



CGIAR Systemwide Livestock Programme

Developing feed...Feeding development

Why a Newsletter?

The aim of this (bi)monthly newsletter is to give an informal overview on the current progress of the whole project and on the coming activities. To keep it updated, we might ask you for specific information on the progress of each study region.



What about the village survey?

The village surveys are being carried out at different paces among regions. The South Africa team has finished the surveys in Zimbabwe (see page 2) and is waiting for the household survey to carry out both surveys in Mozambique and Malawi. The East Africa team has moved forwards, making pilot surveys in Ethiopia and planning them in Kenya. The South Asia team has almost finished all the village census and surveys. The West Africa team is in time break so we don't know much about them...

Team positions

Team	SC	SS	SV	Pts
South Asia	1	3	9	13
South Africa	1	1	8	10
East Africa	1	1	2	4
West Africa	0	0	0	0

SC = surveyed countries; SS = surveyed sites;
SV = surveyed villages

Some computer tools

For the second phase of the project (the impact of farmers' decisions on livelihood and environmental implications), we have been looking at different computer modelling tools that can support our research. Two main tools have been discussed:

NUANCES-FARMSIM is a modelling framework that integrates the different components of African smallholder farm systems, including crop, soil, livestock, crop residue, labour resources and decision-making¹. We are collaborating with Mariana Rufino (soon working at ILRI) and Mark van Wijk from Wageningen University to implement NF in our project.

Trade-Off Analysis Minimum Data approach is a modelling framework to analyse agriculture-environment policy interactions combining both the biophysical environment and the economic behaviour of farmers². We are collaborating with Lieven Claessens (CIP-Nairobi) to use this model in the project.

Additional thoughts:

- The SPSS form to fill in the village survey data is almost ready.
- We are trying to use spatial data (Google Earth images) in the village surveys in Ethiopia and Kenya to test whether we could have spatial data of those regions (e.g. land-use/cover and common land).
- We are thinking about the possibility to include some variables related to farmers' perceptions in the household surveys (see ^{3, 4}).
- We are planning to have a workshop somewhere in October (Bruno will send an e-mail) to discuss the villages surveys and to develop the final version of the household survey. Preliminary household surveys will be sent around in July and August.
- Bruno and Diego are planning to go to Kenya in August and India in September to visit some of the study areas

Bibliography

1. van Wijk MT, Tittonell P, Rufino MC, et al. Identifying key entry-points for strategic management of smallholder farming systems in sub-Saharan Africa using the dynamic farm-scale simulation model NUANCES-FARMSIM. *Agricultural Systems*. 2009;102(1-3):89-101.
2. Antle JM. Modelling the supply of ecosystem services from agriculture: a minimum-data approach. *Australian Journal of Agricultural and Resource Economics*. 2006;50(1):1-15.
3. Ezra D, Berkhout; Robert A. Schipper; Arie Kuyvenhoven; Ousmane Coulibaly. Does heterogeneity in goals and preferences affect efficiency? A case study of farm households in northern Nigeria. *Agricultural Economics*. 2010;41(3-4):265-273.
4. Mekoya A, Oosting SJ, Fernandez-Rivera S, der Zijpp AJ. Multipurpose fodder trees in the Ethiopian highlands: Farmers' preference and relationship of indigenous knowledge of feed value with laboratory indicators. *Agricultural Systems*. 2008;96(1-3):184-194.

Experiences from Zimbabwe: the Nkayi district

1. Study area

Nkayi is a mixed crop livestock farming system. Crop production is mainly rainfed. Most farmers have fields of 2-4 ha, with maize, millet, sorghum and legumes as the main crops. There are a few small-scale group irrigation schemes. Livestock production is practiced by over 70% of the households, who have on average 4-6 cattle, providing draft power, milk and cash income. Other important livestock are goats, donkeys and poultry. Nkayi district was selected because of relatively high human population density (30-40 people km⁻²) in these semi-arid areas (450-650 mm year⁻¹) and an emerging intensification in the use of crop residues.



Group discussion at a village in Nkayi.



Cattle grazing crop residues immediately after harvest.

2. Survey

The study was implemented in eight villages, in close and far distances along two major roads to capture the diversity in the area. Around 10 farmers of different wealth groups and gender were invited to participate. The main points of discussion were to characterize the villages in terms of land use and livestock assets, crop residue utilization and trends, livestock production and trends, market integration and income composition. A number of key village indicators were collected after the discussion, and village lists were left with the local extension officers to verify the data.

3. Preliminary results

Cattle enter the fields just after harvest and seem to prefer the residues even though the rangelands were still in good conditions. Farmers set aside some crop residues for later feeding during the dry season, when they would add salty water to improve palatability. Farmers' knowledge in crop residue conservation (chemical / biological treatment) was however limited and the feed value of the residues remained low.

It was seen that feeding improved crop residues to draft animals could ensure timely plowing services. Conservation agriculture (CA) has been propagated in the area since 2005 and farmers reported positive results. Good crop yields mean food security in Nkayi. With expansion of fields the use of crop residues is increasing, mainly for the purposes of feeding livestock and mulching. New bylaws have been endorsed that determine the usage and timing of opening crop fields for livestock grazing. Some farmers reported that they allow cattle to graze the leaves first and then use the remaining stems for mulching.



Open platforms for storing crop residues.



Conservation agriculture fields.



Harvests of various crops, for consumption, beer brewing and feeding livestock.

4. Concluding remarks

The study so far generated important insights into the value of crop residues for crop production and livestock. Farmers in Nkayi rely on livestock and crop production for their food security and increasing the efficiency in crop residue utilization can make strong contributions to their livelihoods.

By Sabine Homann