



Australia's National Science Agency

Adopting healthier and more sustainable diets

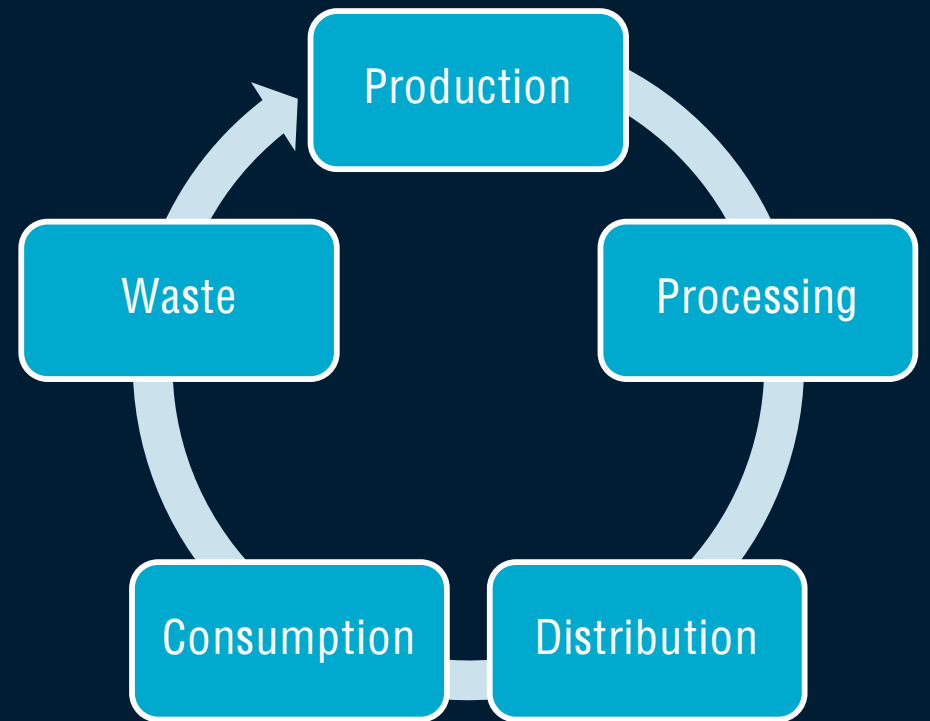
Gilly Hendrie | June 2022

I would like to begin by acknowledging the Traditional Owners of the lands that we are all meeting on today, and pay my respect to their Elders past and present.



Sustainable food system

- Food system is complex, involving the production, processing, distribution, consumption, and waste of food.
- A sustainable food system enhances the environmental, economic, social and nutrition health for all.



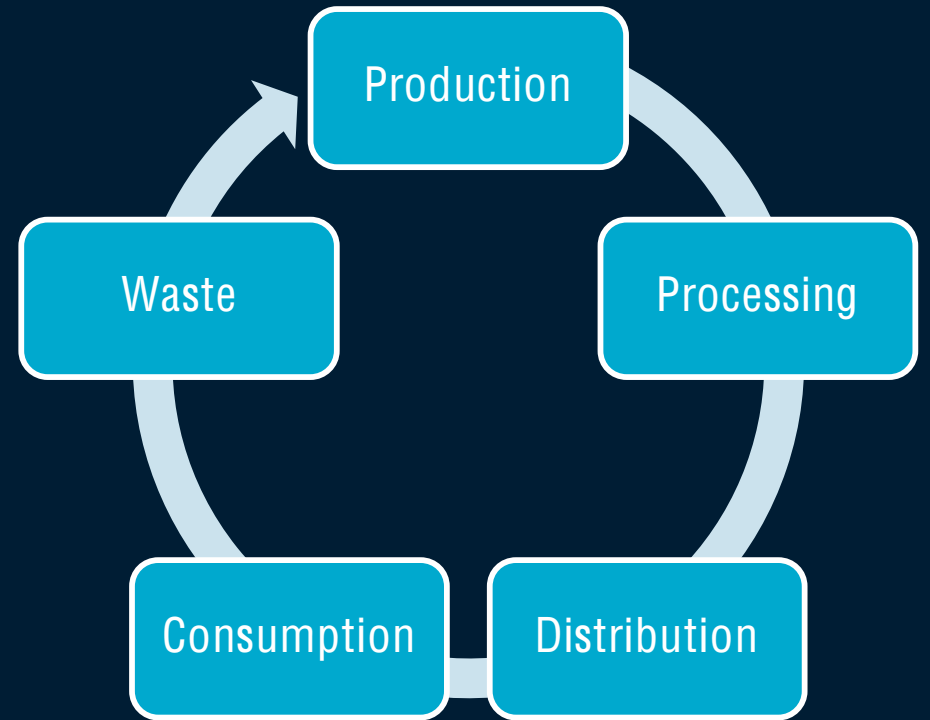
Sustainable diets

“Sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.”

CSIRO

Healthier and more sustainable diets

- To promote human and planetary health, experts have called for transformation of the food system.
- Supporting populations to adopt healthier and more sustainable diets will promote human and planetary health.



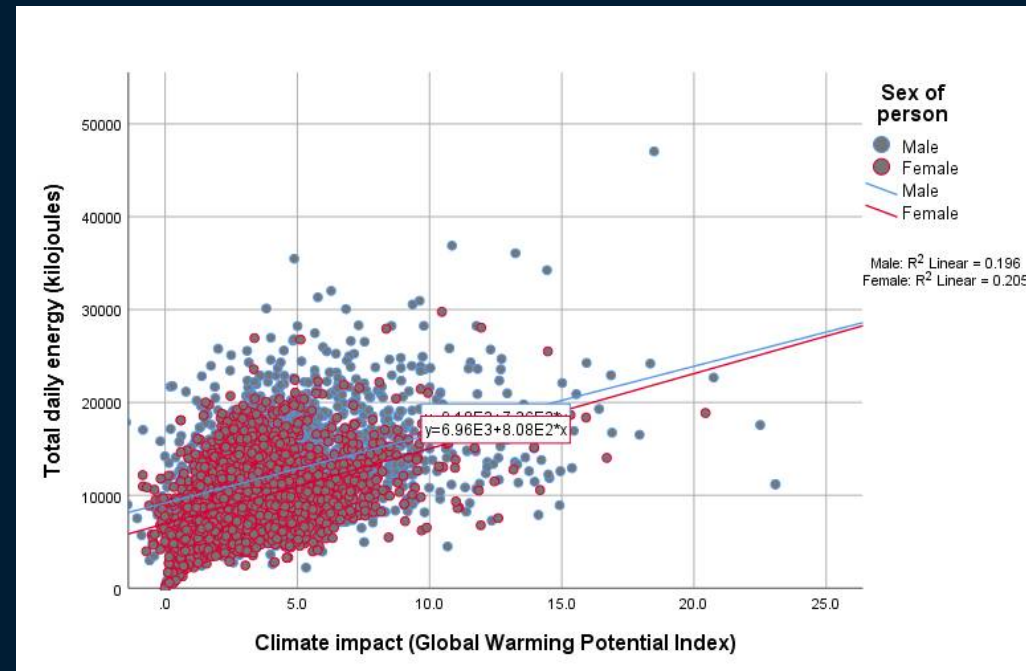
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Features of healthier, more sustainable diets

1. Consume energy to meet our needs.

Consume energy to meet our needs

- All foods have some degree of impact on the environment.
- However, we require adequate energy to maintain health.
- Correlation between total energy intake and dietary environmental impacts.
- Limit overconsumption of kilojoules.



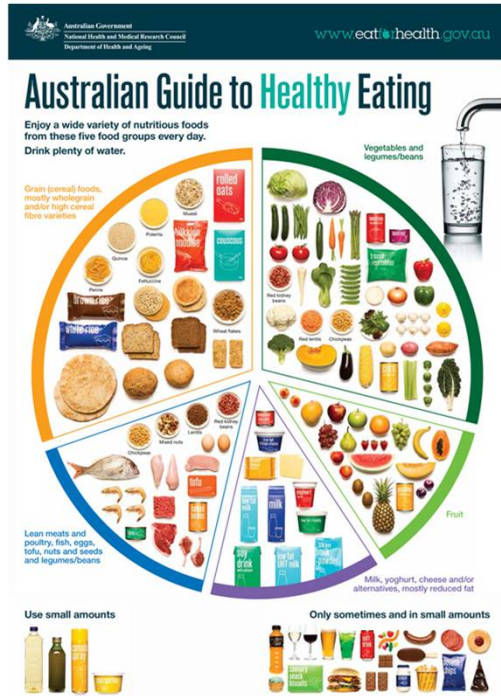
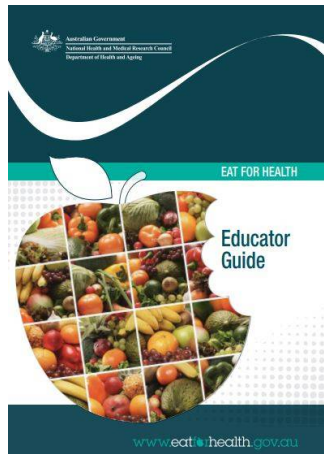
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Achieving healthier, more sustainable diets

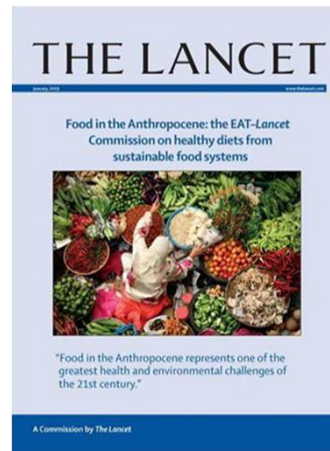
1. Consume energy to meet our needs.
2. Choose food groups in proportions that align with recommendations.

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National: Australian Guide to Healthy Eating (2013)



Global: EAT Lancet Planetary Health Diet (2019)



CSIRO

Achieving healthier, more sustainable diets

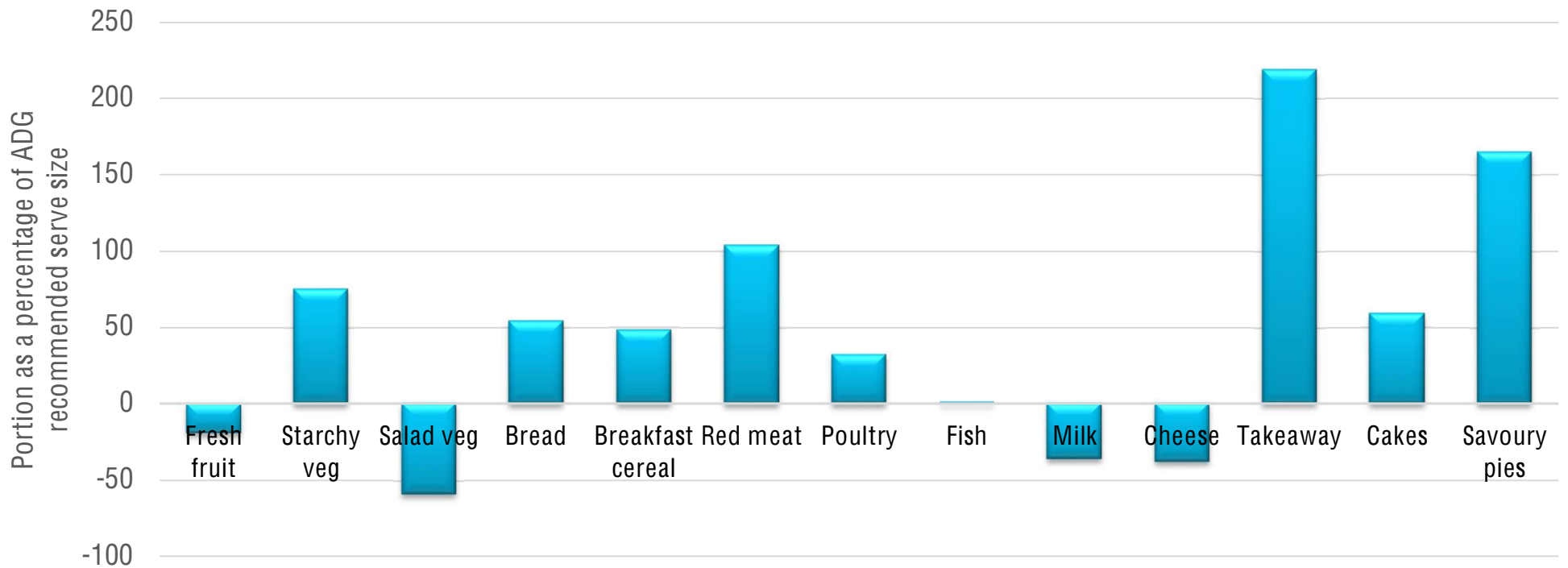
1. Consume energy to meet our needs.
2. Choose food groups in proportions that align with recommendations.
3. Change intake by adjusting portion, frequency and/or variety of food choices

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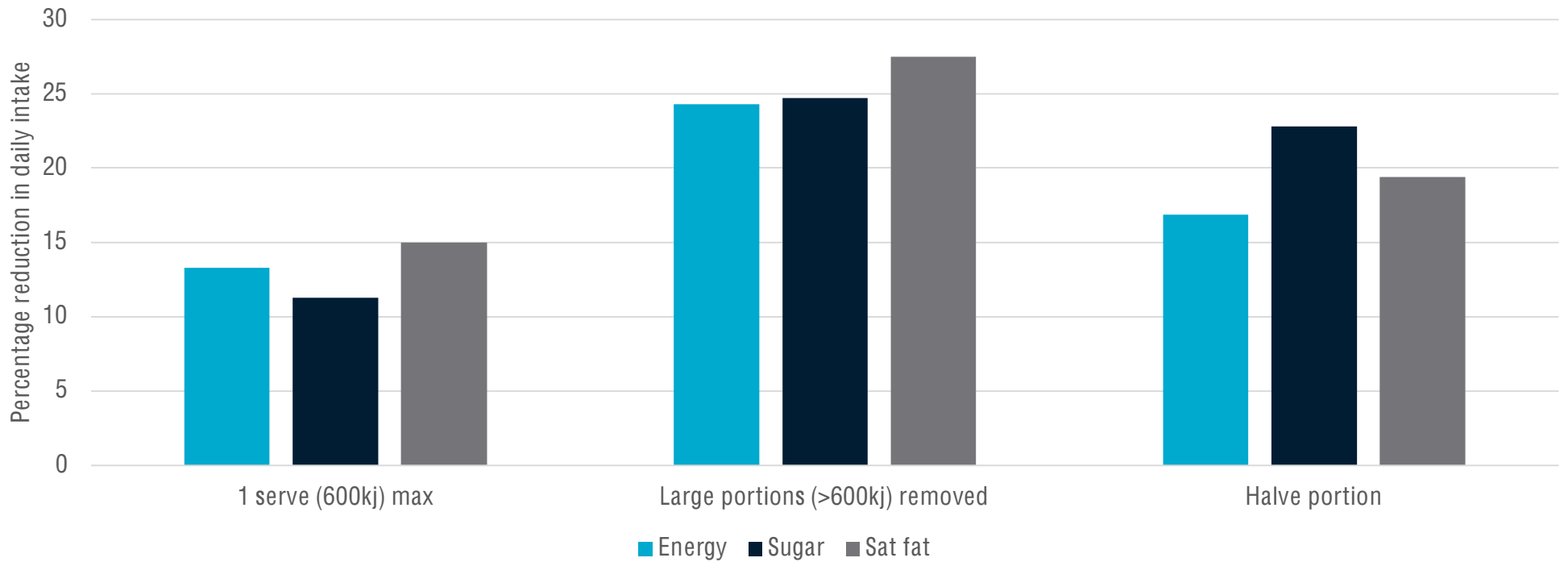
Changing the intake of food groups

Total intake = Portion * Frequency * Variety

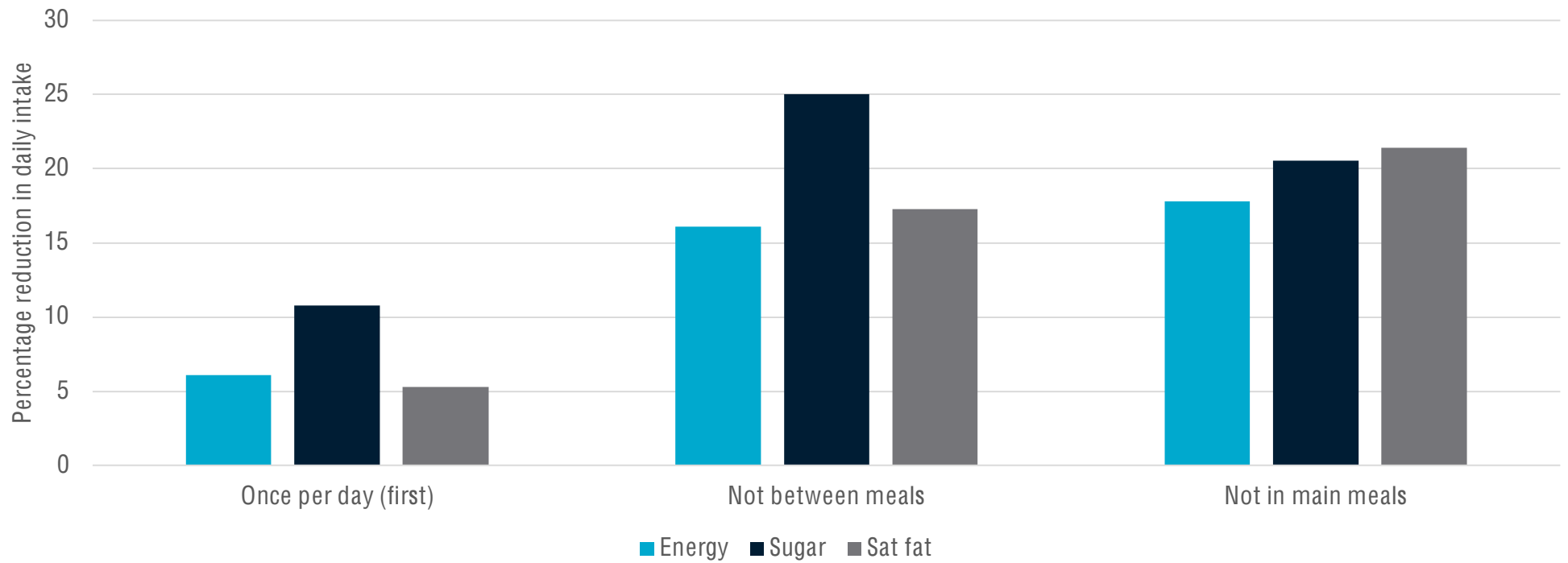
Portion sizes consumed by Australians



Potential of changing portions of discretionary foods



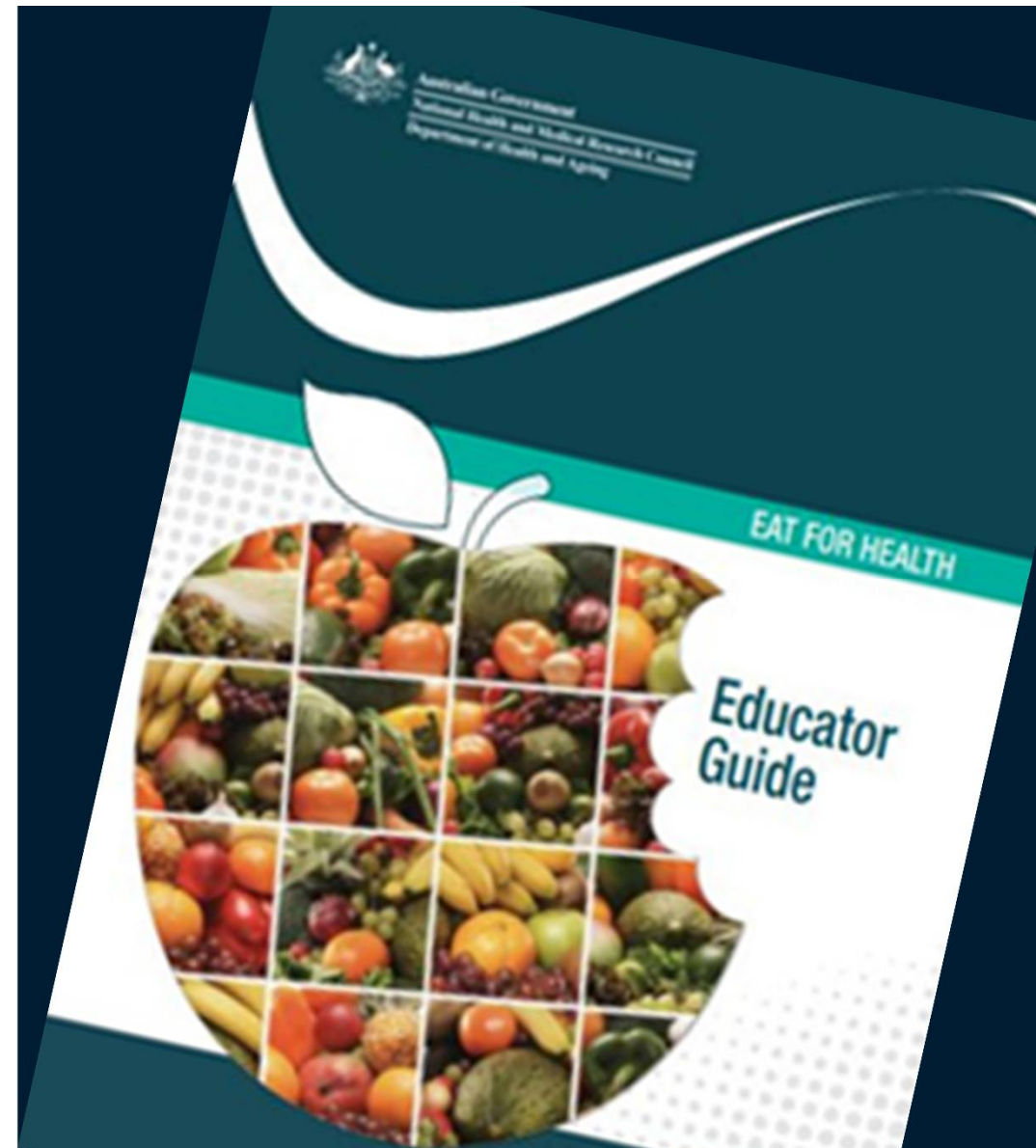
Changing frequency of consumption



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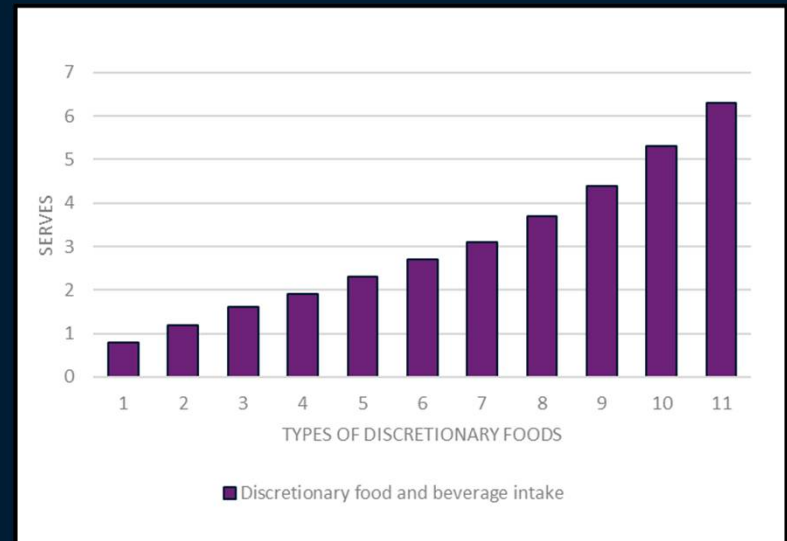
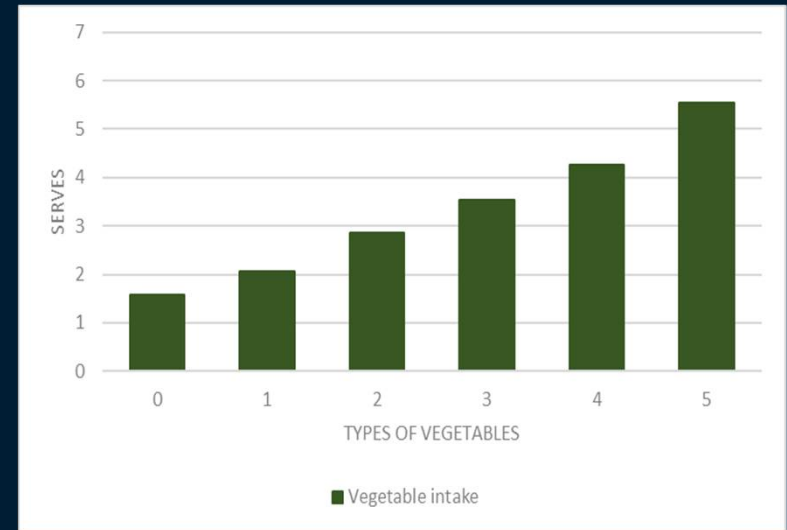
Importance of variety

- Variety is promoted throughout the Australia Dietary Guidelines
- Promote a variety of “*different types and colours*” of vegetables and “*the wide variety of foods*” within the meat and alternatives group.

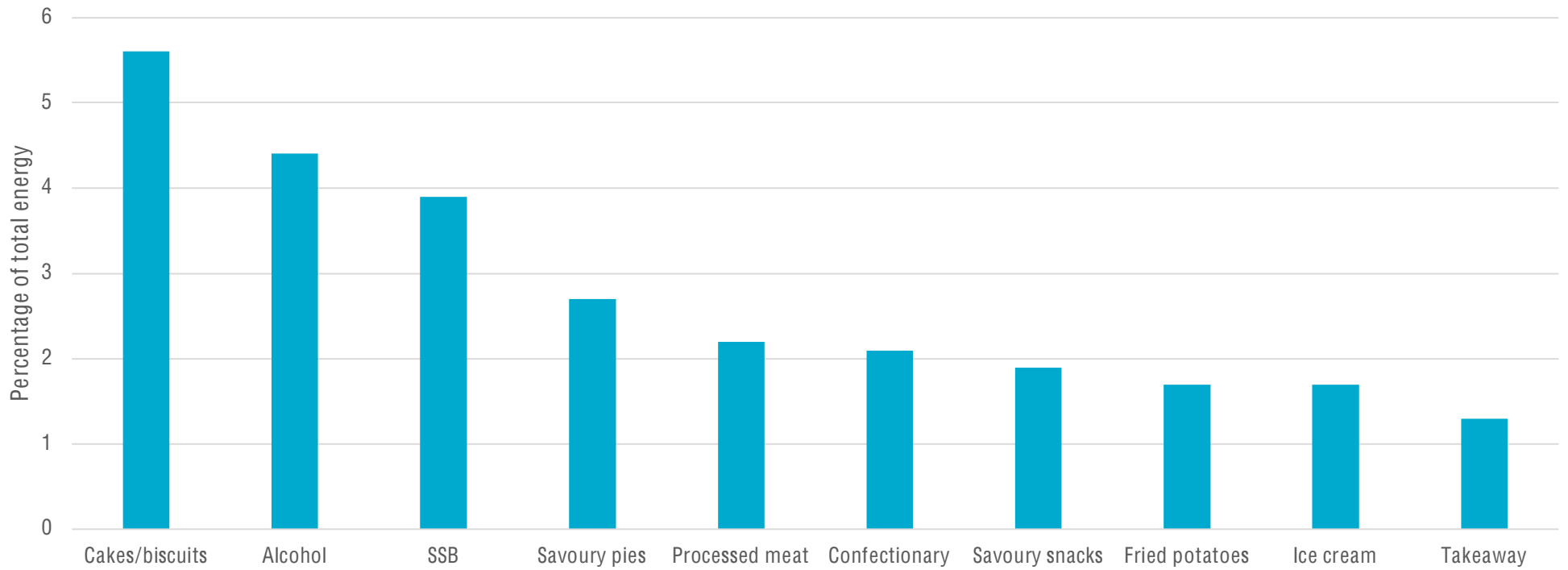


Variety of foods consumed

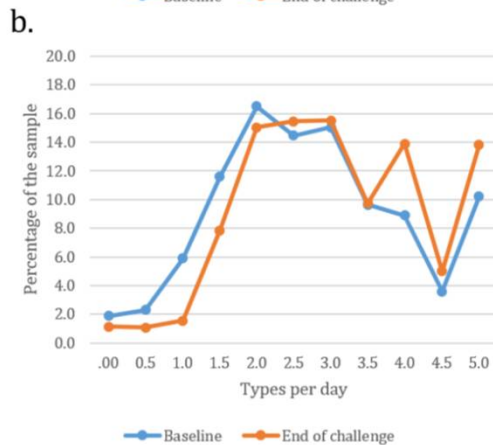
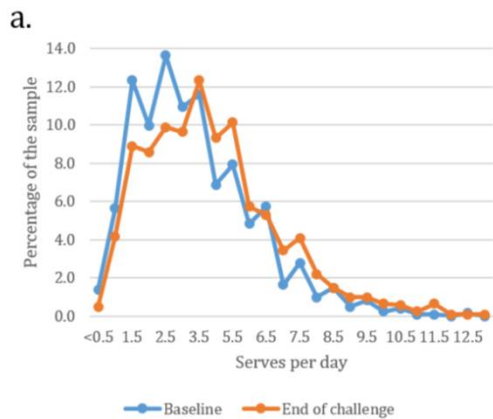
- Increasing variety has been used to increase the intake of healthy foods.
- Emerging research to show variety could also be used to decrease consumption of discretionary foods.



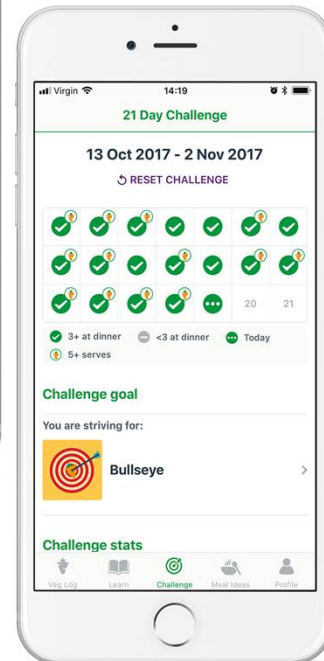
Reducing the variety of discretionary foods



Increasing vegetable variety at dinner

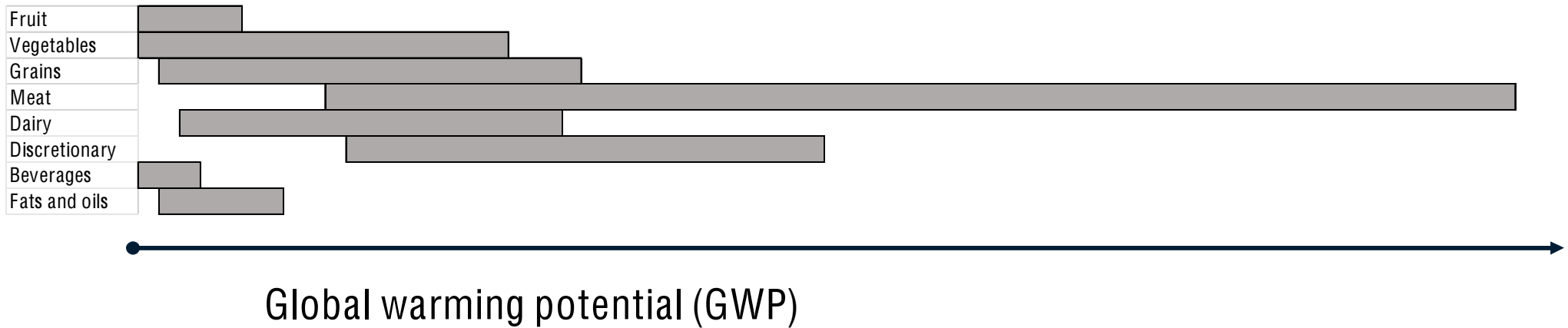


- Real world trial (n=1224/5062).
- Consumption increased by 0.48 serves per day.
- Variety increased by 1 extra type of vegetables every 3 days.



Funding source: Hort Innovation

Variety of food choices within food groups can also influence environmental impacts of diets



Key features of healthier, more sustainable diets

- Are nutrient dense and provide adequate kilojoules
- Readjust our balance of food groups to be more in line with recommendations.
- Individuals can adjust their portion, frequency and/or variety of food choices up or down to improve overall diet quality and environmental sustainable.



Sustainable Eating

The Consumer Mindset

June 2022

Research methodology & sample

Qualitative Research

6 x 2 hr focus groups with consumers aged 18-64 yrs. Segmented by diet and lifestyle

Included an online discussion board in the days leading up to the focus group to capture individual attitudes and behaviours

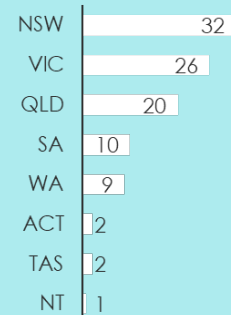
Quantitative Research

15 min online survey with n=1000 Australian 'meal decision makers' aged 18-64 yrs

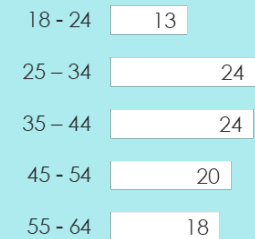
Gender (%)



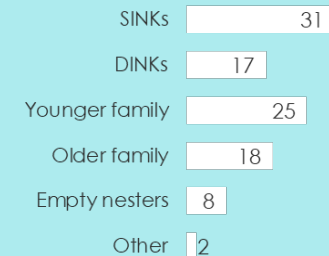
State (%)



Age (%)



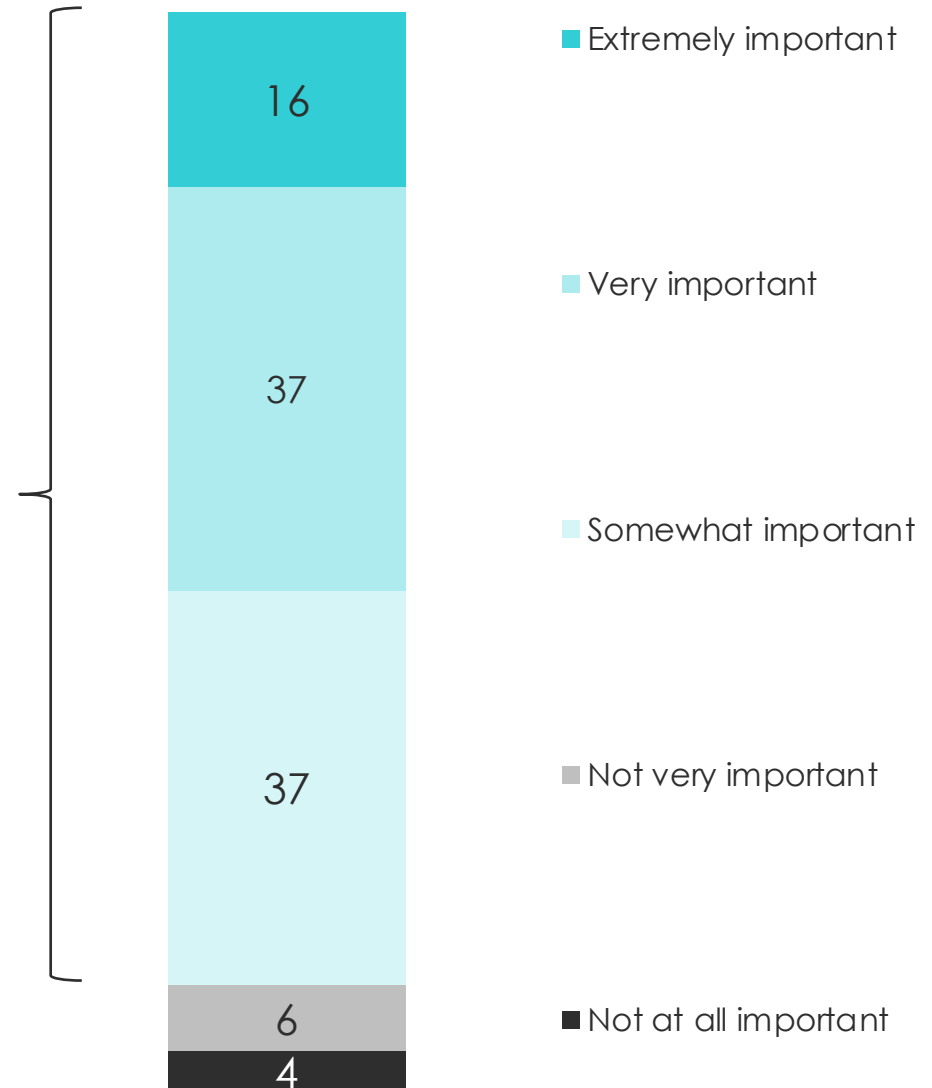
Lifestage (%)



9 out of 10
Australians see
'sustainable eating'
as important

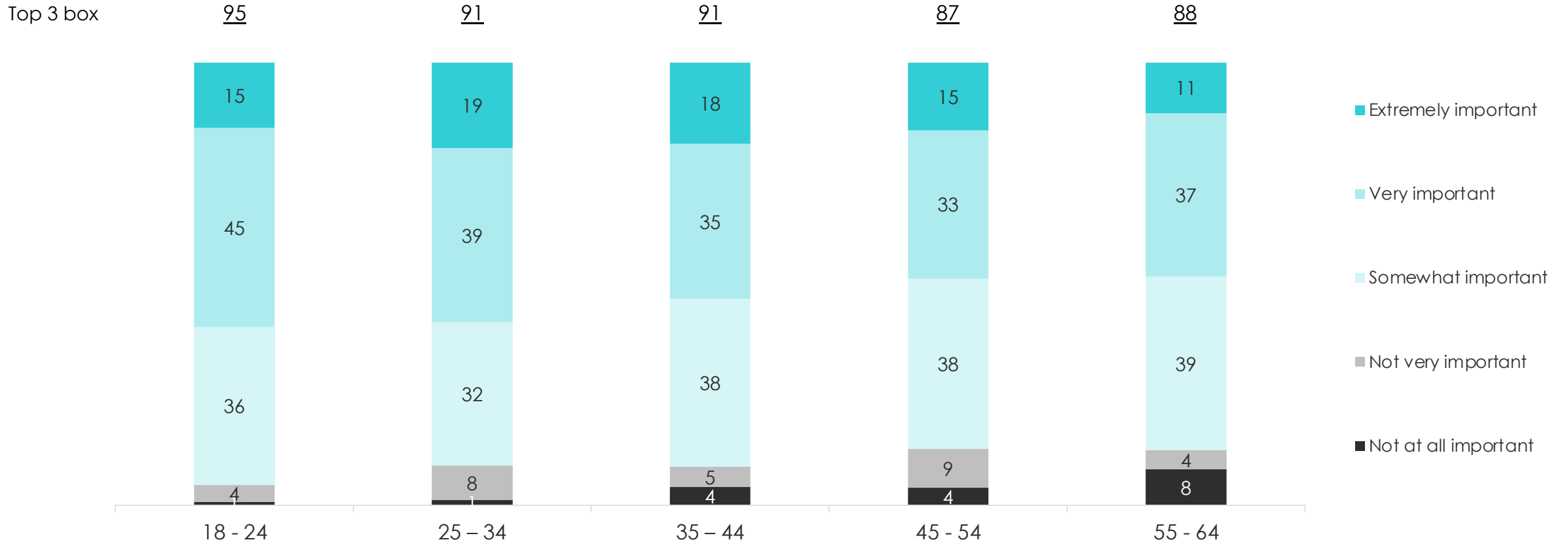
*Importance of
sustainable eating (%)*

90%



Sustainable eating is important across lifestages

Importance of sustainable eating (%)



Sustainable eating is not just about the environment

Nearly **1 in 2** think sustainability encompasses the environment, economy and society

1 in 4 think its just the environment

The micro-macro spectrum of 'sustainable eating'



Micro

What does 'sustainable eating' mean to you?

Macro



Balanced meals

Eating fresh and healthy food

Choosing foods that are good and healthy for our bodies

Eating the best variety of healthy foods

Healthy eating

Eating with a healthy and cheap diet

Healthy, cheap, easy to come by food

Eat nutritious food

Proper meal with nutritional value

Affordable and nutritious food without impacting the environment

Food waste

Using everything up and only buying what you will use. Minimal waste

Eating in a way that doesn't result in unnecessary waste

Eating everything and wasting nothing

Not wasting a heap of food, trying to put leftovers into future meals rather than the bin

Minimal waste from production through to consumption

It means eating what you need and not wasting any food

Less food waste

Reducing food waste, eating in season, foods that have least environmental impact...

Packaging

Buying food with less plastic packaging, less plastic utensils,

Eating food that uses little packaging, is sourced locally in an environmentally friendly way.

Eating foods that are environmentally friendly and have recyclable packaging

Food that's sustainably sourced and having little waste. Preferably without packaging or minimal packaging that is recyclable

Recyclable packaging. Not individually wrapping items or double wrapping.

Minimal package waste, food miles, emissions, reduced use of fossil-fuel based fertilizers, composting food waste

Sustainable production

Grown and produced in a way that doesn't harm the environment

Eating foods that don't use too many resources to produce

The food produce does not damage the environment so that the food can be made the same way for years to come

Food produced in an environmentally friendly way.

Reducing impact on the supply chain and the earth

Eating a diet produced with a minimal carbon footprint

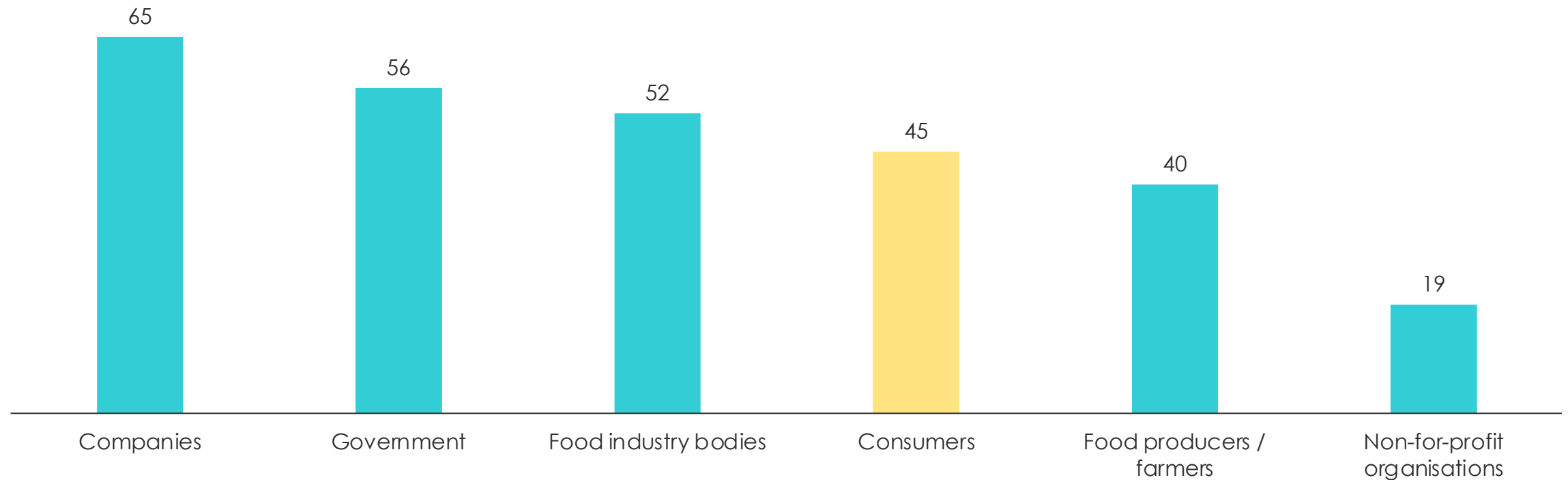
Source to plate that is sustainable long term and low to zero carbon footprint

People want leadership from government and industry on macro issues



People believe that companies, Government and food industry bodies should take responsibility for reducing landfill

Who is responsible for – Reducing landfill (%)



Consumers are
motivated by industry
action on
sustainability

70%

Agree that 'Knowing that industries are doing their bit to be sustainable motivates me to practise sustainable eating'

People are looking for the
'little things' they can do
to have bigger impact

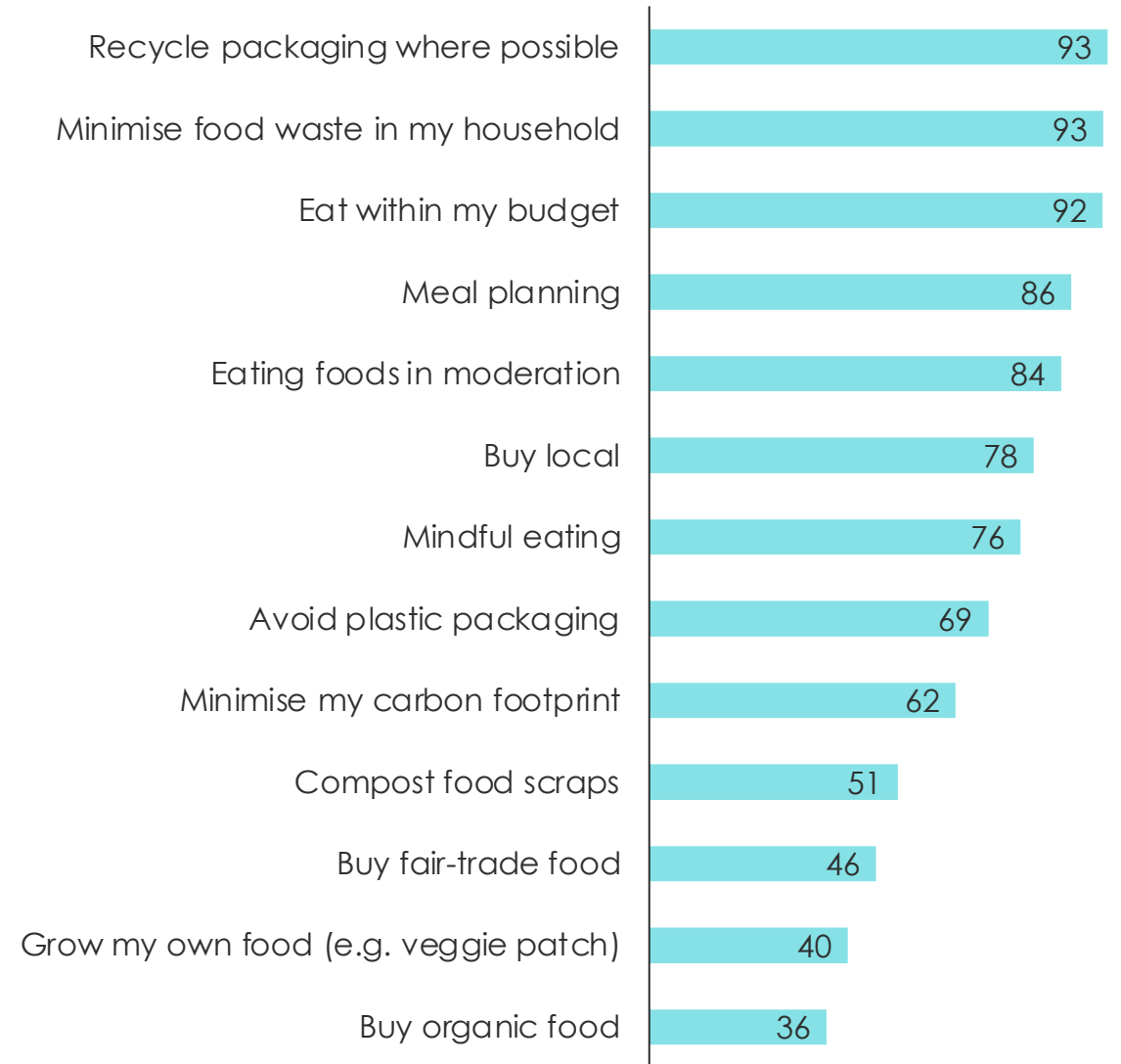


It's one of the few things that you think to control is your actions. You know, there's only so much you can do about everyone else, but if you can do your little bit it could add up if we all did it



Most people are taking a range of steps to eat sustainably

Actions currently taken (%)



But most want to know
more and feel like they
could do more

73%

Agree 'I want to know small
steps I can take towards
practising sustainable eating'

67%

Agree 'I feel like I'm on my
way to sustainable eating, but I
know I could do more'

An idea was presented to consumers: 'Make every bite count'

'Make every bite count'

'Make every bite count' is a guide that helps people to eat sustainably

It will help you...

- Shop smartly
- Choose nutrient-rich foods
- Cook tasty meals
- Serve balanced meals
- Make the most of leftovers
- Achieve zero food waste

TIP ½ cup dry bulghar = 1 cup soaked.

Mexican beef with kidney beans

No. serves per person	Ingredients	Variations
2	• ½ onion • ½ carrot = ¼ zucchini • 1 small tomato • 1 handful green beans • ½ avocado to serve	• Fresh or frozen corn • Serrano • Pico de gallo • Diced red capsicum
	• ½ can kidney beans • ½ cup cooked rice	Four bean mix Brown lentils or chickpeas
	100g lean beef mince (raw weight)	Lean lamb mince
	Serve with a dollop of yoghurt	
	Flavour: Chopped parsley	Chopped coriander Salt reduced beef stock

TIP ½ cup dry rice makes 2 cup steamed rice.

Beef skewers with tabbouli

No. serves per person	Ingredients	Variations
2	• ½ red capsicum = ½ green capsicum • ½ cucumber = ½ carrot • 1 small tomato • ½ cup parsley	• Shredded red cabbage • Grated carrot • Shred snow peas and shiitake
	½ cup soaked bulghar or cracked wheat	Quinoa or barley
	200g lean beef rump or blade steak, diced (raw weight)	Lean lamb leg steak
	Flavour: Garlic sauce, olive oil (meat rub); Lemon juice, olive oil, pepper (tabbouli)	Chimney fire spice (meat rub); Salt reduced soy and lime juice

11 Recipes available at www.mlahealthymeals.com.au 12

GET MORE FROM YOUR MEALS

Our handy tips explain how to create different meals or how to get more from your meals:

ONE RECIPE, MANY WAYS:

Our suggestion for serving recipes in different ways

LOVE YOUR LEFTOVERS:

How to turn your leftovers into quick and easy meals

SWAPS:

Easy ingredient swaps

People were very receptive to 'Make every bite count'

Attitudes to 'Make every bite count' (%)

79% Agree 'This sounds like a great initiative'

68% 'I'm keen to find out more about this'

66% 'I can see myself applying this to the way I eat'

'Make every bite count' is seen as a useful guide offering small, practical steps

Attitudes to MEBC (%) – NET Agree (%)

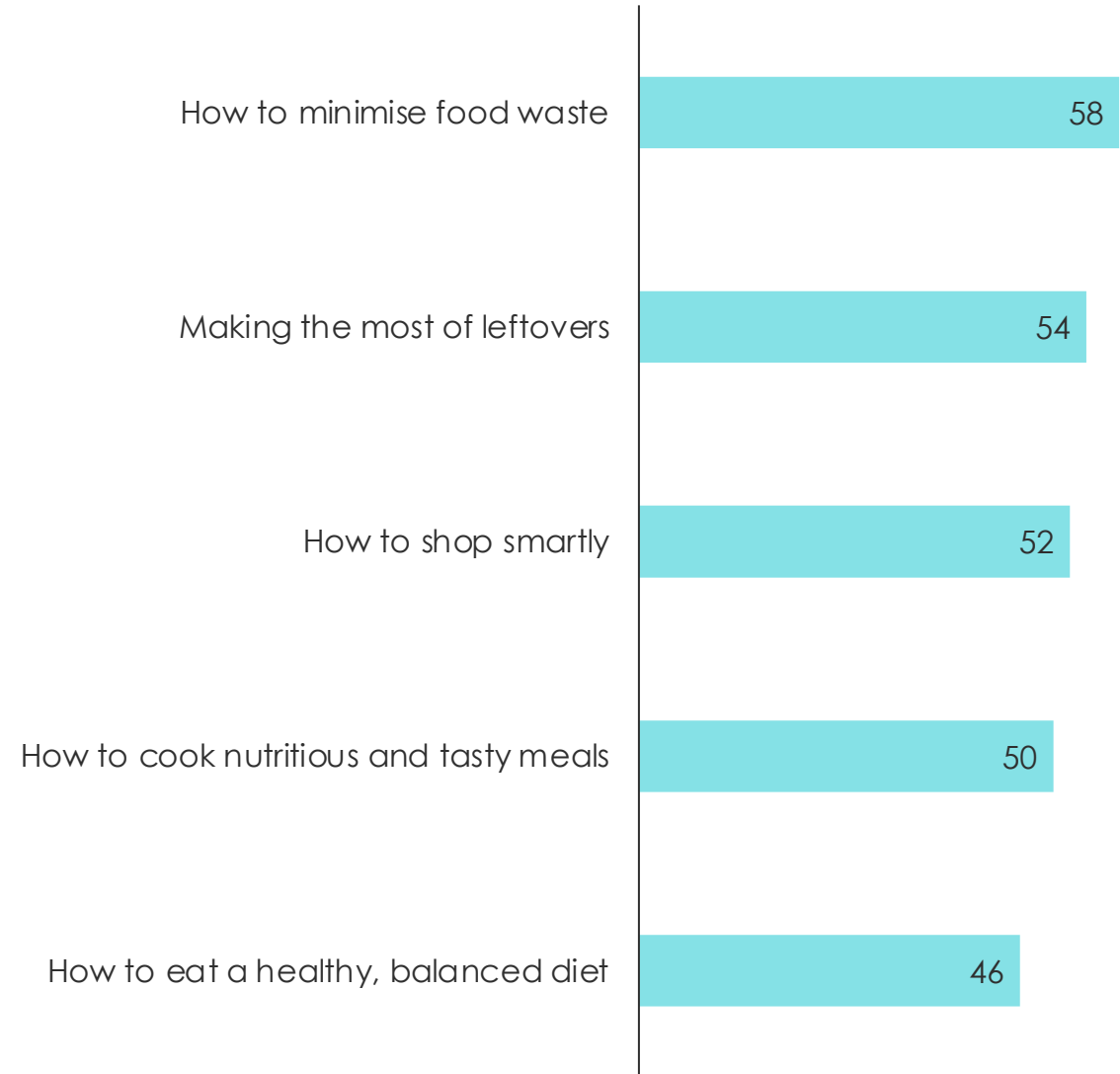




'Make every bite count' has broad application

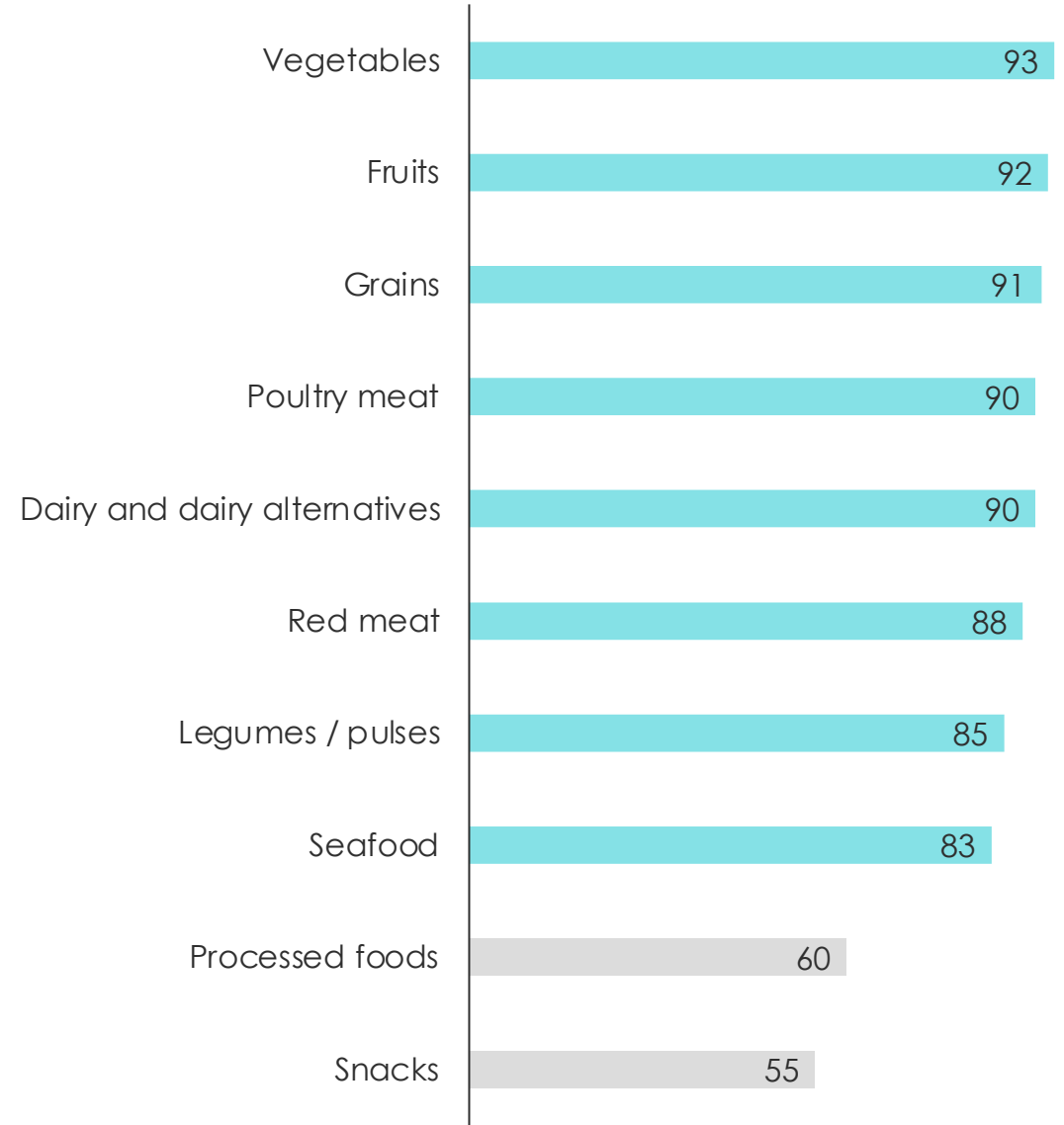
Consumers are interested in a range of specific topics including food waste, leftovers and nutritious meals

Interest in specific topics (%)



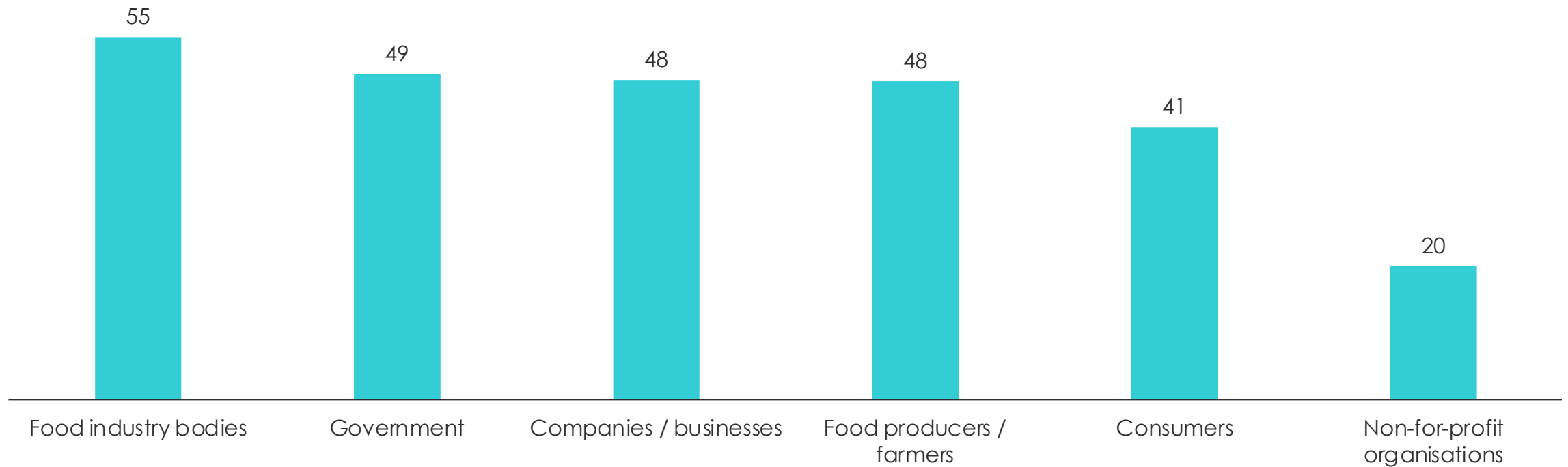
Consumers see 'Make every bite count' applying across almost all food groups

Food groups MEBC applies to (%)



'Make every bite count' involves everyone responsible for food

Who is responsible for helping people eat sustainably? (%)



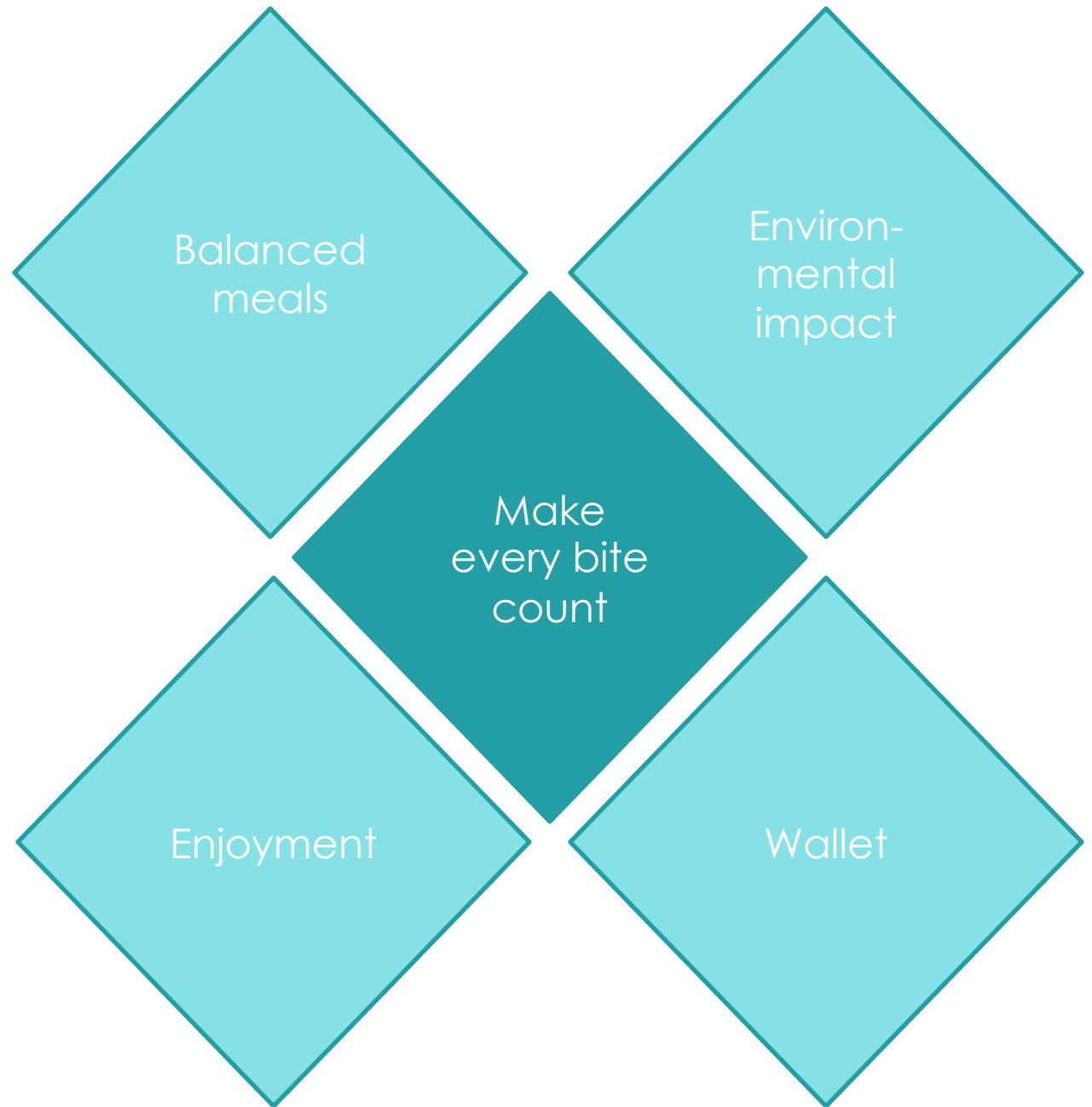
Make every bite count:

A galvanizing idea that connects macro and micro issues

An organising idea for messaging / communications

Makes intuitive 'sense' and is logical

Engages everybody involved in the food system



Thank you

Pollinate

Sydney: Level 5, 60 Reservoir Street, Surry Hills NSW

Melbourne: The Commons, 3 Albert Coates Lane, Melbourne VIC

Canberra: Hub Civic Quarter, 68 Northbourne Ave, Canberra ACT

www.pollinate.com.au

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W

Opportunities for Dietitians to Support Sustainable Eating:

Applying a food systems approach at the community level



Karen Charlton, Adv APD, PHNutr

School of Medical, Indigenous and Health Sciences



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AUSTRALIA



The Big Problem or “The Great Food Transformation”

820 million people have insufficient food

Food systems threatening environmental sustainability



REVIEW

Food Security: The Challenge of Feeding 9 Billion People

H. Charles J. Godfray,^{1*} John R. Beddington,² Ian R. Crute,³ Lawrence Haddad,⁴ David Lawrence,⁵ James F. Muir,⁶ Jules Pretty,⁷ Sherman Robinson,⁸ Sandy M. Thomas,⁹ Camilla Toulmin¹⁰

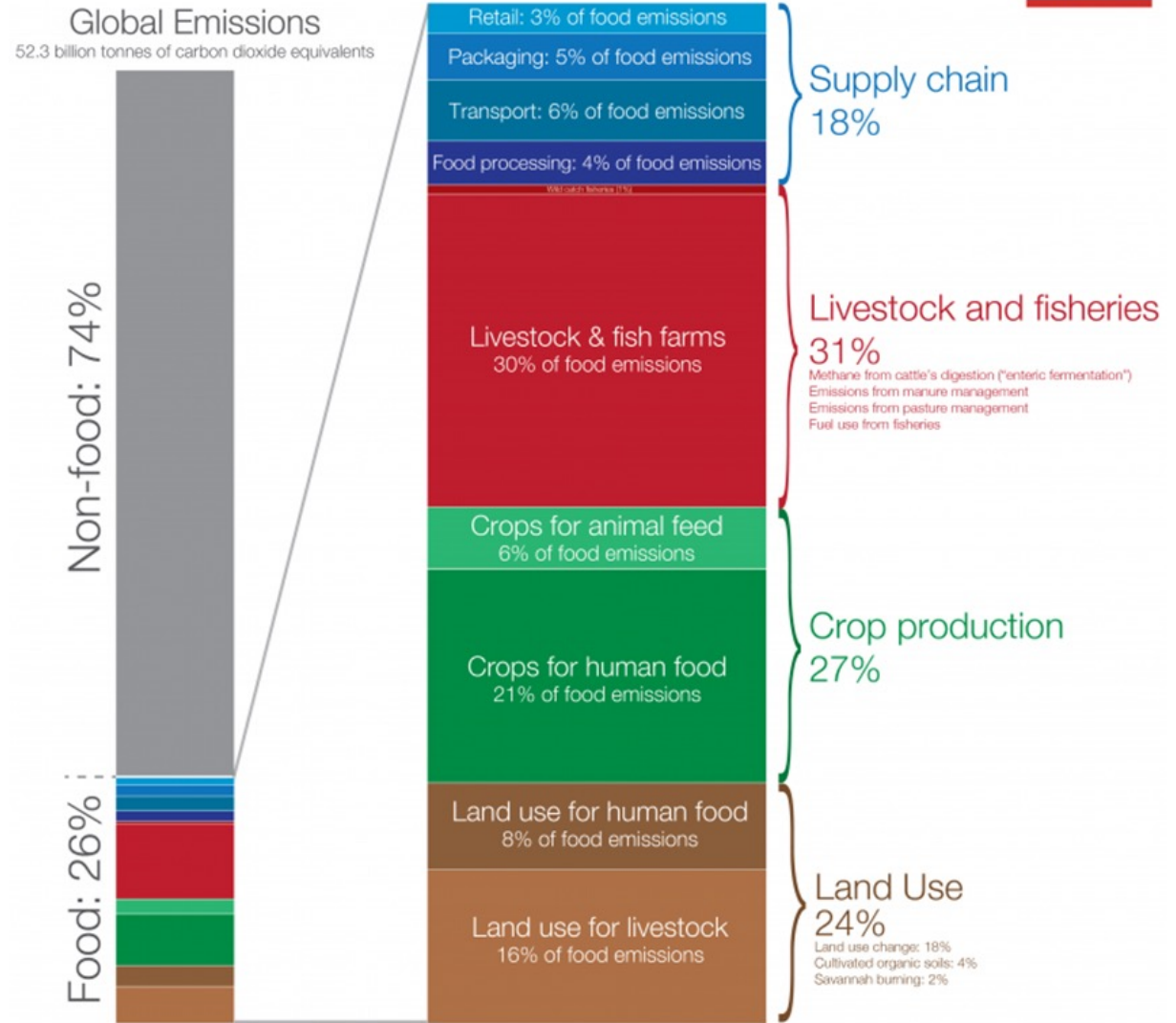
Continuing population and consumption growth will mean that the global demand for food will increase for at least another 40 years. Growing competition for land, water, and energy, in addition to the overexploitation of fisheries, will affect our ability to produce food, as will the urgent requirement to reduce the impact of the food system on the environment. The effects of climate change are a further threat. But the world can produce more food and can ensure that it is used more efficiently and equitably. A multifaceted and linked global strategy is needed to ensure sustainable and equitable food security, different components of which are explored here.

during the 18th- and 19th-century Industrial and Agricultural Revolutions and the 20th-century Green Revolution. Increases in production will have an important part to play, but they will be constrained as never before by the finite resources provided by Earth’s lands, oceans, and atmosphere (10).

Patterns in global food prices are indicators of trends in the availability of food, at least for those who can afford it and have access to world markets. Over the past century, gross food prices have generally fallen, leveling off in the past three decades but punctuated by price spikes such as that caused by the 1970s oil crisis. In mid-2008, there was an unexpected rapid rise in food prices, the cause of which is still being debated, that subsided when the world economy went into recession (11). However, many (but not all) commentators have

Background

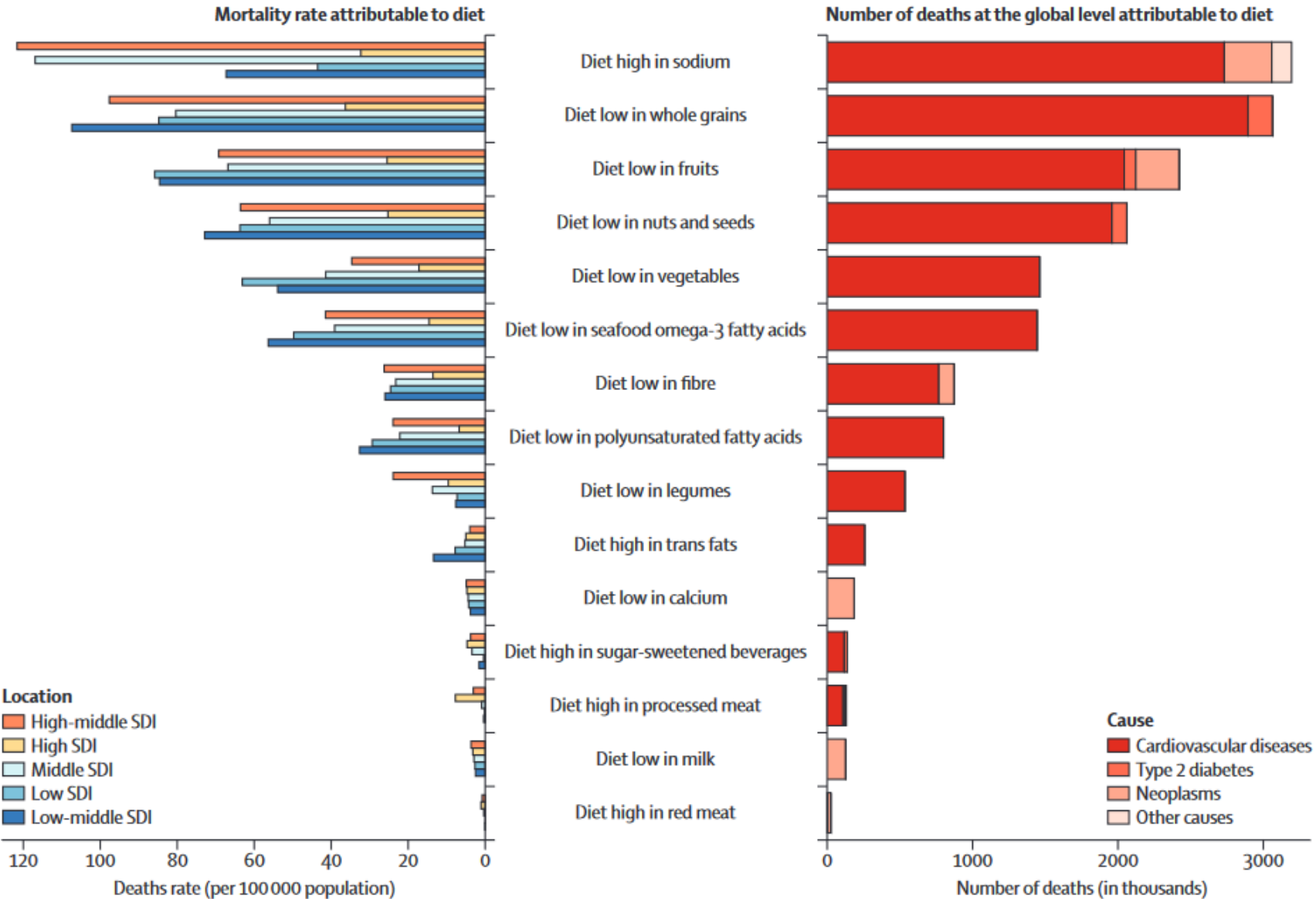
Global greenhouse gas emissions from food production Our World in Data



Data source: Joseph Poore & Thomas Nemecek (2018). Reducing food's environmental impacts through producers and consumers. Published in Science. OurWorldinData.org - Research and data to make progress against the world's largest problems. Licensed under CC-BY by the author Hannah Ritchie.

<https://ourworldindata.org/food-ghg-emissions>

Global burden of disease



The Great Food Transformation

Needed to meet planetary health boundaries

- 820 million people have insufficient food.
- Food systems threatening environmental sustainability.
- 100% increase in food production needed to feed predicted 10 billion people by 2050.



Food Systems, Diet Quality and Sustainability



<https://www.science.org.au/supporting-science/science-policy-and-analysis/decadal-plans-science/nourishing-australia-decadal-plan>

UN Sustainable Development: Towards 2030

(Sept 2015, NY)



*“We resolve, between now and 2030, to **end poverty and hunger everywhere**; to **combat inequalities** within and among countries; to build peaceful, just and inclusive societies; to protect human rights and promote gender equality and the **empowerment of women and girls**; and to ensure the **lasting protection of the planet** and its natural resources. “*



UOW Nutrition and Dietetics

Our vision is to achieve sustainable impact through valuable engagements, teaching and research



IMPROVING health and wellbeing of individuals and communities.

DELIVERING quality education to students and healthcare workers.

ADVOCATING for sustainable packaging and food practices.

ENGAGING with local and global stakeholders from food production to processing and consumption. We partner with government and non-government organisations, food charities, hospitals, aged care facilities, manufacturing facilities, food services and educational institutions.

ENSURING equal access to food.

ASSISTING access to healthcare and healthy foods.

CREATING healthy and sustainable food environments in our communities.

PROMOTING healthy and sustainable diets.

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

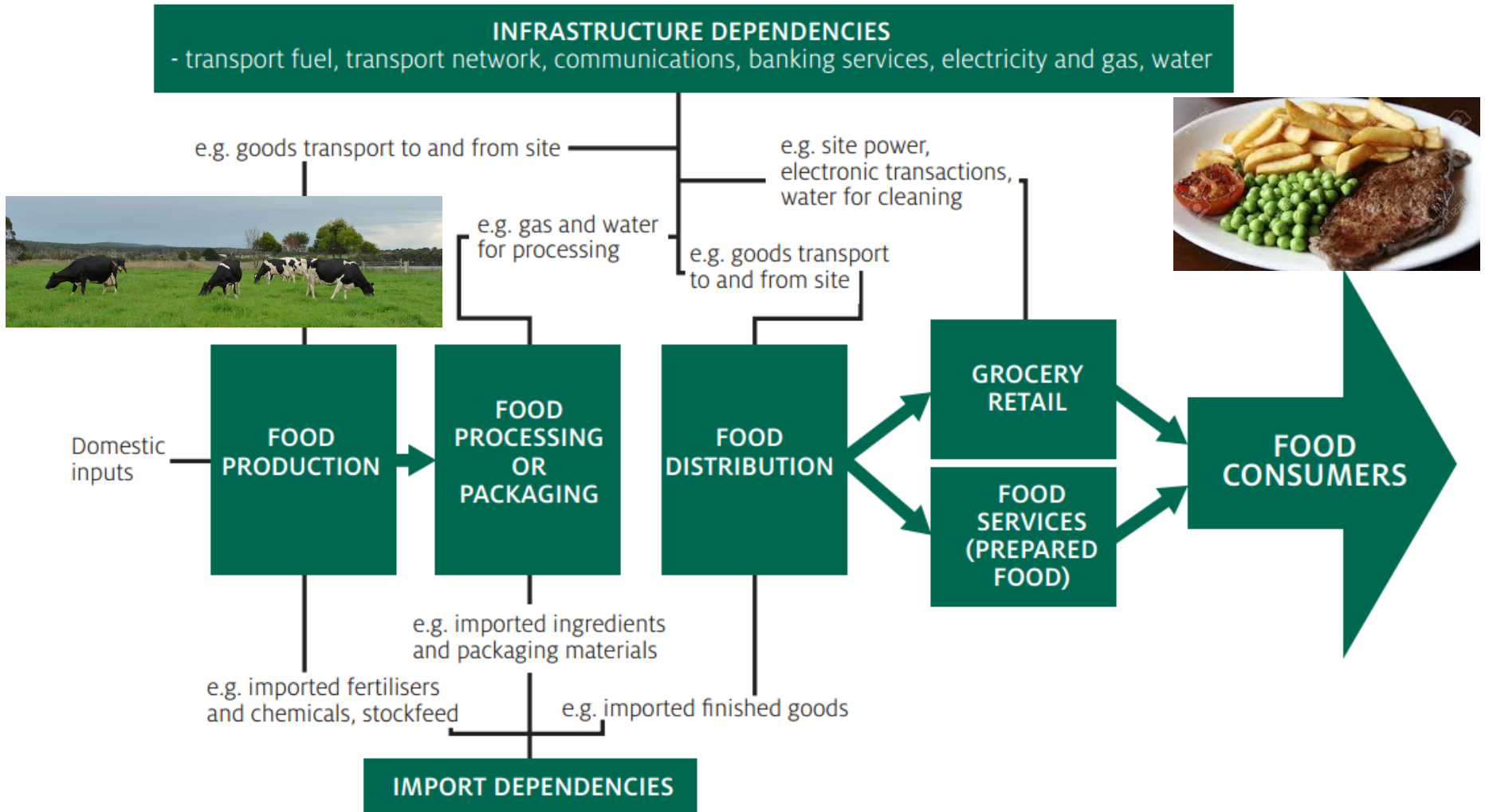
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

15 LIFE ON LAND

17 PARTNERSHIPS FOR THE GOALS

Created by Paula Okaigun

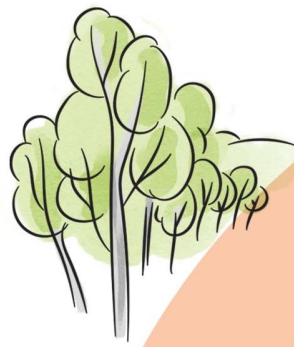
FIGURE 1 Overview of food supply chain and its dependencies



DAFF 2012

Defining the food system





Policy and Regulation

Enabling Environment



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- Community food garden
- Procurement policies for local food
- Sustainably produced food in outlets
- Increased awareness of sustainable diets

INDIGENOUS AND TRADITIONAL LAND OWNERS

- Engagement with traditional land owners
- Local food knowledge

PURCHASING

- Higher proportion of food bill spent on local products

PRODUCTION

- Increased use of regenerative agriculture practices



LOCAL FARMERS MARKET

- Increased online sales
- Greater engagement with farmers



CONSUMPTION

- Improved environmental footprint of diets

PROCESSING

- Increased agribusiness opportunities
- More local produce

ADVOCACY

- More champions for the cause e.g. SUSTAIN, Food Fairness Illawarra



DISTRIBUTION

- More efficient food supply chain

WASTE



LOVE LOCAL CAMPAIGN

- Outlets supporting the campaign



FOOD ATLAS

- Online map of culinary experiences

LOCAL GOVERNMENT

- Four local councils informing a regional food strategy

IMPROVED FOOD LITERACY

- Increased number of people who value sustainability as a driver in food choice



Paddock to Plate – Illawarra Shoalhaven

A vision for a healthy, sustainable and equitable food system

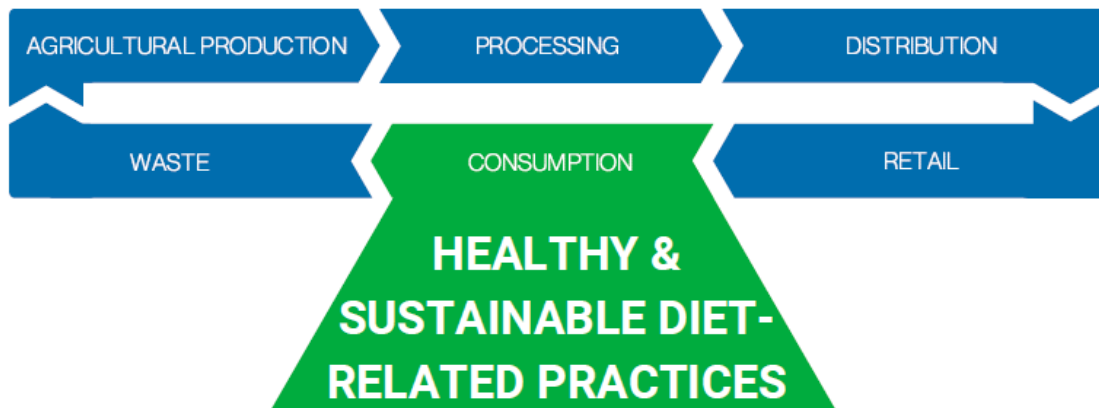


What can consumers do?

Where to source food?

What to eat?

How to eat?



Barbour, Woods, Brimblecombe, *ANZJ Public Hlth* 2021; 45: 83.

<https://doi.org/10.1111/1753-6405.13050>

These diet-related practices are inter-connected. We must consider the way food is produced, sourced, prepared, consumed and disposed of to minimise the environmental impact of our diet (13).

Where to source food?



Select food grown using sustainable production practices, valuing Indigenous knowledges



Strengthen local food systems by connecting with primary producers



Eat seasonally, incorporating native and wild-harvested foods



Eat locally available foods

What to eat?



Avoid over-consumption beyond caloric requirement



Consume no more than recommended animal-derived foods



Limit intake of ultra-processed, nutrient-poor and over-packaged food



Increase intake of plant-based foods



Eat a wide variety of foods to promote biodiversity

How to eat?



Adopt food waste-minimisation strategies



Prefer home-made meals and share with others



Consume safe tap water as preferred drink



Breastfeed infants where possible

Environmental Impacts of Australian and NZ diets

Current Nutrition Reports
<https://doi.org/10.1007/s13668-021-00374-0>

PUBLIC HEALTH NUTRITION (KE CHARLTON, SECTION EDITOR)

A Rapid Review of the Environmental Impacts Associated with Food Consumption in Australia and New Zealand

Sara Forbes¹ · Elynn Bicknell² · Ligia Guilovica³ · Kate Wingrove⁴ · Karen Charlton⁵

Accepted: 8 September 2021
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% Total food-related GHGe:
Core foods = 67-73%
Discretionary foods = 27-33%

Australian Guide to Healthy Eating

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





Milan Urban Food Policy Pact

More than 50% of the world's population currently lives in urban areas, a proportion that is projected to increase to almost 70% by 2050.



Governance



Sustainable Diets
and Nutrition



Social and
economic Equity



Food
Production



Food Supply
and Distribution



Food
Waste

Action of Local Governments






Public Health Nutrition: 25(2), 471–487

doi:10.1017/S1368980021000112

Scoping Review

Local urban government policies to facilitate healthy and environmentally sustainable diet-related practices: a scoping review

Liza Barbour^{1,*} , Rebecca Lindberg² , Julie Woods² , Karen Charlton³  and Julie Brimblecombe¹

¹Department of Nutrition, Dietetics & Food, Monash University, Level 1, 264 Ferntree Gully Road, Notting Hill, VIC 3168, Australia; ²Institute for Physical Activity and Nutrition (IPAN), School of Exercise and Nutrition Sciences, Deakin University, Geelong, VIC, Australia; ³Smart Foods Centre, School of Medicine, University of Wollongong and Illawarra Health and Medical Research Institute, Wollongong, NSW, Australia

Submitted 21 April 2021: Final revision received 21 September 2021: Accepted 12 October 2021: First published online 25 October 2021

N = 199 signatory cities to MUFPP; n = 27 studies, citing 36 relevant **policies**. Most were from high income countries (n 29; 81 %), considered **health** (n 31; 86 %), **equity** (n 29; 81 %) and the **broader food system** beyond dietary consumption (n 34; 94 %).

Of n = 66 **policy actions** described, the most common were **food procurement within public facilities** (n 16; 44 %) and **establishing guidelines for school-feeding programs** (n 12; 33 %).



Australian Local Governments – More than Rates, Roads and Rubbish?

Policy mapping study

- 207 Councils (NSW = 128; Victoria = 79)
- Online search for policies containing actions/objectives relevant to the food system
- Content analysis against a framework of recommendations for local government action on creating a healthy, sustainable, and equitable food system

New South Wales: 128



Victoria: 79



Carrad A, Aguirre-Bielschowsky I, Reeve B, Rose N, Charlton K.
Aus NZ J Pub Health 2022; 46: 332-39.



Framework of recommendations

Domain	Recommendations, n
Food system policy	1
Health & wellbeing	16
Sustainability & environment	9
Economic development	4
Food waste	1
Food quality & safety	1
Social policy	1
Planning frameworks	1
	Total = 34

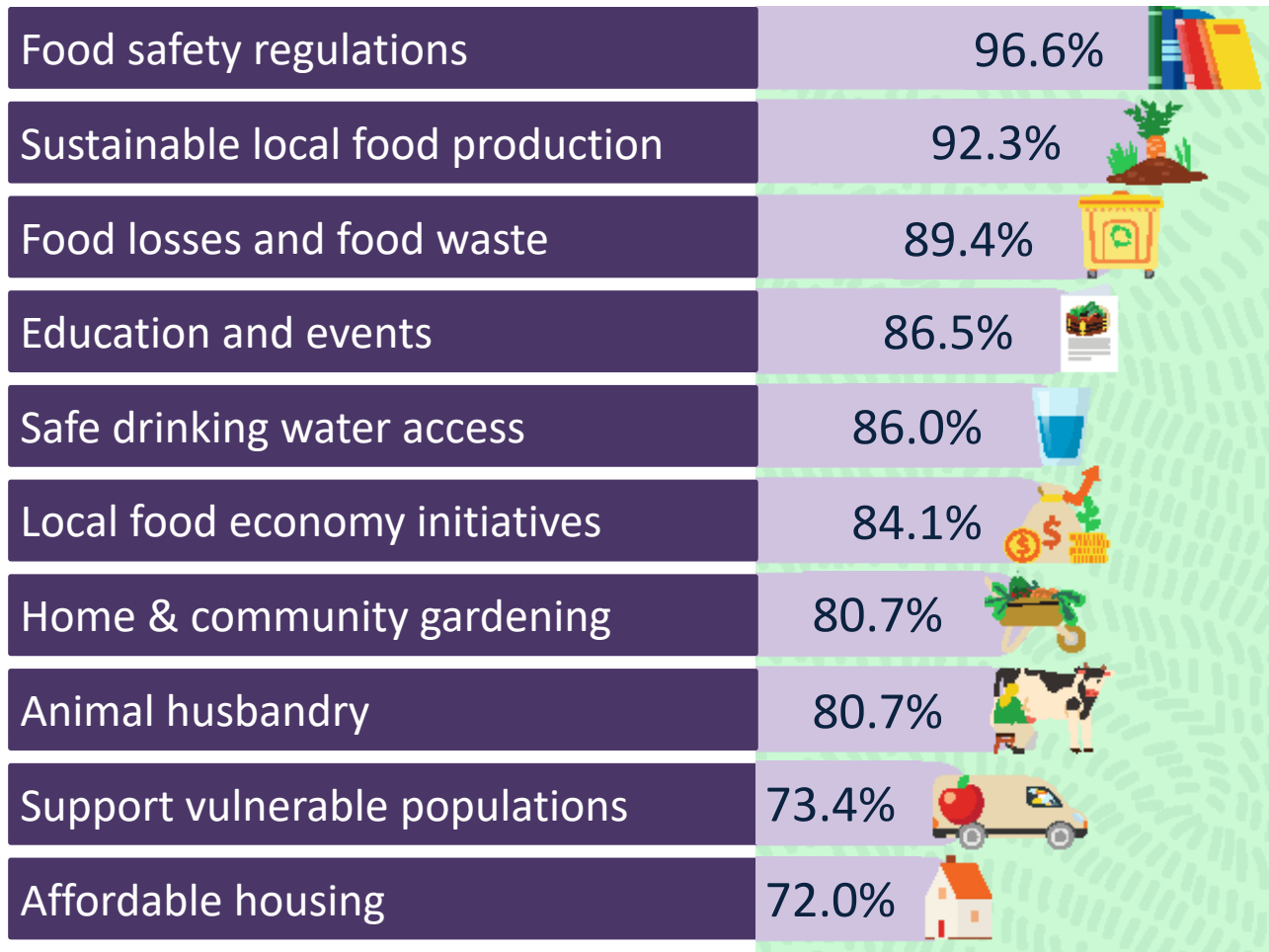
Results overview | Policy mapping study

Policy documents		2,266 total documents analysed	
NSW	1,268 56% of total documents were from NSW	2 Dedicated food system policies	Both From metropolitan local governments
VIC	998 44% of total documents were from VIC	11 Dedicated food system policies	8 From metropolitan local governments

For a visual summary of the main findings, go to <https://bit.ly/FSpolicyAUS>

Results | Policy mapping study

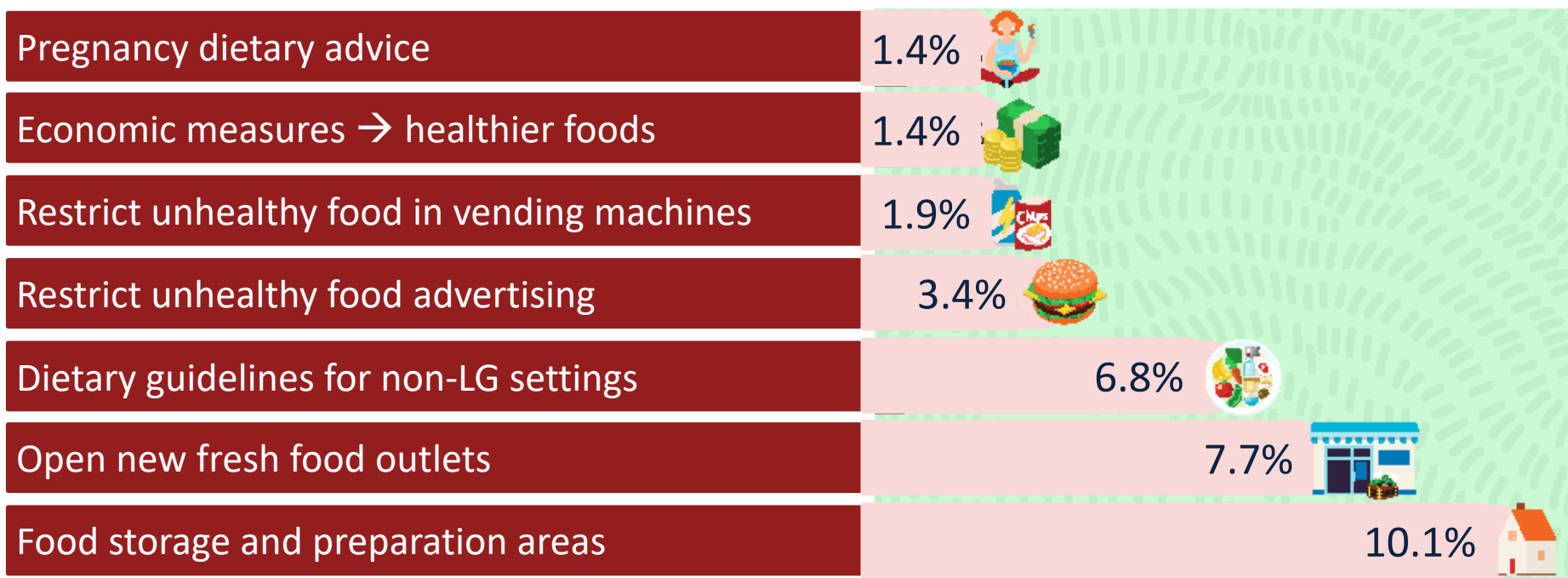
Commonly addressed framework recommendations



Carrad A, Aguirre-Bielschowsky I, Reeve B, Rose N, Charlton K.
Aus NZ J Pub Health 2022; 46: 332-39.

Results | Policy mapping study

Least commonly addressed framework recommendations



Carrad A, Aguirre-Bielschowsky I, Reeve B, Rose N, Charlton K. *Aus NZ J Pub Health* 2022; 46: 332-39.

Improving University campus environments: Uni-Food Initiative

Uni-Food

Benchmarking the healthiness, equity and environmental sustainability of university campus food environments in Australia



University of Wollongong
September 2021

- Healthiness, equity and environmental sustainability of food environments at UoW assessed in May 2021.
- Conducted using the [University Food Environment Assessment \(Uni-Food\)](#) tool
- Audit of relevant (1) [university policies and governance systems](#), (2) [campus facilities](#), and (3) [individual food retail outlets](#).

Key areas of strength

Equity

- UoW's Pulse pantry is a comprehensive food relief program that is widely accessible and predominantly provides healthy foods. Pulse pantry supports the coordination of food redistribution across the university.

Availability and accessibility

- Well equipped self-catering facilities and free drinking water are readily accessible for all staff and students across all areas of the university.

Environmental impact

- Strategies exist to reduce campus energy emissions, lower the volume of food waste generated and that discourage the use of single-use plastic packaging and serving ware, for foods prepared and sold on campus.

Key recommendations

Policies for food retail

- Set targets for the proportion of healthy and sustainable food sold on campus and consider banning the sale of unhealthy and unsustainable products (e.g. sugary beverages).
- Introduce pricing requirements for food retailers to ensure that a range of healthy and environmentally sustainable food options are affordably priced and incentivised for consumption.

Environmental impact

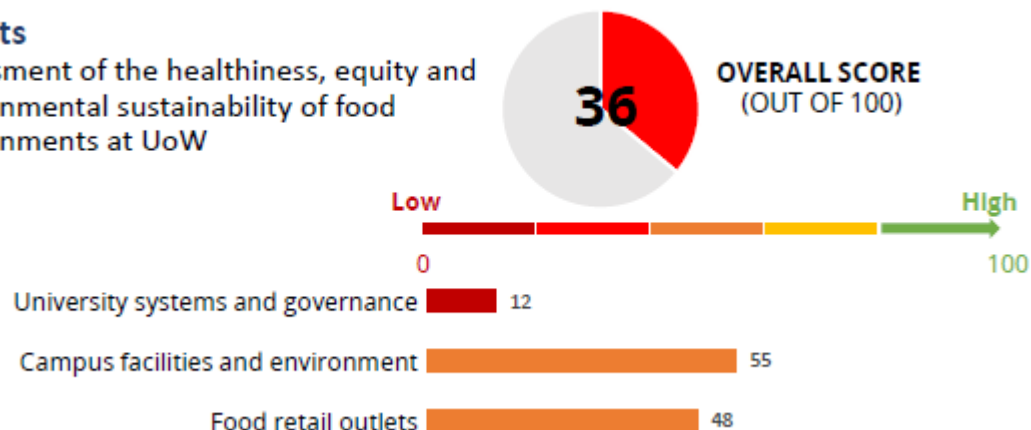
- Support campus food retailers to implement comprehensive waste monitoring and reduction programs as currently demonstrated by Unibar.

Monitoring

- Regularly monitor staff and students' food-related health outcomes and dietary preferences.

Results

Assessment of the healthiness, equity and environmental sustainability of food environments at UoW



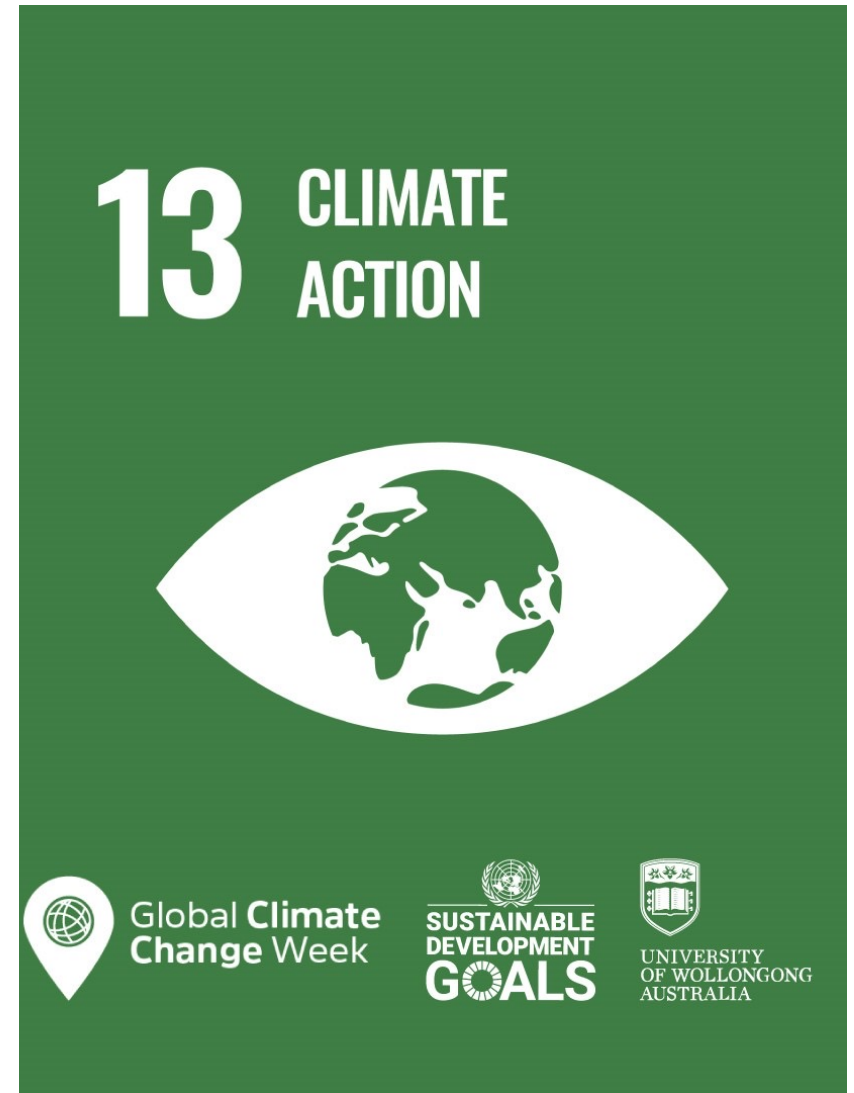
Conclusions

Think globally, act locally

All health practitioners need to be advocates for addressing climate change through their disciplines and workplaces.

To do this we need:

- Connections;
- Collaborations;
- Cultural competency;
- Courage.



The Planetary Health diet



Global adoption (modelling):
10.9 to 11.6m early deaths
could be averted each year
(19% to 23.6% reduction
from current adult mortality
rates).

