Tuning up sustainable organic animal production

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Tuning up?



What is "most efficient"?

Many sustainability aspects

Toxic substances

Goal conflicts Working environment vs Production costs Climate impact vs Animal welfare

vs Yield

1. Admit the goal conflicts

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2. Accept some goal conflicts

cannot be solved scientifically

Breeding => more efficient animals

=> more efficient animals => less negative climate impact More milk from less cows
Less cows = less meat
Need more meat from beef cows?
Meat from beef cows => more
negative climate impact

Production and Consumption

Study whole production systems



Which goals are fulfilled thanks to organic agriculture?

Organic production = low yield?

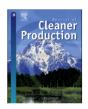
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Three perspectives on sustainable food security: efficiency, demand restraint, food system transformation. What role for life cycle assessment?



Tara Garnett

Food Climate Research Network, Environmental Change Institute, University of Oxford, United Kingdom

Garnett, 2014

- Efficiency oriented
- Demand restraint
- Food system transformation

"Everybody wants 'sustainability' and an end to hunger — but not everyone has the same vision of what the solution - the good life - might look like."

Tools for sustainability assessment

- IDEA Indicateurs de Durabilité des Exploitations Agricoles
- RISE Response-Induced Sustainability Evaluation
- SAFA Sustainability Assessment of Food and Agricultural systems

Slätmo et al, 2017 The framing of sustainability in sustainability assessment frameworks...

- Social aspects
- Use of farmers' knowledge and experience
- Aspects chosen based on values

New EU project within SusAn: Sustainability of pig production through improved feed efficiency, SusPig Coordinator: W Rauw

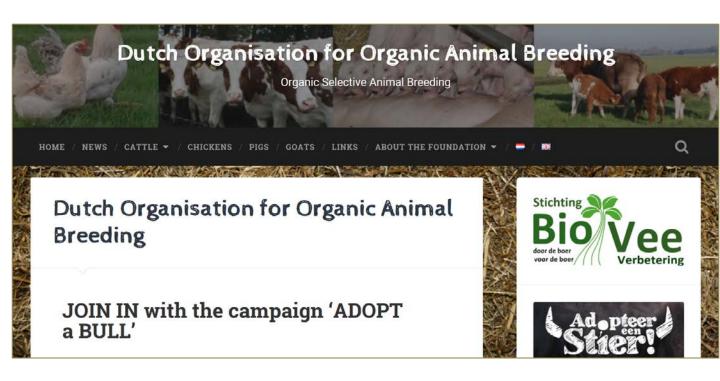
Environmental and Social LCA

Breeding
=> animals that are specialists
in the given environment

Egg or Chicken meat Milk or Beef

Low economic value => Low welfare

"combined milk and beef production would likely be the most viable and sustainable way to achieve self-sufficiency in beef while maintaining sufficient milk production in Finland" *Kokko, 2017*



Dual-purpose breeds in organic production

Core Organic-project Organic Dairy Health

Huge diversity in European organic dairy production systems

Wallenbeck et al

How much organic diversity can we handle?

Reasons for specific breeding programs for organic production

- Market
- Genotype x Environmentinteractions

Slagboom et al, 2016 Preference study 4 clusters of farmers:

- Health and Fertility
- Production and Udder Health
- Survival
- Fertility and Production



Wallenbeck et al, 2016 Interactive web questionnaire showing side effects of selection

Farmers with organic production found health traits more important

Reasons for specific breeding programs for organic production

- Market
- Genotype x Environmentinteractions
- Organic principles

The organic principles

- Health
- Ecology
- Fairness
- Care

What breeding goal do they give us?

The organic principles

- Health: disease and mortality traits
- Ecology: roughage consumption and feed efficiency
- Fairness: mortality traits
- Care: disease and mortality traits

Reasons for **no** specific breeding programs for organic production...

Small scale animal breeding is almost impossible

Reasons for **no** specific breeding programs for organic production...

Small scale animal breeding is almost impossible

Alternative: Select among the selected conventional

"organic agriculture is a production system that ... relies on ecological processes, biodiversity and cycles adapted to local conditions"

IFOAM

Tuning up in which way?

Exclusive niche production

More common, "more Agenda2030"

To discuss

Goal conflicts Production system perspective Sustainability assessment tools How many different systems The importance of "local" The meaning of the 4 principles Exclusive niche production Should all farmers become organic

. . .