

Food Insecurity and Waste

Volume | 444



Edited by Justin Healey

ISSUES
IN SOCIETY

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 **THE SPINNEY PRESS**

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First published by



PO Box 438 Thirroul NSW 2515 Australia
www.spinneypress.com.au

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Title: Food Insecurity and Waste / edited by Justin Healey.

Series: Issues in Society, Volume 444.

ISBN 978-1-925339-88-8 (paperback)

ISBN 978-1-925339-89-5 (PDF)



A catalogue record for this
book is available from the
National Library of Australia

Cover images courtesy of iStock.

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INTRODUCTION

Food Insecurity and Waste is Volume 444 in the 'Issues in Society' series of educational resource books. The aim of this series is to offer current, diverse information about important issues in our world, from an Australian perspective.

KEY ISSUES IN THIS TOPIC

Australia is a prosperous country, yet there remains a sizeable portion of the population who lack a regular supply of nutritious and affordable food, either going hungry or relying on assistance from charities and food banks. In the past year alone, more than four million Australians have been in a situation where they have run out of food and have been unable to buy more. Conversely, we also waste a lot of food right through the supply chain; the cost of food waste to the national economy is a staggering \$20 billion each year.

What are the many ways in which we could reduce our individual food waste? How can Australia address the needs of people who are food insecure, and by the same token minimise food waste, to encourage an equitable and sustainable approach to food? One thing is clear: we could do more to live by the old adages, 'you are what you eat' and 'waste not, want not'.

SOURCES OF INFORMATION

Titles in the 'Issues in Society' series are individual resource books which provide an overview on a specific subject comprised of facts and opinions.

The information in this resource book is not from any single author, publication or organisation. The unique value of the 'Issues in Society' series lies in its diversity of content and perspectives.

The content comes from a wide variety of sources and includes:

- Newspaper reports and opinion pieces
- Website fact sheets
- Magazine and journal articles
- Statistics and surveys
- Government reports
- Literature from special interest groups

CRITICAL EVALUATION

As the information reproduced in this book is from a number of different sources, readers should always be aware of the origin of the text and whether or not the source is likely to be expressing a particular bias or agenda.

It is hoped that, as you read about the many aspects of the issues explored in this book, you will critically evaluate the information presented. In some cases, it is important that you decide whether you are being presented with facts or opinions. Does the writer give a biased or an unbiased report? If an opinion is being expressed, do you agree with the writer?

EXPLORING ISSUES

The 'Exploring issues' section at the back of this book features a range of ready-to-use worksheets relating to the articles and issues raised in this book. The activities and exercises in these worksheets are suitable for use by students at middle secondary school level and beyond.

FURTHER RESEARCH

This title offers a useful starting point for those who need convenient access to information about the issues involved. However, it is only a starting point. The 'Web links' section at the back of this book contains a list of useful websites which you can access for more reading on the topic.

FOOD DEMAND IN AUSTRALIA: TRENDS AND ISSUES

This overview of the latest report from **ABARES** examines recent trends and issues relating to household food expenditure. By Lindsay Hogan

TRENDS IN AUSTRALIA'S FOOD MARKET

Trends in Australia's food market between 1988-89 and 2016-17

Indicative food production increased from \$65 billion to \$117 billion, an average increase of 2.1 per cent a year; household food consumption expenditure increased from \$49 billion to \$92 billion, an average increase of 2.3 per cent a year; and net food exports increased from \$16 billion to \$25 billion, an average increase of 1.5 per cent a year (in 2015-16 prices).

Food exports increased from \$20 billion to \$39 billion (2.4 per cent a year), or from 30 to 33 per cent of indicative food production. Food imports increased from \$4 billion to \$14 billion (4.8 per cent a year), or from 8 to 15 per cent of food consumption.

Key drivers of food demand growth in Australia

Estimated growth in the volume of household food consumption has been relatively consistent in recent decades, averaging 2.4 per cent a year over the period 1988-89 to 2016-17, but key drivers have changed.

- Between 1988-89 and 2009-10, key drivers were population growth (55 per cent of food demand growth), income growth (42 per cent), and changes in tastes and preferences (9 per cent), partly offset by higher real food prices (-7 per cent).
- Between 2009-10 and 2016-17, key drivers were population growth (64 per cent of food demand growth), changes in tastes and preferences (20 per cent), lower real food prices (10 per cent) and income growth (6 per cent).
- Growth estimates for the volume of food consumption per person (1.0 per cent a year between 1988-89 and 2016-17) should be interpreted with caution and may indicate there has been some switching toward higher-priced food types.

Changing household food expenditure patterns

Based on ABS household expenditure survey (HES) data, the trend away from home cooking toward meals out and fast foods has continued in recent years.

The share of meals out and fast foods in total food

expenditure increased from 25 per cent in 1988-89 to 31 per cent in 2009-10 and 34 per cent in 2015-16, the latest year available. That is, on average, consumers have switched further from food products toward higher-priced food services – between 1988-89 and 2015-16, real consumer prices increased overall by 5 per cent for food and 17 per cent for meals out and takeaway food.

The trend away from home cooking toward meals out and fast foods has continued in recent years.

Economic opportunities for food producers

Future food demand growth will be underpinned by population growth. A key uncertainty in the outlook is the extent to which the broadly-based trend toward spending more on meals out and fast foods will continue.

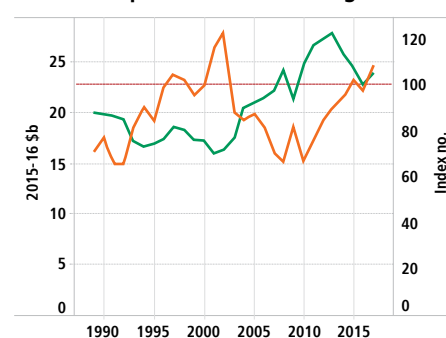
- Under illustrative medium-case projections, Australia's household food consumption expenditure increases from \$92 billion in 2016-17 to \$165 billion in 2049-50, an average increase of 1.8 per cent a year; this comprises growth rates of 1.3 per cent for the population (ABS Series B population projections), and 0.5 per cent for household food expenditure per person (average of recent and longer-term trend growth).
- There are significant market segments across the food price-quality spectrum. Price is the key driver of food demand in several population sub-groups, particularly lower income and net worth households, while there is a revealed willingness to pay a price premium for quality attributes in higher income and net worth households. Reliable food quality is likely to increase the willingness of people to pay a price premium (all else constant).

ISSUES

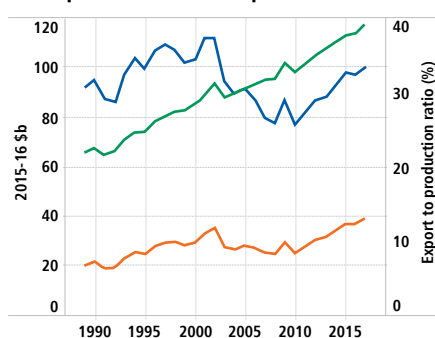
Food security in government payment households

Based on HES data, in households where government

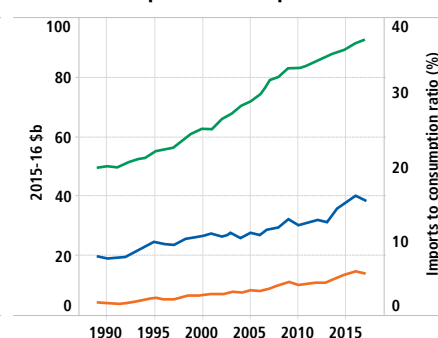
Food net exports and the exchange rate



Food production and exports



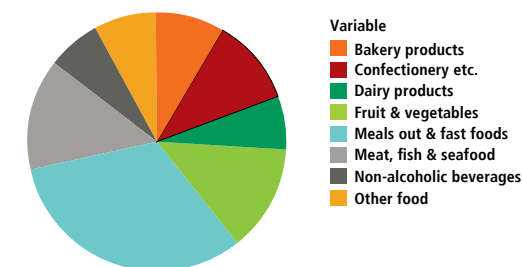
Food consumption and imports



INCOME QUINTILES

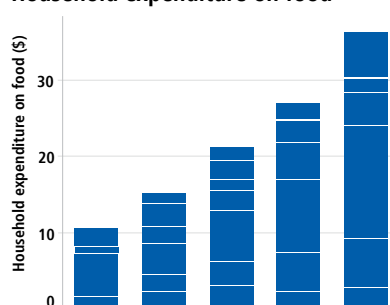
Expenditure on food by type

Total food expenditure



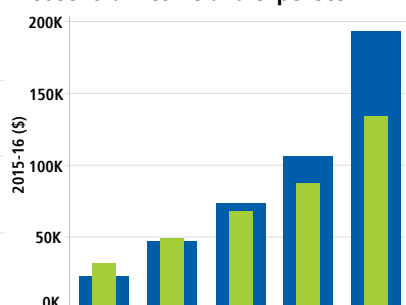
No. persons	1	2
million	5.1	7.8

Household expenditure on food



No. persons	3
million	9.3

Household income and expenses



No. persons	4	5
million	10.8	11.8

payments are the main income source, on average, the share of household income spent on food has declined significantly, from 29 per cent in 1988-89 to 21 per cent in 2009-10 and 19 per cent in 2015-16.

The main difference in food expenditure patterns from the average Australian household is spending on meals out and fast foods. For example, in 2015-16, expenditure per person in government payment households, as a share of the Australian average, was 74 per cent for total food, 90 per cent for food excluding meals out and fast foods, and 42 per cent for meals out and fast foods. Some households may still require complementary support, for example, from non-government organisations.

Nutrition security

In recent years, globally, there has been a significant focus on the role of nutrition in food security and health outcomes. Modern food systems are associated with lower levels of undernutrition – including deficiencies in macronutrients (proteins, carbohydrate and fats) and micronutrients (vitamins and minerals) – and higher levels of overweight and obesity, and diet-related non-communicable diseases.

The Australian Government Department of Health has a website with guidelines on healthy lifestyle choices for various population groups, including information on nutrition and physical activity.

- There may be a useful role for government to provide more nuanced and accessible information about diet and lifestyle attributes than is currently available to encourage people to make incremental

choices that lower expected health risks, taking into account their individual circumstances (including tastes and preferences).

- Given the importance of meals out and fast foods in household food consumption, there may be a useful role for government to consider cost-effective options to provide consumers with information about nutrition content and food source in the food services industry (for example, through a healthy star rating system and origin labelling).

Food waste and losses

Global food losses and waste account for around one-third of food produced for human consumption; in North America and Oceania (including Australia), around 13 per cent of initial food production is wasted at the consumption stage.

Australia's National Food Waste Strategy, launched in November 2017, aims to halve food waste by 2030; the Strategy presents a framework to support policy options to reduce food waste. An example of current CSIRO research that aims to reduce food waste is the processing of pulp that remains after juicing.

Reliable food product and service labelling will allow consumers to make food choices that, for a given price, are more closely aligned with their tastes and preferences, reducing food waste (all else constant).

© Commonwealth of Australia.

Hogan, L. *Food demand in Australia: trends and issues 2018* (Last reviewed 8 April 2019). Retrieved from www.agriculture.gov.au on 8 April 2019.

DO WE REALLY HAVE FOOD INSECURITY IN AUSTRALIA?

People are often surprised to learn that in 2018, many Australians are going without food or are unable to access healthy food, according to the **Right to Food Coalition**

Emergency food relief services are reporting unprecedented demand for assistance, from a broader range of people than ever before.

SOME INCONVENIENT FACTS

- From 2014 to 2017, the number of people assisted by Foodbank grew from 500,000 to 625,000 people each month.
- Anglicare (Sydney/Illawarra) saw a 73% increase in emergency relief received by families from 2007-2014.

Over-stretched household budgets mean that families have to weigh competing demands to pay bills, rent and medical expenses or to buy adequate food, forcing many to families to choose cheaper and less healthy foods, or to go without meals.

Going without food or eating poor food can have a negative and lasting impact on family relations, on school attendance, on energy levels and concentration, on ability to participate in workplace or community – in short, wide-reaching and devastating consequences which can be largely hidden from view.

WHO'S AT RISK?

Those on low income

A 2004 study in 3 low-income suburbs in SW Sydney found 21% food insecurity, with 30% of households with children and over 45% of single-parent families being food insecure.

Newly arrived refugees

A 2002 Perth study found over 70% food insecurity among Perth refugees; a SW Sydney study found 85% of Dinka speakers were food insecure.

People in supported accommodation or homeless

A 2010 study of young people in Sydney found food insecurity was widespread and often severe (up to 40%).

Aboriginal communities

Aboriginal people are at higher risk of food insecurity than non-Indigenous Australians and are twice as likely

Over-stretched household budgets mean that families have to weigh competing demands to pay bills, rent and medical expenses or to buy adequate food, forcing many to families to choose cheaper and less healthy foods, or to go without meals.



to report no usual daily intake of fruit and vegetables.

In 2004-2005 24% of Aboriginal Australians aged 15 years and over reported they ran out of food in the last 12 months, compared to 5% of non-Aboriginal.

WHAT CAN WE DO?

Australia's Right to Food Coalition advocates that access to nutritious food be viewed as an essential human right, and that decision-makers need to prioritise action to ensure that those who most need access to healthy food, are able to get it.

FOOD SECURITY EXISTS WHEN

All people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. (FAO, 2005)

FOOD INSECURITY CAN MEAN

- Running out of food and not being able to buy more.
- Fear of running out of food, causing anxiety and stress.
- Insufficient, low quality or unreliable food intake.
- Hunger when extreme.

Food insecurity is deeply entrenched in poverty and therefore has complex causes. Effective solutions must be multi-pronged and will take time and a coordinated approach.

So how do we start this multi-pronged approach and begin to really tackle this problem?

1. Firstly, we need to ensure welfare benefits and wages are at a level sufficient to purchase healthy foods and ensure an adequate standard of living.
2. Subsidies for fresh and nutritious foods in rural and remote areas, where food prices are much higher, are necessary.
3. We need regular monitoring of food insecurity – current data is underestimating the magnitude of this problem and its economic burden on our government.

There are several well-established programs which are effectively rescuing food that would otherwise go to waste and supporting hundreds of community-based food access programs. They are providing an essential service for thousands of families however, they are not

Going without food or eating poor food can have a negative and lasting impact on family relations, on school attendance, on energy levels and concentration, on ability to participate in workplace or community ...

intended (nor are they able) to address the root cause of food insecurity. Instead, this response is simply putting a band aid onto the sore.

Australia is lagging behind more progressive countries on this issue. Others are seeing food insecurity as a symptom of food and social system failure and are discussing all aspects of food, food systems, food production and food access and cost of living across the whole community.

We believe it's time for Australia to step up to the mark and honour the human right to adequate food for all Australians.

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Retrieved from <http://righttofood.org.au> on 9 October 2018.



More than four million Aussies have experienced food insecurity in the last year

The latest report by Australia's largest food relief organisation, **Foodbank**, reveals that an alarming 4 million Australians have experienced food insecurity in the past 12 months. Following is the executive summary from the report

All around Australia there are people who don't know where their next meal is coming from. In fact, in the last 12 months, more than four million Australians (18% of the population) have been in a situation where they have run out of food and have been unable to buy more. Of these, more than three in four (76%) are categorised as having very low food security.

The charities and community groups that work with Foodbank provide food relief to over 710,000 Australians every month, 26% of whom are under the age of 19. Despite this, these organisations are struggling to keep up with demand as 49% of charities report the number of people seeking food relief continues to increase year on year. In the last 12 months, the proportion of food insecure Australians seeking food relief has increased from 46% to 51%, the equivalent of 384,000 people. With their current resources, charities are having to turn away 7% of the individuals seeking food relief every month. Only 36% of charities feel they are meeting the full needs of the people they do assist.

Australians living in regional or remote areas are more likely to experience food insecurity

Australians in regional and remote areas are 33% more likely to experience food insecurity than those living in major and capital cities (22% compared to 17% respectively). This means more than 1.5 million country Australians have experienced food insecurity in the last year.

Living in a regional or remote area often means it is harder to access food. One in six people living in the country (17%) suggest they don't have easy access to food shops compared to one in 10 (10%) in the city. Those experiencing food insecurity in the country are also more likely to feel socially isolated compared to those living in the city. Only a third of Australians in the country (34%) feel they can talk to their friends and family when they cannot afford to buy enough food (compared to 43% of those living in major and capital cities).

Living with food insecurity means food becomes a discretionary item

Three in 10 Australians experiencing food insecurity (30%) attribute living on a low income or pension as the main reason they are unable to afford enough food. Almost three in five Australians living with food insecurity (58%) spend more than 20% of their total household income on food. This is more than double the propor-

Key facts from the report

- More than 4 million Australians have experienced food insecurity in the last 12 months.
- Foodbank provides 710,000 Australians with food assistance every month.
- A low income is the most common reason why Australians are unable to afford food.
- Half of all charities report an increase in the number of people seeking food relief.
- 1.5 million Australians in regional and remote areas have experienced food insecurity in the last 12 months.
- Regional and remote Australians are 33% more likely to experience food insecurity than their city cousins.

tion the average Australian household spends (9.8%).

Despite spending such a large portion of their income on food, many Australians experiencing food insecurity are forced to either cut down on the size of their meals (56%) or skip a meal (54%) at least once a week to make the food last longer. One in four (26%) go an entire day without eating at least once a week.

In the last 12 months, more than four million Australians (18% of the population) have been in a situation where they have run out of food and have been unable to buy more. Of these, more than three in four (76%) are categorised as having very low food security.

Food insecurity is diminishing quality of life

Food insecurity has a significant impact on quality of life with half of those experiencing it feeling tired or lethargic (52%) when they don't have enough to eat. Lack of food can also result in a decline in mental health (44%) and a reduced ability to concentrate (38%). Australians struggling with food insecurity say they feel stressed (57%), depressed (52%) and sad (47%) during times when they are unable to buy enough food.

Food relief can make a positive difference in the lives of Australians

The top three benefits of food relief, according to Australians who have received assistance in the last year, include feeling less hungry (49%), being better able to concentrate (32%) and being able to afford small luxuries (30%) such as toiletries, tea or coffee. These benefits have made a tangible difference in the lives of many Australians, with more than four out of five recipients of food relief (83%) saying these benefits made a difference in their lives for a week or more.

Foodbank Australia (15 October 2018). *Foodbank Hunger Report 2018*, Executive summary, pp. 8-9.

Retrieved from www.foodbank.org.au on 26 February 2019.

FOODBANK HUNGER REPORT: A SNAPSHOT

FOODBANK HUNGER REPORT 2018

A SNAPSHOT

FOOD INSECURITY IN AUSTRALIA



More than **4 MILLION** Australians (18%) have experienced food insecurity in the last 12 months



CHARITIES ARE STRUGGLING TO KEEP UP WITH DEMAND

FOODBANK PROVIDES RELIEF TO OVER
710,000
AUSTRALIANS EVERY MONTH

26% OF WHOM ARE UNDER THE AGE OF 19



46% TO **51%**
2017 2018



INCREASE

in the proportion of food insecure Australians seeking food relief in the last 12 months

THE EQUIVALENT OF 384,000 PEOPLE



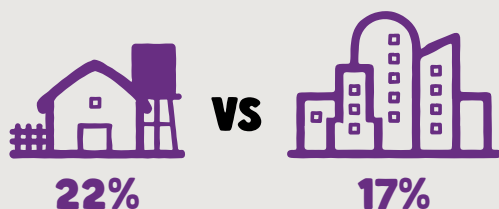
HALF of all charities report an increase in the number of people seeking food relief



Only **36%** of charities are currently meeting the full needs of the people they assist

THE CRISIS IN THE COUNTRY

Australians living in regional and remote areas are **33% MORE LIKELY** to have experienced food insecurity in the last 12 months than those living in cities



MORE THAN 1.5 MILLION

Australians in regional and remote areas have experienced food insecurity in the last 12 months

COPING WITH FOOD INSECURITY CAN BE TOUGHER IN THE COUNTRY

FOOD INSECURE PEOPLE IN...

REGIONAL AND REMOTE AREAS

VS

CAPITAL AND MAJOR CITIES

Feel they cannot talk to friends and family about their situation

66%

57%

Feel they don't have a community they can trust to help in times of need

58%

53%

Feel embarrassed because they are unable to afford food

52%

39%

1. United States Department of Agriculture (USDA) Food Security Survey Module

2. Foodbank, Rumbling Tummies: Child Hunger in Australia, 2018

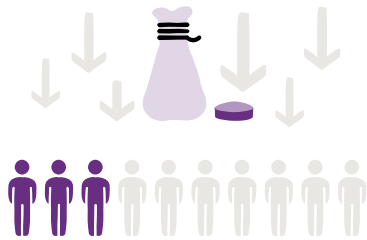
3. World Economic Forum, 2016



LIVING WITH FOOD INSECURITY MEANS FOOD BECOMES A DISCRETIONARY ITEM

THREE IN 10 AUSTRALIANS

experiencing food insecurity (30%) attribute living on a low income or pension as the main reason they are unable to afford enough food



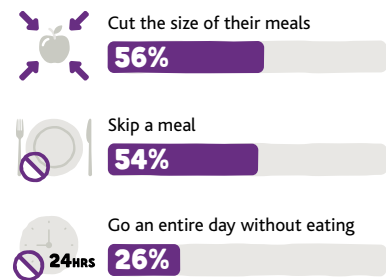
Almost **THREE IN FIVE AUSTRALIANS** living with food insecurity (58%) spend more than 20% of their total household income on food

MORE THAN 20%



This is more than **DOUBLE THE PROPORTION** the average Australian household spends (9.8%)³

Proportion of food insecure Australians who **AT LEAST ONCE A WEEK**



THE PHYSICAL, EMOTIONAL AND SOCIAL EFFECTS OF FOOD INSECURITY

A LACK OF FOOD CAN OFTEN RESULT IN...



52%
Feeling tired or lethargic



44%
A decline in mental health



38%
A loss of confidence

WHEN THEY ARE UNABLE TO AFFORD FOOD FOR THEMSELVES OR OTHER FAMILY MEMBERS, AUSTRALIANS ARE LIKELY TO FEEL...



57%
Stressed



52%
Depressed



47%
Sad



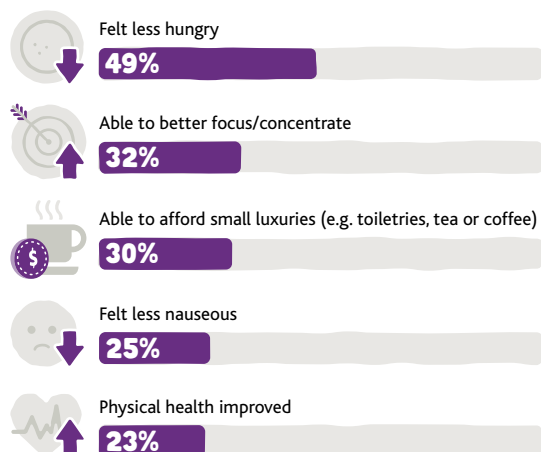
44%
Hopeless



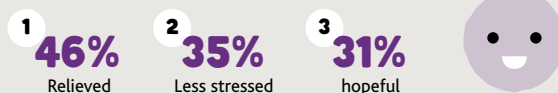
43%
Embarrassed

FOOD RELIEF CAN MAKE A POSITIVE DIFFERENCE TO THE LIVES OF AUSTRALIANS

TOP FIVE BENEFITS OF RECEIVING FOOD RELIEF



MOST COMMON EMOTIONS EXPERIENCED AS A RESULT OF RECEIVING FOOD RELIEF



MORE THAN FOUR OUT OF FIVE RECIPIENTS OF FOOD RELIEF (83%) SAY THE BENEFITS OF FOOD ASSISTANCE MADE A DIFFERENCE IN THEIR LIVES FOR A WEEK OR MORE



FIGHTING HUNGER IN AUSTRALIA
FOODBANK.ORG.AU

FOODBANK IS THE LARGEST HUNGER RELIEF ORGANISATION IN AUSTRALIA, PROVIDING FOOD FOR MORE THAN 2,600 CHARITIES AND COMMUNITY GROUPS AROUND THE COUNTRY THAT ARE WORKING TO FEED THE HUNGRY

METHODOLOGY

Data for this infographic has been sourced from two online surveys:

- Foodbank Charity Partner Survey: Survey of 1,710 charities registered with Foodbank about food relief activities and beneficiaries. In field December 2017 – April 2018.
- Survey of Australians experiencing food insecurity: survey of 767 Australians who experienced food insecurity in the last 12 months. In field July – August 2018.

Research and infographic design by:

mccrindle

mccrindle.com.au

Foodbank Australia. *Foodbank Hunger Report 2018: A snapshot.*
Retrieved from www.foodbank.org.au on 26 February 2019.

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Too many Australians have to choose between heating or eating this winter

If you worry about where your next meal will come from, you are not 'food secure', explain **Rebecca Lindberg** and **Liza Barbour**

You'd expect a dual-parent family on a median income to be able to put enough healthy food on the table. But once the cost of housing, transport and school are covered, too many Australians are having to choose between heating or eating.

We've long known the price of food is a problem for refugees, Indigenous Australians, people who are homeless and other vulnerable groups. But new research reveals almost half of the Australians who are classified as 'food insecure' (48%) are employed either full-time, part-time or casually. And 40% of these homes include children.

Food insecurity is the limited or uncertain ability to access enough safe, nutritious and culturally appropriate food for an active and healthy life. If you rely on emergency food pantries, often can't afford lunch, or worry about where your next meal will come from, you're not 'food secure'.

Food insecurity has devastating mental and phys-

ical effects for individuals and carries a significant economic burden for society more broadly. We can and must do better.

Who is food insecure?

In 2012, the Australian Bureau of Statistics estimated food insecurity affected one million (or 4% of) Australian households. But other estimates are much higher. In 2017, Foodbank Australia reported 3.6 million Australians (15%) were food insecure.

It's difficult to get a current and accurate picture of the problem because Australia doesn't collect national, regular or comprehensive data on food insecurity.

The median income has fallen since 2009, dropping the relative poverty line. Household income is a strong predictor of food stress, suggesting 'average' Australian families are now feeling the pinch at the grocery store.

What's putting pressure on household budgets?

The deregulation of energy supply in Australia has significantly increased prices. People are spending less by adapting their behaviours, such as heating fewer rooms. Low-income households have to allocate 12.4% of their income to utilities compared to 2.9% among wealthy households.

Existing social security payments are not keeping

Almost half of the Australians who are classified as 'food insecure' are employed either full-time, part-time or casually. And 40% of these homes include children.



up with basic living costs, including the cost of buying, transporting and cooking nutritious food. An unaffordable housing market is forcing families to stretch their budget to meet rent or mortgage repayments.

Food costs should, ideally, make up less than 20-25% of a household income. Yet low-income households must spend between 30-48% of their income to access nutritious food. Measures to combat the pressures from the rising cost of living are not working in Australia. Food insecurity is a symptom, and it's on the rise. So what can be done?

How are others responding to food insecurity?

In the United Kingdom, the All-Party Parliamentary Group on Hunger and Food Poverty made 77 recommendations – ranging from reform in social security, to regulating the cost of utilities. Currently, the Scottish government is debating how to enshrine the right to food in law.

In Canada, the United Nations Special Rapporteur on the Right to Food conducted an official visit and inquiry in 2012, triggering a cascade of civic and government attention. Household food insecurity has been monitored and reported nationally, every year since 2005. And recently, a Universal Basic Income was piloted to address entrenched poverty.

In the United States, the House of Representatives just passed a Farm Bill which includes nationwide programs for food stamps and nutrition programs for women and children.

While these solutions aren't perfect, they demonstrate that food insecurity has been on the radar in a way it hasn't been here in Australia.

Home-grown solutions

This complex problem requires both national and local responses:

1. **National leadership.** An updated national food and nutrition strategy will ensure a thriving food system, from paddock to plate. An inquiry, similar to that conducted in the UK, could initiate increased attention, adequate resourcing and comprehensive responses to food insecurity.
2. **Economic action.** Raising the rate of social security to reflect the cost of healthy food. The charitable food sector has rightly been described as a “band-aid on a gaping wound” and remains inadequate to address the rising demand. Income (from employment or social security) that supports a decent standard of living would allow emergency food programs across the country to close their doors.
3. **Better data.** The Australian Household Food and Nutrition Security Scale should be incorporated into future ABS health surveys, alongside comprehensive nutrition monitoring. The 18-year gap between national nutrition surveys is astounding, considering Australia's diet-related challenges and the associated economic burden.

Food insecurity has devastating mental and physical effects for individuals and carries a significant economic burden for society more broadly. We can and must do better.



4. **Community first.** Because of our geographical and cultural diversity, and the disempowerment of people most at risk of food insecurity, community-led food programs are required. We have known for at least the last 20 years that when communities design and own food projects, they are more likely to succeed.

Healthy food is an essential human need that allows us to grow, work and thrive. This needs to be a reality for all Australians.

DISCLOSURE STATEMENT

Rebecca Lindberg works in a voluntary capacity for The Community Grocer and the Right to Food Coalition, and previously worked for SecondBite. Liza Barbour is a co-convenor of Australia's Right to Food Coalition and teaches public health nutrition at Monash University; her previous employment was with SecondBite.

Rebecca Lindberg is Lecturer, Deakin University.

Liza Barbour is Lecturer, Monash University.

THE CONVERSATION

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HIDDEN HUNGER IN AUSTRALIA WORSE THAN FIRST THOUGHT

LATEST FINDINGS RELEASED AT A NATIONAL CONFERENCE HOSTED
BY THE **DIETITIANS ASSOCIATION OF AUSTRALIA**

New research has found that one in three low- and middle-income Australian families struggle with food insecurity, or a lack of access to sufficient food – with diet quality taking a backseat to simply putting food on the table. Within those families affected by food insecurity, six per cent of children are going hungry at least once a fortnight.

These alarming new figures, from Queensland University of Technology food insecurity researcher Professor Danielle Gallegos, are higher than previous reports from the *Australian Health Survey* (2011-2013), which found only four per cent of households to be food insecure¹.

Professor Gallegos, an Accredited Practising Dietitian, will present her findings at the Dietitians Association of Australia National Conference in Sydney this week.

Professor Gallegos surveyed 1,010 households with children using a newly-developed Australian measurement tool, which assesses four pillars of food insecurity:

- **Availability:** Is food, including nutritious food, available to buy in local shops?

- **Access:** Is there enough money for food, including nutritious food? And do families have the ability to get to the shops, considering issues like transport and physical health?
- **Utilisation:** Do families have the ability to transform food into meals, including the necessary skills and equipment?
- **Stability:** Do families have all of the above on a consistent basis?

“Food insecurity is not just a problem for the ‘working poor’. It occurs in families with a median income of \$40,000-\$60,000 a year, single and dual-parent families, working multiple jobs to pay off the essentials, including rent, utility bills and school needs. Food is the only flexible item in the budget.”

According to Professor Gallegos, previous attempts to measure food insecurity in Australia have just focussed on whether people have enough money for food.

“Hidden hunger in a country like Australia is shocking, and any child going hungry is one child too many.





It's unacceptable that we have no National Poverty Strategy to help those living in poverty. Families on middle incomes are struggling to put food on the table and charities are left to help bridge the gap," said Professor Gallegos.

She is calling for annual monitoring of food insecurity in Australia assessing all four pillars, a serious open discussion on a guaranteed basic living wage, solutions to make healthy food more affordable, and improved food literacy in schools to stop the reliance on cheap, fast food.

"Food insecurity is not just a problem for the 'working poor'. It occurs in families with a median income of \$40,000-\$60,000 a year, single and dual-parent families, working multiple jobs to pay off the essentials, including rent, utility bills and school needs. Food is the only flexible item in the budget.

"There is a stigma to not being able to provide your family with the basic right to regular healthy food, but we also have a duty to maintain human dignity and not expect families to go begging to charities."

"These families are adept at squeezing the most out of every dollar. In a bid to stretch food further, we've had mums reporting they won't eat with the family but wait to eat everyone's leftovers. Their children are protected for as long as possible," said Professor Gallegos.

She said families typically only turn to emergency food relief as the last resort.

"There is a stigma to not being able to provide your family with the basic right to regular healthy food, but we also have a duty to maintain human dignity and

not expect families to go begging to charities," said Professor Gallegos.

Her call for a better approach to food insecurity is echoed by the Dietitians Association of Australia, the Public Health Association of Australia, the Heart Foundation and Nutrition Australia, which want the Australian Government to update, fund and implement a new National Nutrition Policy, which includes a food security focus.

ENDNOTES

1. Australian Bureau of Statistics (2014). *Australian Health Survey 2011-13*. Available at: www.abs.gov.au/ausstats/abs@.nsf/Lookup/1F1C9AF1C156EA24CA257B8E001707B5?opendocument



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Australian children going hungry, report finds, with one in five kids missing meals

*One in every five Australian children has gone hungry in the past 12 months according to a new report, with some even resorting to chewing paper to try to feel full. An **ABC News** report by Jessica Longbottom*



The survey of 1,000 parents commissioned by Foodbank shows 22 per cent of Australian children under the age of 15 live in a household that has run out of food at some stage over the past year.

One in five kids affected go to school without eating breakfast at least once a week, while one in 10 go a whole day at least once a week without eating anything at all.

"I think that's a very sad indictment on us as a society," Foodbank Victoria chief executive Dave McNamara said.

"The most vulnerable in our community – our children, our future – are suffering and I don't think that's right, I don't think anyone thinks that's right."

Chewing paper to feel full

Mr McNamara said the report showed more children were going hungry in Australia than adults.

"We've heard stories of kids turning up with packets of chips and Coke [to school], that was their breakfast and lunch," he said.

"Some kids were eating paper. Their parents had told them, 'There's not enough food, if you get hungry you'll need to chew paper'."

"This isn't made-up. This is a story we heard setting up one of our school breakfast programs down in Lakes Entrance, which is a beautiful part of the country."

"No-one's spared. It's not people on the street; it's people in your street. It's in every community across Australia."

Collin Peebles, chief executive of the Geelong Food Relief Centre, said demand had exploded for services over the past three years.

"Only recently we had a seven-year-old girl walk into the foodbank on a Thursday afternoon, she hadn't eaten anything for five days," he said.

He said mortgage stress and the cost of living were driving families to use foodbanks for the first time.

A mother's struggle to put food on the table

Louise Holland knows first-hand what it is like to constantly worry about not having enough food to feed her children. The former nurse, from Sydenham in Melbourne's north-west, took time out of the work-force to care for her ill husband five years ago. He died in 2016, leaving her as the sole carer for her four children. Once the family's savings were gone, it became harder and harder to make ends meet.

"We would eat low-grade mince meat, sausages ... anything that was filling but that was cheap," she said.

One in five kids affected go to school without eating breakfast at least once a week, while one in 10 go a whole day at least once a week without eating anything at all.

"Sometimes the kids would go to school with no lunch. There would always be something on the table at night, but it might not have been as nutritious as it should have been."

Sometimes things got so bad, Ms Holland and her eldest son, Nathan, 20, would not eat.

"We thought as long as the younger ones were fed, that was the main thing," she said.

It was not until January this year that she decided to seek support, turning to the Helping Hands food pantry in Melbourne's Airport West. Families are allowed to access 20 kilograms of fresh food and pantry staples a week, for a gold coin donation.

"It was an incredibly hard step to take," she said through tears.

“No one wants to admit they’re not coping, I’m a very proud person. But I’d just tell anyone who is struggling to put food on the table – get help. It is out there.”

High demand for help to feed families

Melanie Kent established the Helping Hands charity in 2007, initially to help drought-affected people in rural Victoria. She now runs three food pantries in Airport West, Sunshine and near Bendigo, and demand is unprecedented. Ms Kent said 600 families used the food pantry service every week, the majority of them women and children.

“There’s fresh food and healthy food here for people, but sometimes it’s also important for people to be able to have a treat,” Ms Kent said.

“I had one mum come to me and she said, ‘You know, I’ve been able to pick up things from your pantry like muesli bars’.

“She said ‘because of you, my kids don’t know that we’re poor’.

“So it’s important for different reasons for different people.”

Rising living costs hurting children

The report found parents living in poverty would often go without so their children would have something to eat. Thirty-six per cent said they would skip a meal at least once a week so their children could eat, while 29 per cent would go a whole day at least once a week without eating at all.

The report found the main reason parents were struggling to feed their children was the cost of living,

including mortgage or rent costs and utilities.

Mr McNamara said governments needed to address the problem.

“We need to look at housing affordability ... utility costs, we need to look at private health care, we need to look at minimum wage: what’s not just a minimum wage, but a liveable wage,” he said.

“The most vulnerable in our community – our children, our future – are suffering and I don’t think that’s right, I don’t think anyone thinks that’s right.”

“Then on the other side of things we need to help the families who are currently suffering through this issue, so that means that the welfare sector needs to be properly resourced.

“As a community we need to say this isn’t right, we’re not going to stand for this, we need to change and fix it.”

The Foodbank *Rumbling Tummies: Child Hunger in Australia* report was carried out by McCrindle.

It surveyed 1,002 Australian parents with children under the age of 15 and a further 602 parents living in food insecure households.

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Longbottom, J (15 April 2018). ‘Australian children going hungry, report finds, with one in five kids missing meals’, *ABC News*. Retrieved from www.abc.net.au/news on 8 October 2018.



RUMBLING TUMMIES: CHILD HUNGER IN AUSTRALIA

FOLLOWING IS THE EXECUTIVE SUMMARY FROM A **FOODBANK** REPORT, BASED ON RESEARCH CONDUCTED BY MCCRINDLE RESEARCH

More than one in five children in Australia live in a food insecure household

In fact, it is more likely for a child to live in a food insecure household than an adult. Research conducted in 2017 found that 15% of Australians experienced food insecurity in the previous 12 months¹, while 22% of children experienced food insecurity over the same period.

Going hungry is a common occurrence for many children. One in three parents living in food insecure households (32%) say their children do not have enough to eat at least once a month because they cannot afford to buy enough food. One in five parents living in food insecure households (22%) say their child goes a whole day without eating any fresh food at least once a week. Devastatingly, almost one in ten of these parents (9%) say their children go a whole day without eating at all at least once a week.

The cost of living is the main cause of household food insecurity

Unexpected expenses or large bills (52%) and housing payments (38%) are two of the most prominent causes of food insecurity in households with children under the age of 15. The cost of living forces parents to

choose between paying their bills and feeding their family. More than half of parents (56%) have not paid bills in order to have enough money to buy food for their household.

Parents expect even greater challenges in the future

More than half of parents in food insecure households (51%) expect it to become more challenging to provide food for their family in the future as the cost of living continues to rise. For these parents, bills (32%) and housing costs (18%) seem to be getting more expensive.

Going hungry is a common occurrence for many children. One in three parents living in food insecure households say their children do not have enough to eat at least once a month because they cannot afford to buy enough food.

Parents notice a number of changes to their children's wellbeing as a result of food insecurity

Eating enough food is crucial for healthy growth and development, particularly amongst children. If a child does not have enough food, or enough healthy food, parents notice changes in their behaviour, and in their





emotional and physical wellbeing.

More than half of parents (54%) report changes in their child's emotions as a result of being hungry, such as more outbursts or tantrums (24%) and a decline in their child's happiness (24%). One in five parents (22%) say their children become agitated and irritable if they do not have enough to eat. One in six parents (17%) notice their children acting up at school or at home as a result of not having enough food.

Parents skip meals, so their children can eat

Almost nine out of 10 parents in food insecure households (87%) have skipped a meal so their children can eat and for 36%, this is a weekly occurrence. At least once a week, three in 10 parents (29%) go a whole day without eating.

In addition to sacrificing their own physical needs, three in four parents living in food insecure households (74%) feel embarrassed or ashamed because they have struggled to provide food for their children (somewhat/strongly agree).

Parents tend to rely on family and friends to ensure their children have access to food.

When it comes to having enough money to buy food, three in five parents say they borrow money from family and friends (59%).

Parents protect their children from hunger by cutting down on the size of the family's meals to make the food last longer (49%). In addition, parents may take their children to a family member's house for a meal (38%), seek food assistance from a charity (34%) or have their children go to a friend's house for a meal (16%).

Food assistance provides significant benefits for families and children experiencing food insecurity.

Just over half of parents living in food insecure households (54%) have sought food assistance from a charity, with two in five (40%) seeking food assistance in the last 12 months. The provision of food can improve household wellbeing, with almost half of these parents (48%) indicating food assistance helped them to feel less stressed as a family. It can also create positive social relationships, with more than two in five households (45%) feeling supported by their community.

On an individual level, food assistance can also significantly benefit children living in food insecure households. Parents most commonly notice that their children feel less hungry (34%) and are happier (33%) when they receive food assistance. One in five parents (20%) also suggest their children have more energy and their behaviour improves.

ENDNOTES

1. Foodbank, *The Foodbank Hunger Report*, 2017.

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CHILD HUNGER IN AUSTRALIA: INFOGRAPHIC

RUMBLING TUMMIES

CHILD HUNGER IN AUSTRALIA



**FIGHTING HUNGER
IN AUSTRALIA**



21%

OF AUSTRALIAN
HOUSEHOLDS WITH
CHILDREN UNDER THE
AGE OF 15 HAVE
EXPERIENCED FOOD
INSECURITY IN THE
LAST 12 MONTHS.



**MORE THAN
ONE IN FIVE
AUSTRALIAN
CHILDREN (22%)
HAVE EXPERIENCED
FOOD INSECURITY
IN THE LAST
12 MONTHS**



22%

**IT IS MORE LIKELY
FOR A CHILD IN
AUSTRALIA (22%)
TO EXPERIENCE
FOOD INSECURITY
THAN AN ADULT (15%)**



15%¹

¹ The Foodbank Hunger Report, 2017

**HOW OFTEN DO
AUSTRALIAN
CHILDREN GO
HUNGRY?**



ONCE A MONTH

**ONE IN THREE
AUSTRALIAN PARENTS
LIVING IN FOOD INSECURE
HOUSEHOLDS (32%) SAY
THEIR CHILDREN
EXPERIENCE NOT HAVING
ENOUGH FOOD AT LEAST
ONCE A MONTH BECAUSE
THEY CANNOT AFFORD TO
BUY ENOUGH FOOD.**

A CHILD IS EVEN MORE LIKELY TO EXPERIENCE HUNGER IN:



Households located
outside capital cities

25%*



Households with younger
parents (under 35 years)

33%*



Single parent households

44%*



Aboriginal and Torres Strait
Islander households*

58%*

* Proportion of each demographic group that have experienced food insecurity in the last 12 months

*Small sample size (n=45)

THE COST OF LIVING IS THE MAIN CAUSE OF HOUSEHOLD FOOD INSECURITY

**TOP 3 CAUSES OF FOOD INSECURITY IN HOUSEHOLDS
WITH CHILDREN UNDER 15:**



52%

Unexpected expense
or large bill



44%

Just not enough money
in the first place



38%

Had to pay rent/
mortgage payment

**MORE THAN HALF OF PARENTS (56%) HAVE NOT PAID
BILLS IN ORDER TO HAVE ENOUGH MONEY TO BUY FOOD.**

FUTURE CHALLENGES

**MORE THAN HALF OF FOOD INSECURE PARENTS
(51%) EXPECT IT TO BECOME MORE CHALLENGING
TO PROVIDE FOOD FOR THEIR FAMILY IN THE
FUTURE BECAUSE:**



32%

Their bills seem to be getting
more expensive

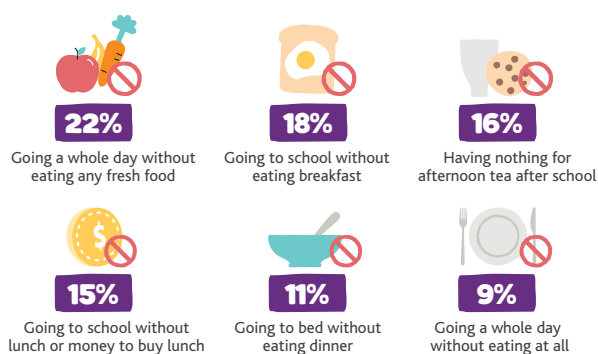


18%

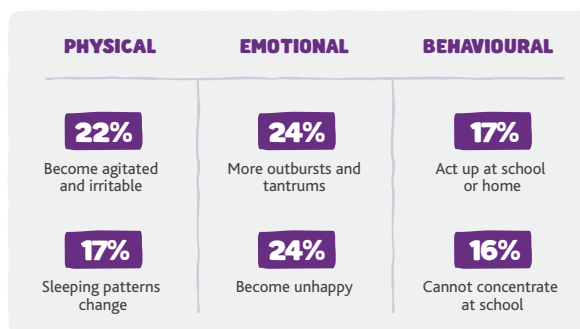
Housing costs seem to be rising

FOOD INSECURITY CAN SIGNIFICANTLY IMPACT A CHILD'S WELLBEING

PARENTS LIVING IN FOOD INSECURE HOUSEHOLDS SAY THEIR CHILDREN EXPERIENCE THE FOLLOWING AT LEAST ONCE A WEEK



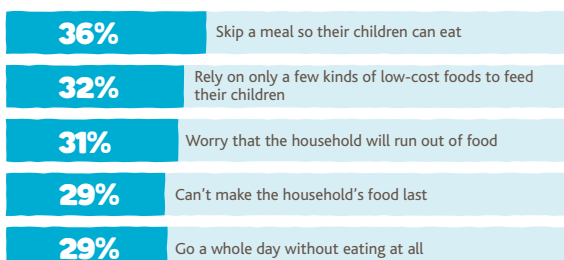
PARENTS NOTICE SEVERAL CHANGES TO THEIR CHILDREN'S WELLBEING WHEN THEY DON'T HAVE ENOUGH TO EAT.



PARENTS DO A LOT TO PROTECT THEIR CHILDREN FROM HUNGER...

...AND YET MANY FEEL ASHAMED WHEN THEY STRUGGLE TO PROVIDE FOOD FOR THEIR FAMILY

AT LEAST ONCE A WEEK, PARENTS LIVING IN FOOD INSECURE HOUSEHOLDS:



74%

FEEL EMBARRASSED OR ASHAMED BECAUSE THEY STRUGGLE TO PROVIDE FOOD FOR THEIR CHILDREN

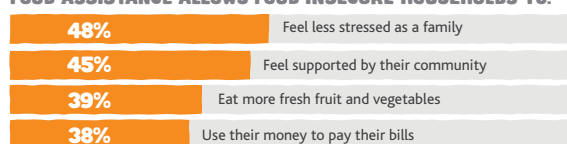
41%

SAY OTHER PARENTS ASSUME THEY ARE NEGLECTING OR MISTREATING THEIR CHILDREN WHEN THEY CANNOT PROVIDE ADEQUATE FOOD

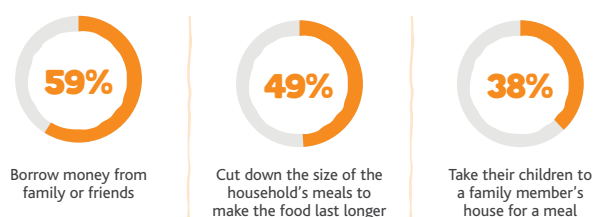
COPING WITH FOOD INSECURITY

TWO IN FIVE PARENTS (40%) HAVE SOUGHT FOOD ASSISTANCE FROM A CHARITY IN THE LAST 12 MONTHS

FOOD ASSISTANCE ALLOWS FOOD INSECURE HOUSEHOLDS TO:



TO ENSURE THEIR CHILDREN HAVE ACCESS TO FOOD, PARENTS WILL:



PARENTS REPORT THE FOLLOWING IMPROVEMENTS IN THEIR CHILDREN AS A RESULT OF RECEIVING FOOD ASSISTANCE:



ABOUT FOODBANK

Foodbank is the largest hunger relief organisation in Australia, providing food for 183,000 meals a day to over 2,400 charities nationally. Foodbank also provides regular breakfasts to over 116,000 students in 1,750 schools around the country.

FOODBANK.ORG.AU

METHODOLOGY

Sample criteria: Australian parents with at least one child under the age of 15 (children under 15 are classified as dependent by the Australian Bureau of Statistics).

Question used to define food insecurity: 'In the last 12 months, was there any time when you or anyone in your household ran out of food and did not have enough money to purchase more?'

Assumptions: Dependent children living in a household which has experienced food insecurity in the last 12 months are assumed to have

experienced food insecurity themselves in the same period.

Proportion of children experiencing food insecurity calculation: each respondent was asked how many children they cared for under the age of 15. The total number of children under 15 represented by food insecure parents was taken as a proportion of the total number of children under 15 represented by a panel of 1,000 Australian parents (nationally representative by state and gender).

Research and infographic design by:

mccrindle
mccrindle.com.au

FOOD BANK
FIGHTING HUNGER IN AUSTRALIA

Foodbank Australia. *Rumbling Tummies Child Hunger in Australia* – Infographic.
Retrieved from www.foodbank.org.au on 4 October 2018.

Hunger in the lucky country – charities step in where government fails

At present, 15% of Australians experience food insecurity, while 40% of food is discarded before it even reaches the market, explains **Carol Richards**

The non-profit organisation Foodbank released its report *Fighting Hunger in Australia* this month. Like earlier research it reported that around 15% of Australians experienced food insecurity – an extraordinary figure given up to 40% of edible, but cosmetically imperfect, food is discarded before it reaches the market.

The survey revealed that 3.6 million Australians have experienced food insecurity at least once in the last 12 months. Three in five of those people experience food insecurity at least once a month.

The UN Food and Agriculture Organisation defines food security as:

a condition where all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary preferences for an active and healthy life.

Despite reasonable expectations that economic growth in advanced capitalist societies will ensure food security, this is not universal across so-called 'wealthy nations'.

NOT-SO-LUCKY COUNTRY FOR SOME

The problem lies with Australia's neoliberal political

economy, where food is a commodity rather than a right. Under these conditions, it is the market, rather than government, that determines access to food.

People who are economically marginalised find themselves increasingly distanced from access to nutritious food. With a shortfall in government responses, the non-profit sector has stepped in, patching together a food security safety net.

To alleviate hunger, poverty also needs to be alleviated. There is no quick fix to this ...

Our research examined institutional approaches to poverty and food security, considering entitlements to food in economically advanced countries. In nations where people mainly buy their food rather than produce it themselves, purchasing power becomes central to understanding hunger.

Low growth in wages and cuts to welfare payments mean hunger touches many, including Indigenous people, unemployed or under-employed families, and welfare recipients. Food is one of the few flexible items in a household budget. Consistent with the observations of Nobel Prize-winning economist Amartya Sen, food insecurity is more a symptom of poverty than a lack of availability of food.



THE 'LIBERAL, ANGLO-SAXON MODEL' OF WELFARE

In 2016, an Australian Council of Social Service report estimated that 13% of all Australians live below the poverty line. Of those 3 million people, 730,000 are children. The poverty line is set at 50% of the median disposable income for all Australian households.

It is useful to look at the types of welfare in advanced capitalist nations and how these address poverty and access to food.

Danish sociologist Esping-Andersen describes Australia's system as a "liberal, Anglo-Saxon model" of welfare. This model is associated with high levels of social stratification. Public obligation "kicks in" only when there is abject need, demonstrated through strict means testing.

This differs from the social-democratic model of welfare capitalism common to Scandinavian countries. There, stratification is lower and an individual has the right to thrive without intervention from family, church or charity.

Our research shows how social-democratic welfare policies lift the standard of living for all. This means citizens of countries such as Norway have rarely required charitable food relief despite high food prices.

In Australia, the federal welfare agency, Centrelink, offers limited relief for the food insecure, such as one-off crisis payments to recipients of benefits. However, increases in the cost of food, energy and housing prices have not been matched by corresponding increases in welfare payments.

Further, there is no other Australian government policy that deals with domestic food security, despite the nation's increasing reliance on food charities.

Although responding to immediate need, food relief does not prevent food insecurity.

The Australian welfare state does not explicitly guarantee freedom from hunger. Instead food relief is dependent on business donations distributed through the non-profit sector.

WHAT CAN BE DONE TO ALLEVIATE HUNGER?

To alleviate hunger, poverty also needs to be alleviated. There is no quick fix to this, but in the first instance the government needs to take responsibility for poverty and food security as a matter of urgency. No one could argue it is acceptable to have 730,000 children living below the poverty line.

Earlier government deliberations on food security focused on agricultural production and export to enhance global food security. These have tended to look outward rather than inward.

The abandoned National Food Plan was to be the Government's first food policy designed to provide an integrated approach to Australia's food system. However, this was orientated to a corporate-led food system that overlooked the needs of civil society.



Australia's welfare system relies heavily on charity and markets, rather than the state, to respond to the needs of economically marginalised people. This is evident in the collaborations between food banks and supermarkets to redirect food waste to disadvantaged people.

Although responding to immediate need, food relief does not prevent food insecurity. There is potential to alleviate poverty and prevent food insecurity through Australia's current welfare model. Unlike the situation for domestic food security policy, income support architecture is already in place.

However, support urgently needs to come into line with the cost of living if we are to recognise food as a right and eliminate first world hunger.

ACKNOWLEDGEMENTS

Sincere thanks to research collaborators Unni Kjærnes and Jostein Vik who were co-authors on an earlier, related piece: Richards, C., Kjærnes, U. and Vik, J. (2016), 'Food security in welfare capitalism: Comparing social entitlements to food in Australia and Norway', *Journal of Rural Studies*, 43 (1), 61-70.

DISCLOSURE STATEMENT

Carol Richards has received funding from the Norwegian Research Council and the Australian Research Council. She is Co-Founder of the Brisbane Fair Food Alliance, and a member of the Australian Food Sovereignty Alliance and the Right to Food Coalition.

Carol Richards is Senior Lecturer, Queensland University of Technology.

THE CONVERSATION

Richards, C (18 January 2018). *Hunger in the lucky country – charities step in where government fails*. Retrieved from <http://theconversation.com> on 8 October 2018.

'SUCCESSFUL FAILURES' – THE PROBLEM WITH FOOD BANKS

Food banks are unable to meet the demand produced by stagnating wages, rising costs of living and a shrinking welfare state; and the benefits of using food waste to feed people accrue primarily to the food industry, absolving the government of responsibility to address food insecurity, observe **Nick Rose** and **Susan Booth**



From their inception in the early 1990s, Australian food banks were supposed to be a temporary solution to food poverty.

They have since morphed from “emergency to industry” – lauded for reducing food insecurity and helping to solve the food waste problem by diverting tonnes of produce from landfill.

It’s the ultimate win-win that big food corporations and retailers love: feed the needy and save the planet at the same time. This logic has been enshrined in Canada’s National Food Waste Reduction Strategy and in European laws that require supermarkets to donate surplus produce to charities.

The dominant win-win approach that says we can solve food insecurity by diverting food waste into food banks is patently failing. Both phenomena are increasing. In any case, a state of food security is not achieved via emergency food relief.

CAN FOODBANKS END FOOD INSECURITY?

As Martin Caraher has suggested on *The Conversation*, we argue that food banks “depoliticise hunger” and address symptoms rather than causes.

Laudable and regrettably necessary as their work is, food banks are a band-aid solution for a patient contemporary society – suffering from what John McMurtry evocatively terms “the cancer stage of capitalism”. We are seeing ubiquitous and intensifying inequality, brought about by decades of dogmatic adherence to market fundamentalism.

If we are serious about tackling the causes of food insecurity, we must turn away from neoliberalism to an inclusive and values-based political economy. And if we are serious about ending food waste, we need a “paradigm shift” away from productivism towards a food system “designed for well-being, resilience and sustainability”.

FROM EMERGENCY TO INDUSTRY

According to Foodbank Australia’s *2017 Hunger Report*, 625,000 Australians are seeking emergency food relief every month. That’s a 10% increase on the previous 12 months.

Despite their rapid expansion, food banks are unable to meet the demand produced by stagnating wages, rising costs of living and a shrinking welfare state. They have been called “highly visible successful failures”. As well as stepping into the state’s shoes to provide a minimal social security safety net, they offer very useful services to food manufacturers and retailers.

First, they divert millions of tonnes of waste from landfill. Food donors save considerable sums in disposal charges.

Second, donors receive tax deductions for all produce donated to food banks, which are registered charities. And, perhaps most significantly, donors can enhance their social licence to operate as good corporate citizens and receive cheap publicity into the bargain.

BAND-AIDS, NOT SOLUTIONS

In a recent paper for the UK Food Research Collaboration, Martin Caraher and Sinead Furey undertook a cost-benefit analysis of the current consensus that food insecurity is best addressed by increasing donations of surplus food to food banks. Their conclusion was unequivocal:

While there are benefits to diverting surplus food away from landfill, the reasons for pessimism outweigh the reasons for optimism. This is because the benefits of using food waste to feed people accrue primarily to the food industry, whilst absolving responsibility of the government to address food insecurity.

This is of particular concern in a liberal democracy such as Australia that professes to be committed to the principle of universal human rights, including the right to adequate food. Research in the Netherlands and Scotland has confirmed the humiliation, shame and loss of dignity experienced by food bank users.

Dignified access to good food is a fundamental component of the human right to adequate food. Feeding people food waste directly undermines this right.

REFRAMING THE DEBATE

The dominant win-win approach that says we can solve food insecurity by diverting food waste into food banks is patently failing. Both phenomena are increasing. In any case, a state of food security is not achieved via emergency food relief.

A breakthrough was achieved on March 25, 2015, when leading community food organisations and food security researchers in Canada issued the Cecil Street Statement. The statement clarified that food insecurity was due to inadequate income and the solution lay in people having enough money to buy good food in a dignified way. Further, it stated that the conflation of food insecurity with food waste was unhelpful and counterproductive.

In Australia, the Right to Food Coalition last year issued a position statement, *The Human Right to Food*. This included a detailed set of recommendations, drawing on the work of the United Nations special rapporteur on the right to food.

These recommendations specified the actions required from all levels of government, as well as industry, philanthropical and community organisations.

The statement called on the federal government to:

- Adequately finance income support payments so that all Australians can access a weekly basket of

Broadly, what's needed is a paradigm shift towards sustainable, healthy, resilient and rational food systems.

healthy foods

- Ensure that initiatives to rebuild local food systems are adequately supported.

WHAT IS THE SOLUTION?

Broadly, what's needed is a paradigm shift towards sustainable, healthy, resilient and rational food systems. The International Panel of Experts on Sustainable Food Systems (IPES) has clearly articulated the pathways towards such systems.

The principal barriers to such systems, according to the experts, reside in excessive concentration of political and economic power in the hands of mega-food corporations. This is documented in the new IPES report, *Too Big to Feed*.

In the words of visionary UK economist Kate Raworth, the necessary paradigm shift begins with a reframing of our societal priorities, away from the mantra of “an economy that grows regardless of whether we thrive” and towards “an economy that enables us to thrive regardless of whether it grows”.

Nick Rose is Lecturer, William Angliss Institute.

Susan Booth is Casual Academic, College of Medicine and Public Health, Flinders University.

THE CONVERSATION

Rose, N, and Booth, S (13 November 2017).

'Successful failures' – the problem with food banks.

Retrieved from <http://theconversation.com> on 8 October 2018.



How much do we need to eat each day?

ADVICE FROM THE NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL

The *Australian Dietary Guidelines* inform people of different ages, life stages and gender, the minimum number of serves from each food group they need to eat each day, to make sure they get the full amount of nutrients their body needs.

Most people who want to lose weight should stick to the minimum number of serves. However, people in their healthy weight range, who are taller than average or more physically active, may find they need extra serves from the five food groups.

Ideally, most of the extra serves should be chosen from the vegetables, fruit and grain (cereals) food groups but some extra choices can be made from milk, yoghurt, cheese and/or alternatives, the lean meat and poultry, fish, eggs and/or alternative group, and including less often, unsaturated fats/oils/spreads.

Discretionary choices are often an enjoyable part of the Australian diet, and can be included occasionally if your energy needs allow this.

Often people find that to get enough serves from all the food groups they need to:

- Swap discretionary choices for foods from the five food groups.
- Make breads or grains part of at least two meals most days.

- Include vegetables at least twice a day, particularly important if you would like to lose weight.
- Make vegetables take up at least one third of meals and half the meal if you are trying to lose weight. So it's important to serve vegetables or salad as a side dish even when eating meals like pasta, lasagne or risotto. By eating more vegetables in your meals, serves of other foods will be smaller and the overall meal will have fewer kilojoules.
- Include lean meat or meat alternative as part of at least one meal a day.
- Add fruit to at least two meals, or use as snacks or desserts.
- Include a serve of low-fat milk, yoghurt or cheese as a significant part of at least two meals or snacks.

It's also good for your health to include:

- Fish meals every week.
- Meals with legumes every week.
- A wide variety of different coloured vegetables every day.

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National Health and Medical Research Council (NHMRC). *Food essentials: How much do we need each day?* (Updated 27 July 2015). Retrieved from www.eatforhealth.gov.au on 4 October 2018.



WHAT INFLUENCES OUR FOOD CHOICES?

The world in which we live greatly influences the food choices that we make, according to this guide from the **National Health and Medical Research Council**

Australia is a developed nation and most of us have access to a wide variety of affordable, nutritious foods. The health and wellbeing of all Australians would improve if we chose foods and drinks according to the *Australian Dietary Guidelines* and the *Australian Guide to Healthy Eating*.

But where we live and how we live can also influence what we eat. It can be difficult for people to choose healthy foods, as often the cheapest foods that fill us up may not be the best choices for health.

Australians living in rural and remote areas may also have difficulty accessing nutritious foods, especially perishable items including vegetables and fruit. Food security may be a challenge for some groups, particularly Aboriginal and Torres Strait Islanders.

The foods that are most readily available in our community also tend to be the discretionary choices that are high in saturated fat, added sugars and salt and alcohol.

MOST AUSTRALIANS NEED MORE:

- Vegetables and fruit, particularly green, orange and red vegetables, such as broccoli, carrots, capsicum and sweet potatoes, and leafy vegetables like spinach, and legumes/beans like lentils.
- Grain (cereal) foods, particularly wholegrain cereals like wholemeal breads, wholegrain/high fibre breakfast cereals, oats, wholegrain rice and pasta.
- Reduced fat milk, yoghurt and cheese varieties (reduced fat milks are not suitable for children under the age of 2 years as a main milk drink).
- Lean meats and poultry, fish, eggs, nuts and seeds and legumes/beans (except many Australian men would benefit from eating less red meat).
- Water instead of soft drinks, cordials, energy drinks, sports drinks and sweetened fruit juices and/or alcoholic drinks.

MOST AUSTRALIANS NEED TO EAT LESS:

- Meat pies, sausage rolls and fried hot chips
- Potato crisps, savoury snacks, biscuits and crackers
- Processed meats like salami, bacon and sausages
- Cakes, muffins, sweet biscuits and muesli bars
- Confectionary (lollies) and chocolate
- Ice-cream and desserts
- Cream and butter
- Jam and honey
- Soft drinks, cordial, energy drinks and sports drinks
- Wine, beer and spirits.



Where we live and how we live can also influence what we eat. It can be difficult for people to choose healthy foods, as often the cheapest foods that fill us up may not be the best choices for health.

AUSTRALIAN DIETARY GUIDELINES

Guideline 1

To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.

- Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly.
- Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight.

Guideline 2

Enjoy a wide variety of nutritious foods from these five food groups every day:

- Plenty of vegetables of different types and colours, and legumes/beans
- Fruit
- Grain (cereal) foods, mostly wholegrain and/or high



cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley

- Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat.

And drink plenty of water.

Guideline 3

Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.

- a. Limit intake of foods high in saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks.
 - Replace high-fat foods which contain predominately saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominately polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado.
 - Low-fat diets are not suitable for children under the age of 2 years.
- b. Limit intake of foods and drinks containing added salt.
 - Read labels to choose lower sodium options among similar foods.
 - Do not add salt to foods in cooking or at the table.
- c. Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft

drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.

- d. If you choose to drink alcohol, limit intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.

Guideline 4

Encourage, support and promote breastfeeding.

Guideline 5

Care for your food; prepare and store it safely.

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National Health and Medical Research Council (February 2013).
Eat for Health Australian Dietary Guidelines Summary, pp. 2-5.
 Retrieved from www.eatforhealth.gov.au on 4 October 2018.



Australian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods from these five food groups every day.

Drink plenty of water.

Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties



Vegetables and legumes/beans



Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans



Milk, yoghurt, cheese and/or alternatives, mostly reduced fat



Fruit



Use small amounts



Only sometimes and in small amounts



National Health and Medical Research Council (February 2013). *Australian Dietary Guidelines*, p.10. Retrieved from www.eatforhealth.gov.au on 21 February 2019.

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TIPS FOR EATING WELL

*The recommendations in the Australian Dietary Guidelines and Australian Guide to Healthy Eating help us choose foods for good health and to reduce our risk of chronic health problems, according to this fact sheet from the **National Health and Medical Research Council***



A spontaneous, unstructured eating pattern is more likely to include too many discretionary foods which means too much saturated fat, added sugars, added salt and kilojoules at the expense of fibre and important nutrients.

If we are carrying extra weight, the *Australian Dietary Guidelines* can also help us lose weight. They steer us towards foods that are high in nutrients but lower in kilojoules. These choices are nutrient-dense but less energy-dense and helpful for both achieving and maintaining a healthy weight.

People wanting to lose weight will also find this information useful for planning meals and snacks. Following the recommended number of serves from the five food groups and avoiding the discretionary foods will result in a gradual but healthy weight loss for most people. However, some people, particularly younger men and people who are taller than average or more active, may need additional serves of the five food groups.

You can also check by taking the 'Are you eating for health?' quiz in the Dietary Guidelines summary booklet.

Eating regularly

It's essential for weight control and especially weight loss, to recognise and act on the feedback your body gives you about when and how much you need to eat. However it's also important to aim for a regular eating pattern of meals, or meals and mid meals.

A planned pattern of eating is more likely to include the recommended number of serves from the five food groups. A spontaneous, unstructured eating pattern is more likely to include too many discretionary foods which means too much saturated fat, added sugars, added salt and kilojoules at the expense of fibre and important nutrients.

Don't skip breakfast

Breakfast skippers are more likely to be tempted by unplanned discretionary choices during the morning and large serves at the next meal or snack. Just think of how yummy those large baked muffins look at morning tea if you've missed breakfast!

People who regularly eat a breakfast based on wholegrain cereal or bread, low-fat milk or yogurt and maybe some fruit or vegetables are much more likely to be eating well and lose weight than those who skip breakfast.

Eat with other people not TV

We also know that people who eat with others and eat at the dining table, are more likely to eat regularly and eat well than those who eat alone or in front of the TV. Meals with others tend to include more foods from the five food groups. For example, people often report that they can't be bothered cooking vegetables just for themselves.

Television watching is associated with eating more discretionary choices like take-away or convenience foods and fewer foods from the five foods. It also makes it much more difficult to recognise and respond to our body's signals about hunger and satiety.

Good meal planning and making healthy choices can sometimes be tricky but a few useful tips can make it easier.

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National Health and Medical Research Council. *Tips for eating well*. Retrieved from www.eatforhealth.gov.au on 4 October 2018.

CHAPTER 2

Reducing food waste

WORKING TOGETHER TO REDUCE FOOD WASTE IN AUSTRALIA

The cost of food waste to the Australian economy is estimated to be around \$20 billion each year. Australian consumers throw away around 3.1 million tonnes of food – that's close to 17,000 grounded 747 jumbo jets. Another 2.2 million tonnes is disposed of by the commercial and industrial sector¹, according to this fact sheet from **Department of the Environment and Energy**

The impact of food waste also includes the energy, fuel and water used to grow food that may not be used. When food waste is sent to landfill, it contributes to greenhouse gas emissions.

To help address this important issue, the Australian Government committed in 2016 to develop a National Food Waste Strategy and to deliver a National Food Waste Summit. The strategy establishes a framework to support actions that work towards halving Australia's food waste by 2030. This ambitious goal aligns with the United Nations Sustainable Development Goal 12 for sustainable consumption and production patterns.

National support for the strategy has been provided by Australia's environment ministers, and acknowledges the importance of addressing food waste and the impact it has on the environment, the economy and society.

HOW MUCH FOOD DO WE WASTE IN AUSTRALIA EACH YEAR?

- \$20 billion is lost to the economy through food waste.
- Up to 25 per cent of all vegetables produced don't leave the farm – 31 per cent of carrots that don't leave the farm equates to a cost of \$60 million.
- The total cost of agricultural food losses to farmers is \$2.84 billion.
- Households throw away 3.1 million tonnes of edible food, that's close to 17,000 grounded 747 jumbo jets.
- Annual food waste costs to households vary from \$2,200 to \$3,800.
- 2.2 million tonnes of food is wasted from the commercial and industrial sectors, resulting in significant waste disposal charges and lost product costs to business.¹

1. SARDI (2015) Primary Production Food Losses: Turning losses into profit. South Australian Research and Development Institute, Primary Industries and Regions South Australia; PMSEIC (2010) Australian and Food Security in a Changing World. The Prime Minister's Science, Engineering and Innovation Council, Canberra, Australia; NSW EPA (2016) Love Food, Hate Waste – NSW food waste tracking survey 2015-16. Environment Protection Authority. www.lovefoodhatewaste.nsw.gov.au/Portals/0/docs/Report%20-%20Tracking%20Survey%202015-2016.pdf. Accessed 21 September 2017; Victorian Government (2017) Do I really waste food? Love Food Hate Waste Victoria. www.lovefoodhatewaste.vic.gov.au/about-your-food/do-i-really-waste-food. Accessed 29 September 2017. Blue Environment (2016) Australian National Waste Report 2016. Prepared for the Department of the Environment and Energy. www.environment.gov.au/system/files/resources/d075c9bc-45b3-4ac0-a8f2-6494c7d1fa0d/files/national-waste-report-2016.pdf

Source: Department of the Environment and Energy. *National Food Waste Strategy: Halving Australia's Food Waste by 2030.*



DEFINING FOOD WASTE

The definition of food waste varies globally depending on where food waste occurs in the food supply and consumption chain, how it is generated, and what it covers – for example, whether it includes or excludes inedible food waste.

Australia's National Food Waste Strategy adopts a broad and inclusive definition of food waste that covers:

- Solid or liquid food that is intended for human consumption and is generated across the entire supply and consumption chain.
- Food that does not reach the consumer, or reaches the consumer but is thrown away. This includes edible food, the parts of food that can be consumed but are disposed of, and inedible food, the parts of food that are not consumed because they are either unable to be consumed or are considered undesirable (such as seeds, bones, coffee grounds, skins, or peels)
- Food that is imported into, and disposed of, in Australia.
- Food that is produced or manufactured for export but does not leave Australia.

In adopting the above definition, food waste excludes food that is produced or manufactured in Australia and is exported and becomes waste in another country.

This definition acknowledges that there are opportunities across the entire fresh and processed food systems to achieve improved environmental, economic and social outcomes.

Source: Department of the Environment and Energy. *National Food Waste Strategy: Halving Australia's Food Waste by 2030*.

Reducing food waste is a complex challenge due to the range of food types and their supply chains, and regulatory frameworks to support food safety and waste disposal. It also presents a number of opportunities to rethink how food waste can be prevented, or how wasted food can be used for other purposes.

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MANAGING AUSTRALIA'S FOOD WASTE

There are already a number of activities in Australia to reduce our food waste. These include consumer

education, investment in waste treatment infrastructure, waste diversion from the retail and commercial sector, food collection for redistribution, and research into high value uses for food waste.

The effective management of food waste requires:

- Support for agricultural efficiency and innovation
- Assessment of food ordering, transport and storage practices
- Effective and sustainable use of packaging
- Partnerships between food and grocery retailers and charitable organisations
- Household education, and community initiatives
- Diversion of food waste from the commercial sector
- Investment in alternative treatment technology and infrastructure
- Incentives for alternatives to landfill disposal
- Creating value from food waste
- Standardisation of data for the measurement of food waste and tracking of waste reduction.



Halving Australia's food waste requires an integrated approach where governments, the private and not-for-profit sectors, and the community work together. The role of each is described below.

Halving Australia's food waste requires an integrated approach where governments, the private and not-for-profit sectors, and the community work together.

AUSTRALIAN GOVERNMENT

The Australian Government supports strategic dialogue on food waste reduction outcomes and has developed the National Food Waste Strategy that was launched at the National Food Waste Summit on 20 November 2017. Development of the strategy involved a number of industry sectors, all governments, the not-for-profit sector, and academia.

Under the Emissions Reduction Fund, the government is implementing the Source Separated Organic Waste method. This will allow funding for projects that divert food waste from landfill. The aim of the method is to reduce greenhouse gas emissions, such as methane, to the atmosphere.

The fund is further supporting the reduction of emissions from waste through projects that reduce the amount of organic waste in landfill, through diversion to composting and resource recovery, capturing methane from landfills and producing electricity and treating wastewater at places such as sewerage plants or abattoirs. Compost can also be used to reduce the rate of soil carbon loss in agriculture.

The Government also plays a strategic role in fostering and encouraging state, territory and local governments to continue work on food waste programs and policies. Practical measures include identifying knowledge gaps and sharing information through national waste reporting. National waste reporting consolidates key national waste and recycling information, including food waste data, from the states and territories. The availability of this data means that governments, the market, and the public are able to see changes in Australia's waste generation.

STATE AND TERRITORY GOVERNMENTS

State and territory governments are primarily responsible for waste legislation and management in Australia. The states and territories are addressing consumer food waste by introducing food waste education and awareness initiatives, and grants programs.

Pilot programs in a number of states, including Queensland and South Australia, have shown that businesses that sell food can save money by diverting food waste at the source.

LOCAL GOVERNMENTS

Local governments operate within the legislative framework of states and territories, and organise waste collection for households and businesses in their local area.



Many local governments have identified the significant amount of food in their waste streams and are taking steps to reduce food waste through a range of programs, such as:

- Community information sessions and demonstrations on storing food and composting at home
- Grants and rebates for households to purchase compost bins and worm farms
- Pilot programs for restaurants and cafes to assess their food waste practices and reduce the amount of food they send to landfill
- Supporting local businesses to source food waste, in order to turn it into valuable products like compost and fertiliser.

PRIVATE SECTOR AND NOT-FOR-PROFIT ORGANISATIONS

In Australia, the retail and food processing sectors are working independently to address food loss and waste.

The food processing industry's peak body, the Australian Food and Grocery Council, has a target to reduce waste to landfill by 40 per cent by 2020. It recognises there are strong incentives for food processors and retailers to reduce their food waste. These include increased efficiency and profitability and opportunities for businesses to stand out from their competitors in a highly competitive industry.

A substantial amount of food is diverted from landfill through four major food recovery services – Fareshare, Foodbank, OzHarvest and SecondBite. Major grocery retailers Coles and Woolworths, who hold around 70 per cent of the supermarket sector in Australia, have partnered with food recovery organisations. These partnerships mean that retailers can meet their food waste reduction goals while the charities are able to alleviate poverty and improve food security.

Industry is also exploring and experimenting with how different types of packaging can reduce food waste,

WHERE FOOD WASTE OCCURS

The drivers of food waste are varied and complex, and occur at every point along the supply and consumption chain. Examples of how food waste can occur are outlined below.

PRIMARY PRODUCTION	<ul style="list-style-type: none"> ➤ Product loss due to pests and diseases or weather. ➤ Stock or damaged or discarded during production, packing or handling. ➤ Fall in market prices making it unprofitable to harvest. ➤ Inability to meet contracted produce specifications, such as quality or size. ➤ Changes in consumer tastes and preferences.
PROCESSING AND MANUFACTURING	<ul style="list-style-type: none"> ➤ Product damaged during handling. ➤ Spoilage due to contamination or inadequate temperature control. ➤ Excessive trimming of vegetables for processed foods. ➤ Changes in production due to consumer demand. ➤ Equipment failure. ➤ Spillage on conveyor belts and transfer points. ➤ Inefficient inventory management. ➤ Damage to packaging resulting in food unfit for sale.
DISTRIBUTION	<ul style="list-style-type: none"> ➤ Spoilage due to inadequate temperature control in transport and storage. ➤ Damage due to improper handling.
RETAIL	<ul style="list-style-type: none"> ➤ Poor stock management, including over-ordering, improper stock rotation, storage and handling practices. ➤ Produce no longer meets quality standards. ➤ Last-minute order changes that can leave suppliers with excess product. ➤ Limited access to facilities to recycle or repurpose food waste.
HOSPITALITY AND FOOD SERVICE	<ul style="list-style-type: none"> ➤ Poor stock management, storage and handling practices.
HOUSEHOLDS	<ul style="list-style-type: none"> ➤ Confusion over 'use-by' and 'best-before' date labelling. ➤ Over-purchasing of food that is then thrown away. ➤ Limited knowledge of how to safely repurpose or store food leftovers. ➤ Limited access to food waste collection systems.

Source: Department of the Environment and Energy. *National Food Waste Strategy: Halving Australia's Food Waste by 2030*.

waste to energy, and conversion of food waste into alternative types of animal feed.

RESEARCH

Research plays an important role in finding solutions to address food waste. A number of research organisations have been progressing work on better understanding where food is wasted from the farm to the consumer, and developing approaches that could be adopted to reduce or repurpose food waste.

DEVELOPING THE NATIONAL FOOD WASTE STRATEGY

Consultation on the development of the strategy began in April 2017 through a Roundtable on Food Waste convened by the Minister for the Environment and Energy, the Hon Josh Frydenberg MP.

Following the roundtable, the Department of the Environment and Energy established four advisory groups with representatives from industry, academia, local government and the not-for-profit sector. These groups provided advice to the Department on opportunities to reduce food waste, data sources that may assist in the formation of a National Food Waste Baseline, and possible governance arrangements for the delivery of the strategy once it is released.

Advice was also sought from state and territory governments on opportunities for sharing data, collaboration on state food waste reduction programs, and the appropriateness of food waste regulation.

The National Food Waste Strategy was launched by the Minister for the Environment and Energy, the Hon Josh Frydenberg, on 20 November 2017 at the National Food Waste Summit.

The summit also provided an opportunity for participants to share ideas and improve their knowledge on how we can progress actions that will help reduce or repurpose food waste to work towards halving Australia's food waste by 2030.

ENDNOTES

1. SARDI (2015) *Primary Production Food Losses: Turning losses into profit*. South Australian Research and Development Institute, Primary Industries and Regions South Australia; Blue Environment (2017) *National Waste Report 2016*, prepared for Department of the Environment and Energy.

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Department of the Environment and Energy.
Working together to reduce food waste in Australia.
 Retrieved from www.environment.gov.au on 4 October 2018.

FOOD WASTE: MEETING THE CHALLENGE

DEPARTMENT OF THE ENVIRONMENT AND ENERGY EXPLAINS AUSTRALIA'S FOOD WASTE MANAGEMENT HIERARCHY

Addressing food waste represents a significant opportunity to put in place measures to protect our environment, prevent economic losses, and help relieve food insecurity.

The volume of work already underway to address food waste provides a platform to learn, leverage and build on as we work toward halving of Australia's food waste by 2030.

This strategy adopts a circular economy approach that takes into account the food waste hierarchy and seeks to capture food waste as a resource so it is not sent to landfill.

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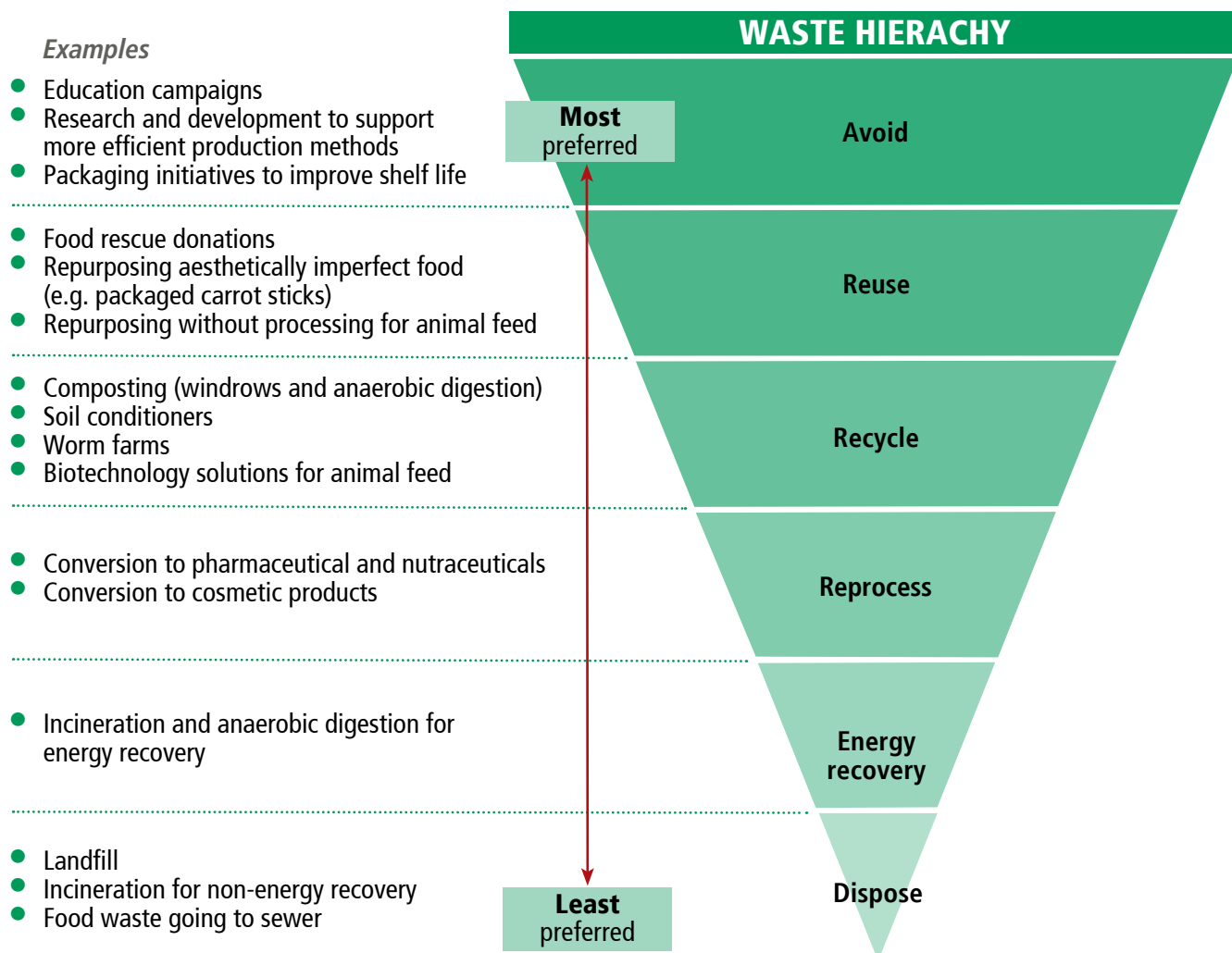
The waste hierarchy prioritises waste management practices in favouring food waste avoidance over resource reuse, recycling, reprocessing, and energy

recovery, followed by waste disposal. The hierarchy recognises the inherent value of food waste in providing guidance on the most resource-efficient and environmentally-sound approaches to dealing with waste.

The use of circular economy approaches and the waste hierarchy to address food waste demands a more strategic and collaborative approach. This will challenge us to find solutions across the entire food system rather than continuing to operate within single, linear supply and consumption chains.

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Department of the Environment and Energy (November 2017). *National Food Waste Strategy: Halving Australia's Food Waste by 2030*, pp. 15-16. Retrieved from www.environment.gov.au on 4 October 2018.



EXAMPLES OF INNOVATIVE AUSTRALIAN FOOD WASTE SOLUTIONS

The following pages provide a snapshot of some key food waste initiatives already underway across Australia. These examples are extracted from the National Food Waste Strategy, courtesy of **Department of the Environment and Energy**

CSIRO

Avoiding food loss from farmer to retailer

The Eliminate Food Loss research testbed within the CSIRO Active Integrated Matter, Future Science Platform aims to develop new strategies to avoid food loss from farm to retail. It does this by recovering and value adding the edible portion of the lost food to produce food ingredients and products that will enhance the sustainability of the food supply chain. The focus is on the development of intelligent decision making tools, new sensors and new processing technologies for stabilisation of food loss materials and conversion. As part of an industry-led drive to reduce waste, Horticulture Innovation Australia and the CSIRO are working with growers and stakeholders along the horticulture value chain to turn imperfect-looking vegetables into nutrient-rich snacks and supplements. research.csiro.au/aim/home/aims-research-test-beds/eliminate-food-loss

CSIRO

Tools to help business identify the most cost-effective food transport options

CSIRO and the Australian Government are reducing costs for Australia's agriculture industry by optimising vehicle movements between businesses in the supply chain. Using the largest dataset ever assembled for agricultural

transport in Australia, the Transport Network Strategic Investment Tool (TraNSIT) tracks the movement of every industry road or rail trip in Australia, from farm through to processor, storage facility or manufacturer, through to retailers and export ports. TraNSIT has exciting potential to support the full food supply and consumption chain to improve its efficiency and reduce costs.

csiro.au/en/Research/LWF/Areas/Landscape-management/Livestock-logistics/TRANSIT

CSIRO

From coffee grounds to kitty litter, the online marketplace connecting waste producers with innovative buyers

CSIRO, in collaboration with Kingston City Council, have developed a digital tool helping to connect businesses that produce waste with those that are able to make better use of it. The Advisory System for Processing, Innovation and Resource Exchange (ASPIRE) has helped Australian-owned manufacturer of commercial grinders Aximill connect with fast food restaurant McDonalds to use coffee grounds in the development of a compostable kitty litter. ASPIRE has reduced McDonalds' operating costs through saved landfill disposal fees, and helped Aximill to establish a new collaborative business partnership and increased awareness of the resource potential of waste. aspire.csiro.au/sites/default/files/aximill_usgboral_metro.pdf





FOOD AGILITY CRC

On-farm digital technology to improve producer yield

Australian start-up company and lead partner in the Food Agility Cooperative Research Centre, The Yield, has commercialised a digital tool to help growers increase their harvest, reduce waste, and mitigate the risks of bad weather. 'Sensing+ for Agriculture' provides an accurate picture of on-farm growing conditions like relative humidity, rainfall, air temperature, leaf wetness and soil moisture, empowering growers to make informed decisions about their crops.

theyield.com/products/sensing-plus-for-agriculture

FOODBANK

Paddock to plate collaboration

Foodbank, Australia's largest food relief organisation, targets the entire supply chain, from farmers to retailers, tackling food insecurity and food waste. In the last year, Foodbank rescued approximately 30 million kilograms of food and groceries, distributed through 2,600 charities and 1,750 schools. Foodbank's latest collaboration will see a FareShare kitchen in Brisbane, with one million meals expected for charities across Queensland in its first year.

foodbank.org.au

HARRIS FARM MARKETS

Educating customers on imperfect produce

Family-owned business Harris Farm Markets sells imperfect produce to their customers. IMPERFECT PICKS is their seasonal range of fruit and vegetables that might not look perfect from the outside, but are as perfect as ever on the inside. IMPERFECT PICKS helps reduce the astonishing statistic that 25% of farmers' crops currently never leave the farm gate simply because they are a bit ugly, and do not meet the visual specifications of some consumers and supermarkets (Horticulture Australia). Every time customers buy an IMPERFECT

PICK they help Harris Farm Markets take more of the farmer's crops, helping reduce food wastage, and most importantly saving up to 50%.

harrisfarm.com.au/blogs/campaigns/116554629-imperfect-picks

NATURAL EVOLUTION FOODS

Green banana innovation

Queensland producers Natural Evolution Foods are transforming misshapen, oversized, spotted, unsaleable bananas into gluten-free banana flour and resistant starch dietary fibre. This innovation provides a profitable potential for the 500 tonnes of bananas dumped every week in Australia because they are the wrong size or shape for supermarkets. They have also used their bananas to produce an anti-bacterial, anti-fungal and anti-inflammatory ointment.

naturalevolutionfoods.com.au/story/

NOLAN MEATS

New technologies automating meatworks

Nolan Meats operates the Southern Hemisphere's largest fully-automated meat chilling and distribution system at its processing facility near Gympie in southern Queensland. The company's \$20 million investment in the latest-generation automated freezing, storage, retrieval and palletising technologies has improved its cold chain security by minimising handling and by optimising trimming, inventory management, and cold storage to keep products as fresh as possible and ready for distribution to domestic and international markets.

nolan.com.au/our-story/our-story.aspx

OZHARVEST

Rescued food supermarket

Food rescue organisation OzHarvest has opened Australia's first rescued food supermarket offering customers donated or surplus food on a 'take what you need, give if you can' basis. The initiative aims to

eliminate hunger by connecting people in need with surplus food donated by commercial food outlets while reducing food waste to landfill.

ozharvest.org/what-we-do/market/

PEATS SOIL & GARDEN SUPPLIES

BiobiN® turning food waste into compost

South Australian company Peats Soil has developed the BiobiN®, a scalable, on-site organic waste management system that processes food waste into compost. Peats Soil currently collects food waste from hotels, restaurants, supermarkets, schools and offices, as well as food processors and manufacturers around Australia. BiobiN®'s process the waste into an organic material that provides a valuable source of nutrients, carbon and organic matter that can be added to compost, soil conditioners and biofuels.

peatsoil.com.au/about-peats

RMIT

Technology to measure and reduce food waste

RMIT University (Industrial Design) working with the Plenty Food Group, a Melbourne-based industry network for food manufacturing companies, has developed DIRECT, the Dynamic Industry Resource Efficiency Calculation Tool. DIRECT calculates the true cost of waste. It helps measure and reduce waste generated by businesses through tracking production input and output costs such as energy and water consumption, and manufacturing waste streams such as packaging and general waste, to optimise resource efficiency.

directool.com.au



TARAC TECHNOLOGIES

Wine and seafood industries combine with technology to find an alternate use for wine waste

Barossa Valley company Tarac Technologies is working with the South Australian Research and Development Institute to trial grape marc, the seeds and skins left over from wine production, as food for farmed abalone. Research is being undertaken to measure the impact of this feed on abalone growth rates, its fortification to heat stress, and its cost-effectiveness. If successful, the company will investigate domestic and international markets for abalone feed and other suitable fish varieties. Tarac Technologies also use grape marc as an input into other value-added products such as stock feed, grape seed extract and soil improvers.

tarac.com.au/products/agriculture/brentons-agri-blog/grape-marc-proves-a-superfood-for-abalone/

THE AUSTRALIAN INSTITUTE OF PACKAGING

Recognition for packing and processing innovation

The Australian Institute of Packaging's packaging and processing innovation and design awards provide recognition to businesses that aim to save food waste through packaging design. These awards are designed to encourage innovation in both the food manufacturing and the packaging industries to identify ways to reduce food waste in retail, food service and in the home through improved shelf-life, quality and convenience.

aipack.com.au/education/pida

YARRA VALLEY WATER

Waste-to-energy powering sewage treatment

Yarra Valley Water operates a waste-to-energy co-digestion facility, ReWaste, powered by feedstock from local commercial organic waste producers such as markets and food manufacturers. The organic waste is converted into methane or biogas and used to power Yarra Valley Water and a nearby sewage treatment plant. Any surplus energy generated is then sold to the electricity grid. ReWaste has the annual capacity to process and divert up to 33,000 tonnes of organic waste from landfill and is a cost-effective and renewable energy alternative to more traditional power sources.

yvw.com.au/about-us/major-projects/waste-energy-facility

YUME

A wholesale marketplace for surplus food

Yume has developed an online platform to facilitate the sale and donation of surplus food between buyers and sellers, which may have otherwise been wasted. The platform allows sellers to list surplus products for sale, at no cost, to enable buyers to purchase these goods at discounted prices.

yumefood.com.au

© Commonwealth of Australia.

Department of the Environment and Energy (November 2017).
National Food Waste Strategy: Halving Australia's Food Waste by 2030, pp. 33-37. Retrieved from
www.environment.gov.au on 4 October 2018.



How food waste is managed in Australia



① Supporting efficiency and innovation in agriculture

Key players: Australian Government, state and territory governments, primary producers, academic institutions.

In Australia food that does not make it to the consumer can result from weather, pest and diseases or not meeting market specifications. Some businesses have identified opportunities to use unwanted produce—for example, turning broken or bent carrots into packaged carrot sticks for sale in supermarkets.



② Assessing food ordering, transport and storage practices

Key players: food and grocery retailers, primary producers.

Food and grocery retailers are assessing their supply chains to maximise the shelf life of food and to improve their ordering systems so that the food ordered accurately reflects demand.

Households should consider the food they buy and how they store it. They should only buy what is needed and use 'best before' and 'use by' dates effectively.



③ Using packaging effectively and sustainably

Key players: food processing and manufacturing industries, state and territory governments, Standards Australia, Australian Government.

Effective use of packaging can increase the shelf-life of food products but it can also make food waste unsustainable for composting if it is not disposed of separately. The Australian Government partners with other jurisdictions and industry through the Australian Packaging Covenant to improve packaging design and increase the recycling of packaging.



④ Encouraging partnerships between food and grocery retailers and charitable organisations

Key players: food and grocery retailers, food rescue organisations.

Major food and grocery retailers in Australia have partnered with food recovery organisations and committed to reducing the amount of food waste that goes to landfill. This means retailers can meet their food waste reduction goals and also help charities to improve food security.



⑤ Conducting household education and community initiatives

Key players: state and territory governments, local governments, not-for-profit organisations.

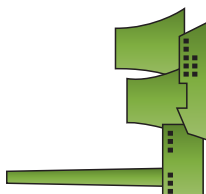
A number of state and territory governments have invested in public education campaigns to reduce food waste. Some local councils are also encouraging home composting by providing their residents with home compost bins or offering a rebate on composting equipment.



⑥ Diverting food waste from the commercial food sector

Key players: state and territory governments, commercial food sector, academic institutions, not-for-profit organisations.

Queensland, Western Australia and South Australia have piloted programs to turn food waste from commercial kitchens into compost or fertiliser. Businesses save money because they no longer have to pay landfill fees. Tools for businesses to self-assess their food waste practices have also been developed, including the Royal Melbourne Institute of Technology's DIRECT, the 'Dynamic Resource Efficiency Calculation Tool'.



⑦ Investing in alternative treatment technology and infrastructure

Key players: state and territory governments, private sector, Australian Government.

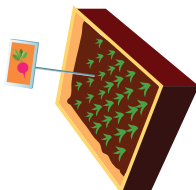
A number of states are upgrading their waste treatment infrastructure, particularly for organic waste. For example, in May 2017 a large scale biodigester was opened in Western Australia to treat food waste, generate electricity and produce compost for agricultural uses. These investments are often funded through landfill levies.



⑧ Finding incentives for alternatives to disposing of food waste in landfill

Key players: state and territory governments, waste management sector, private sector.

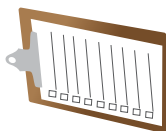
Because landfill is relatively cheap in Australia compared to other parts of the world, it can be difficult to make alternative food waste treatment technologies cost effective. To address this problem, most states and territories have introduced levies or fees to dispose of organic waste to landfill. This makes alternative treatment methods such as biodigestion and composting more cost effective options for businesses.



⑨ Creating value from food waste

Key players: academic institutions, Australian Government research institutions, private sector.

A number of research and development activities are taking place to find the best value uses for food waste. Research organisations, including CSIRO Agriculture and Food, are supporting the development and commercialisation of new bio-products.



⑩ Standardising data to measure food waste and track its reduction

Key players: waste management sector, state and territory governments, private sector, Australian Government.

Standardising waste data will allow more consistency between the states and territories and is supported by the food industry. The Australian Government can assess where national standards will make a difference—for example, where standards can be used to reduce the costs associated with meeting different state and territory requirements.

FOOD WASTE FACTS

OZHARVEST IS PASSIONATE ABOUT MINIMISING FOOD WASTE AND PROTECTING OUR ENVIRONMENT FOR FUTURE GENERATIONS. HERE'S WHY ...

THE WORLD

- There is enough food produced in the world to feed everyone.¹
- One third of all food produced is lost or wasted – around 1.3 billion tonnes of food – costing the global economy close to \$940 billion each year.²
- One in nine people do not have enough food to eat, that's 793 million people who are undernourished.³
- If one quarter of the food currently lost or wasted could be saved, it would be enough to feed 870 million hungry people.⁴
- Almost half of all fruit and vegetables produced are wasted (that's 3.7 trillion apples).⁵
- 8% of greenhouse gases heating the planet are caused by food waste.⁶
- If food waste was a country, it would be the third biggest emitter of greenhouse gases after USA and China.⁷
- Eliminating global food waste would save 4.4 million tonnes of CO₂ a year, the equivalent of taking one in four cars off the road.⁸
- Throwing away one burger wastes the same amount of water as a 90-minute shower.

IN AUSTRALIA

- The Government estimates food waste costs the Australian economy \$20 billion each year.⁹
- Over 5 million tonnes of food ends up as landfill, enough to fill 9,000 Olympic-sized swimming pools.¹⁰
- One in five shopping bags end up in the bin = \$3,800 worth of groceries per household each year.¹¹
- 35% of the average household bin is food waste.¹²
- Nearly four million people experience food insecurity each year, one quarter are children.¹³
- Over 710,000 people rely on food relief each month, one quarter are children.¹⁴

- Regional and remote communities are being hit the hardest and are a third more likely to experience food insecurity than those living in capital cities.¹⁵

ENDNOTES

1. 2016 World Hunger and Poverty Facts and Statistics, www.worldhunger.org/world-hunger-and-poverty-facts-and-statistics/
2. Food and Agriculture Organization of the United Nations (FAO), Save Food Global Food Waste and Loss Initiative, www.fao.org
3. FAO, *The State of Food Insecurity in the World 2015*, www.fao.org
4. *Ibid.*
5. FAO, www.fao.org/save-food/resources/keyfindings/infographics/fruit/en/
6. FAO, *Food Wastage Footprint Report 2013*, www.fao.org/docrep/018/i3347e/i3347e.pdf
7. *Ibid.*
8. YouSustain, www.yousustain.com/footprint/howmuchco2?co2=4%2C400%2C000+tons
9. Hon Josh Frydenberg MP, *Roundtable on food waste marks the beginning of halving Australia's food waste* (Media release, 11 April 2017), www.minister.environment.gov.au
10. Department of the Environment and Energy, www.environment.gov.au/topics/environment-protection/nwp/reporting/organic-waste
11. NSW Environment Protection Authority, www.epa.nsw.gov.au/wastegrants/organics-infrastructure.htm
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13. *FoodBank Hunger Report 2018*, www.foodbank.org.au/wp-content/uploads/2018/12/2018-Foodbank-Hunger-Report.pdf
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FIGHT FOOD WASTE – WHAT TO DO

FOOD-SAVING HABITS STARTS WHEN YOU LOOK.BUY.STORE.COOK,
ACCORDING TO THESE TIPS FROM **OZHARVEST**

LOOK

So many of us forget to LOOK at what we already have in our fridge, pantry and freezer *before* shopping. Consequently, we buy too much food and end up throwing it away.

Look at what food you have

The average household fridge has a lot to answer for. People shop for the week, stack the fridge and food gets forgotten – stuck in the dark corners of the vegetable crisper or hidden behind jars of jam. It's the main reason why people waste food at home.

Before you go shopping, make sure you've looked in your fridge, freezer and pantry at what ingredients you have and what needs using up.

Check use-by dates

Food labels did not even exist when our Grannies were around and they would never have thrown good food away, so why should we? Of course, we don't want people eating mouldy food, but relying on labels alone will always lead to good food ending up in the bin.

Know the difference between use-by and best-before dates.

BEST-BEFORE = QUALITY

The food supplier's recommendation of when the product is at its 'best', it's perfectly safe to eat after this date.

USE-BY = SAFETY

The manufacturer's guide to when the product should be consumed for food safety reasons. Whilst it's not really recommended to eat food past this date, use your senses to gauge whether food is edible.

Plan your meals

If you plan what you are going to eat over the next few days (and stick to it), food waste in your home should become a thing of the past.

You don't have to plan meals for every night of the week. Sometimes a few good meals will go a long way.

Make a plan based on:

- Who is home this week?
- How many meals to prepare?
- What food needs using up?
- Include a leftovers night, or a 'cook once eat twice' meal
- Write a list of what you need to buy.

BUY

Buying too much is a regular habit in many homes, but simple things like writing a shopping list and not being tempted by offers and deals will help you to only BUY what you need.

Buy what you need

Changing the way you shop can make a big difference. 'The big shop' can often result in overbuying, try to shop more often and only get what you need for the next few meals. Double check your basket at the counter, it's better to put it back on the shelf than in the bin!

Top tips:

Buy loose fruit and veg so you can choose the right amount – look for wonky ones if you can!

Shop with a list

Shopping with a list helps avoid buying food you won't eat. With 1 in 5 shopping bags going in the bin, a list is the best way to ensure you only buy what you need. Include the ingredients that need using up so you don't forget!

Top tips:

Stick to your list and don't shop when you're hungry!

Avoid the deals

'Buy one, get one free' may sound tempting, but usually leads to buying food you don't really need.



Top tips:

Ask yourself, "When will I eat this?"

BUY what you need to save money, reduce food waste and help the planet.

STORE

Store food properly to give it the best chance of survival. Simple things like getting food organised, stacking your fridge correctly, using your freezer and airtight containers will help you stay on top of what you have and reduce waste.

Store food in airtight containers

Pantry top tips:

1. Get organised so you can see what you have at a glance
2. Invest in good storage containers and bag clips to keep food fresh
3. Check your pantry before shopping to avoid double-ups
4. Try using pantry items up at the end of each month.

Store food correctly to make it last longer!

Keep fruit and veg in the fridge

Fridge top tips:

1. Move food that needs using up first to the front of the fridge
2. Keep the fridge temperature at 4°C
3. Pack leftovers in airtight containers (and remember to eat them!)
4. Don't overload your fridge so the cold air can circulate
5. Download and use our handy illustrated guide on how to stack your fridge.

Freeze food near its use-by date

Freezer top tips:

1. Food can be frozen on its use-by date
2. Freeze food in portions
3. Use airtight containers to avoid freezer burn
4. Label and date freezer food so you can see what you have
5. Defrost with care by thawing in your fridge overnight
6. Cook from the freezer once a week.

Most food can be frozen, but the quality will slowly decline over time.

STORE food correctly to make it last longer.

COOK

Cook is where you can become a true food waste warrior and really save food from ending up in the bin. Be conscious of how many you are cooking for and measure out portions to avoid cooking too much.

Cook what you already have

Change your kitchen mindset from "what do you want



to eat?" to "what have we got to use up?" and get ready to be creative with whatever ingredients and leftovers you have!

Use ingredients up

Food that looks a little sad or wrinkled can still be saved! Try chopping up older fruit and veg and throwing it into something delicious. Don't let a bendy carrot, wilted herbs or bruised fruit throw you off track!

Sometimes older food just needs a new lease on life – if you are not sure what to cook, google the ingredients and see what recipes come up. Get creative and turn wilted veg into soup, bruised bananas into smoothies, anything and everything into stir-fried rice!

Top tip:

Cook root to stem to use it all up and watch your food go further!

Love your leftovers

Cook with what you have and apply the 'use it up' approach to make food waste a thing of the past in your home.

OzHarvest. *Fight food waste – what to do.*
Retrieved from www.ozharvest.org on 4 October 2018.

TIPS TO REDUCE YOUR FOOD WASTE

ADVICE FROM THE DIETITIANS ASSOCIATION OF AUSTRALIA



Each year, Australians *throw out one in five bags of groceries* we buy. In dollar terms, that means each household throws away \$616 per year. As a nation, that's about \$8 billion dollars' worth each year!^{1,2}

Not only is that a lot of money wasted, but the food we throw away ends up in landfills, fermenting and producing methane. Methane is a greenhouse gas that is 20 times more potent than carbon dioxide. Because the wasted food in landfills is trapped under layer after layer of other rubbish, it doesn't have access to oxygen to help it break down, which means it produces this damaging greenhouse gas.

Throwing food in the bin is also a huge waste of the resources required to produce, transport and store it, such as water, fuel, fertiliser and packaging. For example, it takes:

- 500-4,000 litres of water to make just 1 kilogram of wheat and
- 5,000-20,000 litres of water to make just 1 kilogram of beef.³

Food waste happens anywhere from 'field to fork'. This includes farms, factories, supermarkets, restaurants, workplaces, healthcare and foodservice facilities as well as households.

Population levels are predicted to rise to 9.5 billion people by 2075;³ change needs to occur at all levels to make sure we can continue producing enough food for the growing population and ensure a sustainable future. Different organisations are working hard to reduce food waste such as OzHarvest, SecondBite and Foodbank,⁴ but it's important that we all make changes in the home too.

Each of us can play a role in reducing food waste and make a difference. Doing your bit to reduce food waste not only helps you save money, but helps the planet too!

REDUCE YOUR FOOD WASTE – PLANNING AND PURCHASING FOODS

1. Plan your meals in advance, so that you only buy the food you need and check the cupboard and fridge before you go shopping – this will help you stop buying things that you already have.
2. Some supermarkets sell discounted fruits and vegetables – called 'imperfect picks' – that previously would have ended up in the bin because of cosmetic imperfections. Around 25% of fresh produce is rejected and binned because of these imperfections. This produce is just as nutritious as the other fruit and vegetables, and is often discounted! Buying these foods means you are doing your bit to help reduce food waste and saving money.
3. Choose foods with a long shelf life that won't go off if you don't eat it straight away – e.g. canned vegetables/fruit, canned and dried legumes, rice, pasta, long life milk and frozen goods.
4. Use your freezer to store fresh or prepared foods you won't eat right away. For example, leftovers, vegetables, fruit, cheese, meat and baked goods; see the next page for some tips on freezing foods.
5. Minimise non-recyclable packaging – because it can take up to 10,000 years for plastic to break down, every bit of plastic ever made still exists today. Try to use as little plastic as possible in all situations – when choosing grocery bags, storage containers, water bottles and if buying individually wrapped food.
6. Know the difference between 'use-by' and 'best-before' dates. Foods that must be eaten before a certain time for health and safety reasons are marked with 'use-by' dates; foods should be eaten before this date, or alternatively frozen before this date to be eaten later. Most foods have a 'best-before' date instead, which means the food can

still be safely eaten after the stated date, but it just may not be at its best.⁵ Check for the different date marks on your foods and don't be so quick to throw food away if it's after the 'best-before' date.

REDUCE YOUR FOOD WASTE – STORAGE

1. **Store foods correctly** – food may be accidentally frozen if your fridge is too cold, or if it is not stored in a container it may go stale. Use reusable containers rather than plastic wrap to store your food to keep foods fresh and reduce the plastic waste. Extend the shelf-life by cooking, freezing, preserving or dehydrating foods, particularly fruit and vegetables. Older vegetables can be cooked and then blended together to make a homemade sauce or stock paste.

REDUCE YOUR FOOD WASTE – FOOD PREPARATION

1. **Cook in bulk and freeze individually portioned meals** – this means you'll have meals handy for the future if you don't feel like cooking, and is a great idea if you have groceries that are approaching their use-by date.
2. **Don't put too much food on your plate.** Make sure your serve sizes match your nutritional requirements. Get to know your serve sizes and how many serves you need from the *Australian Dietary Guidelines* (www.eatforhealth.gov.au).

REDUCE YOUR FOOD WASTE – FREEZING FOODS AND MANAGING LEFTOVERS

1. **Freeze any leftover meals made and be creative using leftovers.** This also goes for eating out – take your leftovers home and use them in other meals. Check out the Dietitians Association of Australia's Smart Eating Recipes site for some great ideas (<https://daa.asn.au/smart-eating-for-you/smart-eating-recipes/>)
2. **Leftover cooked vegetables can be blended, frozen then used later to make soups and sauces.**
3. **Freezing foods is a great way to reduce food waste:**
 - **Fruits** – the majority of fruits can be frozen, just wash them and you're ready to go!
 - **Vegetables** – the majority of vegetables freeze and defrost well, but their changed texture will be best suited to be used in cooking. Blanching the vegetables first will keep them at their freshest. Onions, tomatoes, avocado, corn, potatoes, capsicums, peas, broccoli and cauliflower and many more can be frozen. Leafy greens like spinach and kale can also be frozen. High water content vegetables (e.g. cucumbers, iceberg lettuce) are best eaten fresh rather than frozen.
 - **Meats/alternatives** – all meats can be frozen easily. Individually portion out the meat to make it easier to defrost later. Eggs can be frozen too, however not in their shell. Crack them into ice cube trays for easy storage before freezing.
 - **Dairy** – milk, cheese and yoghurt can be frozen

– allow a little extra space in the top of the bottle for milk to expand.

- **Herbs** – all herbs can be frozen; just chop roughly, mix with a little water and store in ice cube trays.
- **Pantry goods** – foods like chocolate, marshmallows, nuts and flour can be frozen for long-term storage!
- **Baked goods** – bread, cakes, slices and French toast can be frozen and eaten later.
- **Full meals** – casseroles, curries, roasts, pastas, soups and broths can all be frozen and eaten later.

REUSING OR REPURPOSING AND REDISTRIBUTING EXCESS FOOD

1. **'Food swaps'** are growing in popularity; this is where people come together to swap excess home-grown produce and gardening extras. For more information on food swaps, go to Local Harvest Food Swaps (www.localharvest.org.au)
2. **Consider community groups in your local area** that may provide resources or support such as community gardens, food markets and food recycling organisations.

RECYCLING YOUR FOOD WASTE

1. **Compost fruit, vegetable and grain-food scraps, or use worm farms, or search Share Waste** (<https://sharewaste.com/>) to find local composts to contribute to instead. For handy tips on how to make a home compost, check out Clean Up Australia's *Composting Tips* (www.cleanup.org.au)
2. **Some local government areas in Australia offer green organic bins** which are collected from household kerbsides alongside regular garbage and recycling. Food scraps put into these bins are taken to local composters and repurposed. Contact your local Council to request a green organic bin.



WANT MORE TIPS AND TRICKS?

1. An Accredited Practising Dietitian (<https://daa.asn.au/find-an-apd/>) can provide personalised advice for enjoying a healthy and varied diet whilst minimising food waste in your household.
2. National Programs and Campaigns:
 - Love Food Hate Waste
www.lovefoodhatewaste.com
 - Food Wise Food Waste Tool Kits
www.foodwise.com.au/category/food-waste-toolkit/
 - Youth Food Movement Australia
www.youthfoodmovement.org.au
 - Clean Up Australia – Reducing Waste
www.cleanup.org.au
 - Australia's National Waste Policy: Less Waste, More Resources
www.environment.gov.au/protection/waste-resource-recovery/national-waste-policy
3. State/Territory Government (e.g. Environment Protection Authority [EPA]) Information and Programs:

New South Wales:

EPA NSW – Food Waste

www.epa.nsw.gov.au/your-environment/waste/reducing-your-household-waste/love-food-hate-waste

Love Food Hate Waste – NSW

www.lovefoodhatewaste.nsw.gov.au

Victoria:

EPA Victoria – Lower Your Impact

www.epa.vic.gov.au/business-and-industry/lower-your-impact/resource-efficiency/reducing-waste

Sustainability Victoria

www.sustainability.vic.gov.au

Love Food Hate Waste – Victoria

www.lovefoodhatewaste.vic.gov.au



South Australia:

EPA South Australia – Waste

www.epa.sa.gov.au/environmental_info/waste_management/solid_waste

Green Industries – South Australia

www.greenindustries.sa.gov.au

Western Australia:

Waste Authority – Western Australia

www.wasteauthority.wa.gov.au/programs/wws/

Queensland:

Queensland Environment and Heritage Protection – Waste

www.stateoftheenvironment.des.qld.gov.au

Sustainable Queensland – State of Waste

www.qld.gov.au/environment/pollution/management/waste/recovery/data-reports/recycling-waste

Tasmania:

Environmental Protection Authority Tasmania

– Managing Waste in the Home

<https://epa.tas.gov.au/sustainability/resources-for-the-community/managing-waste-in-the-home>

Environmental Protection Authority Tasmania

– Resources for the Community

<https://epa.tas.gov.au/sustainability/resources-for-the-community>

4. Or contact your local Council and Government agency for further information.

REFERENCES

1. *Food Waste in Australia*: Future Directions International, www.futuredirections.org.au/publication/food-waste-in-australia/
2. *Food Waste Avoidance Benchmark Study*: Office of Environment and Heritage, www.lovefoodhatewaste.nsw.gov.au/portals/0/docs/11339FWABenchmarkstudy.pdf
3. *Global Food – Waste Not, Want Not*: Institute of Mechanical Engineers, www.imeche.org/docs/default-source/default-document-library/global-food---waste-not-want-not.pdf?sfvrsn=0
4. *Working Together to Reduce Food Waste in Australia*: Australian Government, Department of Environment and Energy, www.environment.gov.au/protection/waste-resource-recovery/food-waste
5. *Use-by and best before dates*: Food Standards Australia and New Zealand, www.foodstandards.gov.au/consumer/labelling/dates/Pages/default.aspx

This information has satisfied the requirements for the Dietitians Association of Australia's process of endorsement. For expert nutrition and dietary advice, contact an Accredited Practising Dietitian (APD). Visit 'Find an Accredited Practising Dietitian' at www.daa.asn.au or call 1800 812 942.



Dietitians Association of Australia.
Tips to Reduce Your Food Waste. Retrieved from
<http://daa.asn.au> on 4 October 2018.

MINIMISE FOOD WASTE

Food waste costs Australian households around \$3,000 a year. Learn how to save money and the environment by reducing your waste with these tips from Department of the Environment and Energy

In Australia we waste up to 30% of the food we purchase. In 2017 it was estimated that food waste cost the Australian economy about \$20 billion each year. Australian consumers threw away about 3.1 million tonnes of edible food a year. Another 2.2 million tonnes was disposed of by the commercial and industrial sector.

Food waste costs Australian households between \$2,200 to \$3,800 a year. The environmental cost is also significant, an estimated 7.6 million tonnes of greenhouse gas emissions was released into the environment as a result of sending food waste to landfill in 2014-15.

Every time we throw food into the bin we're also discarding the vast amounts of resources, energy and water that it took to produce, process, store, refrigerate, transport and cook our food.

- Save money and reduce waste
- Reduce energy, water and resource use.

Shop wisely

Much of the food wastage in our kitchens comes from simply buying too much or inadequate planning.

To reduce the amount you throw away:

- Check what's in your fridge before going shopping, and plan your next meals around what needs to be eaten. Put things in the freezer if you aren't able to eat them soon.
- Think about what you will eat for the next few days and make a list of what you need. This will help you to buy only what you need.
- Buy in quantities that you will use.
- Keep a store of long-life basics in your cupboard – like pasta, rice, tinned fish or beans or frozen vegetables. This makes it easy to prepare a quick meal when you add a few fresh ingredients.
- Check use-by dates to make sure you'll eat the product before it goes out of date. Try to include local or organic food in your shopping. This helps reduce emissions from transport as well as the use of chemicals and fertilisers.
- When purchasing fish, choose species which are not overfished or threatened. Ask your seafood retailer for advice.
- Try to select food with minimal packaging to reduce waste to landfill.
- Remember to take your reusable shopping bags.

Store food correctly

Different foods have different storage needs. Correct food storage has a huge impact on the freshness and



Every time we throw food into the bin we're also discarding the vast amounts of resources, energy and water that it took to produce, process, store, refrigerate, transport and cook our food.

shelf-life of food.

Keep your food fresh and avoid wasting energy by having your fridge set at the right temperature – between 3 and 4°C for the fridge and between minus 15 and minus 18°C for the freezer. Use a fridge thermometer to check.

Keep a range of air-tight plastic containers for storing various foods once they have been opened or cooked. Keep old margarine and takeaway food containers including their lids for this purpose.

Air-tight jars (like jam jars) are great for storing dry ingredients like flour or rice or leftover liquids.

Here are some tips for storing food:

- Most vegetables keep best in the refrigerator – in the vegetable drawer if you have one. Once cut, vegetables are safest stored in the fridge.

- Remove vegetables, herbs and mushrooms from plastic bags as they will 'sweat' and spoil.
- Store potatoes, onions and other root vegetables in a cool dry place. If potatoes turn green, don't eat them – put them in your compost or worm farm.
- Refrigerate raw meat immediately after purchase until cooked. Keep meat in a sealed container so it doesn't contaminate other food. Store it in the coldest part of your fridge (usually at the rear).
- Store opened pasta, rice and cereals and other dry ingredients in air-tight containers.

For lots more tips on how to choose and store different foods visit the Food Safety Information Council website at: www.foodsafety.asn.au/topic/shopping-and-storage-food-safety.

Use your freezer

Use your freezer to store food that would otherwise go off.

- Store leftovers in the freezer for later. Do not reheat more than once.
- If cooking a curry or stew, cook extra and store some in the freezer for an easy meal later on. Remember to thaw items in your fridge overnight rather than in the microwave.
- If you're unlikely to use a whole loaf of bread before it goes stale, cut it up into portions and store it in the freezer.
- Lots of fruits and vegetables are suitable to freeze. You can blend frozen strawberries or raspberries into a smoothie or use it as a topping. Freeze

bananas (without the skin) that are getting very ripe, these are great for baking or eating.

- You can even freeze some cheeses like parmesan or gruyere.
- Freeze liquids like stock and even wine in small containers or in an ice cube tray and use as needed in cooking.

Cook what you need

Try to cook only as much as will be eaten. A portion guide may help you to work out how much to cook for each person. If you have extras every night, adjust the amount you cook.

Use leftovers

Get inventive with leftovers and put even small leftovers in the fridge or freezer for a handy lunch or snack. There are plenty of websites with new and traditional recipes that make use of leftovers to provide nutritious and delicious meals.

- Keep leftovers for lunches or snacks, or as part of another meal.
- If you can't use leftovers straight away, freeze them for later. Don't reheat leftover food more than once.
- Be creative and invent your own recipes from what's in the fridge. You can search for recipes online by key ingredients.
- Keep scraps for pets. Make sure the food is suitable – for example, onions are toxic to dogs.
- Chickens will eat a variety of kitchen scraps. They'll also provide fresh eggs, pest control and garden services.



Refuse and re-use packaging

The majority of packaging that comes with your food can be avoided or recycled.

Here are some ways you can reduce or re-use packaging:

- Refuse excess packaging. Look for products with no or less outer materials.
- Avoid pre-packaged fruit and vegetables where possible.
- Recycle packaging where you can and re-use containers. Plastic take-away containers from restaurants can be used for storage or as a lunch box, and margarine containers are great for paint holders if you're renovating.
- Take your own bags when you go shopping.
- Pass on egg containers to friends or colleagues who keep chickens. The cardboard can also be ripped up and used in your compost.

Recycle waste

Plastics, tins, paper and cardboard and drink containers can all go in your home recycle bin.

Check our recycling guide and make sure you know what your local Council does and does not collect.

Bottles can be recycled and don't forget the corks from your wine bottles. Cork is a valuable natural resource. Find out where you can recycle cork stoppers from wine bottles through Planet Ark's Recycling NearYou (www.recyclingnearyou.com.au).

Compost food scraps

Turn food scraps into compost for your garden to reduce waste and return nutrients to your soil. You can compost most types of food waste including:

- Uncooked vegetables and scraps
- Fruit
- Salad
- Tea bags
- Crushed egg shells
- Coffee grounds
- Non-food materials such as plants and flowers, grass clippings, leaves and shredded paper, cardboard or pet and human hair.

It is not recommended that you put the following items in your compost as they do not break down quickly and can attract animals or vermin:

- Dairy products
- Meat or fish
- Lemon or orange peels.

Keep a small container for food scraps handy in your kitchen and empty it regularly into your compost bin.

Cut up large pieces of food scraps as they will break down more quickly.

Start a worm farm

You can also recycle food waste by turning it into rich fertiliser through a worm farm. Worm liquid and castings are excellent for pot plants.



You can have a worm farm even if you live in an apartment and don't have much space. There are clever worm farm kits that fit under your sink or on your verandah so they're convenient, space-efficient and clean.

While worms aren't fussy eaters, you shouldn't feed them:

- Dairy produce like butter or cheese
- Meat or fish
- Fat or bones
- Onions or garlic.

Grow your own food

Growing fruit and vegetables is a great way of reducing some of the harmful gases produced by processing and transporting food. Not only is growing your own food rewarding – it tastes better too.

Even if you don't have a garden, it's easy to grow a few fresh herbs or salad greens in a pot on your verandah or kitchen so they're always on hand. Instead of buying costly bunches of herbs at the supermarket that you may not use, you can snip off just a few leaves as you need them.

Consider using organic principles for the food you grow.

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Department of the Environment and Energy. *Minimise food waste*. Retrieved from <http://yourenergysavings.gov.au> on 4 October 2018.

FOOD WASTE TIPS: AN INFOGRAPHIC

BE SUSTAINABLE WITH FOOD AND FOLLOW THESE TIPS FROM **WWF-AUSTRALIA**



© WWF-Australia. Food waste. Retrieved from www.wwf.org.au on 4 October 2018.

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REDUCING FOOD WASTE CAN PROTECT OUR HEALTH, AS WELL AS OUR PLANET'S

Smaller portions reduce food waste and waistlines, according to this article from *The Conversation*, written by **Liza Barbour** and **Julia McCartan**

Globally, one-third of food produced for human consumption is wasted. Food waste costs Australia A\$20 billion each year and is damaging our planet's resources by contributing to climate change and inefficient land, fertiliser and freshwater use.

And it's estimated if no further action is taken to slow rising obesity rates, it will cost Australia A\$87.7 billion over the next ten years. Preventable chronic diseases are Australia's leading cause of ill health, and conditions such as coronary heart disease, stroke, high blood pressure, some forms of cancer and type 2 diabetes are linked to obesity and unhealthy diets.

But we can tackle these two major issues of obesity and food waste together.

AVOID OVER-CONSUMPTION OF FOOD

Described as metabolic food waste, the consumption of food in excess of nutritional requirements uses valuable food system resources and manifests as overweight and obesity.

The first of the *Australian Dietary Guidelines* is: *To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.*

In 2013, researchers defined three principles for a healthy and sustainable diet. The first was:

Any food that is consumed above a person's energy requirement represents an avoidable environmental burden in the form of greenhouse gas emissions, use of natural resources and pressure on biodiversity.

REDUCE CONSUMPTION OF PROCESSED, PACKAGED FOODS

Ultra-processed foods are not only promoting obesity, they pose a great threat to our environment. The damage to our planet not only lies in the manufacture and distribution of these foods but also in their disposal. Food packaging (bottles, containers, wrappers) accounts for almost two-thirds of total packaging waste by volume.

Ultra-processed foods are high in calories, refined sugar, saturated fat and salt, and they're dominating Australia's food supply. These products are formulated and marketed to promote over-consumption, contributing to our obesity epidemic.

Given the cost of food waste and obesity to the economy, and the impact on the health of our people and our planet, reducing food waste can address two major problems facing humanity today.



Healthy and sustainable dietary recommendations promote the consumption of fewer processed foods, which are energy-dense, highly processed and packaged. This ultimately reduces both the risk of dietary imbalances and the unnecessary use of environmental resources.

Author Michael Pollan put it best when he said, “Don’t eat anything your great-grandmother wouldn’t recognise as food.”

SO WHAT DO WE NEED TO DO?

In response to the financial and environmental burden of food waste, the federal government’s National Food Waste Strategy aims to halve food waste in Australia by 2030. A\$133 million has been allocated over the next decade to a research centre which can assist the environment, public health and economic sectors to work together to address both food waste and obesity.

Other countries, including Brazil and the United Kingdom acknowledge the link between health and environmental sustainability prominently in their dietary guidelines.

One of Brazil’s five guiding principles states that dietary recommendations must take into account the impact of the means of production and distribution on social justice and the environment. The Qatar national dietary guidelines explicitly state “reduce leftovers and waste”.

Many would be surprised to learn Australia’s dietary guidelines include tips to minimise food waste:

Store food appropriately, dispose of food waste appropriately (e.g. compost, worm farms), keep food safely and select foods with appropriate packaging and recycle.

These recommendations are hidden in Appendix G of our guidelines, despite efforts from leading advocates to give them a more prominent position. To follow international precedence, these recommendations should be moved to a prominent location in our guidelines.

At a local government level, Councils can encourage responsible practices to minimise food waste by subsidising worm farms and compost bins, arranging kerbside collection of food scraps and enabling better access to soft plastic recycling programs such as REDCycle.

Portion and serving sizes should be considered by commercial food settings. Every year Australians eat 2.5 billion meals out and waste 2.2 million tonnes of food via the commercial and industrial sectors. Evidence shows reducing portion sizes in food service settings leads to a reduction in both plate waste and over-consumption.

Given the cost of food waste and obesity to the economy, and the impact on the health of our people and our planet, reducing food waste can address two major problems facing humanity today.

DISCLOSURE STATEMENT

Liza Barbour is affiliated with Australia’s Right to Food Coalition. Julia McCartan does not work for, consult, own shares in or receive funding from any company or organisation that would benefit from this article, and has disclosed no relevant affiliations beyond her academic appointment.

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THE CONVERSATION

Barbour, L, and McCartan, J (4 September 2018).
Reducing food waste can protect our health, as well as our planet’s.
Retrieved from <http://theconversation.com> on 8 October 2018.



EXPLORING ISSUES

WORKSHEETS AND ACTIVITIES

The Exploring Issues section comprises a range of ready-to-use worksheets featuring activities which relate to facts and views raised in this book.

The exercises presented in these worksheets are suitable for use by students at middle secondary school level and beyond. Some of the activities may be explored either individually or as a group.

As the information in this book is compiled from a number of different sources, readers are prompted to consider the origin of the text and to critically evaluate the questions presented.

Is the information cited from a primary or secondary source? Are you being presented with facts or opinions?

Is there any evidence of a particular bias or agenda? What are your own views after having explored the issues?

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Brainstorm, individually or as a group, to find out what you know about food insecurity and waste.

1. What does the term 'food insecurity' mean? Provide some examples and possible causes.

2. What is a food bank, and who can use them?

3. What are the five food groups and why are they important? Provide some examples.

4. What is food waste, and why should it be addressed?

5. What is compost, and how does it help to reduce food waste? Provide some examples.



WRITTEN ACTIVITIES

Complete the following activities on a separate sheet of paper if more space is required.

1. Where we live can influence the food choices we make. Write 2-3 paragraphs explaining where you live, how you think it influences the food choices your family makes, and why (include examples).

2. Think about the fresh produce used in your household. How and where is it sourced? How is it stored? How much of your fresh produce is wasted? Write 1-2 paragraphs addressing these questions. Also write 1-2 paragraphs to propose how these areas could be improved; include examples with your solutions.

3. Write a short essay on food waste management in Australia. Address the ways food waste is managed in the following areas: agriculture, production, and the retail and commercial food industries (include examples).



DISCUSSION ACTIVITIES

Complete the following activities on a separate sheet of paper if more space is required.

Food waste costs Australian households between \$2,200 to \$3,800 a year ... Much of the food wastage in our kitchens comes from simply buying too much or inadequate planning.

Department of the Environment and Energy, *Minimise food waste.*

Consider the above quote. Form into groups of two or more people to brainstorm ways in which you could reduce food waste in your lives with better purchasing and planning strategies. Create a list from your discussions to incorporate into a meal planning strategy. In your plan include ideas for shopping lists, food preparation and storage solutions to ensure that food waste is kept to a minimum. Discuss and compare your plan with other groups in the class.

The health and wellbeing of all Australians would improve if we chose foods and drinks according to the Australian Dietary Guidelines and the Australian Guide to Healthy Eating.

NHMRC, *What influences our food choices?*

In groups of two or more people discuss what foods and drink you would consume over a week. Make a list and compare it with the *Australian Guide to Healthy Eating*. Discuss in your groups the areas where you feel food choices could be modified to comply with the guidelines. Create a 'before and after' chart to illustrate the outcomes of your discussions. Compare with other groups in the class.



RESEARCH ACTIVITIES

Complete the following activities on a separate sheet of paper if more space is required.

Reducing food waste is a complex challenge due to the range of food types and their supply chains, and regulatory frameworks to support food safety and waste disposal. It also presents a number of opportunities to rethink how food waste can be prevented, or how wasted food can be used for other purposes.

Department of the Environment and Energy, *Working together to reduce food waste in Australia*.

Use the internet to research the latest food waste solutions available in Australia. Select at least three (3) innovations and write a few paragraphs outlining what they are, when they are/will become available, and how they will assist in reducing food waste. Include links to your findings.

In the last 12 months, more than four million Australians (18% of the population) have been in a situation where they have run out of food and have been unable to buy more.

Foodbank Australia, *Foodbank Hunger Report 2018*.

Make use of the internet, library and local community resources to research what types of emergency relief services are available in your area to assist people dealing with food insecurity. Write a list of the local services including the names of the organisations, what they provide, where they are situated, who is eligible for food relief, and how they can be accessed.



Complete the following activities on a separate sheet of paper if more space is required.

Form into groups of two or more and develop design briefs for an educational flyer or poster on the following two topics. Your brief should include the following information: the target audience, design style (including format i.e. flyer or poster), fonts and the images/illustrations you would use to create the most impact. Also include any headings and subheadings with the text to support the images and your message. Explain your approach to the rest of the class.

Every time we throw food into the bin we're also discarding the vast amounts of resources, energy and water that it took to produce, process, store, refrigerate, transport and cook our food.

Department of the Environment and Energy, *Minimise food waste.*

TOPIC 1: Address ways to reduce food waste in the following areas: households, supermarkets and restaurants. Include information on at least four [4] methods that could be used to minimise food waste.

Almost half of the Australians who are classified as 'food insecure' are employed either full-time, part-time or casually. And 40% of these homes include children.

Rebecca Lindberg and Liza Barbour, *Too many Australians have to choose between heating or eating this winter.*

TOPIC 2: Address ways in which food insecurity has a significant impact on the wellbeing of children in the following areas: physical, emotional and behavioural. Include information on the ways that children may experience food insecurity.



MULTIPLE CHOICE

Complete the following multiple choice questionnaire by circling or matching your preferred responses. The answers are at the end of the following page.

- 1. Approximately how much food produced for human consumption worldwide is lost or wasted?**
 - a. None
 - b. One fifth
 - c. One quarter
 - d. One third
 - e. One half
 - f. Two thirds
 - g. Three quarters

- 2. Aligning with the UN Sustainable Development Goal 12, the Australian Government committed to what 2017 National Food Waste Strategy proposal to address food waste in Australia?**
 - a. Reduce food waste by 10% by 2030
 - b. Reduce food waste by 50% by 2030
 - c. Reduce food waste by 75% by 2030
 - d. Reduce food waste by 25% by 2040
 - e. Reduce food waste by 50% by 2050

- 3. Which of the following should *not* be placed in a worm farm? (Select any that apply)**
 - a. Banana skins
 - b. Fish
 - c. Bones
 - d. Butter
 - e. Carrots
 - f. Onions

- 4. Australians throw out one in ____ bags of groceries? (Select the correct amount)**
 - a. Two
 - b. Three
 - c. Four
 - d. Five
 - e. Six
 - f. Seven

- 5. Approximately what percentage of all vegetables is estimated to never leave the farm?**
 - a. 10%
 - b. 15%
 - c. 25%
 - d. 50%
 - e. 75%
 - f. 90%

- 6. Food waste causes approximately what percentage of greenhouse gases heating the planet?**
 - a. 0%
 - b. 8%
 - c. 20%
 - d. 48%
 - e. 80%
 - f. 100%



MULTIPLE CHOICE

- 7. Ideally, food costs should make up less than what percentage of a household's income?**
- a. 20-25%
 - b. 30-35%
 - c. 40-45%
 - d. 50-55%
 - e. 60-65%
- 8. What is the recommended temperature setting for your refrigerator to keep your food fresh and to avoid wasting energy?**
- a. -15 to -18 °C
 - b. -3 to -4°C
 - c. 0°C
 - d. 3 to 4°C
 - e. 15 to 16°C
- 9. Respond to the following statements by circling either 'True' or 'False':**
- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| a. There is not enough food produced in the world to feed everyone. | True / False |
| b. Throwing food in the bin wastes a huge amount of water, fuel and resources. | True / False |
| c. There is no difference between a 'best-before' and a 'use-by' date. | True / False |
| d. The food we throw away ends up in landfills, fermenting and producing the greenhouse gas methane, that is 20 times more potent than carbon dioxide. | True / False |
| e. In Australia, over 5 million tonnes of food ends up as landfill which is enough to fill 9,000 Olympic-sized swimming pools. | True / False |
| f. Buying local produce helps to reduce greenhouse gas emissions. | True / False |

MULTIPLE CHOICE ANSWERS

1 = d ; 2 = b ; 3 = b, c, d, f ; 4 = d ; 5 = c ; 6 = b ; 7 = a ; 8 = d ; 9 = a = f (The world currently produces enough food to feed everyone, but half is lost to waste and many poor people are unable to access the other half), b = T, c = F (The 'best-before' date represents when the supplier determines the product is at its BEST, but can still be eaten after that date. However, the 'use-by' date is the supplier's guide to when the product should be SAFELY consumed), d = T, e = T, f = T.

- Global food losses and waste account for around one-third of food produced for human consumption; in North America and Oceania (including Australia), around 13% of initial food production is wasted at the consumption stage (Lindsay Hogan/ABARES, *Food demand in Australia: trends and issues*). (p.2)
- Australia's National Food Waste Strategy aims to halve food waste by 2030; the Strategy presents a framework to support policy options to reduce food waste (*ibid.*). (p.2)
- Over-stretched household budgets mean that families have to weigh competing demands to pay bills, rent and medical expenses or to buy adequate food, forcing many to families to choose cheaper and less healthy foods, or to go without meals (Right to Food Coalition, *Do we really have food insecurity in Australia?*). (p.3)
- Going without food or eating poor food can have a negative and lasting impact on family relations, on school attendance, on energy levels and concentration, on ability to participate in workplace or community – in short, wide-reaching and devastating consequences which can be largely hidden from view (*ibid.*). (p.3)
- Food insecurity is deeply entrenched in poverty and therefore has complex causes. Effective solutions must be multi-pronged and will take time and a coordinated approach (*ibid.*). (p.4)
- In the last 12 months, more than four million Australians (18% of the population) have been in a situation where they have run out of food and have been unable to buy more. Of these, more than 3 in 4 (76%) are categorised as having very low food security (Foodbank Australia, *Foodbank Hunger Report 2018*). (p.5)
- Almost half of the Australians who are classified as 'food insecure' (48%) are employed either full-time, part-time or casually. And 40% of these homes include children (Rebecca Lindberg & Liza Barbour/The Conversation, *Too many Australians have to choose between heating or eating this winter*). (p.8)
- Food costs should, ideally, make up less than 20-25% of a household income. Yet low-income households must spend between 30-48% of their income to access nutritious food (*ibid.*). (p.9)
- It is more likely for a child to live in a food insecure household than an adult; 15% of Australians experienced food insecurity in the previous 12 months, while 22% of children experienced food insecurity over the same period (Foodbank Australia, *Rumbling Tummies: Child Hunger in Australia*). (p.14)
- Food banks are unable to meet the demand produced by stagnating wages, rising costs of living and a shrinking welfare state; and the benefits of using food waste to feed people accrue primarily to the food industry, absolving the government of responsibility to address food insecurity (Nick Rose & Susan Booth/The Conversation, *'Successful failures' – the problem with food banks*). (p.20)
- \$20 billion is lost to the economy through food waste (Dept of the Environment and Energy, *National Food Waste Strategy: Halving Australia's Food Waste by 2030*). (p.27)
- The total cost of agricultural food losses to farmers is \$2.84 billion (*ibid.*). (p.27)
- Households throw away 3.1 million tonnes of edible food, that's close to 17,000 grounded 747 jumbo jets (*ibid.*). (p.27)
- Annual food waste costs to Australian households vary from \$2,200 to \$3,800 (*ibid.*). (p.27)
- 2.2 million tonnes of food is wasted from the commercial and industrial sectors, resulting in significant waste disposal charges and lost product costs to business (*ibid.*). (p.27)
- Halving Australia's food waste requires an integrated approach where governments, the private and not-for-profit sectors, and the community work together (Dept of the Environment and Energy, *Working together to reduce food waste in Australia*). (p.29)
- The drivers of food waste are varied and complex, and occur at every point along the supply and consumption chain: primary production; processing and manufacturing; distribution; retail; hospitality and food service; and households (Dept of the Environment and Energy, *National Food Waste Strategy: Halving Australia's Food Waste by 2030*). (p.30)
- The waste hierarchy prioritises waste management practices in favouring food waste avoidance over resource reuse, recycling, reprocessing, and energy recovery, followed by waste disposal (*ibid.*). (p.31)
- There is enough food produced in the world to feed everyone (Ozharvest, *Food waste facts*). (p.37)
- One-third of all food produced is lost or wasted – around 1.3 billion tonnes of food – costing the global economy close to \$940 billion each year (*ibid.*). (p.37)
- Globally, one in nine people do not have enough food to eat, that's 793 million people who are undernourished (*ibid.*). (p.37)
- If one quarter of the food currently lost or wasted could be saved, it would be enough to feed 870 million hungry people around the globe (*ibid.*). (p.37)
- 8% of greenhouse gases heating the planet are caused by food waste. If food waste was a country, it would be the third biggest emitter of greenhouse gases after USA and China (*ibid.*). (p.37)
- In Australia, over 5 million tonnes of food ends up as landfill, enough to fill 9,000 Olympic-sized swimming pools (*ibid.*). (p.37)
- In Australia, 35% of the average household bin is food waste (*ibid.*). (p.37)
- Throwing food in the bin is a huge waste of the resources required to produce, transport and store it, such as water, fuel, fertiliser and packaging (Dietitians Association of Australia, *Tips to reduce your food waste*). (p.40)
- Australia's dietary guidelines include tips to minimise food waste: store food appropriately, dispose of food waste appropriately (e.g. compost, worm farms), keep food safely and select foods with appropriate packaging and recycle (Liza Barbour & Julia McCartan/The Conversation, *Reducing food waste can protect our health, as well as our planet's*). (p.48)

Food

Any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth. Historically, humans secured food through hunting, gathering and agriculture.

Food access

The ability to access food physically, economically and socially, at individual or household level.

Food availability

Amount of food physically available for consumption over a reference period.

Food business

A business, enterprise or activity that involves the growing, capturing, handling or sale of food.

Food distribution

Process in which general population is supplied with food.

Food environment

Overall setting in which consumers engage with the food system to acquire, prepare and consume food; key elements that influence food choices, food acceptability and diets are: physical and economic access to food (proximity and affordability); food promotion, advertising and information; and food quality and safety.

Food industry

All businesses along the food supply chain including farms, fisheries, food manufacturers, transporters, warehousing, researchers and retailers.

Food insecurity

The limited or uncertain ability to access enough safe, nutritious and culturally appropriate food for an active and healthy life. If you rely on emergency food pantries, often can't afford lunch, or worry about where your next meal will come from, you are not 'food secure'.

Food losses

The decrease, at all stages of the food chain prior to the consumer level, in mass, of food that was originally intended for human consumption, regardless of the cause.

Food policy

Food policy impacts on how and what food is produced, processed, distributed, purchased, consumed, protected and disposed of. Policies govern a number of areas, including: food-related industries; agricultural/livestock extension; food assistance; food safety; food labelling; certification standards; development assistance/food aid; and trade.

Food production

Growing, raising, cultivation, picking, harvesting, collection, processing or catching of food.

Food security

Exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food security may be examined at the individual, household, community,

national, regional and global level, as well as in terms of emergency food supply and future food demands.

Food supply chain

System that encompasses all activities that move food from production to consumption, including production, storage, distribution, processing, packaging, retailing and marketing; decisions by supply chain participants influence the types of food available and accessible, and the way food is produced and consumed.

Food system

Food systems are the people and resources involved in producing, processing, distributing and consuming food and managing waste. Encompasses the ecosystem and all activities that relate to the production, processing, trade, distribution, preparation and consumption of food. A food system includes the inputs needed and outputs generated by each of these activities.

Food waste

Food waste, or food loss, is food that is discarded or lost and uneaten. The causes of food waste or loss are numerous and occur at all stages along the supply chain, taking place at production, post-harvest, processing, retail, preparation and consumption.

Hunger

An uncomfortable or painful sensation caused by insufficient food consumption. Chronic hunger is a state, lasting for a prolonged period of time, of an inability to acquire enough food, defined as a level of food intake insufficient to meet dietary energy requirements. Hidden hunger is a chronic lack of vitamin(s) and/or mineral(s) often with no visible signs, so that those affected, or those who observe them, may not be aware of it.

National Food Waste Strategy

Launched in November 2017, the strategy aims to halve Australia's food waste by 2030. To achieve success in the four areas of policy support, business improvements, market development and behaviour change, all Australians will need to contribute to and adopt an integrated approach where we: collaborate to achieve common or coinciding goals; innovate to find new solutions and change the way we do things; and share knowledge and data so we are better informed to make decisions. Governments can assist by facilitating communication and collaboration between those involved in the food system.

Nutrition

The intake of food, and the interplay of biological, social and economic processes that influence the growth, function and repair of the body.

Right to food

Human right derived from the *International Covenant on Economic, Social and Cultural Rights*, recognising the "right to an adequate standard of living, including adequate food", as well as the "fundamental right to be free from hunger".

Websites with further information on the topic

Department of the Environment and Energy www.environment.gov.au
 Dietitians Association of Australia www.daa.asn.au
 Eat for Health (Australian Government) www.eatforhealth.gov.au
 Food and Agriculture Organization of the United Nations (FAO) www.fao.org
 Foodbank Australia www.foodbank.org.au
 National Health and Medical Research Council www.nhmrc.gov.au
 OzHarvest www.ozharvest.org
 Right to Food Coalition <https://righttofood.org.au>

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- OzHarvest
- Foodbank Australia
- Dietitians Association of Australia
- National Health and Medical Research Council.

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