Sustainability in the agrofood sector

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How to Determine Sustainability?

• Introduction, what is it?
• Methodology, how to determine it?
• Results
• Conclusions
Sustainability

- ‘…Meeting the needs of the present without endangering the needs of future generations…’

- Social Corporate Responsibility (SCR)

- Sustainability has 3 dimensions
  - Environment, planet
  - Social, people
  - Economic, profit
LEI/AKK Sustainability Checklist

• Checklist designed to judge project proposal for the Agro Chain Knowledge (AKK) program “Sustainable Food Chains”

• Awareness
LEI/AKK Sustainability Checklist

- Attention for 3 P
- Focus on food and agricultural chains
- Indicators
- Scope at companies
## Example of the Checklist (1)

<table>
<thead>
<tr>
<th>Category</th>
<th>Aspect</th>
<th>Explanation</th>
<th>Effect on chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Energy saving</td>
<td>Less energy use</td>
<td>+ 0 - ?</td>
</tr>
<tr>
<td></td>
<td>Sustainable energy</td>
<td>Use of sustainable energy instead of fossil energy</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Reduction water use</td>
<td>Less water use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality surface water</td>
<td>Reduction emissions of compounds to surface water (lakes, rivers, etc)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water-table</td>
<td>Prevent lowering water-table</td>
<td></td>
</tr>
</tbody>
</table>
Indicators for Sustainability

• A major selection criteria for sustainability aspects; can it be determined?

• Important issue: availability of data
Some indicators for sustainability

- **Planet (LCA-themes)**
  - Energy use
  - Toxic emissions
  - Waste
- **Profit**
  - Financial results
  - Investments
  - Certification
- **People**
  - Education
  - Local communities
  - Human rights
Application

- Social and environmental annual report of the Dutch horticultural sector
Social and environmental annual report, 2002

- Dutch greenhouse horticultural sector

- Environmental sustainability
  - Energy
  - Pesticides
  - Minerals
  - Waste

- Social sustainability
  - Number of employees
  - Labour circumstances
  - Education
Environment: horticultural energy use
Environmental impact pesticides use

Vegetables cultivations

Environmental Impact Points

<table>
<thead>
<tr>
<th>Year</th>
<th>1998</th>
<th>2000</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>120,000</td>
<td>20,000</td>
<td>15,000</td>
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</table>
## Social: Education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Vegetables</th>
<th>Flowers</th>
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</thead>
<tbody>
<tr>
<td>Basic education</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Lower secondary education</td>
<td>66</td>
<td>41</td>
</tr>
<tr>
<td>Higher secondary education</td>
<td>18</td>
<td>47</td>
</tr>
<tr>
<td>High school/university</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
### Social: absence through illness

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>5.0</td>
<td>5.4</td>
<td>5.5</td>
<td>5.5</td>
<td>n.a</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3.8</td>
<td>3.9</td>
<td>4.2</td>
<td>4.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Greenhouse horticulture</td>
<td>n.b</td>
<td>3.7</td>
<td>3.9</td>
<td>4.2</td>
<td>3.6</td>
</tr>
</tbody>
</table>
Availability of Data, Chain Information Systems

- Information related to product
  - Environmental issues
  - Food safety
  - Economic issues
Combination with other data systems

• Linking with the Farm Accountancy Data Network (FADN)
  – Economic data (financial results, investments)
  – Environmental data (energy, pesticides, fertilizers)
  – Less ‘social data’

  – Good basis for determination of sustainability
    • Economic
    • Environmental
      – Use of LCA impact assessment
Chain information system, Groeinet

- Information system for mainly plant production
- Registration of:
  - Pesticide use
  - Fertilizer use
  - Energy use (glasshouse)
  - Yield
Invoeren
- Gewasbescherming per teelt
- Gewasbescherming per bespuiting
- Kunstmest per teelt
- Blends per teelt
- Organische per teelt
- Kunstmest&organische mest per bemesting
- Bedrijfsgegevens
- Algemene teeltgegevens
- Zaaien, poten, planten
- Beregening
- Grondonderzoek
- N-onderzoek

Overzichten
- KPA-GewasBedrijf(teler)
Groeinet and sustainability

• Mainly environmental information

• Less information to determine social and economic sustainability

• For determination environmental impact: use of LCA impact assessment is necessary
Conclusions

• Sustainability:
  – 3P approach, increasing attentions social dimension

  – Possibilities for linkage with chain information systems:
    • Possibilities for environment: LCA
    • Assessing social sustainability requires additional research
Aim: sustainability in agrofood chains

- Indicators for sustainability
- Necessary information