agri benchmark – a global approach to measure silvopastoral systems

Dr. Claus Deblitz
agri benchmark Beef and Sheep Network

Evora
27.09.2016
Practice change and its definition

“Is a significant alteration of a production system against the background of specific objectives”

- Mitigate greenhouse gas emissions
- Contributing to ecosystem services
- Reduce overgrazing, erosion and degradation of grasslands
- Improve animal welfare
- Maintain or increase productivity and profitability
- Improve working conditions of producers and their employees
Information, data and actors required to analyse practice change

Knowledge, competence and capacity

- Production systems, economics, framework conditions and perspectives
  - Environment
    - CIPAV
    - GASL, LEAP, GRSB
    - IIASA, OTHERS WANTED!
  - Animal welfare
    - World Animal Protection
    - OTHERS WANTED!
  - Social
    - to be confirmed
Global questions – global approach: We harvest data around the world

<table>
<thead>
<tr>
<th>Industry</th>
<th>Countries</th>
<th>Farms</th>
<th>Years in Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef and Sheep</td>
<td>31</td>
<td>109</td>
<td>14</td>
</tr>
<tr>
<td>Cash Crop</td>
<td>41</td>
<td>100</td>
<td>11</td>
</tr>
<tr>
<td>Horticulture</td>
<td>15</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Pig</td>
<td>10</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>Organic</td>
<td>6</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Fish</td>
<td>4</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

Participating countries 2015

Contacts for further growth
One focus – 6 networks

- International / global
- Comparable
- Realistic, quantities, not just prices!
- Representative
- Up-to-date
- Fundable
- Feasible
Imagine you have a guest from a foreign country who is interested to see how beef farming is done in your country.

You would want to show your guest a farm that is

• ... located in an important beef producing region,
• ... using the common technology for beef production,
• ... running the prevailing production and feeding system,
• ... having a not too small and not too big size,
• ... using the prevailing combination of labour, land and capital.

In other words, you want to show your guest a typical farm!
How we collect our data

- **Statistics** available to determine
  - important regions
  - farm sizes and distribution

- **Focus groups** of researchers, producers and advisors to
  - define prevailing production systems
  - collect data in a standardised way

- **Expertise** of researchers + advisors + farmers
  - define and quantify practice change
  - crosscheck the results
Total costs and returns of beef production 2015

USD per 100 kg carcass weight

Europe

Americas

Asia

Oceania

Africa
Cost composition by production system

Percentage of total costs

- C&C
- Feedlot
- Pasture
- Silage

- Other
- Capital
- Land
- Labour
- Feed
- Animals

Cost composition by production system

Percentage of total costs

- C&C
- Feedlot
- Pasture
- Silage

- Other
- Capital
- Land
- Labour
- Feed
- Animals

Page 9
Dr. Claus Deblitz
Global Network of Silvopastoral Systems
Analysis steps practice change – example SPS

1. Create a baseline = reference situation (“without-situation”)

2. Identify and quantify one or more scenarios, for example SPS
   - Steps of establishing the change
   - Investment needs
   - Feed resources
   - Labour / land requirements
   - Performance changes
   - Price and cost changes

3. Calculate the baseline and the scenarios
Dynamic analysis, not just comparative static

- Feed production (tons dry matter per ha)
- Land productivity (kg meat or milk per ha)

La Luisa - Beef finishing
Petequi - Dual purpose
El Hatico - Tropical dairy
Cash-flow and profit impacts in establishment phase

Profitability

La Luisa - Engorde

USD

<table>
<thead>
<tr>
<th>Costos totales ('000 US$)</th>
<th>Ingresos totales ('000 US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linea base</td>
<td></td>
</tr>
<tr>
<td>SPS año 1</td>
<td></td>
</tr>
<tr>
<td>SPS año 2</td>
<td></td>
</tr>
<tr>
<td>SPS año 3</td>
<td></td>
</tr>
<tr>
<td>SPS año 4</td>
<td></td>
</tr>
<tr>
<td>SPS año 5</td>
<td></td>
</tr>
<tr>
<td>SPS año 6</td>
<td></td>
</tr>
<tr>
<td>SPS año 7</td>
<td></td>
</tr>
<tr>
<td>SPS año 8</td>
<td></td>
</tr>
<tr>
<td>SPS año 9</td>
<td></td>
</tr>
</tbody>
</table>
Our future scope in measuring sustainability on farm-level

Farm description
Cow-calf producer and beef finisher in Mecklenburg-Vorpommern, Germany
1400 cows and 800 finished animals

<table>
<thead>
<tr>
<th>Level</th>
<th>Productivity</th>
<th>Economic</th>
<th>Environment</th>
<th>Animal welfare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>Stocking rate</td>
<td>Land productivity</td>
<td>Margin</td>
<td>Total cost</td>
</tr>
<tr>
<td>Reference *</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Original value</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Weight</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Weighted value</td>
<td>6,0</td>
<td>6,0</td>
<td>9,0</td>
<td>7,0</td>
</tr>
</tbody>
</table>

* Reference can be a set value, an average or quantiles referring to a population or survey.