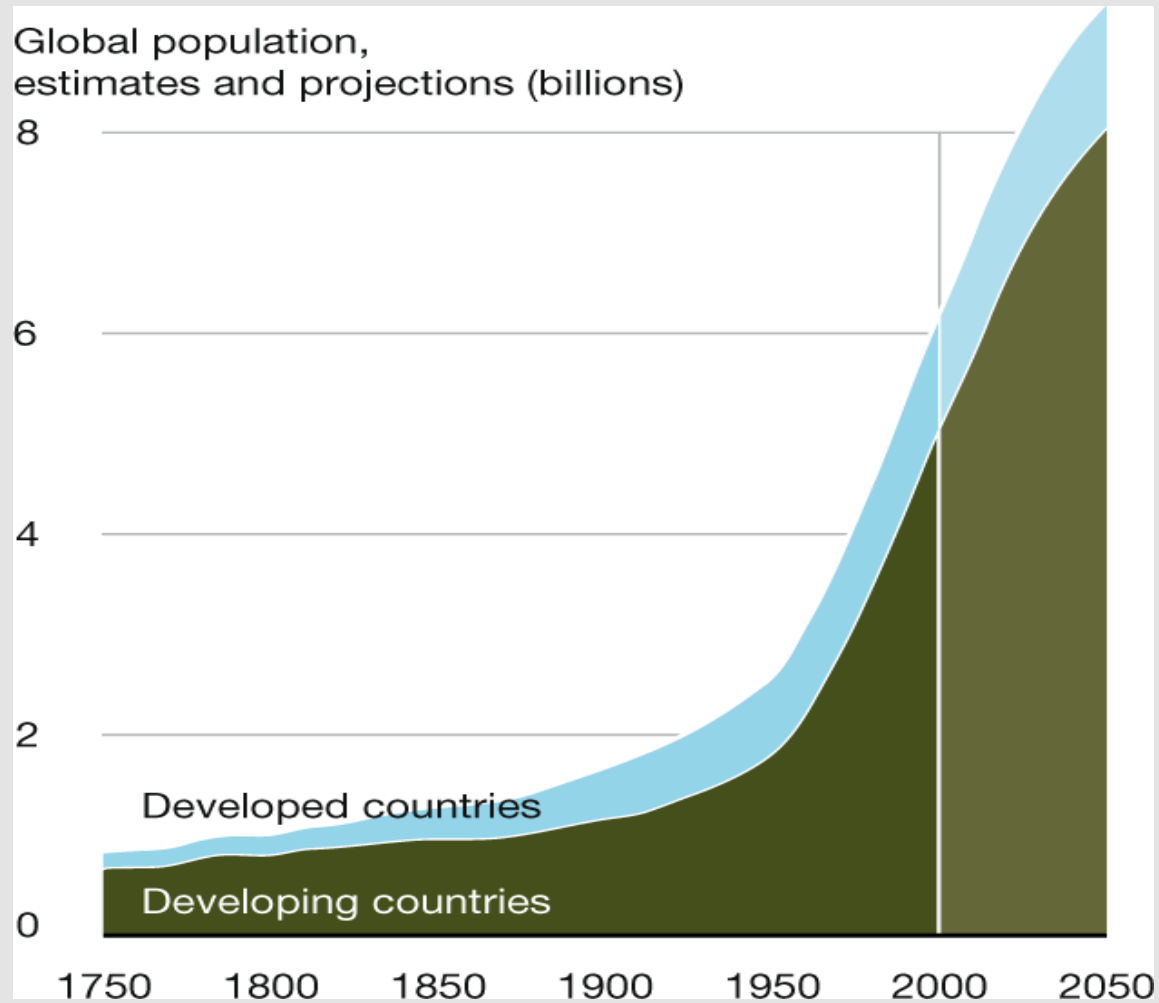


Future of Food Workshop

Professor Jacqueline Rowarth

2 December 2010

Transitions to Sustainability Conference



The Environmental Food Crisis - The Environment's Role in Averting Future Food Crises, UNEP 2009

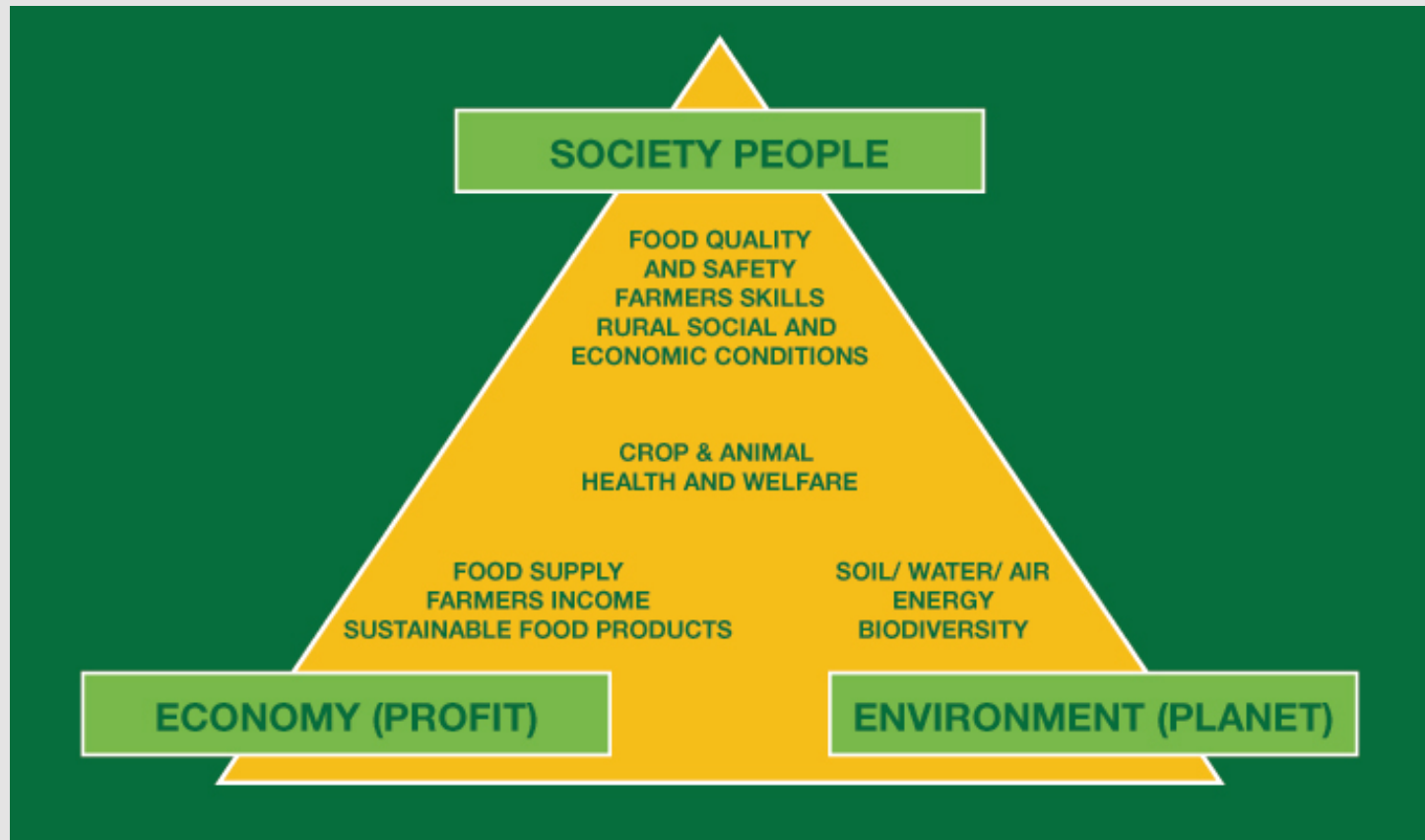
Food production must increase 70% by 2050

United Nations, March 2010

FAO Outlook on Agriculture, June 2010

MAF SOANZ, June 2010

Sustainable agriculture is a productive, competitive and efficient way to produce safe agricultural products, while at the same time protecting and improving the natural environment and social/economic conditions of local communities.



At current yields, we need an extra 1.5 – 2 billion additional hectares of land to feed the projected 2050 population

Professor David Tilman, University of Minnesota

Agricultural intensification between 1961 & 2005

Carnegie Institute and Stanford University, June 2010

- Increased emissions (fertiliser & application)
- Avoided emissions by increasing yield per hectare
- Net effect was -161 GtC (590 GtCO₂e)

**The ultimate trade off is
between the economy and the
environment. Hard decisions
have to be made.**

Keith Bristow, CSIRO, 5th August 2010

How low can we go?

Food Climate Research Network January 2010

- Increase production efficiencies
- Improve crop yields
- Change animal feed to decrease methane
- Use non-carbon fuel
- Change human consumption....

Heart Attack Grill

Taste worth dying for



**SINGLE BYPASS
BURGER®**



**DOUBLE BYPASS
BURGER®**



**FLATLINER
FRIES™**



**TRIPLE BYPASS
BURGER®**



**QUADRUPLE BYPASS
BURGER®**

**NO FILTER
CIGARETTES**



**JOLT
COLA®**



Marshmallow ice cream could be 'world first'

TVNZ Friday, June 4th

- 100 people
- >2000 man-hours
- 12,500 litres pink marshmallow



Canny Supermarket 2010...

Phil Lempert, USA

1. Taste (30 points)
2. Value (20 points)
3. Health (15 points)
4. Ingredients (15 points)
5. Preparation (5 points)
6. Appearance (5 points)
7. Packaging (5 points)
8. Sustainability (5 Points)



DON'T BE FOOLED: HEALTH IMPOSTERS REVEALED! see page 28

NEW ZEALAND

PRACTICAL IDEAS
FROM THE EXPERTS

GUIDE

NOVEMBER 2010 ONLY \$5.70



are your 'healthy' habits harming you?

the eating rules we
should all break!

EXPERT ADVICE

**HEALTHY
BONES
FOR LIFE**

what you can do now

breastfeeding:
eating to
boost energy

HOW TO:

- choose the best instant noodles **100**
- get more potassium **103**
- cook with avocado **62**

sweet chilli chicken
and noodle salad



AMAZING LEMON
FLAN MAKEOVER:
**SAVE 600kJ
& 16g FAT!**

how did we do it?



Lemon flan **85**



Mediterranean salad **67**



Lamb with pea mash **66**



YOUR SUMMER ESSENTIAL SPECIAL COLLECTORS' EDITION

NEW ZEALAND

PRACTICAL IDEAS
FROM THE EXPERTS

GUIDE

DECEMBER 2010 ONLY \$5.70

**OUR
BIGGEST
ISSUE EVER!**

20-MINUTE MEALS

recipe special:
40 speedy, healthy dishes!

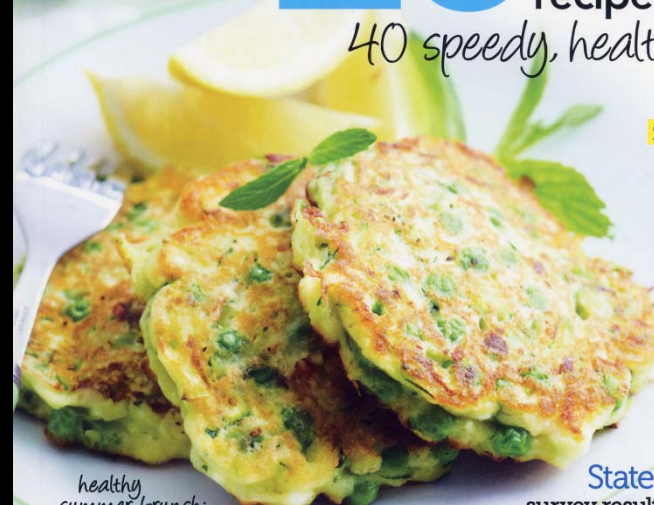
SPECIAL REPORT

**ALCOHOL
AND YOUR
HEALTH**

*(plus your guide to
hangover cures!)*

**HOW TO MAKE
ANY MEAL**

gluten-free,
dairy-free
or egg-free



*healthy
summer brunch:
pea, feta and mint fritters!*

State of the nation

survey results: how you (really)
feel about life and health

**GREAT
XMAS IDEAS!**

- Alison Holst's Xmas buffet
- 'Bring a plate' recipes
- Christmas gift ideas for under \$10, \$20 & \$50
- Gifts kids can make



Christmas garlands **106**



Celebration salmon **78**



Melon skewers **109**



Canny Supermarket 2010...

Phil Lempert, USA

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8. Sustainability (5 Points)



Supermarket first with carbon reduction label

Food Navigator.com 9th June 2010

Independent research conducted for Planet Ark found 60% of Australians would be more likely to produce a product displaying the Carbon Reduction Label

Environmental impacts of food

Sustainable Consumption and Production Round Table,
13th July 2010

- Identify and analyse LCA
- Assess potential impacts
- Use scientific methodologies
- Provide information

How low can we go?

Food Climate Research Network 2010

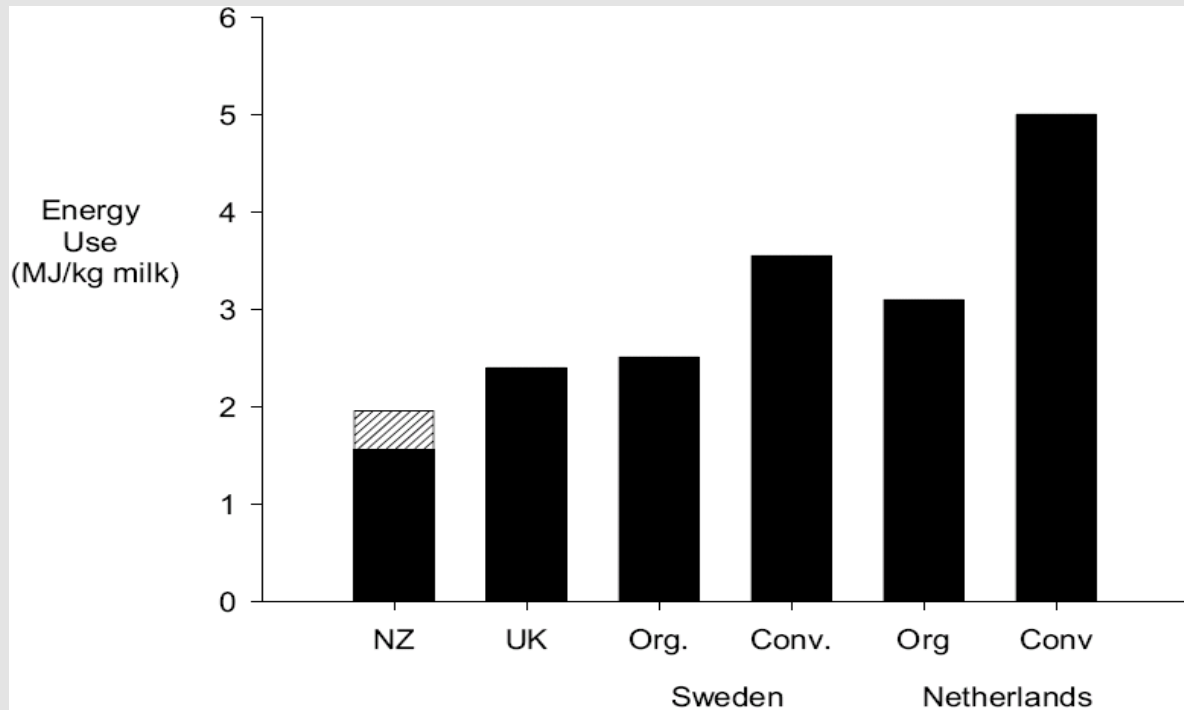
Production & initial processing	34%
Manufacturing, distribution, retail & cooking	26%
Agriculturally-induced land use change	40%

How low can we go?

Food Climate Research Network 2010

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New Zealand's advantage – getting
it right before the farm gate

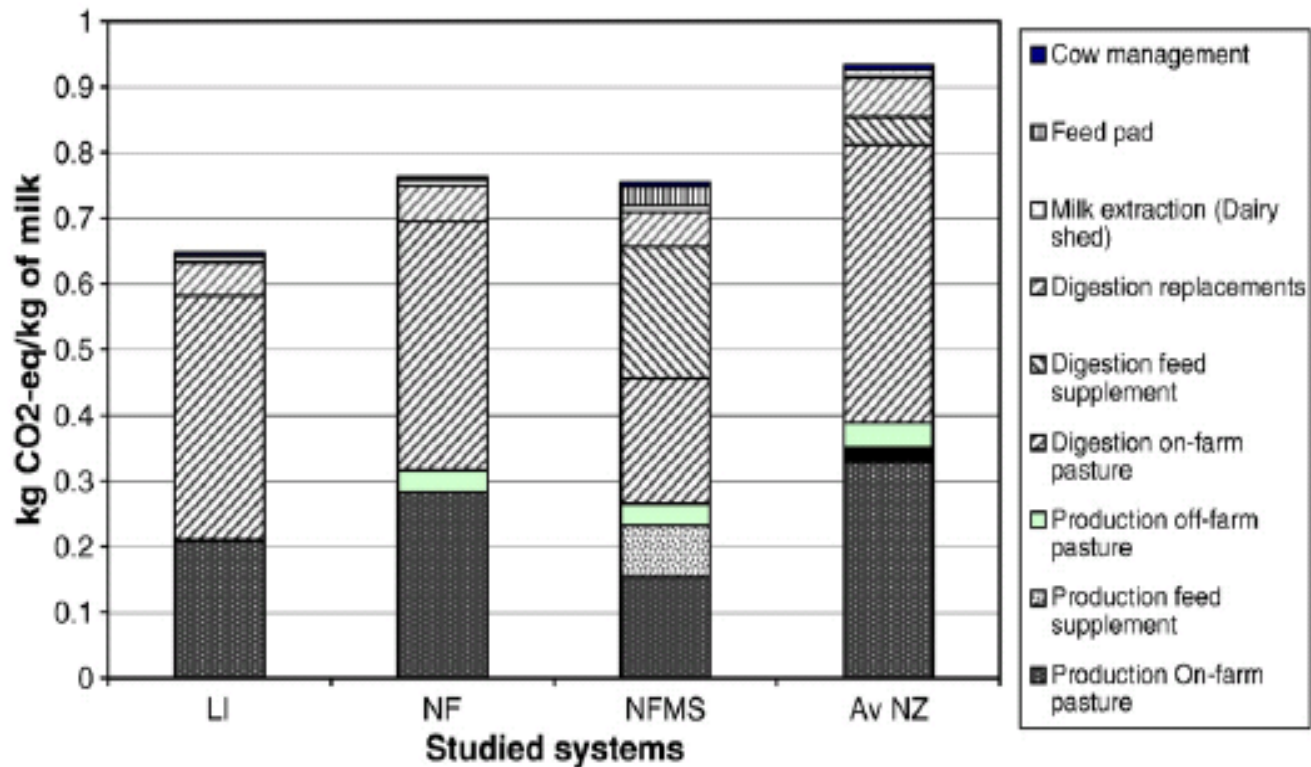


Comparison of GHG emissions to the milk-in-the-vat stage for dairy production systems. Food miles to the UK market are shown by the hatched section of the NZ bar. Basset-Mens *et al.* 2007

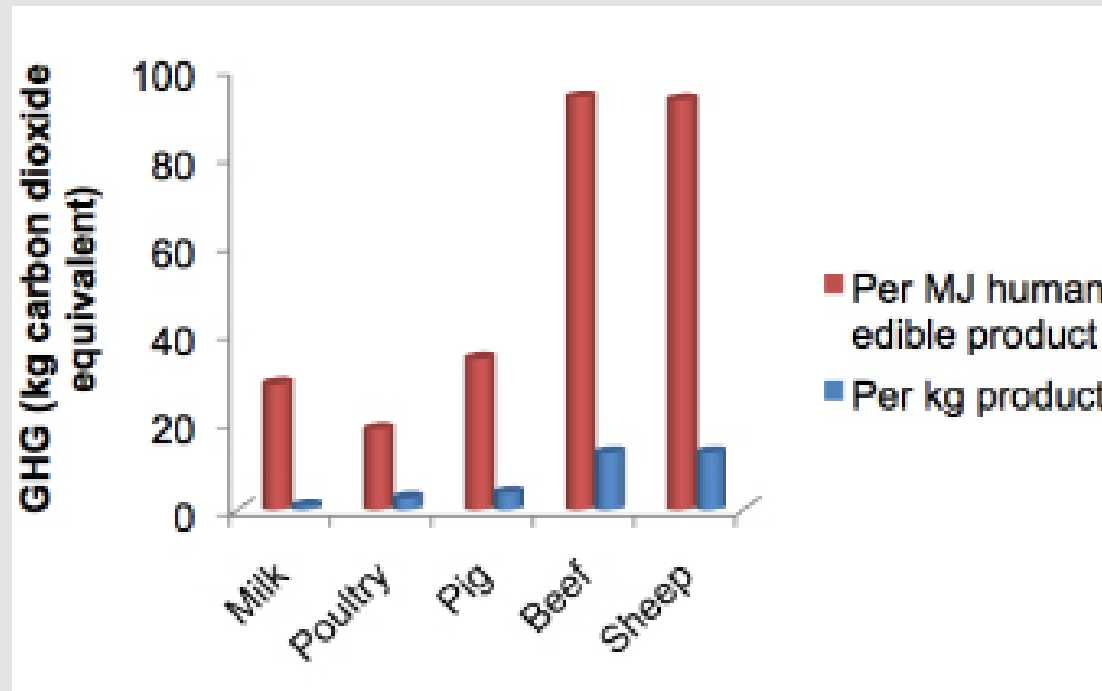
Milk — environmental burden/litre

Williams et al. 2006 (DEFRA) and De Boer 2003 (Livestock Production Science)

Environmental theme & units	Value/litre @	farm gate
	Conventional	Organic
GWP (CO ₂)	1060	1230
EP (PO ₄ ³⁻)	6.3	10.3
AP (SO ₂)	16.2	26.4
Land use (ha)	0.001	0.002



Sources of GHG emissions and direct energy use (kg CO₂-eq/kg milk) for different pasture-based production systems (LI = Low input, NF = Nitrogen fertiliser, NFMS = N-fertiliser plus maize silage and an average (Av NZ) system). Basset-Mens *et al.* 2007



Greenhouse gas (GHG) emissions

*per unit of livestock product (kg) or per MJ of human-edible products
(adapted from Williams et al., 2006).*

Carbon dioxide equivalents/kg product

Professor Gareth Edwards-Jones, Bangor University & AGMARDT Fellow

	Pre-farm gate	Post-farm gate
Welsh lamb	13.45	14.14
NZ Lamb	9.71	11.56



Forever discovering



MASSEY UNIVERSITY

Cubic metres of water/tonne of product

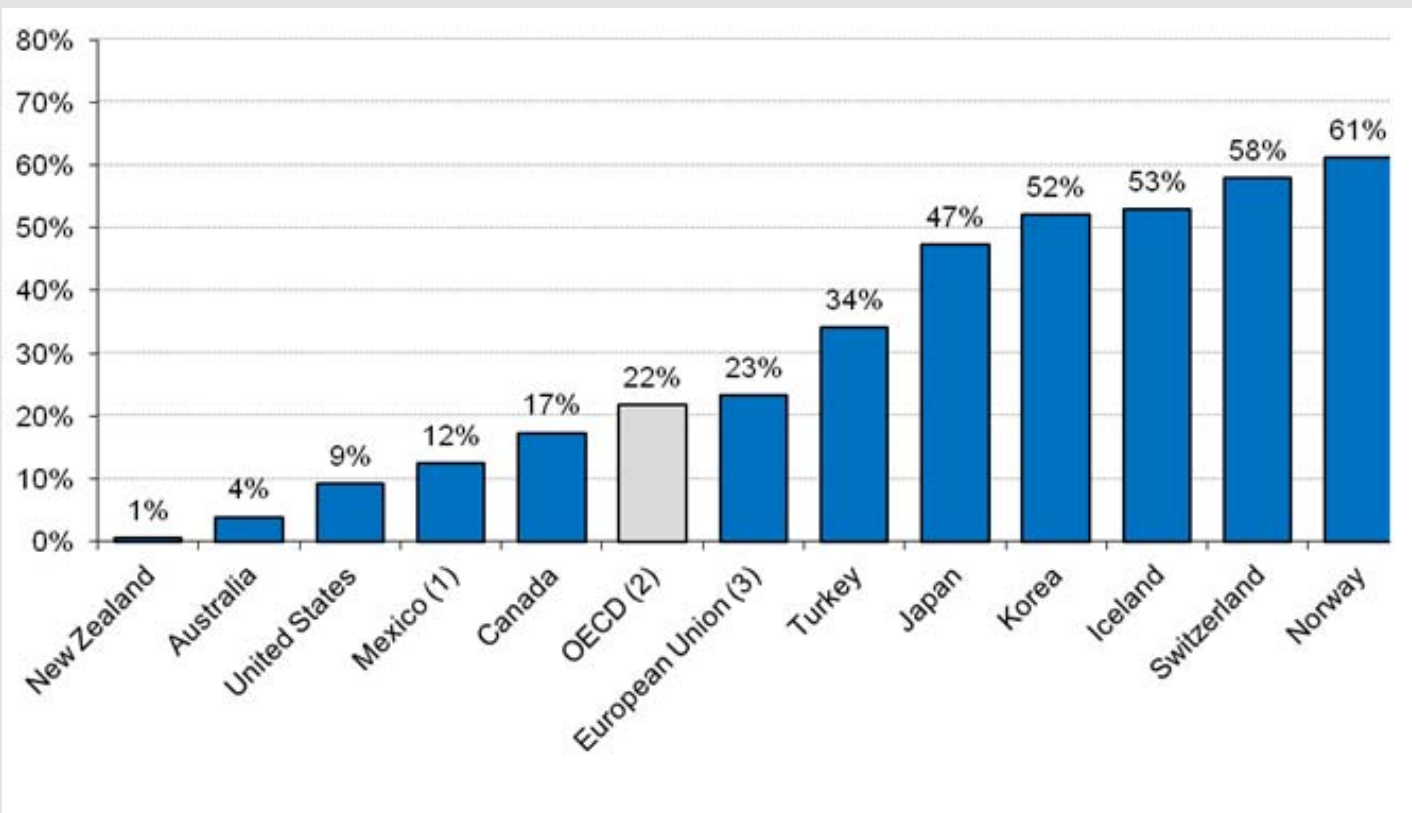
United Nations

	Grapes	Apples
Australia	595	735
New Zealand	235	141



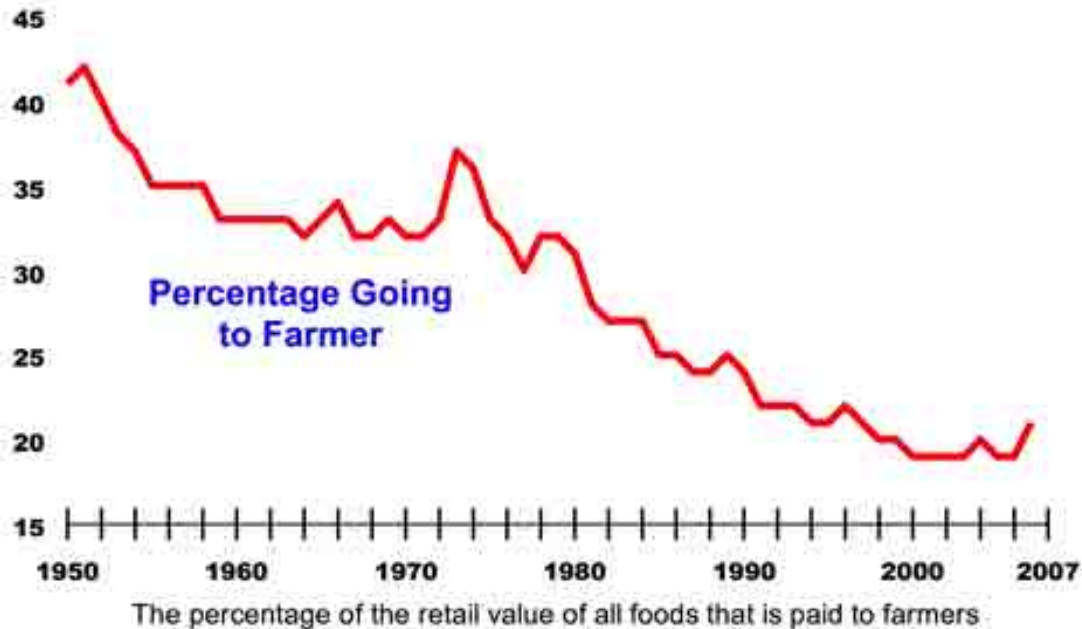
Producer Support Estimates as % of gross farm receipts, 2007-09 average

OECD July 1st 2010



Smaller and Smaller...

Farmer's Percentage of Food Dollar Has Been Declining for 57 Years



Source: Economic Research Service

The Farmer's Share %

NZIER for FFNZ 2008

	2004	2008
Lamb	34	31
Steak	18	19
Milk	25	35
Apples	21	17
Share of food basket	20.5	20.2

Local farmers need fair trade, too

National Business Review
4th June, 2010

What can be done?

- Life Cycle Assessment
- Consolidation –

Marketing New Zealand Inc.

The Essentials Series: Why You Need to Defragment

Microsoft MVP Greg Shields

TechRepublic.com 18th May 2010

The future of food

- Necessary luxury
 - Wine
 - Kiwi gold
 - SFF Intermarché, Rissington

The future of food

- Necessary luxury
 - Wine
 - Kiwi gold
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Venison -
with velvet mash...

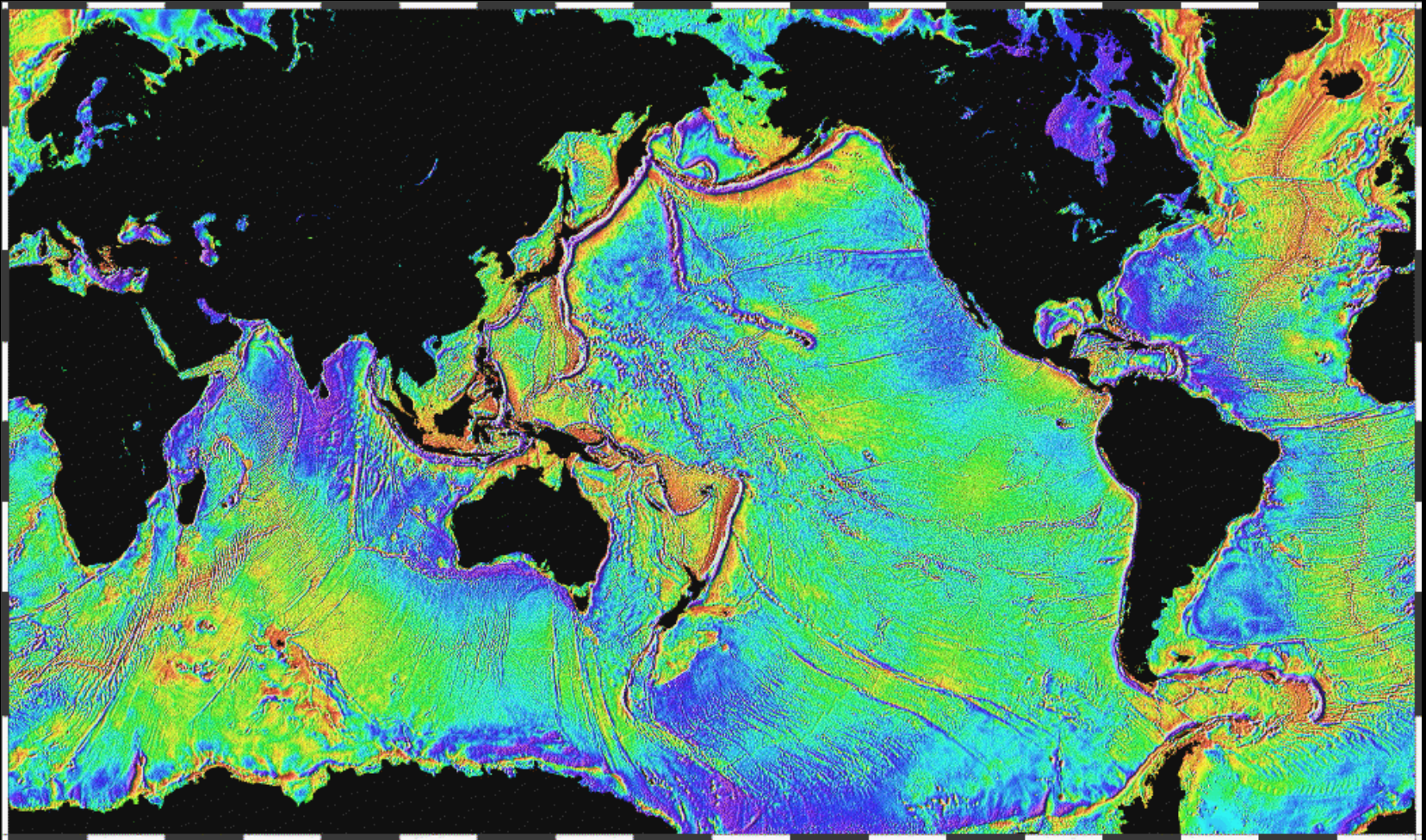
Forever discovering



New Zealand Food Inc.

Target...

- ‘Supermarketisation’ (Westpac Agribiz Feb 2010)
- Food safety (Int. Journal of Food Microbiology 19th Feb 2010)
- Traceability (Prof. Hamish Gow, Massey University, January 2010)
- Welfare – animal and human
- Recruitment of great people



New Zealand Food Inc.
– ticking all the boxes