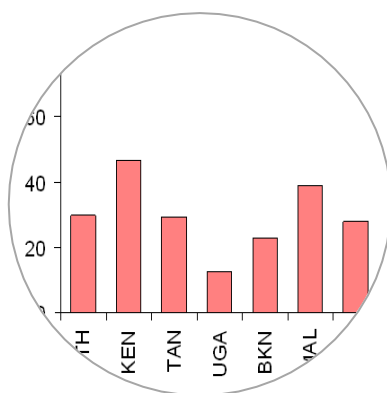


Challenges in Collecting Household Level Livestock Data in Africa

Workshop Summary Report

Rome, IFAD Headquarters, 30 June – 1 July 2011



ILRI
International Livestock Research Institute

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WORKSHOP BACKGROUND AND OBJECTIVES

A workshop on “Challenges in Collecting Household-Level Livestock Data in Africa” was jointly organized by the Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) and Livestock Data Innovation in Africa (LDIP) projects and hosted by the International Fund for Agricultural Development at its Headquarters in Rome, Italy. More than twenty experts with different technical and geographical expertise from academia, independent research outlets, and national and international organizations attended the meeting. The workshop’s objective was to contribute to the advancement of methods for livestock data collection in large, nationally representative, multi-topic household surveys, by providing practical recommendations to guide the activities of the LSMS-ISA and the LDIP in Africa.

Discussions focused on developing options for (i) improved household questionnaire design, (ii) special sampling and survey design features to consider when targeting pastoralist households, and (iii) the quantification of milk production and sales. This report summarizes the main conclusions and issues of importance raised during this two-day exchange of ideas, experiences, and practices. The workshop presentations are available online at www.worldbank.org/lsms-isa.

WHAT LIVESTOCK INFORMATION IS MOST NEEDED, AND WHAT CAN BE COLLECTED IN A LARGE MULTI-TOPIC HOUSEHOLD SURVEY?

As Steve Staal of ILRI put it, the state of livestock statistics in Africa resembles the old colonial maps of Africa: the boundaries of the continent are outlined, but the great lakes and snow-covered mountains that it contains are missing. The objective of data collection must be to begin discovering and describing these lakes and mountains, i.e. to begin defining the role that livestock plays in the livelihoods of rural and urban households, including the poor.

Collecting comprehensive, reliable, and timely livestock data is difficult, particularly if high standards of data quality are to be maintained. It is therefore important to prioritize the content to be included and/or excluded in a given survey, for which the main criteria are: i) the relevance of the data for policymakers and analysts, and ii) the feasibility of collecting good quality data given the type of survey to be conducted.

LSMS-type questionnaires are multi-topic household surveys collecting data on a variety of household dimensions, primarily targeted at measuring welfare and poverty, understanding causalities and determinants, and evaluating the potential impacts of selected policies and programmes, either ex-ante or ex-post. However, they contain relatively few questions on livestock and are therefore insufficient for generating sound statistical inferences; additional questions and/or modules would help to better establish the role of livestock in the household economy. While experts’ opinions may differ when it comes to the details, the highest priority for improving current LSMS-type questionnaires is the inclusion of questions aimed at measuring the contribution of livestock to household livelihoods, which includes the value of the monetary and non-monetary

services provided by livestock. Basic information on herd structure (species, sex, age), on marketed and non-marketed livestock products and services (e.g. draught power, manure) is critical. Most experts concur that breed information that can be linked to livelihood and other outcome variables should also be collected.

Productivity measures are much more difficult to gauge, and multi-topic household surveys are not appropriate for collecting the data needed to build productivity indicators such as off-take rate or animal weight, as recall methods often perform poorly and the alternatives are impractical. While some basic information can be obtained through LSMS-type surveys, other systems of data collection are better suited to the quantification of the productivity and efficiency of livestock farming.

HITTING A MOVING TARGET: SAMPLING AND SURVEY DESIGN ISSUES WHEN SURVEYING PASTORAL POPULATIONS

The second part of the workshop focused on measuring the pastoral economy. In places where pastoral livestock production systems are important, multi-topic household surveys may fail to capture the full extent of pastoralism, either due to its concentration in particular parts of a country, or because the mobility of some pastoral populations reduces the probability of enumerating pastoral households. Even when a pastoralist household is enumerated, it is possible that the herds and the persons responsible for them (and therefore best able to respond to questions about livestock) may not be present at the place of interview. In such cases, survey design will have to devise practical ways to i) capture pastoral households in the survey, ii) plan fieldwork in such a way as to maximize the likelihood of finding the most informed person, and iii) ask the right questions to the right people. If such issues are not adequately addressed, the inferences based on the survey data will likely be biased.

The LSMS surveys are not designed to capture fully nomadic populations, and should not make an attempt to do so. In most countries this is likely to be a minor omission for a national survey, as purely nomadic populations are small. However, various methods can be considered for finding and interviewing the transhumant/semi-nomadic/pastoralist populations who have regular ‘visiting points’ or move backwards and forwards from semi-permanent settlements.

A dual-sample frame is being tested to confirm if pastoralists are being captured sufficiently by the usual single-sample frame using residence census. If not, combining that with a second-frame which uses geo-clustering may do a better job at capturing this population.

Another set of methodological concerns relates to sample stratification. In general, human population density will be used to stratify and then proportionally sample households in LSMS surveys. However, when animal populations are also of interest, this method may work against capturing animal numbers accurately. This is due to the fact that generally few people live in pastoral areas where large numbers of animals are found, while in urban areas there are high concentrations of people and fewer animals. Therefore, if LSMS surveys are to capture information on transhumant/semi-nomadic/pastoralist populations, the sampling design should include

stratification based on animal density (if the underlying data required are available) or should be based on alternative sampling designs (e.g. equal sampling by production system type – urban (intensive) / rural (semi-intensive) / pastoralist) to then extrapolate to country level using weights based on the area under each system. To address the concern that pastoralists may be under-represented in the LSMS surveys, practical methods include over-sampling pastoralists, or ‘boosting’ the sample size so as to include a disproportionate number of pastoral households.

Finally, concerning specific questionnaire design features to tailor surveys to the analysis of issues relevant to pastoralism, a great deal can be achieved by slight modifications of general livestock questions to accommodate options that are relevant to pastoralists. Some issues will be sufficiently specific to pastoralists that separate modules (e.g. on features of transhumance movements, conflicts with sedentary agricultural communities, arrangements for herd management when herds travel) can be developed and used when appropriate. However, for many key issues (e.g. availability of water and pastures, common property resource management), the variability is not across households but across communities. In such cases it will suffice to solely add specific questions to the community questionnaires, since the variability across households is negligible within a given community.

MILKING THE DATA

Since milk is often a major contributor to the livelihoods of rural households, the final session of the workshop was devoted to debating alternative approaches to the collection of data on milk production and sales.

One of the goals of most LSMS-type surveys is to generate accurate measures of total income and its components. The valuation of milk production poses particular challenges, since it is an activity that can occur on a daily basis, and can have seasonal patterns. Furthermore, measures of milk productivity are particularly hard to gauge as part of the production may be left to the young suckling animals in quantities and proportions that are extremely hard to capture. For this reason it could be more appropriate to talk about milk from milking rather than milk production, as the objective in LSMS surveys will be to quantify the milk that is milked by the farmer for own consumption or sale, not the proportion that may be produced by the lactating animals but fed to offspring or unused.

The LSMS and LDIP projects have piloted the design of an experiment aimed at comparing different milk data collection methods among Niger livestock keepers. Methods being considered for testing in Niger separate data collection by animal species, and ask questions on the suckling of young animals. The first of these two methods uses the concept of the lactation curve by collecting information on milk production per milked animal at different points in the lactation curve. Total milk production is then computed via a simple formula that approximates the area under the curve, i.e. total milk production. The second method collects information on the number of animals milked and the average milk production of the herd during the months it was milked.

The suggestions offered by the experts present at the workshop will be important in finalizing the design of the experiment, which will need to account for milk production by the main season, as well as to consider whether and how the choice of respondent influences the accuracy of the data collected. It will also be important to consider i) how to collect breed information for the animals being milked, ii) how to account for the production of dairy products so as to rule out double counting, and iii) how to ensure that the quality of the milk data is not compromised by the need to capture the complicated herd management and milk offtake arrangements that characterize many systems across Africa (particularly among Sahelian herders).

THE WAY FORWARD

Progress with livestock statistics in Africa requires breaking a vicious circle. The contribution of livestock to Sub-Saharan African economies is underrepresented and often ignored altogether. The lack of reliable data on the contribution of livestock to the national economies and to the livelihoods of the poor contributes to the neglect of the sector by policymakers. This in turn leads to a lack of investment in improving the quantity and quality of livestock statistics, so that the sector remains in many respects one of Africa's big unknowns. Data has been collected in the past, and is being collected today, but in insufficient (and often declining) quantity and quality. Furthermore, the data collected is often underutilized either because it is inaccessible, disseminated in an untimely fashion, unavailable in appropriate formats, or because it cannot be usefully linked to other data sources that would deepen its analytical potential.

The basic question asked at the workshop was therefore: "What policy-relevant variables are we hoping to get from multi-topic household surveys which include a livestock module?" In response, the following conclusions emerged:

- Herd structures and herd composition are key priorities – we do not know them in detail, and we need to know them to better understand livestock production systems. Household survey data are appropriate for describing household's herd structure and composition.
- We need a measure of livestock contribution to livelihoods that takes into account to the extent possible the products and services that do not go through market exchanges (or that do so to a very limited extent). The data collected on livestock in a LSMS survey will be informative of relationships between livestock production, food insecurity and livelihoods at the household level.
- We need better data and methods for valuation of the pastoral economy as well as milk production at the household level; the current methods used in LSMS leave much to be desired, but there are alternatives that can be adapted and are susceptible of improving data quality.
- In many countries where no recent agricultural and/or livestock censuses are available, we do not know the number of animals with statistical precision. Insight on this from household surveys would be most useful.

The LSMS-ISA and LDIP projects were advised to work along these priority areas, aiming at incremental gains on data availability and quality. It was established that emphasis should be placed upon the strength of the LSMS surveys. The increasing availability of geo-referenced data sources should allow for pushing of the envelope in this domain over the next few years. However, integration can also take more active forms: since the LSMS data cannot provide an answer to all policy questions, the projects should leverage inter-institutional collaborations to influence other data collection exercises that can generate additional pieces of information that can be linked back into LSMS-type data.

With these priorities in mind, the LSMS-ISA and LDPI projects will jointly develop i) a template livestock questionnaire for multi-topic household surveys and ii) a sourcebook for public dissemination. The template livestock questionnaire will include sections to capture the major dimensions of livestock farming, including herd structure as well as the monetary and non-monetary services provided by livestock. Other sections will focus on water use, feeding, animal health, animal housing, breeding practices, and other issues. The template livestock questionnaire will be created as a blueprint that individuals and institutions implementing similar surveys in other countries can use and adapt, choosing whether to include different sub-modules that may be more or less important for different users, and opting between longer and shorter versions according to their needs and resources. The sourcebook will serve as a tool that can provide further guidance to statistical agencies, researchers, and other organizations on the design of modules and questionnaires aimed at collecting household-level livestock data in developing countries.

The LSMS-ISA and LDIP projects will also begin validation work for alternative approaches to collecting data in some of these domains, particularly with regards to herd structure. For example, in some environments, people invest in livestock to make their wealth less visible, and may therefore be more or less open to disclosing information on their herd size to enumerators. Large herders may find it truly difficult to keep an accounting of the changes in stock over a given period. In cases where the animals within a given herd belong to multiple owners, asking question by owner may help to recover more accurate information. Also, when designing a questionnaire and fieldwork activities, particular attention must be paid to the formulation of questions that can prompt an accurate response, and to maintaining an internal consistency in the herd data collected. Computer Assisted Personal Interview (CAPI) technologies can be of tremendous help in achieving some of these goals as well as in assisting in the collection of more accurate breed information by introducing the use of photographs to help respondents identify specific breeds.

The LSMS-ISA and LDIP projects are grateful to the contributors to the workshop for their insightful comments, questions and suggestions with regards to the advancement of methods for livestock data collection in large, nationally representative, multi-topic household surveys. The forthcoming livestock module and all subsequent data collected will be disseminated under a policy of free and open access. It is the hope of the LSMS-ISA and LDIP projects that this work will empower the international community to together transform the collection, analysis and policy impact of livestock data worldwide. For more information, visit the LSMS-ISA website at www.worldbank.org/lsms-isa and the LDIP website at www.africalivestockdata.org.

WORKSHOP AGENDA



**Livestock Data Innovation in Africa Project (LDIA) & Living Standards Measurement Study –
Integrated Surveys on Agriculture Project (LSMS-ISA)
Technical Workshop:
Challenges in Collecting Household-Level Livestock Data in Africa**

**30 June – 1 July, 2011
Oval Room, IFAD Headquarters, Rome**

AGENDA

Thursday, June 30th

9:00-9:30	Welcome (Antonio Rota) Introduction and workshop objectives (ALL)
9:30-10:30	LSMS-ISA and LDIA (Gero Carletto; Ugo Pica-Ciamarra) Open discussion
10:30-11:00	Coffee break
11:00-12:30	The issues – Chair: Pierre Gerber Introduction (Alberto Zezza) East Africa (John McPeak) West Africa (Celine Dutilly-Diane) Open discussion
12:30-2:00	Lunch break
2:00-3:30	Sampling of nomadic populations – Chair: Matt Turner Use of multiple frames (Kristen Himelein) Alternative sample designs (Gero Carletto) Comments (Jane Poole) Open discussion
3:30-4:00	Coffee break
4:00-5:30	Survey design features – Chair: Celine Dutilly-Diane Key issues: Number of visits, Direct vs proxy respondents, Tracking, Team organization, How to integrate in large survey fieldwork (Gero Carletto, Alberto Zezza) Tracking in pastoralists surveys (Matt Turner) Comments (Isabelle Baltenweck)
6:00	Welcome drink

Friday, July 1st

9:00-10:30 Questionnaire content – Chair: Joachim Otte
Discussion: Template for LSMS-ISA livestock module (Steve Staal)
Comments: ALL
Open discussion

10:30-11:00 Coffee break

11:00-12:30 Questionnaire content (continued) – Chair: Nancy McCarthy
Pastoral-specific contents
- Livelihoods (Leah Bevis, Alberto Zezza)
- Markets (Yacob Aklilu)
- Shocks and Risks (Andrew Mude)
Open discussion

12:30-2:00 Lunch break

2:00-3:30 Collecting data on milk production and sales – Chair: Yacob Aklilu
The Niger experiment (Alberto Zezza)
Comments (Steve Staal)
Comments (Carol Kerven)
Open discussion

3:30-4:00 Coffee break

4:00-4:30 Milk data discussion continued

4:30-5:30 Workshop wrap-up and closure – Chair: Gero Carletto
Where do we go from here?
Areas of consensus and disagreement
Next steps
Partnerships and collaborations

Introductions:

Jane Poole – Sampling

Kristen Himelein - Survey design

John McPeak – Questionnaire contents, including milk

Open discussion



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