

www.csiro.au

Assessing sustainability for the agriculture and food sectors

Sustainable Agriculture Flagship

Brad Ridoutt

National Research
FLAGSHIPS CSIRO

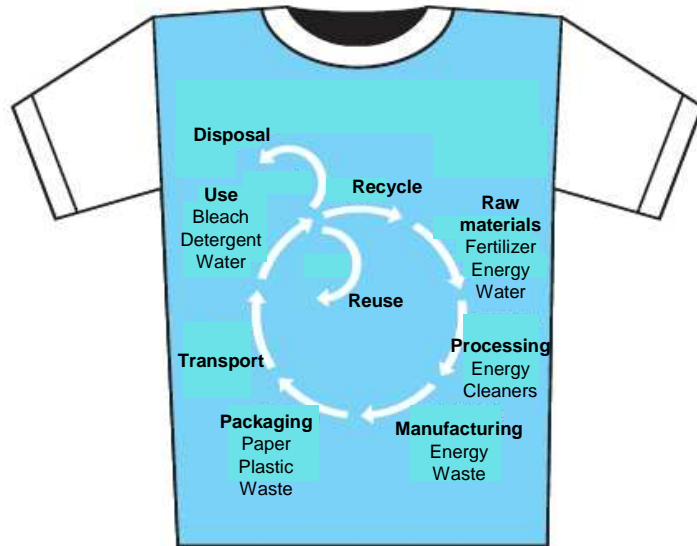
Policy framework

Approaches to environmental improvement

- Pricing mechanisms (e.g. cap and trade, carbon tax)
- Technology development (push, pull)
- Minimum standards (e.g. building regulations)
- Information dissemination (e.g. labelling)

National Research
FLAGSHIPS CSIRO

What is Life Cycle Assessment



UNEP, 2004

Carbon Footprint Label: working with the carbon trust 75g CO₂

Book Cover: Ecological Intelligence
 AUTHOR OF THE #1 BESTSELLER, *Emotional Intelligence*
DANIEL GOLEMAN
 NOW KNOWING THE HIDDEN IMPACT OF WHAT WE BUY CAN CHANGE EVERYTHING
ECOLOGICAL INTELLIGENCE

WWF Report: UK Water Footprint
 the impact of the UK's food and fibre consumption on global water resources
 Volume one
 Aqua Calculator Smart QR

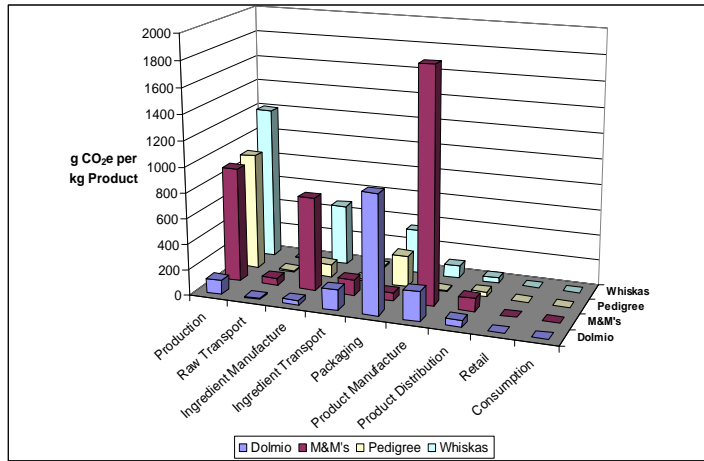
Nutrition Facts
Peanut Butter
 Serving Size: 2 tablespoons
 Servings Per Container: about 14

Amount Per Serving		Calories from fat 10
		% Daily Value
Calories	200	
Total Fat	16 g	25%
Saturated Fat	2.5 g	12%
Trans Fat	0 g	0%
Cholesterol	0 mg	0%
Sodium	120 mg	6%
Total Carbohydrates	6 g	2%
Dietary Fiber	2 g	9%
Sugars	1 g	
Protein	8 g	

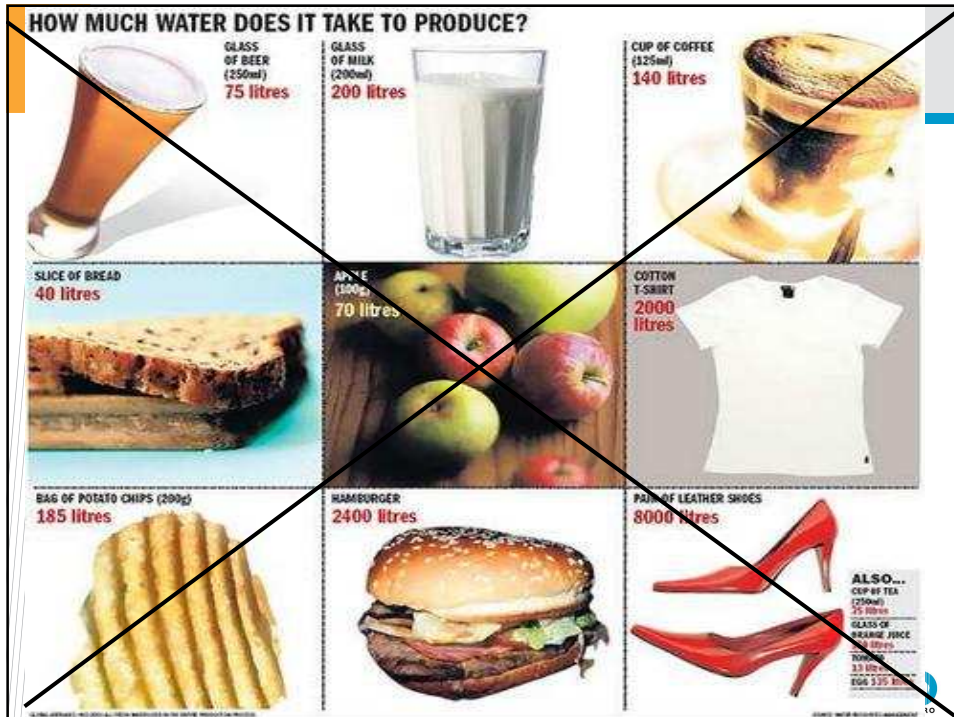
Carbon Footprint
 Per Serving: 118g CO₂e
 Total Carbon: 1648g CO₂e
 Primary location of origin: **Ontario, Ohio**
 Method of transportation: **Train/Truck**

LOW CARBON RATING HIGH
Note: Carbon rating ranges from 1 to 10, with lower numbers being more climate friendly. Carbon dioxide equivalent (CO₂e) accounts for carbon dioxide and other greenhouse gases.

GHG Supply Chain Assessments



Product GHG impacts vary greatly



Revised water footprint calculations

	Dolmio® pasta sauce (575 g)	Peanut M&M's® (250 g)
Virtual water content (litre)	202	1,153
Australian-eq water footprint (litre H2O-eq)	350	31
Distribution across value chain (%)	Ingredients (98%) Mars' operations (0.2%) Packaging (0.6%) Use phase (1.1%)	Ingredients (97%) Mars' operations (2.6%) Packaging (0.01%) Use phase (0%)
Major ingredients (litre)	Tomato (133.9) Onion (1.8) Garlic (0.1) Sugar (<0.1)	Cocoa derivatives (4.1) Peanuts (1.1) Sugar (0.9) Milk derivatives (5.3) Palm derivatives (<0.1) Tapioca starch (0.5)

(Ridoutt et al 2009 JCP, Ridoutt and Pfister 2010 GEC)

The water footprint of meat???



Food water footprint as threatening as carbon footprint: UK food policy advisor

March 30, 2009
Daniel Palmer

A senior food advisor to the UK Government has indicated that rationing may be a possible consequence of high levels of water use in the industry.

Professor Tim Lang, from City University London, suggested that the threat to the food chain was just as high from its water footprint as its carbon footprint. He added that people needed to become aware of how much water is used in producing staple goods.

Speaking to *The Daily Telegraph*, Lang said his team at City University London was working toward constructing a system to help shoppers find food that is nutritious, ethical and sustainable.

“Huge amounts of water are being used as irrigation or fed directly to animals. It is a nightmare,” he told *The Daily Telegraph*. “Water stress is huge across huge swathes of the globe.”

Implications



- Demand for product-level sustainability reporting is increasing

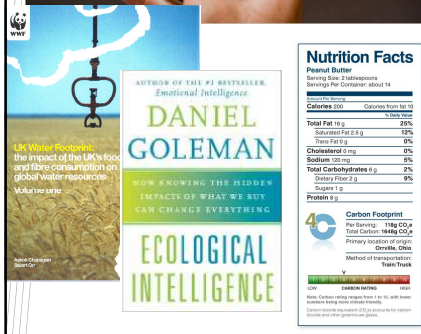
- Governments
- Retailers
- Food manufacturers
- NGOs
- Finance industry
- Concerned shoppers

- Debate about sustainable food is increasing

- Science-based evidence critical

- International standardisation of methods is taking place

- ISO 14067-1 (CF quantification)
- ISO 14067-2 (CF communication)
- ISO 14046 (water footprint)



National Research
FLAGSHIPS CSIRO

Brad Ridoutt
Principal Research Scientist

Phone: +61 3 9545 2159

Email: brad.ridoutt@csiro.au

web: www.csiro.au/org/SAF-overview.html

www.csiro.au

Thank you

Contact Us

Phone: 1300 363 400 or +61 3 9545 2176

Email: Enquiries@csiro.au Web: www.csiro.au

National Research
FLAGSHIPS

