

**An International Consultation on Integrated Crop-Livestock
Systems for Development - *The Way Forward for Sustainable
Production Intensification***

**Technical Workshop, Sete Lagaos, Minas Gerais, Brazil
23 to 26 March 2010**

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OVERVIEW OF THE WORKSHOP

[Technical Background is provided in the Annex]

Rationale and Purpose

There are already over 1 billion (about 15% of the human population) people hungry and living in poverty, and 75% of them as well as other less poor but vulnerable people live in rural areas and depend on farming for their livelihoods, with the majority relying on small scale crop-livestock systems, including those that are integrated with long haul pastoral systems. Food (primary and secondary), feed, fibre and fuel needs must be met from agriculture of a still expanding population that is expected to grow from the current 6.7 billion to some 9.2 billion by 2050 while available land for expansion of agriculture will become economically and environmentally unattractive. To meet the food needs of the population in 2050, production will have to expand by 70% compared to what it was in 2000. It is expected that 90% of the expansion will be through production intensification (i.e., increase in output per unit area), and 10% will be from area expansion mainly in Sub-Saharan Africa and Latin America. At the same time there is a shift to increased consumption of meat and livestock products as living conditions of people improve, increasing additionally the stress on the agricultural resource base. For this reason the environmental footprint of crop as well as of livestock production has to be reduced to improve sustainability. This poses both a development challenge as well as opportunities for livestock producers in crop-livestock systems to contribute to both overall food security and alleviation of their poverty as well as of non-agricultural rural population due to increasing employment opportunities in the input supply and output value chains.

Objectives

Several of FAO's development partners have had recent intra-institutional consultations with primary focus on identification of priorities for research and the tactics to optimize their research processes with respect to the development of integrated crop-livestock production systems. This consultation process (both electronic and face-to-face) will build on these and other major stock-takings by pulling together ideas with a view to:

- (a) assess what do we know about integrated crop-livestock systems for development, including where they are working or not working, and what can be done to harness the potentials of successful integrated crop-livestock systems for development through sustainable production intensification;
- (b) define next steps for key stakeholders, and especially for the Agriculture Department and Consumer Protection Department of the FAO and its national and international collaborators; and
- (c) guide and empower FAO to better support member countries to harness the development potential of integrated crop and livestock systems as one important entry-point for sustainable agriculture intensification for poverty alleviation and environmental stewardship.

While many of the issues to be addressed are relevant for all types and scales of agriculture and food systems, the principle focus will be on the needs and opportunities for family-farmers (small and medium-scale land holders) and the associated community and watershed-level development. The use of the concept of *integration* for the consultation will not be restricted to only on-farm integration; it will endorse also the concepts of area-wide input supply and output value chains and outcome oriented multi-stakeholder innovation systems. In this context it is intended that the appraisal of an *innovation and the associated innovation system* also reflect on the issues related to the linking to the commercial and corporate sector (local, regional, and global) in order to strengthen the role of input supply and output value chain markets and the service providers while taking into consideration environmental and human health issues.

Agenda

The Workshop Agenda comprises a 4-day meeting (23-26 March 2010) in the form of a stakeholder Technical Workshop. The first half day will be spent setting the context. The following one and half days will be spent in three working groups examining the field evidence or ‘proof of concept’ from the developing regions – Latin America, Asia and Africa, as well as elsewhere to the extent that this may be relevant -- of successful integrated crop-livestock systems for both crop intensification and sustainability, and the relevant features they have in common which are favourable for scaling. Cases of integrated crop-livestock systems from each region will be discussed covering different agro-ecologic and socio-economic settings, each illustrating the basic principles and practices leading sustainable agricultural intensification.

Each of the three working groups (with a global perspective, plus one region each – Latin America, Asia and Africa) will cover the same agenda comprising of the four topics discussed during the electronic consultation, namely:

1. **Promising integrated crop-livestock systems and innovations that merit mainstreaming and scaling, and the tactics for implementation** (including: technical designs of integrated systems and their economical, environmental and social dimensions; functional biomass production for multiple use; Farmer Field Schools, Farmers Clubs, Cooperatives, Associations etc for participatory farmer learning and adoption, and for economies of scale and competitiveness; knowledge services and communication needs, common resource management issues etc).
2. **Input and output market linkage development for promising crop-livestock systems and associated input and output supply chain processes and public-private service providers for different production systems and diverse markets** (including: constraints and opportunities in input supply chains covering production inputs of seeds, agro-chemicals, farm power, equipment and machinery, veterinary services, advisory and innovation systems on good farming practices, marketing infrastructure and organization forms etc; constraints and opportunities in output supply chains covering animals for meat, milk and other dairy products, hides and skins from cattle and small ruminants, and meat and eggs from poultry, and meat from pigs; and opportunities for processing in integrated production systems etc).
3. **Political will, and policy and institutional support for the adoption and enabling the spread of innovations and practices associated with promising crop-livestock systems for food and nutritional security** (including: sector policies, goals and strategies; strategic planning; enabling environment including infrastructure, credit, marketing, insurance, land tenure etc; tactics for action, incentives, regulations, strategic directions for change in extensive and intensive crop-pasture-livestock systems etc).
4. **Research needed to generate knowledge and innovative practices to underpin farmer adoption and scaling of promising crop-livestock systems for sustainable production intensification** (including: technical, biological, nutritional, landscape, economic, environmental and social dimensions of integrated systems and practices; on-farm and area-wide integration of crop-livestock systems; functional biomass production and prioritization of its multiple role and use; feed and nutritional formulations; animal health management; effective innovations systems and processes; linking research result to policymaking etc).

In addition to the topic-specific core issues and their interactions, the following two cross-cutting themes will also be addressed:

- (i) **Roles of stakeholders** (public sector, private sector, civil Society -- NGOs and parliamentarians, international research and development institutions, including the FAO, donors, etc.); and

- (ii) (ii) Capturing public goods and incentives for action** (payment for environmental services, special market access based on adoption of good practices – including food safety and quality, global awards to private sector and civil society champions, etc).

The outcome of this examination will be the identification of principles, opportunities and issues and the way forward for stakeholders and FAO as defined in the objectives. The overall outcome of the Workshop will be the elements of an Action Plan including a statement on the next steps.

Venue and Attendance

The Workshop will be held in Sete Lagoas, Minas Gerais, Brazil, from 23 to 26 March 2010 co-organized by FAO, Embrapa, IICA and IFAD, and will include one full day field trip to see innovative action on integrated crop-livestock systems in central or southern Brazil. The only language for documents will be English. There will be no translation

About 60 public, private and civil sector stakeholders across the above four themes, and who have influence, commitment and capacity to make a difference, have been invited. The interests of a number of stakeholders cut across more than one topic.

Workshop Agenda and Timetable

23-26 March 2010, Sete Lagoas, Minas Gerais, Brazil

Monday, 22 March Arrival at Belo Horizonte International Airport and transport to local hotels

Day 1: 23 March 2010 (Tuesday)
BLOCK I
Welcome and Context Setting

- 08:00-08:30 Transport from hotels to Embrapa Conference Centre
- 08:30-09:00 Confirmation of registration and distribution of conference packages
- 09:00-10:00 **Session I: Welcome and background**
Session Chair: Tatiana Deane de Abreu Sá, Executive Director, Embrapa
- i. Welcome: **Speaker -- Tatiana Deane de Abreu Sá, Embrapa & Jamil, Macedo, Executive Secretary, IICA-Procitropicos**
 - ii. Background to the Workshop; Objectives of the Workshop, Process & Agenda, Expected Outcome: **Speaker – Eric Kueneman, Deputy Director, AGP, FAO**
 - iii. Facilities, logistics and arrangements – **Jose Heitor, Embrapa Maize and Sorghum**
- 10:00-11:15 **Session II: Setting the context**
Session Chair: Jamil Macedo, IICA
 Roundtable session: Global perspectives on Integrated Crop-Livestock Systems
 Roundtable: Shirley Tarawali, Bruno Gerard, Olaf Thieme, AK Misra, Hassan Mohammed Nur, Ali Nefazaoui, Judson Ferreira Valentim (**facilitated by Doyle Baker**)
Rapporteurs: Susan Minai & Gerardo Martha (tbc)
- 11:15-11:30 *Coffee Break*
- 11:30-12:30 **Session II (Cont.): Setting the context**
- (i) Outcome of the electronic consultation: **Amir Kassam (20 min)**
 - (ii) Facilitated discussion – Facilitator **Constance Neely**
- Rapporteurs: Paulo Roberto Galerani & Minh-Long Nguyen (tbc)**
- 12:30-13:00 **Session III: Working Group process**
Session Chair: Amir Kassam -- Explanation of the objectives and arrangements of the three parallel Working Group sessions
Presenters – Constance Neely and Theodor Friedrich
- 13:00-14:00 *Lunch break*

Day 1: 23 March 2010 (Tuesday)**BLOCK II**

Three Working Groups each tackling four topics: (1) Promising integrated crop-livestock systems for scaling and tactics for implementation; (2) Input and output market linkage development; (3) Policy and institutional support for adoption and spread; (4) Research & science needed to generate knowledge and practices

14:00-15:30 **Session IV: Three Parallel Working Groups** (all with global responsibility)
Participants: public, private and civil society stakeholders generalised/mixed across four prime topics

Notes: Each working group to discuss all four topics with a focus on:

- i. Principles, issues (including cross-cutting) & gaps
- ii. Needs and opportunities for investment (nature of needs, providers of opportunities, investors in the opportunities)
- iii. Cross-sector 'knowledge brokering'—local, national, regional, global
- iv. Expressions of interest/commitments to an Action Plan (including next steps)

Working Group 1:

Co-Conveners: Bruno Gerard & Paulo Cesar Faccio de Carvalho (tbc)

Rapporteurs: Irela Mazar & K.S. Ramachandra (tbc)

Working Group 2:

Co-Conveners: Mohammad Ibrahim & Markus Ascher (tbc)

Rapporteurs: Tito Diaz & Mohamed HamaGarba (tbc)

Working Group 3:

Co-Conveners: Judson Ferreira Valentim & Ali Nefzaoui (tbc)

Rapporteurs: Mangi Lal Jat & Hassan Mohammed Nur (tbc)

15:30-16:00 *Coffee break*

16:00-17:30 **Session IV (cont.):** Three Parallel Working Groups (begin drafting of main points)

17:30-18:00 Transport from Embrapa Conference Centre to hotels

Dinner

19:30-20:00 Transport from Hotels to Restaurant

20:00-22:00 Dinner & Speech (**Kepler Euclides Filho**, Executive Director of Embrapa; Vote of appreciation by **Eric Kueneman**, FAO)

22:00-22:30 Transport from restaurant to hotels

Day 2: 24 March 2010 (Wednesday)**BLOCK II (cont.)**

Three Working Groups each tackling four topics: (1) Promising integrated crop-livestock systems for scaling and tactics for implementation; (2) Input and output market linkage development; (3) Policy and institutional support for adoption and spread; (4) Research & science needed to generate knowledge and practices

- 08:00-0830 Transport from hotels to Embrapa Conference Centre
- 08:30-10:30 **Session V: Chairs: Amir Kassam & Kepler Euclides Filho**
Presentation and plenary discussion of reports of Working Groups (20 min for each report and then 60 min for looking across groups)
- v. Principles, issues (including cross-cutting) & gaps
 - vi. Needs and opportunities for investment (nature of needs, providers of opportunities, investors in the opportunities)
 - vii. Cross-sector 'knowledge brokering'—local, national, regional, global
 - viii. Expressions of interest/commitments to an Action Plan (including next steps)
- 10:30-11:00 *Coffee break and poster display*
- 11:00-13:00 **Session VI:** Parallel Working Group sessions continue as above (including preparing draft reports)
- 13:00-14:00 *Lunch and poster display*
- 14:00-15:30 **Session VI (cont.):** Parallel Working Group sessions continue as above (including preparing draft reports)
- 15:30-16:00 *Coffee break and poster display*
- 16:00-18:00 **Session VII: Chairs: Theodor Friedrich & Geraldo Martha**
Presentation and plenary discussion of initial reports of Working Groups (i. – iv. as in Session V) (20 min for each report and then 60 min for looking across groups)
- 18:00-18:30 Transport from Embrapa Conference Centre
- Notes:**
- a. Participants in each mixed Working Group: by common interest and/or specialisation in specific topics
 - b. Each Working Group to review: how can each of the four primary topics, as represented by that Working Group, contribute to the Action Plan (including next steps)?
 - c. Action Plan Drafting Team to draft elements of the Action Plan in light of the presentations on Day 1 (am) and Working Groups' presentations on Day 1 (pm) & Day 2 (to work after hours and on Day 3) (**Drafting Team Coordinator: Constance Neely, with inputs from Working Group Co-Conveners and Rapporteurs**)

Day 3: 25 March 2010 (Thursday)**BLOCK III
Field Trip**

- 07:30 – 08:00 Transport from hotels to Site 1
- 08:00 – 09:00 Visit and discussion at Site 1
- 09:00 – 10:30 Transport from Site 1 to Site 2
- 10:30 – 11:30 Visit and discussion at Site 2
- 11:30 – 11:45 *Coffee Break*
- 11:45 – 12:00 Transportation to Site 3
- 12:00 – 13:00 Visit and discussion at Site 3
- 13:00 – 13:30 Transport to Restaurant
- 13:30 – 15:30 *Lunch*
- 15:30 – 17:00 Transport from Restaurant to Hotels

Day 4: 26 March 2010 (Friday)**BLOCK IV****Three Working Groups to Discuss the draft Elements of the Action Plan, and Adoption of the Elements in Plenary**

- 08:00 – 08:30 Transport from hotels to Embrapa Maize and Sorghum
- 08:30 – 09:00 Welcome remarks by **Vera Maria Carvalho Alves**, Center Director
- 09:00 – 11:00 Visit Embrapa Maize and Sorghum labs and field display
- 10:30-11:00 *Coffee*
- 11:00-13:00 **Session VIII: Chairs: Eric Kueneman & Judson Valentim**
 a. Plenary presentation of first draft of the elements of the Action Plan:
Presenter: Constance Neely - Drafting team convenor
 b. Discussion
- 13:00-14:00 *Lunch (Drafting committee to finalise the draft elements of Action Plan)*
- 14:00-15:00 **Session VIII (Cont.): Chairs: Eric Kueneman & Judson Valentim**
 Adoption of the draft elements of Action Plan
- 15:00-15:30 **Session IX: Chair Eric Kueneman**
 Wrap up and closure: Co-Organizers – Embrapa, IICA, IFAD & FAO

Departure for those who have to leave in the evening

Saturday – 27 March, Departure

Transport from Sete Lagoas to Belo Horizonte International Airports for various times of departure.

Possible arrangements for nearby touristic visits, depending on flight departure time.

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Annex

An International Consultation on Integrated Crop-Livestock Systems for Development - The Way Forward for Sustainable Production Intensification

(Co-organized by the Agriculture & Consumer Protection Department of FAO
in collaboration with Embrapa, IICA and IFAD)

CONTEXT

After years of neglect, crises responses to agriculture and food related issues are taking a significant part of the “centre stage” of the global development agenda. The drivers are well articulated in recent major studies¹. Below are some of the key areas of concern.

There are already over 1 billion (about 15% of the human population) people hungry and living in poverty, and 75% of them as well as other less poor but vulnerable people live in rural areas and depend on farming for their livelihoods, with the majority relying on small scale crop-livestock systems. Food (primary and secondary), feed, fibre and fuel needs must be met from agriculture of a still expanding population that is expected to grow from the current 6.7 billion to some 9.2 billion by 2050 while available land² for expansion of agriculture will become economically and environmentally unattractive. To meet the food needs of the population in 2050, production will have to expand by 70% compared to what it was in 2000. It is expected that 90% of the expansion will be through production intensification (i.e., increase in output per unit area), and 10% will be from area expansion mainly in Sub-Saharan Africa and Latin America. At the same time there is a shift to increased consumption of meat and livestock products as living conditions of people improve, increasing additionally the stress on the agricultural resource base. For this reason the environmental footprint of crop as well as of livestock production has to be reduced to improve sustainability. This poses both a development challenge as well as opportunities for livestock producers in crop-livestock systems to contribute to both overall food security and alleviation of their poverty as well as of non-agricultural rural population due to increasing employment opportunities in the input supply and output value chains.

Demand for livestock food products – red and white meat, dairy products, eggs -- are expected to grow significantly, thus offering opportunities for income and employment generation for the small-scale producers in crop-livestock systems as well as from the specialised producers, both small and large intensive and extensive systems, of livestock products. And in addition, the conversion of land from agriculture into many alternate uses (e.g., urbanization on productive soils) will continue to reduce production potential. Clearly food security, food safety and quality challenges are increasing, as is the growing awareness of needs for effective education on diet and lifestyle changes related to health. Human, livestock and plant health issues and their interactions are of increasing concern globally, especially the cross-infections between humans and major livestock populations and the transborder movements of such infections. Environmental issues such as climate change with greenhouse gas emissions being both increased by several agricultural activities. On the other hand it is increasingly becoming better appreciated by the general public as well as by the producers that selected agricultural practices can greatly increase productivity and incomes while simultaneously reducing the impact of climate change-related economic, social and environmental effects, for example, minimising mechanical soil disturbance

¹ Bruinsma, J. (2009). The Resource Outlook to 2020: By how much do land, water and crop yields need to increase by 2050. Paper presented at the Expert Meeting on How to Feed the World in 2050. June 2009, FAO, Rome.

² The planet also has large areas of degraded lands in some regions that could be recovered for sustainable intensification if there were the political-will to confront the landowners and to make the infrastructure and capacity building investments required.

and increasing soil organic matter helps reduce effects of dry periods on crop productivity and farm output. Similarly, it is possible to increase biomass in quantity and quality, and thereby increase livestock output in small-scale integrated systems, with crop diversification involving high biomass producing legumes that also improve soil productive capacity. Further, these practices are suitable for rehabilitating degraded lands. What is not so obvious is how can applications of such better practices, often more knowledge-intensive, be scaled-up?

The list of development issues and opportunities goes on. Clearly, the need for introduction, adaptation and implementation of good farming practices with associated enabling environments and to address environmental and health issues linked to agriculture has never been greater due to the sheer scale of livestock related agriculture that will be required to maintain local and international food security and livelihoods in sustainable ways. Intensification of crop and livestock production, in smallholder crop-livestock systems as well as in other intensive or extensive systems, is essential to mitigate human suffering and providing time for needed social and economic changes. Harnessing the potential of well-integrated crop and livestock systems at various levels of scale (on-farm and area-wide), and that often have agro-forestry and forestry inputs, is one of the powerful entry points to address such needs, issues and opportunities. The integration of crop and livestock production systems increases the diversity, along with environmental sustainability, of both sectors. At the same time it provides opportunities for increasing overall production and economics of farming. This would reduce the preference for specialized livestock production systems, in view of their problems with environmental and economic sustainability.

GOAL AND SCOPE

Several of FAO's development partners, such as ILRI and Embrapa have had recent intra-institutional consultations with primary focus on identification of priorities for research and the tactics to optimize their research processes with respect to the development of integrated crop-livestock production systems. This consultation process (both electronic and face-to-face) will build on these and other major stock-takings by pulling together ideas with a view to:

- (a) assess what do we know about integrated crop-livestock systems for development including where they are working or not working, and what can be done to harness their potentials for development through sustainable production intensification;
- (b) define next steps for key stakeholders, and especially for the Agriculture Department and Consumer Protection Department³ of the FAO and its national and international collaborators (e.g., IFAD, IICA, ICRAF); and
- (c) guide and empower FAO to better support member countries to harness the development potential of integrated crop and livestock systems as one important entry-point for sustainable agriculture intensification for poverty alleviation and environmental stewardship.

While many of the issues to be addressed are relevant for all types and scales of agriculture and food systems, the principle focus will be on the needs and opportunities for family-farmers (small and medium-scale land holders) and the associated community and watershed-level development. The use of the concept of *integration*⁴ for the consultation will not be restricted to only on-farm

³ The Agriculture Department of FAO seeks to define its role and clarify the tactics to help its member countries harness the potential of old and new approaches to integrated production systems. The AG Department is comprised of 5 divisions: Plant Production and Protection; Animal Production and Health; Rural Infrastructure and Agro-Industries; Nutrition and Consumer Protection; Joint FAO/IAEA Division for Application of Nuclear Technologies in Agriculture and Food.

⁴ *Integration* will be considered both in the context of *horizontal integration* (e.g. crops and livestock optimization together) or *vertical integration* of a subcomponent such as horticulture crops where value chain from production to post harvest handling, to processing, to the market and the consumer.

integration; it will also include “area-wide” integration of crops and livestock with input supply and output value chains⁵ (beyond the farm) towards outcome oriented multi-stakeholder innovation systems. In this context it is intended that the appraisal of an *innovation and the associated innovation system* also reflect on the issues related to linking the public and private sectors (local, regional, and global) in order to strengthen the role of input supply and output value chain markets and the service providers while taking into consideration environmental and human health issues.

Output value chains under consideration will include: Animals for meat, milk and other dairy products, hides and skins from cattle and small ruminants, and meat and eggs from poultry, and meat from pigs etc, and respective processing and linkages to markets.

Input supply chains will include: Production inputs of seeds, agro-chemicals, farm power, equipment and machinery, veterinary services, advisory and innovation systems on good farming practices etc, and the organization and infrastructural connection to the farm producers.

Crops for biomass and grain include: Pasture and range species; cereals, grain and oil-seed legumes, fibres, horticulture crops and perennial industrial crops such as oil palm, coffee, cacao, coconut etc, and their primary processing of products and by products.

Agro-ecologies include: Agroecosystems in the tropics, subtropics (summer rainfall and winter rainfall) and temperate areas in the developing regions of the world.

The consultation will address, when appropriate the related issues in the context of promoting integrated systems such as (see also thematic groups in the next section):

- multiple demands of crops and their biomass, and soil and crop health related functions of rotations, associations and organic matter, and landscape level integration as well as animal health and nutrition as functions of the production system;
- how to scale-out? (merit of participatory approaches to foster farmers’ interaction and learning, such as the farmer field school, farmers clubs and other approaches including structured extension in contract farming);
- demand and market driven and/or environment and health driven coupled to ensuring smallholder farm-level demand (linking to supply and output markets and services);
- infrastructure, incentives, credit, land tenure and insurance (policy and institutional support).

NATURE AND STRUCTURE OF THE CONSULTATION

The consultation process will comprise a wide electronic discussion during February 2010, followed by a small 4-day face-to-face workshop in Sete Lagoas, Minas Gerais, Brazil, from 23 to 26 March 2010 co-organized by FAO, Embrapa, IICA and IFAD, and will include one full day field trip to see innovative action on integrated crop-livestock systems in central or southern Brazil. The only language for documents will be English. There will be no translation.

There will be four thematic areas for discussion at the face-to-face consultation. Each thematic area will be covered by a working group across a range of types (on-farm and area-wide) and scales of crop-livestock integration for sustainable production intensification in different agroecologies. The four complementary and inter-connected thematic areas will address:

5. **Promising integrated crop-livestock systems and innovations that merit mainstreaming and scaling, and the tactics for implementation** (including: technical designs of integrated systems and their economical, environmental and social dimensions; functional biomass production for multiple use; Farmer Field Schools, Farmers Clubs, Cooperatives, Associations

⁵ The recent (May 2009) ILRI consultation on research for Sustainable intensification of crop-livestock systems at ILRI chose to characterize the crop-livestock integration as a sub-system of larger value chains, presumably both for the crops and for livestock. The success of the value chain and the sub-components (integrated systems) would be based on productivity, economic benefits to stakeholders, sustainability and its resilience.

etc for participatory farmer learning and adoption, and for economies of scale and competitiveness; knowledge services and communication needs, common resource management issues etc).

6. **Input and output market linkage development for promising crop-livestock systems and associated input and output supply chain processes and public-private service providers for different production systems and diverse markets** (including: constraints and opportunities in input supply chains covering production inputs of seeds, agro-chemicals, farm power, equipment and machinery, veterinary services, advisory and innovation systems on good farming practices, marketing infrastructure and organization forms etc; constraints and opportunities in output supply chains covering animals for meat, milk and other dairy products, hides and skins from cattle and small ruminants, and meat and eggs from poultry, and meat from pigs; and opportunities for processing in integrated production systems etc).
7. **Political will, and policy and institutional support for the adoption and enabling the spread of innovations and practices associated with promising crop-livestock systems for food and nutritional security** (including: sector policies, goals and strategies; strategic planning; enabling environment - infrastructure/credit/marketing/insurance/land tenure etc; tactics for action, incentives, regulations, strategic directions for change in extensive and intensive crop-pasture-livestock systems etc).
8. **Research needed to generate knowledge and innovative practices to underpin farmer adoption and scaling of promising crop-livestock systems for sustainable production intensification** (including: technical, biological, nutritional, landscape, economic, environmental and social dimensions of integrated systems and practices; on-farm and area-wide integration of crop-livestock systems; functional biomass production and prioritization of its multiple role and use; feed and nutritional formulations; animal health management; effective innovations systems and processes; linking research result to policymaking etc).

The above four interlinked themes will address, in addition to the topic-specific core issues and their interactions, the following two cross-cutting themes:

- (i) **Roles of stakeholders** (public sector, private sector, civil Society -- NGOs and parliamentarians, international research and development institutions, including the FAO, donors, etc.); and
- (ii) **Capturing public goods and incentives for action** (payment for environmental services, special market access based on adoption of good practices – including food safety and quality, global awards to private sector and civil society champions, etc).

The output from the electronic discussion in February will feed into the working group discussions at the face-to-face workshop in Brazil in March. The number of total participants for the face-to-face workshop will be limited to some 60 individuals, and will include experts from FAO and Brazil/Embrapa, CGIAR, regional and sub-regional organizations, developing and developed countries, and selected donors such as World Bank, AfDB, IFAD, IICA, Gates Foundations as well as private sector (e.g., Bunge, Yara) and NGOs (e.g., WWF, Heifer International) etc.

EXPECTED RESULTS/OUTPUTS

The consultation will formulate recommendations and the supporting rationale to foster government awareness and support, stakeholder action and international cooperation.

The outputs of the working groups (electronic and face-to-face) and plenary discussions will be organised to generate the elements of a Framework for Action (including consolidated recommendations) which will be the main output from the consultation.

The Framework elements will focus on the Role of Crop-Livestock Integration in Sustainable Agricultural Intensification for Development. The consultation will propose a mechanism for follow-up action to be facilitated by FAO in collaboration with partners and stakeholders.