



Co-creating policy research projects to assist Australia meet its commitment of halving food waste by 2030

Report from Food Waste Policy Workshop

3rd and 4th November 2022

Hotel Kurrajong

Canberra



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1. Executive Summary

In Australia food waste is a \$36.6 billion a year challenge (FIAL, 2021) while 1 in 5 people suffer from food insecurity (Foodbank Australia, 2021). Australia produces 7.6 million tonnes of food waste per year, which represents 312kg of food waste per person per year. With its pledge to achieve United Nations Sustainable Development Goal 12.3, Australia has committed to halving food waste by 2030 (Commonwealth of Australia, 2017).

The Food Waste Policy Workshop aimed to identify the most effective and efficient policy interventions required to meet this target, and what evidence from research was required to support implementation of these policies.

A multi-stage approach was used to achieve this goal. The seven members of the Workshop Steering Committee identified 28 intervention areas based on a review of the international literature and their expertise. These were reviewed by eight experts from industry and government who created a short list of 12 priority policy areas. Further consultation and consolidation by members of the Workshop Steering Committee refined this to five priority policy areas. These formed the basis of discussions amongst the 27 invited Australian food waste experts from industry, government, not for profit and research communities during the two-day workshop. The five priority policy areas are:

- > Consumer behaviour change campaign
- > Review of food waste to animal feed regulations and legislation
- > Unfair trading practices & whole crop purchase agreements (including cold chain)
- > Mandatory food waste reduction targets and/or food waste reporting for companies, and associated benchmarking
- > Measurement of food waste and loss

The next stage involved discussions during the Workshop. This sought to identify what evidence from research was required to support implementation of these priority policy areas. Workshop attendees determined the following five key research projects were the most important to complete:

- > Develop a 'brand' using global marketing techniques to unlock the latent consumer desire to reduce food waste (Consumer brand)
- > Establish safety standards and maximum contaminant levels for feeding food waste to animals (for both food waste to insects and food waste direct to animal feed) (Food waste to animal feed)
- > Identify what trading practices cause the most food waste and propose solutions (Trading practices)
- > Explore policy and social license areas to identify barriers and opportunities for food retailers (supermarkets and food service businesses) to send surplus food to high value destinations (Food retailers)
- > Identify best business models and support mechanisms to support creation of new regional food hubs (Regional food hubs)

In the final stage, Workshop attendees were invited to create Working Groups who took on responsibility for progressing these key research projects. The Fight Food Waste Cooperative Research Centre Program Leaders subsequently took responsibility to support these Working Groups as follows: Consumer brand (ENGAGE Program Leader), Trading practices and Food retailers (REDUCE Program Leader), Food waste to animal feed and Regional food hubs (TRANSFORM Program Leader).



Image: Food Waste Policy Workshop attendees

Table 1: List of Workshop attendees

First Name	Surname	Organisation
Petah	Rhynehart	Federal Dept of Climate Change, Energy, the Environment and Water (DCCEEW)
Sarah	Lenarduzzi	DCCEEW
Kerryn	Freeman	DCCEEW
Nellie	Herbert	DCCEEW
Amanda	Kane	NSW Environment Protection Agency
Jessica	Wundke	Green Industries South Australia
Travis	Hatton	Sustainability Victoria
Michael	Brewer	Goterra
Peter	Bruce	Woolworths
Sarah	Pennell	Foodbank
Rob	Gregory	EastWaste
Kat	Heinrich	Rawtech
Alex	Guest	Fight Food Waste CRC - Engage Program Coordinator
Carolyn	Cameron	Stop Food Waste Australia
Shanmugam	Alagappan	Fight Food Waste CRC - PhD Student
Hannah	Churton	Fight Food Waste CRC - PhD Student

First Name	Surname	Organisation
Jonathan	Middis	Fight Food Waste CRC – Business Development Manager
Steve	Lapidge	Fight Food Waste Ltd - CEO
Francesca	Goodman-Smith	Fight Food Waste CRC - Transform Program Leader
Gamithri	Karunasena	Fight Food Waste CRC - Project Leader
Bree	Hurst	Queensland University of Technology
Colleen	MacMillan	CSIRO
David	Pearson	Fight Food Waste CRC - Engage Program Leader
Simon	Lockrey	Fight Food Waste CRC - Reduce Program Leader
Sarah	Wheeler	Fight Food Waste CRC - Project Leader
Alana	Mann	University of Tasmania
Geoff	Starr	Fight Food Waste Ltd - Director

2. Introduction

2.1. Introduction to the food waste problem

Globally one third of all food produced is wasted. In Australia, food waste is a \$36.6 billion a year challenge (FIAL, 2021), while 1 in 5 people in Australia are suffering from food insecurities (Foodbank Australia, 2021). Australia produces 7.6 million tonnes of food waste per year, which represents 312kg of food waste per person per year. With its pledge to achieve United Nations Sustainable Development Goal 12.3, Australia has committed itself to halving food waste by 2030 (Commonwealth of Australia, 2017). Food gets wasted at all stages in the supply chain; on farm, during transportation and warehousing, in the retail sector and finally in households. Reducing food waste requires a collaborative effort from government, industry, not for profits, and the community.

Policies focusing on food waste reduction impact people, the planet, and organisations. Reducing food waste will help people save money and reduce food insecurity. It will also help the planet by using fewer natural resources and reducing the amount of greenhouse gas emissions. Reducing food waste, and transformation of it into value added products will also increase profitability of organisations and help to create jobs.

2.2. Introduction to public policy

Public policymaking by government generally consists of various sets of actions, designed to devise solutions to specific problems. The overall goal of policy in any setting is to increase (and maximise) net social welfare – where social welfare refers to cultural, social, financial, and environmental values and impacts. Policies are created, supported, and implemented by institutions, and good governance is highly dependent on strong, efficient, transparent, and accountable institutions.

It's also important to note that not every individual can be a winner in any new policy implemented – although society as a whole may benefit, some individuals may be worse off. It then becomes another policy decision about if the people who are worse off need to be compensated (e.g. we may choose as a society for example not to compensate polluters – versus deciding as a society to compensate those who lose their jobs due to industries being disbanded), and if so, the best way to do this.

The set of policy instruments that are available to government can be divided up into supply management and demand management instruments. These instruments can be implemented individually, altogether, or in various pairs.

2.2.1. Supply management policies

Supply management policies refer to policies that are implemented to actively attempt to change the supply of a resource (whether it is the resource itself or a critical input to the resource's creation). Some examples in the food waste policy space relating to physical infrastructure/goods include investing in various national infrastructure systems (e.g. cold storage; nutrient extraction and stabilisation); providing organic food waste bins; changing frequency pickup of organic food waste bins; providing free kitchen food waste caddies and degradable plastic bags; packaging technology (e.g. Modified Atmosphere Packaging)

2.2.2. Demand management policies

Demand management policies refer to policies that are implemented to actively attempt to change people's demand for a resource (whether it is the resource itself or a critical input to the resource's creation). Some examples in food waste space include:

- > **Regulations and Planning:** Regulatory approaches include waste reduction targets such as laws and standards, mandatory management plans, restrictions or covenants; date labelling; monitoring; measurement; compliance, enforcement.
- > **Economic Instruments:** Economic policy instruments aim to reduce food waste through financial measures that impact on costs or other market signals. Commonly used approaches are fees, taxes, and subsidies. Establishing property rights and markets over various resources is also another economic instrument. Examples of such instruments include: landfill tax; charges on volumes of waste thrown away (or amount of times bins picked up); multi-buy promotion changes.
- > **Education and Information:** Designed to convince people to change their own behaviour, usually based on purely information provision (i.e. appealing to do the right thing and about the consequences of food waste). Aiming to influence social norms and providing practical skills are recommended. Campaigns aim to improve consumer's knowledge and raise awareness about food waste prevention. They range from the well-established "Love Food Hate Waste" campaign, originating in Britain and now used in many other countries, through to face-to-face contact with residents via door knocking or community-based meetings.

Policy recommendations are generally aimed at government policy-makers, however some of them are also relevant to other organisations such as supermarkets or food businesses with consumer facing brands (e.g. voluntary agreements in areas such as packaging).

For example, let's take a bold aspirational policy goal to help reduce public's food waste.

2.3. Introduction to the workshop

There is a clear opportunity to develop targeted research questions to identify, prioritise and develop both demand and supply-side policy options to influence the reduction of food waste across the food value chain.

The Food Waste Policy Workshop aimed to answer the following questions:

- > What are the most effective and efficient policy interventions to move the dial and help meet the target of halving Australia's food waste by 2030?
- > What evidence from research is required to support implementation of these policy interventions?

A Food Waste Policy Workshop was held on 3rd and 4th November 2022 at Hotel Kurrajong in Canberra, Australia. Attendees invited included 27 Australian food waste experts from industry, government, not for profit and research communities. The Workshop was conducted according to the method proposed and approved by Human Ethics Committee of University of Adelaide (approval number H-2020-242).

The following sections of this Report provide details of the methodology used and findings from each stage of the Workshop.

3. Methodology

3.1. Process of developing the list of 28 policy intervention areas

A multi-stage approach was used. The seven members of the Workshop Steering Committee identified 28 policy intervention areas based on an analysis of the international literature and their professional experience. This was reviewed by eight experts from industry and government who created a short list of 12 priority policy intervention areas. Further consultation and consolidation by members of the Workshop Steering Committee refined this to five priority policy areas. These formed the basis of discussions amongst the 27 invited Australian food waste experts from industry, government, not for profit and research communities during the two-day Workshop.

Stage 1: A list of Broad categories for policy interventions was derived from an analysis of the international literature and professional experience of members of Workshop Steering Committee (See Appendix 1, column 1). This resulted in 12 Broad categories.

Stage 2: Interventions for each of these Broad categories were identified (See Appendix 1, column 2) alongside Current activity (Column 3) and Areas for policy intervention (Column 4). This resulted in 28 policy interventions.

Stage 3: The list of policy interventions (See Appendix 1) was reviewed by eight Australian food waste experts. Feedback was received on any missing policy options and the ranking of interventions as high, medium or low priority.

Table 2: Organisations represented by Australian food waste experts

Name of organisation
Australian Government – Department of Climate Change Energy, the Environment and Water
East Waste South Australia
Food and Fibre Gippsland
Foodbank
New South Wales Government – Environment Protection Authority
South Australia Government – Green Industries South Australia
Stop Food Waste Australia
Victoria Government – Sustainability Victoria

Stage 4: A list of priority policy intervention areas (See Table 3) was created, based on ranking by Australian food waste experts and consideration of the benefit of having at least one policy intervention from each Broad category. This resulted in 12 priority policy intervention areas.

Table 3: Priority policy intervention areas

	Priority policy intervention area	Discussion
1	Measurement of food loss and waste (FLW)	<ol style="list-style-type: none"> 1. Government to mandate measurement of food loss and waste (e.g., for certain sectors / size of company) 2. Funding from Government and peak bodies to develop and supply data collection tools 3. Approach used, e.g. Monitoring, Evaluation, Reporting and Improvement (MERI) framework (for peak bodies through to private organisations) 4. Federal and State government funding of food loss and waste data collection, analysis and visualisation platforms
2	Consumers food waste reduction behaviour change campaign	<ol style="list-style-type: none"> 1. Nationwide consumer behaviour change campaign: aiming to influence behaviours and change social norms and provide the practical skills, knowledge and resources to help Australian households reduce the amount of food wasted at home. 2. Making it easy as possible for consumers to adopt the changes. Product, packaging, retail environment, promotions etc. 3. Funding for both campaign and research and development for product innovation 4. Improve consumer's knowledge and raise awareness about food waste prevention with the ultimate goal of motivating households to adopt a range of positive behaviours that lead to a reduction in household food waste 5. Stakeholder engagement (e.g., WWF role in communication and engagement) 6. Councils' involvement in food waste avoidance related behaviour change campaigns
3	Tackling unfair trading practices	<ol style="list-style-type: none"> 1. Australian Competition and Consumer Commission (ACCC) review Food and Grocery Code of Conduct (operation, enforcement and penalties) 2. Provision of Australian Competition and Consumer Commission (ACCC) 'model clauses' for food and grocery supply contracts 3. Potential to explore whole crop purchase contracting arrangements to increase fresh produce crop utilisation (also discussed as specific policy as line seven in this Table) 4. Potential to review the basis for retail product specifications, quality standards, customer value propositions to reduce food waste 5. Promotion / funding of sustainable / responsible sourcing and procurement practices 6. Investment in data driven, transparent and intelligent demand and supply systems 7. Regulation to ban the use of sales return agreements (e.g., model for bakery used in South Australia) to drive improvements in accuracy of demand forecasting

	Priority policy intervention area	Discussion
4	Increasing residue tolerances	1. End of waste codes for all States
5	New regulations to set mandatory food waste reduction targets	1. Regulatory approaches include waste reduction targets such as laws and standards, mandatory waste prevention and management plans, landfill bans, restrictions or covenants (e.g., a commitment to the United Nations Sustainable Development Goal 12.3 to half food waste). 2. Examples include inclusion of food waste in product stewardship 'Minister's List', food waste reporting for companies, landfill bans for food and organic waste
6	Adjusting date labels, including best before and used by dates, where needed	1. Review and revision of Australian Food and Grocery Council (AFGC) Date Marking voluntary guidance 2. Review and revision of Food Standards Australia and New Zealand (FSANZ) standards and regulations 3. Food safety standard checks 4. Retailer/ brand owner labelling policies
7	Whole of crop purchase	1. Australian Competition and Consumer Commission (ACCC) 'model clauses' for whole crop purchase agreements to avoid 'cartel like behaviour' between those buying the whole crop and any third-party suppliers utilising the different grades of the crop 2. Government funding for best practice of whole crop harvest and purchase that increases crop utilisation. Also maximises the potential for donating surplus or 'out of spec' produce to food rescue
8	Cold storage and cold chain	1. Industry policies (peak bodies through to private organisations) on supply chain conditions 2. Best practice Cold Food Code for cold chain practitioners to improve integrity and reduce food loss and waste 3. Investment in, and adoption of latest, cold chain technologies (e.g., super chilling, advanced flash freezing)
9	Education and training	1. As part of training courses (e.g., TAFE) ensure they have up to date information on food waste prevention and response (e.g., Household and Food Service Sector)
10	Pay-as-you-throw (PAYT)	1. Investigate economic policy instruments aimed at reducing food waste through financial measures that impact on costs or other market signals. 2. Commonly used approaches are fees, taxes, and subsidies. 3. For example, a volume or weight-based fee system such as "Pay-As-You-Throw" (PAYT). Can be based on volumes of waste, or amount of times bins are put out quarterly
11	Packaging made from food waste	1. Compostable packaging, infrastructure, Standards, recovery options 2. For compostable packaging, compostability standards communicated and connected to infrastructure i.e. home versus industrial 3. Food safety standards clear and achievable
12	Food storage advice	1. Standardisation and promotion 2. Food safety standard checks 3. Retailer/ brand owner labelling policy

Source: priority policy areas were extracted from the FIAL Feasibility study 2021 and modified

Stage 5: The list of Priority policy intervention areas was refined to five topics as follows.

1. The two interventions ranked highest by experts were shortlisted (Measurement of food loss and waste and Consumers food waste reduction behaviour change campaign).
2. Policy areas with limited expertise available on day 1 of Workshop were excluded (New regulations to set mandatory food waste reduction targets and Increased residue tolerances).
3. Topics where synergies existed were combined (Date labelling + Food storage advice, Unfair trading practices + Whole crop purchase).
4. Although ranked relatively low by the experts, cold chain intervention was acknowledged as being important. Remaining low ranked interventions that could not be combined with others were eliminated (Packaging from food waste, Pay-as-you-throw, education and training).
5. All interventions eliminated in the shortlisting process were available for comment by Workshop attendees in a 'parking lot' (Table 4).

Table 4: Priority policy areas that were in 'parking lot' at beginning of Workshop

Priority policy areas in 'parking lot'
Education and Training
Pay-as-you-throw (PAYT)
Increase residue tolerances
Cold storage and cold chain
Packaging made from food waste
Food storage advice
Date labelling (Adjusting date labels, including best before and used by dates, where needed)

3.2. Process of identifying top research projects

Attendees on Day 1 of the Workshop were researchers and executives from Fight Food Waste Cooperative Research Centre and Stop Food Waste Australia.

3.2.1. Review of priority policy areas (Step 1)

The Priority policy areas were discussed. This resulted in Animal feed (which was excluded during the expert feedback phase) and new regulations to set mandatory food waste reduction targets being re-prioritised as these were deemed important policy areas. Cold Storage and cold chain, Date labelling and Food storage advice were put in the 'parking lot' (as it was determined research projects currently underway in these areas would provide sufficient evidence). Appendix 2 presents research project ideas suggested at the Workshop for some policy interventions in the 'parking lot'.

Attendees on Day 1 were then allocated to a group for each of the updated priority policy areas:

- > Measurement and targets
- > Consumers
- > Animal feed
- > Tackling unfair trading practices/ whole crop purchase

3.2.2. Identification of research projects needed for Priority policy areas (Step 2)

Using the discussion points as prompts, attendees were requested to individually identify research projects for the priority policy area assigned to their group. After 10 minutes these ideas were discussed in their group, and prioritised. Each group then worked on preliminary design of research projects including the research problem/opportunity, research questions, scope (what's in and out), and high-level details of the method. Each group shared two or three research projects to advance their priority policy area with all Workshop attendees. Table 5 presents research projects identified by each group as important under each priority intervention area.



Image: Identifying research projects

Table 5: Research projects identified as important under each priority intervention area

Priority intervention area	Research Project
Consumers	1. Improve methodologies to estimate household food waste and measure behaviours
	2. Profile the Australian population to understand enablers and barriers for specific consumer segments (category benefit)
Measurement and targets	1. Assessment of measurement tools and stakeholder needs/ capabilities
	2. Understanding and mapping stakeholders and their needs to create a pathway to transition from voluntary to mandatory food waste reporting
Animal feed	1. Establishing safety standards and maximum contaminant limits for feeding food waste to animals (including allergens and exotic diseases) <ul style="list-style-type: none"> a. Food waste to insects b. Food waste direct to animal feed
Tackling unfair trading practices/ whole crop purchase	1. Understanding the trading practices with the greatest negative impact and proposed solutions
	2. Society-centric approaches to business (i.e. new retail approaches)
	3. The winners and losers of whole crop purchase

3.2.3. Prioritisation of research projects (Step 3)

Attendees, in their groups, were offered six selection criteria based on potential impact, feasibility of undertaking research (see Table 6).

Table 6: Prioritisation Criteria

Criteria	Description
1. Food waste volumes	Prioritise solutions that tackle large volumes of food waste. When evaluating performance against this criterion, evaluators considered whether the initiative is likely to reduce overall food waste, or just displace the issue (i.e., moving the food waste from one point in the value-chain to another).
2. Food recovery hierarchy	Prioritise solutions that move waste further up the hierarchy. For example, prioritising measures that 'prevent' food waste over initiatives that 'recycle' food waste.
3. Replicability	Prioritise solutions that are applicable across the wider industry (rather than an individual organisation).
4. Technical feasibility	Prioritise solutions that are low-tech and/or have been demonstrated to work elsewhere (rather than bleeding edge initiatives).
5. Financial feasibility	Prioritise solutions that are likely to result in a positive financial return. Evaluators did not complete a financial analysis on initiatives given project scope/budget limitations. Rather they based their assessments on industry experience with similar initiatives.
6. Complexity	Prioritise solutions that are less complex to implement. When evaluating performance against this criterion, evaluators considered the number of stakeholders required to drive the change, alignment with existing policies/legislation, etc. Evaluators also considered complexity within individual organisations to implement solutions given constraints (e.g., staff availability).

During the discussion additional criteria (Table 7) were developed by the attendees and were included in the criteria used for prioritisation of projects.

Table 7: Additional research prioritisation criteria that were suggested by attendees during the workshop

Additional Research Prioritisation Criteria
What is the biggest research gap?
Understanding contextual factors
Longevity vs step change (will it stick or fall)?
Whole of system
Capabilities of researchers
Does it create perverse outcomes?

Attendees started to explore who could lead each project and funding required, and prioritisation of projects. At the end of the session each group had prioritised their top 2-3 policy research projects. These are summarised in Table 8.

3.2.4. Ideation of bold policy goals and research projects we need to get there (Step 4)

Scenario analysis was used to address and discuss the challenge of “Halving All Food Waste by 2030”. Attendees choose which group they wished to join to discuss the following bold policy goals:

1. Reducing household food waste by 30% by 2030
2. Reduce retail and hospitality sector waste by 30% by 2030
3. No food waste to landfill by 2030
4. Reducing waste from farm to retail by 30% by 2030

Each group discussed key milestones and events needed to achieve the goal, as well as identifying one or two bold research projects that would contribute towards achieving the bold policy goal.

3.2.5. Ranking of priority research projects (Step 5)

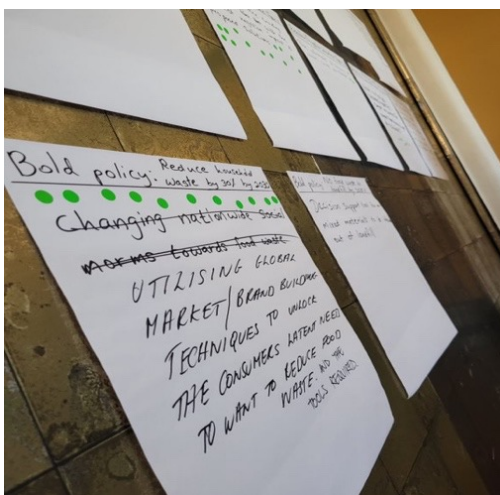
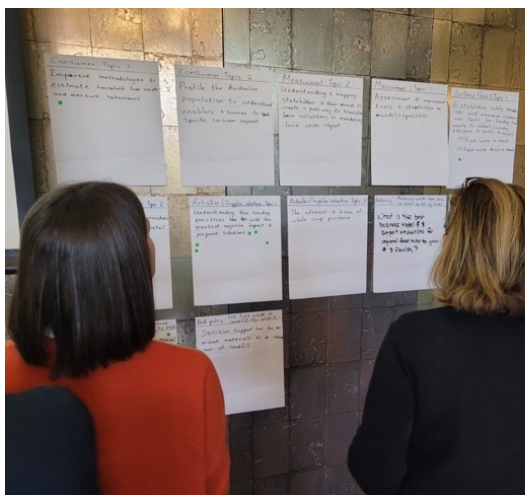
The research projects generated from Priority research projects (Step 2) and Bold policy goals (Step 4) were then ranked by each group; using the criteria previously applied to rank priority research projects (the criteria from Tables 6 and 7.)

All research projects were then ranked individually by Workshop attendees. This allowed for a triangulation of analysis to determine which projects were ranked the highest, combining group and individual levels of ranking. A discussion was also held with Workshop attendees to determine if the rankings made sense, and if anything needed to be modified.

Each attendee in the Workshop was given 3 dot shaped stickers, to vote for the research projects they think are priorities, based on the criteria discussed previously. Table 8 presents the ranking received for all research projects by attendees. Tally is the total number of dots given to a specific research project and the ranking is based on highest to the lowest number of dots.

Table 8: Priority research projects

Research Project	Tally	Ranking
Tackling unfair trading practices/ whole crop purchase 1 - Understanding the Trading practices with the greatest negative impact and proposed solutions	13	1
BOLD POLICY (Reduce household food waste) – Utilising global market/ brand building techniques to unlock the consumer latent need to want to reduce FW	12	2
ANIMAL FEED 1. Establishing safety standards and maximum contaminant limits for feeding food waste to animals (including allergens and exotic diseases) a) Food waste to insects and b) Food waste direct to animal feed	9	3
BOLD POLICY (reduce retail/hospitality) - "Simply purpose" - understanding governance, laws, social license and policy to make it easier for retail/food service to get to high value destinations	7	4
BOLD POLICY (reducing on farm waste) - What is the best business model and support mechanisms for regional food hubs to grow and flourish?	7	4
MEASUREMENT AND TARGETS 1 - Assessment of measurement tools and stakeholder needs/ capabilities	5	6
CONSUMERS 2 - Profile the Australian population to understand enablers and barriers for specific consumer segments (category benefit)	5	6
Tackling unfair trading practices/ whole crop purchase 2 - Society-centric approaches to business (i.e. new retail approaches)	4	8
MEASUREMENT AND TARGETS 2 - Understanding and mapping stakeholders and their needs to create a pathway to transition from voluntary to mandatory food waste reporting	3	9
CONSUMERS 1 - Improve methodologies to estimate household food waste and measure behaviours	3	9
Tackling unfair trading practices/ whole crop purchase 3 - The winners and losers of whole crop purchase	2	11
BOLD POLICY (no food waste to landfill) - decision support tool for mixed materials to be taken out of landfill	0	12



Images: Individual attendees ranking research projects with green dot shaped stickers

3.2.6. Formation of Working Groups (Step 6)

The group and individual ranking were considered by attendees and after discussion it was decided to proceed with six highly ranked research projects. All Workshop attendees were asked to move to the table which was going to discuss the research project they felt most able to contribute to. Working group

members, champions, stakeholders, and funding sources were identified. A representative from each group reported back to all Workshop attendees.

Working groups that were formed to continue the discussion on the priority research projects (Table 9). Prior to the Workshop, FFW CRC Program Leaders took the responsibility to follow up on these research projects.



Image: Formation of Working Groups

Table 9: Working Groups for priority research projects

Research Project	Working Group
<p>MEASUREMENT AND TARGETS - 1. Assessment of measurement tools and stakeholder needs/ capabilities</p> <p>MEASUREMENT AND TARGETS - 2. Understanding and mapping stakeholders and their needs to create a pathway to transition from voluntary to mandatory food waste reporting</p> <p>CONSUMERS: Improve methodologies to estimate household food waste and measure behaviours</p>	<p>Project champions: FFW CRC REDUCE and NSW EPA</p> <p>Key Stakeholders: State (SV, NSW, GISA), Federal government, industry</p> <p>Funding source: State (SV, NSW, GISA), Federal government, industry bodies</p> <p>Notes:</p> <ul style="list-style-type: none"> · Industry (measurement/tools), State Governments (targets/reporting) · Whole value chain (households, farm, food service) · 'Mandate is risky, when paired with first phase' (ie. Tools)
<p>ANIMAL FEED – 1. Establishing safety standards and maximum contaminant limits for feeding food waste to animals (including allergens and exotic diseases)</p> <p>a. Food waste to insects</p> <p>b. Food waste direct to animal feed</p>	<p>Project champions: APL</p> <p>Key Stakeholders: Goterra/UQ, SARDI, APL, SFMCA, MLA, primary industries (Federal and State), food aggregators, feed users, AHA, insect protein manufacturers, existing pig feed group, IPAK</p> <p>Funding source: APL, MLA, Feed users, Pet feed manufacturers, Aqua culture, Poultry</p>
<p>Tackling unfair trading practices/ whole crop purchase - 1. Understanding the trading practices with the greatest negative impact and proposed solutions</p>	<p>Project champions: 'lawyer' researcher, ACCC, consumer advocates</p> <p>Key Stakeholders: retailers, sector action plans, primary producers, cold chain, distributors, industry associations</p> <p>Funding source: AFGC, from PACT, A state</p> <p>Note: Separate workshop for supply chain</p>
<p>BOLD POLICY (reduce household food waste) – Utilising global market/ brand building techniques to unlock the consumer latent need to want to reduce FW</p>	<p>Project champions: NSW EPA, FFW CRC ENGAGE, Marketing consultants</p> <p>Key Stakeholders:</p> <p>Funding source: State governments (NSW EPA), industry bodies, retailers, DCCEEW, voluntary PACT, in-kind from NGOs</p>
<p>BOLD POLICY (reduce retail/ hospitality) - "Simply re-purpose" – understanding governance, laws, social license and policy to make it easier for retail/food service to get to high value destinations</p>	<p>Project champions: FFW CRC Transform</p> <p>Key Stakeholders: NSW government, DCCEEW, QUT researchers, Woolworths, Foodbank, Ozharvest, Second Bite</p> <p>Funding source: NSW government</p> <p>Notes: Mapping the system, mapping waste vs. hierarchy vs. issues, barriers and drivers. Policy Focus.</p>
<p>BOLD POLICY (reducing on farm waste) - What is the best business model and support mechanisms for regional food hubs to grow and flourish?</p>	<p>Project champions: SV, CSIRO, GISA</p> <p>Key Stakeholders: primary producers, farmers, clusters, farmers' federation and state equivalents, innovation labs, manufacturers, academics (researchers), Australian Fresh Produce Alliance, industry and agriculture departments, MMA (e.g. Gippsland Food & Fibre Cluster), Fresh Select, Cobrom Estate, Bega Cheese etc.</p> <p>Funding source: Government/ State, CRC, RDCS, Industry, Select Harvests</p>

Conclusion

The Food Waste Policy Workshop was a success, with attendees noting the smooth Workshop delivery and opportunity for face-to-face engagement as highlights. The well-structured, output-driven agenda ensured the workshop objectives were achieved, notably the identification of priority research projects, project champions, stakeholders, and potential funding bodies. The Workshop provided a platform to advance thinking and progress research opportunities in the food waste policy space. The respective Fight Food Waste CRC Program Leaders are following up with relevant stakeholders to ensure priority research projects are completed.

Thank you to the Workshop Steering Committee, Workshop attendees, Academy of the Social Sciences of Australia and Fight Food Waste CRC for making this Workshop possible and successful.

6. Appendices

Appendix 1: Intervention areas presented in the Briefing Document prepared by members of the Workshop Steering Committee

Table 10: Intervention areas to develop food waste reduction Policies

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)
Behaviour change interventions	Behaviour change campaign – consumers	<ul style="list-style-type: none"> Business case to be submitted Information and education campaigns are where most activity has been in Australia and most are designed to provide information that increases awareness of the consequences of food waste, and what individuals can do to reduce it. FFW household project research 	<ul style="list-style-type: none"> Nationwide consumer behaviour change campaign Aiming to influence behaviours and change social norms and provide the practical skills, knowledge and resources to help Australian households reduce the amount of food wasted at home. Making it easy as possible for consumers to adopt the changes. Product, packaging, retail environment, promotions etc Funding campaign, R&D for product innovation
		<ul style="list-style-type: none"> Oz harvest – ‘use it up’ campaign Fight Food Waste CRC reduce program considering research in this space SEWA HaFS SAP 	<ul style="list-style-type: none"> Improve consumer’s knowledge and raise awareness about food waste prevention with the ultimate goal of motivating households to adopt a range of positive behaviours that lead to a reduction in household food waste Engaging WWF and other bigger NGO’s in reducing food waste in Australia Aiming to provide the tools and resources to reduce the amount of food wasted ‘back of house’ in restaurant kitchens, hotels and catering businesses
	Behaviour change campaign – hospitality and food service (HaFS) sector	<ul style="list-style-type: none"> NSW EPA your business is food campaign VIC ‘small change, big impact’. Consumers are key. WRAP guardians of grub campaign 	<ul style="list-style-type: none"> Aiming to reduce dining waste ‘front of house’ through better menu planning, plate, dish and portion sizes, foodie bags for leftovers, etc.

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)
	Information norms	<ul style="list-style-type: none"> Most activities focus on fOGO collection and food waste diversion from landfill to composting rather than avoidance 	<ul style="list-style-type: none"> Behaviour change campaigns focusing on food waste avoidance Education and sharing best practice to change councillor's focus- association of city mayor's Landfill bans for organic waste E.g. Provide information in council rates on amount of tonnes of food thrown out by consumers in three bin streams, and compare to the average household in the area (similar to water/electricity notices)
Regulation on target setting	New regulations to set mandatory food waste reduction targets (e.g., inclusion of food waste in product stewardship 'minister's list') or food waste reporting for companies; landfill bans for food and organic waste	<ul style="list-style-type: none"> State government food and organic waste strategies and targets Piloting of landfill bans for food and organic waste (e.g., in Queensland) 	<ul style="list-style-type: none"> Regulatory approaches include waste reduction targets such as laws and standards, mandatory waste prevention and management plans, landfill bans, restrictions or covenants (e.g., a commitment to the United Nations sustainable development goal 12.3 to halve food waste). Contamination fines for household bins (collection crew lifts the bin and make spot fines) All state governments have committed. However, no policy targets set, they are just reporting what the state is contributing. Language needs to be fixed, around targets and commitments.
Physical infrastructure	Investment in national infrastructure (include nutrient extraction and stabilisation)	<ul style="list-style-type: none"> Grants for establishing infrastructure (i.e., mmi, trailblazer) 	<ul style="list-style-type: none"> National infrastructure stocktakes and investment strategy Government investment in capital infrastructure – such as dry and cold storage facilities, roads, railways, ports, cold chain, etc – can also have a benefit of reducing transit times and increasing chances of food making it to end markets and being consumed various sustainability Victoria grant schemes. CEBC is funding physical infrastructure, food upcycling into powders snack products. Cobram estate, fertiliser. \$10 million business support fund
	Invest in cold storage and cold chain improvements		<ul style="list-style-type: none"> Industry policies (peak bodies through to private org) on supply chain conditions shelf stable - low perishable - high Best practice <i>cold food code</i> for cold chain practitioners and those that manage them to improve cold chain integrity and reduce food loss and waste Investment in and adoption of latest cold chain technologies (e.g., super chilling, advanced flash freezing)
	Separate food waste collection	<ul style="list-style-type: none"> Some councils have implemented Federal government recycling modernisation fund and food waste to healthy soils fund 	<ul style="list-style-type: none"> State government CE/ waste policies for broad uptake (as linked to FOGO infrastructure) State and local government climate strategy and policy
			<ul style="list-style-type: none"> Changing frequency of organics bin collection to weekly rather than fortnightly

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)		
<p>Unfair trading practices</p>	<p>Tackling unfair trading practices</p>	<ul style="list-style-type: none"> Food and grocery code of conduct but with stronger enforcement and higher fines for non-compliance with the code (like the UK's grocery supply code of conduct, which includes a dedicated adjudicator to oversee complaints and fine retailers breaching the code. 	<ul style="list-style-type: none"> ACCC review and improvement of the food and grocery code of conduct (operation, enforcement and penalties) 		
		<ul style="list-style-type: none"> Some focus in the agri-food industry on improving the accuracy of demand forecasting and order fulfilment (with potential for last minute changes in order volumes and less likelihood of contract penalties for non-fulfilment of order volumes) 	<ul style="list-style-type: none"> Provision of ACCC 'model clauses' for food and grocery supply contracts 		
			<ul style="list-style-type: none"> Potential to explore whole crop purchase contracting arrangements to increase fresh produce crop utilisation 		
			<ul style="list-style-type: none"> Potential to review the basis for retail product specifications, quality standards, customer value propositions to reduce food waste 		
			<ul style="list-style-type: none"> Promotion / funding of sustainable / responsible sourcing and procurement practices 		
			<ul style="list-style-type: none"> Investment in data driven, transparent and intelligent demand and supply systems 		
			<ul style="list-style-type: none"> Regulation to ban the use of sales return agreements (e.g., sa model for bakery), to drive improvements in accuracy of demand forecasting 		
		<p>Measurement</p>	<p>Food waste and loss measurement</p>	<ul style="list-style-type: none"> SFWA building tools, resources, support sustainability Victoria (SV) household audits 	<ul style="list-style-type: none"> Government to mandate measurement of Food waste and loss (FWL) for certain sectors / size of company
				<ul style="list-style-type: none"> Commercial tools (i.e., direct, lean path, winnow solutions, Phood solutions, internal tools like sap, PLM, etc) 	<ul style="list-style-type: none"> Government/ peak bodies funding/ supplying access to tools
				<ul style="list-style-type: none"> FFW CRC household interventions project (quantifying household food waste) 	<ul style="list-style-type: none"> Industry policies (peak bodies through to private organisations) on meri/ci approaches. *monitoring, evaluation, reporting and improvement. Framework (meri framework) *continuous integration (ci)
<ul style="list-style-type: none"> ABARES FLW farmer/grower survey 	<ul style="list-style-type: none"> Federal and state government funding of FLW data collection, analysis and visualisation platforms State grant funding to consider rewarding organizations who measure and report 				
<ul style="list-style-type: none"> Agri-food industry management systems and ci programs 					

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)
Animal feed	<p>Increase diversion of food waste to animal feed through policy/regulatory means</p> <p>Ensure product liability laws do not excessively limit food donations</p>	<ul style="list-style-type: none"> Fight Food Waste CRC food waste to pig feed project examining techno-economics Existing civil liability limitation and good samaritan regulations 	<ul style="list-style-type: none"> National review of food waste to animal feed regulation/legislation policy and regulation on what and what cannot be given to animals, so that what can be given to humans can be captured and maintain bio security National review and alignment / harmonisation of regulations and guidance
Increase food donation		<ul style="list-style-type: none"> Macquarie university review of state regulations 	
		<ul style="list-style-type: none"> Food rescue sector best practice guidance for donors 	
	<p>Improve tax incentives for food donation, storage and logistics</p>	<ul style="list-style-type: none"> FFW CRC project underway 	<ul style="list-style-type: none"> improvements in tax incentives in line with KPMG report recommendations
	<p>Liability law education</p>		<ul style="list-style-type: none"> Training for food industry on liability law
	<p>Resale and donation of surplus or near date food</p>	<ul style="list-style-type: none"> Yume platform App ecosystem (e.g., y-waste, spare harvest, too good to go, gander, etc.) 	<ul style="list-style-type: none"> R&D and investment in surplus / near date food broking / resale and food donation platforms and apps
<p>Whole crop purchase</p>	<ul style="list-style-type: none"> Some existing whole crop harvest / purchase agreements emerged during the covid pandemic to increase the availability of fresh food CEBIC funding a project on this. Open food network foundation limited - https://www.cebic.vic.gov.au/projects/whole-crop-purchasing 	<ul style="list-style-type: none"> ACCC 'model clauses' for whole crop purchase agreements to avoid 'cartel like behaviour' between those buying the whole crop and any third-party suppliers utilising the difference grades of crop Government funding of whole crop harvest / purchase best practice that increase crop utilisation and maximise the potential for donating surplus or 'out of spec' produce to food rescue 	

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)
Date labelling and food storage advice	Implement date labelling best practice	<ul style="list-style-type: none"> Food standards ANZ food safety standards and regulations 	<ul style="list-style-type: none"> Review and revision of AFCC date marking voluntary guidance
		<ul style="list-style-type: none"> AFCC voluntary guidance for date marking 	<ul style="list-style-type: none"> Review and revision of FSANZ standards and regulations
		<ul style="list-style-type: none"> Industry labelling policy (including other dates, such as 'packed on' or 'sell by' (inventory control) dates, etc.) 	<ul style="list-style-type: none"> Food safety standard checks
		<ul style="list-style-type: none"> Food safety standards and regulations 	<ul style="list-style-type: none"> Retailer/brand owner labelling policies
	Extend allowable use-by dates	<ul style="list-style-type: none"> Voluntary guidance 	<ul style="list-style-type: none"> Review and revision of AFCC date marking voluntary guidance Review and revision of FSANZ standards and regulations Food safety standard checks on changes Retailer/brand owner labelling policy adjusted
Residues	Increase residue tolerances	<ul style="list-style-type: none"> An example is with digestate from anaerobic digestion, there can often be robust EPA requirements. This is being addressed in Queensland with a draft end of waste code for digestate 	<ul style="list-style-type: none"> End of waste codes for all states
Financial incentives/ tools	Public procurement standards	<ul style="list-style-type: none"> Federal/ state government and industry green procurement policies 	<ul style="list-style-type: none"> Adjust or provide new policies for clarity on FLW reduction/ rescue/ transformation options
	Tax credit schemes, GST exemptions		<ul style="list-style-type: none"> Tax incentives, so dot intervention as per KPMG proposition
	Pay-as-you-throw (PAYT)		<ul style="list-style-type: none"> Investigate economic policy instruments aimed at reducing food waste through financial measures that impact on costs or other market signals. Commonly used approaches are fees, taxes, and subsidies. A volume or weight-based fee system such as "pay-as-you-throw" (PAYT) being an example.
			<ul style="list-style-type: none"> Can be based on volumes of waste, or amount of times bins are put out quarterly
	R&D / innovation grants	<ul style="list-style-type: none"> Some DAWE, CBEIC, NSW EPA, GISA programs based on CE/ waste policy CEBIC funding. 11 projects on food providing financial incentives for commercialisation 	<ul style="list-style-type: none"> Amplifying DAWE, CBEIC, NSW EPA, GISA programs based on ce/ waste policy

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)
Packaging/ labelling	Packaging from food waste, compostable packaging, infrastructure, standards, recovery options	<ul style="list-style-type: none"> Some standards communicated on pack 	<ul style="list-style-type: none"> Compostability standards communicated and connected to infrastructure i.e. Home versus industrial
	The nature of packaging, its size and its labelling affect the lifespan of food. This includes technology (e.g. Modified atmosphere packaging), re-sealable, easier- to-empty packages, and a greater variety of product sizes can be designed to help reduce food waste.	<ul style="list-style-type: none"> Food grade required for packaging in food contact 	<ul style="list-style-type: none"> Food safety standards clear and achievable for food grade packs
	Category based storage advice standardisation/ promotion	<ul style="list-style-type: none"> Food safety standards 	<ul style="list-style-type: none"> Food safety standard checks
		<ul style="list-style-type: none"> Industry labelling policy (including comms, design guides, etc) 	<ul style="list-style-type: none"> Retailer/ brand owner labelling policy

Broad category (Column 1)	Intervention (Column 2)	Current activity (Column 3)	Areas for policy intervention (Column 4)
Social infrastructure	Capability building	<ul style="list-style-type: none"> SME solutions centre and department of industry entrepreneurs' program Align to local government but developed but state/federal. Probably local government. Hume/circular advantage/Scott valentine or reground doing local government based auditing/education. 	<ul style="list-style-type: none"> Business management plan; training, standards; micro credentials
	Programs	<ul style="list-style-type: none"> FIAL food clusters 	<ul style="list-style-type: none"> Continuation and increased investment in SME support programs
	Regional development programs	<ul style="list-style-type: none"> FIAL food clusters Circular economy initiatives 	<ul style="list-style-type: none"> Continuation
	Education and training	<ul style="list-style-type: none"> High school year 11/12 sustainability education 	<ul style="list-style-type: none"> As part of TAFE extension ensure HaFS, etc. Have up to date information on food waste prevention and response, and include in curriculum for primary school
		<ul style="list-style-type: none"> Department of education doing a skills gap analysis in circular economy. FFW CRC industry connections hub training needs analysis 	

Source: Modified from the FIAL Feasibility study 2021

Appendix 2: Research project ideas suggested at the Workshop for some policy interventions in the ‘parking lot’

Table 11: Research project ideas suggested at Workshop for some policy interventions in the ‘parking lot’

Policy intervention area	Research project ideas suggested at Workshop
Packaging	<ul style="list-style-type: none"> > Composters accepting FOGO streams set up and have infrastructure to enable acceptance of compostable bags and packaging > Compostable packaging to support food waste diversion, not all packaging i.e. salads, food service > Compostable packaging in FOGO > Provide AS compostable bags at supermarkets (or ban all non-compostable produce bags) – increases uptake and acceptance of food waste diversion systems)
Education and training	<ul style="list-style-type: none"> > Business required to use BMP
Pay as you throw	<ul style="list-style-type: none"> > A tool – needs supporting infrastructure – caddies, three bin systems, compostable bags, education etc.
Increasing food donations	<ul style="list-style-type: none"> > There needs to be harmonised/ specific regulations relating to food donation (FSANZ) so that donors are confident re liability issues
Increasing food donations	<ul style="list-style-type: none"> > Appropriate policy levers to influence different contracts/ arrangements to reduce overproduction and on farm waste (e.g. WCP – model clauses for contract) > Exploring the link between diets (food types, diversity and methods) and food waste

Appendix 3: Workshop agenda

Food Waste Policy Workshop

3-4 November, 2022



Agenda

Day 1

Identifying priority policy areas and any research support needed

In attendance:

Researchers, executives from Fight Food Waste CRC and Stop Food Waste Australia

Time	Title	Brief description
12.00-12.30	Guests arrive & lunch	Networking over lunch
12.30-1.00	Welcome & introductions	Workshop outline, attendee introductions & expectations
1.00-1.40	Priority policy areas	Priority policy areas based on Workshop Briefing Document <i>(Briefing Document sent to attendees prior to Workshop)</i>
1.40-1.50	Break	
1.50-3.30	Research support needed for priority policy areas	Preliminary design of research projects including question, scope, and method
3.30-3.45	Break	
3.45-4.50	Prioritise research projects	Based on potential impact, feasibility of undertaking research. Start to explore who could lead each project and funding required.
4.50-5.00	Day 1 closing remarks	Summary and reflection
6.00-8.30	Workshop dinner for all workshop guests – Hotel Kurrajong <i>Hosted by Fight Food Waste Ltd</i>	

Day 2

Prioritise and rank research projects and establish working works to lead projects

In attendance:

Researchers, government, industry, and executives from Fight Food Waste CRC and Stop Food Waste Australia

Time	Title	Brief description
8.45–9.00	Guests arrive	Networking over coffee
9.00–9.05	Welcome	Summary of Day 1 and Outline of Day 2
9.05-9.10	Importance of policy	The role of policy in reducing food waste and the importance of this workshop
9.10-09.35	Introductions	Attendee introductions and workshop expectations
09.35-10.10	Summary of existing research	Summary of existing research
10.10-10.45	Suggested priority research projects	Suggested priority research outcomes from researchers
10.45-11.00	Break	Based on potential impact, feasibility of undertaking research. Start to explore who could lead each project and funding required.
11.00-11.55	Scenario analysis	Ideation of Bold Policy Goals, what's needed to get there + summarise session's top 10 ideas
11.55 – 12.55	Ranking of priority research projects	Ranking, sharing and shortlisting research projects.
12.55-1.25	Lunch Break	
1.25-2.05	Government, industry, and not-for-profit perspectives	Roles, responsibilities, and opportunities to support priority food waste research projects
2.05-2.50	Formation of working groups	Formation of working groups to progress priority food waste research projects
2.50-3.00	Day 2 closing remarks & thanks	Final comments, commitment to next steps

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