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Opinion Article

Australia's First Industry Insight Reports for Save Food Packaging Design

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ABSTRACT

Every year 1.3 Billion tons of food is wasted or lost around the world, representing one third of all food produced for human consumption. Yet sadly close to 800 million people live in hunger across the globe every day. The global pandemic has also brought the issue of food insecurity much closer to home in developed countries like Australia.

Sadly, Australia is one of the worst offenders for Food Waste and Loss in the world with a staggering 34% (2.5 million tons) of all Food Wasted in the household, followed very closely with 31% (2.3 million tons) in primary production. In economic terms, Food Waste in Australia has become a $20 Billion problem that sees each person waste on average 298 kg of food a year. Add to that the environmental impacts that sit behind food production including water, land, energy, labour, capital and the fact that far too much food waste is heading to landfill and creating greenhouse gas emissions.

Australia needs to build a sustainable food system that delivers food security, considers social, economic and environmental impacts and no longer sees food waste heading to landfill. This is where innovative Save Food Packaging (SFP) Design has a role to play within the Food System.

Keywords: Save Food Packaging; Industry; Food security

WHAT IS SAVE FOOD PACKAGING (SFP)?

Save Food Packaging uses innovative and intuitive design features that can contain and protect, preserve, extend shelf life, easily open and reseal, provide consumer convenience and portion control; all the while meeting global sustainable packaging targets. To embed Save Food Packaging Design into businesses we first need to understand whether manufacturers consider Food Waste and Loss, how packaging technologists are designing food packaging, if marketing are ensuring that on-pack communication provides the best messaging to consumers and what the barriers are to implement SFP strategies. As a core participant of the Fight Food Waste Cooperative Research Centre, the Australian Institute of Packaging (AIP) Save Food Packaging Design project has released two stakeholder industry insight reports that will help to set a baseline for current design practice and enable a path forward for areas of improvement. The two reports are called 1. Industry Insights Report: Stakeholder Online Survey of Product-Packaging Design Processes and 2. Industry Insights Report: Stakeholder Interviews of Product-Packaging Design Processes. These reports represent the current landscape of the food and packaging industry regarding perceptions and practices of food waste and Save Food Packaging.

INDUSTRY INSIGHTS REPORT: STAKEHOLDER ONLINE SURVEY OF PRODUCT-PACKAGING DESIGN PROCESSES

30% of stakeholders are unwilling to redesign a product's packaging to save on food waste

The Industry Insight Report 1: Reviews expert knowledge and perceptions of industry stakeholders in the Australian food industry gathered by assessing their current organizational roles and practices regarding food waste and Save Food Packaging (SFP) strategies (Figure 1 and Figure 2).

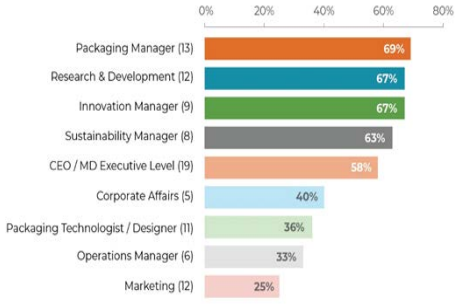

Figure 1: A number of key executive and management levels are unfortunately not claiming responsibility for food waste reduction with marketing standing out as the least invested.

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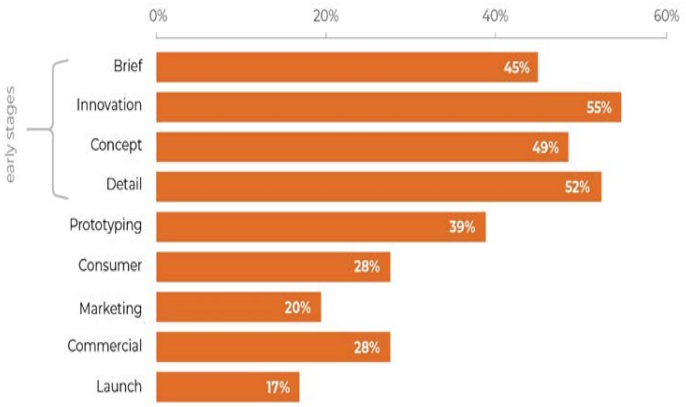

Figure 2: Food waste mitigation considerations are mostly made in the early stages of the new product development (NPD) process and significantly less in the later stages.

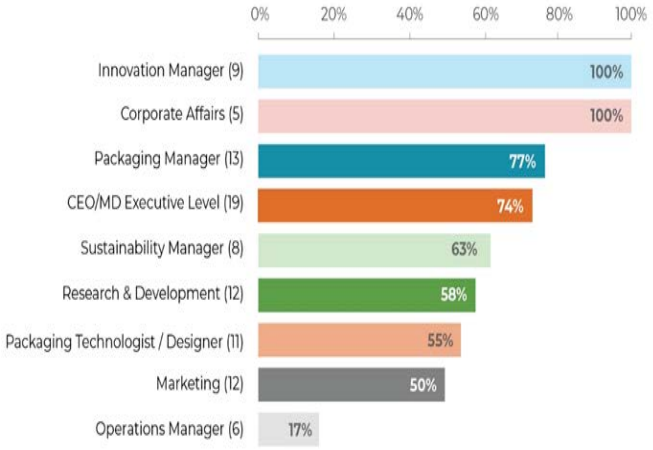

Figure 3: Approximately 30% of stakeholders are unwilling to redesign a product's packaging to save on food waste. Industry will only act on this if it does not increase cost (this was also supported by the business case).

Terminology and definitions of Save Food Packaging Design features are still unclear and not fully recognized within the industry. There is also disparity between academic and industry terminology.

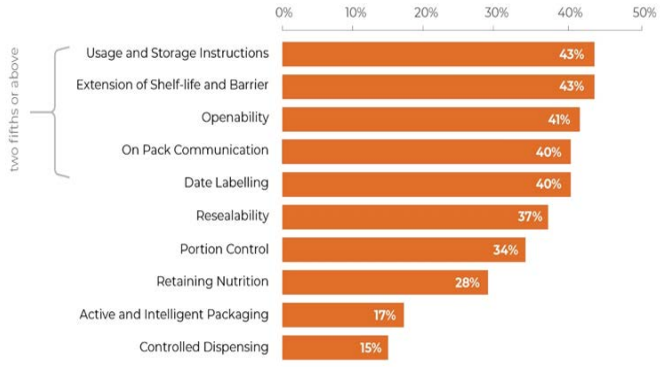

Figure 4: There are a number of key Save Food Packaging Design features that are already adopted in organizations including usage and storage instructions, extension of shelf life and barrier, open ability, date labelling and on-pack communication. Active and Intelligent Packaging and Controlled Dispensing are the areas that underutilized.

Greater Save Food Packaging adoption within the food industry requires leaders to promote and give 'case study' examples of SFP value (Figure 3 and Figure 4).

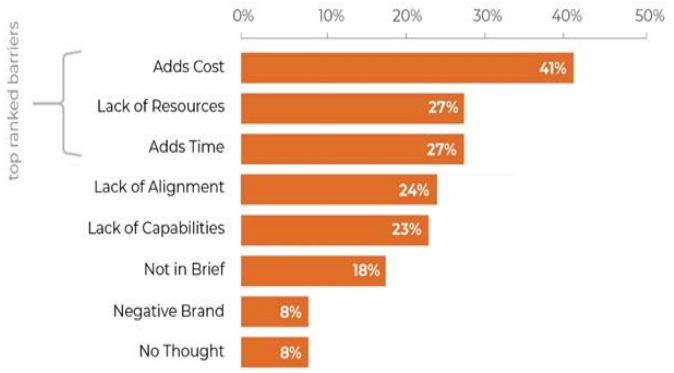

Figure 5: The greatest perceived barriers to Save Food Packaging adoption is that it adds cost and time to production and organizations lack resources.

Sustainability is also perceived by industry to be a Save Food Packaging function. This is the continued discussion around the balance between Sustainable Packaging Design and Save Food Packaging Design, identifying trade-offs and finding optimum pack design.

Most participants are willing to access the Save Food Packaging Design criteria, which are being developed through the AIP led Fight Food Waste CRC Save Food Packaging Design Criteria and Guidelines project, when available (Figure 5).

Recommendations

Buy in from decision makers: Equipping 'CEOs/MDs' and 'marketers' with an awareness of the decision-making power they hold is key to reducing food waste through packaging.

Early-stage food waste considerations carried through: More consideration of Save Food Packaging Design criteria was made in the early stages of the design process; however, the consideration of food waste is less considered in the later stages.

Opportunity to activate consumer research: 'Consumer trialling' appeared to be a stage in which food waste implications are not being considered. This insight suggests that food businesses are not considering consumers' attitudes to SFP innovations and their benefits.

SFP value-creation case studies as a best-practice benchmark: Close to a third of stakeholders were unwilling or unsure if they would re-design a product's packaging to reduce food loss/waste.

Meaningful SFP language: Clarity of Save Food Packaging Design terminology is essential for widespread industry adoption. E.g. It was indicated that 'controlled dispensing' was potentially not fully understood by all participants.

Unlocking barriers to SFP adoption through cost-to-value ratio examples, improved resources, and time: Barriers hindering organizations in adopting SFP features include the concern of added costs, a lack of resources, and additional time. Cost-to-value ratio analyses presented as case studies to the food industry would justify Save Food Packaging adoption and guide hesitant organisations to act on new investments and dedicate resources and time to Save Food Packaging design strategies.

INDUSTRY INSIGHTS REPORT 2: STAKEHOLDER INTERVIEWS OF PRODUCT-PACKAGING DESIGN PROCESSES

"...if there's some training involved and gets more people to understand the importance of considering that save food packaging design criteria really early in the process, then I think that will be beneficial." Food manufacturer. This insight report reviews the expert knowledge and perceptions from stakeholder interviews, representing a range of organizations from the Australian food industry, evaluating current Save Food Packaging (SFP) Design and system implementation techniques.

Key insights include:

1. Considerations of SFP are currently occurring primarily at the beginning of the New Product Packaging Development (NPPD) process.

2. Shelf life of a product is the first and most important consideration within NPPDs.

3. Consumer food waste data is relatively unknown within the industry, relying heavily on feedback and complaints for packaging design improvements.

4. Consumer demands and trends change quickly, making it difficult for the food industry to design appropriate products.

5. There is a need for enhanced consumer education on food waste versus packaging waste.

6. Organizations were divided in their marketing of SFP to consumers; some deeming it unnecessary and others essential by others. Further research on the effects of marketing SFP to consumers may be required.

7. Interviewees reported trade-offs between achieving the 2030 Food Waste Targets and the 2025 National Packaging Targets.

8. Case studies and training modules for roles and sectors were identified as the most appropriate form of SFP design criteria to be implemented into organizations. These are being developed by the Australian Institute of Packaging (AIP).

Recommendations

1. Clear definitions of food loss and waste: There are still varying interpretations of what constitutes food loss and waste. A position paper needs to be prepared by the Australian Institute of Packaging (AIP) and Fight Food Waste CRC in conjunction with CRC participants, to clearly lay out these definitions.

2. Shelf life is the key to NPPD: The shelf-life of new product-packaging should be considered throughout the design process. Achieving the set shelf-life, determined during the brief stage of product-packaging design, will ensure quality and safety throughout the supply chain and ultimately within users' homes.

3. Overcoming barriers to the adoption of SFP criteria: The costs of implementing SFP and the return on investment are key barriers to the adoption of SFP Design.

4. Consumer food waste education *vs* packaging: Participants communicated their concerns on the current consumer trend that vilifies packaging, specifically plastic packaging. This highlights the need for enhanced consumer education on both the environmental and food safety elements embedded within the design of current and new product-packaging.

5. Marketing SFP benefits to consumers: It is encouraged that marketing focuses more on SFP features to assist in consumer education of food waste issues. On-pack communication was demonstrated as one form of communication, however as the demand for smaller pack sizes increases, there is an opportunity to explore alternative techniques. Active and Intelligent (e.g., EMAP, Time Temperature Indicators, sensors, scavengers, QR codes) and retail marketing (e.g., shop talkers, which utilize the retail space rather than on-pack information) should be considered when designing product information communications.

6. Understanding how consumers use packaging: More assessment is required of how packaging features and SFP strategies are understood and used by consumers. The important connections between packaging design and their actual use could be strengthened through new collaborations and opportunities.

7. Save Food Packaging (SFP) Design Criteria design and deployment: There is significant appetite in Australia's food and packaging sector for the deployment of the Save Food Packaging Design Criteria and supporting material amongst food and packaging supply chain stakeholders. Building upon the work currently undertaken by the Australian Institute of Packaging (AIP), the criteria will provide detailed explanations of the core SFP strategies such as portion control, reseal ability, on-pack communication, and extension of shelf life and barriers, arming packaging technologists, innovation managers, research and development managers, and marketing managers with the tools to integrate SFP their product-packaging design.

8. SFP case studies and training material: The interviews demonstrated how organizations want practical examples to illustrate how packaging features can reduce food waste. Delivery of such assets through case studies and training courses was viewed as beneficial, rather than generic checklists. Product-specific guides to how save food features can be integrated into product packaging formats should also be encouraged. The Australian Institute of Packaging (AIP) have already commenced this work, which they will continually develop and expand. We hope that this research will guide future design direction and form a baseline for the food and packaging industry. These results are just the start of many conversations around how improved Save Food Packaging Design can help minimise food waste all the way across the value chain to the household.

SIDE BAR INDUSTRY VOICE BEHIND THE SAVE FOOD PACKAGING PROJECT

The Australian Institute of Packaging (AIP) is the project leader for the Save Food Packaging Criteria and Framework 1.2.1 project which includes a Save Food Packaging Consortium that is made up of leaders in Save Food Packaging Design and innovations to ensure that the guidelines are practical for the industries they will serve. The Save Food Packaging Consortium is made up of the Australian Institute of Packaging (AIP) as project lead, RMIT as the Research Partner, Project Contributors will be Zip form

Packaging, Sealed Air, Multivac and APCO, Project Partners are Plantic Technologies, Result Group and Ulma Packaging. The Extension Network consists of Australian Food Cold Chain Council (AFCCC), Australian Food and Grocery Council (AFGC), Australian Institute of Food Science and Technology (AIFST).

We look forward to working with Food and Beverage manufacturers to design innovative Save Food Packaging solutions that offer the lowest environmental impact and minimise food waste wherever possible.