CAFÉ SECTOR ACTION PLAN REPORT 2024

END FOOD WASTE AUSTRALIA

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

Table of Contents

List of figures

Authors

Helen Addison-Smith
End Food Waste Cooperative Research Centre, RMIT University

Tania Lewis
End Food Waste Cooperative Research Centre, RMIT University

Sam Quirk
End Food Waste Cooperative Research Centre, RMIT University

Kelly Donati
End Food Waste Cooperative Research Centre, William Angliss Institute

Jessica Danaher
End Food Waste Cooperative Research Centre, RMIT University

Bhavna Middha
End Food Waste Cooperative Research Centre, RMIT University

Sarah Polkinghorne
End Food Waste Cooperative Research Centre, RMIT University

Level 1, Wine Innovation Central Building, Cnr Hartley Grove and Paratoo Road, URRBRAE SA 5064
enquiries@endfoodwaste.com.au +61 8 8313 3564

EFWCRC Publication 2024_055

Executive Summary

Food loss and waste has significant environmental, social and economic impacts. Australia produces enough food to feed 75 million people every year, yet 1 in 6 Australians go hungry regularly (Foodbank 2023). In Australia, 7.6 million tonnes of food go to waste each year (enough to fill the Melbourne Cricket Ground ten times), and 70% of which is edible. While consumers are often targeted in food waste campaigns, hospitality and the food industry are major contributors to overall food waste, with the hospitality sector responsible for 16% or 1.2 million tonnes of Australia's annual food waste (FIAL, 2021).

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. This Sector Action Plan focuses on the **small- to medium-**sized businesses in the café sector. Reducing food waste within the café sector will benefit businesses, decrease environmental impact and is crucial for Australia to meet its objective of halving food waste by 2030 in line with Sustainable Development Goal (SDG) 12.3.

This Sector Action Plan, one of a suite of Foodservice SAPs, was funded by the New South Wales Environmental Protection Authority (NSW EPA), QDESI, and RMIT University's Enabling Impact Platforms. Project partners included the City of Yarra, Australian Institute of Food Science and Technology, Australian Food Service Advocacy Body and William Angliss Institute. The plan was developed by End Food Waste Australia (EFWA) with stakeholders in the café sector and across the supply chain.

The project methodology included:

- Literature review and review of existing data and statistics;
- Fieldwork (with video methods) and interviews with cafés and stakeholders across the supply chain in greater Melbourne; Sydney and Brisbane; and
- Three core participatory industry workshops.

The workshops aimed to achieve the following:

- Map the food waste chain and identify key hotspots from farm to fork;
- Explore root causes for each hotspot; and
- Discuss and co-design potential solutions.

Fieldwork in Cafés

Our research as part of this Section Action Plan focuses primarily on venues across Australia that are attempting to implement solutions. That is, the research sought to learn from industry actors themselves what low waste solutions might be feasible and achievable for this time- and resource-challenged industry. At the same time, we aimed to capture the realities facing the sector in relation to constraints and barriers to change. To do this, we conducted fieldwork (including video methods) in hospitality venues and along the food supply chain. Fieldwork was enriched through interviews with a diverse range of relevant stakeholders from producers, distributors and local council representatives to food relief agencies working with café venues.

Results

To assist in targeting recommendations, we have structured the research findings into the following categories:

Hotspots

- Menu design and planning
- Food safety

Root Causes

- Training
- Time constraints
- Infrastructural challenges

Recommendations

The recommended actions either enable food waste prevention at a systems level, prevent it from happening or upcycle or repurpose waste.

System or structural enablers are the overarching actions required to respond directly to root causes of food waste in the café sector and the foundational interventions required to enable change.

These more foundational or structural supports and changes will in turn make it easier for businesses to implement food waste solutions from planning, preparation and plate waste, whether as a sole venue or in partnership with others in a street or precinct. These included:

Structural enablers

- Creating clear, consistent regulation and infrastructure
- Updating vocational training
- Changing customer culture and expectations.

Studying best practice/low waste cafés enabled identification of practical solutions that cafés could implement to reduce the food waste they generate.

Emergent solutions

- Upskilling the workforce
- Low waste menus

The café sector is extremely diverse in terms of business size, operations, locations and facilities. This Sector Action Plan prioritises actions that can be adopted by businesses across this diverse sector and so have greater impact on reducing food waste in the Australian café industry.

A summary version of this report is also available: Cafés Food Waste Action Plan Summary 2024

Figure 1: Cassette Café, Melbourne. Photo: Sarah Menegon

1. Introduction

1.1 The Australian café industry

Australia's $10 billion café sector employs more than 140,000 people and represents the world's largest café industry per capita outside Europe (Kaye & Jackson, 2023). The hospitality industry is a key part of Australia's food culture and urban environment, acting as third spaces (Oldenburg 2013) and is a significant economic actor, intrinsically connected to other key industry sectors including agriculture, food manufacturing, markets and retailing, distribution, and waste management as well as tourism.

As of June 2022, there were 53,866 cafés and restaurants in Australia making up over half of all food service businesses nationally (ABS, 2023) The majority of cafés are small businesses, employing between 1-20 employees (ABS, 2023), with the average at 9 employees (Statista, n.d.). Front-of-house employees are overwhelmingly young, female, and part-time, with an average age of 24; secondary school is the highest level of education obtained by most café workers (Labour Market Insights, 2021a). These workers typically do not have any formal training, with on-the-job training the standard practice.

Back-of-house employees such as chefs are typically older (with on average age of 35), male and more likely to be employed full-time, with a significant minority having participated in vocational training (Labour Market Insights, 2021b).

Cafés and the food service sector more broadly in Australia also rely heavily on temporary migrant/holiday visa workforce. Prior to COVID-19, they made up close to one fifth of the workforce (Tham & Fudge, 2019).

1.1.1 Effects of COVID-19

The COVID-19 pandemic has profoundly impacted on the café industry, particularly in cities like Melbourne where mandated lockdowns were amongst the longest globally. Across the country, large numbers of hospitality venues closed with 58% of hospitality workers losing their jobs. This high closure rate reflects the limited financial resources and narrow profit margins of the hospitality sector. In the early 2000s, café profit margins were around 20%, but these have dropped to 7.6% in recent years (Felton, 2024). Reduced economic margins are likely to make business owners more risk-averse when it comes to introducing new practices or contemplating organisational change.

Despite these economic constraints, the pandemic also saw many café owners and workers joining forces to support each other and the Australian community during this time, including offering free meals to those in need and introducing pay-it-forward schemes for those who could afford it. Cafés also developed a range of innovative business solutions to continue during lockdown while also embracing technology in a range of ways, demonstrating the sector's creative capacity and resilience.

Crucially, the government stepped in during this time with payments to support business and food workers. Indeed, in Australia and internationally, otherwise market-driven neoliberal governments introduced a range of neo-Keynesian initiatives such as income support and venue rental subsidies. For example, the EU developed a set of ongoing 'public rescue strategies' for the tourism and hospitality sector including targeting small to medium enterprises with direct support for companies and the self-employed. These international measures speak to both the precarity of the café industry but also its recognised centrality to the economic, social and cultural fabric of communities worldwide.

1.1.2 Skills and staff shortages

As the sector seeks to recover from this extraordinary global crisis, the question becomes what's next for an industry facing a complex range of challenges with ongoing problems with supply chains and skilled labour shortages exacerbating existing environmental, labour and economic issues.

Staff shortages, including an experienced workforce, are a major concern for the café sector with 51% of food businesses struggling to fill jobs with suitable staff (ABS, 2023). With the closure of hospitality venues during the pandemic, an astounding 94% of temporary visa holders lost their jobs, indicating the industry's dependence on young, precarious and often underpaid labour.

Hospitality is facing a labour shortage of up to 100,000 workers (AFAB, 2023). The reintroduction of work restrictions on international students, including limiting working hours, will further reduce labour access. The shortages are most acute amongst the highly skilled occupations of chefs and café/restaurant managers and have increased dramatically in recent years (RCA, 2022). Chefs are ranked at number 8 of the top 20 in demand occupations nationally (AFAB, 2023).

Alongside a shortage of workers, in-house training of hospitality workers remains limited and ad hoc. Nearly 60% of businesses do not have a structured or formal staff training program (RCA, 2022) although 58.2% would use a low-cost online induction/training course if it were available to them when hiring fresh staff.

Figure 2: Ferments in fridge (foreground) and compact kitchen storage (background) at All My Friends, a circular economy grocery and café, Brisbane. Photo: Tania Lewis

1.2 Food waste in the café sector

Currently, the café sector in Australia is a highly wasteful and carbon-intensive industry that is driven by a linear, 'take-make-waste' paradigm. Within this linear approach, finite resources are extracted to make products that are often not used to their full potential and then thrown away. The National Food Waste baseline found that 16% of Australian food waste is generated by the hospitality sector (FIAL, 2021). In the US, research suggests that 84.3% of unused food in restaurants is thrown away while only 14% is recycled, and only 1.4% is donated. Australia's National Food waste strategy provides a framework to support collective action towards halving Australia's food waste by 2030 (DEE, 2017). As part of its Advancing the Circular Economy research, the CSIRO argues we have a major opportunity to transition to circular economy, avoiding waste, recovering resources and adding value to so-called end-of-life materials, such as leftovers and foodstuffs past their use-by date (CSIRO, 2024).

Research from the NSW EPA shows that small- to medium-sized cafés do see reducing waste as being 'part of a sustainable and ethical business' and that over two-thirds thought they were doing all they could, yet almost 50% indicate waste is not monitored (NSW EPA, 2016). Food waste in commercial kitchens often has low visibility (Derqui et al., 2016), so documenting food waste is a tool to combat this (Papargyropoulou et al., 2019). Only 22% of foodservice businesses in Australia have conducted a food waste audit or assessment (McGrath, 2021). The NSW Waste and Sustainable Materials Strategy 2041 will require the separate collection of: food waste from targeted businesses and other entities that generate the highest volumes of food waste, including hospitality businesses, by 2025 (DPIE, 2021).

Developing an informed national framework and strategy for shifting to a circular approach in the café sector requires knowledge of how, where and why food waste is produced. Simply weighing waste does not reveal why waste is created in the first place. To go beyond the 'what' and better understand the 'how', 'where' and the 'why' of waste, rigorous quantitative data needs to be paired with whole-of-system, qualitative approaches that engage with the everyday realities of cafés as complex work environments operating within broader food systems, built environments and policy and regulation structures (Quirk et al., 2024).

Figure 3: Food rescue statistics at Refettorio OzHarvest in Sydney. Photo: Tania Lewis

1.2.1 Where does waste occur

Food waste in the café sector is often classified by where it occurs in the process of creating food and is divided into three categories: spoilage (storage), preparation (pre-consumer) and plate (post-consumer). These categories are used by a range of food waste prevention programs globally, from WRAP's Guardians of Grub to the NSW EPA's Your Business is Food Program. However, where precisely food waste occurs in cafés varies from business to business (McGrath, 2021). Some research has found that preparation waste constitutes the largest proportion of waste in cafés (Papargyropoulou et al., 2019; Malefors et al., 2019; Papargyropoulou et al., 2016; WRAP, 2013). For instance, café kitchens can generate substantial amounts of offcuts and inedible food such as peels and bones if they primarily prepare food onsite. Other research has found that plate waste makes up the largest proportion of café food waste (McGrath, 2021; Love Food Hate Waste, 2021). Businesses that use large amounts of readymade items, such as salad mix or frozen fries, are more likely to have higher proportions of plate waste. Cafés reliance on readymade food varies, so it is not always easy to pinpoint exactly where waste occurs across the café sector. Although this method of categorising where waste occurs is useful for understanding food waste in the context of cafés themselves, it is a far more complex task to account for how cafés are embedded in a broader agri-food system. For example, a significant amount of food waste occurs before produce even arrives at a café. Taking a more holistic or systems view of café food waste, we have added Supplier or pre-café waste to the areas where food waste can occur. Supplier or producer waste, includes food wasted before it gets to a café, for instance, food spoiled during extended periods of transport, and usable but slightly blemished produce deemed not up to aesthetic standards. Spoilage waste is food wasted onsite but prior to kitchen preparation due to overordering, spoiling, or damage. This includes excess food (such as a pre-cooked lasagne) that has never been sent out to consumers, but which could have been upcycled or donated to food relief agencies. Lastly, plate waste refers to food leftover after reaching customers and that has not been taken home.

1.3 Gaps in current knowledge

Despite the significant quantities of food waste produced by the hospitality sector, there is a lack of sophisticated, critical quantitative and qualitative research. In particular, there has been a limited focus on the foodservice industry or cafés specifically (Filimonau et al., 2019; O'Connor, 2021; Adan, 2023). A range of challenges make it difficult to measure and understand food waste in this sector. These include the lack of businesses currently measuring their waste (NSW EPA, 2016), the diversity of business types included in the broad umbrella of 'hospitality' and the differing geographical and socio-cultural contexts of café environments (Quirk et al., 2024). The high pressure and rapid turnover nature of the café industry further contributes to these difficulties. Despite these challenges, combining quantitative and qualitative approaches offers a powerful way to understand both the scale and the complexity of the food waste issue, and to develop more industry-embedded and informed approaches to how to best transition towards a low waste and circular industry.

In the Australian context, quantitative data was collated through the National Food Waste Baseline (FIAL, 2021) with the goal to halve Australia's food waste by understanding the amount of waste generated in each sector. The latest figures from the 2021 report (FIAL, 2021) show a 275% increase in the amount of waste generated by the hospitality sector from 2019-2021. This increase from 324,290T per year to 1,217,000T per year was due to a change in the dataset quality, not a change in food waste practices. This underestimation of the amount of waste generated illustrates the need for further research to understand the scale of the problem. It also speaks to the limitations of purely quantitative approaches to food waste and the challenge of drawing clear boundaries around what does or doesn't count as food waste.

Qualitative research is needed to understand the how and why of food waste and to implement solutions that make sense to and are feasible for businesses in their day-to-day workings. However, research on how a low waste or circular hospitality industry might best be implemented remains thin on the ground (Jones & Wynn, 2019). Bux and Amicarelli's review (2023) of circular

economy and sustainable strategies in the hospitality industry found growing use of the term ‘circular economy’ among international scholars and hospitality managers. However, out of 62 academic papers on the topic, only a quarter specifically looked at restaurants, and many of these focused on one aspect of a restaurant’s practices such as beliefs and attitudes of restaurant owners, food waste measurement or menu design rather than offer a holistic perspective.

Mixed method approaches are therefore urgently needed to help reveal both restaurant practices around food waste measurement and reduction as well as the broader environmental, social, food relief and social justice, economic and attitudinal dimensions of the “food waste landscape” (Sakaguchi et al., 2018). The issues facing the hospitality sector reach far beyond the bounds of the restaurant space, speaking to the urgent need for collaboration across ‘a diverse economy, which has a multitude of interactions among suppliers, consumers, managers, and operators’ (Sakaguchi et. al., 2018). As we discuss in this report, this is further complicated by policy and health regulations which may work against promoting circular practices.

2. Methodology

Our research for this Section Action Plan focuses primarily on cafés across Australia that are implementing solutions. That is, the research sought to learn from industry actors themselves what low waste solutions might be feasible and achievable for this time- and resource-challenged industry. At the same time, we aimed to capture the realities for the sector in terms of constraints and barriers to change.

To get a sense of how these venues function on the ground, we used an embedded set of qualitative research methods called ‘digital ethnography’ (Pink et al., 2015). We discuss this methodology further below, but essentially, we combined short periods of in-depth fieldwork (including site visits to cafés and other stakeholders such as producers) with the use of videos and images to capture ‘live’ data about actual practices in workplaces and beyond.

Fieldwork was conducted in cafés (in kitchens, cool rooms, front-of-house and back-of-house including observing delivery and waste management practices), as well as in other parts of the café supply chain and food waste ecosystem. This includes time spent with food producers and on farms working to reduce waste in collaboration with cafés and conducting research in hospitality education venues. Fieldwork was enriched through interviews with a diverse range of relevant stakeholders, from local council representatives to food relief agency staff working with café venues.

In recognition of the fact that the people with the expertise and skills to make changes in the café sector are chefs, venue owners and food workers themselves, our methods were co-designed and led by our stakeholders. A key part of this process occurred via interactive public events that directly engaged with these industry stakeholders. Focusing on stakeholders attempting to create change in the sector enabled us to capture emerging best practices as well as identify key barriers and major hotspots for food waste in small- to medium-sized cafés. We combined this collaborative, co-design approach, with two key methods: a systems or follow-the-food waste-chain approach and digital ethnographic methods.

2.1 A whole-of-system or follow-the-food-waste-chain approach

Previous EFWA Sector Action Plans identified that food waste is generated within a complex agri-food ecology best approached by taking a whole-of-system perspective. By using systems theory principles, clearer analysis of patterns and interactions between systems can be undertaken (Clayton & Radcliffe, 2018). Actions can then be directed to the high impact parts of the food chain while also working in a joined-up manner to enable change across the system, whether at the level of training, farm practices or reducing waste in commercial kitchens.

This project therefore sought to gain a whole-of-system picture of food waste and the barriers and opportunities for change within the sector. This involved taking a farm-to-fork approach. Key stakeholders were identified from across the whole café food waste

chain and included small- to medium-sized cafés that had been identified as undertaking best-practice in food waste management as well as hospitality educators, produce suppliers, urban and peri-urban farmers, waste service providers, food rescue organisations (such as OzHarvest and Open Table), representatives of local and state governments and waste consultants taking part in our workshops and ethnographic research. In total, our study included over 50 stakeholders from Queensland, NSW and Victoria from across the café food ecosystem.

As noted earlier, cafés in Australia are currently embedded within a broader agri-food system that operates largely as a linear system, following a take-make-waste model (EMF, 2024). That is, ingredients are extracted from the environments in which they grow and transformed into food for consumption, the waste from which is deposited in landfill. As such, food waste has become normalised as a necessary output that is addressed by moving waste from individual venues to landfill at considerable cost to the community, economy and environment. This 'consumptogenic' cultural economy encourages the excessive consumption of resources and externalisation of social and ecological consequences (Parker & Johnson, 2019).

In contrast, the research undertaken for this Sector Action Plan was designed to integrate principles from circular economy thinking. Accordingly, our research aimed to capture the full cycle of food waste from farm to fork (and back) through a focus not only on waste but on the culture of the café sector, including work practices (and pressures) and the role of the organisational and built environment in shaping practices.

2.2 Digital ethnography

We used qualitative methods in this research. Ethics approval for the qualitative research was provided by the Human Research Ethics Committee at RMIT University: "2023-26126-21830 Hospitality Sector Action Plan - Researching and implementing best practice food waste reduction in Australia cafés".

To capture the 'field' in which people in the café sector operate, we paired a systems approach with a digital ethnography methodology. Digital ethnography is a qualitative research approach that seeks to capture the complexities of everyday practice through immersive fieldwork, while often using an array of digital tools from video to apps (Pink et al., 2015). Complementing this flexible, co-design approach, digital ethnography is not a fixed method or approach but is tailored to different sites and practices, depending on the nature of the research being undertaken (Lewis, 2021).

This project used digital methods in multiple ways, including recording video footage of interviews, workshops and everyday work practices of stakeholders across the food waste system. Brief and focused ethnographic research on segments of the larger food system in which cafés sit (including food growers) provided a more holistic picture of the hospitality community, while fieldwork in industry settings helped develop a better understanding of how beliefs and cultural norms around waste (and waste prevention) manifest in practice. As part of the ethnographic methods, members of the research team 'walked the food waste chain' tracking practices from the time of purchasing raw food supplies through to food storage, preparation and cooking, customer consumption and finally to food waste disposal. The use of videos captured via mobile phones, combined with often hands-on fieldwork in cool rooms, bin storage areas and kitchens, enabled a 'complex engagement with the sights, sounds, taste, smell and feel, the rhythms and temporalities of a range of actors, spaces and practices' in café venues and beyond (Lewis, 2021). This was paired with in-depth video interviews on site with hospitality workers during which they discussed and reflected on their practices. This data was analysed using NVivo, a qualitative data analysis software, and then coded and classified to identify dominant and recurring trends.

2.3 World Café workshops and participatory public events

Workshops were central to project engagement with industry stakeholders and to our co-design approach. Three key workshops were run with industry stakeholders using the World Café Workshop method, a participatory process that brings diverse actors together in a conversational setting to explore issues and troubleshoot problems. This informal, non-hierarchical method helps groups engage in dialogue that is constructive with a particular focus on critical questions that guide collaborative issue identification and learning (Löhr et al., 2020). Building on the World Café model, we also integrated the materiality of food and waste into the workshops by making, sharing and eating waste-based food. The three workshops included:

- A hotspot mapping exercise with key Victorian stakeholders to identify waste issues held at William Angliss Institute (July 2023). We produced a short film from this workshop (see YouTube: https://www.youtube.com/watch?v=_LbTeRXWX3A).
- An Industry Deep Dive with NSW stakeholders hosted at Cornersmith Café (November 2023) focused on waste under four broad categories of education, infrastructure, commercial and community.
- A conference workshop focused on cross disciplinary solutions to food waste in cafés as part of RMIT University's Food for Thought conference (November 2023).

With funding from RMIT's Enabling Impact Platforms, we also held a more experimental event to trial alternative approaches. Betamax was a food design event held at RMIT (October 2023) that challenged eaters to 'do without' many of the accoutrements and practices associated with dining out in the Global North. Led by RMIT Design student Angelica Trono (using traditional food practices from the Philippines) in collaboration with RMIT's Helen Addison Smith and Oliver Vodeb, this event interrogated and consumed leftovers-based cuisine while engaging directly with the waste and mess produced by the dining event. As a part of this, diners were asked to reflect on their food waste practices through a series of informal recorded interviews.

2.4 Other public engagement

- **Instagram account @cafélabsters**. A project Instagram account was used to share our research findings throughout the project. This created accountability and engagement with project stakeholders and beyond, and a platform for broad dissemination of our findings in Australia and internationally; and
- **Project film.** Drawing on our digital ethnographic video material, we created a project film now housed on RMIT's YouTube channel (CaféLab Sector Action Plan: Reducing Food Waste in Small to Medium-Sized Cafés, RMIT University https://www.youtube.com/watch?v=iCXEGy4Ffdc&t=453s). This film delves into the challenges faced by the café industry in relation to reducing food waste and explores potential solutions, while giving visibility to leading industry partners and stakeholders.

Figure 4: Flyer for the Betamax no waste event, RMIT University. Courtesy of Angelica Trono

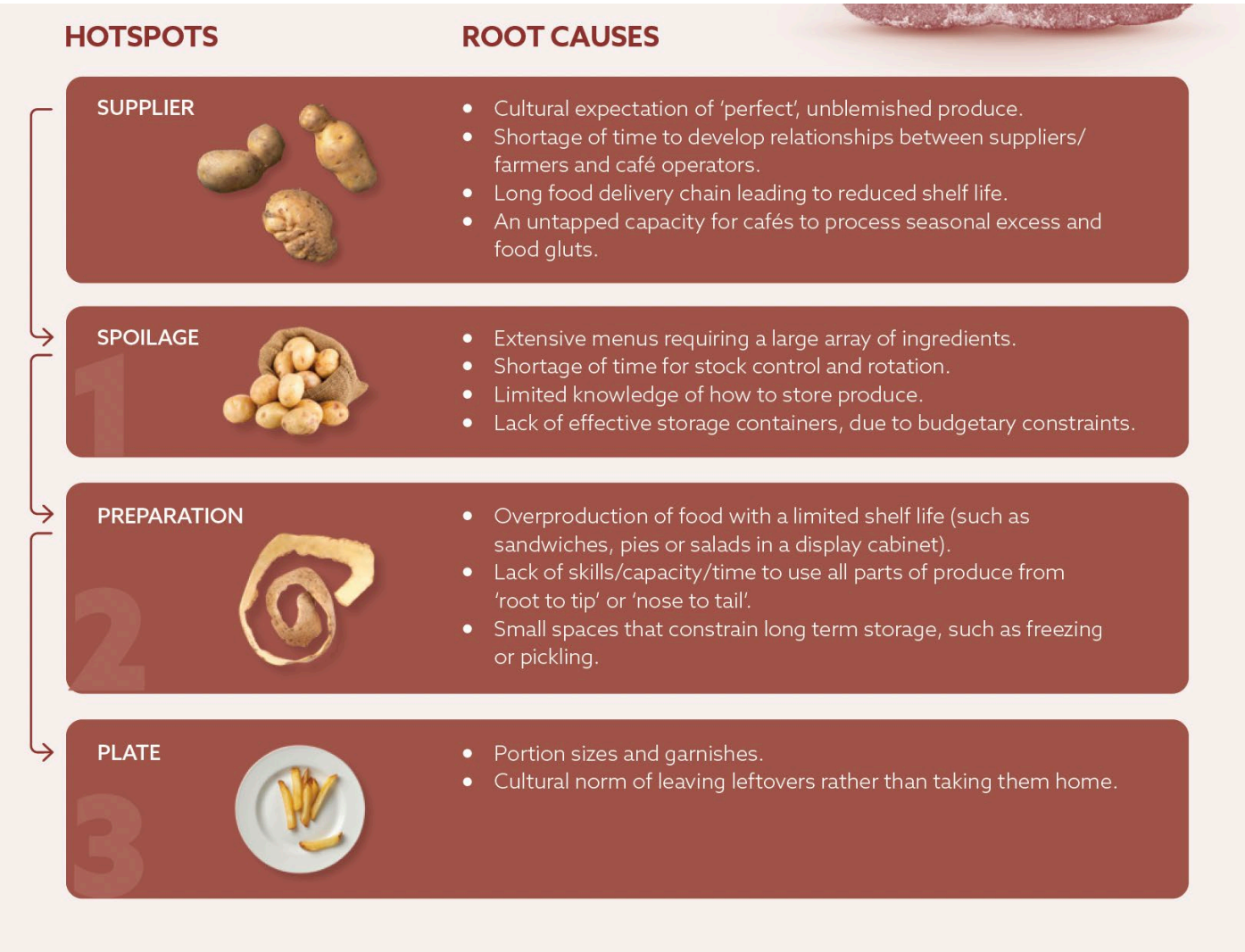
Figure 5: NSW industry workshop, Cornersmith. Photo: Sarah Menegon

3. Results

Analysis of research data as part of this Section Action Plan identified several key themes which we have organised into the following hotspots and root causes.

3.1 Hotspots

In the first of the series of workshops, stakeholders were asked to map out food waste chain for the café sector including highlighting places and practices along the chain that are hotspots for food waste. These are summarised in the diagram below.



Alongside these hotspots, there are also the following considerations:

- limited food literacy among hospitality staff, including a lack of understanding of seasonality and how to deal with produce gluts

- long food chains which mean that produce arrives with a shorter shelf life
- difficulty accessing food relief organisations because of logistical constraints
- accuracy of menu descriptions: for example, dishes coming with unexpected side salads or sauces
- lack of space in venues to store leftovers that could be taken home by staff or food relief agencies

Our discussion will focus on two key hotspots that were recurrent themes in our research:

3.1.1 Menu design and planning

Stakeholders highlighted menu design and associated food planning and stocking as a major hotspot. Social norms around choice and convenience means that cafés often feel they need to offer extensive menus, including offering dishes with the same ingredients around the year despite local seasonal variations.

> *Restaurants are incredibly wasteful because you always have to have everything. You cannot run out of an item because that just means that you're not doing your job. – Chef, Brisbane*

Overstocking so that a venue never runs out of anything is likely to generate waste. This is amplified by long menus which not only waste food but require a higher amount of labour to manage, from stock control, through to ordering and food preparation. The practice of having long, complex menus and of overstocking in turn reinforces customer perceptions and expectations that cafés should always have a large amount of choice.

Best-practice cafés highlighted how good menu planning enables making use of a limited amount of ingredients, whilst still giving customers some choice. Managing this balancing act takes work and time. It also involves understanding and engaging with seasonality along with where and how produce is sourced. For the businesses in our study, a menu centered around low waste is crucial to managing a sustainable café. A more detailed discussion of low waste business practices is presented in Section 4.

3.1.2 Perceptions of food safety and use-by dates among food staff

> *I think people's ideas of what is no longer good to eat is the problem because people feel like they need to get rid of food and put it on special or whatever because it's 'past its best' and stuff. But there's not actually anything wrong with it. It [does] not taste any different… from a OH&S point of view, it's like no longer good. But it doesn't mean it is no longer good. – Chef, Melbourne*

Another substantial contributor to food waste in the café context is the disposal of food by kitchen staff that is past its best-before date but not necessarily unsafe (Anderson et al., 2023; Grimmer & Kilah, 2022). In Australia, the food supplier is responsible for use-by or best-before dates, and this labelling is central to the food safety practices in commercial kitchens. Use-by dates indicate when a food product is no longer safe to eat, whereas best-before dates indicate that food that should be safe to be eaten but may have lost some of its sensorial quality after a certain date (Australia New Zealand Food Standards, 2023). The *Food Standards*

Australia New Zealand Act 1991 specifies that food cannot legally be sold after the use-by date since it may pose a food safety risk, whereas food can be sold after its best-before date.

Interviews with food industry professionals, as well as existing consumer insights, reveal a tendency to discard food even when it may still be safe to eat (End Food Waste Cooperative Research Centre, 2019). This misconceived 'food safety practice' is exacerbated by confusion regarding food regulations and poor understanding of the distinction between use-by and best-before dates. Industry stakeholders also noted that this confusion surrounding use-by or best-before dates may be leveraged for economic incentives – at least from a food manufacturer and supplier's end – with dates driving product turnover. This is currently being investigated in another End Food Waste project, which will seek to overhaul the date labelling system in Australia (End Food Waste Australia, 2023a).

The landscape of food safety in Australia is one marked by stringent standards and regulations, reflecting a strong commitment to public health at all levels of government. However, the perception of risk versus actual danger presented by food handling practices and consumption has become a subject of debate among food industry professionals. Australia's overly cautious approach to food safety stems from a legitimate desire to protect the public from foodborne illness. However, this approach can lead to the development of regulations that chefs and industry workers feel are disconnected from the realities of food preparation, particularly if they are grounded in fear rather than evidence. Moreover, the most significant issue arising from the current state of food safety regulation and its constraints is its contribution to food waste. Many chefs and food staff who might otherwise encourage customers to take home leftovers, upcycle food waste or donate excess food to food relief agencies are often fearful of doing so as they are concerned with potentially breaching regulations.

3.2 Root causes

3.2.1 Training

A persistent theme in our fieldwork and workshops was the crucial need for training and skills in the café sector that support sustainability and food waste reduction practices. Current vocational training also rarely provides future hospitality workers with the skills needed to reduce waste, such as fermentation, preserving, managing gluts and root-to-tip cooking and waste is often configured as a necessary part of hospitality practices rather than a social, economic and environmental cost.

Stakeholders in our study pointed out that reducing food waste requires skills in both front- and back-of-house management. In the kitchen, working with seasonal produce, menu design, food preparation and storage are all key skills in reducing food waste. In the front-of-house, staff need interpersonal skills to educate consumers about taking home leftovers, work with food relief agencies, and communicate with back-of-house and owners around ordering produce in ways that reduce waste. As previously noted, these skills are currently developed on the job and are implemented by relatively few sustainably minded hospitality businesses. As cafés are now operating on increasingly thin profit margins, on-the-job training is also costly in terms of time and money.

3.2.2 Food literacy and food systems literacy

> *Unless they've had their own experience at school or at home that has some kind of relationship to food waste, then they're coming in with nothing. I've got to actually explain it to them, and that's exhausting. – Café owner, Sydney*

Food waste generated within the hospitality sector is often constructed as the responsibility of individual businesses. However, this approach overlooks the larger cultural and structural factors and social norms that shape how business owners and workers alike relate to food and drive wasteful practices. Along with a lack of training, many stakeholders highlighted low levels of food literacy as well as food systems literacy as key challenges in reducing food waste. Food literacy includes both cooking skills and sensory knowledge – the ability to tell if something is 'good to eat' by tasting it, and the ability to create a delicious meal through sensory feedback (for example, 'needs more salt'). Going beyond food literacy, food systems literacy concerns the knowledge of broader socio-political and environmental context in which food is grown, processed, and distributed and, importantly, the ability to act on this knowledge in a way that contributes to sustainability or social justice (Classens & Sytsma, 2020).

As one industry stakeholder noted, use-by and best-before dates have become a proxy for what is good or safe to eat. Many people have lost touch with taste and smell in determining whether food should be disposed of, and this is further exacerbated by the dominance of processed foods which use various technologies and additives to lessen the appearance of spoilage.

When they reach young adulthood and their first jobs, they legitimately don't know how to boil water, or they don't know how to cook an egg. – Council worker, NSW

Australia has a risk-oriented culture around food so that concerns about food borne illness tends to be prioritised over the environmental impact of wasting food or concerns around food insecurity. This is a culturally specific problem, as noted by a stakeholder from a Filipino background who made the following observation: "[In the Philippines] there wasn't a question of throwing something out – especially meat – because it does not look good. Since I migrated [to Australia], it's so much confusion. Why is there so much waste here?"

Low levels of food literacy can be attributed, in part, to cooking as a basic skill being taught less in schools and in the home. Given the young age of the average hospitality worker, ideas and practices around food waste have often been learned either at home, at school or in other jobs. Low levels of food literacy therefore contribute to poor food systems literacy in which employees working with food are not sufficiently equipped to understand food waste as a problem or act effectively towards addressing the issue.

3.2.3 Time constraints

Time is a crucial factor in the food waste equation for small- to medium-sized cafés and must be considered in the design and implementation of food waste reduction schemes for this part of the hospitality sector. Learning how to reduce food waste requires considerable time investment, effort, and care (Lewis and Vodeb 2021) and the acquisition of skills around understanding and working with the seasonality of produce, menu redevelopment and low waste food preparation and storage. For front-of-house staff, educating consumers and managing take-home offerings of leftovers through, for instance, doggie bags also require extra time and labour, not to mention considerable interpersonal skills. Donating food to food relief agencies also contributes to reducing food waste but requires knowledge of and relationships with this sector, and the time and capacity to manage and safely package food donations. Food relief agencies also often lack time, capacity or transport options to collect surplus food, even if food donations are welcome and needed.

A key challenge is that smaller, economically challenged cafés are often understaffed. The result is that the work environment may face considerable time pressures. Practices, such as working closely with food producers and distributors, designing seasonal menu design, reducing plate waste, or conducting routine waste audits, may be seen as a luxury rather than a necessity.

In our first Sector Action Plan workshop, an industry stakeholder made the telling statement that, for people working in hospitality, 'time is a privilege'. High-end restaurants might have greater capacity to experiment with new systems and more time to reflect on

and change practices. However, as one government worker who had conducted food waste auditing programs in cafés noted, a major challenge is that most smaller hospitality owners are time poor. This issue is exacerbated by a reliance on casual employees, with chefs and owners having to re-skill each new employee around food waste reduction practices.

3.2.4 Infrastructural challenges

Availability of and access to affordable and efficient food and waste infrastructure in the built environment (Middha 2023) play a significant role in shaping the waste practices of the hospitality industry. For example, the cramped kitchen of many inner-city cafés makes measuring and auditing food waste difficult and may limit the amounts of bins that can be used (that is, the potential for separating out various kinds of food scraps for upcyling/reuse). While composting is the last resort when attempting to reduce food waste, separating food waste for diversion from landfill may help cafés identify where and what they are wasting, as well as providing positive environmental outcomes. While onsite and decentralised facilities for residential waste have been implemented by councils and explored globally, hospitality and café venues and the commercial sector in Australia are left to private service providers (Middha and Horne 2024). It is not a legal requirement to have a dedicated food waste bin and, as additional bins are more expensive and require more space, venues have little incentive to implement waste separation measures.

Our research reveals that there is ambiguity around the following issues regarding café waste management:

- clarity and standardisation; and
- effective infrastructure.

Lack of clarity and standardisation of food waste handling regulations

There is no standardised agreement or regulation regarding how food waste is handled in Australia. As hospitality employees often work in multiple local government areas or even states, they each have different experiences of and approaches to the practices of waste minimisation, sorting, and disposal. In addition, individual venues often have different procedures around food waste disposal or use different contractors with their own rules and regulations about what can or cannot be put in their green waste bins. This is confusing and time-consuming for hospitality operators and hinders consistent, sector-wide approaches to handling food waste.

Lack of infrastructure and capacity for food composting

Commercial composting machines are expensive and take up space that many small operators lack. Systems like the Pulpmaster, for instance, use a food waste-to-liquid injection system by macerating food waste onsite and pumping it into a holding tank, which then requires a commercial waste company to collect the resultant liquid. However, such solutions require considerable investment by small café operators, which could be avoided through clear, consistent, realistic, and environmentally sound regulations concerning composting on a local scale. Rules that constrain local composting in some areas of Australia should be re-examined, not only to ensure that the nutrients from food scraps do not end up in landfill, but also to encourage citizens to be cognizant of what happens to produce and products that are wasted.

Such composting infrastructure does not necessarily need to be exclusive to the hospitality industry. The smart design and/or retrofitting of residential sites with shared waste management infrastructure can help to support an efficient and sustainable food future. In the case of housing developer Assemble, who own and operate Cassette Café, they have integrated shared food composting infrastructure into the design and construction of their sustainable and affordable 7 storey residential building in Kensington, Melbourne. Cassette is housed in the bottom of the building and shares the composting facility with the 73 households

living the building. This generates connections between residential and café staff and builds community literacy around food waste and circular approaches to waste reduction, thereby enabling change at both a local but scaled up level.

Figure 6: Food waste separation bin provided by Loop Farm (Brisbane) for its café partners. Photo: Tania Lewis

Figure 7: Brisbane café collecting food scraps for produce supplier Loop Farm to support on-farm composting and soil regeneration. Photo: Tania Lewis

4. Recommendations: emergent solutions and structural enablers

We have divided the potential solutions emerging out of our research into two categories. **Emergent solutions** include the more immediate and feasible solutions available to the sector, some of which are already occurring in leading venues oriented towards sustainable practices. **Larger structural enablers** refer to the foundational and systemic changes that need to be made to enable the café sector to move from a linear, waste-oriented approach to a circular economy model.

> *In our space, it's all show and tell. [...] We train [every new person] from the start of every job that they do in the kitchen. [...] We always have conversations around what we're doing and how we're doing it. Even if there is an idea around how to make that process easier, or better or more effective, there's no ego in this space. I'm very particular about everybody having a voice and feeling understood and heard and respected in this space. That's part and parcel of the sustainable aspect of what we're doing. – Chef, Melbourne*

4.1 Emergent solutions

4.1.1 In-house training

In-house training of hospitality staff involves a commitment towards building a culture of learning and skill sharing. Such a commitment to on-the-job training elevates the overall skill level and value of the workforce, creates a strong workplace culture and can reduce the level of staffing required.

> *You are only as strong as your weakest link, right? If you train everybody appropriately and if you give everybody the skills that they need, then they have the skill set to provide you with the service that you require. – Chef, Melbourne*

A sustainability-focused workforce has greater familiarity with all aspects of food production, consumption, and disposal. Effective communication between front- and back-of-house gives chefs better insights regarding why food is being left on plates by customers which, in turn, informs adjustments to menus or portion sizes (Brennan et al. 2023). Cleaning and dealing with waste are also often the lowest paid and/or status jobs in a traditional kitchen. However, these jobs are on the front line of low waste food practices. To think of any job in hospitality as in any way 'unskilled' is counterproductive. Sustainability-oriented training and skills are important for *every* job within the hospitality business.

As the head chef at one Melbourne café observed, the benefits and necessity of investing time in staff skills and innovative approaches require taking a longer-term view of staffing and temporal resources. Venues that can pay for the time needed to experiment with low waste cooking – namely high-end restaurants – are often the staging ground for innovative methods and recipes. Fermenting, pickling, dehydrating and other preserving techniques are crucial in commercial settings to keep hospitality

workers engaged in the work and in a culture of creativity and continual learning. Other industry stakeholders similarly emphasised that developing staff skills around food waste reduction and enabling experimentation and play tends to boost staff satisfaction and encourage retention. For chefs and owners, this means moving away from industry practices that emphasise speed and convenience and instead focusing on value-adding through artisanal practices concerned with values of care, quality and deeper connections and engagement between staff, food producers and customers.

In-house training at the individual business level offers potential benefits across the sector. Knowledge and skills are shared across the industry in diverse ways and interacting with a diversity of communication channels can enable a more efficient transition to a low waste hospitality industry. For example, high staff turnover within the hospitality sector means skills developed in one kitchen can be passed on to another, creating a skill snowballing effect. Conversations between chefs in like-minded businesses also spread knowledge between older and younger generations of hospitality practitioners.

Figure 8: Barista at Cassette, Melbourne. Photo: Sarah Menegon

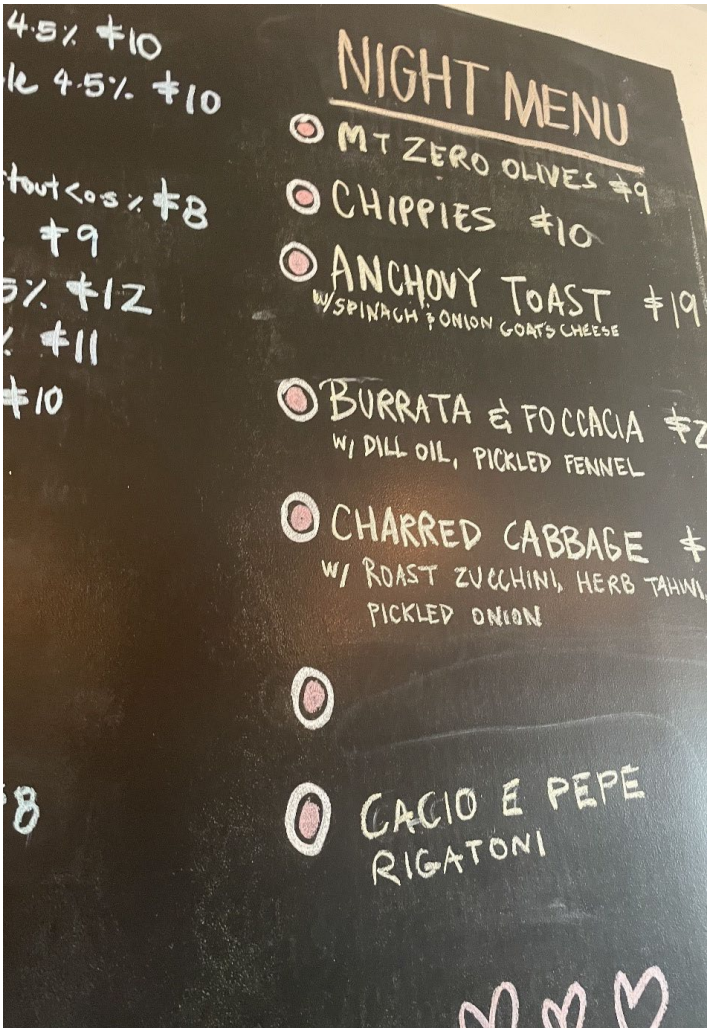


Figure 9: A short, seasonal menu from Lucky Duck café/bar, Brisbane. Photo: Tania Lewis

4.1.2 Low waste menus

Research findings show that cafés engaged in sustainable practices tend to design short, low waste menus that minimise choice and decrease wasteful practices such as overstocking. Low waste menus also often:

- offer a variety of portion sizes and eating options
- follow a 'root-to-tip' and 'nose-to-tail' philosophy
- create space for variation in individual menu items
- minimise menu changes
- utilise preserving methods such as fermentation or bottling to extend shelf life and
- clearly communicate what the customer is getting.

Portion sizes and shared eating options

The 'sides' – such as sauce, salad, bread and chips – are often an unwanted addition to the café meal. An easy, cost-effective and low waste solution is to offer such items as add-ons. This allows a customer to actively choose whether they want to eat said items. Low waste menus are often structured with one core item plus add-ons to make a meal of a size, composition and price point chosen by the customer. Encouraging customers to share meals – through shareable plates and table setting – may also encourage less waste though further research is needed on the impact of share plates on waste reduction. A study from Stop Food Waste Ireland concerning household food sharing behaviour suggests that thinking of food as shared also increases the potential that leftovers are thought of as a collective rather than the individual responsibility (Stop Food Waste Ireland, 2024) - a finding that may translate to the hospitality context and would be a productive avenue to pursue research wise.

Root-to-tip philosophy

> *If I'm going to make a roast carrot dish, should I peel the carrot? Or just roast the whole thing? If I want to peel the carrot, I have to think about what to do with the carrot peel. I think that mindset is really important, to think about what waste you're going to produce and think about how you could utilise that waste. – Chef, Melbourne*

Nose-to-tail dining has grown popular over the last decades, with chefs cooking parts of animals (such as heads, feet and skin) often discarded in mainstream cooking practices in the Global North. Root-to-tip dining applies the same principles to fruit and vegetables, treating every piece of produce that comes into the kitchen as a culinary resource. This includes integrating commonly discarded components such as carrot leaves, fennel fronds, banana peels or orange skins into menu design or processing these components into products that add value to other menu items.

Efficient menu design considers each component of ingredients. This approach has potential for significant impact in reducing food waste as it is far more common for whole produce (that is whole vegetables and fruit) to enter a café kitchen than a whole beast. With the appropriate culinary skills, venues can easily pivot to using often-wasted items without any added ingredient expense.

Menu variation

Like nose-to-tail cooking, a root-to-tip menu requires planning and time, which is why low waste cafés limit menu changes. Seasonal, changeable menus showcase produce and are good for relationships with farmers and suppliers. However, if menus

change too often, hospitality workers do not have time to plan and think through how produce usage might best be maximised. New employees may also need on-the-job training on how to utilise produce parts that are commonly discarded.

Menus that are time- and waste-efficient allow for a change in ingredients without needing to rewrite the entire menu. For example, 'open' dishes such as a 'seasonal' spanakopita, a 'green' tahini dip or 'kraut' allow the venue to respond to seasonal variations without disrupting existing kitchen practices. Seasonal produce is often cheaper and can therefore reduce food costs. More substantial menu changes are best left to the specials board or display fridge.

Preserving methods

Hospitality venues can also utilise their space, equipment and skills by creating a menu that relies on items with longer shelf life. Pickles, preserves and frozen or freezable foods make short-order cooking (that is, cooking for orders received) fast and effective and are also a cost-efficient way to use produce when it is at its most plentiful. It should be noted, however, that preservation requires skill, time and storage. These skills are rarely taught in vocational training and therefore require investment in on-the-job training to ensure skills are effectively transferred from more experienced to less experienced back-of-house staff.

Clear menu communication

> *We think it's good for our egos to bamboozle customers, to write in languages they don't understand, sell them products that they have no idea what they are, make ourselves feel really great, and then... they're not going to eat it. – Business owner, Sydney*

The way food is described and pictured on a menu is also key to creating a low waste venue. Workshop participants indicated that clear menus let customers opt for food they want to eat. Conversely, poor menu communication can create misalignment between the dish on the plate and customer expectations, leading to more uneaten and therefore discarded food. Having photographs attached to menu items, particularly on online ordering platforms, can showcase the size and composition of dishes in ways that may reduce overordering or misordering. However, setting 'unrealistic beauty standards' through food photography can also lead to food waste. This should be carefully framed in the menu.

Figure 10: Ferments in action at Dad and the Frog Café, Sydney. Photo: Tania Lewis

4.1.3 Examples of low waste menus

This section provides examples of menus from participating cafés. They illustrate how affordable, low-tech solutions that set customer expectations and kitchen procedures can work effectively to prevent waste.

A 1-page menu from Cassette in Melbourne (Figure 11) shows how a low waste menu can still please a general café crowd. An extensive selection of side items allows customers to choose what they do or do not want to eat, avoiding waste. Specials are described verbally by front-of-house staff to avoid menu reprinting. Sandwiches and salads that change frequently are placed in the display fridge and only available on weekdays, creating a lean, functional weekend menu.

This menu (Figure 12) from Alphabet in Brisbane's West End is even leaner. A Farm Plate promises 'all the seasonal vegetables'. The descriptor of 'greens' allows for flexibility to use spinach, silverbeet, kale or lettuce as seasons or prices change. Pickles and ferments play a starring role, adding flavour and interest to the menu. Alphabet's in-store pickles, preserves and ferments section, along with cakes and sweets, allow produce to be sold in a less time-sensitive manner.

CASSETTE

Please ask our staff about our weekly food specials

SOURDOUGH OR FRUIT TOAST (V, PBO) 9
house made seasonal jam, with
vegemite, local honey or peanut butter

MAPLE + TAHINI GRANOLA (PBO) 18
house yoghurt or coconut yoghurt,
seasonal poached fruit

EGGS YOUR WAY (GFO, DFO) 14
two fried, poached, or scrambled eggs,
buttered sourdough toast

HOUSE BAKED BEANS & FLATBREAD (GFO, PBO) 20
tomato sugo, plant-based fetta,
house whey flatbread, microgreens

CHILLI SCRAMBLE (DF, GFO) 21
scrambled eggs, salami tapenade,
seasonal microgreens, sourdough toast

LEVANTINE MEZZE (V, GFO) 23
house shanklish yoghurt balls,
two fried eggs, aromatic chilli oil,
seasonal pickled + fresh veg,
house whey flatbread

POTATO RÖSTI (V, GF, DF) 25
house made, thrice-cooked potato rösti,
charred capsicum + tomato caponata,
fresh zucchini + radish, two poached eggs

CROISSANTS 9
victorian ham + cheddar
kimchi mushroom + cheddar

BREAKFAST MUFFINS 15
bacon, onion jam, cheddar,
scrambled egg, plant based mayo

halloumi, onion jam,
scrambled egg, plant based mayo

SIDES & SAUCES

HOUSE MADE CONDIMENTS 2
onion jam
aromatic chilli oil
beetroot ketchup
plant-based mayo
fermented hot sauce
seasonal jam

PASTURE RAISED EGGS 4
poached or fried

HOUSE MADE 5
kimchi mushrooms
whey flatbread

PLANT BASED 5
avocado
fetta
sauteed greens
fries

PROTEINS 6
bacon
halloumi

Scoop of ice cream 3

KIMCHI MUSHROOM FRIED RICE & TOFU 22
(PB, GF, NF)
crispy fried tofu, kimchi mushrooms,
brown rice, charred seasonal greens,
crunchy chilli oil, spring onion,
fragrant herbs

REUBEN (DFO) 24
peppered beef pastrami, kraut,
reuben sauce, cheddar, dark rye, pickle

LOADED HUMMUS (V, PBO, GFO) 21
slow roasted carrots, chimmichuri,
toasted seeds, crispy chickpeas,
house whey flatbread

JALAPENO CORNBREAD + CHORIZO (GF) 24
north carlton quality meats chorizo
sausage, chipotle yoghurt, pico de gallo,
grated manchego cheese

MACAULAY BURGER 23
victorian beef patty, pickles, cheese,
lettuce, sesame milk bun, house made
burger sauce, fries

SANDWICHES + SALADS ***(weekdays only)***
see our display fridge for a variety of
ciabattas and salads made fresh daily

Figure 11: March 2024 menu from Cassette, Melbourne. Courtesy of Cassette

The iconic Merri Café (Figure 13) located in Melbourne's CERES Environment Park names its pesto and chutney after Honeylane Farm, which sits on the same piece of land as the café. The offering of spanakopita allows variation in the inclusion of 'greens'. The precise brand of cheddar is not named as local farmers may not always have it in stock. Instead, it is categorised simply as 'local', providing flexibility to use a range of cheeses.

Food

Available all day

Sprout sourdough Toast/ Sol Gluten Free Toast 6.0
Two slices with house-made jam, Vegemite, Gary's Honey or peanut butter.

Fruit Brioche 10.0
Toasted house made fruit brioche served with whipped vanilla bean ricotta & seasonal jam.

Free Range Eggs Your Way 12.0
One slice of toast & two Echo Valley eggs fried or poached. (Scrambled +3.0).

McLockdown Muffin 17.0
Bacon, fried egg, trashy American cheddar, aioli, pickles & tomato ketchup on an English muffin. (veg option: pumpkin or haloumi).

Bircher 17.0
Apple bircher served with cocnut yoghurt. Topped with blueberries, peach, maple & puffy granola. (vegan).

Farm Plate (Vegan) 18.0
All the seasonal vegetables, pickles, greens & dressings from our farm toastie with added grains & leaves.

Savoury Loaf 24.0
Grilled olive, cheddar & zucchini loaf served on herbed labna with poached eggs, haloumi & greens topped with pumpkin achar.

Good Growin' Mushrooms 24.0
Sautéed mushrooms & spinach served on grilled Sprout sourdough with poached eggs, roast pumpkin ricotta, red romesco, zucchini pickles & toasted pepitas. (vegan option: avocado or pumpkin).

Beans on Toast 25.0
Kimchi baked beans on cheesy toast with pak choi, poached eggs & bacon. Topped with scallions, toasted sesame & pickled radish (pescatarian option: pumpkin or haloumi).

Brioche 26.0
House made brioche egg in a hole served with pork & maple sausage, haloumi, avocado, dressed greens & red capsicum chilli jam. (veg option: pumpkin).

Extras

Pork & Maple Sausage	7.0
Good Growin' Mushrooms	6.0
Haloumi	6.0
Bacon	6.0
Everything Avocado	5.0
Greens	4.0
Mixed Pickles	3.0
Hommus	3.0
Egg	3.0
Toast	2.0
Jam	2.0
Hot Sauce/Relish	2.0

Alphabet 01

Figure 12: Alphabet Café menu, Brisbane. Photo: Helen Addison-Smith

MERRI CAFE CERES

We cook fresh every day and use what we can from our own organic gardens. Please see our display inside for more information.
Order inside with your table number or via QR code on tables.

Wraps $15 (GF option)
---
served toasted

Breakfast Wrap
Free range bacon, 2 organic eggs, rocket, housemade smoked tomato relish, and mustard mayo

Tempeh Broccoli Wrap (Vegan)
Crumbed marinated organic tofu, spiced broccoli, fennel slaw and green tahini.

Mexi Wrap (Vegan)
Refried black beans, roasted sweet potato, avocado, sweetcorn, and vegan mustard mayo

Toasties

Served in CERES Bakery organic sourdough bread

The Croque **$12**
Toasted sourdough with local cheddar, Honeylane pesto, bechamel, and tomato
Add free-range ham ***$3***

Kale Reuben **$15**
Kale, wild greens. Gruyere, Kruat, mustard and Russian dressing

Mushroom and Blue Cheese **$15**
Thyme roast mushrooms, Victorian blue cheese, caramelised onion and 'Honeylane Farm' fig chutney

Kids Cheese **$7**
Local cheddar on toasted Organic Sourdough

Soup of the day

Served with organic toasted sourdough **$15**

Croissants

From All Are Welcome organic bakery

Local Cheddar and free-range Ham Croissant **$10**
add tomato $1

Local Cheddar, Tomato Croissant **$8**

Bowls

Organic Mixed Salad Bowl **$17**
Choose up to 3 salads
(options change daily - see our display)
Add for $5:
Salt and pepper tofu
Charred Tempeh
Organic soft boiled egg
Avocado
Meredith Goats Feta

From the Oven
---
served warm with relish

Spanakopita **$15**
Ricotta/feta/CERES organic greens in puff pastry

Frittata **$15**
Seasonal vegetables, cheese and organic eggs

Add side salad **$7**
(choose one from display)

Bakery and Sweets treats

Housemade daily sweet and savoury
Organic Muffins **$7**

All Are Welcome organic **pastries**
Selection of **slices and cookies**
(see inside display)

Figure 13: Merri Café menu, Melbourne. Courtesy of Merri Café

4.2 Larger structural enablers

The aim of a Sector Action Plan is to collaboratively identify useful recommendations for businesses to adopt to prevent food waste. The 'emerging solutions' section (above) leads us to several overarching considerations, without which implementing interventions at a business venue level would be much more difficult and less impactful.

These enabling actions either respond directly to root causes of food waste in the café system or, more broadly, are foundational interventions to create structural change. Enablers make it easier to reduce food waste through better regulation and policy, sector-wide training and education, or improving food systems literacy.

4.2.1 Clear, consistent regulation and infrastructure

In our fieldwork with cafés, the need for clarification of rules, responsibilities and policy was a recurring theme. A concern raised by stakeholders was the perceived lack of a unified approach to the café sector whether at council, state or federal level across a number of areas including food safety, urban planning, education and training, and waste management.

In considering the relationship between food safety and food waste reduction, industry stakeholders consistently called for the development of clearer, more accessible guidelines to minimise disparities and inconsistent enforcement by environmental health officers (EHOs) as well as reducing confusion and misunderstanding amongst foodservice providers.

Consistency and clarity are particularly important for small businesses and independent operators lacking the resources to navigate complex regulatory environments, for example in relation to the manufacture and distribution of live ferments. A more unified approach to food safety regulations nationally will also help to standardise practices and reduce unnecessary burdens on the food industry, without compromising public health standards. Industry and government initiatives such as ecoBiz Queensland, the Australian Food Service Advocacy Body or the newly formed Australian Restaurant and Café Association could pay a key role in doing the policy, advocacy and on the ground support work necessary to support small to medium sized cafés.

At present, waste management in Australia tends to be addressed in policy and practice siloes that do not consider the interconnections and interactions between cultural factors, training environments, urban infrastructure, economic constraints and the on-the-ground practices described in this report. This siloed approach results in policies, programs and initiatives that tend towards positioning food waste as a problem to be solved primarily by private businesses and individuals, resulting in a piecemeal approach. A whole-of-system approach requires policy integration across multiple government departments and jurisdictions, including sustainability, education and training, public and environmental health and regulation, planning and infrastructure. For example, local government sustainability officers, food safety officers and waste management practitioners could come together to create rules around food that balance environmental concerns, food safety concerns and practical logistics of how unavoidable food waste is managed.

Waste management systems across local government areas are also in need of improvement (Middha & Horne, 2024). In particular subsidised waste programs need to be focused further up the waste chain, with time and resources being put into infrastructure that prevents food waste at the source, such as good quality storage containers and fridges. Such efforts will need to be managed by providing access to infrastructure as well as by enabling the people power through training and resourcing required to ensure such infrastructure runs effectively and is maintained into the future. Current options for business owners include self-guided training through the NSW's *Your Business is Food* program, and both grants and self-guided training materials through Green Industries South Australia.

Councils can be a key potential driver for change as they routinely manage how the built environment can enable environmental concerns. However, careful, nuanced and mutually supportive urban planning and sustainability policies are necessary to create infrastructure and connections with already-existing built environment.

Figure 14: The bin room. Photo: Sarah Menegon

Regulations, while integral for protecting public health, warrant examination to ensure they facilitate rather than inhibit waste reduction in food industry operations. Future policy development or reform should embed real practices and knowledge of industry experts working with food establishments. For instance, in our research, we observed culinary innovations such as the fermenting, drying, preserving, concentrating and powdering of ingredients that would otherwise go to waste. If the food safety regulation around such practices can be clarified, standardized, and embedded in food education programs, then there is the potential for promoting safe food transformation practices in café and restaurant culture. This could be facilitated by expanding the capabilities of food establishments to test the safety of food in-house (i.e., through equipment for pH testing) or the development of comprehensive guides for mold identification. Chefs and café staff are a rich potential source of citizen science-style data when it comes to health and safety practices. Policies should be reflective of and responsive to the real-world practices and expertise of the food industry. They also need to be backed by an increase in training around safe waste transformation tactics in both vocational training and our general education system.

4.2.2 Changes to vocational training

While many hospitality workers are not formally trained, vocational institutions still play an important role in training the sector and shaping the broad culture of the industry. Leading restaurateur and chef Guy Grossi has identified knowledge regarding agricultural production, seasonality and food ethics and skills in sustainable procurement and cookery practices as essential for the growth and evolution of the hospitality sector. However, he has also observed that Australia ‘is falling behind other countries due to a lack in formal multi-disciplinary education that prepares members of the industry with the knowledge to work across the various sectors that comprise today and tomorrow’s modern hospitality industry' (Grossi, 2017).

Successive funding cuts across the Australian technical and further education (TAFE) sector in recent decades have had considerable impact on the quality of vocational education training (VET), with many qualifications now being compressed into shorter delivery times and relying increasingly on a part-time, casualised teaching workforce (Burke, 2018) While competency-based training in VET aims to strengthen ‘links between training and specific occupations by focusing on the workplace requirements, tasks and roles in those occupations’, many argue that market-driven policies and competency-based training packages have contributed to a ‘low-trust, highly regulated’ system that is now in crisis (Wheelahan, 2016).

As one stakeholder noted, cookery students increasingly work with pre-prepared foods in which much of the labour involved in trimming and cleaning has already been undertaken by food manufacturers. The waste associated with this, in turn, is made invisible to students. National training packages that specify the use of specific ingredients also constrain the incorporation of seasonality in cookery training (i.e., ‘cherry pie’ versus ‘seasonal fruit pie’). Time-poor teaching staff and lack of funding to coordinate ingredients across training kitchens can also exacerbate food waste within the training classroom.

Procurement policies and tender processes that prioritise 'value for money’ over sustainability can also create obstacles to changing waste-generating institutional practices. For example, procurement policies and centralised ordering systems designed to create logistical efficiencies often involve minimum-order requirements for ingredients that inadvertently lead to over-ordering. Constrained institutional resources present further challenges for developing, implementing and teaching innovative approaches to food waste reduction. This is the institutional environment in which future hospitality leaders are trained, meaning that low waste practices are likely to be the exception rather than the rule.

4.2.3 Changing customer culture and expectations

At their core, cafés are places of social exchange between customers and staff. These social interactions shape cultural expectations and behaviours of both parties. Although the idea that the 'customer is always right' is deservedly waning, there is often an expectation for cafés to cater for many the preferences and desires of individual customers beyond dietary restrictions. In low waste venues, menus often do much of the heavy lifting when it comes to setting customer expectations. The menus included in this report show how a business can remain successful, appealing and hospitable while, at the same time, setting limits around the variety and quantity of foods it provides. For venues this often involves reeducating customers around the benefits of small, seasonal and low waste menus.

A further challenge is the idea that café food must always look and taste the same. Standardisation and rationalisation of preparation and cooking can certainly result in some efficiency gains, but the cultural expectation that food – which is by nature highly variable – always needs to look the same on the plate can also be a driver of food waste. The growing trend to have food photographed for online and digital delivery platforms can produce unintended consequences. While such photographs may help customers gauge the size or desirability of a menu item, photography may also set unrealistic beauty standards when it comes to what plated food should look like.

Educating customers about food and food expectations also needs to address the risk culture that has emerged around food safety. For example, initiatives that normalise taking leftovers home from dining establishments ('doggie bags') can empower consumers to manage their own food practices and reduce unnecessary food waste. The rollout of such strategies could significantly reduce waste while enhancing trust among stakeholders. Beyond the legalities of the food safety of the doggie bag, such an initiative could be used to begin the fostering of a new social contract whereby consumers and hospitality venues work together to reduce food waste and share risk.

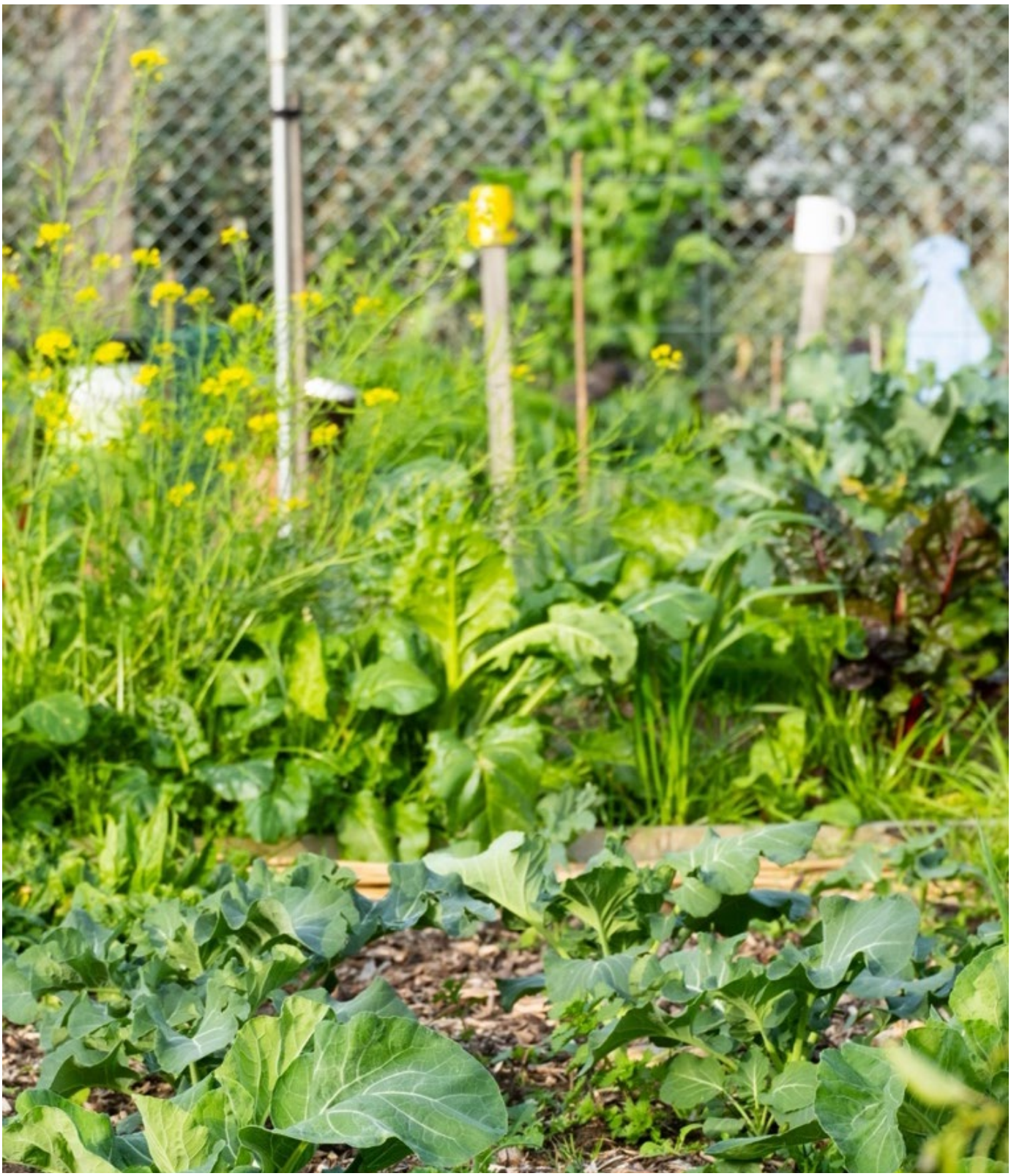


Figure 15: Vegetables growing at CERES, Melbourne. Photo: Sarah Menegon

4.2.4 Revaluing hospitality labour

Finally, to create a low waste hospitality industry, we must also revalue the labour done by hospitality workers. As it stands, the hospitality sector is comprised of a highly casualised workforce, with a young, predominantly female workforce. The margins in this industry are so slim that every minute of a worker's time is accounted for. In formulating the next steps in supporting cafés to reduce food waste, it is important to acknowledge that financial support to pivot to low waste practices will likely need to come from governmental grants and subsidies, such as those already enacted by the NSW EPA. Upskilling hospitality staff could potentially lead to a more stable and engaged workforce, one whose valuable work in maintaining food knowledges and practices is more culturally valued.

With a little external support, hospitality venues could invest the time to move towards a more circular, low waste approach. Giving hospitality workers the time to reflect and perfect their practices and valuing their everyday knowledge and expertise in how to best do this is a step in the right direction for creating a more financially, personally and environmentally sustainable industry.

5. Conclusions

Our recommendations range from actions that individual cafés can take through to policy initiatives and areas for further research.

For **cafés,** a key recommendation is education and nationwide support around menu planning, design and implementation.

With regards to more **structural enablers,** we suggest that policy is shifted to standardise and modernise food safety requirements, with consideration given to infrastructure required to enable low waste systems in future urban planning strategies. Formal as well as on-the-job training are important components of structural change, as is greater food systems literacy within the broader cultural context in which we all live, work and eat. We also suggest that subsidies are put in place to enable hospitality businesses to take the time to undertake the necessary changes in their systems.

Finally, we recommend **research** in the areas below, which have emerged as complex issues that require further investigation.

5.1 Food safety

Food safety regulations were perceived by many industry stakeholders in our study as exacerbating food waste. Further research into the effects of regulatory schemes on waste may enable policy reform that reduces waste while still maintaining public and worker safety. Research into how food safety standards can be modernised, take more account of sustainability concerns, and be more transparent, accountable and consistent is warranted. Identifying leading practice internationally may provide successful models for the Australian context.

5.2 Food packaging

Food packaging is inextricably connected to the challenge of food waste. This connection is complex. Sometimes, effective food waste reduction strategies, such as encouraging doggy bags or vacuum packing prepared food, may increase food packaging waste. In turn, some strategies designed to reduce reliance on food packaging can increase food waste. Research into strategies that can simultaneously reduce both food waste and packaging waste is essential. It should be noted that this may not be a technological solution, such as compostable packaging or a digital app to link customers to surplus food. Rather, it may require cultural change, such as mainstreaming low waste food preservation methods or creating economic modelling around menu restructuring that enables customers to order less or eat on-site.

5.3 Delivery partners / online food ordering

Documenting the impacts of restaurant delivery partners (UberEats for example) on food waste was beyond the scope of this Sector Action Plan. However, delivery partners complicate efforts to ameliorate food waste because they transport prepared food (often in plastic packaging) to private residences, where food is also wasted and becomes more difficult to document. Further research is needed to illuminate connections between delivery and waste, including the impact of delivery partners on café processes, the practices of delivery drivers, the waste-exacerbating affordances of delivery app interfaces and the at-home food waste reduction practices of people using delivery services.

5.4 Training

Training for the hospitality sector requires modernisation, with food waste reduction normalised and operationalised for chefs and staff. Research is needed to generate and trial the most effective curricula and modalities for preparing hospitality workers for food waste management. This includes formal training through hospitality institutes, on-the-job approaches in hospitality and food relief settings, and informal training through social media settings. Greater government investment in supporting vocational institutions and, more specifically, vocational teachers to develop and implement more flexible training packages that emphasise seasonal, low waste menu design and cookery practices is essential.

5.5 Online training and skills exchange

Hospitality staff are time-poor but digitally engaged. Online on-the-job learning through social media is one potentially effective way of upskilling staff alongside the broader training measures discussed above. Social media is a key source of informal skills exchange and community building within the hospitality industry, as confirmed by chefs and hospitality workers in our research. There has been a rise in sustainability-minded chefs sharing techniques of low waste cooking on platforms such as Instagram, and a general rise in low waste influencers. These easily accessible platforms potentially offer useful and entertaining opportunities for in-house staff training.

As one chef noted with his experience conducting waste audits within the sector, online training can be helpful in engaging hospitality businesses and lead to more productive conversations.

> *You've got to have the face-to-face. [But] you can't leave it up to them to find the time to initiate these things. Once you've initiated it, they can then go away and do [the online learning] in their own time. You can come to the actual waste review at a time when everyone's been educated and upskill a little bit already, and it kind of makes a lot more sense after they've done the training. – Chef, Melbourne*

5.6 Education

A broader public understanding of food waste is needed to shift people's expectations around the café experience and to invest in café culture with a low waste ethic. Research that identifies significant and memorable learning experiences around food waste, for children and adults, can be applied to designing diverse awareness-raising interventions and new curricula from pre-school to secondary levels.

5.7 Qualitative research into food waste cultures

Current predominant approaches to food waste research are generally quantitative, barring a few (such as End Food Waste Australia 2023b). As such, they cannot convey the full cultural, economic and environmental complexity of this issue. There is a need for more qualitative research that generates a rich and nuanced understandings of local circumstances, practices, and experiences and positions food waste holistically within the diverse infrastructural, labour, economic, social and cultural contexts in which it is produced.

6. Impact and ongoing monitoring

This project was fundamentally a qualitative study that identified hot spots and root causes of waste across the small to medium café sector. Implementation of its recommendations at various levels of government and across diverse government, education and industry domains can contribute to long-term change in broader cultural narratives and practices around food waste in Australia.

Over time, this project will contribute to the following key impact areas:

- Food waste reduced
- Industry profitability gained
- Rescued food distributed
- Greenhouse gas emission savings
- Circular economy jobs created
- Future leaders graduated.

We estimate that the implementation of the above recommendations may achieve the following possible impacts, if we assume of a reduction of waste of 5%:

- The reduction of food waste by 1.63 million tonnes by 2033 and 5.705 million tonnes by 2048.

  Food service businesses create 1.217 million tonnes of food waste annually (FIAL, 2021). Research from the Restaurant and Catering Association shows that 18.8% of hospitality businesses are cafés (RCA, 2022). Therefore, food waste generated by cafés is estimated to be 228,796 tonnes per annum.
- Industry profitability gained at the rate of $47 million by 2033 and $119 million by 2048.
- The annual cost of food waste to the hospitality and food services industry is estimated by FIAL to be $6.455 billion (FIAL, 2021). Cafés are estimated to be 18.8% of the market. Therefore, their part of the cost of food waste is estimated at $1.214 billion, and 5% of that cost is $60.8 million per annum.
- 2.9 million tonnes of carbon dioxide reduced by 2033 and 10.24 million tonnes by 2048.

These estimates were produced via the End Food Waste CRC Impact Assessment Tool and assume a 5% reduction in food waste tonnage resulting from the recommendations of this report.

However, it is important to emphasise that these figures are highly extrapolative, as the capture of accurate statistics was outside the scope of this project. When appropriate and efficient (such as in large-scale tracking of food waste collected through public infrastructure), more accurate numerical data will be collected in subsequent projects. Data collection around impact to culture change, training outcomes, food safety practices and general education may best be tracked via media impact statistics and further digital ethnography and other qualitative research.

Appendix One: coded data

The diagram above shows the frequency of the occurrence of themes that emerged during our interviews and site visits. The data was recorded, transcribed, then coded using NVivo. The size of the blocks correlates with the number of times each theme was mentioned. As we can see here, key themes included training, the role of the chef, and infrastructure.

Acknowledgements

This is EFW CRC Document 2024/055. Ethics approval was provided by the Human Research Ethics Committee at RMIT 2023-26126-21830 Hospitality Sector Action Plan - Researching and implementing best practice food waste reduction in Australia cafés.

End Food Waste Australia acknowledges the foundational funding provided by 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 Cafe's Sector Action Plan was co-funded by the New South Wales Environmental Protection Authority and Queensland Government's Recycling and Jobs Fund. The research was conducted by RMIT University, with the team receiving additional support from the university's Enabling Impact Platforms. Project partners included City of Yarra, the Australian Food Service Advocacy Body, William Angliss Institute and Australian Institute of Food Science and Technology Project team. We thank all industry stakeholders who participated in this project.

Workshop participants, interviews and other stakeholders include:

Assemble, Cornersmith, CERES, Cassette, Furrmien, Florian, OzHarvest, Just Food Collective, Open Table, SecondBite, The Fermentary, Merivale, Bird Cow Fish, Billy Blue, Mucho Aloha, Butter, Famelia, Heathe, Sydney Seafood School, Food Lab, Ozharvest Refettorio, Good and Fugly, Natoora, City of Sydney, NE Waste, Impact Enviro, Food Connect Shed, Two Good, Babs, Nonie's Food, Bloodwood, Burnt Honey Bakery, Alphabet, Loop Growers, Neighborhood Farm, Lucky Duck, and All My Friends.

We extend our thanks to videographer Sarah Menegon for her wonderful filmmaking and social media skills.

We express our deep gratitude to our industry stakeholders for their genuine hospitality, willingness to share and hard work in being true champions in the sustainable hospitality space.

References

Adan, N. (2023). Food waste governance in small-scale restaurants in Australia [Doctoral dissertation, Queensland University of Technology]. https://eprints.qut.edu.au/238821/1/Natalia_Adan_Thesis.pdf

Anderson, L., Grudnoss, M., Hawking, T., & Campbell, R. (2023, September 18). Food waste in Australia and how supermarkets profit from it. The Australia Institute. https://australiainstitute.org.au/wp-content/uploads/2023/09/P1432-Food-waste-in-Australia-Web.pdf

Australian Bureau of Statistics (ABS), (2023). Counts of Australian Businesses, including Entries and Exits, June 2018 to June 2022: Data Cube 2. [online] https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/jul2018-jun2022#data-downloads

Brennan, L., Francis, C., Jenkins, E. L., Schivinski, B., Jackson, M., Florence, E., ... & Ryder, M. (2023). Consumer perceptions of food packaging in its role in fighting food waste. Sustainability, 15(3), 1917. https://doi.org/10.3390/su15031917

Bulkeley, H. & Askins, K. (2009). Waste Interfaces: Biodegradable Waste, Municipal Policy and Everyday Practice. The Geographical Journal, 175(4), 251-60.

Bux, C., & Amicarelli, V. (2023). Circular economy and sustainable strategies in the hospitality industry: Current trends and empirical implications. Tourism and Hospitality Research, 23(4), 624-636.

Burke, G. (2018). Changes in funding in Australian vocational education and their effects. LH Martin Institute discussion paper, University of Melbourne.

Classens, M. & Sytsma, E. (2020). Student food literacy, critical food systems pedagogy, and the responsibility of postsecondary institutions. Canadian Food Studies/La Revue canadienne des études sur l'alimentation, 7(1), 8-19.

Clayton, T., & Radcliffe, N. (2018). Sustainability: A Systems Approach. Routledge.

Cleanaway (2022). Cleanaway Recycling Behaviours Research 2022. https://cleanaway2stor.blob.core.windows.net/cleanaway2-blob-container/2022/04/13744-AltShift-Cleanaway-Report-V5-10FEB2022-1.pdf

CSIRO (2024). Advancing the Circular Economy. https://research.csiro.au/circulareconomy/about/. Accessed 2/3/2024.

Department of the Environment and Energy, DEE. (2017) National Food Waste Strategy: Halving Australia's Food Waste by 2030. Commonwealth Government of Australia. https://www.agriculture.gov.au/sites/default/files/documents/national-food-waste-strategy.pdf

Department of Planning, Industry and Environment, DPIE (2021) NSW Waste and Sustainable Materials Strategy 2041. https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/recycling/nsw-waste-and-sustainable-materials-strategy-2041.pdf

Derqui, B., Fayos, T., & Fernandez, V. (2016). Towards a more sustainable food supply chain: opening up invisible waste in food service. Sustainability, 8(7), 693.

Dhir, A., Talwar, S., Kaur, P., & Malibari, A. (2020). Food waste in hospitality and food services: A systematic literature review and framework development approach. Journal of Cleaner Production, 270, 122861.

Ellen MacArthur Foundation (EMF) (2024). Circular economy introduction. https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview

End Food Waste Australia (2023a). Consumer perceptions of packaging's role in reducing food waste. End Food Waste Australia. https://endfoodwaste.com.au/casestudies/consumer-perceptions-of-packagings-role-in-reducing-food-waste/

End Food Waste Australia (2023b). *Practices of meat consumption and cold storage in Australian households - Consumer fridge behaviour and waste reduction of red meat*, End Food Waste Australia, <https://endfoodwaste.com.au/wp-content/uploads/2023/11/RMIT_FFWCRC_consumerFridgeStudies_projectSummary_FA_digital_updated.pdf>.

European Training Foundation (2023). Building evidence to support vocational excellence for the digital and green transitions. https://www.etf.europa.eu/sites/default/files/2023-11/P233084_ETF_Green%20transition_EN_v2-4COL_0.pdf

Felton, E. (2024, March 28). Think $5.50 is too much for a flat white? Actually it's too cheap, and our world-famous cafés are paying the price. The Conversation. https://theconversation.com/think-5-50-is-too-much-for-a-flat-white-actually-its-too-cheap-and-our-world-famous-cafés-are-paying-the-price-226015

Filimonau, V., & De Coteau, D. A. (2019). Food waste management in hospitality operations: A critical review. Tourism Management, 71, 234-245. https://doi.org/10.1016/j.tourman.2018.10.009.

Food Innovation Australia Limited (FIAL) (2021). The National Food Waste Strategy Feasibility Study – Final Report. https://workdrive.zohopublic.com.au/external/06152b9ff5971843391f39fc4d32a847e56fb907c167a4a645887b0a4bc43000

Federal Register of Legislation (n.d.). Australia New Zealand Food Standards Code – Standard 1.2.5 – Information requirements – date marking of food for sale. https://www.legislation.gov.au/F2015L00401/latest/versions

Food Standards Australia New Zealand (2023, December 6). Use-by and best-before dates. Food Standards Australia New Zealand. https://www.foodstandards.gov.au/consumer/labelling/dates

Fight Food Waste Cooperative Research Centre (2019). Food waste Australian household attitudes and behaviours national benchmarking study summary report. Fight Food Waste Cooperative Research Centre: Adelaide, SA, Australia.

Foodbank (2023). Foodbank Hunger Report Research 2023: National Key Findings Report. https://reports.foodbank.org.au/wp-content/uploads/2023/10/2023_Foodbank_Hunger_Report_IPSOS-Report.pdf

Food Standards Australia New Zealand (2023). Safe Food Australia. https://www.foodstandards.gov.au/sites/default/files/2023-11/Safe%20Food%20Australia_edn%204%20whole%20book%20-%20271123_0.pdf

Green Industries SA (n.d.). Business Sustainability Program overview. https://www.greenindustries.sa.gov.au/BSP-overview

Grimmer, L., & Kilah, N. (2022). Why 'best before' food labelling is not best for the planet or your budget. The Conversation. https://theconversation.com/why-best-before-food-labelling-is-not-best-for-the-planet-or-your-budget-189686

Grossi, G. (2017). Aspiring for Excellence in the Australian Hospitality Industry. International Specialised Skills Institute. https://www.voced.edu.au/content/ngv%3A78186

Hanson, C., & Mitchell, P. (2017). The Business Case for Reducing Food Loss and Waste. Washington, DC: Champions 12.3. https://champions123.org/publication/business-case-reducing-food-loss-and-waste

Higgins-Desbiolles, F., & Wijesinghe, G. (2018). The critical capacities of restaurants as facilitators for transformations to sustainability. Journal of Sustainable Tourism, 27(7), 1080–1105.

Hobson, K. (2016). Closing the loop or squaring the circle? Locating generative spaces for the circular economy. Progress in Human Geography, 40(1), 88-104.

Hobson, K. (2020). 'Small stories of closing loops': Social circularity and the everyday circular economy. Climatic Change, 163(1), 99-116.

Jones, P., & Wynn, M. G. (2019). The circular economy, natural capital and resilience in tourism and hospitality. International Journal of Contemporary Hospitality Management, 31(6), 2544-2563.

Kaye, B and Jackson, L (2023, July 10). Ground down: Australia coffee shops an early inflation casualty. https://www.reuters.com/business/ground-down-australia-coffee-shops-an-early-inflation-casualty-2023-07-10/

Labour Market Insights (2021, September 10b). Chefs ANZSCO ID 3513. Jobs and Skills Australia. https://labourmarketinsights.gov.au/occupation-profile/chefs?occupationCode=3513

Lewis, T. (2021). Food politics and the media in digital times: Researching household practices as forms of digital food activism. In Jonatan Leer, Stinne Gunder Strøm Krogager (Eds.), Research Methods in Digital Food Studies (pp. 99-112). Routledge.

Lewis, T., & Vodeb, 0 (2021). Melbourne: Care, ethics and social enterprise meets 'global' café culture, in Parasecoli, F and Halawa, M (eds) Global Brooklyn: Designing Food Experiences in World Cities, London: Bloomsbury.

Löhr, K., Weinhardt, M., & Sieber, S. (2020). The "World Café" as a participatory method for collecting qualitative data. International Journal of Qualitative Methods, 19, p. 1609406920916976.

Love Food Hate Waste NSW. (2021). Your Business is Food - Action Plan. https://www.lovefoodhatewaste.nsw.gov.au/sites/default/files/2021-02/Your%20Business%20is%20Food%20-%20Action%20Plan.pdf

McGrath, D. (2021). Watch my waste: how self-auditing affected Australian foodservice food waste [Doctoral dissertation, RMIT University]. https://researchrepository.rmit.edu.au/esploro/outputs/9921998124901341

Malefors, C., Callewaert, P., Hansson, P.A., Hartikainen, H., Pietiläinen, O., Strid, I., Strotmann, C., & Eriksson, M. (2019). Towards a baseline for food-waste quantification in the hospitality sector—quantities and data processing criteria. Sustainability, 11(13), 3541

Market Insights (2021, September 10a). Café Workers ANZSCO ID 4312. Jobs and Skills Australia. https://labourmarketinsights.gov.au/occupation-profile/café-workers?occupationCode=4312#:~:text=Worker%20profile&text=The%20median%20age%20of%20Café,aged%2015%20to%2019%20years

Masterson, V. (2022, August 17). Here's why food stores are ditching 'best before' labels. World Economic Forum. https://www.weforum.org/agenda/2022/08/waitrose-scrap-best-before-dates-cut-food-waste/

Middha, B., 2022. Urban Food Infrastructures: The Role of Inner-City Universities. Urban Policy and Research, 40(3), 236-249

Middha, B & Horne, R 2024, 'Countering exclusionary infrastructure in apartment waste management: Towards a relational place-based governance in Victoria', npj Urban Sustainability, 4(1), 9.

Ministry for the Environment, Government of New Zealand (2024), Improving household recycling and food scrap collections. https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/improving-household-recycling-and-food-scrap-collections/

New South Wales Environmental Protection Agency (NSW EPA) (2016). Social Research on Small to Medium Enterprises (SME) Waste and Recycling. https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/waste/small-medium-business-recycling-research-160139.pdf

New South Wales Environmental Protection Agency (NSW EPA) (n.d.). In Business: Take simple steps to boost your profits and reduce food waste https://www.lovefoodhatewaste.nsw.gov.au/business-0

New South Wales Environmental Protection Agency (NSW EPA). (2019). Bin Trim Case Study - Bin Trim is focusing on food. https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/bin-trim/-/media/b66f36954c424a2485a7e194e11e7134.ashx

O'Connor, G. (2021). Shifting the value of food and organic waste management in the food services sector in Brisbane, Australia. Resources, Conservation & Recycling Advances, 12, 200052.

Oldenburg, R. (2013). The café as a third place. In Aksel Tjora & Graham Scambler (Eds.), Café Society (pp. 7-21). New York: Palgrave Macmillan US.

Ordoñez, I., Harder, R., Nikitas, A., & Rahe, U. (2015). Waste sorting in apartments: integrating the perspective of the user. Journal of Cleaner Production, 106, 669-679.

Özbük, R. M. Y., & Coşkun, A. (2020). Factors affecting food waste at the downstream entities of the supply chain: A critical review. Journal of Cleaner Production, 244, 118628.

Papargyropoulou, E., Wright, N., Lozano, R., Steinberger, J., Padfield, R., & Ujang, Z. (2016). Conceptual framework for the study of food waste generation and prevention in the hospitality sector. Waste Management, 49, 326-336.

Parizeau, K. & Lepawsky, J. (2015). Legal ordering of waste in built spaces. International Journal of Law in the Built Environment 7, 21-38. doi:10.1108/IJLBE-01-2014-0005.

Parker, C. & Johnson, H. (2019). From food chains to food webs: Regulating capitalist production and consumption in the food system. Annual Review of Law and Social Science, 15, 205-225.

Pink, S., Horst, H., Lewis, T., Hjorth, L., & Postill, J. (2015). Digital ethnography: Principles and practice.

Quirk, S., Gibson, C., & Cook, N. (2024). More-than-transactional circular economies: the café-urban farm nexus and emergent regional food waste circuits. Local Environment, 29(6), 750-765.

Restaurant and Catering Association (RCA) (2021). 2020 Industry Benchmarking Report 2019-2020 Financial Year. https://documents.parliament.qld.gov.au/com/SDRIC-F506/JLCOVID19E-59F7/211018%20-%20RCA%20-%20Answer%20to%20a%20QoN.pdf

Sakaguchi, L, Pak, N and Potts, M.D. (2018.) Tackling the issue of food waste in restaurants: Options for measurement method, reduction and behavioral change. Journal of Cleaner Production, 180, 430-436,

Statista (n.d.). Employees per establishment in the café and coffee shop industry in Australia from 2005/06 to 2019/20. Statista. https://www.statista.com/statistics/740694/australia-employees-per-café-and-coffee-shop/#:~:text=This%20statistic%20depicts%20the%20number,9.64%20employees%20in%202014%2F15)

Stop Food Waste Ireland (2024). Cooking. https://stopfoodwaste.ie/resource/cooking

Sustainability Victoria (2021). The Path to Half: Solutions to halve Victoria's food waste by 2030. https://assets.sustainability.vic.gov.au/asset-download/Report-The-Path-to-Half.pdf

Tham, J.C. and Fudge, J., 2019. Unsavoury employer practices: Understanding temporary migrant work in the Australian food services sector. International Journal of Comparative Labour Law and Industrial Relations, 35(1).

United Nations Environment Programme (UNEP). (2021). https://www.unep.org/resources/report/unep-food-waste-index-report-2021

Wheelahan, L. (2016). Patching bits won't fix vocational education in Australia – a new model is needed. International Journal of Training Research, 14(3), 180-96.

Worrall, A. (2015). Waste free café to close over compost dispute. The Age Online. https://www.theage.com.au/national/wastefree-café-to-close-over-compost-dispute-20150226-13pvm3.html

Waste and Resources Action Programme (WRAP) (2013). Overview of Waste in the UK Hospitality and Food Service Sector. https://wrap.org.uk/sites/default/files/2020-10/WRAP-Overview%20of%20Waste%20in%20the%20UK%20Hospitality%20and%20Food%20Service%20Sector%20FINAL.pdf

World Wildlife Fund UK (2022) Hidden Waste: The scale and impact of food waste in UK primary production. https://www.wwf.org.uk/sites/default/files/2022-10/WWF-UK%20HIDDEN%20WASTE%20REPORT%202022_3.pdf

ENDFOODWASTE
AUSTRALIA

For further information please contact:

enquiries@endfoodwaste.com.au
or visit endfoodwaste.com.au

END FOOD WASTE AUSTRALIA

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