

The mismatch between consumer-demand, health, and supply of fruit and vegetables in Tasmania

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How important are collaborative and holistic approaches to promote and increase fruit and vegetable consumption?



Overview

1. Australian F&V Consumption
2. The Increasing Mismatch in Tasmania
3. Addressing the Mismatch
4. Collaborative approaches to improving livelihoods in PNG

Fruit and Vegetables: Targets

EAT FOR HEALTH

Australian Dietary Guidelines

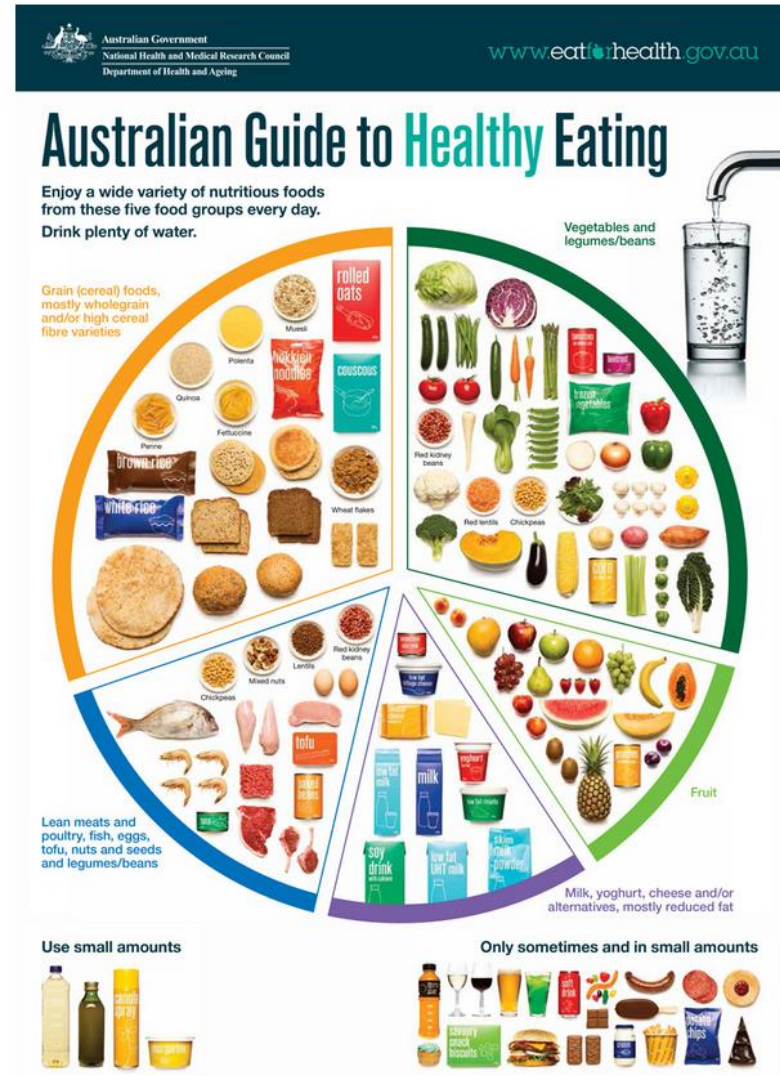
Australian Government Department of Health

<http://www.eatforhealth.gov.au>

Target:

2 serves fruit &

5 serves vegetables



Australians eating 2 and 5?

5.5%

of population





Fruit and Vegetables: Targets

Attaining minimum recommended levels?

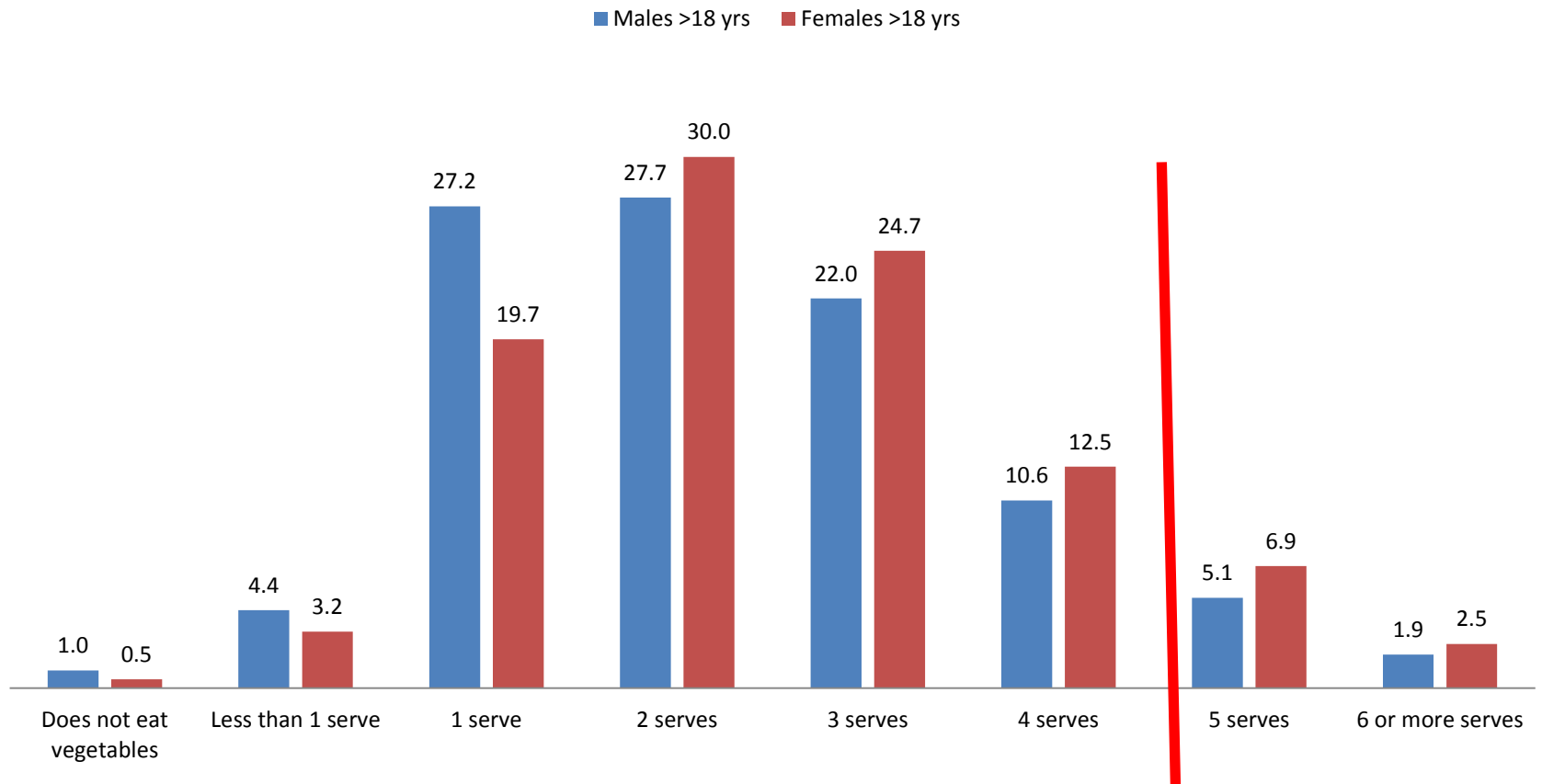
Australia: 5.6%

Europe: 220g p.p./day

USA: 6-8%

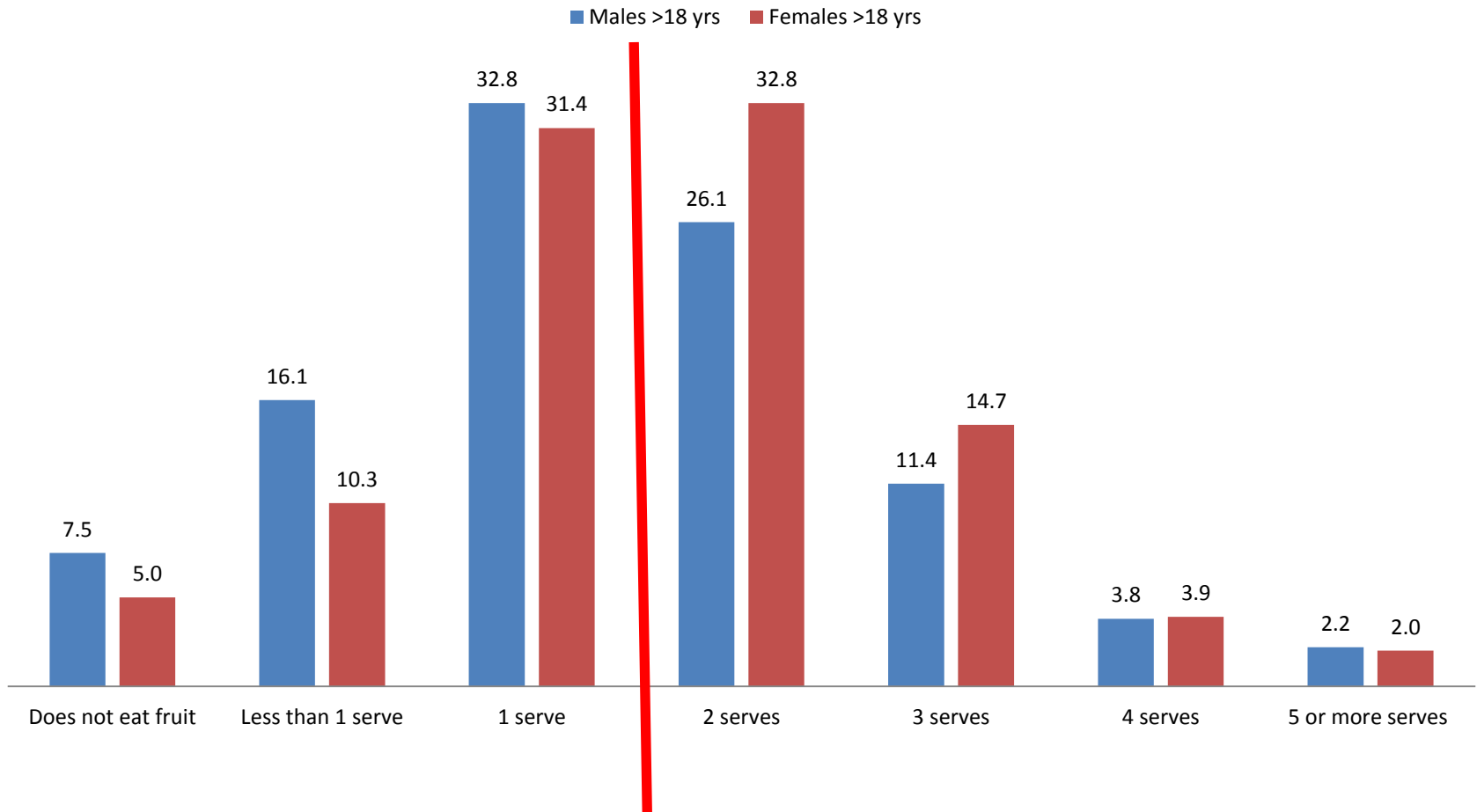
Australia

Daily Intake of Vegetables [Proportion per person]

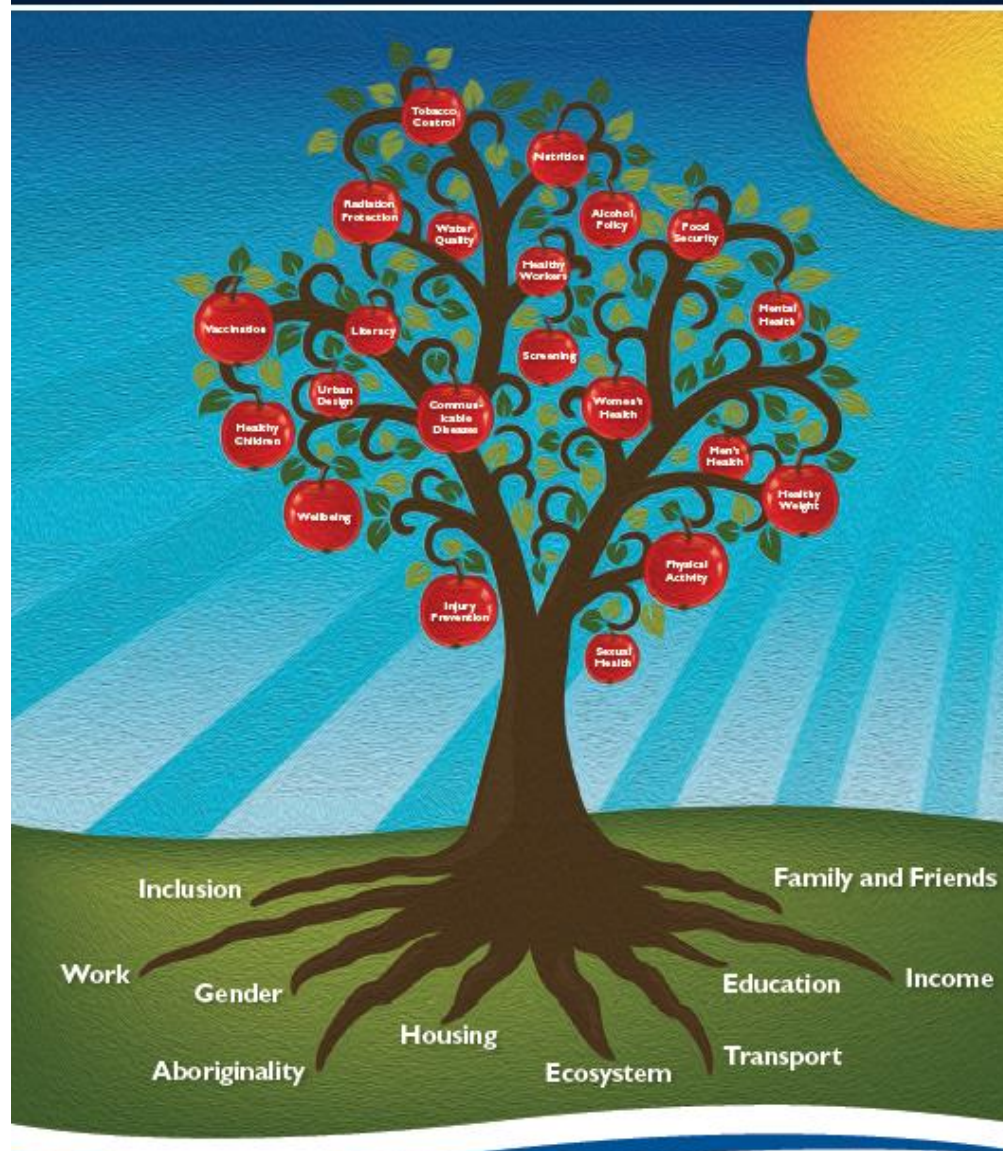


Australia

Daily Intake of Fruit [Proportion per person]



State of Public Health 2013



Tasmania

Table 58: Adequate fruit consumption by sex, 18 years and over, Tasmania 2009 and 2013

Adequate fruit*	2009		2013		Significant
	%	95% CI	%	95% CI	
Males	42.9%	[40.4%,45.3%]	36.8%	[33.9%,39.7%]	Y
Females	56.4%	[54.4%,58.4%]	51.5%	[49.2%,53.8%]	Y
Total population	49.8%	[48.2%,51.4%]	44.2%	[42.4%,46.1%]	Y

*≥2 serves daily; Tasmanian Population Health Surveys 2013

Tasmania

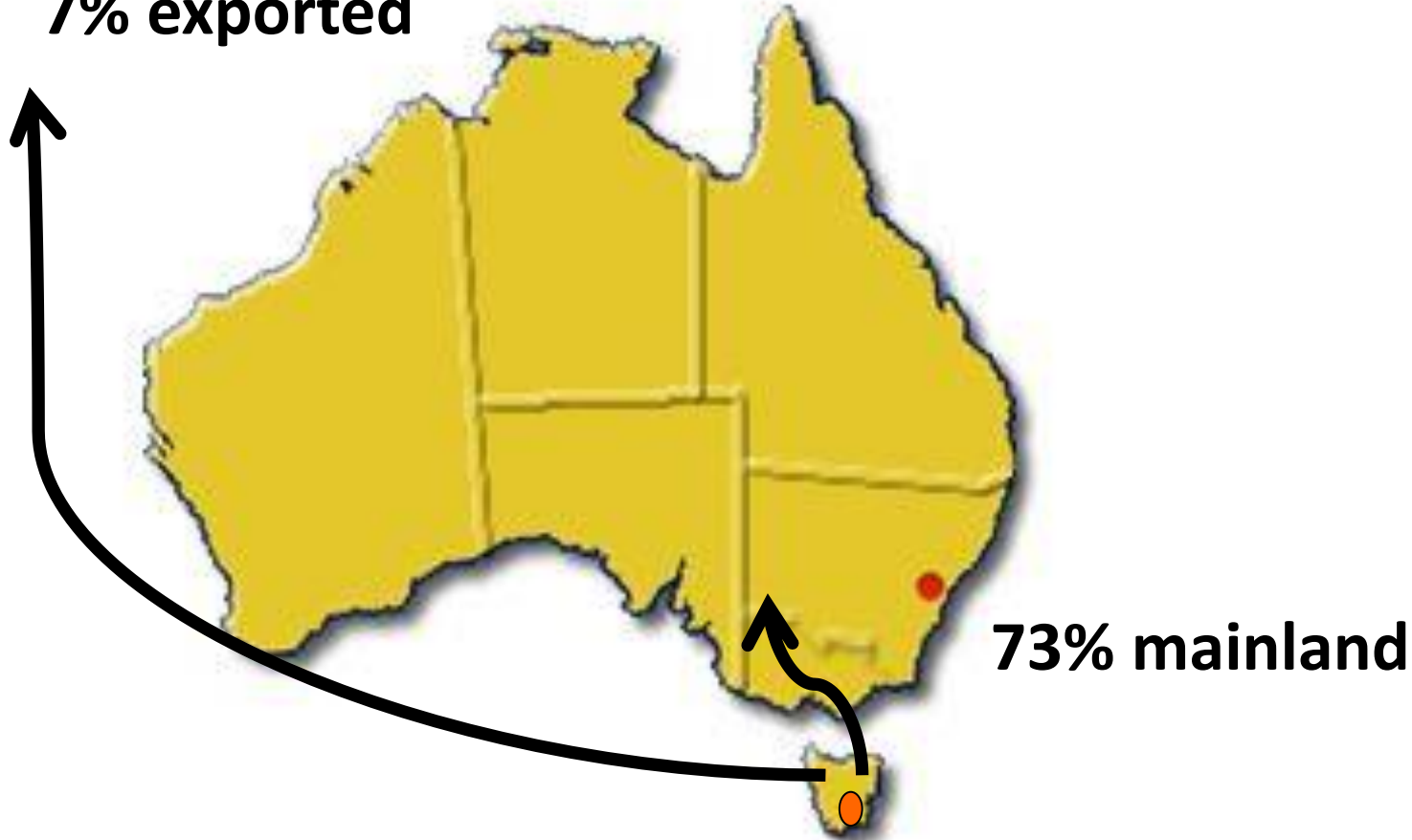
Table 67: Adequate vegetable consumption by sex, 18 years and over, Tasmania 2013

Adequate vegetables*	2009		2013		Significant
	%	95% CI	%	95% CI	
Males	7.0%	[5.9%,8.2%]	5.9%	[4.8%,7.2%]	N
Females	14.7%	[13.4%,16.1%]	13.5%	[12.1%,15.1%]	N
Total population	10.9%	[10.1%,11.9%]	9.8%	[8.8%,10.8%]	N

* ≥ 5 serves daily; Tasmanian Population Health Surveys 2013

Mismatch in Tasmania

7% exported



73% mainland

**20% of produce consumed within
Tasmania**



Campaign successes?



Review published by Robyn McConchie, University of Sydney

Country	Programme	Duration
Australia	Go for 2 & 5	(2002 -2007)
USA	Fruits and veggies – more matters	(2007—present)
UK	Food Dudes	(1992-present)
Denmark	6 a day	(1999 – present)
New Zealand	5+ A day	(1994 – present)

Kehky & McConchie (2014) Promoting consumption of fruit and vegetables for better health. Have the campaigns delivered the goals? Appetite 79:113-123


Campaign successes?



Success is higher:

1. **Holistic interventions:** campaigns that include health, exercise and other behaviours.
2. **Greater spirit of collaboration:** industry, government, NGOs
3. **Visibility and prominence:** variety, convenience, accessibility,
4. **Positive role models/experiences:** School programmes, communities
5. **Culturally relevant:** SES, incomes, age, gender etc,
6. **Incorporate initiatives:** policy measures to lower prices, accessibility etc

Addressing the Mismatch



Department of Health and Human Services
Move Well Eat Well

Accessible View **S 1300 135 513**

Move Well Eat Well ▶ Move Well Eat Well

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Move Well Eat Well
Level 2, 25 Argyle Street
Hobart TAS 7000

Move Well Eat Well





Move Well Eat Well is working to promote healthy eating and physical activity as a normal and positive part of every child's day.


It is an initiative of the Tasmanian Department of Health and Human Service (see [About Us](#)) based on extensive and current national and international [research](#).


If your early childhood service or school would like to join *Move Well Eat Well* click on the Membership forms: [early childhood service](#) or [primary school](#) 

Use these buttons to find what you need.

Early Childhood Services 

Primary Schools 

Families 

Health & Community Workers 

Latest news

These schools have decided to leave lollies out of school life!

Congratulations to these Member schools who have decided to leave lollies out of school life! We're rewarding 21 Member schools who have made this decision with a free Yonanas fruity dessert maker. Could this be your school too? Read some inspiring stories. ([more](#))

Let's talk about lunch!


All the materials you need to run a


Addressing the Mismatch






- Grow Eat Learn

Vegetable gardens:

- Healthy diets / life styles
- Promoting science

 UNIVERSITY
TASMANIA
**RESEARCH
TO REALITY**

Search Research to Reality 

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VEGGIE GARDEN RESEARCH PROJECT IS GROUNDED IN COMMUNITY ENGAGEMENT

by Amanda Cromer

There is no doubt that society poses science some very 'wicked problems' - problems that are difficult to define and very hard to solve.

Australia's food life cycle is associated with several wicked problems, such as the rising incidence of childhood obesity, depletion of global phosphorus stocks, poverty-related food insecurity and urban waste generation.

Now a team of researchers from the Tasmanian Institute of Agriculture (TIA) hopes to provide a 'wicked solution', through a unique, cross-disciplinary project - one that's thoroughly grounded in community engagement.

The GEL (Grow. Eat. Learn) project is being led by TIA, in collaboration with local business, the University of Tasmania's School of Architecture and Design, UTAS students and Tasmanian primary and secondary students.



Addressing the Mismatch

Veggycation
loving the health benefits

For a healthy heart
Great for your skin
supports your immune system
ENERGY FOOD
loving the health benefits
Brain food
Keeps you regular
Great for your bones and joints
Great for eyesight

What is Veggycation? For Veg Lovers For Kids (& Teachers) For Growers (& Industry) Glossary

What is Veggycation?
We capture and communicate the nutritional and health benefits of vegetables.
Find out more >

For Veg Lovers
Bursting with useful information for those who are totally addicted to veg.
Find out more >

For Kids (& Teachers)
Fun facts, recipes and jokes, just for you!
Find out more >

For Growers (& Industry)
Quality advice, friendly guidance and useful links for growers and marketers.
Find out more >

Downloads (& Resources)
How to guides, posters and useful videos for you to download here.
Find out more >

Cooking Veg
COMING SOON!
COMING SOON!
COMING SOON!
Find out more >

Did you know?
scallops from 1000 BC uncovered in China mention white cabbage as a cure for baldness in men.

Did you know?
Mustard cabbage is used in phytoremediation to remove heavy metals, such as lead, from the soil in hazardous waste sites because it has a higher tolerance for these substances and stores the heavy metals in its cells.

Home
What is Veggycation?
For Veg Lovers
For Kids (& Teachers)
For Growers (& Industry)

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Addressing the Mismatch

Communication tool for spreading the word about the nutrition and health benefits of vegetables.

information is based on pre-approved nutrition and health claims from FSANZ Standard 1.2.7, and nutritional data from the NUTTAB database



Cooking for Health and Taste:

Which Vegetables to Steam



3 MINS MAX

- Steaming vegetables for (3 minutes) maximises retention of water-soluble vitamins (e.g. Vitamins B and C). It also leaves vegetables with a vibrant colour and crunch!

- Vegetables that are best steamed include: green beans, snow peas, leeks, all leafy veg, and brassicas, carrot, corn.

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Cooking for Health and Taste:

Which Vegetables to Stir-Fry



3 MINS MAX

- Stir-frying adds a little oil, making fat soluble vitamins (A & E) more bioavailable. Plus, any added water/stock stays with the vegetables, so you still get the water-soluble vitamins (B&C). It also leaves vegetables with a vibrant colour and crunch!
- Use 1-2 tbsp of an oil suitable for high temperatures, such as canola, sesame, coconut or olive oil. Don't use 'Unrefined' or 'Virgin' type oils.

- Vegetables that are best stir-fried include: onion, carrot, celery, shallot, capsicum, bitter melon, zucchini, squash, daikon, Brussels, broccoli, bean sprouts, spring onion, snow peas, mushrooms, spinach.

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Cooking for Health and Taste:

Bake, Steam, Stir-Fry, etc...



- Some veg contain more than 10% of the recommended daily intake (RDI) of some nutrients, per serve. Cooking does not reduce nutrients below this 10% level.
- Some veg do not contain any nutrients above 10% of the RDI/serve, and thus cooking has no impact on health benefits related to these nutrients.
- Either way, you can cook them by steaming, stir-frying, baking, frying, microwaving, on barbecues, in casseroles and slow cookers.

- It's best not to boil any vegetables. And leave the skin on, where possible, for added fibre.
- Use an oil suitable for high temperatures, such as canola, sesame, coconut or olive oil. Don't use 'Unrefined' or 'Virgin' type oils.
- Vegetables that can be cooked using any method include: tomato, carrot, beetroot, capsicum, onion, zucchini, eggplant, mushrooms.

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An easy recipe for Daikon Radish and Zucchini Fritters

SERVES 4

1



Ingredients

150g zucchini, 150g carrot, 100g daikon radish, 3 eggs, 1/2 cup Panko breadcrumbs, 1/4 cup self-raising flour, 2-3 spring onions, 1/2 chilli, salt and pepper, light vegetable oil for frying.

2



Preparation

Grate zucchini, carrot and daikon, then squeeze water out. Slice spring onions, chop herbs and de-seeded chilli finely. Whisk eggs.

3



Preparation

Mix all ingredients together.

4



Cooking

Heat oil in fry pan, drop spoonfuls of mixture into oil gently. Fry for a few minutes on each side.

5

Serving suggestion

Serve immediately. A Yogurt and mint dressing, or sweet chilli sauce goes really well with these.



A diet containing an increased amount of both fruit and vegetables reduces the risk of coronary heart disease

An easy recipe for Bitter Melon Omelette

SERVES 2

1



Ingredients

1 or 2 bitter melons, 3 eggs, 3 spring onion, 2-3 tsp salt, oil for frying.

2



Preparation

Slice bitter melon lengthwise in half. Scoop out seeds. Slice very finely.

3



Preparation

Sprinkle salt on melon slices and leave for 15 mins, then wash well to remove salt, which removes some bitterness.

4



Cooking

Drain and squeeze bitter melon. Whisk eggs together, chop deseeded chili. Add oil to fry pan and heat to med. Lightly fry bitter melon for 2-3 mins. Add eggs and cook for 1-1.5 mins with stirring, then allow to set.

5

Serving suggestion

Serve folded in half with chili (or fried shallots) sprinkled over, with a leafy salad.



A diet containing an increased amount of both fruit and vegetables reduces the risk of coronary heart disease



An easy recipe for Quick Chicken & Vegetable Stir-fry

SERVES 2-4



Ingredients

A handful each of Chinese broccoli & green beans, 1/2 red and yellow capsicum, 1 carrot, 1/2 onion, 1-2 sticks of celery, 1 chicken breast or 2 chicken thighs. Small knobs of fresh ginger, 1-2 garlic cloves, 1-2 tbsp soy sauce (preferably), 1/2 tsp oil (panda, grapeseed or rice bran oil), 1 tbsp cornflour and 1/4 cup chicken stock (optional).



Prepare veg

Wash and slice broccoli and beans into 2-3 cm widths diagonally, slice deseeded capsicum into 1/2 cm slices. Peel carrot, slice carrot and celery diagonally 1/2 cm thick or less. Slice onion into wedges and break into layers.



Prepare chicken

Mix soy with finely sliced ginger and garlic. Slice chicken into 1 cm slices, add soy/garlic mixture and stir, cover and leave for 10 mins in fridge.



Cooking

1. Heat oil in wok – med high.
2. Add chicken and cook: 2-3 mins.
3. Add carrots: 1-2 mins.
4. Add all other: 1-2 mins.
5. Add cornflour: 1 min.
6. Stir and serve.

5

Serving suggestion

Sprinkle with chopped coriander and chilli or roasted peanuts or fried shallots and serve with steamed jasmine rice.



A diet containing an increased amount of both fruit and vegetables reduces the risk of coronary heart disease

INCREASING VEGETABLE PRODUCTION IN CENTRAL PROVINCE TO SUPPLY PORT MORESBY MARKETS

PNG villagers source

- 83% of their energy
 - 76% of their protein
- from their gardens.

Roughly 1/6 lives in severe poverty

94% of these in rural areas

(Bourke and Allen, 2009).



- limited opportunities to generate cash income
- inability to purchase extra sources of protein
- poor access to health services and education

= high infant mortality rates
and short life spans



- Large market demand for fresh fruit and vegetables of western origin, driven by middle class and expatriate segments in Port Moresby
- High disposable cash income





Supply Chain

Sociology

Bio-Physical

Value
Chain

Workshops

Variety
Trials

System
Trials

VC analysis

- Inter-disciplinary
- R, D, E, E & T
- 3 Universities
- 1 Research Institute,
- 1 Development and Extension Authority,
- 1 Provincial Government,
- commercial entities,
- individual and groups of farmers
- Relationship building early to form a functioning team

What was achieved -1

- Work in PNG – production, socioeconomic, value chain
- Complementary value chain, crop adaptation work in Tasmania
- Wide range of activities
- Increased knowledge and capacity of research and extension staff, farmers and farmer cooperatives
- Understanding of value chain function and effectiveness.
- 11 PNG-based staff gained national and international experience as authors of scholarly publications.
- Co-learning by PNG and Australian staff was key contributor and key outcome of the project

How important are collaborative and holistic approaches to increase fruit and vegetable consumption?

