Sustainability index for beef production in Denmark and Sweden

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The challenge of producing beef

- Climate impact is high compared to other meat production systems

- There is a need for a broader view on beef production

- Our sustainability index is an example of a broader view on beef production

Source: Jason Clay: Producing beef on a finite planet
The Sustainability Index

- Based on existing knowledge
- Usable for an overall evaluation across various factors such as e.g. nutrient balance, animal welfare and biodiversity
- Express the sustainability of beef production at farm level and in a given period, typically a year
- Should be able to handle more types of beef production i.e. suckler cows and bull calves from dairy
Method

- The Sustainability Index was developed as a prototype for a dynamic model

- The evaluation was based on indicators

- Data was collected and registrated online in an existing tool “AnalysePlatformen” (www.analyseplatformen.dk)

- Data from three farms in Denmark and two in Sweden were collected to test and develop the model
The index

- Animal Welfare
- Climate impact
- Use of resources
- Environmental impact
- biodiversity
- Economic
- Social responsibility

Foto: Jens Tønnesen m.fl.
Indicators

* A good indicator (Halberg, 1999) must be
  - Based on generally accepted biological relations
  - Understandable and acceptable for stakeholders
  - Reflect the actions of the farmer

* Data used to calculate the indicators should be existing or easy to collect on the farm
  - The national cattle database
  - Fertiliser Plan
  - etc.
Seven subindices describe sustainability

* E.g. Biodiversity:
A high index on biodiversity means that the production contributes to maintain the biological diversity in the surroundings of the farm and promotes diversity on the area used for production.
Indicators for biodiversity

**Indicators:**
Number and m² with
- aside
- insect ridges
- wild streaks
- planted fences
in relation to total area

**Indicators:**
Proportion of these areas used for feed production in relation to the total area

**Indicators:**
Applied nitrogen, kg pr ha

**Indicators:**
Proportion of pesticide treated forage area compared to total forage area, per cent

**Indicators:**
Effect on biodiversity depends on utilization.
Rank: Grazing (best), hay and silage

**Production intensity**

**Small biotopes**

**Permanent pasture and semi natural areas**

**Pesticide use**

**Grassland utilization**
**Biodiversity**

- Production intensity
  - Kg N applied pr. ha
- Proportion of pesticide treated forage area
- Use of areas with grass
- Proportion of feed from semi natural areas and permanent pasture
- Small biotopes
  - E.g. wild streaks, insect ridges and planted fences
Indicators for animal welfare

A high index expressed that the beef production was conducted in a way that animal welfare was secured no matter which production system.
Example of Sustainability Index – two different production systems

- Animal Welfare
- Economy
- Social responsibility
- Biodiversity
- Environmental Impact
- Use of Resources
- Climate Impact

Suckler cows
Bull calves from dairy herds
Outcome of the Sustainability Index

- The farmer
  - Benchmarking with other farmers
  - What happens if I make changes?

- Slaughter houses and retail
  - Documentation and marketing of sustainable beef

- Society/authorities
  - Documentation and certification
  - Identification of opportunities of increasing sustainability
Conclusion and Perspectives

- The prototype for collecting data and calculating the index has been approved

- Further validation of the model through data from more farms

- The model may be adjusted and used on other animal products
Thank you for your attention
Indicators for animal welfare

A high index expressed that the beef production was conducted in a way that animal welfare was secured no matter which production system.

**Indicators**
- Mortality rates
- Treatments
- Frequency of disease/injuries
- Evaluation of skin/hair
- Lameness
- Damage to the hock

**Indicators**
- Access to pasture
- Flight distance
- Cow-calf relation

**Indicators**
- Body condition score (% thin animals)
- Access to and purity of water and feed

**Indicators**
- areal, surface i stald
- Resting area
- Access to shelter
- Cattle routes
- Rising behaviour

**Indicators**

Health

Behaviour

Feeding

Housing
Social responsibility

A high index expressed that the farmer carried out his production in a responsible manner

- Considering neighbours and nearby society
  - Manure management
  - Public access
  - Tidiness on the farm
  - Location of field piles
- Employment
- Work safety
- Global concerns
  - Use of renewable energy
  - Recycling waste