Is there a link between LCA and animal welfare and quality assurance schemes?

Niels Halberg
Conclusions

• Environmental impact is part of several, non-reducible attributes of food quality
• The driving force in the retail sector is food safety issues and traceability
• Minimum levels of Animal welfare and environmental sustainability is demanded in retail sector using GAP benchmarking
• Tradeoffs needed between animal welfare and environmental impact
• LCA as a tool fits well with traceability approach and may improve benchmarking
Dimensions of food quality:
How important is environmental sustainability?

- Resource use and environmental impact
- Animal welfare
- Consumer safety and health
- Sensoric (organo-leptic) quality
- Amount and price
- GMO – free and/or Organic certification
- Label of Regional or traditional origin
Traceability and food safety

- Non-price competition: Strong focus in retail
- Reputation and consumer loyalty
- Demands backwards in the chain: Standards for manufacturers
- Traceability and certification schemes
- HACCP and Good Practice
- Health and food safety will become quality basis, not differentiation

Retailer branded food products: Towards 50% market value?

Quality Assurance Schemes

- Q+S, D
- QSG, DK
- Agri-Confiance, F
- IKB, NL
- GB, S, ES, I, Canada, Australia etc.

- Focus on hygiene and quality analyses
- Documentation and control, traceability, food safety, medicine use,
- Increasingly chain oriented
- Improving communication
- HACCP, ISO 9000, ..
- Including baseline environmental requirements
- Good Agricultural Practise (GAP)

Krieger & Schiefer, 2003
The Assured Produce Scheme (APS)

- APS promotes safe and environmentally responsible production of fruit, salads and vegetables through the use of integrated crop management (ICM).
- APS is designed to maintain consumers' confidence in the safety and integrity of the produce they eat.
- Growers must follow the best production advice contained in the crop specific protocols that form the basis of the scheme.
- It is an independently assessed assurance scheme.
- Follows logic of Good Agricultural Practice
- Crop/field level based, Not product oriented

One of ten schemes under the Assured Food Standards

http://www.assuredproduce.co.uk/aproduce/
EurepGAP: Environmental quality assurance in retail sector using GAP

**FoodPLUS / STATUTES:**

- Encourage adoption of commercially viable Farm Assurance Schemes, which promotes the minimisation of agrochemical inputs, within Europe and worldwide.
- Develop a Good Agricultural Practice (GAP) Framework for benchmarking existing Farm Assurance Schemes and Standards including traceability.

[http://www.eurep.org/sites/index_e.html](http://www.eurep.org/sites/index_e.html)
Environmental accounting in agriculture

- Nature Plus, GAP approaches
- Green accounts, Input-output accounts
- Difference between Input-Output based accounting and GAP-based certification
- MPS
- LCA based green accounts:

The way forward to link primary production and chain based approaches?
Animal welfare

Indicators for appraisal and documentation?

- Assessment tools at farm/herd level
- Attempts to include in Farm Assurance schemes (1)
- Animal welfare in the chain: transport and slaughtering processes
- Trade offs between animal welfare, medicine use, food safety and environmental impact

1): Main et al., 2001
Herd level assessment tools

- Methods based on measurements of environment and management vs. observations on animals reactions
- TierGerechtheitsIndex (TGI): Comparable Welfare score used for Certification
- Ethical account: Welfare report linking green account and animal welfare
- Freedom food welfare statement assurance
- Product oriented approaches?
- Use of medicine?

Johnsen et al., 2001
Trade of between different values and interested parties: Ethical question

- Animal welfare

Vs.

- Ammonia emission
- Nitrate emission
- Feed efficiency
### Animal welfare vs. environmental impact in strategic planning

<table>
<thead>
<tr>
<th>Indicator/aspect</th>
<th>Tie-stall (measured)</th>
<th>Deep litter (expected)</th>
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</thead>
<tbody>
<tr>
<td>Land, ha</td>
<td>110</td>
<td>110</td>
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<tr>
<td>Cows</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>% lameness</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>% tarsal lesions</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>N-surplus (farm gate), kg N per ha</td>
<td>204</td>
<td>225</td>
</tr>
<tr>
<td>Energy use, MJ per kg milk</td>
<td>3,0</td>
<td>3,3</td>
</tr>
</tbody>
</table>

*Sørensen et al., 2001*
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Thank you!
LCA of 1 kg cheese: Information for product declarations…??
A: Normalised by one kg of average food consumption

B: Normalised by an average product consumed with the same cost