

## GLOBAL AGENDA OF ACTION

### Focus Area Group 1, *Closing the Efficiency Gap*

Exchange on data and methods for the analysis of livestock information systems

Braunschweig, 18-19 April 2013

#### 1. Participants:

- Claus Deblitz, General Coordinator of the Beef & Sheep *agri benchmark* network, Germany
- Folkhard Isermeyer, President of the Thünen Institute (Federal Agriculture Research Centre), Germany
- Philippe Lecomte, Director of the Mediterranean and Tropical Livestock Systems Mixed research Unit INRA- CIRAD SupAgro , France
- Pierre Gerber, Senior Policy Officer, FAO-AGAL, Italy
- Sune Jin Christensen, Consultant, Danish Bacon & Meat Council, Denmark
- Ernesto Reyes, Manager of Livestock Systems - *agri benchmark* Network, Germany
- Carola Von Morstein, Sustainable Management of Natural Resources (Livestock) GIZ, Germany
- Hikuepi B. Katjuongua, Policy, trade and value chains - ILRI, (via video conference from Nairobi), Kenya

#### 2. Introduction

In the last multi-stakeholder platform meeting in Nairobi in January 2013 it was agreed to hold a meeting between the institutions managing data and information on production and farming systems on a global level. The main objective should be to exchange a) information and their databases' content and b) methodologies which can serve for scoping regions and production systems where future strategic guidelines could take place.

The meeting was organized and hosted by *agri benchmark*, von Thünen Institute of Farm Economics in Braunschweig. The goals were (1) to define a preliminary list of variables for measuring efficiency, within the FA1 framework, (2) to identify a set of livestock information systems (databases, models, tools) for scoping regions and production systems where potential interventions could take place, (3) to explore benchmarking methodologies for measuring livestock efficiency improvements and (4) to define the possible contributions of each institution to the FA1 in terms of information requirements and availability, models and tools used, and possible means of future regional intervention.

### 3. Developing the program

The program developed was designed to cover aspects such as: (1) defining and measuring efficiency, (2) institutional presentations in terms of FA1 and (3) contributions to FA1 in terms of livestock information systems.

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<b>Thu, April 18</b>	
9:10 - 9:30	<b>Round introduction and meeting presentation</b> (E. Reyes, agri benchmark)
9:30 - 10:00	<b>Official welcome</b> (F. Isermeyer, President of the Thünen Institute)
10:00 - 10:30	<b>The Agenda and the Focus Area 1</b> (P. Gerber - FAO-AGAL)
10:30 - 10:45	<b>Coffee Break</b>
10:45 - 12:45	<b>Discussion session 1: Measuring efficiency</b>
12:45 - 13:45	<b>Lunch</b> (Kantine)
13:45 - 14:45	<b>Presentation ILRI</b> - video conference from Nairobi, Kenya (K. Hikuepi)
14:45 - 15:00	<b>Coffee Break</b>
15:00 - 16:00	<b>Presentation CIRAD</b> (P. Lecomte)
16:00 - 17:00	<b>Presentation FAO-AGAL</b> (P. Gerber)
17:00 - 18:00	<b>Presentation agri benchmark</b> (C. Deblitz)

<b>Fri, April 19</b>	
9:00 - 10:00	<b>Discussion session 2.</b> How we can contribute further to the FA1 in terms of livestock information systems
10:00 - 10:30	<b>Coffee break</b>
10:30 - 11:45	<b>Discussion session 2.</b> Cont.
11:45 - 12:45	<b>Final remarks and steps to follow</b>

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The meeting started with an official welcome by the President of von Thünen Institute, followed by a short presentation of the Institute. Afterwards the participants were briefed by Mr. Reyes on the two main outcomes of the last FA1 workshop in Nairobi:

- It was agreed to have a meeting between institutions which possess data and information on production and farming systems on global level.
- The main objective of the meeting will be the exchange of available information on livestock systems. This can serve for scoping regions and production systems where future strategic guidance could take place.

In a further presentation “*The Agenda and the Focus Area 1*”, P. Gerber explained the structure of the Focus Area 1 group and the concept of efficiency and why it is relevant for the livestock sector.

In *defining and measuring efficiency*, C. Deblitz presented a proposal framework for opening the discussion. The aim of this proposal was to provide a framework for the FA1 with different levels, where efficiency can be measured (Diagram 1).

Furthermore, each participant institution was presenting the main elements of their projects that could be applied in relation to FA1. The main elements taking into account on their presentations were:

- Defining and measuring efficiency
- Scope and framework of the livestock development assessment

- Methodological approaches and models used (concepts, various econometric methods and other modeling approaches, tools, variables measured, etc.)
- Livestock information systems currently used
- What this information system is measuring
- Regional coverage and current projects

During the 2<sup>nd</sup> day, the attention was focused to the possible contributions each institution could make regarding the FA1. E. Reyes presented an example of *agri benchmark* contribution in relation to this objective.

Finally, P. Gerber presented a FA1 proposal, containing the next steps which can be developed for this year.

#### 4. Summary of discussions

##### a. Measuring efficiency

In order to open the discussion about efficiency, C. Deblitz was presenting an input session about possible elements to take into account when measuring livestock efficiency. The proposal consisted of a framework with different indicator levels, where efficiency can be classified according to characteristics of the production systems. The main aim of this preliminary exercise has been to provide a framework, where efficiency indicators could be distributed according to different levels and categories. Once there is an agreement on the framework, more indicators and more levels can be added in future F-A1 exercises. Due to time restrictions the efficiency session could not cover all other livestock species and was limited to some examples of grazing animals mainly for meat production. In further developments is planned to add other livestock species.

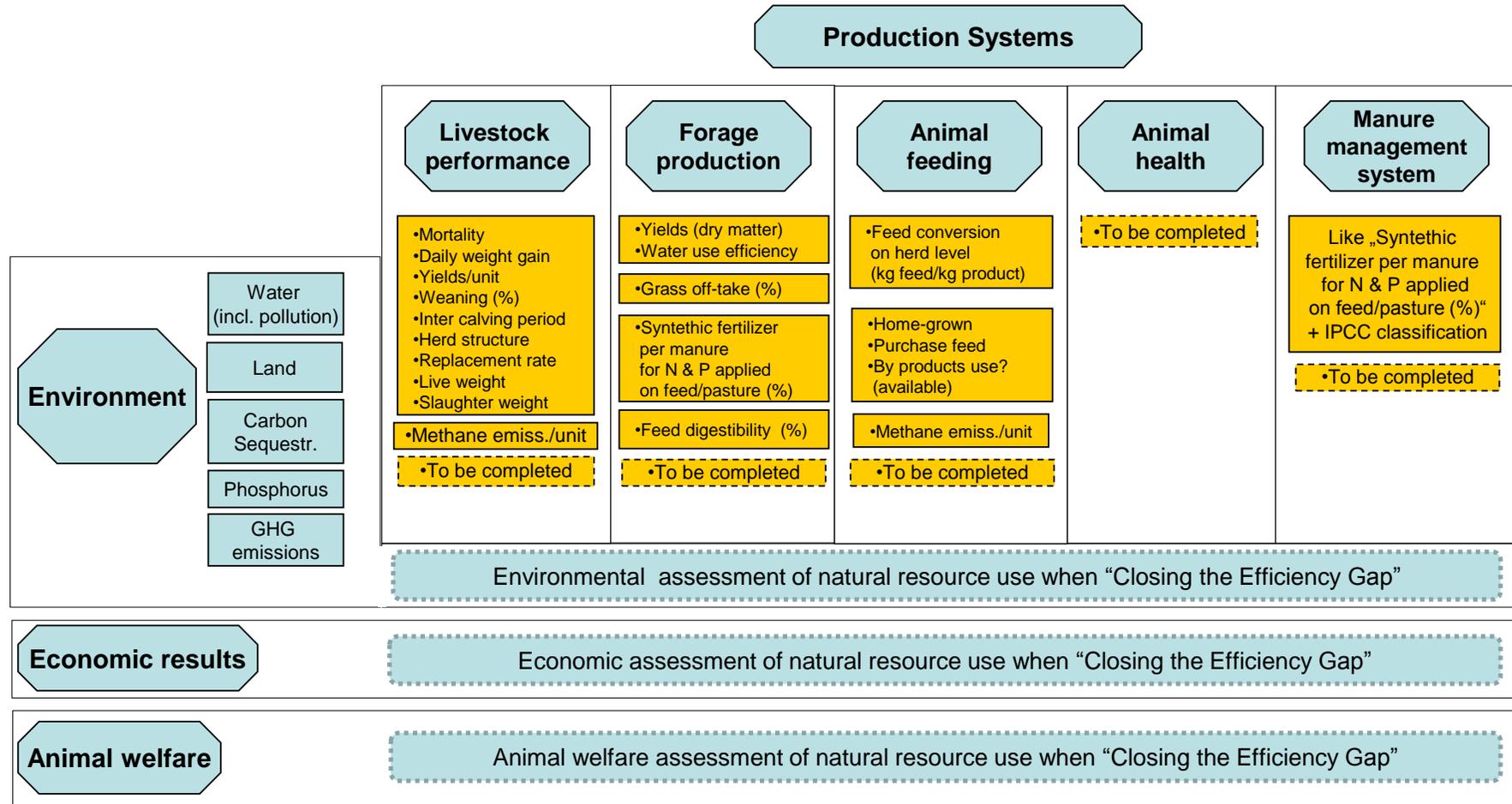
In the following diagram some of these elements can be observed, as well as a preliminary list of some efficiency indicators identified during the session.

##### Diagram explanation:

- The proposed frame is about the production systems approach. This contains main aspects about production systems and determines the direction of the analysis.
- A second level consists of different areas, where efficiency can be measured. They have been grouped by livestock performance, forage production linked to animal feeding, animal health and manure management system.
- Inside these areas, there are a few efficiency indicators defined by the participants as the most relevant when measuring efficiency. These are not all indicators of efficiency and other indicators will be discussed and added by the group moving forward. Once the exercise is finished, the main idea is to use the defined indicators to identify the efficiency gap at the farm level.
- These efficiency areas are crossed by three main categories where the assessment of Natural Resource Use (NRU) will be implemented when “closing the efficiency gap”.

- Environment. This is further divided into water, land, carbon sequestration, phosphorus and greenhouse gas emissions.
  - Economic.
  - Animal welfare.
- These 3 assessment categories will be in charge of NRU impact evaluation when changing efficiency indicators (“closing the efficiency gap”). Those categories will need further development in order to select the main elements for measuring this impact evaluation.

Diagram 1.



### Main outputs:

All participants agreed that, when measuring efficiency some important aspects should be taken into account:

- In general, there is a need to have a homogeneous classification and an appropriate wording of the efficiency term and its indicators in order to assure that everybody can understand and interpret what is being measured. Therefore, the next activity will be to develop a common set of definitions, as a reference notebook for the FA-1. To this respect, it was agreed that a glossary for all indicators is necessary; otherwise there is no common system and items cannot be compared within the different databases. *agri benchmark* will provide some definitions, the missing ones should be filled in by the partners.
- The participants agreed that the term *efficiency* can be qualified as technical efficiency and economic efficiency. Technical efficiency measures output related to input; economic efficiency is extended with the monetary value and thus linked to prices of the output and input: “to reach a given output with minimum cost or to maximise output at a given cost”. The transmission of price and market related information, and risk are equally important in how producers achieve technical efficiency. Further, the scarcity of natural resources is a crucial point, when measuring efficiency.
- A framework has to be set up with the preliminary list of variables, which will be used to measure the input, output and therefore the efficiency. The participants agreed on the framework presented (diagram 1). The preliminary idea is to fill these areas with efficiency indicators and then crossing those indicators with the assessment categories defined (in this case, environmental, economic and animal welfare).
- It was also agreed that this preliminary framework will be presented to the FA1 members, in order to add more levels, and indicators within these levels.
- The starting point of the FA1 is on natural resources use, but the economic dimension has to be added in the next step to be able to measure the efficiency gap.
- There are further socio-economic aspects (externalities) which have been discussed and considered by the group and should be taken into account when measuring efficiency for defined regions or production systems:
  - Incentives to adopt / adapt
  - Market access
  - Economic and policy framework conditions
- Participants also agreed on the first draft of the framework but taking into account that possibly further categories need to be added as they have an influence on natural resources use.

- In further stages, regarding measurement of efficiency, some participants depict the importance of “on farm” evaluation to measure the before and after situation on farm level. They argued that a reference system is needed in order to compare both scenarios (status quo and the new scenario); otherwise the improvement of efficiency cannot be measured.
- Some participants also noted the challenges related to measuring efficiency and the “efficiency gap”: lack reliable data on the natural resource base including poor statistics on livestock numbers, what they eat and produce in different countries is a key constraint. The varying and many objectives of keeping livestock combined with risk considerations, and transaction costs pose a challenge to measuring the efficiency gap.
- One participant stated that in relation to data quality and when measuring the efficiency gap, it is clearly needed to define the following aspects: (a) the number of indicators to use (fewer vs. a large number), (b) the weight that these indicators could have and (c) *when* and *how* they will be used. To this respect, a conclusion was not reached.
- One participant expressed the need to keep the focus on natural resources use. This comment was made in relation to the possibility of evaluating this Focus area using the assessment categories such as economic evaluation and animal welfare. In the first case, economic evaluation, the participant was reluctant to incorporate this aspect as a pre-requisite to measure efficiency - the participant did not see it as a necessity to measure efficiency. For the second aspect, animal welfare, the participant was clear explaining that this aspect should not play such a dominant role as it has been incorporated.
- The participants of the meeting came to the conclusion that the provided framework is only a first step done by this first screening exercise. In a second step more details have to be added which will automatically come along with on-side screenings, when data for the status quo are collected. Therefore the scopes of production systems and regions also have to be defined to be able to assess the gap.

b. Institutional contribution to Focus Area 1

The second session was based on the institutional presentations and the main question was “how can the participating institutions contribute further to the FA1 in terms of livestock information systems?” For this purpose E. Reyes presented an applied example of how *agri benchmark* can contribute to the FA-1. His presentation was defining possible steps where strategic guidance could take place and the *agri benchmark*'s contribution.

For gathering and organizing possible contributions, a frame work (diagram 2) was provided and the participants were filling in.

Diagram explanation:

- The Proposed frame is about Livestock Information Systems (LIS) used by the participant institutions in relation to FA-1. The main questions asked were: (a) what sort of information is managed by those LIS, and (b) how they can be used for defining the scope of production systems and regions, and for analyzing the efficiency gap and the alternatives to narrow it.
- The second level was for grouping the main characteristics of the LIS available. Type of data, livestock products covered, updating frequency, availability and coverage.

Diagram 2.

<b>Contribution to FA1 - Livestock information systems (LIS)</b>							
	<b>Livestock Information Systems</b>						
	<b>Type of data</b>	<b>Products covered</b>	<b>Updated databases</b>	<b>Availability</b>	<b>Regional coverage</b>	<b>Regional depth</b>	<b>Levels of measurements</b>
<b>Institutions</b>	Physical, economic, environmental, socio-economic	Cow-calf, beef finishing, sows, hogs, ewes, lambs, milk cows	last year available, update annually, bi-annually	Public, exclusive, electronic, print	Country, regional, continent, global	Country, regional, continent, global	Whole-farm, enterprise, gross margin, total costs
<b>ILRI</b>		Dairy, pig, cattle and small ruminant		Public, some area exclusive (currently being used or analyzed) and depends on partners	Sub-Saharan Africa, Asia and Latin-America. Multiple projects in many countries	Covers the whole value chains, diverse production systems with an emphasis on smallholder livestock keepers	Whole value chain level measures
<b>CIRAD</b>	Farm accounting data energy balance "practices" reunion SSA-WA., Amazonia, Vietnam	Milk, meat	2010	Exclusively (depends)		Farm chain	
<b>Danish Meat Council</b>							
<b>FAO-AGAL</b>	Animal production system parameters (production, structure, feed,..), environmental	All main products	Year of reference: 2005	Public	Global	From region to pixel	Supply chain level
<b>GIZ</b>							
<b>agri benchmark</b>	Physical environmental-emissions (socio-)economic	All listed	2011 annual update	Public reports results data base for partners and projects	Global 28 countries	Regions typical farms	All listed

### Main outputs:

Regarding these possible contributions in terms of LIS to the FA-1, the participants agreed that there are different levels where institutions could contribute to the FA1. Some of these mentioned levels were:

- For defining regions and production systems, as an example, FAO could provide LIS such as GLEAM (Global Livestock Emissions Analysis Model), where a global scope could provide the first step to this process.
- Other organizations such as CIRAD could provide a multi-disciplinary approach (technical, socio-economical) in some regions where they have been working in.
- A detailed assessment of the use of natural resources in relation to technical and economic efficiency can be done by *agri benchmark* at the farm/field level.
- For further use of the available data a detailed assessment of the usefulness might be required. It was agreed that the preliminary data matrix will be circulated to Agenda's member list to receive comments and inputs. If some other organizations want to contribute on this sense, the available data have to be checked first and then can be added to the process.
- There is a need to check other multilateral organizations which have been and are working with LIS and could provide more insight to the FA-1.
- The available data of GIZ and the Danish meat council will be checked by the participants first and then will be added later to the process.
- Regarding the next steps, it was agreed that FAO will do a screening exercise of farming systems/regions based on GLEAM. As an outcome a first proposal regarding the selected regions and farming systems selected for detailed NRUE gap analysis will be delivered.

### **5. Final remarks and next steps**

At the end of the 2<sup>nd</sup> day, there was an important debate about the "products" the FA-1 is looking for. It was agreed that it is a lively and ongoing process, but at the same time there is a need to define the main outputs of this area in terms of "marketable products". This point was raised under the argument that if an external observer and / or possible donor want to "Invest" on this initiative, they might first ask for the main "outputs" and-"products" they could expect out if this.

The next steps agreed are as follows:

- Minutes (once checked by participants) are circulated among FA1 list (Agenda's list) by mid-May, asking them for two main inputs:

- Adding levels and elements (indicators) within these levels, for measuring technical and economic efficiency to the diagram 1.
  - Adding institutions and their possible contributions (comments and inputs) to the LIS-data matrix (Contribution to FA-1 – Livestock Information Systems). They will be received by the Support Group of the Agenda by mid-June. This matrix exercise will be consolidated by agri benchmark.
- A complete revision of the approach (if any) will be done by all participants by mid-July.
  - A screening exercise of farming systems/regions will be performed during a FA1 meeting in Rome in September 2013, based on GLEAM and other sources of information).
  - Circulation of a first proposal regarding the selected regions and farming systems for detailed NRUE gap analysis by late-September.
  - Proposal presented and discussed at the next GAA Agenda's meeting 8-10 October 2013