WHAT MAKES ORGANIC LIVESTOCK PRODUCTION SUSTAINABLE

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AGENDA

1. To know what makes organic livestock production sustainable we need a way to assess sustainability.

2. General problems with assessment

3. Development of a methodology including a tool.
TO BE ABLE TO ASSESS WHAT IS SUSTAINABLE, THE FOLLOWING QUESTIONS HAVE TO BE ADDRESSED

A. We need to know and agree on what we understand by sustainability
B. We need to know and agree on the goal of the assessment, who is the user?
C. We need to know and agree on what to measure and how precise (this is dependent on the objective: B)
D. We need to know and agree on how to validate or score (dependent on B and C)

We need to identify and be in constant dialogue with the stakeholders.
SAFA, sustainability assessment of food and agricultural systems. FAO took initiative to evaluate and suggest a framework and describe this as a protocol.

Confusion on wordings (dimensions (issues), themes (subthemes)).

Dimensions (issues):
Environment ........................................................................................................................................................................ Integrity
Economy.............................................................................................................................................................................. Resilience
Society............................................................................................................................................................................. Social well being
Governance......................................................................................................................................................................... Good

WHAT IS SUSTAINABLE (LIVESTOCK) PRODUCTION

Integrity
Resilience
Social well being
Good
HOWEVER... CONFUSION,

Many use sustainable, only mean one dimension or two combined

Environmental sustainability: climate impact, pollution, nature, landscape, biodiversity

Economic sustainability: profit, robustness to calamity, low cost,

Social sustainability: equity, fairness, animal welfare, human health, ethics, risks
WHO ARE THE USERS, WHAT IS THE GOAL, ?

Policy makers
Consumers
Scientists
Industry
Sector
Farmers

Environmental laws, regional planning,
Quality, branding
Research based estimations
Benchmarking, sales
Advisory, development, lobby
Production, comparison
WHAT DOES THIS MEAN FOR MEASUREMENTS

Which indicators do we value highest (animal welfare, economy, social well being)
Weighting of parameters included in calculations (soil organic matter in climate impact)
Precision of measuring parameters (exact on-farm measurements, estimation, modelling)
Time span (real-time, average, one year, 3 years)

Dialogue

It is really confusing!!!
STATE OF THE ART

General demand for sustainable products by society,

Industry is starting up, focusing on certain disciplines like climate, animal welfare, using commercial scientific service centers. Paying for life cycle assessments, quality programs etc. Slowly addressing the total spectrum of sustainability

Government is asking (university, applied research) for impartial detailed documentation, until now only disciplinary. E.g. climate impact or eutrophication. Trade-offs is left for politicians

Farmers would like to know how to implement these criteria. How do they score?
IN RESPONSE, RESEARCH, ADVISORY AND INDUSTRY DECIDE TO DEVELOP A METHODOLOGY, STARTING WITH ORGANIC FARMING

Prerequisites
Including all dimensions
Overview and focus on details
Documented
Understandable, no black boxes
International

Adaptable (not top down)
Reliable
Online
RESPONSE INDUCING SUSTAINABILITY EVALUATION (RISE)

Farm tool, based on farm interviews and farm data has been annotated by FAO as one of the best tools available. Tested and under continuous development. 3 Dimensions, 10 indicators, parameters, calculations. Although governance is not explicitly mentioned, it is integrated. Web based, interface, benchmarking is possible. International, scientific, cooperation with CH, D, DK. Adaptable, uses regional data. Light, basic, detailed.
Each Indicator is quantified by measuring parameters.

FX_Nutrient flows
- Nitrogen (N) balance
- Phosphorous (P) balance
- N and P self sufficiency
- Ammonia volatilization
- Disposal of wastes
# NITROGEN BALANCE

<table>
<thead>
<tr>
<th>Text</th>
<th>Unit</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen balance</td>
<td>Points</td>
<td>77</td>
<td></td>
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<tr>
<td>Nitrogen balance</td>
<td>%</td>
<td>126.3</td>
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<tr>
<td>N-supply (fertilization)</td>
<td>kg</td>
<td>30,217.1</td>
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<tr>
<td>Detailed results of each animal category can be found under the node “Animal husbandry”.</td>
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<tr>
<td>N-supply: Animal husbandry</td>
<td>kg</td>
<td>11,636.1</td>
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<tr>
<td>N-supply: Animal husbandry (before storage and application losses)</td>
<td>kg</td>
<td>23,273</td>
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<tr>
<td>Region typical N-loss in barns and storage</td>
<td>%</td>
<td>20.0</td>
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<tr>
<td>Region typical N-loss in the distribution of organic manure</td>
<td>%</td>
<td>30.0</td>
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<tr>
<td>N-supply: Mineral fertilizers</td>
<td>kg</td>
<td>0.0</td>
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<td>N-supply: Imported organic fertilizers</td>
<td>kg</td>
<td>2,526.0</td>
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<tr>
<td>N-supply: Fixation of legumes</td>
<td>kg</td>
<td>12,904.1</td>
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<td>N-supply from the air</td>
<td>kg</td>
<td>3,095.8</td>
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<td>N-demand crop production and export of organic fertilizers</td>
<td>kg</td>
<td>23,915.1</td>
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<td>N-demand: Crop production</td>
<td>kg</td>
<td>23,915.1</td>
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<tr>
<td>N-demand: Export of organic fertilizers</td>
<td>kg</td>
<td>0.0</td>
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<tr>
<td>Detailed results of each crop can be found under the node “Crop production”.</td>
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RESULTS

Results are not yet presentable because there are some disturbing mistakes.

4 organic sectors are being analysed: dairy, pig, poultry, arable. 50 reports. Group of educated advisors is doing the data gathering on-farm, in active dialogue.

Industry (dairy, pork, egg, vegetables) would like to use results for customer (retail/consumer) information and for product quality check.

Research would like to find correct ways of weighting, calculating and data gathering.

Projects presently involved:

- KØB, Kompetence Udvikling Økologis Bæredygtighed
- Autograssmilk (EU, FP 7). Økologi i Spor (GUDP)
ORGANIC DAIRY FARM, EXAMPLE

- Soil use
- Animal husbandry
- Nutrient flows
- Water use
- Energy & Climate
- Biodiversity & Plant protection
- Working conditions
- Quality of life
- Economic viability
- Farm management

Degrees of sustainability:
- Positive: Good performance
- Critical: Further scrutiny recommended
- Problematic: Need for action
- Degree of sustainability
BENCHMARKING

Sustainability polygon (RISE 2.0) of the farm

- Soil use
- Animal husbandry
- Nutrient flows
- Water use
- Energy & Climate
- Biodiversity & Plant protection
- Quality of life
- Working conditions
- Economic viability
- Farm management

Legend:
- Positive: Good performance
- Critical: Further scrutiny recommended
- Problematic: Need for action
- Degree of sustainability

Oudshoorn, assessing sustainable production

26 August 2014
SOME CHALLENGES, PARTLY BECAUSE OF INTERNATIONAL REFERENCE VALUES

Animal health, mutilations with seduction count high

Economy, debts, % of household expenses earned by the farm

Energy, biofuel not available in DK

How to value biodiversity (even though it is nationally adjusted)
WHAT MAKES ORGANIC LIVESTOCK SUSTAINABLE?

Active use of RISE, would provide

Documentation of sustainability indicators of all dimensions
Evaluation of strengths and weaknesses

Guidelines for production development and follow up.

Integrated communication of results to farmer and industry (retailer/consumer)
Thank you for your interest