



CGIAR Systemwide Livestock Programme

Developing feed...Feeding development

**In this Newsletter:** What Bruno, Lieven and Diego did in India with Meera, Nils, Braja & Arindam (SAs team)? **Field, village survey, models, scenarios** and **household survey!**



## 1. Field: searching for a common language...



Inputs: fertilisers and pesticides

Looking at the green and large rice fields in north of Delhi, you can hardly find similarities with most of the (SLP) farming systems in Africa... Green revolution supported by input and output subsidies, irrigation, transport, extension services, population density, existence of off farm jobs and an export market (among others) have allowed farmers to produce between two and three crops per year (rice and wheat), feed a couple of buffalos for milk and butter, and send kids to school. But wasn't India like many of the farming systems in Africa some decades ago? Wasn't Europe like India also some generations back? These are some of the questions raised during the fieldtrip to India. These are the questions we would also like to address in the coming months...



Green rice fields



Mechanisation: chopping CR



Technology: biogas production



Leisure and integration



Market: milk and rice

## 2. Village survey: what next?

Village surveys and census lists in Zimbabwe, SAs and EA have been completed. The data of these surveys will be used to look at general differences and similarities between different regions in terms of their socio-economic context, agricultural sector and crop residue management practices. This analysis will be based on:

- A brief questionnaire or template will be sent to start characterising and comparing different regions.
- Explorative analyses (SPSS) will be carried out in the data already entered.
- Based on this, syntax (SPSS) will be created to run descriptive analyses with the data of all regions.



Crop residue transport

## 4. Scenarios: link to hh surveys

The 3<sup>rd</sup> research question of the project is: “What are the technology, institutional and policy options that would enhance livelihood and environmental benefits?” To achieve this, scenarios can be developed. The idea is to develop such scenarios during the **SLP meeting** and to include relevant questions in the hh survey in order to build and model more robust (regional) scenarios.

## 3. Models: data requirements

Four different modelling approaches were discussed:

- **S-FIELDSIM**: a mathematical model that combine crop production and soil characteristics at a field/plot level.
- **LIVESIM**: a livestock model that simulate changes in the herd structure and animal production of a farm
- **MD-TOA**: a model that compares adoption rates (farmer population) of a new technology using costs, prices and yield.
- **S-NUTMON**: a crop-livestock model that calculates the C balances at a farm or farm group level.

The main objective of using these models is to understand the consequences of different crop residue management on production, soil characteristics & farmers' income/adoption of new practices.

To run these models, biophysical, socio-economic and managerial variables for crops, crop residues and livestock are needed, including crops, yields, uses of crop residues and manure, herd structure and feeding schemes among others.



Manure application

---

## 5. Household survey: a step forward!

To gather efficiently the required data, we need to design and test the hh survey based on: *the gaps of the village survey*, *model requirements* and *potential regional scenarios*. The first two items have largely been identified, allowing us to start designing the survey. The last item will be carried out during the **SLP meeting**, which **has been delayed until December** (no common date to meet in October/November and need for extra time to test the hh survey in the field. *Continue next page...*



Milk transport



Informal talk with farmers

Related to the structure and sampling strategy of the hh survey, we agreed on several points:

- **No landless:** people who don't manage land won't be considered in the survey. Still, their role in CR purchase won't be overlooked.
- **Sampling based on distributions:** instead of using farm types, distributions on farm size and/or herd size will be used to select hh from the census lists. Still, we need to test what would be the consequences for the sampling.
- **Number of hh per village to be tested:** using 20 hh per village assumes that this is a representative sample of the whole population, which might not be the case in villages with large number of hh. We need to test this assumption.
- **Centralized database:** to facilitate data entering and sharing, alternatives to use centralized databases will be studied.
- **Household survey structure:** based on our discussions, we created a general structure of the hh survey (see below). This structure will be further elaborated and send it to you for feedback.

### Household survey structure

- 1. Household structure** (members and labour in/off farm).
- 2. Assets** (land, livestock, etc), **credit & market access.**
  - a. Land size (irrigation)
  - b. Herd structure (ownership, type and number)
  - c. Type of house (roof and walls)
  - d. Wealth indicators (transport, mobile, etc) – Region specific.
- 3. Food consumption patterns**
  - e. Cereals, milk, oil and sugar.
  - f. Food scarcity (how???)
  - g. Net food status (different food items)
- 4. Crops**

**Management unit:** plot, toposoil

  - h. Resource map (linked with qualitative data)
  - i. Ownership
  - j. Management unit quality
  - k. Management: (take into account keeping the same level plot, crop vs. farm!)
    - i. Fertilisers
    - ii. Manure (distribution?)
    - iii. CR (previous crop)
    - iv. Land preparation (tillage, etc)
    - v. Crop variety
    - vi. Amount seeds
    - vii. Pesticides
    - viii. Irrigation
    - ix. Labour needs

Harvesting technology

**Farm level**

  - l. Uses main product (self consumption, selling, giving away, paying in kind, seed, storage, community use, animal feeding).
  - m. Information access (technologies): based on village survey!
    - i. List of technologies
    - ii. Sources (family/friends, extension, university, private co).

### 5. Crop Residues (linked to resource flow map? Or best & worst plot?):

- n. Allocation/management (storage, processing)
- o. Sales (amounts, prices, timing selling/buying)
- p. Reasons of allocation/management
- q. History (specific dates, why)
- r. Perceptions (opportunities and new technologies)
- s. Technical information access
  - i. List of technologies (mulching, chemical treatment)
  - ii. Sources (family/friends, extension, university, private co)

### 6. Livestock: (all livestock types? All age stages?)

- t. Herd dynamics
  - i. Born
  - ii. Dead
  - iii. Sell
  - iv. Buy
  - v. Eaten
  - vi. Use
- u. Ownership (in/out farm; and operational holding)
- v. Inputs (feed, feeding calendar, water access, services (health, AI), labour needs-different activities).
- w. Outputs (animal traction, milk, milk allocation, dung, dung allocation).
- x. Perceptions:
  - i. Feed
  - ii. Milk
  - iii. Herd sizes
  - iv. Uses (income, liquidity, savings, risk, etc)
- y. Technical information access.

### 7. Future changes: general perception: time horizons, livelihood developments and environmental changes.

### 8. Income & expenditure

### Some important dates for 2010

- |  |                |
|--|----------------|
| - Extended draft hh survey:                    | <b>01/Oct</b>  |
| - Test sampling strategy hh survey:            | <b>15/Oct</b>  |
| - Create and run SPSS syntax:                  | <b>15/Oct.</b> |
| - Create template sites comparison:            | <b>22/Oct.</b> |
| - Template sites filled in:                    | <b>29/Oct.</b> |
| - Version to be tested hh survey in the field. | <b>29/Oct.</b> |

- |  |                |
|--|----------------|
| - Trade-Off Analysis meeting Nairobi.                  | <b>04/Nov.</b> |
| - hh survey tested in each site                        | <b>26/Nov.</b> |
| - <b>SLP meeting</b> (Bruno will suggest again a date) | <b>Dec.</b>    |

### Some important dates for 2011

- |                     |                |
|---------------------|----------------|
| - Start hh surveys  | <b>01/Jan.</b> |
| - End of hh surveys | <b>15/Apr.</b> |