

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

Niels Halberg



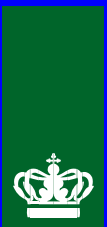
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Conclusions



- 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



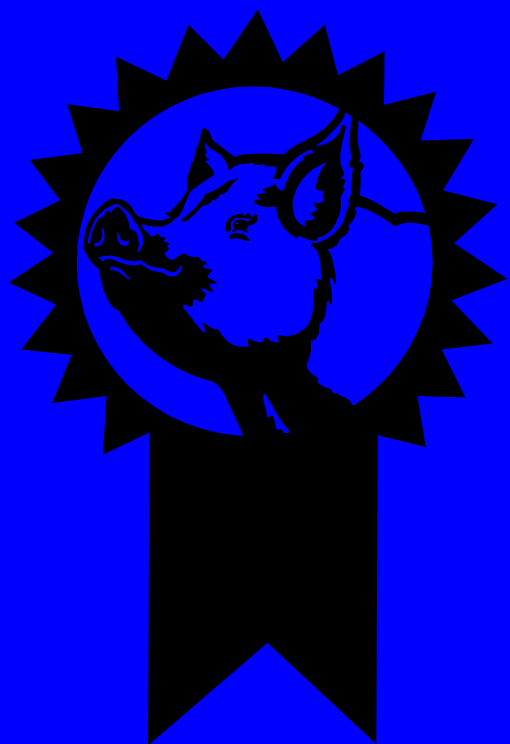
Dimensions of food quality:

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



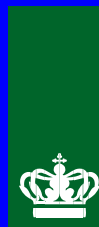
Traceability and food safety



Retailer branded food products: Towards 50% market value?

- 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

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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)



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The Assured Produce Scheme (APS)

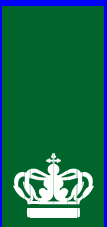
- *APS promotes safe and environmentally responsible production of fruit, salads and vegetables through the use of integrated crop management (ICM).*
- *APS is designed to maintain consumers' confidence in the safety and integrity of the produce they eat.*
- *Growers must follow the best production advice 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*

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<http://www.assuredproduce.co.uk/aproduce/>



EurepGAP: Environmental quality assurance in retail sector using GAP

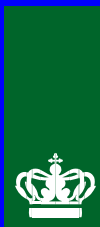
FoodPLUS / STATUTES:

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



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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

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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

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

Sørensen et al., 2001

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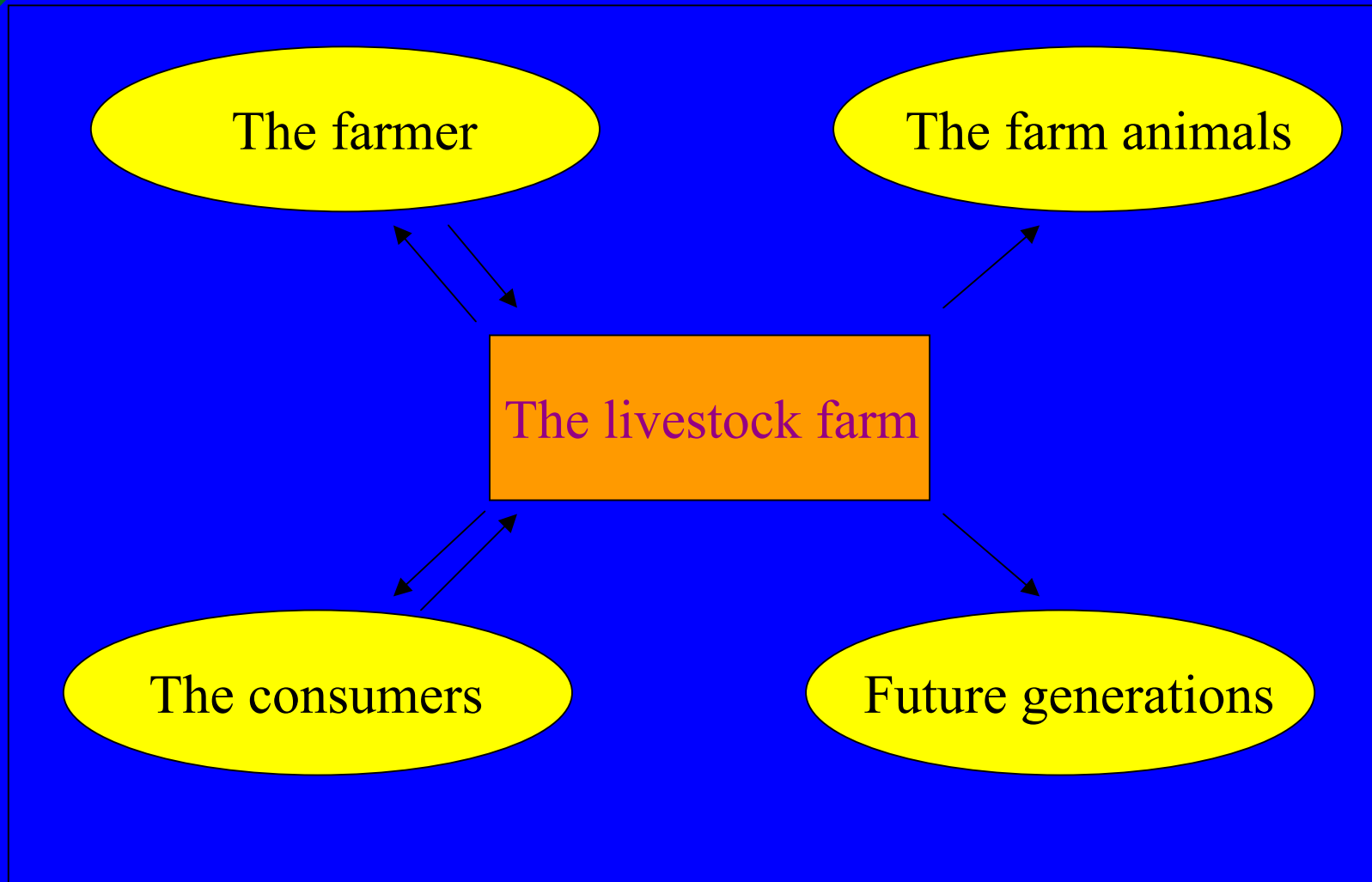
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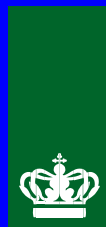




The parties affected by a livestock farm

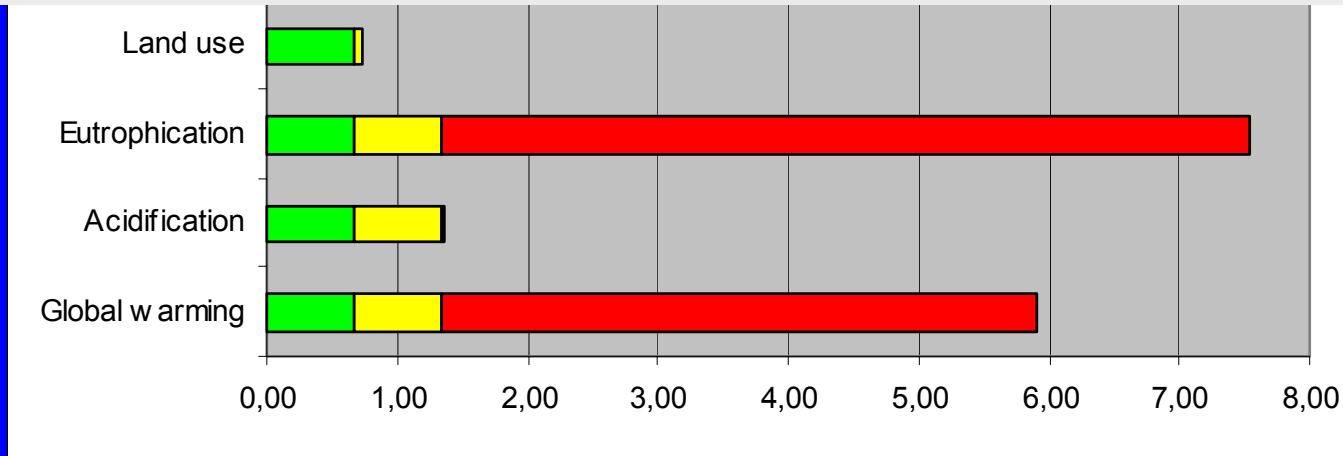
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LCA of 1 kg cheese : Information for product declarations...??

A: Normalised by one kg of average food consumption



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

