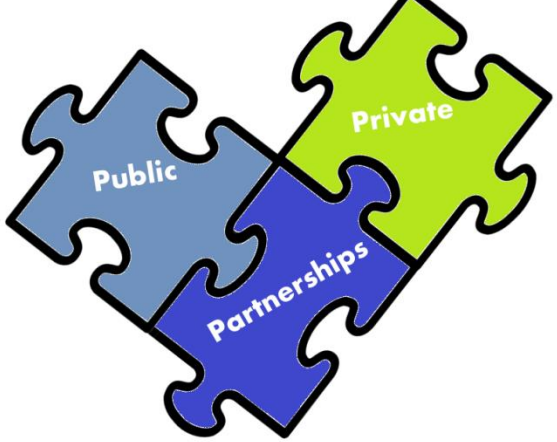

PPPPP

Policies to Promote Public Private Partnerships

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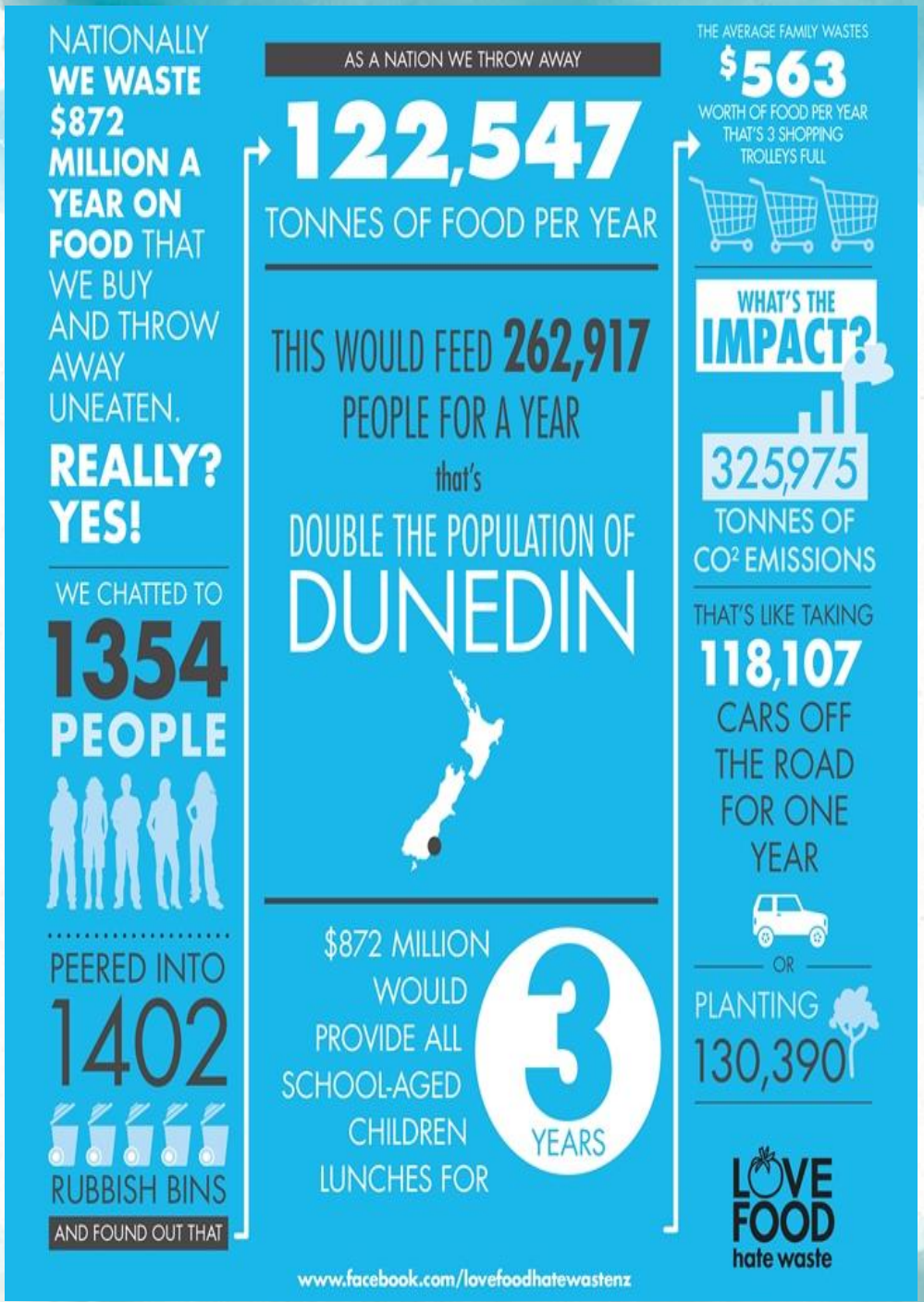
New Zealand
PPP Case Study 1

LFHW

National Food Waste Prevention Project

The National Food Waste Prevention Project is an initiative of the WasteMINZ Behaviour Change Sector Group. A number of councils around New Zealand had indicated interest in running a *'Love Food Hate Waste'* (LFHW) style campaign to reduce household food waste in New Zealand. Research overseas has shown that edible food makes up a significant component of household's rubbish and that simple messages such as encouraging people to use leftovers, plan their shopping, store food correctly and understand portion sizes can reduce the amount of food wasted.



New Zealand's

$872,000,000

Food Scandal

LOVE FOOD HATE WASTE NZ

SCOPE: Household food waste

TIME PERIOD: 2016-19 (3-year period)

LOCATION: Nationwide

INVESTORS: Ministry for the Environment (Waste Minimisation Fund) + External funding sources (57 councils and one community group)

Actors: Waste Management Institute NZ Inc. (WasteMINZ)

PROJECT OBJECTIVES:

- Create and promote a LFHW NZ website, to act as an online hub for food waste minimisation messages and related activity.

- A series of LFHW NZ marketing collateral (flyers, fact sheets, media releases) will be created to promote food waste minimisation messages.

- Deliver a national social media campaign (Facebook, Twitter), with a predominantly digital focus to promote minimisation of household food waste disposed to landfill.

Sign up for all the latest tips and tricks on how to reduce your food waste! Sign Up Now

LOVE FOOD hate waste NEW ZEALAND

FOOD WASTE | REDUCE YOUR WASTE | RECIPES | TIPS | EVENTS | NEWS | ABOUT US

EVERY TIME YOU THROW AWAY FOOD YOU'RE THROWING AWAY MONEY

Kiwi households throw away over $560 of edible food every year – that's the equivalent of three shopping trolleys of food going straight into the bin.

Learn More

Need some cooking inspiration? Check out our recipes

View Recipes

Bread is NZ's No. 1 wasted food - 20 million loaves per year

HOW TO MAKE YOUR VEGETABLES LAST LONGER

LETTUCE

Wrapping your lettuce in a paper towel and placing it in a ziplock bag or placing your lettuce in a lettuce crisper, will result in it lasting up to four times longer!

AVOCADO

Wrapping your cut avocado tightly in cling wrap will result in it lasting up to four times longer! For a zero waste alternative, store it in an airtight container.

CARROTS

Storing your carrots in an airtight container lined with a paper towel will result in them lasting up to 10 times longer!

SALAD GREENS

Storing your salad greens in an airtight container will result in them lasting up to two times longer!

CELERY

Storing chopped celery in an airtight container lined with a paper towel will result in it lasting for up to five days longer!

PUMPKIN

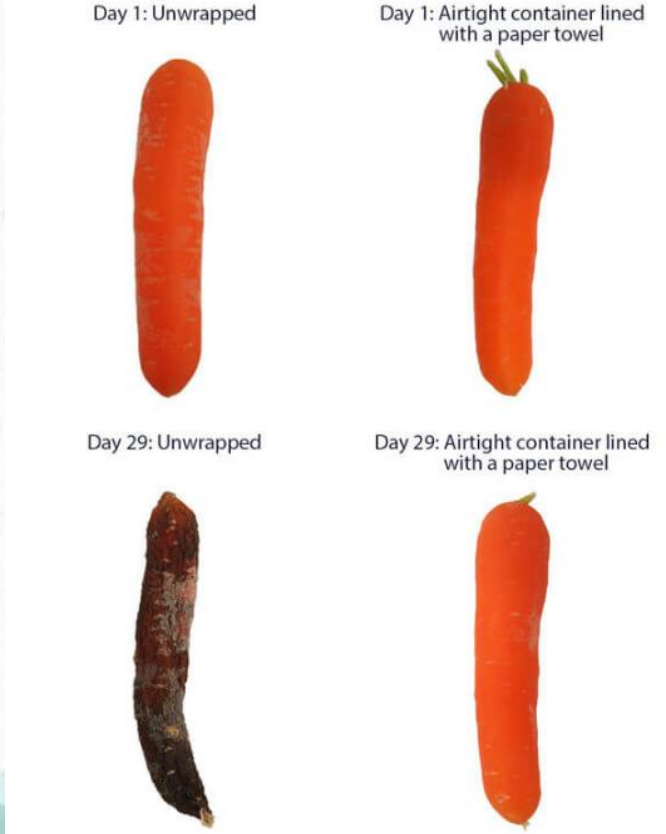
Wrapping your cut pumpkin in cling wrap will result in it lasting for up to 4.5 times longer! For a zero waste alternative, remove the seeds and then wrap in a beeswax wrap.

For more storage tips visit lovefoodhatewaste.co.nz

The best way to store your cut avocado

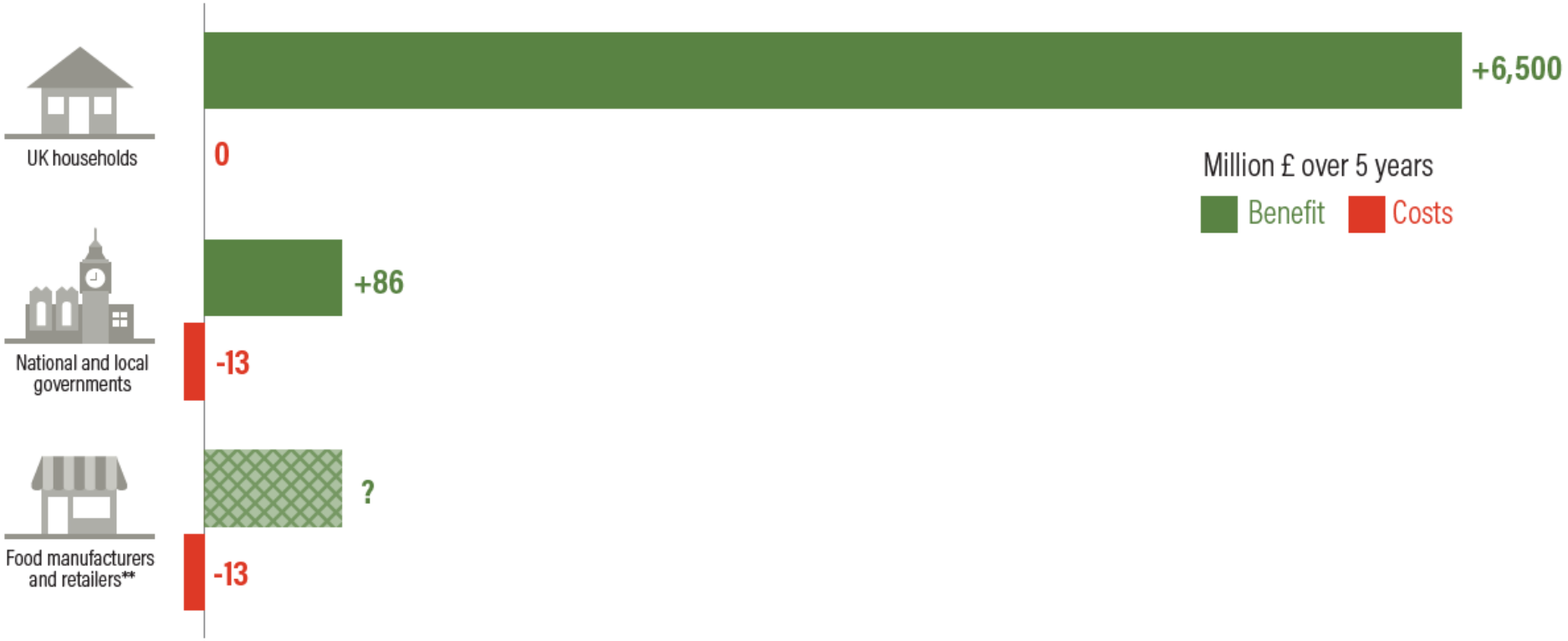
FOOD WASTE | REDUCE YOUR WASTE | RECIPES | TIPS | EVENTS | NEWS | ABOUT US

How to make your carrots last 10 times longer



Assessing costs in the UK initiative (2007-12)

FIGURE 2. **Distribution of benefits and costs: United Kingdom***



* Benefits and costs attributable to the UK household food waste reduction initiative implemented by WRAP and partners.
** Food manufacturers and retailers realized financial benefits from increased product shelf-life and reduced product losses both in stores and in their supply chains. But given available data, it is not possible to accurately quantify the financial magnitude of these benefits. Interviews with managers highlight that these companies realized a number of nonfinancial benefits, too, such as strengthened customer relationships.
Source: WRAP analysis

NZ
PPP Case Study 2

Bioresource Processing Alliance

MARLBOROUGH RESEARCH CENTRE
Te Rito Hiranga o Wairau

Bioresource Processing Alliance




agresearch CallaghanInnovation Plant & Food RESEARCH SCION

Bioresource Processing Alliance

- A six year, MBIE funded research and development program
- Main aim is to help industry create economic value for NZ
  - Exports increased by $100 M by 2020
  - Displacement of imports, reduction of environmental impact
- Achieve by processing of low value by-product and waste streams derived from the processing of primary products

Bioresource Processing Alliance

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Why the BPA was established

Secondary products from biological industries worth $2.4 billion per year, but…

- 50-55% of fish harvest converted to fish meal
- ¼ to ½ of mussel harvest goes to waste
- 15% of wood harvest is left in the forest
- 45% of kiwifruit harvest unsuitable for export

BPA Objective: value creation from co-products & waste streams

- To achieve its objective the BPA would like to connect with companies that:
  - generate volumes of low value streams from primary production and processing;
  - are interested in new technologies that could make better use of these low value streams (covers both equipment suppliers and specialist processing companies); and/or
  - are interested to take low value streams and add value to them (e.g. biopolymer manufacturer)

Bioresource Processing Alliance

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Four key areas of focus for the BPA

- Extraction – direct recovery of high value, low volume constituents
  - *e.g. bioactive peptides, lipids or antioxidants for functional foods, nutraceuticals*
- High Value Processing – to transform functionality
  - *e.g. to produce food products, animal feeds*
- Deconstruction – pulling things apart
  - *e.g. convert bulk residual materials to recover simple chemicals (e.g acetate), nutrients (e.g. for fertilizers) and energy*
- Reconstruction – putting things together
  - *e.g. combining functionalised bulk materials to produce biopolymers or novel biocomposites*
- Tech transfer – economic evaluation, pilot plant, scale-up

Bioresource Processing Alliance

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Sectors and by-product/waste streams

- Horticulture (Fruit, Vegetable, Plant)
  - *Seconds, harvesting waste, processing plant waste*
- Agriculture (Meat, Dairy, Wool, Skins)
  - *Farm waste, processing plant, waste water, rendering*
- Marine (Fish, Aquaculture, Seaweed)
  - *Processing plant, by-catch, nuisance species*
- Forestry
  - *Bark, slash, sawdust, pulp & paper, treated timber waste*
- Microbiological
  - *Brewing waste, waste treatment*

Bioresource

Example: Extracting value from horticultural side streams: PFR, Massey University

- Co-product/waste stream: onion skins
- Opportunities: food ingredient; dietary supplement ingredient
- BPA work to date:
  - Explore commercial potential
  - Analyse raw material streams and characterise valuable components
  - Develop industry-ready extraction processes
  - Demonstrate bioactivity and value
- Progress: Project development by researchers and industry partner

Bioresource Processing Alliance

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- Green Spot Technologies (using fruit and vegetable pomace to develop a high protein, low sugar, high fibre, low GI ingredient for a range of products)

OUR PRODUCTS

Natural and nutritionally balanced functional flours

company turned beer by-product into dog biscuits

Microbreweries are popping up across the country, with waste streams to match. But an innovative new project is turning this waste into tasty dog treats – and making money along the way.

Full BPA Video - Waste Stream to Revenue Stream

https://www.youtube.com/watch?v=_4DIGC8tfys

PPP Case Study 3

Govt. funded, industry – led research

PURPOSE: To enhance business-research-government partnerships through commercially meaningful research

SCOPE: Willingness to pay for high value sustainable (no waste) products

TIME PERIOD: 2016-17 (6 months)

LOCATION: Chinese Taipei and China

INVESTORS: Ministry for Primary Industries

Actors: Researcher, NZ food Industry

“Market intelligencing”

- Exploratory research
- broadly ethnographic study
- multi-sited research
- field diary and recorded notes
- China based market research company – focus groups (n=3) + consumer survey (n=300)
- research efforts were informed by NZ stakeholder survey (n=13) and will be fed back to industry

Industry stakeholder survey

Specific questions you would like the study to address relating to market opportunities in Chinese Taipei and/or China for commercialisation of NZ products that:

- *are developed from co-products or that use whole-of-resource processing*
- *come from a company with good sustainability credentials, particularly in relation to food loss and waste*
- *use 'smart' packaging innovations that improve quality and food loss across the entire supply chain*

Chinese Taipei

- "People in Chinese Taipei don't waste food. Our parents told us when we were kids that if we wasted food we would become a farmer [and have to work hard for little pay], or that we would get rice [pimples] on our face, or that we would become a cat [lazy] in the next life!"

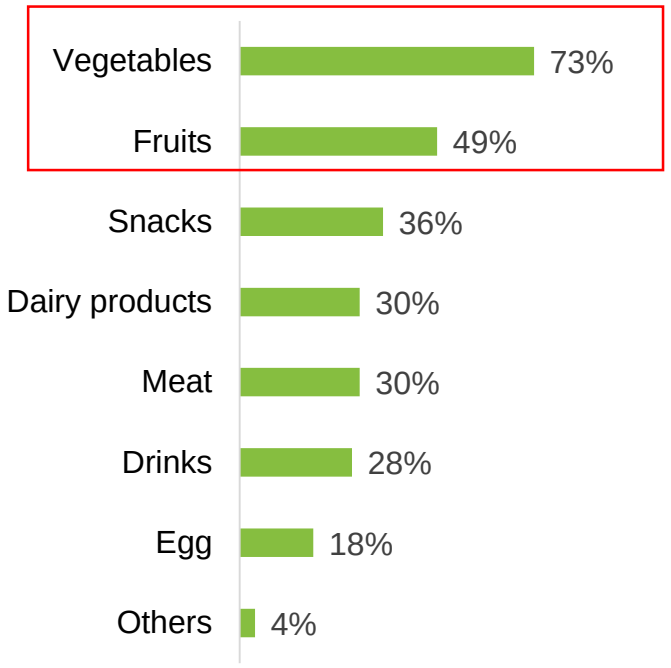
- "Buddha tells us food waste is bad"

- "It is socially acceptable to takeaway leftover food… among friends it is ok but if for business I would feel a little embarrassed"

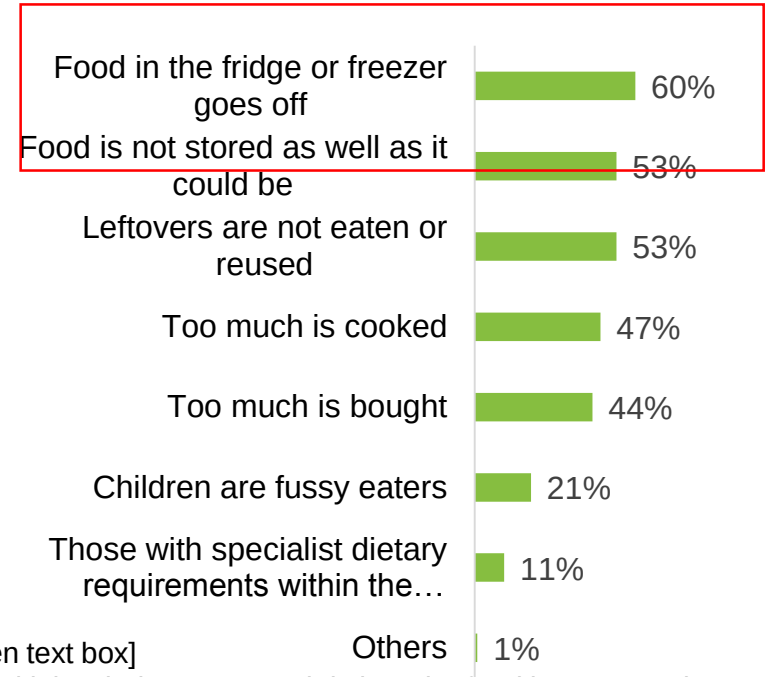
- "In Chinese Taipei, I'm not so sure that People in Chinese Taipei are so open-minded about food waste so not so susceptible to these kind of food waste-friendly products"

CHINA – Household Food Waste – category and reason

The most commonly thrown out or wasted foods in household, n=320



The reason of the most commonly thrown out or wasted foods in household, n=318



H1. What are the most commonly thrown out or wasted foods in your household? [Open text box]
H2. What do you think is the main reason that food gets wasted in your household? [Multiple Choice: Too much is bought; food is not stored as well as it could be; too much is cooked; food in the fridge or freezer goes off; leftovers are not eaten or reused; children are fussy eaters; those with specialist dietary requirements within the household cause food waste; Other (with text box)]

Purchase Intention of Products that Use Smart Packaging

中粮 COFCO

- Respondents (92%) are willing to purchase food products that use smart packaging
- 89% of respondents are willing to pay more for smart packaged products, mainly bc it can protect the safety of the food

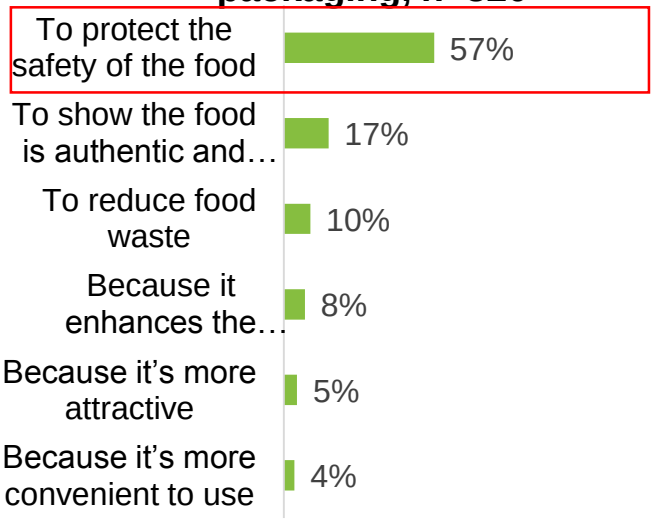
Purchase intention of products that use smart packaging, n=320

%	
TOP3	92
Extremely willing	24
Willing	36
A little willing	32
N/A	6
A little unwilling	1
Unwilling	1
Extremely unwilling	0
Mean	5.76

Willing to spend more on smart packaging products, n=320

%	
TOP3	89
Extremely willing	18
Willing	28
A little willing	43
N/A	6
A little unwilling	3
Unwilling	1
Extremely unwilling	1
Mean	5.43

Rank of first influence factor of purchasing products with smart packaging, n=320



F1. How willing are you to purchase products that use smart packaging? [Likert scale from "not at all willing" to "extremely willing"]
F2. Please rank the following reasons, in order of importance, for why you might choose products with smart packaging over traditional packaging? [Rank question with the following options:
To protect the safety of the food; to show the food is authentic and has not been tampered with, to reduce food waste; because it's more attractive; because it's more convenient to use; because it enhances the sensorial qualities of the food; Other (with text box)]
F3. Would you be willing to spend more on smart packaging products? [Likert scale from "not at all willing" to "extremely willing"]

Abnormal (shaped, coloured, sized) food products

中粮 COFCO

- Respondents' purchase intention of abnormal fruits and vegetables is not high - especially for abnormally coloured ones (bc they consider these kinds of foods to be related to GM technology, gene mutation, and other food safety related problems)

- The largest percentage of respondents (31%) think the abnormal fruits and vegetables should be priced 25% lower than the normal ones. On average, it is 19% lower.

- Respondents do not agree with the statement "purchasing these abnormal foods constitutes environmentally-friendly behaviour by reducing food waste"

Final thoughts on policies to promote PPP

Many of the initiatives in NZ as well as other APEC countries are currently fragmented and would benefit from being more connected

Coherent national level policies/strategy and roadmaps for FLW reduction would help

There are already some good examples (e.g. Dutch Taskforce Circular Economy in Food that Connects Initiatives Against FW)

Questions, thoughts, comments…