EAAP Copenhagen August 26
Session Organic Livestock Farming, challenges and future perspectives

WHAT MAKES ORGANIC LIVESTOCK PRODUCTION SUSTAINABLE

Frank Oudshoorn, Evelien de Olde Aarhus University
Anke Stubsgaard, Knowledge center for Agriculture

AARHUS
UNIVERSITY
DEPARTMENT OF ENGINEERING

26 AUGUST 2014

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 of 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.

WHAT IS SUSTAINABLE (LIVESTOCK) PRODUCTION

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

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

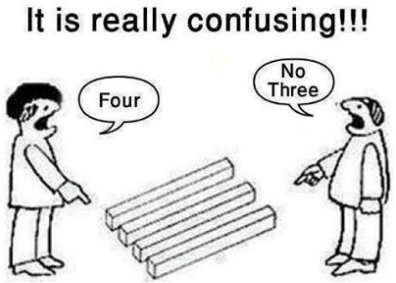
WHO ARE THE USERS, WHAT IS THE GOAL, ?

Policy makers	Environmental laws, regional planning,
Consumers	Quality, branding
Scientists	Research based estimations
Industry	Benchmarking, sales
Sector	Advisory, development, lobby
Farmers	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



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

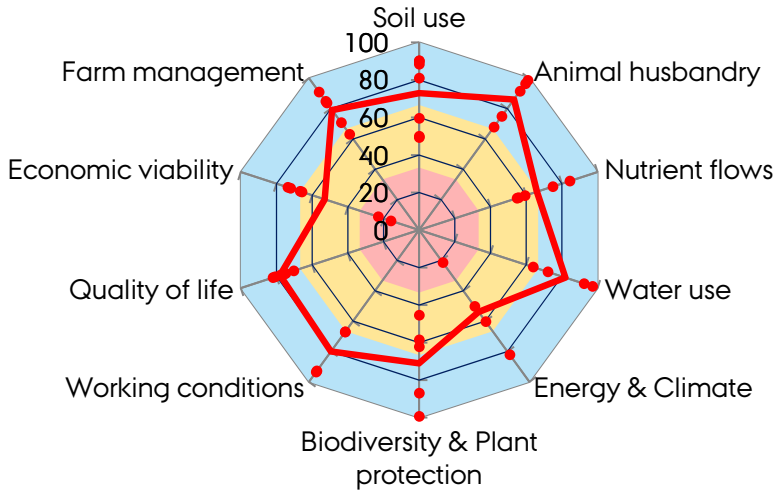
Web based, interface, benchmarking is possible.

International, scientific, cooperation with CH, D, DK

Adaptable, uses regional data

Light, basic, detailed

STRUCTURE



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

Details

Text	Unit	Value	Value	Value	Value	Value
Nitrogen balance	Points	77				
Nitrogen balance	%		126.3			
N-supply (fertilization)	kg			30,217.(		
Detailed results of each animal category can be found under the node "Animal husbandry".						
N-supply: Animal husbandry	kg				11,636.8	
N-supply: Animal husbandry (before storage and application losses)	kg					23,273.
Region typical N-loss in barns and storage	%					20.0
Region typical N-loss in the distribution of organic manure	%					30.0
N-supply: Mineral fertilizers	kg				0.0	
N-supply: Imported organic fertilizers	kg				2,520.0	
N-supply: Fixation of legumes	kg				12,964.6	
N-supply from the air	kg				3,095.8	
N-demand crop production and export of organic fertilizers	kg			23,916.(		
N-demand: Crop production	kg				23,916.4	
N-demand: Export of organic fertilizers	kg				0.0	
Detailed results of each crop can be found under the node "Crop production".						

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

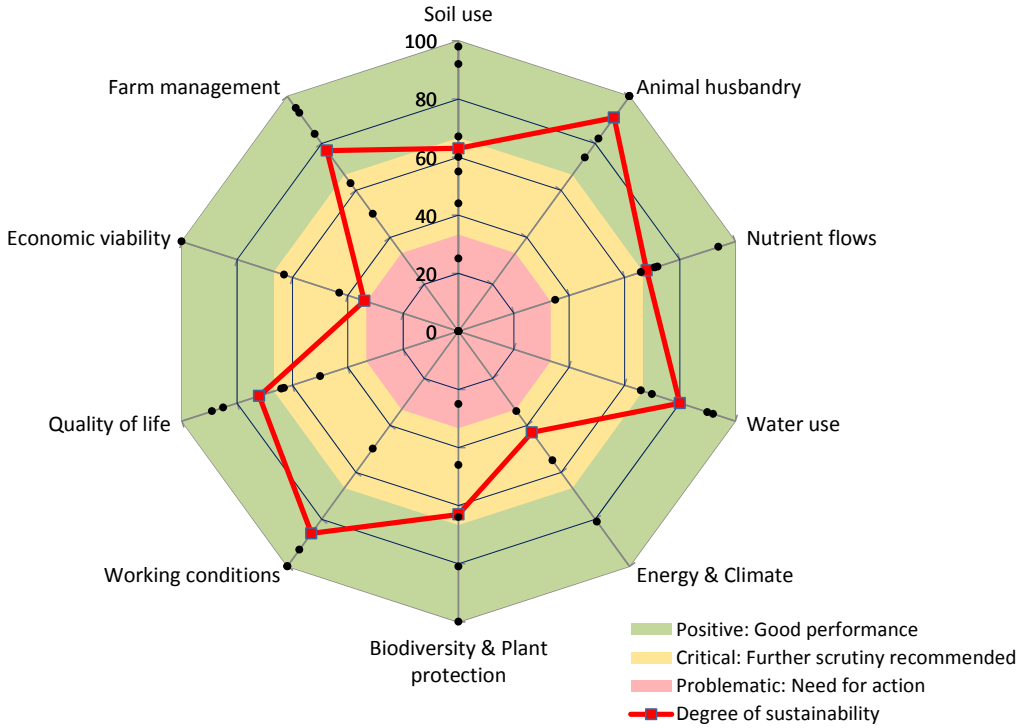
Research would like to find correct ways of weighting, calculating and data gathering.

Projects presently involved:

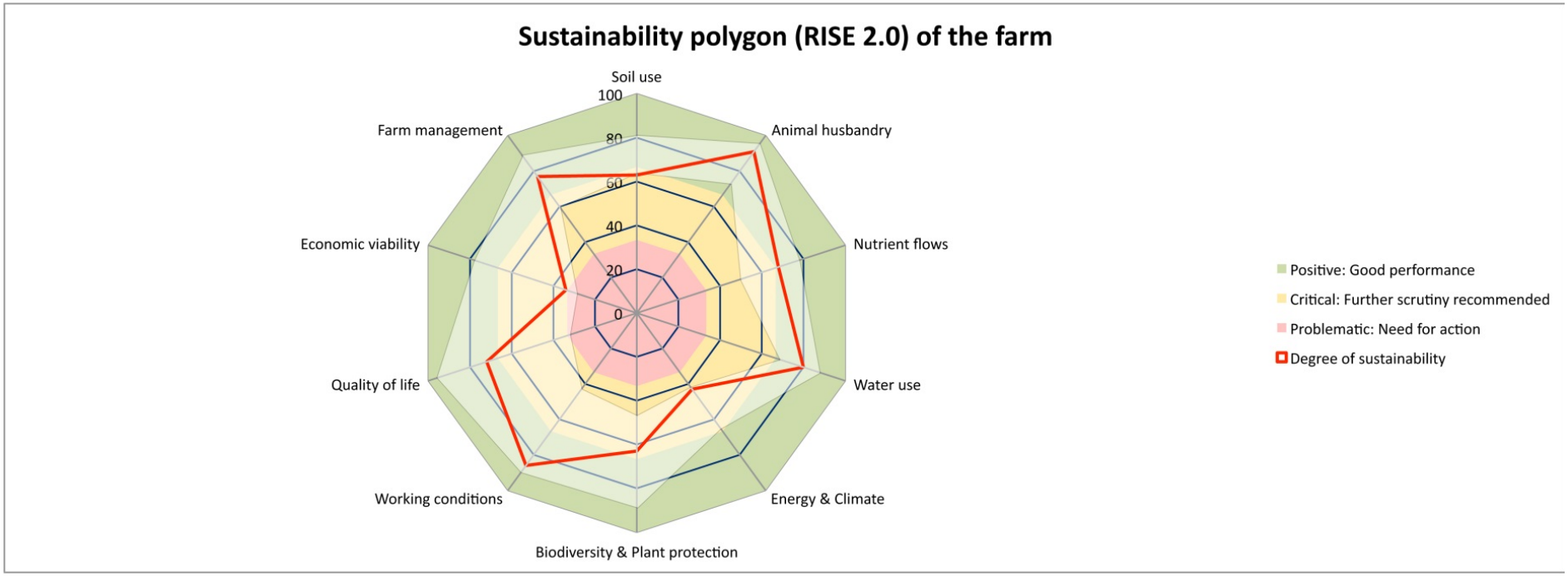
KØB, Kompetence Udvikling Økologis Bæredygtighed

Autograssmilk (EU, FP 7), Økologi i Spor (GUDP)

ORGANIC DAIRY FARM, EXAMPLE



BENCHMARKING



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

AARHUS
UNIVERSITY