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# We are losing up to 90% of our nutrients between soil and sea



50% of fertilisers miss their mark

20% food loss

Nutrients lost in processing

20% food waste Nutrients lost in cooking

Wasted food enters landfill

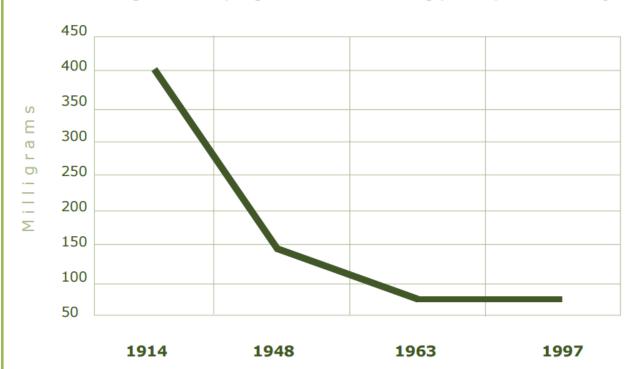
Nutrients in sewage sent to sea

## Our food is becoming less nutritious and chronic disease is on the rise

SOUTH AUSTRALIAN RESEARCH & DEVELOPMENT INSTITUTE PIRSA

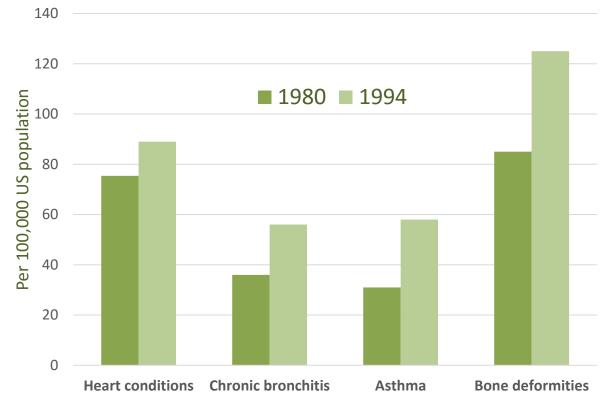
Average Mineral Content in Selected Vegetables, 1914 -1997

Sums of averages of calcium, magnesium and iron in cabbage, lettuce, tomatoes and spinach



Source: Lindlahr, 1914; Hamaker, 1982; U.S. Department of Agriculture, 1963 and 1997

### Increases in reported chronic diseases in the US linked to mineral deficiencies

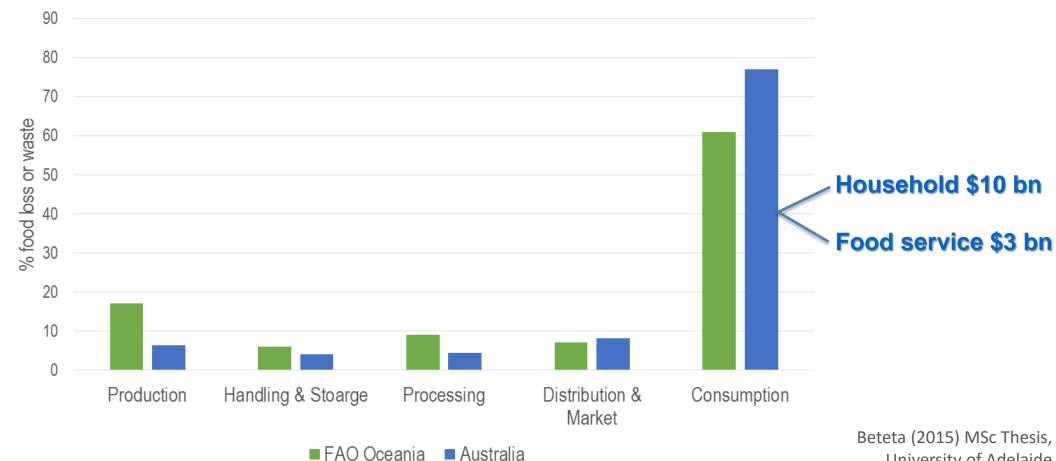


Nutrition Security Institute

### Yet we lose or waste 30-40% of the food we produce in Australia

**AUSTRALIAN PIRSA** 

Beteta (2015) estimated \$18-20 billion p.a. from farm to fork



University of Adelaide

# We need to promote a nutrient retention paradigm to aid food security











### **Source Reduction**

Reduce the volume of surplus food generated

### **Feed Hungry People**

Donate extra food to food banks, soup kitchens and shelters

### **Feed Animals**

Divert food scraps to animal feed

### **Industrial Uses**

Provide waste oils for rendering and fuel conversion and food scraps for digestion to recover energy

### Composting

Create a nutrient-rich soil amendment

### Landfill/

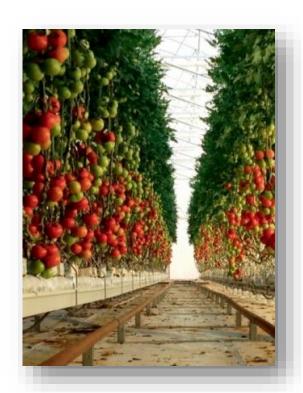
Incineration
Last resort to
disposal



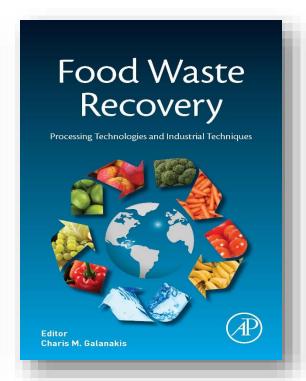




# Which must include new innovative solutions to direct, retain or recover nutrients









Better target fertilisers

Reduce processing losses

Recover nutrients from lost food

Extract nutrients from sewage

# To develop the nutritionally enhanced foods of the future



**Functional food** 



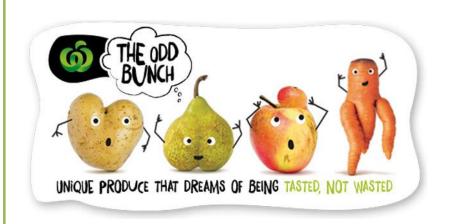
**Nutraceuticals** 



Printed food including tailored nutrition

## Everyone has a role to play, starting in the home

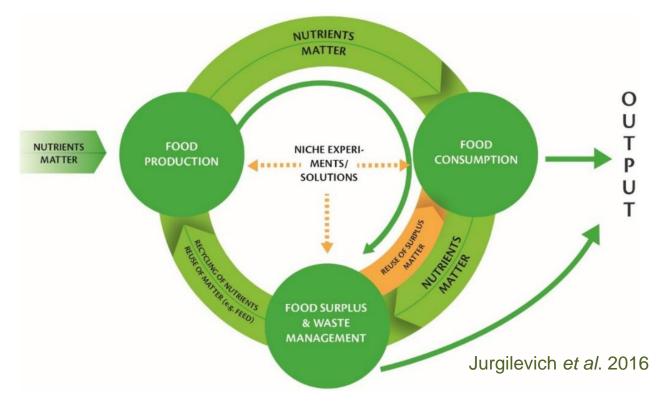
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# Nutritional security for all, not just food security, must be the aim



And developing the circular food economy will be integral to this.