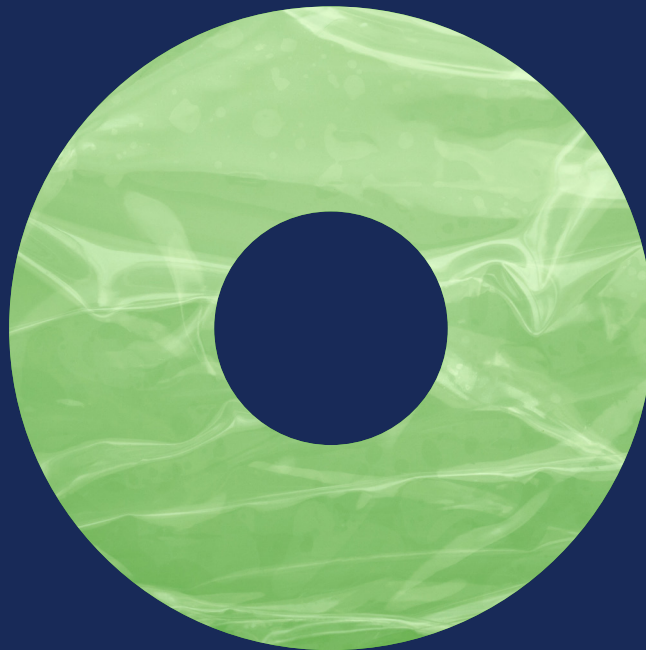


Unwrapping Innovation: An Industry Panel Perspective on Sustainable Packaging



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Abstract

The transition to sustainable packaging represents a critical and multifaceted challenge for industries worldwide, with particular urgency in the food and beverage sector. In response, researchers from the Australia's Food and Beverage Accelerator (FaBA) conducted a systematic review of market, industry, and government publications from 2019 to 2024 with the aim of providing stakeholders with a comprehensive evidence-based report to support informed decision-making around sustainable packaging solutions. The study identified twelve key trends in sustainable packaging, each accompanied by distinct challenges and opportunities. This manuscript further explores these findings from insights gained during an industry panel discussion held at the launch event of the Sustainable Packaging Trends report (Gain et al., 2025). Focusing on the Australian context, the current perspective paper takes an industry perspective focusing on circular economy principles and the adoption of sustainable packaging practices, highlighting six critical challenges and seven key recommendations

designed to guide sustainable packaging implementation in the Australian food and beverage sector.

Introduction

The global packaging industry generates an estimated 140 million tons of plastic waste annually, representing 40% of the entire plastic waste generated worldwide (OECD, 2022). In Australia alone, it is estimated that food and beverage packaging significantly contribute to waste, with around 6.74 million tonnes of packaging placed on the market in 2020-21, of which 44% ended up in landfill (DCCCEW, 2023). This has led to a growing demand for sustainable packaging solutions to minimise environmental impact while addressing consumer preferences for high-quality, convenient products thereby putting industry under growing pressure to transition toward circular economy principles. In response to this shift, researchers from the Australia's Food and Beverage Accelerator (FaBA) Innovation Pathways program developed the Sustainable Packaging Trends Report (Gain et

al., 2025) by conducting a systematic review of recent market, industry, and government publications (2019-2024) related to sustainable packaging in the global food and beverage sector. This review involved manually searching the websites and databases across different sources including reports from leading analytics and management consultancy firms, market and consumer research agencies, research and development corporations, industry associations in the packaging and food and beverage sectors, and government and non-governmental agencies. One thousand and sixty-one publications were identified with an additional 114 publications detected by manual searches tailored to the identified trends. Using machine learning (ML) and natural language processing (NLP) techniques, twelve key sustainable packaging trends were identified, each accompanied by specific challenges and opportunities. These trends were grouped into four priority areas for the food and beverage sector: (1) governing waste, (2) designing packaging for circularity, (3) leveraging packaging design to support sustainable food life cycles, and (4) innovating technologies for sustainable packaging development (Gain et al., 2025). The identified trends offer a practical guide to the sector to assist in implementing more sustainable practices within Australia, while also outlining the complexities and opportunities facing the industry. However, the challenges are multifaceted and require pragmatic, actionable

approaches from experts working within the sector.

In April 2025, FaBA Innovation Pathways program hosted the Sustainable Packaging Trends Report launch event and invited industry leaders to discuss practical solutions that could be implemented in the short term. The panel consisted of the following experts: Barry Cosier, Co-CEO Soft Plastic Stewardship Australia and Grocery Council; Micheal Lee, Group Manager Science and Innovation, Meat and Livestock Australia (MLA), Professor Simon Lockrey, National Reduce Program Leader End Food Waste CRC at RMIT and Gail Macleod, Founder AtomIQ Technologies. The Chair of the panel was Professor Janet McColl-Kennedy, Professor in Marketing at the UQ Business School, The University of Queensland (UQ) and FaBA Innovation Pathways Program Lead.

The panel discussion was guided by the following two key questions:

1. Why are many businesses in the food and beverage sector not embracing sustainable packaging?
2. What are the key challenges faced by the food and beverage sector? And what practical solutions could and should be implemented.

The panel discussion held during the event shed light on the barriers to adopting sustainable packaging and offered pragmatic strategies worth summarising and sharing with the broader community.

Why are many businesses not embracing sustainable packaging?

The following key factors were identified:

1. Confusion around sustainability metrics. The panel members highlighted that although there is no universally accepted definition of what constitutes a "sustainable" packaging solution, packaging experts recognise that packaging does make a valuable contribution to economic, environmental and social sustainability by protecting products, preventing waste and providing end users with the benefits of the products it contains (Verghese et al., 2014). The absence of a common understanding of what is really meant by the term 'sustainable packaging' coupled with growing calls for packaging to 'be sustainable' has produced a great deal of confusion (Verghese et al., 2014). This confusion can lead to mixed messages from stakeholders and make it difficult for businesses to assess their environmental impact accurately. To illustrate, Professor Simon Lockrey highlighted a fundamental challenge in sustainable packaging: understanding what truly constitutes sustainability from a systems-based perspective. He pointed out that Life Cycle Assessments (LCAs) sometimes reveal that plastics can be more sustainable than alternative materials - a conclusion that often clashes with public perception.

"End Food Waste deals with, 60 - 70 industry partners ... and they are struggling with this

question... When they come to us, we basically say ... the best way to start is to do some analysis on what the best options are for the food packaging and food combination in the supply chain you have ... the circularity you are also trying to drive, and is the system even there for that? ... You also need end markets for recycled content. So, we actually have to foster a market approach to drive materials through in a circular way. And that will take government intervention or it will take driving an investment culture in Australia and attracting investment..."

Simon Lockrey, End Food Waste CRC

Building on this, Barry Cosier emphasised the crucial distinction between recyclability and recovery. While 86% of packaging is currently recycled, only 55% is effectively recovered, underscoring that the challenge in recovery is nearly three times greater than in design. This gap reinforces the need for a system-wide approach, as recyclable packaging is ineffective without robust collection systems and viable end markets. In this context, Michael Lee added that addressing sustainable packaging in the meat industry demands a systems-level strategy that goes beyond material innovation.

"... it is a complex area... it is not just material but the infrastructure to collect, recycle and whilst we can try and do things in Australia, 70% of Australia's beef is exported ... think of the big picture rather than just a product innovation."

Michael Lee, MLA

2. Infrastructure limitations. The development of infrastructure to support sustainable packaging, such as recycling facilities and collection systems for compostable materials, lags behind the adoption of these packaging solutions. Given the complexity of global markets and infrastructure, cross-sector collaboration engagement with research institutions is essential.

As an example, Soft Plastic Stewardship Australia (SPSA) is establishing an independent not-for-profit product stewardship scheme and proposing three key actions to address the soft plastics recycling challenge: (1) increasing recycling infrastructure, (2) introducing more accessible recycling options for communities, and (3) boosting demand for products made from recycled materials (SPSA, 2025).

3. End-market considerations. Sustainable packaging solutions may not be commercially viable if there is no demand from end markets or if they are unable to compete with non-sustainable alternatives. Drawing on insights from working with large companies, Gail Macleod highlighted the specific challenges faced by small farmers in Queensland, Australia. Despite strong interest in eco-friendly packaging, most packaging solutions are imported from Asia at very low costs, making locally produced sustainable alternatives financially unviable due to limited production volumes.

“...for the small producers it is very difficult, for them, to go to a local manufacturing environment

and find sustainable packaging that is not exceptionally expensive because these small producers don't have the volumes.”

Gail Macleod, AtomicIQ Technologies

What are the key challenges faced by the food and beverage sector?

When the panellists were asked to comment on the challenges faced most by the food and beverage sector the following three key factors were identified:

4. Regulatory uncertainty. Companies need clearly articulated regulations to justify multimillion-dollar investments in sustainable packaging formats. Regulatory certainty ensures that all players can operate under the same rules creating a level playing field. Barry Cosier highlighted the pressing challenge of the need for regulatory certainty and a level playing field. Inconsistent regulations have made companies hesitant to invest in new packaging formats. Businesses require clear, nationally aligned standards to make confident, long-term decisions. The delay of the National Packaging Targets established by the Australian Packaging Covenant Organisation (APCO) in collaboration with government and industry is a clear example of regulatory ambiguity affecting industry. While the intent behind the targets remains strong, the lack of enforceable frameworks, inconsistent policy environments, and shifting timelines have made it difficult for businesses to plan and invest

confidently in sustainable packaging solutions (APCO, 2025).

5. Limited resources. Large companies have the capacity to embed sustainability through dedicated Life Cycle Assessment (LCA) teams and structured processes. In contrast, most Australian food businesses are small and lack the resources, expertise, and infrastructure to make informed sustainability decisions or simply keep up with changing legislation. Equally critical is ensuring fair participation across the sector. Professor Simon Lockrey added that large companies have the resources and dedicated LCA teams to embed sustainability across their supply chains. However, most Australian food businesses are small and lack the capacity to implement sophisticated processes or hire LCA experts. Supporting these smaller players is vital for broader industry transformation.

Gail Macleod further emphasised the challenges faced by small producers, particularly those with turnovers under \$1 million. Operating with minimal staff, they struggle to keep up with frequently changing legislation, especially around labelling, and lack the warehousing capacity to stock excess inventory.

“... technology is something that I'm quite passionate about ... if we embrace technology, the knowledge that people in the industry have gained over all these years can be put into technology that can help the small producers ... I

believe that we should put a lot of focus into that area.”

Gail Macleod, AtomicIQ Technologies

Gail went further to emphasise the importance of taking a “Jobs-to-be Done (JTBD) approach (Strategyn, 2025) and recommends using the 12 trends identified in the Sustainable Packaging Trends Report to help businesses and policy makers determine which actions are most impactful.

6. Disconnect in communication. There appears to be a significant disconnect between how packaging is designed and how consumers use it at home. This gap affects food preservation and drives the need for better communication tools, such as clearer labelling and storage advice, to ensure packaging serves its intended purpose effectively. As highlighted by Professor Simon Lockrey:

“... a lot of the research we have done has shown that there is a huge gap between the understanding of how we use packaging in the home and what it has actually been designed for ...”

Discussion

The panel discussion highlighted that implementing sustainable packaging in the food industry requires a system-based approach that must consider lifecycle impacts, supply chain

realities, and infrastructure readiness to be effective.

All panellists agreed that without clear guidance and legislation, companies face confusion, which limits investment and ultimately disadvantages both consumers and sustainability efforts. Regulatory certainty was identified as one of the most significant drivers that businesses require in Australia. It ensures that all players operate under consistent rules, creating a level playing field. This is particularly important when attempting to shift an entire industry, as collective movement can help drive down prices, reduce cost barriers for consumers, and make sustainable options more commercially viable. The complexity of adopting sustainable solutions increases for companies that export products outside Australia, as they must navigate markets with differing regulations and infrastructure capabilities.

The conversation also revealed that the topic is approached very differently depending on the size of the company. Australia is made up predominantly of small businesses, which are more vulnerable to price fluctuations and require greater coordination when adopting sustainable strategies. Moreover, transitioning to alternative packaging formats is often hindered by infrastructural constraints - such as limited floor space - and by business models in which the cost of packaging machinery is amortised through the procurement of specific materials from suppliers. These factors can significantly complicate and

delay the implementation of packaging changes.

Free resources, like packaging design criteria developed by End Food Waste in collaboration with Australian Institute of Packaging and food brands, can assist designers and food technologists create packaging that enhances food preservation and communicates effectively with households (Brennan et al., 2023). Indeed, research has revealed a significant gap between packaging design and household use, prompting new R&D in areas such as labelling and storage advice (Parker et al., 2025).

Technology can play a key role in supporting small producers and businesses. There is a growing number of tools available to help navigate complex legislation and ensure their products remain competitive in the market. However, additional measures—such as tax incentives—could be highly effective in fostering a culture of innovation and investment in this space. Importantly, the panellists stressed that food safety must remain a priority when considering sustainable packaging solutions. A holistic approach is needed - one that improves both sustainability and affordability. Finally, the panel emphasised that isolated R&D efforts are no longer sufficient. Instead, strategic partnerships aimed at co-developing scalable and responsible solutions are encouraged, as they benefit the entire industry. Gail Macleod proposed unlocking intellectual property from large brand owners to support safer and more

sustainable packaging innovations could be also a valuable option.

In short, the panel provided the following seven recommendations to progress sustainable packaging in the food and beverage sector.

1. **Adopt** a systems-based approach to the problem to facilitate success. For example, businesses should use system-based approaches, such as Life Cycle Assessment (LCA) and mass flow cost accounting to identify packaging solutions that protect products, minimise waste, support circularity, and align with end-life-systems, while remaining commercially viable. Importantly, LCAs must assess the full product-packaging system across the value chain. Evaluating packaging in isolation can lead to reduced packaging impacts but increased product waste. Hence, product and packaging LCAs across the whole value chain is essential for industry to consider in environmental stewardship going forward.

2. **Invest** in local recycling and composting facilities and choose packaging material compatible with current recycling or composting capabilities. For instance, strategic partnerships between food manufacturers, local councils and communities could drive targeted investments in recycling and composting infrastructures. Targeted investments aligned with local consumption and waste patterns enable infrastructure to efficiently process the most common packaging materials. This, in turn,

empowers manufacturers to adopt packaging that the local system can manage, closing the loop between production and recovery while delivering measurable environmental and community value.

3. **Engage** with policymakers to help shape clear and practical regulations while stimulating an investment approach. By participating early in the policy design process, can ensure that regulations are both ambitious and technically feasible. In parallel, this collaborative approach not only accelerates regulatory compliance but also de-risks infrastructure investment and drives innovation in sustainable packaging.

4. **Monitor** global trends to stay informed about evolving legislation while learning from success stories across the globe. By learning from the success of others, Australian businesses can anticipate regulatory shifts and invest in proven technologies and processes. This not only drives sustainable innovation but also helps position them as global leaders, setting examples that other countries can adopt and scale.

5. **Leverage** partnerships to collaborate with startups, universities, to share R&D costs and access innovation. This involves considering moving beyond IP protectionism to toward a more open innovation approach. Good examples include related food-based CRCs such as Future Food, End Food Waste (EFW), Food Agility but also Australia's Food and Beverage Accelerator (FaBA), in addition to state

government programs. However, to scale and sustain this momentum, a broader cultural shift is needed in Australia, one that embraces “network-innovation”. This requires stronger and more consistent government support.

6. **Explore** funding and incentives that can support sustainable packaging transitions. We encourage food and beverage businesses to

seek state government as well as federal government grants.

7. **Invest** in developing clear messages for consumers on packaging options, how to make the best choices to increase shelf life as well as learning how to dispose of packaging appropriately.



References

Australian Packaging Covenant Organisation (APCO). (2025). Consultation on a strengthened industry-led EPR approach for packaging. Retrieved September 2025, from <https://apco.org.au/consultation>

Brennan, L., Francis, C., Jenkins, E. L., Schivinski, B., Jackson, M., Florence, E., Parker, L., Langley, S., Lockrey, S., Verghese, K., Phan-Le, N. T., Hill, A., & 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>

Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2023, August 2). A circular economy for packaging in Australia. Australian Government. Retrieved September 2, 2025, from <https://www.dcceew.gov.au/environment/protection/waste/packaging>

Gain, A. M., McColl-Kennedy, J. R., Brea, E., and Tabilo, M. (2025). Sustainable Packaging Trends Report: Opportunities to support the transition to a circular packaging economy in the Australian food and beverage ecosystem. Innovation Pathways Program, Australia's Food and Beverage Accelerator (FaBA), The University of Queensland. <https://doi.org/10.14264/ac14395>

Organisation for Economic Co-operation and Development (OECD). (2022). Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options. OECD Publishing. <https://doi.org/10.1787/de747aef-en>

Parker, L., Brennan, L., Jenkins, E., Llagas, B. R., Lockey, S., Schivinski, B., and others. (2025). National Date Labelling and Storage Advice – Phase 1: Final Report. End Food Waste Cooperative Research Centre. https://endfoodwaste.com.au/wp-content/uploads/2025/04/2503_EFWCRC_124_Final-Report.pdf

Soft Plastic Stewardship Australia (SPSA). (2025). Turning soft plastic into a valuable resource. Retrieved September 2025, from <https://spsa.au/>

Strategyn. (2025). Jobs-to-be-Done (JTBD) Theory. Retrieved September 2025, from <https://strategyn.com/jobs-to-be-done/>

Verghese, K., Lewis, H., and Fitzpatrick, L. (2014). Packaging for sustainability. Springer.

