Critical review of sustainable healthy diets

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Food Climate Research Network – University of Oxford
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This presentation

1. Evolution of thinking on sustainable diets
2. Where we are today
3. Future research (and policy) needs
1. How has thinking on sustainable diets evolved?
The planet-diet connection is long established

1971

Diet for a Small Planet

1992

Beyond Beef: The Rise and Fall of the Cattle Culture
Masses of civil society focus
Early work by the FCRN

19% emissions
Production & consumption measures could reduce by 50-70%

Similar estimates
Importance of LUC
Underlined importance of consumption side measures
a. Initial focus on climate impacts of different diets
A systematic review of studies shows GHG reductions are possible by switching to different diets

Real life non-meat diets have lower GHGs than various meat-based diets (UK example)

- **High meat-eaters (>100 g/day)**
- **Medium meat-eaters (50-100 g/day)**
- **Low meat-eaters (<50 g/day)**
- **Fish-eaters**
- **Vegetarians**
- **Vegans**

b. Moving on to focus on climate impacts of healthier diets

Do recommended healthier diets contribute to lower environmental impacts?
Recommended Dutch diets have lower GHGs than average Dutch diets, but higher GHGs than balanced vegetarian, vegan or Mediterranean diets.
But potential for increase in impacts depending on the recommendations: USA as an example

USDA recommends high dairy, more fish, high fruit

Some of Nicole Darmon’s work—some real life healthier diets can have higher GHGs than unhealthy diets

Healthier diets had higher GHGs, due to consumption of certain meats & dairy (both having high GHG) and some types of fruits.

Low nutrition diets had lower GHGs, due to higher consumption of sugary foods (sugar has low GHG).

So...a shift to healthier diets

Existing diet

Can result in higher impact

Healthier dietary mix, healthy calorie intake, but:
• moderate meat
• high in dairy
• high in fruit & veg grown in greenhouses or air-freighted

Or lower impact

Healthier dietary mix, healthy calorie intake, and:
• low meat
• moderate dairy
• high in legumes and pulses
• high in seasonal field grown, robust veg and fruit
4. “best fit” within cultural constraints
   - linear optimisation approaches
Beyond 60% reduction not nutritionally balanced

WHO recommendations
Nutr. balanced & still culturally recognisable

UK study – significant cuts in GHGs while meeting nutritional criteria are possible

Balanced but challenging

Fig. 3 Deviations of optimised diets from current average diet, with associated reduction in greenhouse gas emissions.
2. So where are we today?
Can we draw any conclusions?

• Current diets - high environmental impacts & often not healthy.
• Healthy diets not automatically lower in GHGs
• BUT win wins are possible if not inevitable
  ○ i.e. diets better than now and lower in emissions
Characteristics of ‘better’ diets

• In energy balance
• Diverse
• Low in animal products – all parts eaten**
  – The lower the animal products the greater the importance of diversity
• Low in fish (**)
• Rich in robust field grown vegetables and non air-freighted / perishable fruits
• Rich in legumes, pulses etc
• Rich in whole grains
• Avoidance of foods high in fat, sugar and salt
Limitations of diet-side actions

(likewise limitations of production-side actions)
The climate challenge

Annual global GHG emissions

Food-related = 30%

If all other sectors reduced emissions to zero, current food-related GHGs could represent 100% of the emissions budget.

If all other sectors reduced emissions to zero, current food-related GHGs could be over the emissions budget.

2010 GHG baseline

GHGs by 2050-2100 for 2°C (40 to 70% reduction)

GHGs by 2050-2100 for 1.5°C (70 to 95% reduction)

70% GHG emissions reduction

95% GHG emissions reduction

Source: www.foodsource.org.uk
A focus on diets alone without also improving production will also not be enough.

If we each have an annual per capita GHG emissions of 1-2 tonnes, and food were assumed to account for 50%, then a recommended healthy diet would still exceed allowable GHG limits – even if better than the average Swedish alternative.

3. Further research questions

a. What is a **sustainable** and healthy diet?

b. Production-consumption interface?

c. Diets in low income and emerging economies

d. Values and goals?

e. Policies to shift consumption?
a. Beyond climate

What are sustainable & healthy eating patterns?
FAO definition of sustainable diets

Sustainable diets are “those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.”

What does this look like on a plate?
# How might we measure SHEPs?

<table>
<thead>
<tr>
<th>Dimensions of sustainability</th>
<th>How can we measure them?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental (including climate change, water use and pollution, fossil fuel use, air pollution, land use change and biodiversity loss)</td>
<td>Some covered by environmental life cycle assessments (LCA) and by evolving work on water footprinting, but not all.</td>
</tr>
<tr>
<td>Food security (availability, access, utilisation, stability)</td>
<td>Food security indicators available and evolving. Affordability an important component. Food safety also important</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Energy, protein, fat, zinc, calcium, iron etc.; nutrient density indicators; health outcomes (non-communicable diseases).</td>
</tr>
<tr>
<td>Livelihoods, jobs and economic development</td>
<td>May include incomes, the retail price index, working conditions, contribution to GDP. Evolving metrics, some certification schemes exist. Social LCA is an evolving research area</td>
</tr>
<tr>
<td>Animal welfare</td>
<td>Some certification schemes exist, but different opinions exist as to what constitutes good welfare in different contexts.</td>
</tr>
<tr>
<td>Culture</td>
<td>Preferences, cultural norms, religious beliefs ......Very under-researched and under-considered area in relation to sustainability How important is this?</td>
</tr>
</tbody>
</table>
Trade-offs can be numerous...e.g.

Between **health and the environment**:
- Some F&V are good for health but bad for water stress.
- Food processing can improve resource efficiency (e.g. sausages) but at a cost to health (e.g. due to the addition of salt and use of fattier cuts).
- Sugar is a low GHG but unhealthy food
- Milk is difficult

Between **environmental impacts**:
- Some fish have lower GHGs than meat but overfishing harms marine biodiversity.
- Switching from ruminant meat to poultry reduces GHG emissions but increases reliance on prime arable land.

**Between environmental impacts and social and economic aspects** of sustainability.
- Livestock intensification may reduce GHG per kg/output but undermine animal welfare.
- Reducing livestock production may harm jobs, livelihoods and erode cultures & traditions

**How do we trade these off? Who gets to decide?**
b. The production-consumption interface

- Better understanding of production-processing-consumption interface with health & sustainability: e.g. wheat vs doughnuts:
  - Production innovations influence env-health relationship
  - Ruminants and assumptions about sequestration
- Assumptions about trade influence conclusions on sustainability
  - E.g. ‘comparative ecological advantage’
  - Leakages and rebounds
  - Bioregional eating
c. SHEPs in low income and emerging economies?

- Particularly acute nutritional problems
- Very different production systems
- Different food culture – food culture in rapid transition
- Poor data availability
d. The role of values
Science can only go so far...

- Shaping ideas about...
  - How to produce food – and how much
  - How to define food security & nutrition
  - Our relationship with the environment
  - Animal ethics and welfare
  - Personal vs collective freedom
  - Consumption, growth & the economy
  - The solidity and value of culture
  - Metrics used to assess progress
  - The legitimacy and necessity of different technologies
  - Optimal health vs planetary boundaries?

Science can only go so far...
REDUCE YOUR CARBON FOOTPRINT – EAT LESS RED MEAT

Reduce your carbon footprint - eat less Red Meat. Pretty simple. Learn why and how important it is to take this simple step. All meats hurt the earth.

The Amazing Benefits of Grass-Fed Beef
Eating grass-fed beef isn’t just some affectation. The meat is healthier, and the perennial pastures on which cows feed build better soil and have lower carbon emissions than conventional cropland.

By Richard Manning
April/May 2009

Whether for grain-fed or grass-fed beef, cattle produce methane, a potent

Beef has 13 times more climate impact than chicken, 57 times more than potatoes

U.S. could feed 800 million people with grain that livestock eat, Cornell ecologist advises animal scientists

When you eat meat, she doesn’t eat.

More Meat, Milk and Fish by and for the Poor
CGIAR Research Program 3.7
Balanced offering or meagre & unrealistic?

Possible livestock futures – what does ‘good’ look like?

Bag of wind or ‘something from nothing’?

Ultra efficient – or a waste of grain?

Techno-answer or alienation from nature?
Gut feelings and possible tomorrows: (where) does animal farming fit?

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e. How to shift consumption?

We need a programme of research
Experiment engenders evidence – we need to experiment with policy mechanisms

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<tr>
<th>Approach</th>
<th>Examples</th>
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<tr>
<td>1</td>
<td>Change governance of production or consumption (including intergov. mechanisms – UNFCCC, SDGs)</td>
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<td>2</td>
<td>Restrict, eliminate or incentivise choices through economic measures</td>
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<td>3</td>
<td>Encourage collaboration and shared agreements</td>
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<td>4</td>
<td>Change the context, defaults and norms of production or consumption</td>
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<td>5</td>
<td>Inform, educate, promote or empower through community initiatives, labelling and other means</td>
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Adapted from Garnett T. et al. 2015 Policies and actions to shift eating patterns: what works? Food Climate Research Network / Chatham House
Thank you

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Food Climate Research Network
www.fcrn.org.uk
Have a look at our new online learning resource
www.foodsource.org.uk