Towards a sustainable EU food and nutrition security: Main messages and policy recommendations from the SUSFANS project

Thom Achterbosch
Final workshop, Brussels, 7 March 2019
Outline

Food systems challenges – evidence based assessment
Entry points for a more sustainable food system
Diet shift scenarios
Policy recommendations
European sustainable food and nutrition security challenges

Diet

Impact from food consumption and underlying production systems

Rutten et al. 2016, *Ag. Systems*
Zurek et al. 2018, *Sustainability*
Assessment: imbalanced diets, large impact on planet

- Current nutritional patterns are imbalanced
  - Based on dietary assessment of nutrition surveillance for CZE, DNK, FRA, ITA, for 2003-07
- Environmental impact of dietary patterns is large and related to meat (especially beef), overconsumption, food waste.
  - Gap of 1,000 kCal per person per day between food availability and food intake! Data OR reality?
Environmental indicators vary regionally and are off target.

Reference value

Leip et al. 2017. SUSFANS Deliverable 4.7
• The economic viability of primary agriculture/fisheries and food production is under threat
  – more competitive regions, and low profit margins.
• Equity and social justice under pressure
  – food access not guaranteed; unequal diet quality, by education levels and gender.
  – Farmer’s profit margins oscillate 4-5 times more than food retail; large buying power from upstream value chain partners.
Assessment: EU food system insufficiently future-proof

SFNS Visualizer

The further the wedge reaches towards the outside line, the closer the indicator's status to the sustainability goal is.

The colour of the wedge indicates the status of the indicator with respect to the goal. Hold the mouse over the wedge to see the exact value of the indicator.

- Green: 70 - 100%
- Yellow: 40 - 70%
- Red: 0 - 40%
DIET SHIFT SCENARIOS
Food choice & energy intake separated for both health and sustainability reasons

- **Food choice**, especially meat consumption, has well known link to both health and sustainability
  - Energy less often accounted for in foresight exercise, but key for both GHG and land use
  - Analysis based on 4 EU countries (DK, CZ, IT, FR) shows clear links, 200 kcal less:
    - Reduces 9% GHG and 10% land use
    - Lowers average body weight 10-15%
    - Average BMI drops from 27.5 kg/m² to 24.8-23.4
    - Overweight from ca 40% $\rightarrow$ $\approx$ 10% (tbc)

**NOTE:** Preliminary results, based on individual intake data from DK, CZ, IT, FR (n≈8,000, 2 days) and average GHG & land use coefficients mapped to food intake. **Intake data is for 2003 to 2007.** Intake patterns in more recent data show a gradual shift away from meat consumption. Source: Mertens et al. (work in progress).
1-SCENARIO targets
Healthier diet recommendation suitable for macro models

% change of the 2010 consumption levels / household demand by simulation period

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Consuming healthy food</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit, vegetables (nuts)</td>
<td>+25</td>
<td>+50</td>
<td>+75</td>
<td>+100</td>
<td></td>
</tr>
<tr>
<td>Red meat &amp; meat products</td>
<td>-12.5</td>
<td>-25.0</td>
<td>-37.5</td>
<td>-50.0</td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td>-12.5</td>
<td>-25.0</td>
<td>-37.5</td>
<td>-50.0</td>
<td></td>
</tr>
<tr>
<td>Energy (isocaloric)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario 2: Consuming only right amount of calories</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>-2.5</td>
<td>-5.0</td>
<td>-7.5</td>
<td>-10.0</td>
</tr>
</tbody>
</table>

Scenario 3 (Combined)
Consuming balanced and sufficient diet
### 2- SCENARIO instruments
LIMITED evidence of consumer interventions – HARD to map to model

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Max diet change (%)</th>
<th>Model instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Provide information</td>
<td>16</td>
<td>National average consumer taste shifters</td>
</tr>
<tr>
<td>3  Compulsory information on products</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4  Nudge through changing default policy</td>
<td>variable</td>
<td></td>
</tr>
<tr>
<td>5  Ban marketing aimed at agents with limited decision-making capacity</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(e.g. children)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6  Ensure healthy choices are available</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>7  Enable choice by behavioural change programs</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8  Guide choices - DO nudges</td>
<td>25</td>
<td>Taxes &amp; subsidies</td>
</tr>
<tr>
<td>9  Guide choices – DON’T DO nudges</td>
<td>23</td>
<td>Production / trade quota</td>
</tr>
<tr>
<td>10 Restrict choice through regulation</td>
<td>No data</td>
<td></td>
</tr>
<tr>
<td>11 Eliminate choice</td>
<td>No data</td>
<td></td>
</tr>
</tbody>
</table>
INSTRUMENTS: What’s the link between macro models and consumer research?

- A link between prices/ income and purchases is estimated
- **Motives for purchases** but cannot be “unpacked”
  - For example cannot determine if lack of response to a lower meat price is because of being vegetarian, on a hype diet excluding meat, or ....
SUSFANS modelling toolbox: assessing diet & food system transformations

**SUSFANS METRICS (2010 – 2030 – 2050)**

**Equity**

**Nutrition**

**Economy**

**Environment**

**Macro-economy**

**MAGNET**
Complete economy; Income effects. Global, country level

**Diet and health**

**SHARP**
Product detail; Specific diet needs. EU level

**Primary production**

**GLOBIOM/Agriprice4cast**
Environmental impacts; Spatial detail; Primary production price volatility. Global, grid level

**CAPRI**
EU food supply details; Global market details. Global, EU, national, province level

**DIET**
Consumer preferences; Health & environment. EU level
How do consumer purchases of key food groups change to 2050?

- **EU28 Fruit and vegetables decrease** minimally by 2050 (least in REF-)
- But few member states show stable or tiny increase (maximum 2.5% in Czech Republic)
- **Meat, sugar increase** in all scenarios
- Processed food (includes fruit and vegetable products, but also sugar sweetened beverages, alcohol etc.) increases in all scenarios

Source: MAGNET simulations
Results 1 - What happens to EU food expenditures?

- Food expenditures are only a small part of total household expenditures (11.3% in 2010) and almost halves by 2050 (6.1%) in REF0
- In all scenarios, which impose consumer taxes to reach the targets, share of food expenditures still drops.

### Food in total household expenditure by scenario (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>REF0</th>
<th>Scen. (1) Consuming healthy food</th>
<th>Scen. (2) Consuming only right amount of calories</th>
<th>Scen. (3) Consuming balanced and sufficient diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>11.3</td>
<td>8.2</td>
<td>7.6</td>
<td>6.7</td>
</tr>
<tr>
<td>2030</td>
<td></td>
<td>6.7</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>2050</td>
<td></td>
<td>6.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: MAGNET simulations and SHARP data for 4 countries
Results 2: Unfeasible price changes are needed – the case of beef

<table>
<thead>
<tr>
<th>Change in EU consumer beef price (compared to 2010,%)</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability outlooks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REF0</td>
<td>-3</td>
<td>-9</td>
</tr>
<tr>
<td>REF-</td>
<td>-2</td>
<td>-5</td>
</tr>
<tr>
<td>REF+</td>
<td>-4</td>
<td>-12</td>
</tr>
<tr>
<td>Diet shift scenarios</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Healthy foods</td>
<td>74</td>
<td>270</td>
</tr>
<tr>
<td>(2) Right calories</td>
<td>75</td>
<td>275</td>
</tr>
<tr>
<td>(3) Balanced &amp; sufficient diet</td>
<td>75</td>
<td>275</td>
</tr>
</tbody>
</table>

- All contextual scenarios project an increase in meat purchases, reducing meat consumption thus requires a trend reversal.
- Large increases (up to 275% by 2050) to counteract the current trends.
- Springmann et al (2016) estimate a 26% increase in beef prices by 2020 for the EU (high income countries) based on GHG emissions.

Source: MAGNET simulations and SHARP data for 4 countries.
Results 3. Food & Nutrient based scores improve, yet challenges remain

Source: MAGNET simulations and SHARP data for 4 countries
The SFNS Visualizer shows the status of the indicator with respect to the sustainability goals.

- The further the wedge reaches towards the outside line, the closer the indicator's status is to the sustainability goal.

- The colour of the wedge indicates the status of the indicator:
  - Green: 70 - 100%
  - Yellow: 40 - 70%
  - Red: 0 - 40%

Sustainable food and nutrition security visualiser [https://anderson-rc.github.io/spidervis2](https://anderson-rc.github.io/spidervis2)
EU 2030 Recommended diet

Sustainable food and nutrition security visualiser https://anderson-rc.github.io/spidervis2
EU can shift towards sustainable diets and a sustainable food supply system by 2030-2050

Needs transformation of production, trade, distribution, and consumption of food.
Entry points for change... on the demand side

- Most consumers still **far from recommended sustainable diets.**
  - **UP** F&V, legumes, nuts, seeds; **DOWN** red/processed meat and alcohol.

- Most consumers are **not really conscious about sustainable consumption**
  - Most frequent sustainable consumption behaviour: (1) eating seasonal/local food (2) eating free range products/products with a sustainability logo/smaller portions

- **Instruments**
  - **Tax policy** may contribute to **healthier food choices** but it is regressive (equity issue)
  - **Information** (campaigns, labelling) **works**... the effects on WTP and quantities are **significant, albeit small**
  - Even if the effects are small, **information policies are cost-effective**, bring **health and environmental benefits** at low cost
Entry points for change...
On the supply side

• Food reformulation (decrease in salt, fat, sugar... contents in foods) may potentially have significant effects on public health
  – Voluntary reformulation of food products ongoing, but the effects on consumers’ intakes are still weak.
  – Blocking points, consumer has ‘healthy=not tasty intuition’

• Standard-based policies: not regressive, higher health impacts, Practical difficulties of such policies have to be considered in order to prioritize mandatory (public) versus voluntary (private) standards.

• Best policy mix to deal with nutritional issues: information (campaigns/labelling) + food quality improvement
Entry points for change...
Systems innovation

- “Quality for Europe”
- “Safety for the world”
- “Circular systems”
- “Consumer-centric”
How to enable the transformation.

RECOMMENDATIONS
Recommendation 1

Better coordinated monitoring of national consumption patterns at EU level.

Harmonised EU data & modelling of diets food systems

Uptake by “new” users of consumer-centric solutions
Recommendation 2

Better manage sustainability trade-offs, by involving consumers and all food system actors

Trade-offs appear across and within all sustainability domains

Climate change mitigation; food waste

Perceptions of sustainable consumption
Recommendation 3

EU farm & fishery policies (CAP, CFP) should be addressed to promote more sustainability in primary food production in EU.

Limited efforts should go into transforming the CAP into a framework that supports healthy diet.

An aligned multi-level and multi-dimensional food policy framework in the EU and Member States!
## Alignment? Go beyond simplicity

<table>
<thead>
<tr>
<th>Diet recommendation</th>
<th>CMO*</th>
<th>No CMO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To increase:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Vegetables</td>
<td>Dairy</td>
<td>Vegetables</td>
</tr>
<tr>
<td>• Fruit</td>
<td>Fruit</td>
<td>Fruit</td>
</tr>
<tr>
<td>• Legumes</td>
<td>Legumes</td>
<td>Legumes</td>
</tr>
<tr>
<td>• Nuts and seeds</td>
<td>Nuts and seeds</td>
<td>Nuts and seeds</td>
</tr>
<tr>
<td>• Fish</td>
<td>Fish</td>
<td>Fish</td>
</tr>
<tr>
<td>• Milk</td>
<td></td>
<td>Milk</td>
</tr>
<tr>
<td><strong>To reduce:</strong></td>
<td>Beef</td>
<td>(Processed meat)</td>
</tr>
<tr>
<td>• Red and processed meat</td>
<td>Pork</td>
<td>(Salt)</td>
</tr>
<tr>
<td>• Sugar sweetened beverages</td>
<td>Poultry</td>
<td>(Ethanol)</td>
</tr>
<tr>
<td>• Cheese</td>
<td>Dairy</td>
<td></td>
</tr>
<tr>
<td>• Alcohol (ethanol)</td>
<td>Sugar</td>
<td></td>
</tr>
<tr>
<td>• Salt</td>
<td>Grains</td>
<td></td>
</tr>
</tbody>
</table>

*CMO = common market organisation
Recommendation 4

Need a mix of price-based AND more directive instruments, and innovation

Need to be considered in full food system setting.

Innovation in products, technology information sharing, social norms

True cost pricing to be explored.
QUESTIONS, COMMENTS, IDEAS?
RAISE THEM IN THE WORLD CAFE!

More on SUSFANS at https://www.susfans.eu/ or contact Thom Achterbosch (coordinator) at thom.achterbosch@wur.nl