

A Secure Future for Food

Professor Bill Bellotti
Vincent Fairfax Chair in
Sustainable Agriculture & Rural Development



VINCENT FAIRFAX FAMILY FOUNDATION



University of
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Biofuel boom 'threatens world's food supplies'

Posted Mon Mar 24, 2008 9:22am AEDT

The head of Nestle, the world's biggest food and beverage company, warns that growing use of crops such as wheat and corn to make biofuels is putting world food supplies in peril.

"If as predicted we look to use biofuels to satisfy 20 per cent of the growing demand for oil products, there will be nothing left to eat," chairman and chief executive Peter Brabeck-Letmathe said.

"To grant enormous subsidies for biofuel production is morally unacceptable and irresponsible," he told the Swiss newspaper NZZ am Sonntag.

While the competition is driving up the price of maize, soya and wheat, land for cultivation is becoming rare and water sources are also under threat, Mr Brabeck said.

His remarks echoed concerns raised by the United Nations' independent expert on the right to food, Jean Ziegler.



Future food crisis: Increased use of biofuels is expected to drive up the cost of staples like wheat (Getty Images)

Complexity...

- The Farming Game
 - Climate variability → climate change
 - Market variability → volatility
 - Policy settings
 - Production → Sustainability
- Increase food production while reducing GHG emissions
- Increase food production with reduced inputs

Uncertainty...

- Climate change scenarios
- Carbon price and inclusion/exclusion of agriculture in CPRS
- Water policy, environmental flows etc.
- Future availability of inputs:
 - Energy
 - Fertilisers
 - Human resources

Urgency...

- Rural communities at breaking point
- Irrigation communities without water
- Agriculture to be included in CPRS by 2013? Whether or not science has the answers.
- Food Security
 - GFC & poverty

Values in conflict...

- Drought Vs dryness
- Mining coal Vs farming food
- Water allocation to food production Vs environmental flow
- Bioenergy crops
- Food Fairness Alliance
 - Relocalisation
 - Transition towns

Future food challenges

- Population growth
 - Global, National, Local
- Climate change
 - Hotter, less rain, much less soil water
 - Less runoff, less irrigation
- Policy settings
 - CPRS, water buybacks, bioenergy...
- Everything else!!!

Estimated population shifts: rural to urban

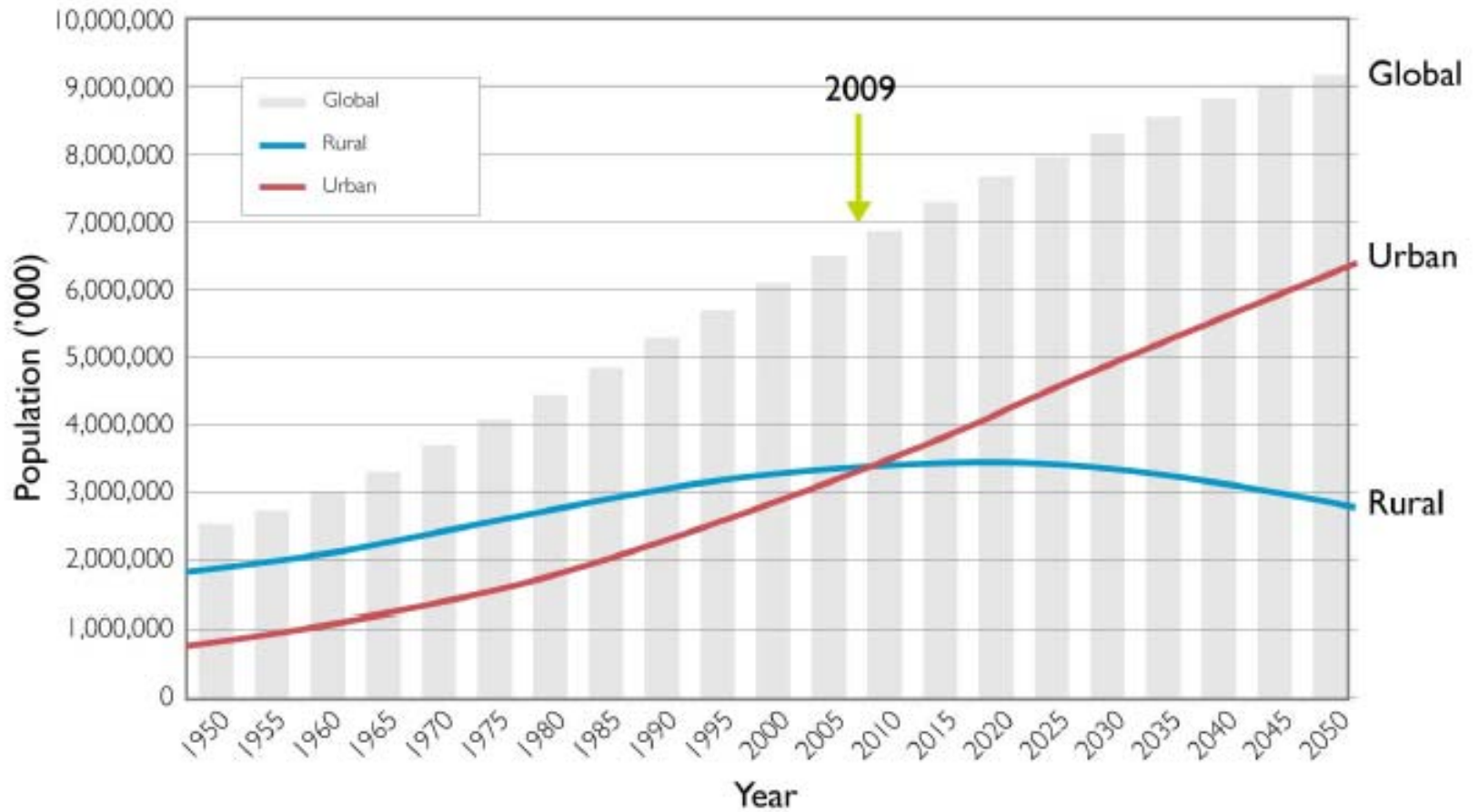


Figure 2. Global population trends and forecasts (1950 – 2050). After Deutsche Bank (2009). Data Source: FAO PopSTAT.

Greater urbanisation will increase global trade in basic food commodities

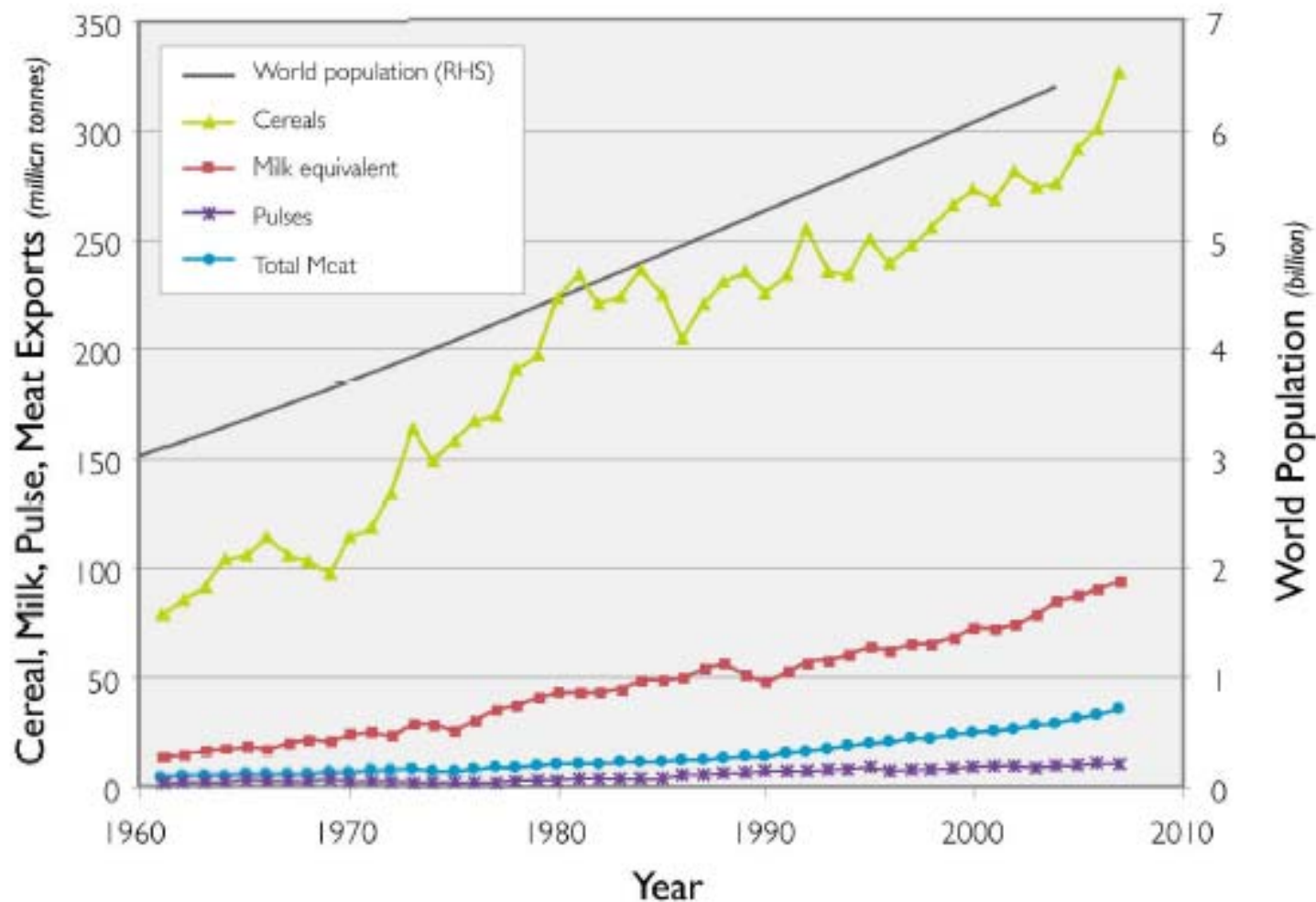
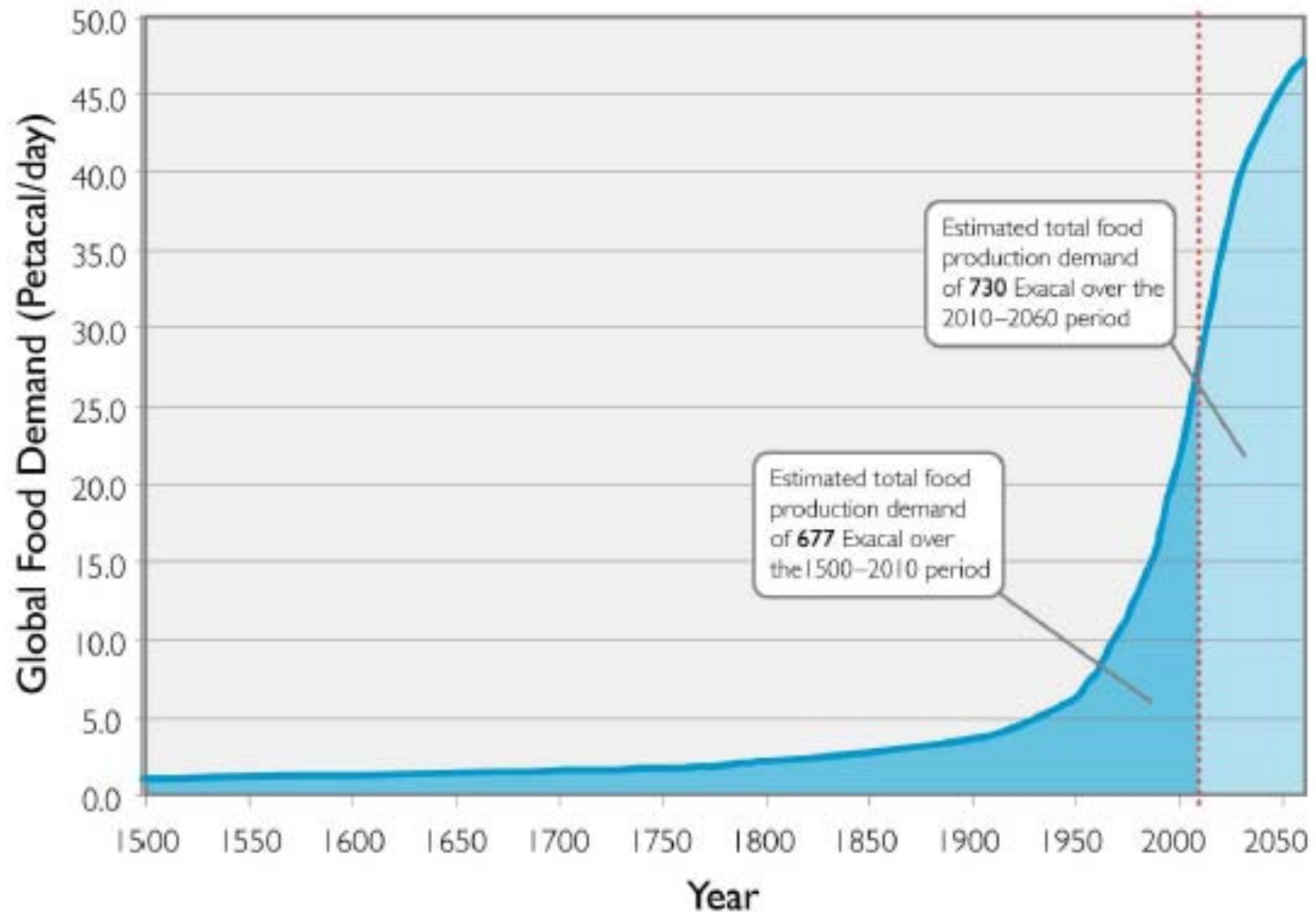


Figure 3. Global trends in food exports. By comparison, world population is expressed on the RHS axis.

Source: FAOSTAT/TradeStat (2009): <http://faostat.fao.org/site/535/DesktopDefault.aspx?PageID=535#ancor>

Future food production imperative (CSIRO, 2009)

The challenge to produce enough food will be greater over the next 50 years than in all human history



Australia's role in global food security

- Australian farmers feed 60 million
- We export up to 80% of what we produce
- We also export agricultural technology and know how
 - Farming in a variable climate
 - Farming fragile and infertile soils
 - Science – Practice partnership

Food Security 1

USDA, Global Food Security, 2009

1. National average nutrition gap. Aim to maintain daily caloric intake of 2,100 calories/capita/day.
2. The distribution gap. Aim is for each income group to reach the caloric standard. Food availability is calculated according to income.
3. From 2007-2008, number of food insecure people increased by 80 million to 819 million

Availability

Affordability

West Bengal, India



Food Security 2

NSW Health, Food Security Options Paper, 2003

Food security refers to the ability of individuals, households and communities to acquire appropriate and nutritious food on a regular and reliable basis, and using socially acceptable means. Food security is determined by the food supply in a community, and whether people have adequate resources and skills to acquire and use (access) that food.

Supply

Access

Affordability

Food Insecurity in Land of Plenty

- USA: 11 percent of households were food insecure at least some time during 2007
- SW Sydney: 22 percent (n = 1719) were food insecure during 2004
 - without hunger 14%
 - with hunger 6%
 - with severe hunger 2%

Average Australian food energy intake (FAO)

<u>Main energy sources</u>	<u>Calories/capita/day</u>	<u>% of daily total</u>	<u>Cumulative</u>
Wheat	560	18	18
Sugar (Raw Equivalent)	407	13	31
Milk - Excluding Butter	332	11	41
Poultry Meat	143	5	46
Bovine Meat	142	5	51
Rape and Mustard Oil	139	4	55
Fruits - Excluding Wine			59
Palm Oil			62
Pigmeat			66
Mutton & Goat Meat			69
Rice (Milled Equivalent)			72
Beer			75
Potatoes			77
Butter, Ghee			79
Fats, Animals, Raw			81
Cottonseed Oil			83
Vegetables, Other	50	2	85
Sunflowerseed Oil	44	1	86
Maize	42	1	88
Wine	40	1	89
Olive Oil	35	1	90
Fruits, Other	33	1	91
Treenuts	32	1	92
Fish, Seafood	31	1	93

Average Australian daily energy intake 3,150 Calories/capita/day

Main sources are wheat, sugar, milk and meat (50% of total).

Proportion of our food energy produced in the Sydney Basin

Main energy sources	Calories/capita/day	% of daily total	Cumulative	BASIN %
Wheat	560	18	18	0
Sugar (Raw Equivalent)	407	13	31	0
Milk - Excluding Butter	332	11	41	1
Poultry Meat				1
Bovine Meat				0.1
Rape and Mustard Oil				0
Fruits - Excluding Wine				0.3
Palm Oil				0
Pigmeat				0
Mutton & Goat Meat				0
Rice (Milled Equivalent)				0
Beer				0
Potatoes				0
Butter, Ghee				0.1
Fats, Animals, Raw				0.1
Cottonseed Oil				0
Vegetables, Other				0.1
Sunflowerseed Oil	44	1	86	0
Maize	42	1	88	0
Wine	40	1	89	0

Only 3-5 % of our average food energy consumption is produced in the Sydney Basin.

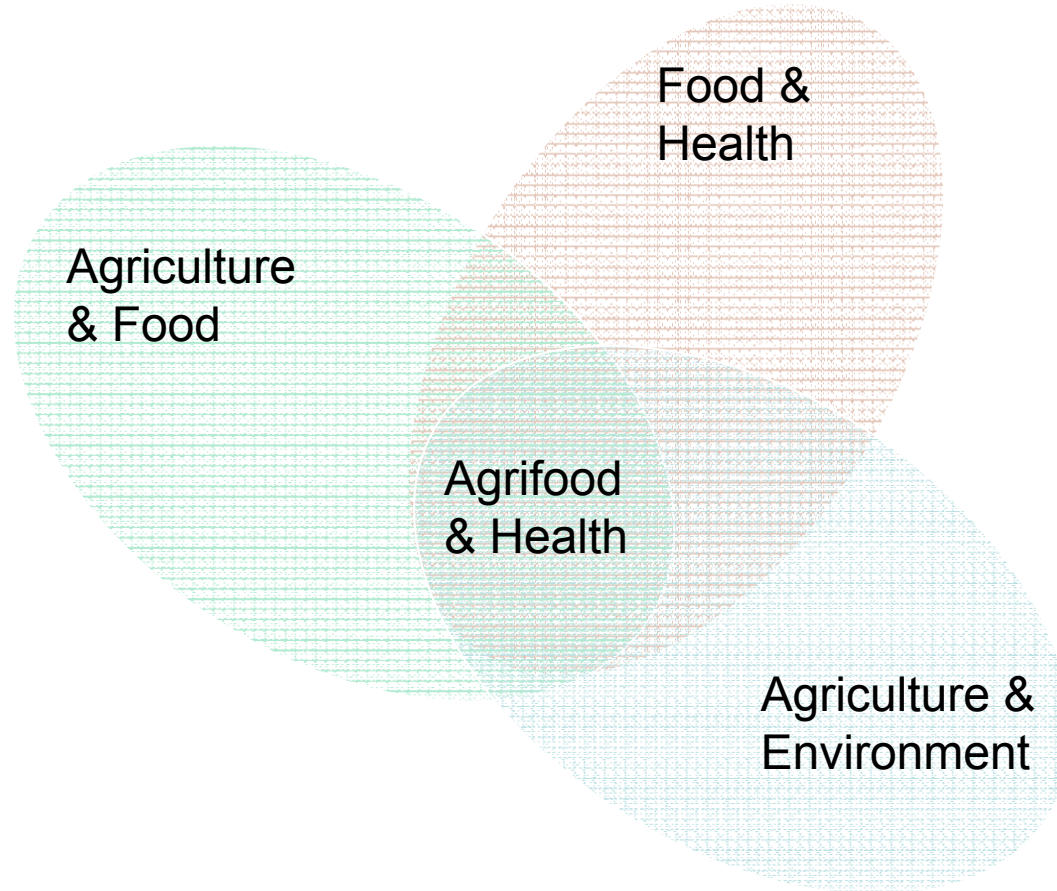
Feeding Sydney

- Urban – Rural Divide
- The city depends on rural communities for its very survival. There is no city without the country.
- Use FOOD as our shared interest,
RECONNECT

Current Aust Govt Portfolios

- Agriculture, Fisheries & Forestry
- Environment, Water, Heritage & Arts
- Health & Ageing
- Infrastructure, Transport, Rural Development & Local Government
- Innovation, Industry, Science & Research
- Climate Change
-

Food as the Great Integrator

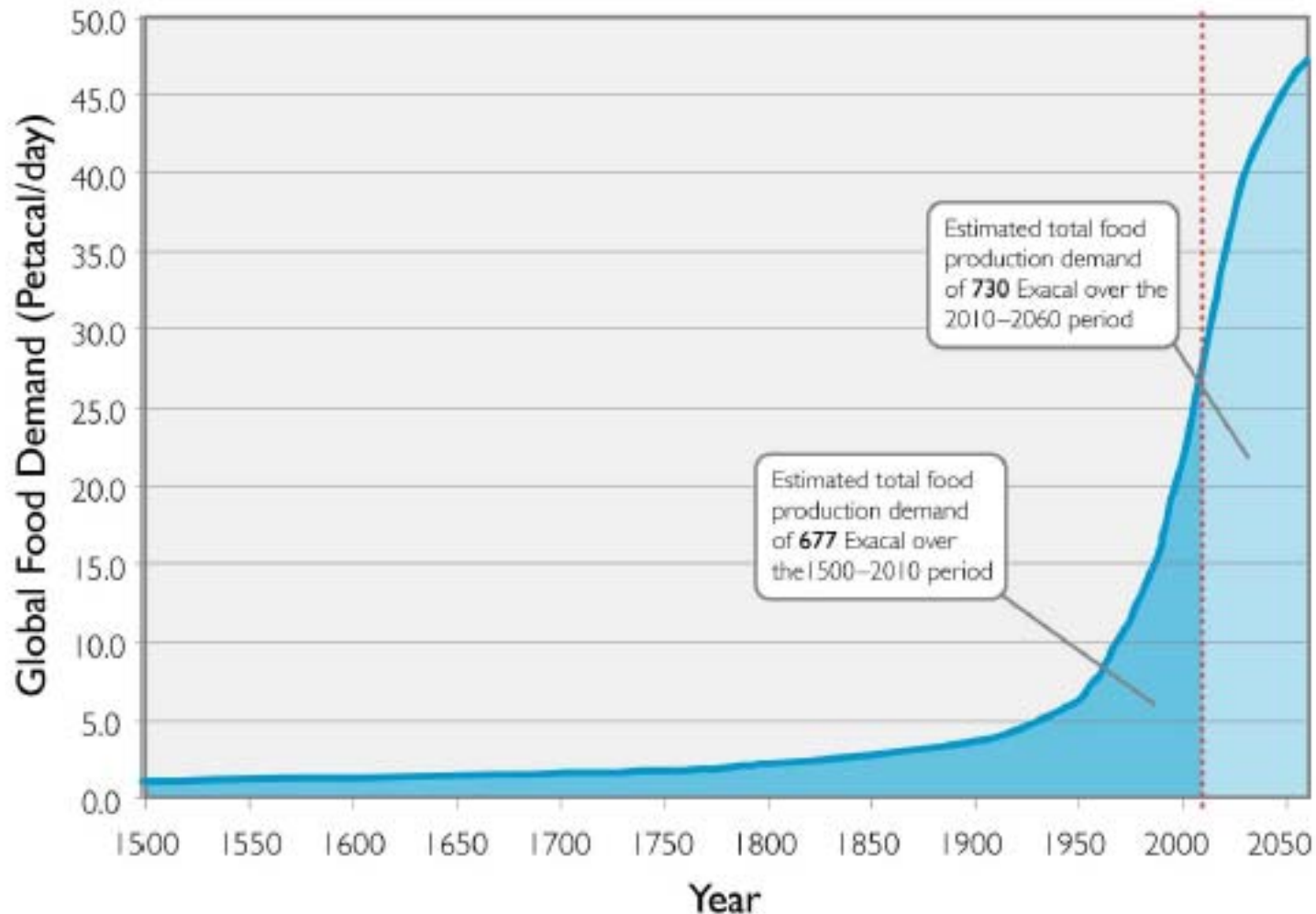


Integrated health and agrifood strategy

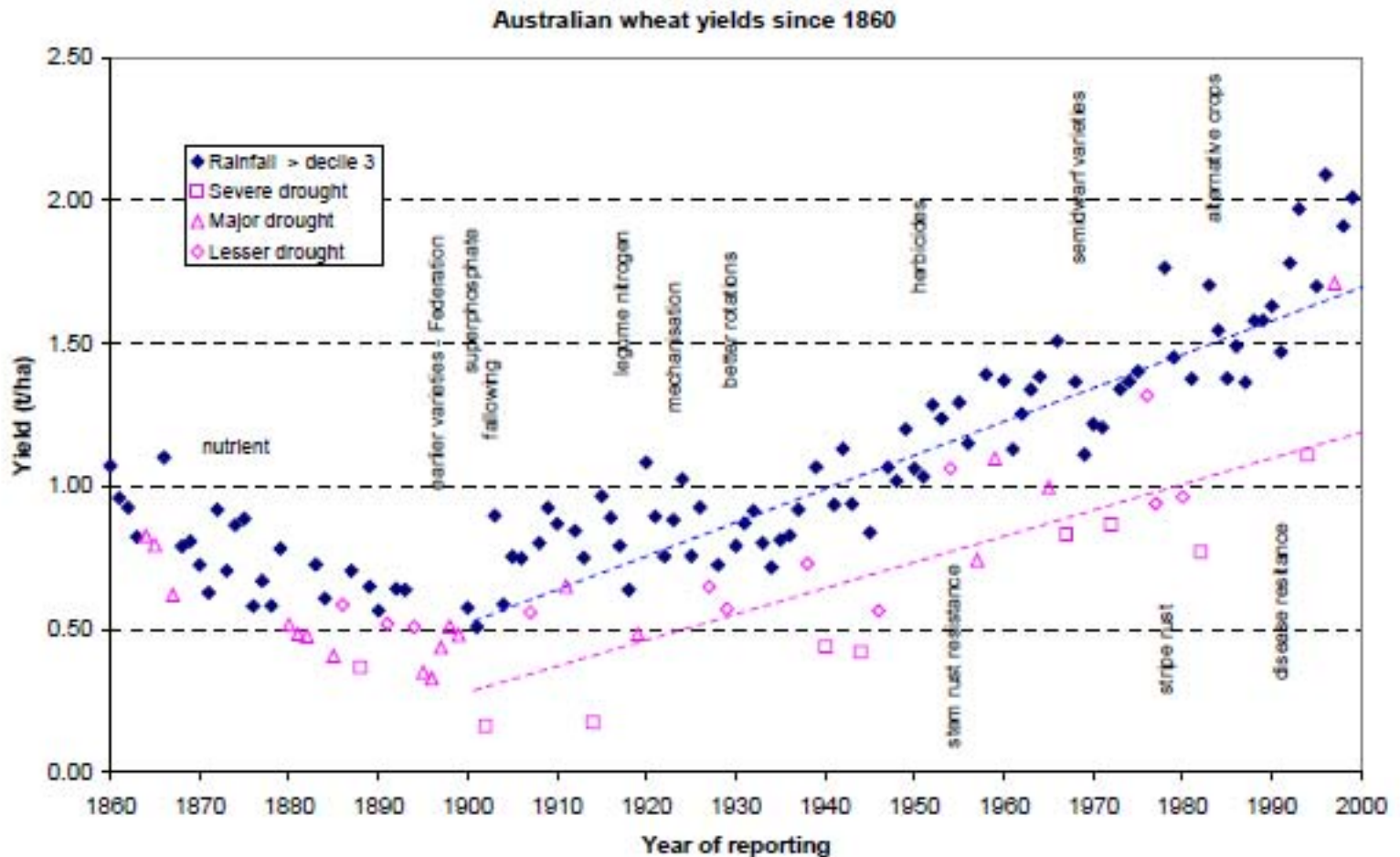


Can we do this?

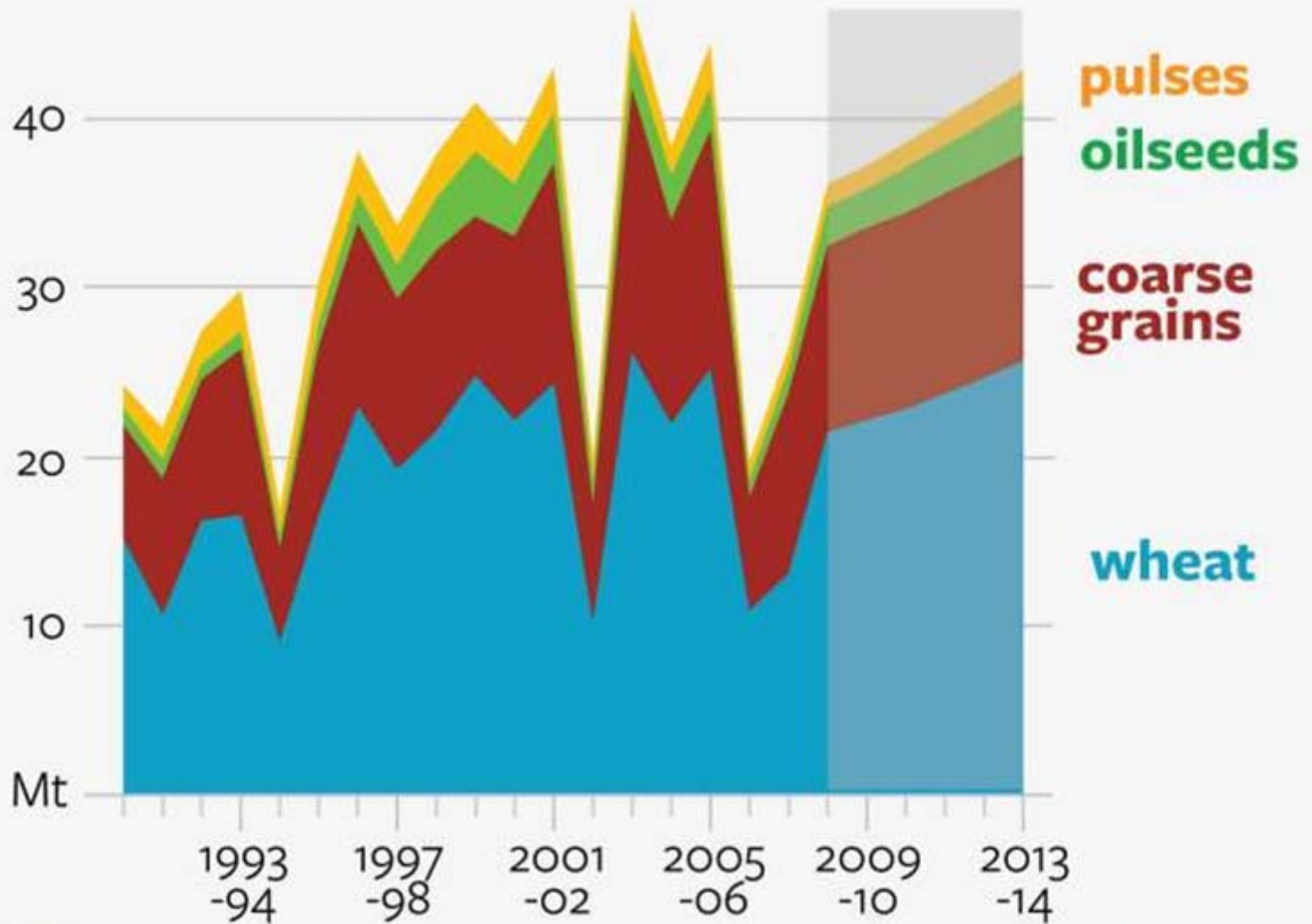
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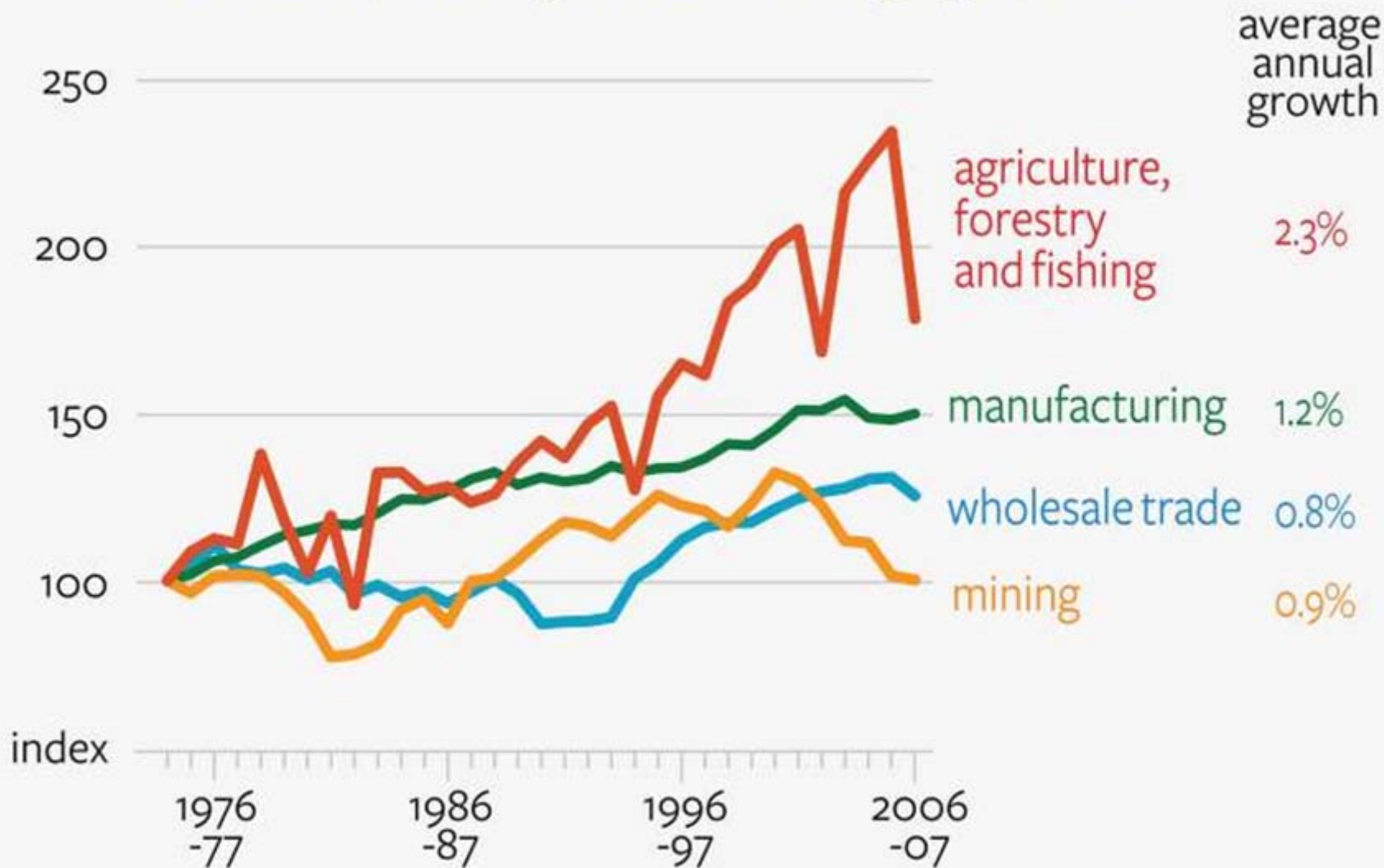
Rainfed wheat yields increasing



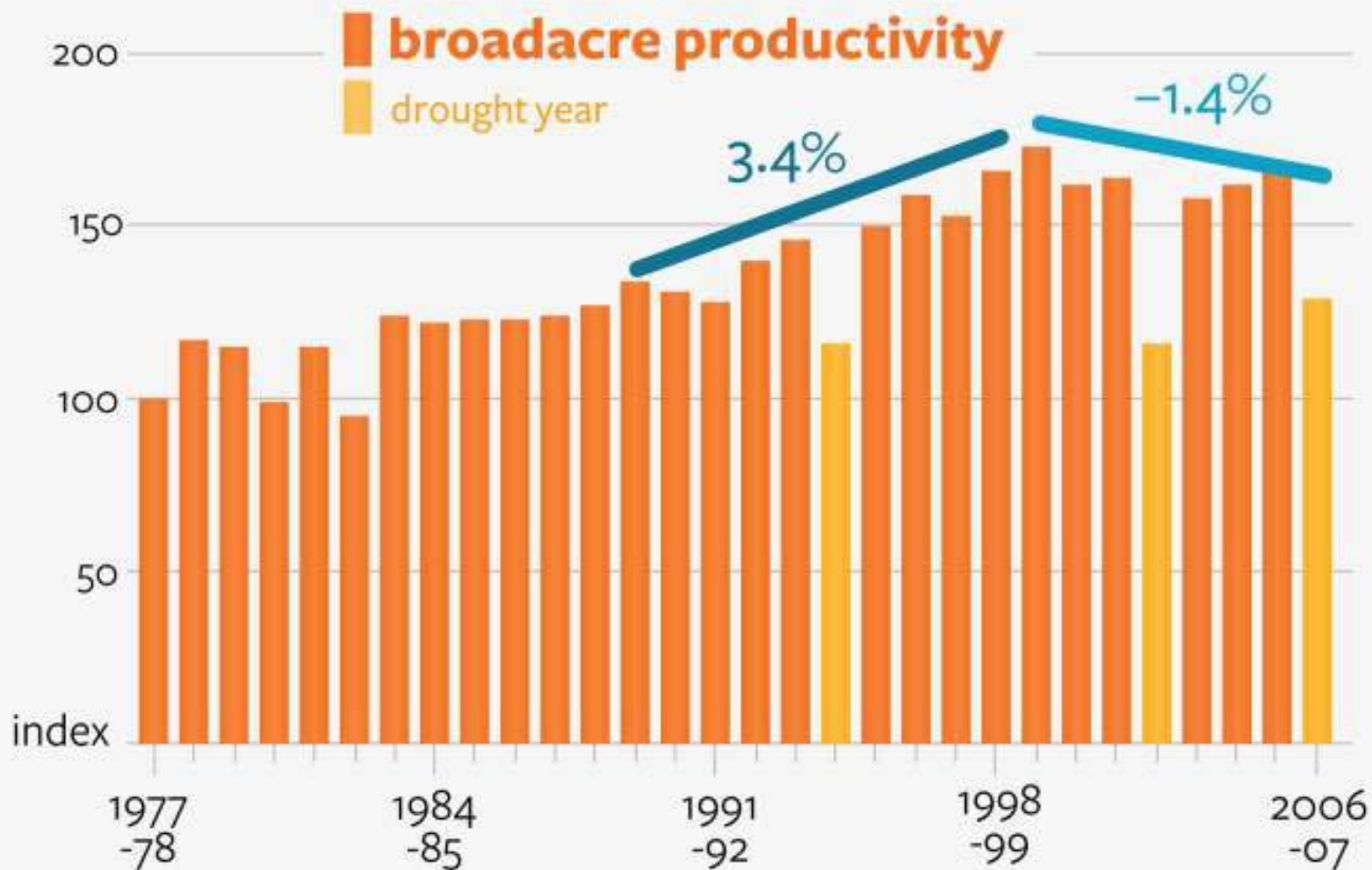
Australian production



Australian productivity growth



Is productivity growth slowing down?



Climate change

Australian agricultural and resource industries are likely to be affected profoundly by climate change and the global response to it. They are likely to be affected profoundly whether or not there is an effective global mitigation effort, and whatever the nature of Australia's contribution to that effort.

Prof Ross Garnaut 2009

CLIMATE CHANGE AND THE AUSTRALIAN AGRICULTURAL AND RESOURCE INDUSTRIES

Paper presented at the Australian Agricultural and Resource Economics Society, 53rd Annual Conference, 11th February 2009, Cairns, Australia.



Greenhouse emissions from land clearing and agriculture must be reduced without impacting food security

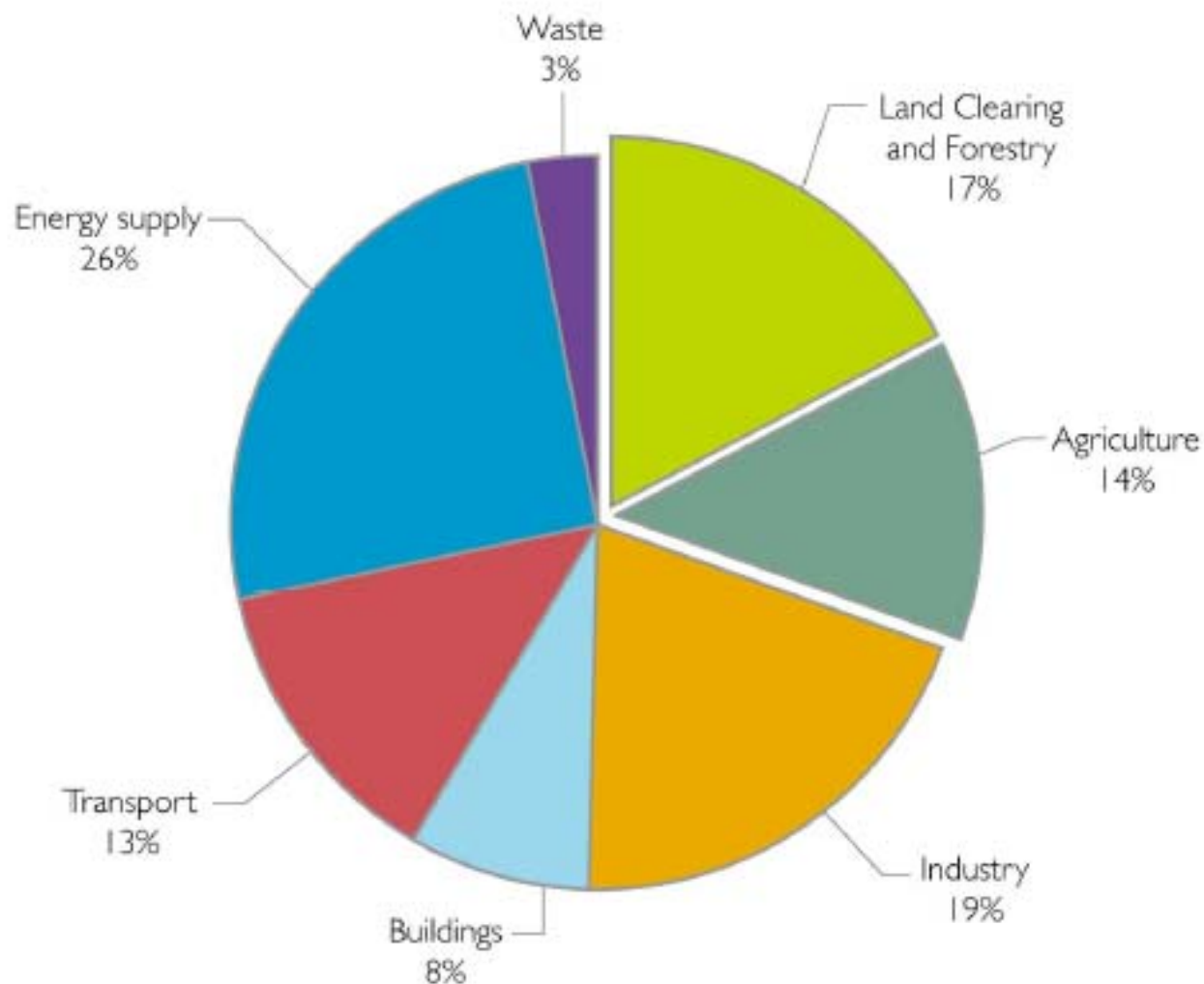
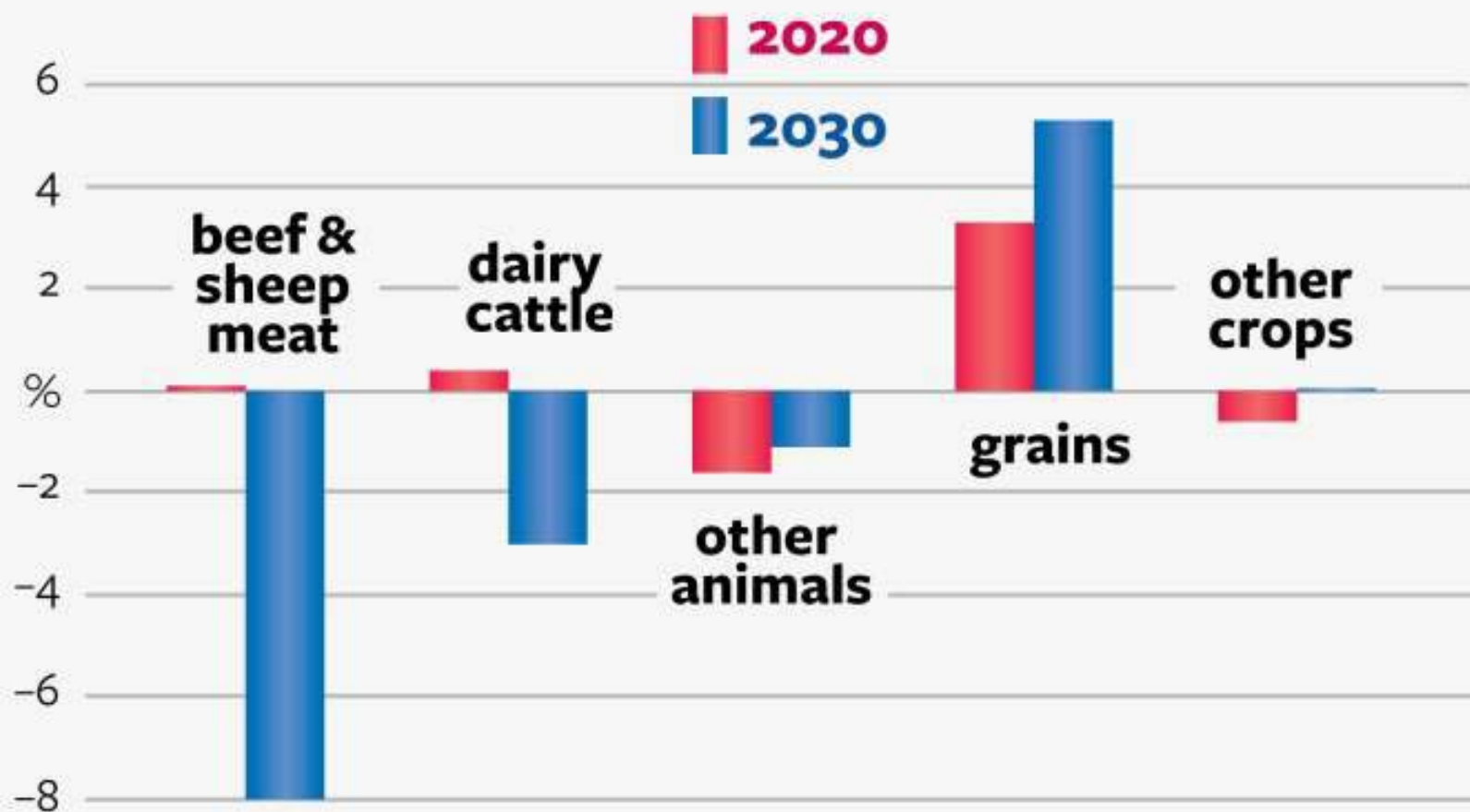


Figure 4. Global greenhouse gas emissions by source in 2004. (IPCC, 4th Assessment Report, Working Group 3, Technical summary). <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-ts.pdf>

Per cent change in Agriculture production with the CPRS

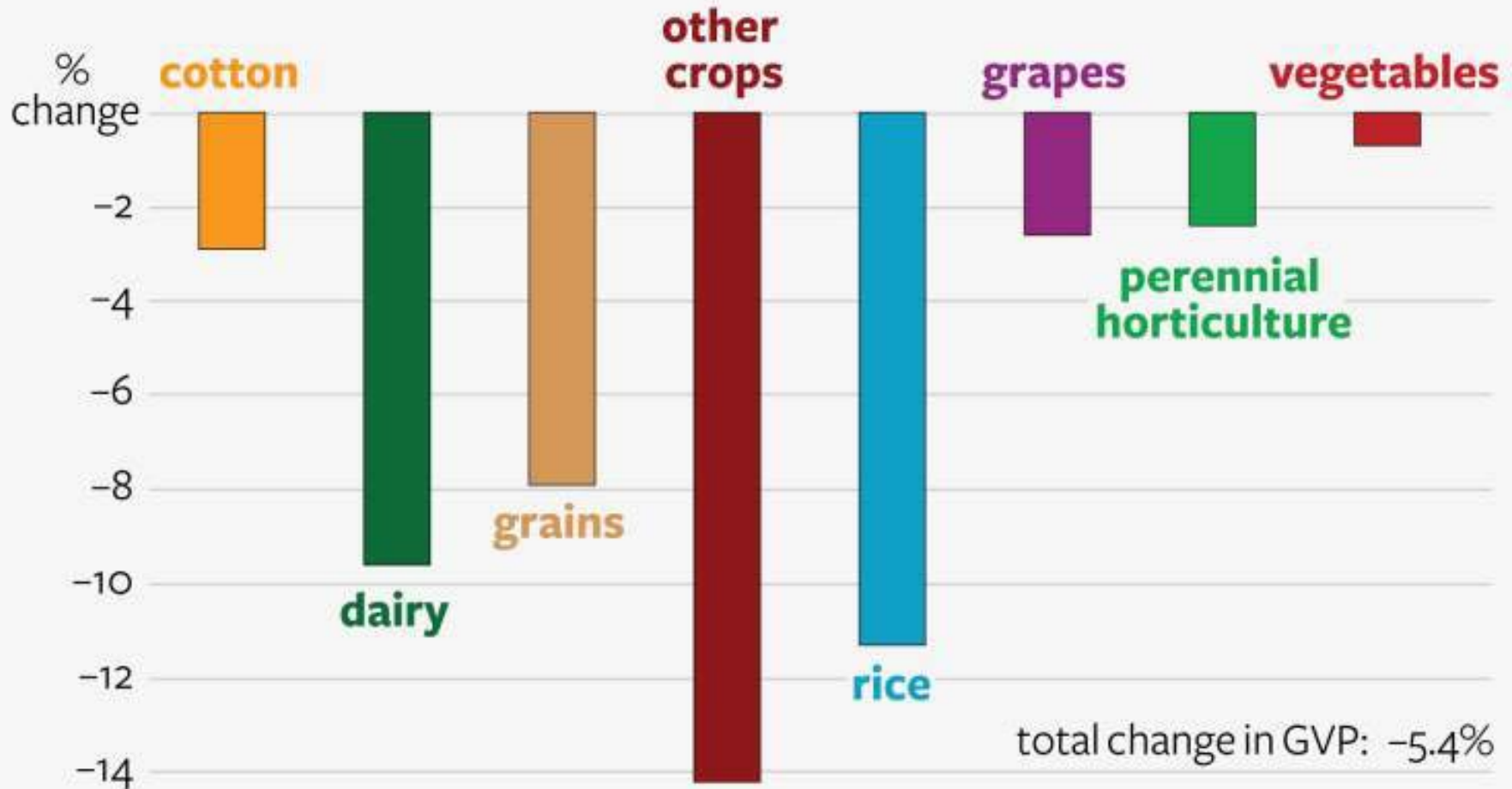


Reduced water for irrigation

- Climate change
- Buyback of irrigation licences for environmental flows
- Whole of Murray Darling Basin management
- CSIRO predict 11% reduction in water availability
- ABARE predict a 3% reduction in farm income

ABARE impact analysis

change in GVP per activity



Skilled human capacity

- Declining undergraduate enrolments
 - Leads to loss of (teaching) staff
- Research not fully funded
- In-built tension in Uni funding model
- Smaller and more general faculties

So...

- Can world feed 9 billion by 2050?
- Can Australia feed 35 million domestic PLUS 80-100 million export by 2050?
- Need to increase global food production by 75% while resources (land, water, energy, people) underpinning agriculture are in decline
- Biggest challenge humanity has faced