and unpacked
PREPARATION	→	Stage 4	Ingredients prepared Premade foods cooked
SERVICE-READY	→	Stage 5	Meals prepared & delivered to front counter Meals served to customers at POS or drive-through
END-OF-SHIFT	→	Stage 6	Unused items returned to the fridge and labelled Expired foods disposed End-of-day store clean and measuring of waste

Table 17: The different food handling stages used by QSRs

'Preparation' stage as a food waste hotspot

Survey 2 respondents consider the 'preparation' stage (Stage 4) to be the most significant food waste hotspot — mentioned by 23% of all respondents (see Figure 33) and 60% of respondents who perceive a connection between certain food handling stages and waste. This hotspot is consistent with the pattern examined in extant research on food waste in the QSR sector and wider hospitality industry, where the 'preparation' stage was also identified as most associated with food waste (i.e. Drewitt 2013; Principato et al. 2021; SRA 2010). For instance, the Sustainable Restaurant Association (SRA) estimates that 65% of all restaurant food waste is associated with the preparation stage (SRA 2010). In Survey 2, a total of 26% of respondents indicated that 30-49% of all food in the preparation stage is wasted (see Table 18). This percentage is lower than the estimate by SRA. The difference could be due to limitations in the survey data as not all respondents answered this question. Or, it could reflect how QSRs have more standardised procedures than restaurants that lead to less food waste. Nevertheless, the results support an opportunity for QSRs to focus on the 'preparation' stage as a significant food waste hotspot.

		STAGE 1 & 2 Stock ordering & delivery	STAGE 3 Storage	STAGE 4 Pre-preparation	STAGE 5 Service ready	STAGE 6 End-of-shift
PERCENTAGE	Less than 5%	0%	2%	5%	0%	0%
	5-9%	2%	7%	5%	0%	0%
	10-19%	0%	0%	7%	2%	2%
	20-29%	0%	2%	2%	0%	0%
	30-49%	0%	0%	26%	2%	2%
	50% and above	2%	2%	0%	0%	0%
WEIGHT	Less than 1kg	0%	0%	0%	0%	0%
	1-5kg	0%	2%	2%	0%	0%
	6-10kg	0%	0%	19%	0%	0%
	11-20kg	0%	2%	5%	0%	0%
	21-50kg	0%	0%	0%	0%	0%
	above 50kg	0%	0%	2%	0%	0%

Table 18: Estimated amount of food waste per food handling stage, reported by percentage of Survey 2 respondents. Note that not all respondents provided percentage and weight estimates [N=42].

Specific reasons for food waste by preparation stage are charted in Figure 34. 'Prepared-too-much' (40%) emerged as the most-mentioned reason, closely mirroring overproduction trends noted in the literature, often linked to, forecasting gaps and time constraints (Drewitt 2013; Dzumbunu 2018). While an inaccurate customer forecast is one reason why staff may pre-prepare too much food for service, staff may also be reluctant to cook less in case of an unexpected surge in customer levels (Drewitt 2013). Respondents also noted that for this reason, they would pre-prepare more of the items that were time consuming, given that the primary focus of a QSR is to quickly serve food to customers. The results in Figure 35 support this view, showing that 55% of respondents perceived that fresh ingredients (i.e. whole tomatoes and raw meat) were most wasted, compared to 25% of respondents who perceived that pre-prepared ingredients (i.e. frozen pre-cut fries or bagged salad mix) were most wasted. Pre-prepared ingredients can often remain in storage ready for service, providing staff more flexibility in how much they cook. Fresh ingredients require time to chop and cook, meaning that staff may prepare larger batches to help increase efficiency and save time. Overall, these operational realties highlight an almost impossible challenge of cooking just enough to meet demand. Therefore, QSR managers and owners should take a multi-tiered approach to minimising food waste, where excess pre-prepared food is prioritised for donation rather than being discarded (see Table 15).

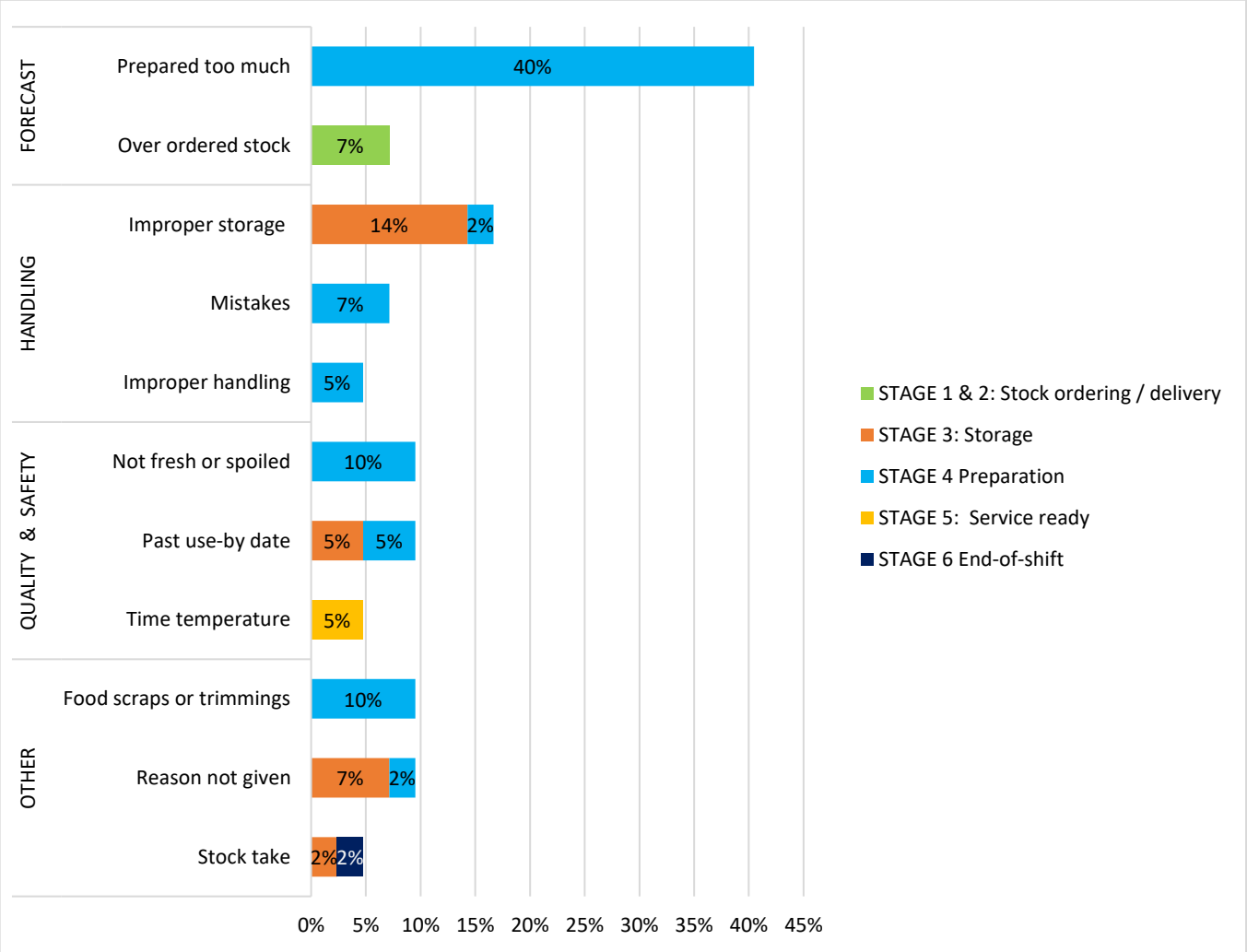

Figure 34: Reasons for food waste by food handling stage, perceived by Survey 2 respondents.

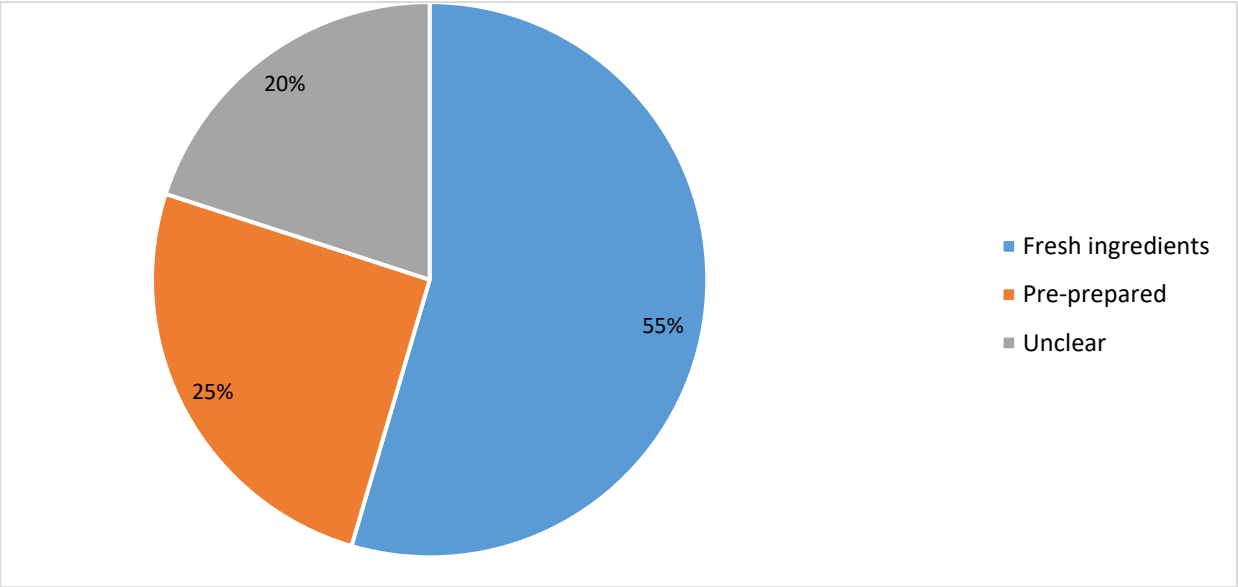

Figure 35: Perception of whether fresh or pre-prepared ingredients were more highly wasted their QSR

Survey 2 respondents mentioned additional causes of food wasted during the preparation stage, which included spoilage (10%), scraps (10%), mistakes (7%) and improper handling (7%). These causes of food waste may reflect broader operational weaknesses in QSRs such as staff training (Filimonau and De Coteau 2019). The impact of staff training on food waste is discussed in section 4.1.3.3.

This sub-section has highlighted the multiple dimensions which contribute to food waste during the preparation stage. There is a clear and practical opportunity for QSR managers and owners to intervene at this stage, embedding prevention strategies where measurable reductions are likely to occur.

'Storage' stage as a food waste hotspot

Survey 2 results indicate that the 'storage' stage (Stage 3) is the second-most significant food waste hotspot — mentioned by 10% of all respondents (see Figure 33) and 23% those who perceive a connection between certain food handling stages and waste. This percentage is half of what is wasted in the 'preparation' stage, consistent with what was identified in the literature review (Chan et al. 2026a). Extant research on food waste in the wider hospitality industry suggests that a smaller amount of food is wasted during the storage stage (compared with the preparation stage), at an estimated 5-10% (Drewitt 2013; SRA 2010). This estimate aligns with Survey 2 results, where most respondents (who answered the question) indicated that 5-9% of all food in the preparation stage is wasted (see Table 18). However, not all respondents answered this question so there are limitations in the survey data. While this result is not generalisable, it is useful give a sense of priority to the different food waste hotspots. Although storage stage food waste is considered relatively minimal, it warrants attention. Most of this waste is considered preventable and aligns with the food recovery hierarchy prioritising preventative action.

Survey 2 respondents indicated that the most-mentioned reason for food wasted during the 'storage' stage was due to improper storage (14%) (see Figure 34). Additional causes included food past the use-by date (5%) and stock-take (2%). These reasons for waste align with the literature, which documents how poor storage practices can lead to food waste. Much of this food waste is

considered preventable through better inventory rotation, cold chain management and staff training (Filimonau and De Coteau 2019; Papargyropoulou et al. 2016). Many respondents note that they already use a “first-in first out” system of stock rotation to minimise date-label and spoilage related food waste, where QSR staff prioritise using already-opened packages or older stock. However, some respondents also noted issues with ambient storage areas being too warm, affecting the shelf life of foods ordinarily stored outside of the cold room (e.g. bread buns). This highlights the importance of regulating the temperature of all ambient and cold storage areas. Interventions such as air-conditioning and temperature monitors in ambient zones, especially during the warmer seasons, can help maintain food quality and minimise spoilage. Good storage practices that minimise food waste not only relies on well-trained staff, but also on QSR management (including owners) providing appropriate and well-maintained equipment and infrastructure.

Respondents who do not perceive a link between food handling stages and food waste

A significant portion of Survey 2 respondents (62%) did not perceive a link between food handling stages and food waste (see Figure 33). This is unlikely to mean that there is no link when considering the information provided by the other respondents and importantly, that the literature supports a link between food preparation stages and food waste (i.e. Drewitt 2013; Principato et al. 2021). So, this result suggests that respondents may not have previously considered this concept and are unaware of the link between food handling stages and food waste. This lack of perceived connection may reflect a broader issue of limited awareness or consideration pertaining to when food is wasted and the reasons why. Food waste in QSRs is often recorded as a cost or a portion of turnover, aligning with Survey 2 respondents mentioning the use of cost-related KPIs when recording food waste (see Figure 30 in section 4.1.2.2). Moreover, managerial (including owners) approaches to managing food waste in the wider hospitality industry tend to focus on disposal rather than prevention (Filimonau and De Coteau 2019), aligning with Survey 2 respondents mentioning that a significant portion of food waste is disposed (see Table 15 in section 4.1.2.2). Regardless of the reason, these results suggest that there is an opportunity for QSR staff to pay more attention to the specific food handling stages in which food waste emerges. This increased awareness could help QSRs to tweak operational processes to more effectively manage and reduce food waste.

4.1.3.3 Connections between food wasted back-of-house and front-of-house

While back-of-house food waste in QSRs is the focus of this research, the data collected by the research team also captured some insights into front-of-house food waste. The fact that respondents chose to mention these reasons for food waste (in a survey focusing on back-of-house food waste), suggests a connection between food wasted in the back- and front-of-house areas. The insights reported here offer additional context, acknowledging that a more holistic approach can provide a deeper understanding into food waste in QSRs. The commentary offered here focuses on the push and pull of food waste between the back-of-house and front-of-house areas, which affects the balance of where most food waste generated in a QSR store occurs. Figure 36 visualises this concept, where the line represents the threshold (i.e. food service counter or drive-through bay) where food passes from staff in the back-of-house area to customers in the front-of house area.

The insights related to front-of-house food waste mostly pertained to consumer-related waste in concern to unfinished food (see (see Figure 32), with respondents commenting that consumers would order too much or even reject completed orders. The business-model of a QSR prioritises efficiency in the back-of-house areas, where staff are encouraged to minimize waste and sell food to customers in a way that maximises profits (McAdams et al. 2019). QSRs are incentivised to upsell food to customers through verbal prompts or digital menu boards, and it has been long documented as an effective tactic to encourage customers to purchase larger portion sizes or additional menu items (Ebster et al. 2006; QSR Media AU 2022a). It is therefore somewhat ironic when respondents perceive that consumers behave irresponsibly when they ‘order too much’ or do not finish their food, because

the QSR business model encourages the balance of food waste in store to be pushed down into the front-of-house. This 'pushing down' of food waste (Figure 36) aligns with respondents perceiving that the service-ready stage (2%) generated minimal waste in the back-of house areas, a stage that is connected with serving food to consumers located front-of-house (see Figure 33).

Another perspective is that while food waste generated in back-of-house areas costs businesses money, food wasted in the front-of-house areas may cost business little or no money. A hallmark of QSR businesses is to offer takeaway so food and therefore waste is taken off-site by the customer. Even if a customer chooses a dine-in option, the cost of disposing food that is thrown out by consumers on-site may be offset by the profits QSRs earn from selling food (Drewitt 2013). This further strengthens the view that QSRs mostly benefit from pushing food waste down into the front-of-house areas.

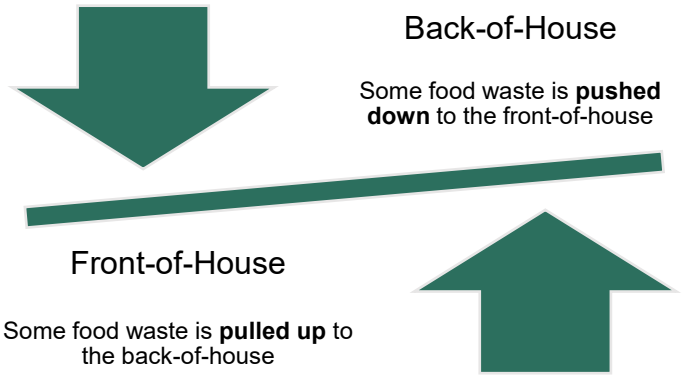

Figure 36: The push/pull of food waste between the front/back-of-house affects the balance of where it is generated

There is another concept that food waste can be 'pulled up' from the front-of-house areas into the back-of-house areas (Figure 36). Examples include the issue of 'rejected orders' by customers and the challenges of accurate demand forecasting. Orders that are rejected by customers at the service counter often cannot be re-sold may become food waste, creating a direct 'pull-up' of food waste in the back-of-house areas. Orders can also be rejected or wasted due to mistakes (7%) (see Figure 34). Some of these mistakes are attributed to poor communication with customers at the drive through, with respondents blaming poor intercom or head-set equipment. There are opportunities for management staff at QSRs to perform regular checks that equipment are functioning well (Dzumbunu 2018). On the other hand, the challenges of accurate demand forecasting can create an indirect 'pull-up' of food waste into the back-of-house areas. QSRs pre-prepare food for service in anticipation of customer numbers or how busy the front-of-house will be. When this demand is incorrect, staff end up preparing too much (40%) (see Figure 34) and this food ends up as waste. These touchpoints blur the boundaries between food waste generated in the front- and back-of-house areas, suggesting that QSRs operate within a system where decisions in one area directly shapes food waste in another. Recognising these overlaps may help inform future interventions for QSRs to reduce food waste that move beyond compartmentalised models of front- and back-of-house food waste, towards an approach that tackles food waste holistically across the whole QSR store.

While much of the extant research on food waste in QSRs has focussed on food waste generated front-of-house, this research has demonstrated the value of examining food waste generated in back-of-house areas. Opportunities exist for future research to conduct a larger-scale comparison of food waste generated in the front- and back-of-house areas, to expand the ideas presented in this section. The insights gained from this research enriches our collective understanding of food waste in the Australian QSR sector, contributing both theory and practice.

4.2 Root Causes

4.2.1 'Out of sight, out of mind' — QSRs who do not track waste are less likely to act

The Survey 2 results elucidate that the more attention that QSR businesses paid to food waste, the more likely that those businesses cared about it. Businesses that tracked food waste had a higher concern about food waste (see Section 4.1.2.2). With a large proportion of respondents (85%) tracking food waste, it would seem that the sector at large has started to alleviate the 'out of sight, out of mind' concerns that limits food waste reduction initiatives. A large part of introducing effective food waste reduction initiatives is grounded in identifying the food handling stages where food waste is generated and then rolling these initiatives into the specific stages. Yet Survey 2 highlighted that 62% of respondents indicated they perceived no link between food handling stages and waste. This lack of recognition implies that owners and managers may not be paying attention to when and how food waste arises in these different food handling stages. When food waste is not tracked or broken down into its specific points of origin, it is less likely to be considered as an operational issue that can be acted upon (Hanson and Mitchell 2017).

The literature shows that the more businesses disaggregate food waste into distinct handling stages, the more likely they are to implement targeted interventions that lead to reductions. For example, identifying the preparation and storage stages as hotspots enables QSRs to implement stage-specific strategies, such as improved forecasting, batch cooking adjustments, and inventory rotation practices (Drewitt 2013; Principato et al. 2021; SRA 2010). By contrast, failing to recognise the role of different stages obscures responsibility and diminishes accountability, making food waste more difficult to manage. Survey 2 results therefore highlight a critical opportunity: increasing QSR awareness of food waste across handling stages could move practices away from reactive waste disposal towards proactive waste prevention. In other words, tracking food waste at each stage not only helps to highlight where losses are occurring but also encourages QSRs to care about reducing waste in the first place. By not viewing the kitchen in these food handling stages, owners and managers are helping continue an 'out of sight, out of mind' practice, that will continue to lead to more food waste.

4.2.2 AI Technology: Uptake, Benefits and Challenges

Technology was the most-mentioned solution to reduce back-of-house food waste across both research and industry publications in the literature review (Chan et al. 2026a). AI-based solutions were widely recommended throughout these publications (i.e., Aytaç and Korçak 2021; QSR Magazine 2023b). For these reasons it was key to understand if owners and managers in QSRs were utilising AI technologies in the kitchen to try and reduce the back-of-house food waste.

Figure 37 shows the use of AI-driven platforms by Survey 2 QSRs to track losses, suggesting that the use of AI-driven platforms to track food waste specific losses is not widespread. Over half (58%) of respondents said that they did not have an AI-driven platform to track or report losses. Figure 37: Responses to "Do you use AI to track losses (including food waste)?"Meanwhile, 23% mentioned that they used AI to track general losses, and only 19% mentioned that they used AI to track and report losses specific to food waste.

Multinational chain QSRs had the largest proportion of respondents who reported using AI (47%). Of those utilising AI and knew when they started utilising it (see Table 19), the highest number of respondents was in the 'less than 6 months' category. 85% of respondents who were clear on the implementation time frame of AI suggested that they had done so within the last 3 years. These results continue to show that the implementation of AI technology is nascent in the QSR sector. Survey 2 also revealed that decision-making on the implementation of AI technology (see Figure 38) primarily fell to the manager (52%) followed by the owner (17%) and then company head office (11%). A small sample size meant it was difficult to identify significant differences across the different QSR types.

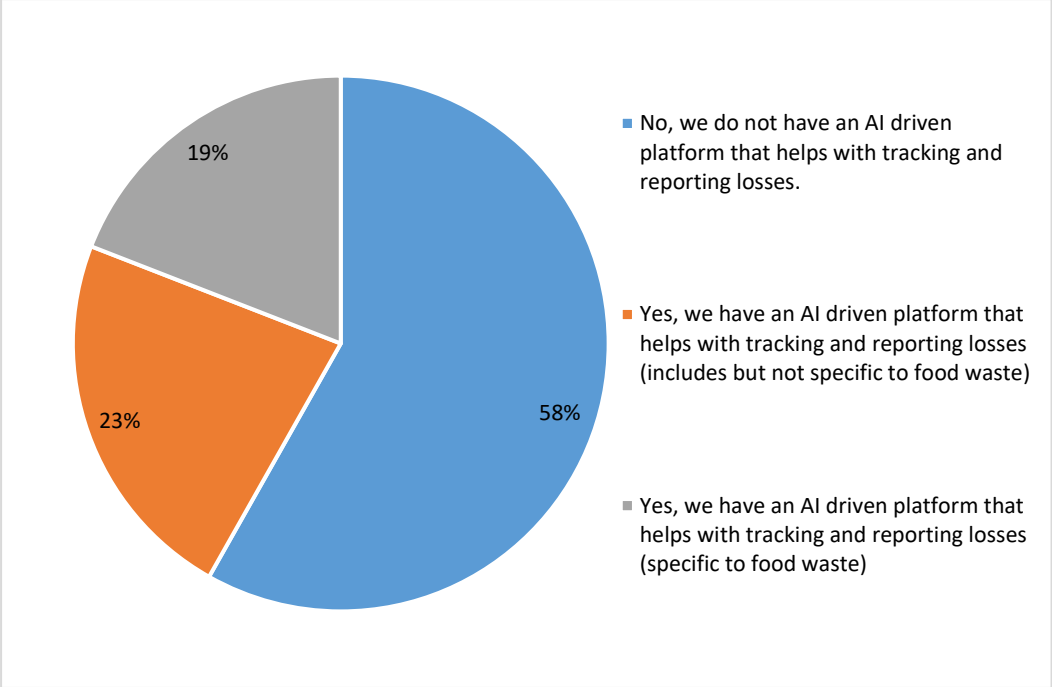

Figure 37: Responses to "Do you use AI to track losses (including food waste)?"

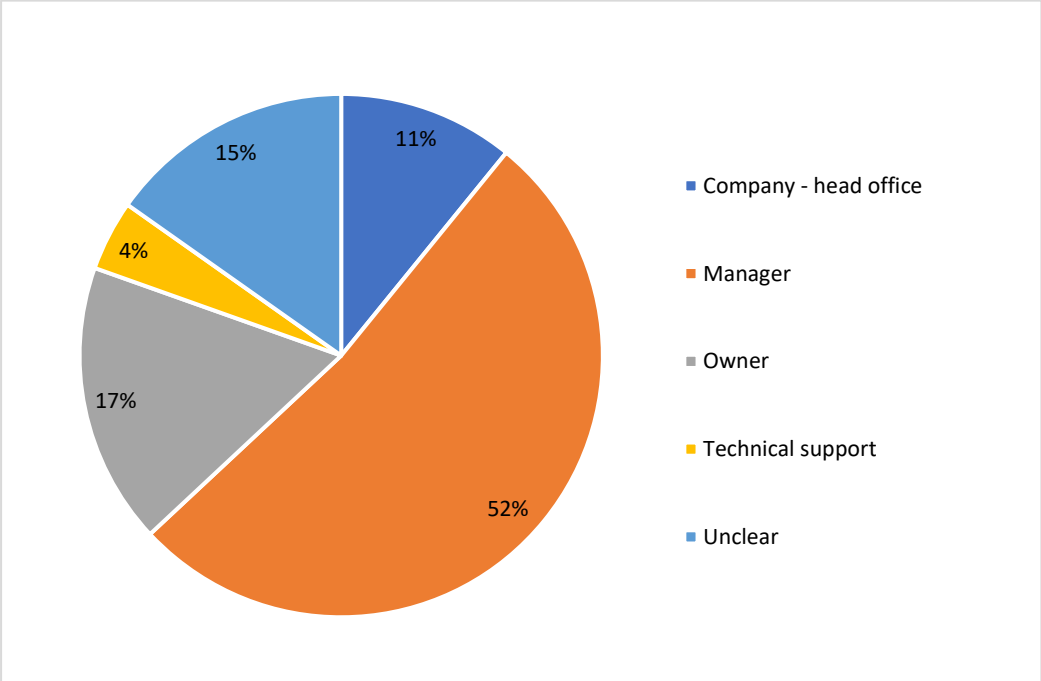

Figure 38: Responses to "Who initiated the use of the AI platform in your QSR business?"

Survey 2 respondents were asked to reflect on the effectiveness of using AI platforms QSRs and highlight benefits or challenges (see Table 20). The most-mentioned benefits included helping to track waste, reduce food waste, predict customer peaks, complement inventory management, give access to real time data, improve convenience and save time. The benefits mentioned by respondents align with the literature in relation to waste tracking (Clowes et al. 2019), customer prediction (Groene and Zakharov 2024), and inventory management (QSR Magazine 2023b). Fewer challenges were expressed than benefits. The challenges listed by respondents concerned accuracy issues, initial setup time, long learning curve, number of adjustments needed, requirements for consistent use, and stable internet connection.

AI technology is still not widely used amongst the owners and managers surveyed, despite the benefits highlighted by the businesses using it to track food waste. Survey 2 has identified benefits and challenges to implementing AI technology in QSRs to reduce food waste. As AI is still a nascent technology, it is difficult to determine whether a wider rollout will help the QSR sector to achieve significant food waste reductions. Further research is needed to better understand the barriers and opportunities.

Timeline of AI technology usage	Percentage of respondents
Up to 6 months	24%
Up to 1 year	21%
Up to 2 years	18%
Up to 3 years	21%
Up to 5 years	9%
5 years or more	6%

Table 19: Length of AI technology usage at respondents [n = 33] QSR. Excludes respondents who were unsure

Benefits		Challenges	
Tracks food waste	26%	Accuracy issues	6%
Reduces food waste	14%	Initial setup time	5%
Predicting customer peaks	11%	Learning curve	3%
Inventory management	6%	Adjustments	2%
Real time data	6%	Data overload	2%
Convenient	6%	Requires consistent use	2%
Saves time	3%	Requires stable internet	2%

Table 20: Reported benefits and challenges of AI technologies in QSRs. Percentages reflect frequency of mention relative to the combined total of all benefits and challenges. [n = 39]

4.2.3 Company protocols effect on waste

Company protocols, communicated through 'standard operating procedures', are created by QSRs for a range of reasons. These include limiting risks especially around food safety (Park et al. 2020), creating replicability across multiple stores and as a way of creating clear instructions for staff. The QSR industry heavily relies on company protocols for reasons including the younger age demographic of workers and the dominance of franchised and chain-based outlets which are known for their homogeneity. Company protocols, especially around food safety, can have a significant impact on food waste (Chan et al. 2026a). A commonly cited example is a 7-minute limit for how long fries can sit awaiting to be sold (Gunders 2012). Survey 2 respondents were therefore asked to reflect on what influence company protocols can have on food waste (see Table 21 and Table 22).

Survey 2 indicated that company protocols can have either a negative or positive influence on food waste, but a higher proportion of respondents perceived a negative influence. A total of 42% of respondents indicated that protocols at their QSR played a role in causing food waste (Table 21). 51% of those respondents mentioned that food safety protocols regarding time/temperature were a particular influence (Table 22). Other notable factors included staff not being allowed to eat excess food (22%). On the other hand, 29% of Survey 2 respondents indicated that company protocols had a positive influence on reducing the amount of food waste. The most-mentioned positive influences included inventory management protocols (23%), food preparation protocols (17%), and company protocols of offering food to staff before throwing it away (10%). Some respondents perceived the duality that protocols played a role in both generating and reducing food waste (15%), whilst a smaller percentage perceived these protocols play no role or an insignificant one (6%). Company protocols are therefore neither inherently positive nor negative, but they are a complex driver of food waste. There is an opportunity for QSRs to review protocols to ensure they are not skewed toward causing food waste.

A clear trend emerges when analysing the influence of food waste protocols is by QSR type. Table 23 shows that managers and owners in both Australian-based chains (67%) and multinational chains (47%) were more likely to suggest that company protocols play a role in causing food waste. Family-owned QSRs were more likely to suggest that company protocols have a positive influence on reducing food waste (46%). These results highlight that although the rigidity of chain based QSR protocols can help streamline process around food safety and inventory management, it is potentially at the cost of the flexibility of reusing excess food in innovative ways, which less centralised QSR businesses, such as family-owned have the ability to do (Gunders 2012).

The role of company protocols on food waste	Percentage of respondents
Plays a role to cause food waste	42%
Plays a role to reduce food waste	29%
Plays a role - either way	15%
Answer unclear	7%
No role or insignificant	6%

Table 21: Survey 2 respondent perceptions of company protocols influencing waste. Coded responses to "In your business, what role do you think 'business protocols' or 'employees following protocols' have on food waste? What are some of these protocols?"

Protocols suggested to cause food waste		Protocols suggested to reduce food waste	
Food Safety (time/temperature)	51%	Inventory management protocols reduce waste	23%
Surplus Food Management (staff cannot eat leftovers)	22%	Food preparation protocols reduce waste	14%
Food Safety (hygiene)	7%	Surplus food management (leftovers given to staff)	10%

Table 22: Most-mentioned reasons where protocols cause or reduce food waste in QSRs

QSR type	Protocol roles	Percentage of respondents
Australian Chain	Plays a role to reduce food waste	22%
	Plays a role in causing food waste	67%
	Plays a role - either way	11%
	No role or insignificant	0%
	Answer unclear	0%
Family-owned	Plays a role to reduce food waste	46%
	Plays a role in causing food waste	17%
	Plays a role - either way	17%
	No role or insignificant	13%
	Answer unclear	8%
Multinational	Plays a role to reduce food waste	25%
	Plays a role in causing food waste	47%
	Plays a role - either way	16%
	No role or insignificant	5%
	Answer unclear	8%

Table 23: Survey 2 respondents perceptions of company protocols influencing waste, split by QSR type

4.2.4 Food waste specific training

Staff training is referenced in the literature as a factor in generating food waste (i.e., Dzumbunu 2018). QSR staff in Survey 1 also indicated a positive relationship between the amount of training provided to them and their motivations and agency towards reducing food waste (see section 3.2.2). It is therefore important to provide food waste specific training to staff. Results from Survey 2 showed that 85% of QSR businesses provided staff training which encompassed food waste reduction (see Figure 39). This training was delivered through a range of different methods (see Figure 40), with the most being online modules, generic training and onboarding sessions.

A total of 65% of Survey 2 respondents mentioned that they provided their staff training specific to food waste reduction strategies. The most common training pertained to generalised strategies, followed by inventory management, preparation related, and waste management strategies (see Figure 39). For the category of 'inventory management', provided training pertained to stock rotation, correct storage and demand forecasting. In the preparation related strategy, provided training was mostly pertained to portion control, with some focus on efficient preparation techniques. Interestingly, only 36% of owners and managers explicitly stated that they provided follow-up or refresher training in addition to the initial food waste related training.

The training provided to employees was seen overwhelmingly as effective (88%) from the owners and managers perspective. Survey 2 revealed that there is in-depth training being developed and delivered by owners and managers across businesses throughout the QSR sector. It showed that owners and managers are also delivering some follow-up training and overall perceive the training that they deliver as successful. But how successful this training has been from the perspective of the employees receiving it was unable to be determined. As the participants of Survey 1 (employees) and Survey 2 (managers and owners) represented different businesses, direct comparison was not possible to determine any disconnect between the two groups of the how effective they perceived this training.

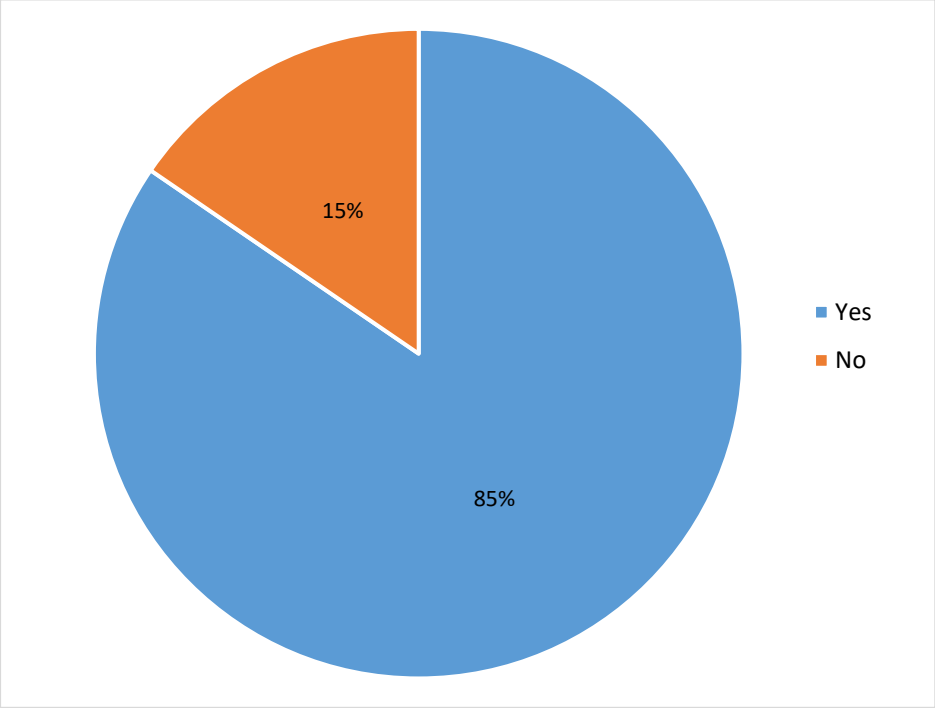

Figure 39: Responses to "Does your staff provide training encompassing food waste reduction?"

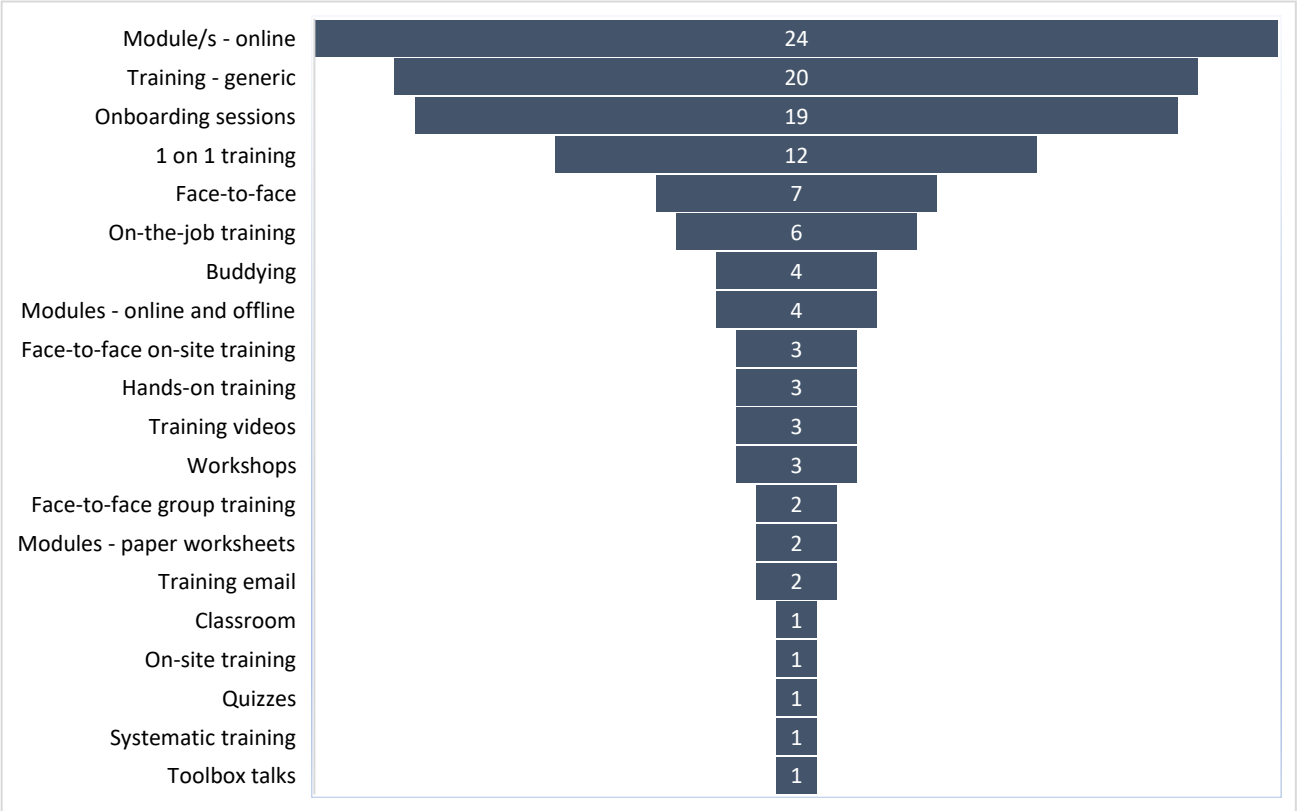

Figure 40: Types/delivery methods of food waste reduction training utilised by QSRs that delivered it

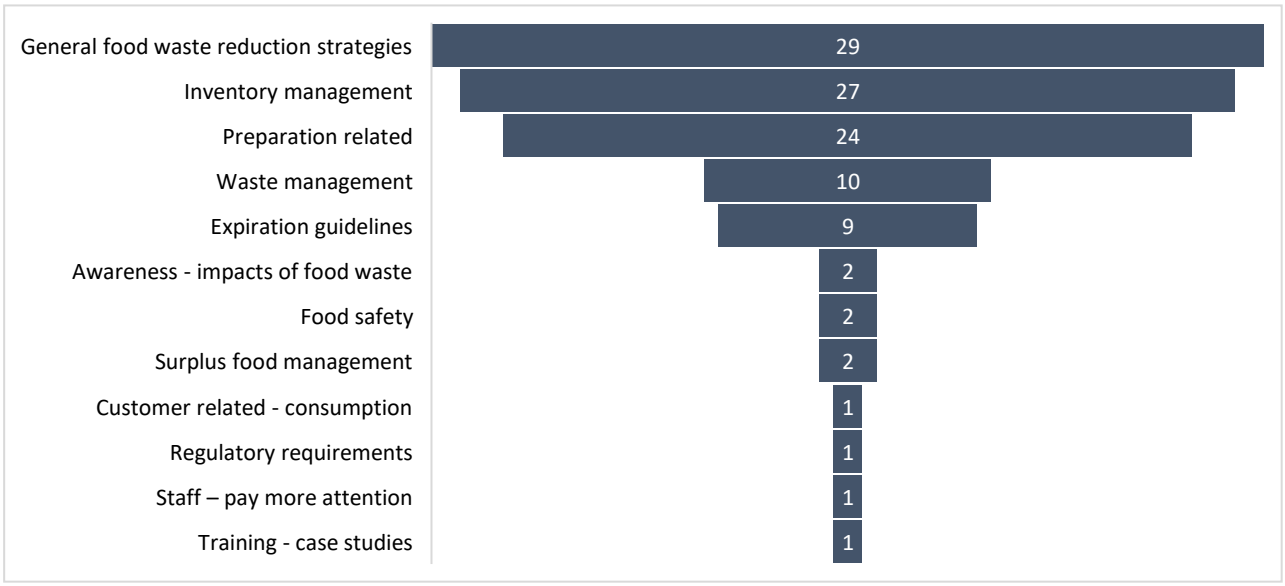

Figure 41: Strategies from food waste training. Displayed as counts of responses [n = 118]. Some respondents selected multiple strategies [n = 87]. ("Did this training cover specific food waste strategies? If so, please explain in detail")

5. Recommendations

Drawing on insights from Survey 1 and Survey 2, this section presents recommendations for reducing back-of-house food waste in QSRs. These recommendations focus on food waste hotspots identified across food handling stages where waste is most concentrated (section 5.1). To address these hotspots, the recommendations target some of the contributing factors (see Figure 42) by enabling staff agency (section 5.2), improving infrastructure and equipment (section 5.3), increasing efficiency and streamlining processes though technology (section 5.4), and addressing risk aversion (section 5.5). The recommendations consider the operational realities and unique constraints of QSR restaurants, designed to be feasible within this scope.

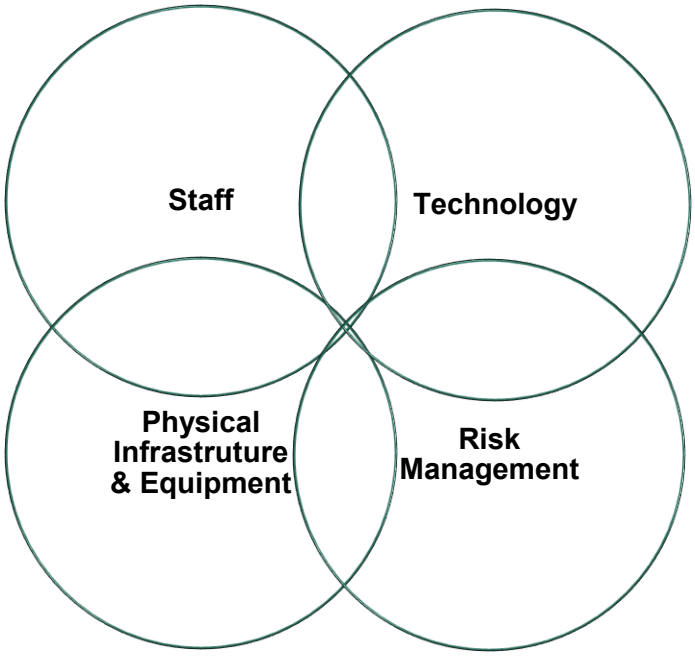

Figure 42: Key factors to address food waste hotspots to reduce back-of-house food waste in QSRs

5.1 Focus on food waste hotspots

The ‘pre-preparation’ and ‘storage’ food handling stages represent key intervention points to focus food waste reduction efforts, as identified in Survey 2 and the literature review (Drewitt 2013; Principato et al. 2021; SRA 2010). Focussing on hotspots is an efficient way to reduce back-of-house food waste in QSRs. Such an approach recognises that QSR managers, owners and staff are often time poor; addressing food waste can be perceived as an additional task that competes with the priority of day-to-day operational duties (Dzumbunu 2018; McAdams et al. 2019). Solutions that QSR managers/owners perceive to be a good use of time may have a higher chance of being implemented, so it is a practical suggestion that QSRs focus on the food handling stages that are considered hotspots. Even so, food waste can occur across all food handling stages; QSR managers, owners, and staff should therefore remain attentive to where food waste occurs.

For a focus on reducing food waste by food handling stages to be effective, it is crucial that individuals who manage, own, or otherwise work in QSRs acknowledge a connection between food handling stages and food waste. As the results of Survey 2 suggested that 62% of respondents did not perceive this connection, there is an opportunity to raise greater awareness through education resources or campaigns. Such campaigns or resources could be executed through End Food Waste Australia, Stop

Food Waste Australia, or WRAP in Australia. It could be modelled on the “Guardians of Grub” campaign by WRAP in the UK, which included a step-by-step guide for hospitality venues to reduce food waste (WRAP and Guardians of Grub 2020). Another way to increase recognition is through waste tracking and reporting systems that highlight the food handling stages where waste occurs, in addition to showing information on the type and quantity of food wasted. Food waste tracking aligns with the “Target-Measure-Act” approach suggested by Champions 12.3, providing QSRs an opportunity to tweak interventions and track progress (Hanson and Mitchell 2017). Champions 12.3 is a global coalition of leaders assembled to drive forward progress to the United Nations Sustainable Development Goal (SDG) Target 12.3 to halve food waste by 2030. By acknowledging the connection between food handling stages and food waste and increasing its visibility, QSRs can take informed steps to reduce food waste in a more efficient and targeted manner.

Identifying the food waste hotspots in connection to food handling stages is only the first step. Addressing why food is wasted at these stages requires targeting the operational, behavioural, and structural factors that contribute. These include staff decision-making, equipment limitations, time pressures, and risk-averse practices. The following subsections explore these contributing factors in detail and offer targeted recommendations to address them. By focusing on the underlying causes, QSRs can implement more effective strategies to reduce food waste.

5.2 Staff investment

5.2.1 Increase food waste specific training

Survey 1 showed a clear need for QSR corporate management/owners to engage frontline staff (such as crew staff) in food waste specific training. These workers reported that they were motivated to reduce food waste but lacked relevant know-how and skills, as they were less likely to be offered food waste specific training. Staff that had received the most food waste training were the most likely to document issues and create new processes to avoid generating future waste (see section 3.2.2). Further investment in staff training will help address the challenges identified Survey 1, such as mistakes in order/customer returns; a contributing factor that aligns with the literature (McAdams et al. 2019). Survey 1 respondents also reported that ‘busy times’ as the most common time for food waste. Empowering staff to work in high-stress and fast-paced environments is therefore important. Survey 1 demonstrated that staff were motivated to act on food waste for reasons of saving the business money, increasing their productivity by saving time, and ‘saving the planet’. The workforce seem willing to take action, which can typically be the most difficult part, especially with a low-wage workforce in an environment where food is treated as a commodity (McAdams et al. 2019). Despite this they lack agency so enabling them to reduce food waste is key.

Somewhat contrasting the findings from Survey 1, Survey 2 (focused on managers and owners) showed that there is a range of food waste specific training that managers and owners of QSRs are delivering to their staff. Table 24 highlights the difference in food waste training received (Survey 1) and delivered (Survey 2). 85% of Survey 2 respondents said they delivered initial training specific to food waste, via online module/s, onboarding, and 1-on-1 training. This highlights a potential disconnect between what management and employees consider to be food-waste-specific training. The results could also be attributed to the two surveys having different respondents from different organisations. Survey 2 offered less scrutiny into what roles in each organisation received the training, while Survey 1 highlighted that roles such as crew staff were less likely to receive food waste specific training. Despite these possible explanations for the different results, the results still echo some of the disconnects between management and employee perceptions around food waste which were identified in the literature (Pearson et al. 2025). These findings highlight that further investment in training should still be undertaken, with a key focus on ensuring that the provided training is received by staff. There should also be a focus on follow-up training as it was observed to be low in both surveys.

Type of specific food waste training	Survey 1 (employee focus)	Survey 2 (owner/manager focused)
Initial training	70%	85%
Follow-up training	21%	36%

Table 24: Highlights percentage of respondents who received (Survey 1) and delivered (Survey 2) food waste specific training. Survey 1 and 2 had participants from different stores so comparisons should not be made

The challenge with increasing staff training is the perceived cost. It can be difficult for QSR business owners and managers to perceive any benefit in investing time or money in staff training because typically, crew staff will remain on the job for a short period of time (<3 years). Research through entities such as Champions 12.3 shows that investments in food waste reduction practices, including staff engagement and training, can have a 7:1 benefit-cost ratio (Clowes et al. 2019). Even though staff retention is perceived as a barrier to implementing further training, these returns on investment show that there is inherent value in staff not wasting food. QSR business managers/owners that offer additional training could do so as a way of demonstrating a willingness to further invest in staff, so it can be framed as part of a staff retention strategy. Training not just 'on-the-job' but more broadly through vocational education training (VET) and TAFE; producing a skilled hospitality workforce would require significantly more investment from all levels of Australian government (Addison-Smith et al. 2024).

QSR businesses that operate in NSW will be obliged to provide food waste training to staff under the NSW Source Separation Mandates. Additionally, NSW-based food businesses generating large amounts of food waste will need to commence recycling it from as early as July 2026 to be compliant with the FOGO Recycling Bill (NSW EPA 2024). The mandates affect QSR businesses differently depending on their size and location. For example, businesses located in shopping centres may be affected earlier as they generate larger volumes of waste:

- **From 1 July 2026:** Premises with **≥3,840L** of weekly residual waste bin capacity
- **From 1 July 2028:** Premises with **≥1,920L** of weekly residual waste bin capacity
- **From 1 July 2030:** Premises with **≥660L** of weekly residual waste bin capacity

The survey results support a need for this mandate, as voluntary action is unlikely to be effective; only 12% of NSW-based QSRs said that they dispose of food waste in an organics bin at the close of business. As QSR businesses in NSW will need develop and implement updated training and 'standard operating procedures' (see section 4.2.3) to comply with the mandates, there is an opportunity to provide staff with additional food waste training modules. This opportunity is particularly relevant to chain-based/ franchised QSR businesses with stores across Australia, as the training can be piloted in their NSW stores for nation-wide rollout.

5.2.2 Increase number of staff

The two most common causes of food waste recorded in Survey 1 were 'mistakes or customer returns' and a 'lack-of-time to consider saving food'. Survey 1 also reported that food waste was most commonly generated during busy periods, and that food wasted in storage was more likely to affect fresh food due to greater time sensitivity. These results suggest that the typical QSR restaurant is understaffed. The aftermath of the COVID-19 pandemic in Australia has resulted in chronic staff shortages within the hospitality industry (QSR Media AU 2023b). The QSR industry has also been critiqued for understaffing and placing staff under demanding time pressures, which are considered a feature of the system and not a bug (Park 2024). This is evident in how the industry has a high staff turnover and a strong focus on an inexperienced workforce (McAdams et al. 2019). Staff working in the wider hospitality or foodservice sector commonly report pressures to perform and challenges in organizing time, but these pressures are more pronounced in the QSR sector (Fine 1990; Park 2024). Even so, some QSR chains clearly understand the value staff investment, offering staff perks such as career development and other benefits (QSR Magazine 2024). The results of Survey 2 are somewhat aligned, with most managers and owners suggesting they deliver food waste specific training to staff. Even so, a commitment toward investing in staff can also encompass hiring adequate staff numbers and team building. Having an appropriate number of staff on shift could augment how the kitchen flows, allowing for less waste during busy or peak service periods. This would require QSR businesses to prioritise reducing food waste over the cost of hiring extra staff. A persuasion to do so would also require QSR businesses to measure food waste to understand its financial impact (Clowes et al. 2019).

Both Survey 1 and Survey 2 showed that a majority of QSRs (that respondents worked for, managed and/or owned) are tracking food waste. This leads to two inferences. First is that a portion of QSR businesses have already made this calculation and did not perceive a cost benefit. Or second, is that QSRs are not calculating the true cost of food waste as part of their tracking, nor are they calculating the true cost benefits of increasing staff numbers for peak periods. Utilising tools that help quantify and calculate the true cost of waste in QSRs, such as DIRECT (Verghese et al. 2018), could be a solution and a pathway forward. To help outline this case, there is an opportunity for future research to gather larger-scale data on the quantities of waste generated in the QSR sector. Although Survey 2 did capture some of this data on the quantities of food waste generated in QSRs (see Table 18), its reliability is limited as participants (managers and owners) estimated the amounts of food waste. Still, the Survey 2 data was useful to contextualise where (what food handling stages) food waste is being generated. Finally, there is an opportunity the QSR sector to collectively discuss challenges (such as staffing) and collaborate to co-create a pathway forward.

5.3 Infrastructure and equipment investment

Physical infrastructure or equipment that is suitable and reliable enables QSR managers, owners and staff to run day-to-day operations smoothly. Survey 2 showed that inappropriate or unreliable physical infrastructure (i.e. storage areas) or equipment (e.g. headsets) are a cause of back-of-house food waste. There is therefore an opportunity for QSR managers and owners to more highly prioritise investments in maintaining and upgrading physical infrastructure/equipment in QSRs.

The food storage areas are an important part of the physical infrastructure in QSR stores. Storage plays a central role in food freshness and safety and was a food waste hotspot identified in Survey 2 (section 4.1.3.2 and section 5.1). Proper storage practices depend not only on staff behaviour but also on the physical storage conditions. There is an opportunity to move beyond purely staff-focussed interventions and consider the impacts of infrastructure or equipment constraints. Staff errors and inexperience do occur but exist as part of a broader set of factors that contribute to food waste (see Figure 42). A suggestion is to examine how staff, infrastructure, and company protocols interact as part of a broader system. For example, many respondents indicated that their QSRs follow 'first-in, first-out' stock rotation protocols. This is a standard practice in the hospitality industry, but insufficient to prevent spoilage. Respondents (in Survey 2) gave examples of bread buns turning mouldy in excessively warm and humid storerooms that lacked air-conditioning, highlighting infrastructural or equipment issues rather than procedural issues. In

such cases, the absence of air-conditioning or humidity control undermines even the most diligent adherence to stock rotation and is potentially in breach of food safety regulations. Under Standard 3.2.2 (food safety practices and general requirements), food businesses in Australia are required to store food in a way that keeps it safe and suitable (Safe Food Australia 2025). It is therefore crucial for QSR head office/owners and store owners/managers to ensure that air-conditioning is installed and maintained in ambient store rooms, operated at an appropriate temperature to minimise humidity and preserve the integrity of food ingredients. By extension, it is also crucial that cold rooms are maintained and operate at 5°C or colder (FSANZ 2025). Investing in and maintaining physical storage infrastructure and equipment is helpful to reduce food waste and essential to maintain compliance with food safety standards.

Food storage areas in QSRs extend to food preparation areas. There is an opportunity for QSRs to more carefully consider how cold food is handled during the food preparation (a major food waste hotspot) and service-ready stages. If hot food is routinely kept warm using heat lamps and warming trays, then there is an opportunity for cold food to be afforded similar protection through refrigerated bain-maries. For instance, respondents have said that salad ingredients are wasted during the food preparation stage (a major food waste hotspot) in kitchens that are often hot from the operation of grills, stoves, fryers and heat lamps. Refrigerated bain-maries could help QSRs maintain appropriate cold temperature for salad ingredients during food preparation and service, reducing the chance of these ingredients wilting. Installing such equipment and enabling it to run effectively may require reconfiguring kitchen layouts to ensure adequate separation between hot and cold zones. Any new infrastructure and equipment of this nature must be evaluated against hygiene requirements and workflow efficiency. By investing in storage equipment that maintains cold food temperatures during preparation and service, QSRs can reduce waste in a key hotspot while maintaining food safety and quality.

Investment in infrastructure and equipment also extends to communication systems. For example, Survey 2 respondents noted that faulty intercoms between drive-through staff and customers were a source of miscommunication, resulting in incorrect orders that were subsequently discarded. Ensuring that intercom systems are reliable and well-maintained is a relatively low-cost intervention that can reduce food waste while improving customer satisfaction. Reliable communication equipment is not merely for the convenience of QSR staff, it is a critical component of operational accuracy. There is therefore an opportunity for QSR managers and owners to view general equipment maintenance as part of a broader strategy to minimise waste and enhance service quality.

Investing in and maintaining infrastructure and equipment is an important strategy to reduce back-of-house food waste in QSRs. Physical conditions — whether in storage areas, food preparation zones, or communication systems — directly influence how staff can operate in a way that minimises food waste. By prioritising upgrades and maintenance in these areas, QSR managers and owners can create an operational environment that supports food safety, minimises food waste, and improves efficiency.

5.4 Technology

While technology can be expensive to implement, it holds strong potential to augment staff time, improve productivity and help mitigate some of the operational challenges identified in this research — such as staff errors and time constraints during peak trading periods (Whitehead 2020; Wolf Detwiler 2022). Technologies that assist with real-time task management, such as AI platforms, offer one example of how crew staff could be supported to better prioritise tasks and maintain operational flow under pressure.

Owners and managers reflected on the benefits of AI technology in Survey 2. Respondents highlighted that benefits included the ability of AI technology to track and reduce food waste, predict customer peaks, help manage inventory, and provide real time data (Groene and Zakharov 2024). Even so, there is an opportunity for research to further assess or critique the effectiveness of AI technology solutions, as existing critiques are mostly limited to promotional material published in industry magazines (i.e., QSR Magazine 2023b) Specifically there is an opportunity for further research that clearly highlights the cost/benefits of AI technology.

Challenges around accuracy issues and initial setup timeframes were captured through Survey 2, with these concerns most likely also contributing to a lack of take up across QSR business. Only 19% of respondents utilised AI to manage food waste, with its deployment and utilisation still nascent in the QSR sector. Survey 1 also revealed a limited uptake of 'smart 'technologies, such as Internet of Things (IoT) systems, AI and geofencing-based tools, despite their prominence in the literature. Given that the majority of Survey 1 respondents were crew-level staff, and that these technologies are more commonly implemented and monitored by management, this may partly explain the low number of respondents reporting the use of AI or other smart technologies within their QSRs. Further research is needed to better understand the uptake of these technologies as well as their effectiveness and cost/benefits.

There is a clear need for the sector to collaborate in identifying the most valuable technological solutions that can address operational pain-points or hotspots, some of which have been highlighted through both surveys. By coming together to define industry priorities and create clearer market signals, QSR operators can help guide technology developers toward innovations that are fit-for-purpose, more cost effective and more easily integrated into fast-paced QSR environments. Establishing working groups that include operators, technology providers, and workforce representatives may help ensure that new solutions address the real-world complexities faced by crew staff and managers.

Additionally, there could be a role for government to support smaller, independent QSR operators who may lack the capital of larger chains to invest in new technologies. Targeted funding or incentive programs could help level the playing field and ensure that technology-driven productivity improvements are accessible across the sector. Other states could take similar approaches to the NSW EPA who have the Bin Trim Rebates Program, a program that offers rebates on equipment or technology installations that help divert food waste from landfill.

5.5 Review company policies that generate food waste and limit food donation and organics recycling

The results from both surveys indicate that company policies and risk aversion — particularly concerning food safety, hygiene and legal liabilities — drives food waste in chain-based QSRs by hindering food donation and organic recycling efforts. Survey 2 revealed that managers and owners at chain-based QSRs felt that company protocols concerning food safety (time-temperature) and surplus food management (staff cannot eat leftovers) were key drivers of food waste.

Rigid policies at multinational chains — such as a 7-minute holding limit for fries (Gunders 2012) and other policies that forbid staff from eating leftovers — do not allow for the flexibility needed to manage unpredictable flows of product and waste. These chain-based establishments often mention concerns over food safety and potential legal repercussions as primary reasons for not engaging in food waste diversion practices, such as donating surplus food or letting staff consume excess. These specific concerns by chain-based establishments have been documented in relation to managing business risks specific to franchise operations (Emerson and Trautman 2019). As QSR franchise stores are commonly directed by higher management to source ingredients from specific suppliers, any issues (i.e., e-coli in lettuce) can immediately affect hundreds of stores. From this perspective it is understandable why chain-based establishments are more risk adverse. In contrast, independent QSRs demonstrate a higher propensity to allow staff to consume leftover food, suggesting that in the absence of stringent corporate risk policies, food waste is more likely to be repurposed rather than discarded. The cautious approach among chain-based QSRs mirrors some of the challenges identified in the café sector. The 2024 Café Sector Action Plan (Addison-Smith et al. 2024) highlights that complex health and safety regulations, coupled with limited training opportunities, serve as structural barriers to implementing solutions to reduce food waste. These factors further contribute to a culture of risk aversion, where the fear of non-compliance or food safety breaches discourages proactive food waste reduction strategies. There is an opportunity for QSR owners/ head-office review company policies to better balance risk vs food waste, especially for chain-based QSRs that are part of a franchise network.

Food donation must be recognised by QSRs as a critical strategy within a multi-tiered approach to food waste reduction. Given the near impossibility of QSRs preparing exactly the amount of food that corresponds to actual customer numbers, especially when forecasts are inaccurate, surplus food is an operational reality. While prevention remains the top priority in accordance with the food recovery hierarchy, donation offers a feasible and impactful solution for managing unavoidable excess. This does not absolve QSRs from striving for accurate forecasting but rather, acknowledges the limitations of predictive models and the need for pragmatic interventions. Some QSR businesses are addressing some of these challenges in partnership with the social impact business Too Good To Go, utilising their platform to access discounted re-sale opportunities (QSR Media AU 2025; Rolld 2025; Too Good To Go 2025). Even so, the QSR sector as a whole can still do more to move away from the rigidity of company-wide policies and enable resale and donation.

There is an opportunity for food safety laws to be revised to better facilitate food donation and waste diversion (Addison-Smith et al. 2024; Parliament of Australia 2025). Simplifying regulations and providing clear guidelines can empower businesses to engage in food donation without compromising safety standards. Moreover, enhancing training programs to build staff competency in food safety can mitigate perceived risks associated with food donation. Such regulatory reforms and educational initiatives are essential to shift the prevailing risk-averse mindset and promote sustainable practices across the QSR sector. Finally, aligning food safety regulations with practical and low-risk food donation frameworks (Addison-Smith et al. 2024) can enable QSRs to overcome barriers to food waste reduction. By fostering a supportive regulatory environment and investing in staff training, the QSR sector can transition towards more sustainable operations that minimize food waste while maintaining high safety standards.

6. Conclusion

This study examined back-of-house food waste in QSRs through two surveys with staff, and managers and owners at family-owned, Australian-chain and multinational QSRs to identify key hotspots and root causes. The analysis suggested that the food handling stages of ‘preparation’ and ‘storage’ were key food waste hotspots. The root cause analysis indicated that a combination of factors contribute to waste and include staff agency, infrastructure and equipment, technology, and risk aversion.

Addressing the root causes of food waste requires that these factors be collectively addressed. Steps that QSRs can take to minimise food waste include increasing the number of staff, increasing food waste specific staff training, investing in and maintaining physical infrastructure and equipment, leveraging technology, and addressing risk aversion to increase food donation and organics recycling.

Reducing food waste in QSRs ultimately requires a shift in organisational priorities; one that extends beyond behavioural change or operational procedures to also consider how physical infrastructure/ equipment can affect day-to-day operations and food waste. This shift means that QSR managers and owners must be willing to invest in both staff and physical infrastructure/ equipment, and to recognise such investment as part of a broader strategy to reduce food waste and improve the quality of QSR operations.

By implementing the recommendations outlined in this report, QSRs can move toward more sustainable operations that balance efficiency, safety, and environmental responsibility through reduced food waste. Given the competitiveness of the QSR sector, businesses that have the capacity and imperative to act will not only reduce waste but strengthen brand reputation and long-term resilience in the sector.

Please see the Final Report for the full project results (Francis et al. 2026a) and the complete QSR Sector Action Plan (Francis et al. 2026b).

7. Acknowledgements

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Appendix

Appendix A1 — Survey 1 Guide: Individuals

Section	Topic	Question	Response Options
Consent	Statement by person agreeing to participate in this survey	• I have read and understood the Plain Language Statement documents in full • I am 18 years or older • I currently 'own' or 'manage' a Quick Service Restaurant • I freely / voluntarily choose to participate in this survey	Yes to all the above. I consent
			No to one or more of the above. I decline
Definition	*Please read the **Definitions** below which are used in the following questions:* **QSR** – Quick Service Restaurant: Food Service business that serves fast food with minimal table service and operates under a franchise model (not including cafes). **Food Waste** – All edible food that is wasted within the stages of QSR operations and service.		
Section A:	About you	Q1. How old are you?	Text _____
		Q2. How do you describe yourself?	Male
			Female
			Non-binary / third gender
Section B:	About Your QSR	Q1. Have you worked for, or owned a Quick Service Restaurant (QSR) business, now or in the past?	Yes, I currently work for a QSR business
			Yes, I currently own one or more QSR businesses
			Yes, I have previously worked for a QSR business in the past, but don't work there now
			Yes, I have previously owned one or more QSR businesses in the past, but don't own any now
			No (If no, you will not be able to continue with this survey as you have not met our selection criteria, thank you for your time)
		Q2. Which best describes your 'position' in the QSR business? [select all that apply]	Employee: Casual / Shift Worker
			Employee: Contractor
			Employee: Part-Time
			Employee: Full-Time
			Employer: Manager
			Investor / Landlord
		Q3. Please tell us the approximate start date and end date of when you have worked for a QSR business? [if still employed, please select today's date]	Start Date: Text _____
			End Date: Text _____
		Q4. What is your 'main role' in your QSR business? [select all that apply]	Crew Staff (e.g. Cooking / Serving / Drive Through)
			Crew Trainer

			Store Manager / Branch Manager
			Supply Chain Staff
			CEO / Director / Executive Staff / Founder / Owner / Investor
			None of these / Not relevant
		Q5. What is the name of the QSR business you have experience with? [either provide the full business trading name or the website address, if known]	Text _____
		Q6. How many QSR businesses do you deal with? (e.g. one business, or multiple such as a franchise group)	I have experience with 1 QSR business
			I have experience with multiple QSR businesses
		Q7. Which Australian State or Territory is the primary QSR business located that you work for? [select all that apply]	VIC
			NSW
			QLD
			ACT
			SA
			NT
			WA
			TAS
			Multiple (please explain): Text _____
		Q8. Please indicate the location of your QSR business? [select the most appropriate]	Inner City
			City Suburbs
			Country town / Rural
		Q9. What best describes the structure of your QSR business? [select the most appropriate]	Food court in a large shopping centre (e.g. Chadstone Shopping Centre)
			Community shopping mall
			Stand-alone premise / On-street service
			Not listed
		Q10. What are the opening hours of your QSR business? [select all that apply]	Standard Opening Hours (e.g. 9 am - 5 pm)
			Extended Opening Hours (e.g. 6 am - 11 pm)
			Flexible Opening Hours (can close early if not enough customers)
			Restricted to food court opening hours
			24 hours
			Open on public holidays
		Q11. Please write the main cuisine type and select the most relevant QSR's specialised meal.	*Cuisine type, if any: Text _____
			Burger Meals
			Fried Chicken

		(e.g. Japanese, Vietnamese, Chinese, Italian, American, Mexican (incl. Tex Mex), Indian, Thai, etc.) [select the most appropriate]	Sandwiches or rolls (inc. Sub Sandwiches and Vietnamese Wraps)
			Pizza / Pasta
			Fast Cooked Meals (e.g. Indian, Thai)
			Other
		Q12. Does your specific restaurant offer the following to customers? [select all that apply]	Drive-through
			Table-service
			Self-ordering kiosks
			Made of order food
			Over via an App
Section C:	Product Process	Q1. In your experience, please select the following 'food storage areas' in your QSR business where you have seen food waste occur? [select all that apply]	Frozen Food (e.g. Frozen processed meats and chips)
			Chilled Food (e.g. Pre-cut bagged lettuce)
			Fresh Food (e.g. Fresh tomatoes)
			Canned Food (e.g. Pineapple in juice)
			Dry Food (e.g. Bread buns)
		Q2. Does your organisation track and report food waste? [select the most appropriate]	Yes, we track food waste internally only
			Yes, we track food waste internally and we compare our data to external benchmarks e.g. national and global targets.
			No, we do not track food waste
			Unsure
		Q3a. You have indicated that your QSR business tracks and reports on food waste, please select the methods used. [select all that apply]	Pen and paper reporting
			Estimates at the end of the day, number of bin loads
			Scales (e.g. weighing bins)
			Stock take compared to how much was sold
			Online reporting forms
			Automatic tracking (e.g. waste bins or trucks weighed)
			AI driven tracking
			Other / Unsure / N/A, please explain: Text _____
		Q3b. Please select one or both areas that your QSR business tracks and reports on food wastage? [select all that apply]	Back-of-house food waste (waste produced pre-service of consumer)
			Front of house food waste (waste produced post-service of consumer - e.g. weighs consumer waste bins, etc.)
		Q3c. How do you quantify your waste? (e.g. what units do you measure in?) [select all that apply]	Sizes: e.g. Bin bag sizes: Small, Medium, Large, Extra Large
			Weight: e.g. Kilograms weighted
			Units: e.g. Litres measured in buckets

			Collections: e.g. Number of truck loads
			Frequency: e.g. how often you have to empty bins
			Other / Unsure / N/A, please explain: Text _____
		Q1a. When thinking about food and meal portion sizes offered to customers (e.g. small meal or a large meal), do you notice food being wasted in relation to the portion serving sizes? If so, please explain. [select most appropriate]	No, there is no food wasted in relation to portion sizes
			Yes, I have observed food wasted in relation to portion sizes (if so, what sizes have you seen cause the most food waste): Text _____
			Unsure
Section D:	People or Staff	Q1a. How motivated are you to reduce food waste in your business? Your level of motivation and practices [select most appropriate]	Motivated and actively managing food waste
			Motivated, but do not know how to reduce food waste
			Not motivated, no reason to reduce food waste
		Q1b. How motivated are you to reduce food waste in your business? Your management's level of motivation and practices [select most appropriate]	Motivated and actively managing food waste
			Motivated, but do not know how to reduce food waste
			Not motivated, no reason to reduce food waste
		Q2. When considering why you would care to reduce food waste in your QSR business, please consider the listed 'reasons to be motivated' to reduce food waste and rank them from: 1 = most motivating factor, to 8 = least motivating factor? [rank all options]	Saving time
			Saving money
			Saving the planet
			Easing guilt
			Education (teaching kids)
			Doing the right thing
			It's part of my job
			There is someone that monitors this in my workplace (e.g. a Sustainability Manager)
		Q3. In your role, when you become aware of edible food being wasted in your company, what is your response? [select the most appropriate]	I ignore the issue
			I follow my training but do not report it to my line manager
			I follow my training and report it to my line manager
			I document issues when they occur and look to headquarters for strategies
			I document issues and make new processes, providing training to others
			Not applicable for my role

		Q4. Have you received any company training on processes to reduce food waste in your QSR business? [select the most appropriate]	No training
			Yes, only when I started
			Yes, when I started the position and I received ongoing training
			Not applicable for my role
		Q4a. Has this training actually helped you to avoid food being wasted during work? [select the most appropriate]	No, the training was not helpful to reduce food waste, more could be done
			Yes, the training is helpful but the training is out of date
			Yes, the training is helpful but I have forgotten most of it
			Yes, the training is helpful an I am satisfied it helped me to reduce food waste
			Not applicable for my role / Not sure
		Q5. When considering the QSR business opening times, please rank the times that cause the most food waste with: 1 = the most wasteful, to 5 = the least wasteful? [rank all that apply]	Quiet times
			Normal meal times
			Busy times
			Unexpected rushes (e.g. a bus load of people)
			Hours just after opening
			Hours just before opening
		Q6. At close of business, does your business managers redirect edible leftover food other than the waste bin? [select the most appropriate]	No, all leftover food must be thrown away into general waste
			No, but we separate our food waste into an organics bin
			Yes, we discount our leftover food after a certain time of night
			Yes, we offer our leftover food to people of need (free donations)
			Yes, we offer our leftover food to other services (e.g. food distribution agents)
			Yes, Staff are welcome to take food home to eat
			Other / Unsure / N/A, please explain: Text _____
		Q7. You told us that you all edible leftover food is thrown away in either general waste or in an organics bin. From the list below, please select all the reasons applicable as to why your QSR business does not give away edible leftover food / meals? [select all that apply]	Damaged brand reputation / Bad reviews
			Damaged food quality reputation
			Perceived over production and wasteful practices
			Hygiene risks
			Threat of legal consequences
			People waiting around the business for handouts at the end of the day

Section E:	Technologies	Q1.	When considering these technologies available to reduce food waste, which ones does your QSR business use, if known? [select all that apply. If unknown, please select Other / Unsure / N/A]	Smart menu design (e.g. changes to promote meals using up high stock items)
				Management Software dedicated to food waste
				DIY Management Systems (e.g. Microsoft Excel spreadsheets, Google Sheets)
				Online All-in-One Management Software Packages (for stock ordering, management, waste auditing, menu planning)
				Forecasting Software to track and predict trends of demand and supply
				AI based solutions (e.g. Mapping past sales to weather conditions or holidays)
				Food waste audits (e.g. statistics - random sampling of food bins)
				Fridge door opening time tracker (e.g. alerting when the fridge has been opened too long)
				E-commerce (e.g. consumers pre-order through a website or an app)
				Internet of Things (IoT) - in store digitally connected packaging and systems
				Geofencing and cameras around store (to have advance warning of incoming groups of customers)
				Other / Unsure / N/A, please explain: Text _____
		Q2.	Does your business use any tracking technologies to help with predicting demand and supply, if known? [select the most appropriate]	No, we accommodate the standard peak and off-peak times each day of the week and change our supply to unexpected changes on demand
				Yes, we use technologies to forecast peak and off peak times each day of the week, month and year and track unexpected changes with data informed decisions
				I don't know / N/A
		Q3.	You have indicated that your QSR business uses a “Smart Menu Design”. How does your QSR utilise Smart Menu changes to use up excess food stock of your business? [select all that apply]	Promotes special meals that consist of soon-to-expire ingredients
				Promotes special meals that consist of ingredients that were in oversupply
				Promotes special foods that are affected by warmer temperatures that could cause food to deteriorate quicker (e.g. more cheese on burgers)
				None of these / I don’t know
				Other, Not listed

		Q4. When considering new technologies that may assist with managing food waste in your business, in your opinion, please select the number one limitations or barriers that your business faces in implementing them? [rank all options]	Cost
			Awareness
			Training / Upskilling
			Expertise
			Access
			Limited space
			Strict policies
			Require Headquarters approval
Section F:	Sustainability	Q1. Does your QSR business promote sustainability?	No, our business does not have a sustainability plan
			Yes, our business has a sustainability plan, but I am unsure of what that is
			Yes, our business has a sustainability plan, but does not promote it to our customers
			Yes, our business has a sustainability plan and promote it to our customers in various ways (e.g. through a website and or/an app, through printed materials, through ads, etc.)
			Unsure
Section G:	Summary	Q2. Do you think that these areas are significant contributors to food waste in your QSR business? [select all that apply]	Ordered too much stock
			Poor storage
			Lack of rotation stock (date labels not checked)
			Poor handling (dropped / spilled food)
			Infestation
			Edible off-cuts not used
			Prepared too much food (oversupply and expired)
			Temperature issues (freezer burn ingredients or burnt food)
			Mistakes in order / Customer returns
			Imperfect cooking
			Training Issue
			Management of staff issue
			Lack of motivation to save food
			Lack of time to consider saving food
			Too expensive to implement new technologies
			Cannot donate leftover food
		Q3. Within your QSR, are there any situations when food was wasted that you have observed or heard about that you could	Text _____

		briefly tell us about? *(e.g. Jordan spilled the French Fries all over the ground as the metal basket latch was really small and did not connect to the wall hook, all the hot fries fell on the ground, just in the middle of rush period too).* If you don't have anything to share, please write N/A.	
End of Survey		This is the end of the survey, so thank you very much for sharing your time and expertise.	

Appendix A2 — Survey 2 Guide: Owners and Managers

Section	Topic	Question	Response Options
Consent	Statement by person agreeing to participate in this survey	• I have read and understood the Plain Language Statement documents in full • I am 18 years or older • I currently 'own' or 'manage' a Quick Service Restaurant • I freely / voluntarily choose to participate in this survey	Yes to all the above. I consent
			No to one or more of the above. I decline
Section A:	About Your QSR	Q1. Do you manage or own a Quick Service Restaurant (QSR) business? [select all that apply]	Yes, I currently 'manage' one QSR business
			Yes, I currently 'manage' more than one QSR business
			Yes, I currently 'own' one QSR business
			Yes, I currently 'own' more than one QSR business
			No (If no, you will not be able to continue with this survey as you have not met our selection criteria, thank you for your time)
		Q2. How many QSR businesses do you currently manage?	Text _____
		Q3. How many QSR businesses do you currently own?	Text _____
	About you	Q4. Q1. How old are you?	Text _____
		Q5. How do you describe yourself?	Male
			Female
			Non-binary / third gender
			Supply Chain Staff
			CEO / Director / Executive Staff / Founder / Owner / Investor
			None of these / Not relevant
		Q6. Which Australian State or Territory is the primary QSR business located that you work for? [select all that apply]	VIC
			NSW
			QLD
			ACT
			SA
			NT
			WA
			TAS
			Multiple (please explain): Text _____
Section B:	About the QSR	Q1. What is the name of the QSR business you manage / own?	Text _____

			(e.g. Prahran McDonalds Family Restaurant). If multiple, please list all names.	
Section C:	Employee Role	Q1.	What is your 'main role' in your QSR business? Can you describe this role in detail? *(e.g. My role is the Store Manager, I oversee the store's opening and closing procedures, daily operations (ordering, rotation, serving, and tracking of stock), management of staff (hiring, scheduling, training, and performance reviews), and track/report (profits and losses, staff and client incidents, undertaken procedures, and end of day wastages).*	Text _____
		Q2.	Have you held any other roles in this business? *(e.g. Yes, I first started as a Staff Member and then became a Crew Trainer, later to join the management team after leaving high school.)*	Text _____
		Q3.	How long have you been employed, or owned the QSR business? (Months / Years, e.g. Jan 2000 to current)	Text _____
		Q4.	Please describe your current 'position' in the QSR business? If more than one, please explain. (e.g. casual, part-time, full-time, owner, etc.)	Text _____
Section D	Food Waste	Q1.	How does your QSR business define food waste? Please explain why and provide one or more examples.	Text _____
		Q2a.	In your opinion, how would you rate food waste on these topics? Rate 'Your' overall concern for food waste in your QSR business?	Not a concern
				Slightly concerned
				Moderately concerned
				Very concerned
				Extremely concerned
		Q2b.	In your opinion, how would you rate food waste on these topics? Rate your 'Employee's' overall concern for food waste in your QSR business?	Not a concern
				Slightly concerned
				Moderately concerned
				Very concerned
				Extremely concerned
		Q2c.	In your opinion, how would you rate food waste on these topics? Rate the 'Management's Staff' overall concern for food waste in your QSR business?	Not a concern
				Slightly concerned
				Moderately concerned
				Very concerned
				Extremely concerned

		Q2d. In your opinion, how would you rate food waste on these topics? Rate the food waste as an environmental concern for your QSR business?	Not a concern Slightly concerned Moderately concerned Very concerned Extremely concerned
		Q2e. In your opinion, how would you rate food waste on these topics? Rate the food waste as an 'Economical' concern for your QSR business?	Not a concern Slightly concerned Moderately concerned Very concerned Extremely concerned
		Q3. Does your business track and report food waste?	Yes, we track and report food waste No, we do not track and report food waste
		Q4a. How do you track and report food waste? *(e.g. pen and paper, scales, compare stock with sales).* Please explain in detail.	Text _____
		Q4b. When tracking food waste, are there targets of KPIs? Please explain.	Text _____
		Q4c. When tracking food waste, do you use any digital technologies? If so, please outline?	Text _____
		Q4d. When tracking food waste, in your experience, what is the highest wasted food product and why? *(e.g. The highest wasted item we hold at our QSR would be bread buns which go off before we can sell them, because we don't have an airconditioned dry goods area and on hot days, there is a lot of bread that is thrown out).*	Text _____
		Q5. What happens to food waste generated within your QSR business? *(e.g. landfill, composted on site, recycled on site, donated, etc.).* Please explain.	Text _____
Section E:	Product Stage	Q1a. Can you define the different 'stages' of how food is handled at your business? *(For example:* *1. Supplies ordered,* *2. Supplies delivered and stored,* *3. Supplies moved to prep area and unpacked,* *4. Ingredients prepared,* *5. Premade foods cooked,* *6. Meals prepared and delivered to front counter station,*	Text _____

		7. *Meals served to customers at point of sale or through drive through.* 8. *Unused items returned to the fridge and labelled,* 9. *Expired foods thrown,* 10. *End of day store clean and measuring of waste, etc.).*	
		Q2a. Specifically, what types of foods are wasted at each stage? Please identify a minimum of 4 highly wasted examples by providing: a) Handling Stage, b) Reason for Waste, c) Food Item, d) Frequency of Waste. (For your reference, here are four examples: 1. a) storage stage, b) freezer burn, c) meat patties, d) once every 2-3 days. 2. a) preparation stage, b) expired, c) lettuce, d) all day, every day. 3. a) storage stage, b) mould growing, c) bread buns, d) 2-3 times a day. 4. a) served food stage, b) incorrect order, c) a whole meal. d) once a day.) *We want to understand what drives food waste.*	Text _____
		Q2a. In your experience, do you think a specific food handling stage generates more food waste than other stages? If so, which stage and why?	Text _____
		Q2b. How much food waste would you estimate is generated at this 'stage' altogether, at the end of a day? Please estimate the percentage and quantity. • *A percentage (%) of the total food wasted at your QSR, and if known, or* • *A measurement (unit) (e.g. 10 kilograms, or 5 large bags at the end of the day).*	Text _____
		Q2c. Does your business track food waste per Food Handling Stage? If so, please explain how?	Text _____

		Q3a. When thinking about the difference between 'fresh ingredients' (e.g. fresh tomatoes) and 'foods that are pre-prepared' (e.g. frozen cut potato chips), which of these two groups would you believe are the most wasted overall, at the end of a common day? Please estimate the percentage and quantity. • *A percentage (%) of the total food wasted at your QSR, and if known, or* • *A measurement (unit) (e.g. 2 kilograms, or 1 large bag at the end of the day).*	Text _____
		Q3b. Does your QSR business track food waste by Specific Food Items? If so, what and how?	Text _____
		Q4. Do you think there is a connection between what Specific Foods are wasted and the Stage this food is wasted in? *(For example: "Yes, I think there is a lot of whole prepared meals being wasted due to incorrect orders mistaken through drive through. This is all because the headset is old and the audio is really hard to hear the customers orders clearly - I have reported this to the owner to upgrade the drive through system, but this may take sometime").*	Text _____
Section F:	People	Q1. How does your current role at work have influence on food waste at your business? *(We want to know about your view on the impact of your role on food waste, e.g. do you have any power to reduce food waste?).*	Text _____
		Q1a. How about other roles across the business? *(You could think about employees or managers. For example: Are employees encouraged or empowered to report unnecessary food waste? Or what influence does the Store Manager have on the menu?)*	Text _____

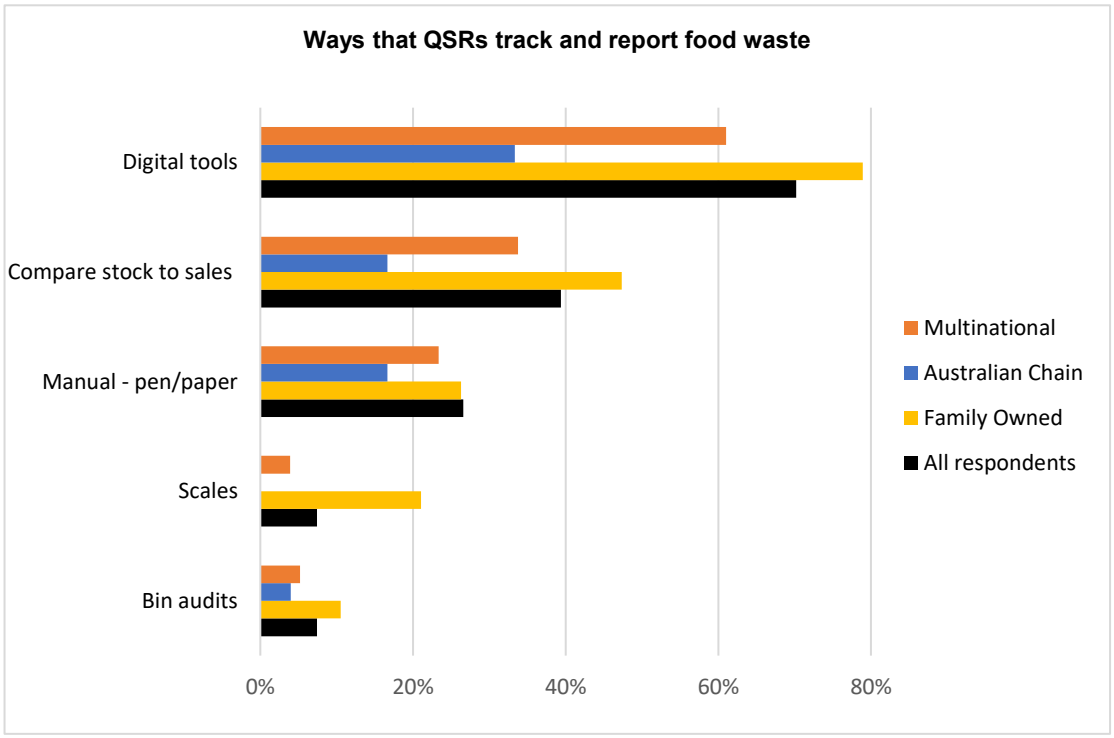
		Q2. In your business, what role do you think 'business protocols' or 'employees following protocols' have on food waste? What are some of these protocols? *(e.g. it is one of our hygiene protocols that all food must be thrown out after 'x' minutes holding period and crew staff cannot purchase or eat it for free).*	Text _____
		Q2a. When thinking about these protocols, please estimate how much food is wasted in the business due to these protocols? Do you track this food waste? *(e.g. "All food must be thrown out after sitting in the heated waiting bay for over 20 minutes. There is a timer that rings when food needs to be thrown. We throw approximately 40 burgers, 100 nuggets, and a 5 kg bucket of chips every day. Yes, we measure the wasted food at the end of the day by weighing the bins, and we record it on our in-house food waste tracking sheet through Microsoft Excel, Office 365.")*	Text _____
		Q3. Does your QSR business/es provide staff training on reducing food waste?	Yes, staff are trained on how to reduce food waste
			No, our training does not cover food waste reduction practices.
		Q3a. How is this training delivered and how long does this training last before any refresh training is required? *(e.g. 1 on 1 personal training, an online module, paper work, an online game, a tour observing the floor staff, etc.)* *(e.g. Training is compulsory is staff are required to complete modules every 3 months).*	Text _____
		Q3b. Did this training cover specific food waste strategies? If so, please explain in detail?	Text _____
		Q3c. In your experience, do you think this training is effective and if so, why?	Text _____
Section G:	AI Technology	Q1. Do you use AI to track losses (including food waste)? [select the most relevant]	Yes, we have an AI driven platform that helps with tracking and reporting losses (includes but not specific to food waste)
			Yes, we have an AI driven platform that helps with tracking and reporting losses (specific to food waste)
			No, we do not have an AI driven platform that helps with tracking and reporting losses.

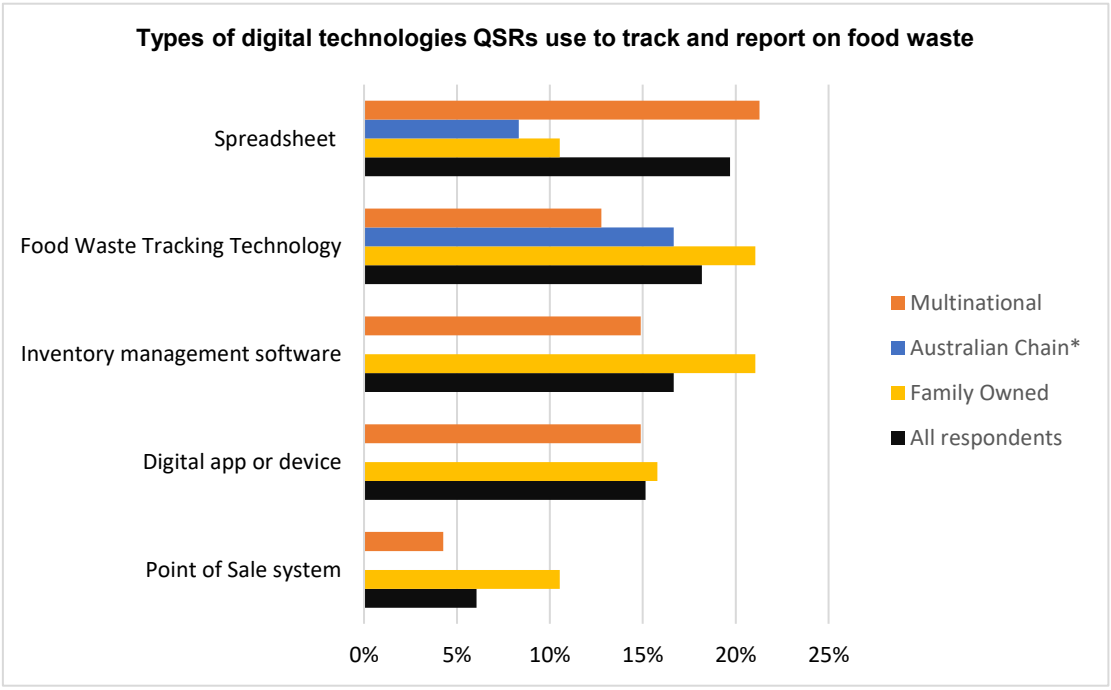
		Q2. No, we do not have an AI driven platform that helps with tracking and reporting losses.	Text _____
		Q3. *Yes, we have an AI driven platform that helps with tracking and reporting losses* — Who initiated the use of the AI platform in your QSR Business? Are they still responsible for the adoption of the technology? Please explain.	Text _____
		Q4. *Yes, we have an AI driven platform that helps with tracking and reporting losses* — Who has been trained on the AI technology? Are they trained more than once. Please explain.	Text _____
		Q5. *Yes, we have an AI driven platform that helps with tracking and reporting losses* — In your opinion, how effective is the AI Platform in tracking and reporting losses? Does it track/report food waste? Please outline any issues or benefits it has in supporting your business management (e.g. does it support the prediction of customer peaks, etc.)?	Text _____
		Q6. *Yes, we have an AI driven platform that helps with tracking and reporting losses* — Do you think the AI platform is 'getting better' the more you use it? Is it getting more effective? (e.g. The concept of AI is to identify repeating patterns in data and the more you input more information, the more accurate the reports should be. Are you finding this?)	Text _____
		Q7. *Yes, we have an AI driven platform that helps with tracking and reporting losses* — Do you think you have a full grasp of how to use the AI Platform with all its features?	Text _____
Section H:	Reduce Food Waste	Q1. In your experience of your business, what is the <u>main factor or policy</u> that contributes the most to food waste?	Text _____
		Q1a. If food waste was to be targeted in your business and food waste must be reduced, which factors or policies should be reconsidered, in your opinion?	Text _____
		Q2b. Who at the business has more control over reducing food waste, management or employees? *(e.g. Management has more control to adjust policies to target food waste reduction. Or, Employees are the ones that waste unnecessary food, and to improve their motivation to care and attention on food waste, management need to*	Text _____

		continuously educate, incentivise, and supervise crew to waste less).	
		Q2. Can you describe any processes your business currently has in place to reduce food waste?	Text _____
		Q2a. How effective do you feel these processes have been to reduce food waste?	Text _____
		Q2b. Is there a food waste manager position in your company? • If no, who manages food waste (if anyone)? • If yes, please describe their responsibilities?	Text _____
		Q2c. Is there any discounting or donation of surplus food that is redirected from landfill? • If no, why not? • If yes, how does this work?	Text _____
		Q3. How else do you think food waste can be reduced in your business?	Text _____
		Q4. Is there anything else you want to mention in relation to food waste in QSRs?	Text _____
End of Survey		This is the end of the survey, so thank you very much for sharing your time and expertise.	

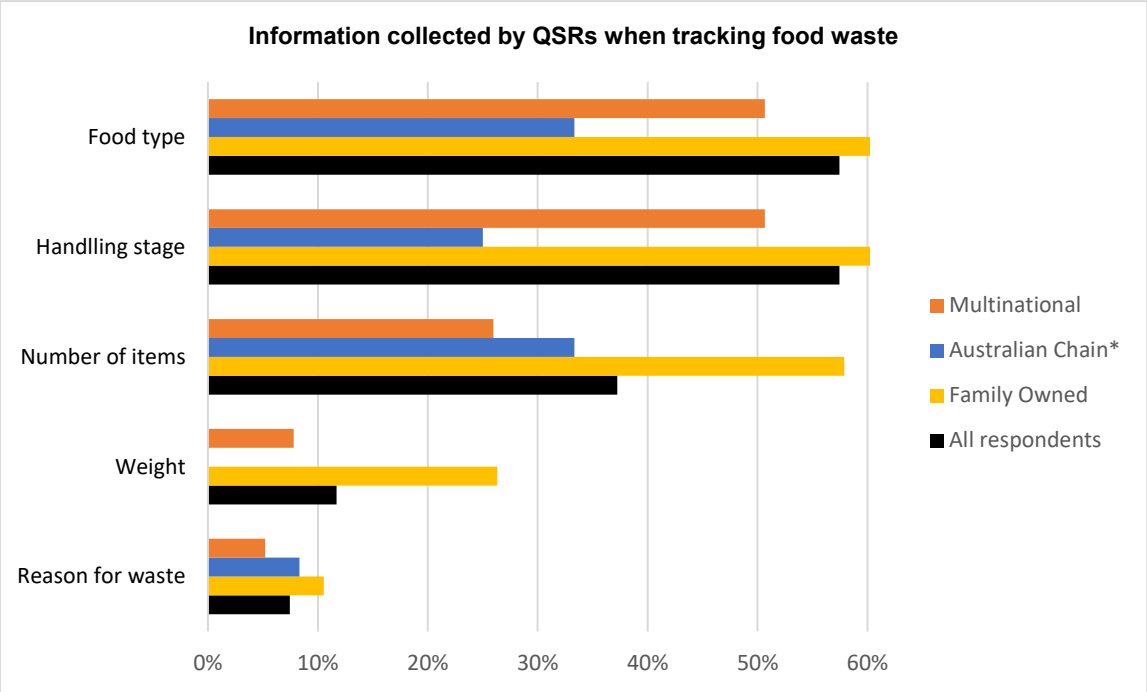
Appendix B — Survey 2 Analysis: Owners and Managers (additional figures)

Appendix to Section 4.1.2 — Business types and food waste practices





*Limited data for Australian Chains



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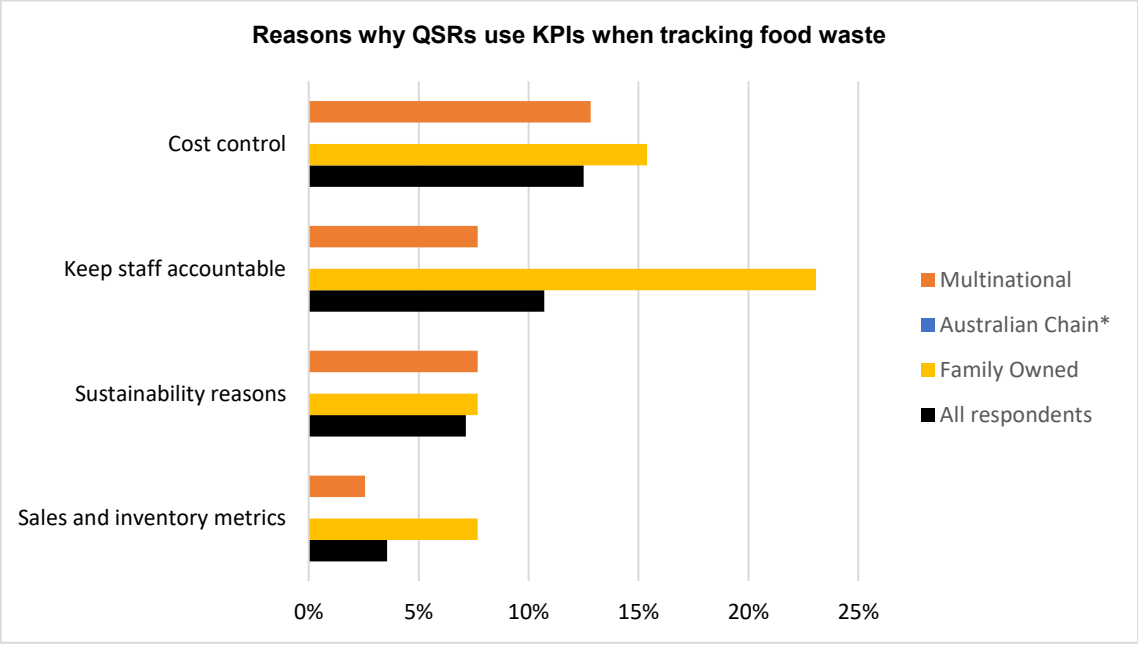
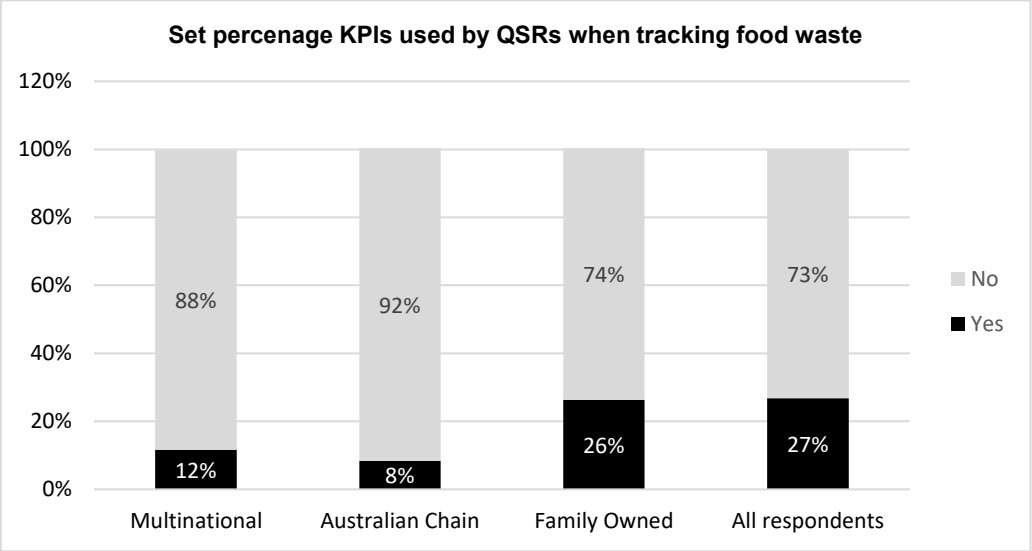


*Limited data for Australian Chains


Set percenage KPIs used by QSRs when tracking food waste
120%
100%
80%
60%
40%
20%
0%
88%
92%
74%
73%
12%
8%
26%
27%
Multinational
Australian Chain
Family Owned
All respondents
No
Yes

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For further information please contact:

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or visit endfoodwaste.com.au

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Australian Government
Department of Climate Change, Energy, the Environment and Water