Closing the efficiency gap

Paris, March 19-20-2014

Ernesto Reyes, Chair, FA1
1. Presented in Ottawa (MSP 2013)

2. Discussed in Ottawa

3. The meeting and program to develop
The situation

The growing demand for livestock products will have to be met from an increasingly scarce natural resource base.

The challenge

The sector thus has to increase its natural resource use efficiency to meet society’s growing food and environmental needs.

What are we facing?

Resource-efficient technologies and management practices exist but a large number of the world producers still rely on practices that can be improved.

Main aim

Facilitate the adoption of existing resource-efficient technologies by less efficient producers, and thus to narrow the gap between the most and the least efficient producers.
1. Presented in Ottawa - the scope

Initially

The scope of the FA1 when assessing efficiency has been defined as Natural Resource Use (NRU) analysis and evaluation only.

However

If practice change was to be achieved, other issues have to be reflected which seem to be as important as NRU.

Coverage?

Economic implications of the technologies and or practices adopted are one example. Social impacts as well as animal welfare considerations are other aspects which should be reflected for sustainable livestock development.
1. Presented in Ottawa - Objectives
1. Presented in Ottawa - Objectives

1. Build up a comprehensive approach for improving efficiency across the livestock sector (Metrics, tools, models)

- **Metrics system**
  - NRU efficiency
  - Assessment areas (environmental, economic, social, and A welfare)

- **Information system platform**
  - Inputs are inserted
  - Harmonizing & standardizing outputs for comparison
  - Analysis

- **Tools & models**
  - Selecting alternatives for narrowing the gap
  - Modeling
  - Evaluation

2. Promote regional/local interventions through efficient practices across the livestock sector (Piloting, projects, initiatives)

- **Criteria for selecting regions and prod. systems**
  - Future demand’s growth
  - Higher current production inventories

- **Exploring and select projects and initiatives**
  - Global networks and models as references
  - FA1 partners projects

- **Piloting**
  - Selecting projects
  - Testing metrics, tools & models
  - Start monitoring activities
  - Scale up the process

3. Facilitate the exchange of information and linkages between stakeholders, livestock initiatives and projects (Information platform, central portal)

- **Networking activities**
  - Linkages between experts and projects
  - Information exchange center
  - Common understanding and agreements
  - Promoting NRU efficiency practices

- **Central portal of information**
  - Communication platform
  - Dissemination platform

FAI meeting. Paris, March 19-20-2014

Latest developments
1. Presented in Ottawa - Efficiency matrix

### Efficiency matrix and NRU metrics

<table>
<thead>
<tr>
<th>NATURAL</th>
<th>RESOURCES</th>
<th>USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>Water</td>
<td>Nutrients</td>
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</tbody>
</table>

#### FORAGE & GRAIN PRODUCTION
- Yield/ha
- % dry matter
- Protein/energy content
- Feed digestibility
- % of total production sold/used

#### ANIMAL FEEDING
- Fresh/dry matter intake
- Feed ration composition
- Feed ration intake per ingredient
- % of purchased feed
- % Home grown produced
- Protein, energy and fiber content/ingredient
- Feed conversion ratio

#### LIVESTOCK PERFORMANCE
- HERD PERFORMANCE
  - Reproductive performance
  - No. Animals transferred or sold to other production units
- PRODUCTION PERFORMANCE
  - Yield per unit per year
  - No. of production periods per year
  - Yield/unit per period
  - Co-products per unit/year

#### ANIMAL HEALTH
- Mortality distribution by age group
- % disease incidence by age group
- % disease prevalence by age group

#### MANURE MANAGEMENT SYSTEM
- Methane emission per unit/year
- Manure applied as % total produced
- Synthetic fertilizer applied/ha/year
- Manure applied per ha/year

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Economic evaluation when closing the efficiency gap

Environmental evaluation when closing the efficiency gap

Social evaluation as well as animal welfare when closing the efficiency gap
## 1. Presented in Ottawa - Some pilots

<table>
<thead>
<tr>
<th><strong>ILRI</strong></th>
<th>Livestock and fish</th>
<th>Uganda, Vietnam&lt;br&gt;Ethiopia, Mali&lt;br&gt;Tanzania, India, Nicaragua</th>
<th>Pig&lt;br&gt;Sheep and goats&lt;br&gt;Dairy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallholder livestock competitiveness</td>
<td>Botswana</td>
<td>Cattle&lt;br&gt;Sheep and goat</td>
<td></td>
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</tbody>
</table>

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<thead>
<tr>
<th><strong>EBLEX</strong></th>
<th>Dairy Co. Research and development</th>
<th>United Kingdom</th>
<th>Dairy&lt;br&gt;Livestock farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Green House Gas Platform</td>
<td>United Kingdom</td>
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<thead>
<tr>
<th><strong>NOVUS</strong></th>
<th>Sustainable poultry program for small holders</th>
<th>Brazil</th>
<th>Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive On-Farm Assessment for Improved Milk Production</td>
<td>USA, Canada, China and Mexico</td>
<td>Dairy</td>
<td></td>
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</tbody>
</table>

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<tr>
<th><strong>agri benchmark</strong></th>
<th>Sustainable Livestock Grazing Systems on Chinese Temperate Grasslands</th>
<th>China</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring forage productivity on cattle farms, using GIS programs</td>
<td>Uruguay</td>
<td>Beef and Sheep</td>
<td></td>
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<tr>
<td>Improving management practices for a better rearing of cow-calf replacements</td>
<td>Uruguay</td>
<td>Cow-calf</td>
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<tr>
<td>Introducing silvopastoral systems on cattle farms for climate change mitigation and poverty reduction</td>
<td>Colombia</td>
<td>Cattle</td>
<td></td>
</tr>
<tr>
<td>Livestock farmers mentorship Program in the northern communal areas of Namibia</td>
<td>Namibia</td>
<td>Beef and sheep</td>
<td></td>
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</tbody>
</table>
1. Presented in Ottawa (MSP 2013)

2. Discussed in Ottawa

3. The meeting and program to develop
2. Discussed in Ottawa - \textit{NRU efficiency}
2. Discussed in Ottawa - *Pilots*

- Natural Resource Use (NRU) Efficiency will be now include analysis of Economic Implications, Social Impacts, Environment, and Animal Welfare.

- Promote regional/local interventions through efficient practices across the livestock sector (Piloting, Projects, Initiatives)

- Selection of proto-type Pilot Project in a Target Country

- Funding must be allocated to allow initial pilot(s) to be selected, designed, implemented, and reported.
2. Discussed in Ottawa - Other relevant partners

- Linkage to FA2 – Restoring Value to Grassland
  - NRU Efficiency and Forage Production are Linked

- Explore Synergy between FA1-FA2
  - Structural Mechanisms
  - Avoid Duplication and Leverage Advances

- Explore Linkage with LEAP
  - Many shared stakeholders
  - Focused solely on Environmental Sustainability Metrics
    - GHG, followed by Land Use, Nutrient Use, Water, Biodiversity
  - Technical Process Closely Related to FA1
  - LEAP will provide many tools for use by FA1
  - FA1 may assist LEAP to prioritize next areas to study

- Industry initiatives such as Global Dairy Agenda for Action (Dairy Sustainability Framework)
  - Not necessarily for Pilots
  - May assist on structure and methods

- Use of industry players to serve as Peer-to-Peer Teaching
  - Actual producers share with and teach others to catalyze further practice change.

- Consumer Goods Forum (Large Retail)
  - Practice Change will be highly valued and is a point of differentiation
2. Discussed in Ottawa - *strategies and activities*

- Links with OIE on impacts such as Animal Welfare and Food Safety

- Payment for Environmental Services (PESS)
  - Direct incentives create Practice Change faster through economic signals

- FA1 is open to receive additional Project/Pilot Proposals

- Pilot Activities/Proof of Concept
- Prototype Projects/Demonstration Units
- Workshops/Communication
- Links Between Initiatives and Focus Areas
- Peer-to-Peer “Farmer” Learning
  - Industry Mentorship has been very effective
  - Roles for external (transfer) and internal (propagate) mentors
- Economic Incentives
  - Markets and Governments both have a role
1. Presented in Ottawa (MSP 2013)

2. Discussed in Ottawa

3. The meeting and program to develop
3. Meeting and program to develop - Design

Objectives and elements

- Improve the efficiency matrix exercise
- Conform a FA1 pilot projects portfolio
- Define main attributes and contributions from the pilots to the FA1, and vice versa
- Define main elements of the FA1 business plan
- Explore the scope and focus of the FA1
3. Meeting and program to develop - Design

With the following inputs:

- **Efficiency matrix.** It has been a draft exercise performed during the last two FA1 meetings, regarding metrics on how to measure and indicators to use in NRU efficiency. A latest version of the matrix will be presented.

- **Pilot presentation.** FA1 members will present projects for exploring and defining means of interaction with the FA1.

- **FA1 Business Plan (BP).** A framework will be provided in order to define main elements to include in the FA1 BP.

- **Exploring the scope and the focus of the FA1.** During the last G. G. meeting, T.Velinga (Chairman FA3) had proposed to modify the scope and the focus of this Area. A document for this, will be provided in advance.
3. Meeting and program to develop – Design

Expected outcomes

- The efficiency matrix exercise has been improved (it will continue as an open exercise)
- Means of interaction have been explored and defined between FA1 and pilots projects presented by the stakeholders
- Main elements of the FA1 business plan have been defined
- FA1 members have analyzed and discussed the proposal for modifying the scope and focus of the FA1.
### FA1 - Closing the efficiency gap - March 2014 meeting

#### Wed, March 19

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>9:30 - 10:10</td>
<td>Round introduction and presenting latest developments FA1 E. Reyes</td>
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<tr>
<td>10:10 - 10:35</td>
<td>The Agenda (recent developments). J. Dijkman</td>
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<tr>
<td>10:35 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>10:35 - 12:45</td>
<td>Efficiency matrix (Workshop session)</td>
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<td>10:35 - 11:00</td>
<td>Presenting latest version</td>
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<td>11:00 - 12:00</td>
<td>Plenary discussion</td>
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<td>12:00 - 12:45</td>
<td>Conforming working groups</td>
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<tr>
<td>12:45 - 14:15</td>
<td>Lunch</td>
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<tr>
<td>14:15 - 17:30</td>
<td>Defining pilot activities for the FA1</td>
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<td>14:15 - 14:25</td>
<td>Introduction to pilot's concept</td>
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<td>14:25 - 14:40</td>
<td>Pilot 1 (ILRI)</td>
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<td>14:40 - 14:55</td>
<td>Pilot 2 (TNC-CIPAV)</td>
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<tr>
<td>14:55 - 15:10</td>
<td>Pilot 3 (NOVUS)</td>
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<td>15:10 - 15:35</td>
<td>Coffee break</td>
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<tr>
<td>15:35 - 15:50</td>
<td>Pilot 4 (INRA-PHASE)</td>
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<td>15:50 - 16:05</td>
<td>Pilot 5 (PBLEX)</td>
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<tr>
<td>15:50 - 16:05</td>
<td>Pilot 6 (ATB)</td>
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<tr>
<td>16:05 - 17:30</td>
<td>Linking pilots to FA1 - plenary discussion</td>
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#### Thurs, March 20

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<th>Time</th>
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<tr>
<td>9:00 - 10:30</td>
<td>Developing a business plan for the FA1</td>
</tr>
<tr>
<td>10:30 - 11:00</td>
<td>Coffee break</td>
</tr>
<tr>
<td>11:00 - 11:45</td>
<td>Scope and focus of the FA1</td>
</tr>
<tr>
<td>11:45 - 12:15</td>
<td>Main outcomes and next steps</td>
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</tbody>
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