

# Consumers' food choices and the roles of retailers in reducing food waste



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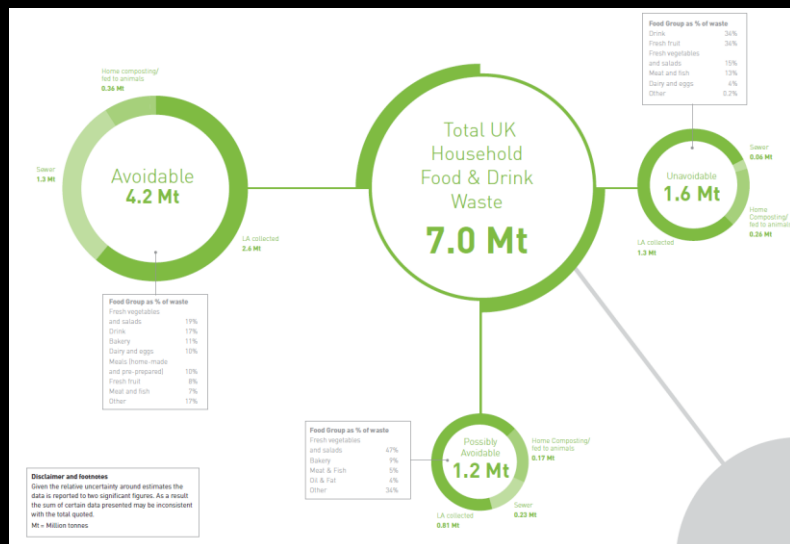
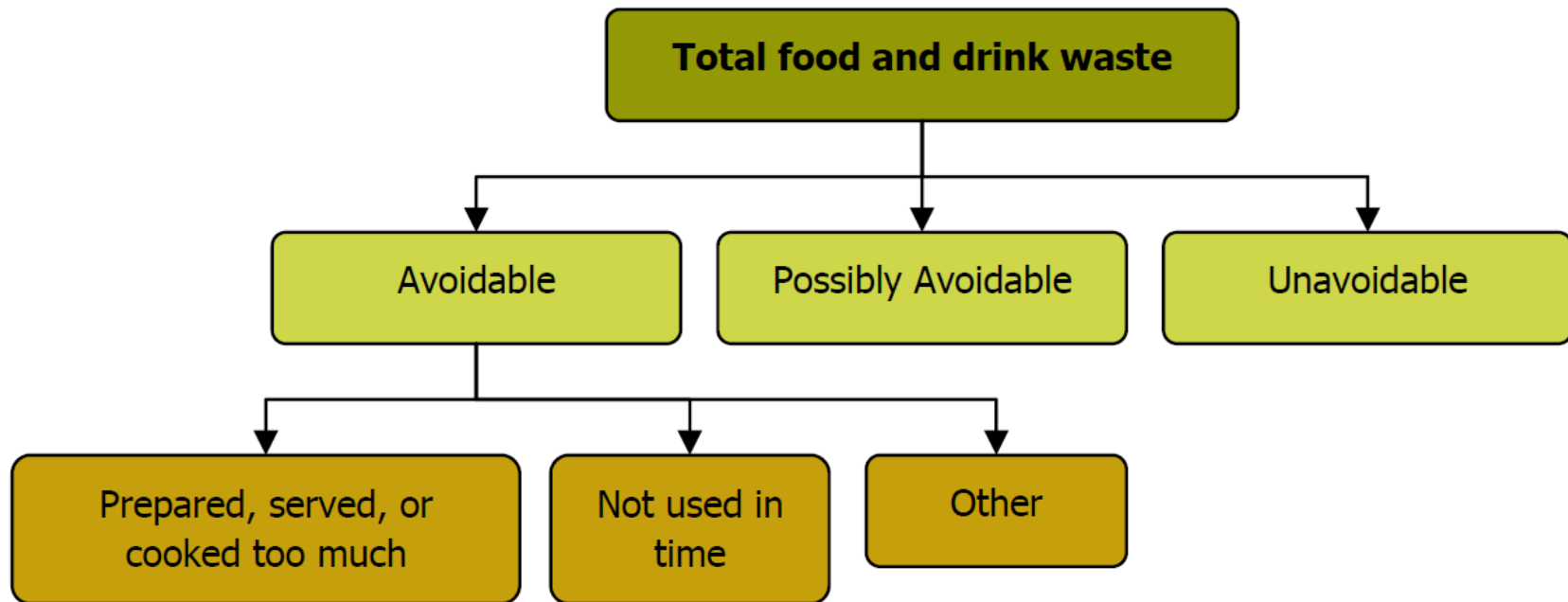
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# Overview

- Consumer food waste: possible classifications
- Consumer food waste – quantities and trends
- Food waste: features and causes at a consumer level
- Trends in reduction initiatives
- Opportunities for creating partnerships



# Classifications of domestic food waste



# Categories of consumer food waste

1. Suboptimal foods



2. Leftovers



3. Scraps

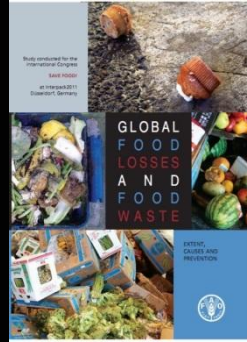




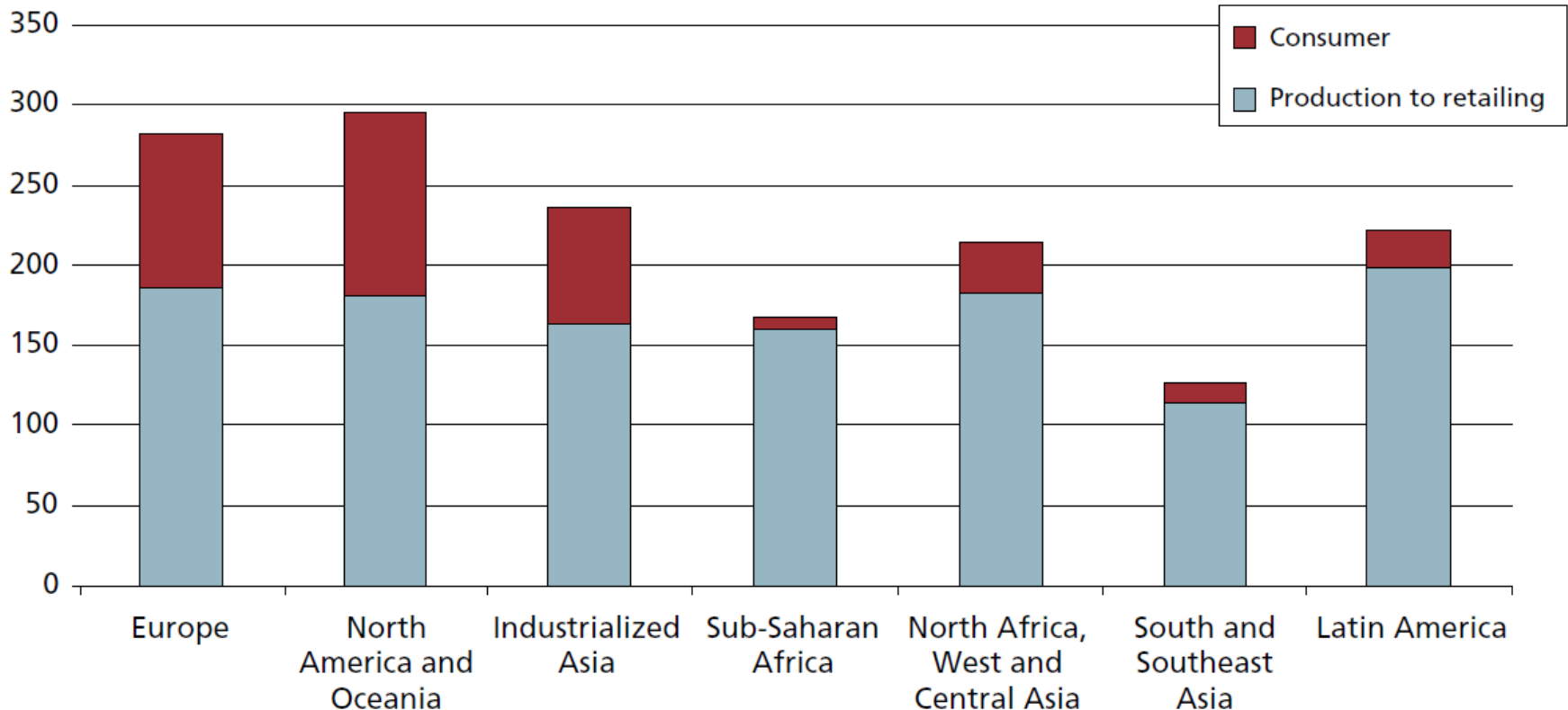
# Consumer food waste

## - quantities

Consumer role in food waste issue is especially crucial in developed countries!



Per capita food losses and waste (kg/year)



# Consumers role in the food waste issue is also especially crucial

- Not only do consumers/households produce the largest share of food waste due to their own household or retail choices
- BUT
- Consumers actual or anticipated food perceptions and food purchase behaviours influence stakeholder decision making along the whole supply chain

(Stuart, 2009)



In the UK, up to 30% of vegetable crops are not harvested because their physical appearance fails to meet the exacting demands of consumers.



30% of food never even reaches the market because it doesn't look right

# Consumer food waste – trends in quantities

Total estimated food waste has been steadily diminishing in recent years but potential food waste generated (per capita) by households appears to have been growing

**Table 4: Variation in food waste, EU-27, 2004-2010**

Year	Household food waste, kg/capita	Total food waste, kg/capita	Total, million tonnes
2010	52	184	92.2
2008	48	195	96.9
2006	43	235	116.2
2004	33	240	117.5

Source: [Technology options for feeding 10 billion people](#), STOA 2013.

# Consumer food waste – trends in quantities

But evidence that with specific waste reduction initiatives, downwards development is possible!

- 21% decrease in FW in the U.K. between 2007 and 2012 (WRAP, 2012)







Main causes at a consumer level  
- spurred by three global trends



# (1) urbanisation



## (2) Changes in the composition of diets





### (3) Increasing globalisation of commerce and the rapid diffusion of large-scale mass distribution





# Other causes at a consumer level: characteristics associated with modern consumer culture

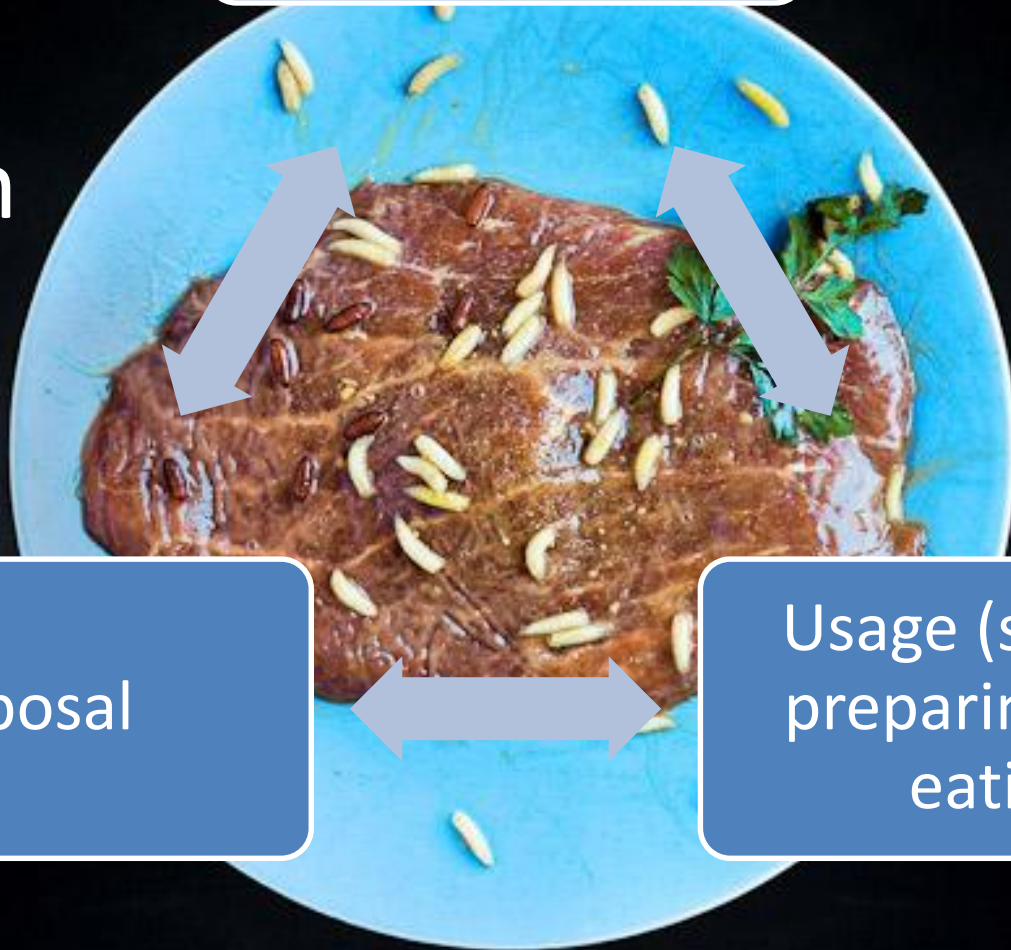
- Culture of consumerism and abundance
- Low price of food
- Purchase of excessive quantities induced by sales promotions
- Preparation of over-generous portions
- Little priority given to FW reduction behaviours
- Increasing anxiety about food safety

Wastage  
occurs at all  
stages of the  
consumer  
consumption  
cycle

Food provisioning

Disposal

Usage (storing,  
preparing) and  
eating



# Profile of individuals who discard large amounts of food are reported to:



- have **limited kitchen skills**
- be immune to the **financial cost**, and
- have high **quality standards** (which may include acute sensitivity to food safety)

# Who is wasting food is limited to broad profiles

Those who tend to discard a lot of food reported to be combinations of:

- 18-24 year olds
- or families with young children
- or earning more than \$100 000 a year



Research has identified groups of individuals based on their knowledge and behaviour. Segments labelled as:

- the *guilty*
- those who *don't care*
- those who are *in-denial*



# Trends in reduction initiatives



still life series of rotting food by klaus pichler 'One Third'

# consumers



still life series of rotting food by klaus pichler 'One Third'

The portion planner removes the guesswork by suggesting how much to cook, depending on who's coming for dinner, and ways to measure it.

## EVERYDAY PERFECT PORTIONS

## PARTY FOOD PORTIONS

01 WHAT FOOD WOULD YOU LIKE TO MEASURE?

02 HOW MANY ARE YOU COOKING FOR?

03 GET YOUR PORTION DETAILS

For **4 adults** and **2 children** you need the following quantities:

## Fish

*Approximately 760g*

Best to use your scales



Work out more Everyday Perfect Portions

## Swedish Website Encourages Blind Dates to Cook Meals Made From Leftover Food

by Timon Singh, 11/30/11

filed under: Recycled Materials

Like 42



Food waste is a global problem, but in Sweden it is particularly prevalent – it is estimated that one fifth of all food is thrown away. This sparked an idea for the farmers' cooperative **Lantmannen**, which has launched a dating website for singles interested in meeting up to create and share dishes made up from leftovers for the greenest possible first date.





# Consumer demand for products/ingredients derived from the waste stream



FOOD INDUSTRY  
2015  
WINNER  
INNOVATION AWARD

GLOBAL BOTTLED WATER AWARDS  
FINALIST  
\*\*\*\*\*  
WORLD AUSTRALIAN CHAMPION

AquaBotanical

100% from fruit & vegetables

Not all water is the same. AquaBotanical is made from produce, straight off the land. You can taste the difference. AquaBotanical is a full bodied water with a silky finish that complements fine food and wine.

OUR STORY



**CoffeeFlour™ baked goods now served at Sprouts Farmers Markets nationwide**



**CoffeeFlour™ ingredient now available online**

# WASTE FREE KITCHEN HANDBOOK

A guide to eating well and saving  
money by wasting less food

DANA GUNDERS











# Retailers



still life series of rotting food by klaus pichler 'One Third'

# Streamlining the supply chain and reducing amount of FW using tools :

- high tech (big data analytics)
- low tech (dumping out a rubbish bin on a tarp and inventorying it)



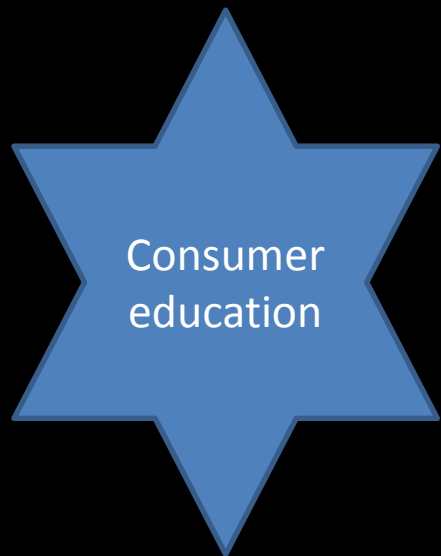
still life series of rotting food by klaus  
pichler 'One Third'





Video: Sainsbury's Food Rescue





Browse through  
food categories





European  
Commission

# KNOW YOUR DATES!

## "USE BY"

informs you about

### FOOD SAFETY

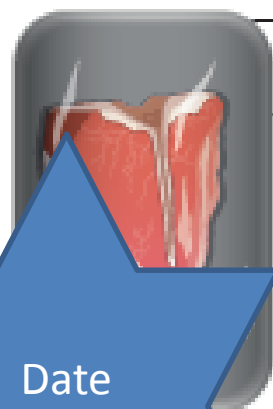


## "BEST BEFORE"

informs you about

### FOOD QUALITY

USE BY: 4 Oct 2016



**Mind the date!**

Food can be **eaten up UP UNTIL**  
**THE END of this date** but not after,  
even if it looks and smells fine

BEST BEFORE: 4 Oct 2016



**Judge for yourself!**

Food can be **eaten AFTER this date**  
but it may no longer be at  
its best quality



Date  
labelling



Reduce waste  
upstream:  
making use of  
their negotiation  
power





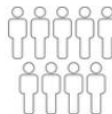


Use PareUp, the simple way to sell your unsold food



### Make additional revenue

Find new buyers for your surplus inventory, instantly. Build a better bottom line and cut disposal costs.



### Reach new customers

Instead of letting perfectly good food go to waste, list it and get it in the hands of people who will put it to good use.



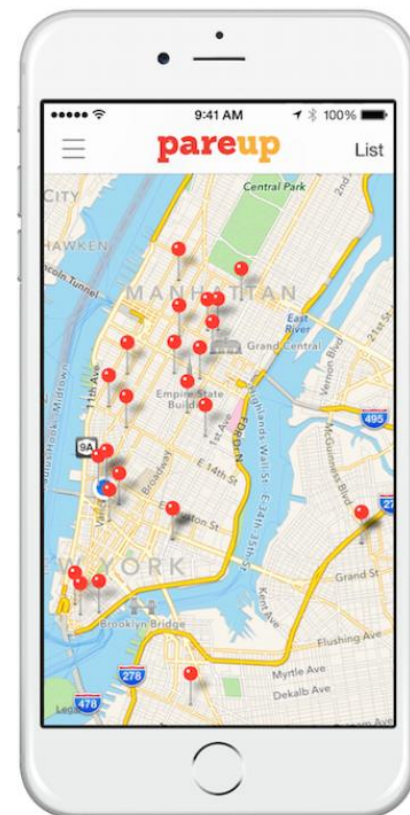
### Reduce food waste

Empower your staff and take food waste management into your own hands.



### Create a positive impact

Not only will your community thank you for being proactive about food waste, but so will the earth. Food in landfills is the third leading cause of greenhouse gas emissions.

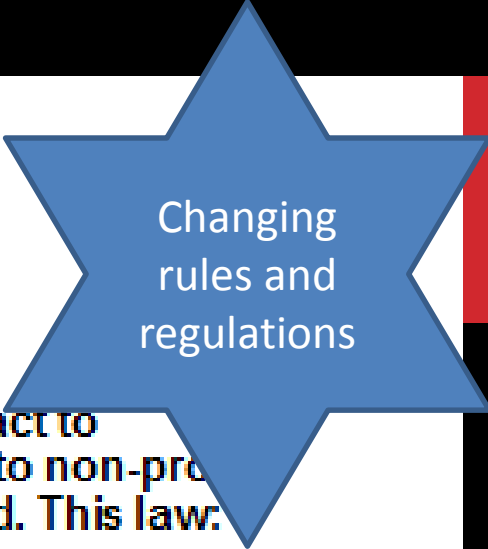


Reduce waste downstream:  
Donating to food recovery

<http://www.pareup.com/app>

Work with us to get a better bottom line.

## **THE FEDERAL BILL EMERSON GOOD SAMARITAN FOOD DONATION ACT**



Changing  
rules and  
regulations

On October 1, 1996, President Clinton signed this act to encourage donation of food and grocery products to non-profit organizations for distribution to individuals in need. This law:

- \* Protects you from liability when you donate to a non-profit organization;
- \* Protects you from civil and criminal liability should the product donated in good faith later cause harm to the recipient;
- \* Standardizes donor liability exposure. You or your legal counsel do not need to investigate liability laws in 50 states; and
- \* Sets a floor of "gross negligence" or intentional misconduct for persons who donate grocery products. According to the new law, gross negligence is defined as "voluntary and conscious conduct by a person with knowledge (at the time of conduct) that the conduct is likely to be harmful to the health or well-being of another person."

**FRANCE HAS MADE IT ILLEGAL FOR SUPERMARKETS TO DESTROY EDIBLE FOOD IN EFFORT TO CUT WASTE.**

**UNDER THE NEW LAWS, CHAINS WILL BE FORCED TO DONATE DISCARDED FOOD TO CHARITY OR ALLOW IT TO BE TURNED INTO ANIMAL FEED, COMPOST OR ENERGY.**

Changing  
rules and  
regulations



EAT  
FIVE  
A DAY

# WEIRD FRUITS & VEGETABLES

Intermarché's  
Inglorious  
fruits and  
vegetables:  
a glorious fight  
against  
food waste

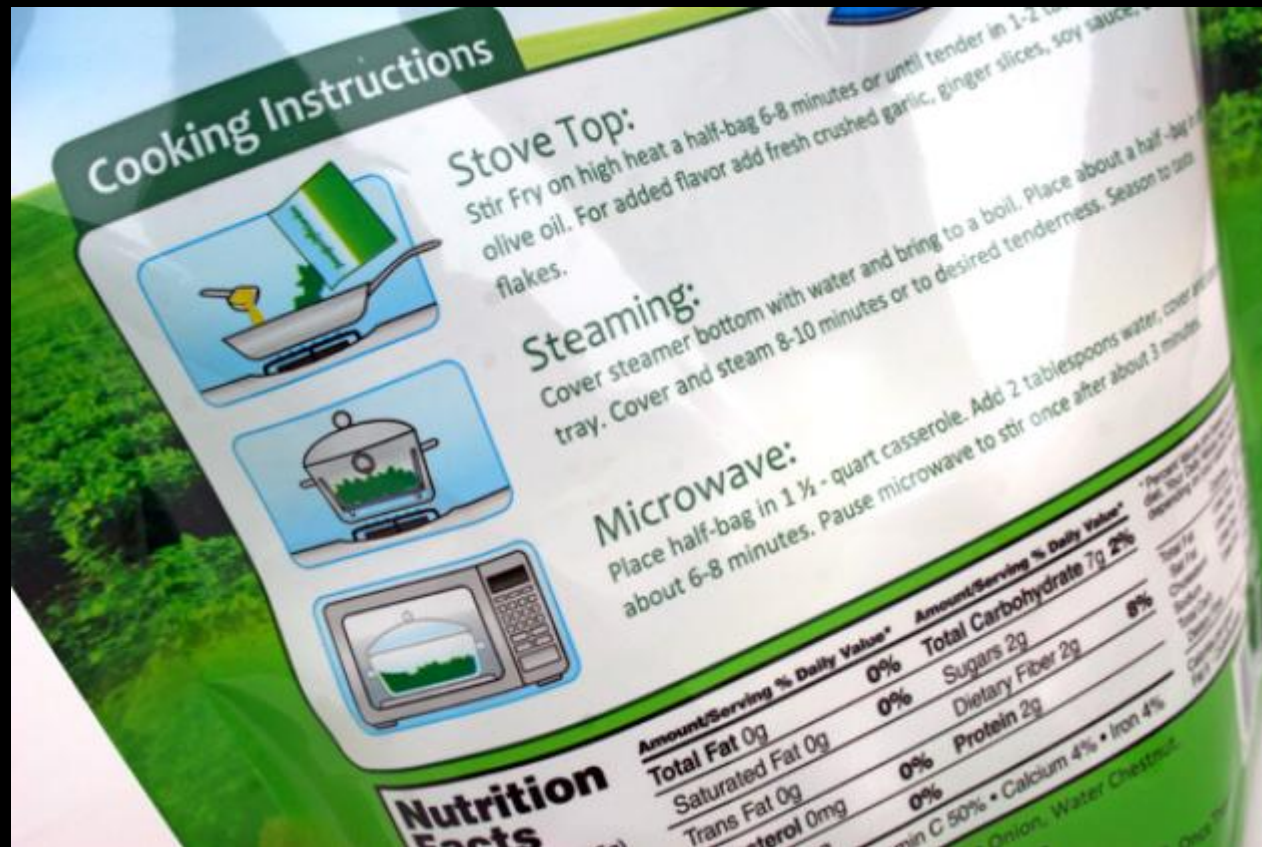


different pricing  
strategies for  
"suboptimal"  
foods

INGLORIOUS  
fruits & vegetables

by Intermarché





Cooking  
instructions



Stock 'tools'  
that will help  
consumers  
reduce food  
waste in-home

# Tesco - buy one get one free later



Not  
encouraging  
over purchasing  
and subsequent  
wastage

"As one small, new step we will adapt our 'buy one get one free' offers in perishable foods to give our customers a new opportunity – 'buy one get one free – later', so customers will be able to get that other salad or vegetable or yogurt when they want it and when it will be used, not all together when it may – in the end – go to waste."



88

% OF PEOPLE THINK  
THAT PACKAGING  
IS A BIGGER OR  
EQUAL PROBLEM  
TO FOOD WASTE

BUT COMPARE THE CO<sub>2</sub> EMISSIONS OF THE FOOD WE BUY AND THE PACKAGING IT COMES IN (IN MILLION TONNES)



166 FOOD



10.8 PACKAGING

61

% OF PEOPLE THINK  
FRUIT AND VEG  
GOES OFF QUICKER  
IN ITS PACKAGING

HOW MUCH LONGER DOES PACKAGING MAKE FOOD LAST?



Cucumbers



Salads



Sliced meats



Bread and rolls

■ STORED IN ORIGINAL PACKAGING ■ STORED NAKED

Inform about  
packaging

All data is from the UK. For more tips on the best way to store your food go to [lovefoodhatewaste.com](http://lovefoodhatewaste.com)

LOVE  
FOOD  
hate waste

# Hospitality



**DINING SERVICES**

## We're going trayless... and saving the planet

- Conserve water**  
Each tray needs 1/5 to 1/2 gallon of heated water to clean.
- Save energy**  
Not washing trays, reduces dependence on nonrenewable fossil fuels.
- Reduce the use of cleaning chemicals**  
Cleaning agents can pollute the water supply.
- Decrease food waste**  
Removing trays reduces food waste by 25-30 percent per person.

*Reduce UD's carbon footprint (and yours!)*

**Sustainable UNIVERSITY of DELAWARE**

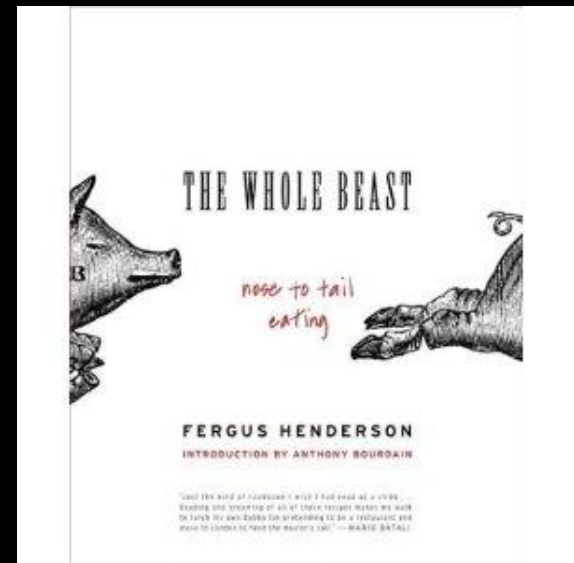


still life series of rotting food by klaus pichler 'One Third'



# Waste-based cooking — increasing numbers of chefs and consumers cooking up something delicious out of unused or “un-coveted” food

*Dan Barber opened Wasted, merging the worlds of wasted food and fine dining. This reframed the inherent potential in wasted food*






# Opportunities for partnership – **incentivising retail**


- Find ways to encourage retailers to report on aggregate food waste transparently and more comprehensively
- Help retailers find ways to create a business case revolving around food waste resulting in benefits for their company (e.g. expanding their assortment or sales or improved reputation)
- Suggesting policy that will facilitate/incentivise food donation

# Opportunities for partnership - **Increased public-sector involvement**

Assist nations, cities and states to offer  
more programmes and technical  
assistance to help with education

# Opportunities for partnership - supporting independent organisations that intersects all areas of food waste

[Media Centre](#) [Events](#) [Jobs](#) [Tenders](#) [Funding](#) [Blog](#) [Help](#)

[Home](#) [About +](#) [Membership +](#) [Sector Groups +](#) [News & Events +](#) [Projects](#) [Resource Library](#)

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## Food waste reduction


Our extensive knowledge makes us the go-to organisation for food waste prevention in the UK. This expertise is now being recognised internationally. We're working with the food supply chain, are part of the United Nations Think.Eat.5 campaign and are bringing together like-minded organisations to create a global network focussed on making grocery products more sustainable.

[Start exploring](#)


## National Food Waste Prevention Project

Home > Sector Groups > Behaviour Change > National Food Waste Prevention Project

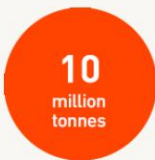
The National Food Waste Prevention Project is an initiative of the WasteMINZ Behaviour Change Sector Group. A number of councils around New Zealand had indicated interest in running a 'Love Food Hate Waste' (LFHW) style campaign to reduce household food waste in New Zealand. Research overseas has shown 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.



## Exploring what's possible



20%



10 million tonnes

WRAP's work is underpinned by evidence-based research. Our unique market and behavioural insights help us prioritise action to tackle the significant water and waste impacts of the UK food and drink supply chain.

We turn this research into practical support for local authorities and consumers - creating a more sustainable food system.

# A NEW ZEALAND EXAMPLE





NATIONALLY  
**WE WASTE**  
**\$872**  
**MILLION A**  
**YEAR ON**  
**FOOD THAT**  
WE BUY  
AND THROW  
AWAY  
UNEATEN.

**REALLY?**  
**YES!**

WE CHATTED TO  
**1354**  
**PEOPLE**



PEERED INTO  
**1402**



**RUBBISH BINS**

AND FOUND OUT THAT

AS A NATION WE THROW AWAY

**122,547**

TONNES OF FOOD PER YEAR

THIS WOULD FEED **262,917**  
PEOPLE FOR A YEAR

that's

DOUBLE THE POPULATION OF  
**DUNEDIN**



\$872 MILLION  
WOULD  
PROVIDE ALL  
SCHOOL-AGED  
CHILDREN  
LUNCHES FOR

**3**  
YEARS

THE AVERAGE FAMILY WASTES

**\$563**

WORTH OF FOOD PER YEAR  
THAT'S 3 SHOPPING  
TROLLEYS FULL



WHAT'S THE  
**IMPACT?**

**325,975**

TONNES OF  
CO<sup>2</sup> EMISSIONS

THAT'S LIKE TAKING

**118,107**

CARS OFF  
THE ROAD  
FOR ONE  
YEAR



OR

PLANTING  
**130,390**



**LOVE**  
**FOOD**  
hate waste

[www.facebook.com/lovefoodhatewasteNZ](http://www.facebook.com/lovefoodhatewasteNZ)

New Zealand's  
**\$872,000,000**  
Food Scandal

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

[Sign Up Now](#)



[FOOD WASTE](#)

[REDUCE YOUR WASTE](#)

[RECIPES](#)

[TIPS](#)

[EVENTS](#)

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# 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](#)

## TOP 10 FOODS NEW ZEALANDERS THROW AWAY



bread



leftovers



potatoes



apples



chicken



bananas



lettuce



oranges



pumpkins



carrots

THE AVERAGE FAMILY THROWS AWAY

**\$563**

WORTH OF UNEATEN FOOD PER YEAR!

— that's —



THREE SHOPPING TROLLEYS' WORTH OF FOOD THAT  
GOES STRAIGHT IN THE BIN!

**\$872,000,000**

for



each family  
is tossing out

**79**

KILOS  
of uneaten food  
per year

IT'S LIKE  
BINNING

**55**



SIZE 14  
CHICKENS

OR

**888**

APPLES



## SIX SIMPLE THINGS

YOU CAN DO TO REDUCE YOUR FOOD WASTE

**PLAN** YOUR MEALS AND **BUY** WHAT YOU NEED


**Store your bread in  
the freezer**



**KEEP POTATOES IN THE DARK**

Take your leftovers for lunch ✕

 **Stew fruit**  **or**  
**make smoothies** 

Add leftover chicken  
 to a PIZZA, in a  
PIE or in a PANINI

**LOVE  
FOOD**  
hate waste





Bread is NZ's  
No. 1 wasted  
food -

20 million loaves per year

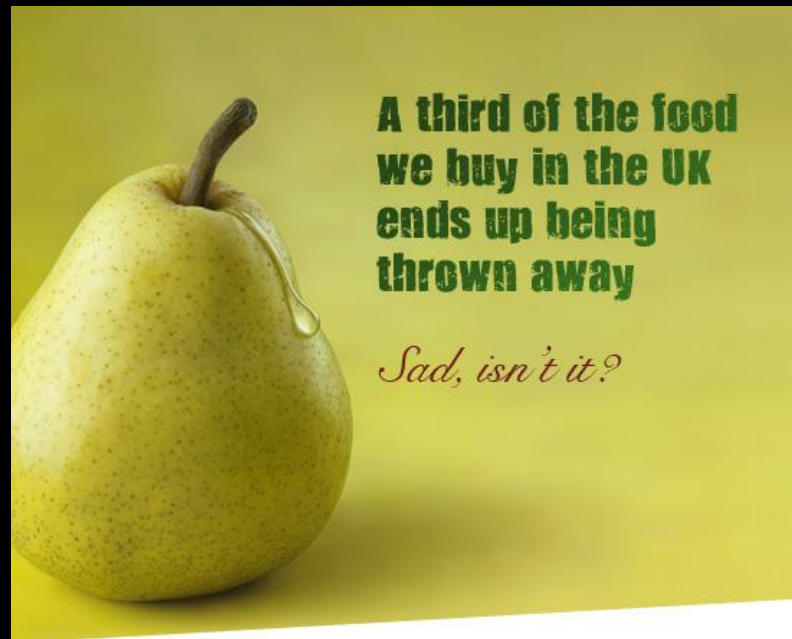
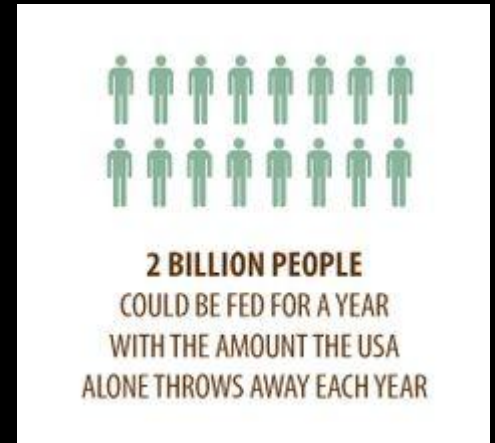
**Love your bread**

Keep your bread in a cool,  
dark and dry place or  
freeze it.

For ways to reduce your food waste visit Facebook  
[www.facebook.com/lovefoodhatewastenz](https://www.facebook.com/lovefoodhatewastenz)

**LOVE  
FOOD**  
hate waste

# Consumer campaigns to show the emotional impact of wasted food will help engage the public



# Other Opportunities for partnership

## (2) work with the media

Mainstream media interested in covering food waste is more than ever before





TVNZ ONE News Weather TV Shows Channels T

one news

New Zealand World Sport Business Entertainment We



<http://www.3news.co.nz/tvshows/paulhenry/interviews/how-much-food-do-we-throw-away-every-week#axzz3bCExJX00>

Fair Go: <http://tvnz.co.nz/fair-go/food-scraps-video-6479294>

# Opportunities for partnership – Involve researchers

## University of Otago *Food Waste Innovation* Research Group

BEHAVIOURS	INNOVATION	METRICS
<ul style="list-style-type: none"><li>○ Household food waste decision making</li><li>○ Cultural consumption of waste</li><li>○ Drivers for behaviour change</li><li>○ Food waste and corporate social responsibility</li><li>○ Food waste policy</li><li>○ Non-consumption and household waste</li><li>○ How people define waste</li></ul>	<ul style="list-style-type: none"><li>○ Extraction, optimization and evaluation of bioactive compounds from Food waste</li><li>○ Utilization of food waste for energy</li><li>○ Chemistry of waste utilization</li><li>○ Food packaging and related issues</li><li>○ New product and service opportunities relating to waste</li><li>○ Developing integrated value chains</li><li>○ Enhancing the safety, quality and shelf-life of food and beverages</li><li>○ Determining the factors (chemical, enzymatic, biological) responsible for the end of shelf-life</li></ul>	<ul style="list-style-type: none"><li>○ Waste metrology</li><li>○ Politics of measurement</li><li>○ International food audit standards</li><li>○ Life Cycle Assessment (LCA) for food preservation technology and farming practice</li></ul>



[food.waste@otago.ac.nz](mailto:food.waste@otago.ac.nz)





## Developing NZ/China collaborations in food safety and security science

Identification of opportunities for  
funding, innovation,  
commercialization and development  
of a collaborative research  
programme in food loss and waste

28<sup>th</sup> October – 30<sup>th</sup> October, 2015

Beijing, China

MBIE CHINA-NEW ZEALAND ROADMAP FOR SCIENCE AND  
TECHNOLOGY CO-OPERATION



still life series of rotting food by klaus pichler 'One Third'



# 2016/17 Postharvest food loss and waste fellowship

- *Willingness to pay for high value sustainable (no waste) products: Investigating Chinese consumer demand as a pull motivator to increase efficiencies in NZ's food and beverage supply chains with regards to loss and waste*



# Questions, thoughts, comments...



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