Survey of data on gender and livestock

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Survey of data on gender and livestock

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I Introduction

Livestock are an important part of the livelihoods of many households and the people that compose them. Within the household, responsibilities, ownership, and decision-making authority over those livestock is often gendered. For example, chickens may be primarily tended to by women, who have the right to sell or consume eggs, but do not have the right to sell the chickens themselves. Alternatively, certain animals may be owned by each household member, but again the rights and responsibilities associated with ownership may vary. Historically, most agricultural household surveys have focused on livestock as 'household' assets, making it difficult to use the data to understand how livestock are gendered and track how that varies across time and space. More recently, several major initiatives have arisen to improve these practices and data on gender and livestock is becoming more widely available.

This survey assesses several large existing datasets for coverage of gender and livestock. It focuses specifically on identifying gender-disaggregated data, decision power, and the division of livestock-related labor. We examine the questionnaires used to generate each dataset, record relevant questions, and compare the availability of information across datasets. We then present a set of recommendations based on existing work on best practices and the shortcomings of the existing data that limit its research potential. Despite some limitations, we also identify a number of research questions that these datasets could help answer.

2 Methodology

The goal of this project was to identify the strengths and weaknesses of a range of datasets in their coverage of gender and livestock. The datasets were selected by consultation with experts from ILRI and UC Davis. For each dataset, we examined survey questionnaires and identified all questions relating to gender and livestock, including questions relating to the gender division of ownership, decision making, and labor.

Many of the datasets explored are very large and include numerous countries and years. For multi-country or multi-year datasets, we chose three countries. We explore three countries to provide sufficient breadth to comment on the coverage of a dataset in general, but caution that our analysis was not exhaustive, so it is likely that individual surveys within a dataset that we did not examine will vary. For each country, we assessed the baseline dataset; it is possible that questions have been added or subtracted during subsequent rounds of collection.

We recorded all questions relating to gender and livestock, and some relating to gender only, in the appendix as well as in the accompanying spreadsheet.

3 Dataset overview

We explored 11 different datasets:

- Living Standards Measurement Survey (LSMS)
- Living Standards Measurement Survey-Integrated Surveys on Agriculture (LSMS-ISA)
- ICRISAT Village Dynamics in South Asia (VDSA) Survey
- Rural Household Multi-Indicator Survey (RHoMIS)
- Townsend Thai Data
- FAO RIGA
- ILRI African Chicken Genetic Gains (ACGG)
- ILRI African Dairy Genetic Gains (ADGG)
- Demographic Health Survey (DHS)
- Indonesia Family Life Survey (IFLS)
- IFPRI Alive and Thrive

The Demographic Health Survey, Indonesia Family Life Survey, and IFPRI Alive and Thrive survey had no significant coverage of livestock, and therefore no coverage of gender and livestock. For that reason, we did not undertake further analysis of these datasets, though they may be useful for gender analysis on health and nutrition issues.

Table I: Dataset overview

	Informant gender specified?	Total countries	Countries analyzed	Georeferenced?	Years Available
LSMS	No	37	3	Enumeration area level	China: 1995 Cambodia- Brazil: 1996–1997
LSMS-ISA	Some Countries (see Appendix)	9	8	Enumeration area level	Many; see appendix table
icrisat VDSA	Yes	2	2	Unknown	SAT India:1975 onwards but there are breaks in between EAST India: 2011 Onwards Bangladesh: 2009 onwards
RHoMIS	Unknown	21	21	Unknown	2015–2018
Townsend Thai	Yes	I	I	Plot, village, sub-county or provincial level	1997/1998/2003–04/2006

	Informant gender specified?	Total countries	Countries analyzed	Georeferenced?	Years Available
FAO RIGA	Yes	3	3	Unknown	Indonesia: 1993 and 2000 Pakistan:1991 and 2001 Nigeria: 2003–2004
ACGG	No- most appropriate/ knowledgeable	3	3	Household level	
ADGG	Unknown	5	5	Unknown	Ethiopia and Tanzania: 2016–2019 Ethiopia, Kenya, Uganda, Rwanda and Tanzania: 2019–2021

4 Comparing datasets

Of the datasets assessed LSMS-ISA, RHoMIS, ACGG, and ADGG have the most extensive and useful gender disaggregated information. All have a significant number of gender-related questions and will eventually be panel datasets, which will make it possible to track changes over time. The LSMS-ISA in particular stands out because it identifies owners and responsibilities for each type of animal in the house separately, even in many cases separating exotic and traditional breeds. The ICRISAT dataset is useful in that it is large and has questions about gender roles and livestock separately, but it does not include the gender disaggregated livestock details we see in the other datasets.

The FAO RIGA Pakistan dataset also stands out for its extensive questions on gender, and in particular for the fact that it includes separate questionnaires for women and men. The other FAO datasets we analyzed (Indonesia and Nigeria) contained significantly less useful information. This may be in part because they are older datasets; it would be useful to explore whether other recent FAO RIGA datasets are as extensive in their coverage as Pakistan's.

Dataset name	Livestock?	Gender?	Gender + livestock
LSMS	Mostly China	Limited	No
LSMS-ISA	Yes	Yes	Yes
ADGG	Yes	Yes	Yes
FAO RIGA	Yes	Pakistan: yes, otherwise limited	Pakistan: slightly
ICRISAT VDSA	Yes	Yes	No
RHoMIS	Yes	Yes	Yes

Table 2: Dataset of gender and livestock coverage

5 Recommendations and best practices

Several important projects have established best practices for designing questionnaires that measure women empowerment and capture women's roles as owners, decisionmakers, and workers in agriculture. Among these are the International Food Policy Research Institute's Women's Empowerment in Agriculture Index (WEAI), and ILRI's Women Empowerment in Livestock Index (WELI). Additionally, the Malapit et al. (2019) provide a set of guidelines for a project-level WEAI (pro-WEAI), which provides guidelines for adapting the WEAI to individual programs, and Doss & Kieran (2014) provide a general set of guidelines for CGIAR researchers. In this report, we use those efforts as a framework for analyzing the strengths and weaknesses of the datasets we explored and identify three areas where we believe shortcomings in those data limit their potential for gender-disaggregated analysis.

The Women's Empowerment in Agriculture Index was developed by Alkire et al. (2013) and is composed of two subindices: five domains of empowerment and the gender parity index. The five domains of empowerment measure whether women are empowered across five domains: production, resources, income, leadership, and time. The gender parity index focuses on whether women are as empowered as men in their households.

Galiè et. al (2019) developed the Women Empowerment in Livestock Index (WELI) to adapt the WEAI to settings where livestock is the dominant form of livelihood. Its approach mirrors the five domains of empowerment component of the WEAI, but focuses on a slightly different set of six dimensions:

- decisions on agricultural production
- · decisions related to nutrition
- access to and control over resources
- · control over and use of income
- · access to and control of opportunities
- workload and control over own time.

As in the WEAI, each dimension includes several questions, and aggregating those questions into an index requires a threshold for 'adequacy.' The authors emphasize that it is in general probably not appropriate to define a single threshold across contexts since empowerment as a concept depends on the local context. As we discuss further below, flexible adequacy thresholds are also helpful for researchers who want to be able to track changes in empowerment over time or due to some policy or program: if the threshold is too high or too low, the index may fail to reflect changes in empowerment because few households will move from 'inadequate' to 'adequate.' As discussed below, this is one reason the WELI represents a substantial improvement over gender-disaggregated data available in most of the datasets we analyzed, which tend to focus on measures more closely related to the WEAI's gender parity index.

None of the datasets we surveyed employed the WELI or WEAI, though some contained similar questions. The most common approach we observed in the data was to ask which partner had *more* control, say, or ownership over a particular asset or decision. For example, FAO RIGA asks "Who knows the most about the household's farming or livestock

activities?" and LSMS-ISA asks "Who is primarily responsible for managing [livestock type] "? This approach is useful for determining how ownership, labor, and decisions are gendered in general. For example, we can see from the LSMS-ISA data that women are more likely to own small stock than large stock across all countries studied.

While asking about relative ownership, work, or power provides useful data for cross-country or intra-country comparisons, we believe it is less likely to be useful for tracking change over time or for measuring the impact of particular policies and programs. This is because these types of questions are unlikely to detect small changes in the balance of power - a change will only be registered when it is large enough to alter who has more power/say in the household. These types of questions are least likely to detect changes for the houses with the greatest gender inequality, because norms and/or power dynamics would have to change very dramatically in those households to yield a different answer. In general, when gender roles with respect to livestock are strongly defined, these sorts of comparative questions are more effective for comparing gender roles across types of livestock, labor, or decision making than for detecting changes over time.

Recommendation I: Use flexible adequacy thresholds

Where the datasets we explored contained information about gender, it was most often recorded in one of two forms: First, many questions simply ask which member of a household is *most* involved in some decision, knows *most* about something, or is the *primary* owner of some asset or income stream. This is useful for understanding how different assets or activities are gendered but is less useful for tracking progress or change over time, simply because only a change large enough to alter the primary knower/owner/doer of some activity or asset would be recorded. Second, the LSMS-ISA survey and others asked respondents to list up to two family members as owners of (or as primarily responsible for) various assets or activities. In some cases, it was made explicit that the order should correspond to their degree of involvement or ownership, but in other cases it was not. Regardless, many households listed both the head of household and their spouse, which does not provide useful information about the gender balance of power. In other cases, only one person was listed, but again if there is any division of responsibility at all it would not be captured.

Flexible adequacy thresholds as proposed by the WEAI and WELI coupled with a range of options for responses (e.g. slightly involved, somewhat involved, very involved) make identifying changes over time more realistic, but few of the datasets we studied incorporated this feature. As researchers, we would like to emphasize the importance of this.

Recommendation 2: Make questions mandatory (and choose them carefully)

We did not download and analyze all of the datasets whose questionnaires we analyzed for the purpose of this study but did complete a relatively thorough analysis of the LSMS-ISA data as part of a previous study. In several datasets, most answers were missing for gender-related questions. While it is important to include "I don't know" or "Prefer not to answer" options for respondents, these missing data did not include such entries, which would in themselves have been informative. Collecting survey data is a time-consuming process, and it may be that tired enumerators or respondents skipped questions, or those questions were skipped for some other reason. Unexplained missing data makes it difficult to interpret the data available because it is hard to know what sort of sample selection has occurred. We therefore recommend that surveys choose a few questions carefully and make sure data is collected for every respondent rather than including dozens of specific questions and closing with many missing values.

Recommendation 3: Include women respondents

Of the datasets we surveyed, only the FAO RIGA dataset collected in Pakistan deliberately surveyed both men and women in the same household. This is ideal from our perspective; it allows us to examine responses from both perspectives and identify discrepancies at the household level. As discussed in depth by Doss et al. (2017), numerous studies have found discrepancies between reported asset holdings by women and men. Ambler et al. (2019) find that the same is true for reports of bargaining power. Discrepancies can arise both from differences in knowledge and differences in opinion or perception, and both types of potential errors should be taken into account when designing a survey. Differences in knowledge can be ameliorated by ensuring that enumerators ask the most knowledgeable person about each type of household assets and activities, but differences in perception can only be documented by surveying all household members.

Surveying both members of a household is time consuming and expensive, and we recognize that many data collection efforts will not have the resources to do so. However, surveying the 'head of household' leads to biased results, with women often being surveyed only when they are not partnered. Since women heads of household are likely different from women who are not heads of households, this makes it impossible to analyze the data for systematic differences between women and men in reporting.

In cases in which the discrepancy between reports by women and men is due to differences in knowledge, we can think of each person's perspective as a potentially noisy measure of some true value. If that's the case, a less expensive alternative to surveying both members of the household is to intentionally randomize whether a man or a woman is surveyed. This can be done by the survey software to facilitate data collection by enumerators. If the targeted individual is unavailable, this can be recorded by the enumerator and taken into account in the data analysis. Alternatively, both women and men can be surveyed in a subset of cases to provide a sense of likely discrepancies in the dataset as a whole. Collecting data this way would make it possible to systematically analyze the data for discrepancies between women and men respondents without increasing the cost of data collection. An advantage of this approach over the more commonly used method of asking the enumerator to identify the most knowledgeable is that it does not assume the enumerator is able to accurately assess relative knowledge, the best data will clearly be obtained by interviewing the individuals they select. Choosing between these two approaches requires thinking carefully about the context the enumerators are working in and the extent of their skills and training.

Neither randomly selecting respondents nor surveying two partners in a household can resolve the problems caused by differences in opinion or perception. For example, if men and women systematically disagree on ownership, decision power, or other factors, simply averaging their opinions does not necessarily yield a more 'true' result. Indeed, in many cases there may not be an objectively 'true' answer to survey questions, and it may be better to interpret the data collected from each party as their own opinion and not as two noisy measures of a single true value. In that case, the decision about who to survey depends on what outcomes we are interested in: do we care more about women's perspective or men's? In these cases, randomizing respondent gender is not a good option because it halves the sample size, reducing statistical power for any analysis conducted with the data.

The table below summarizes the various approaches available to researchers and their advantages and disadvantages. This is a difficult problem, and all the options require researchers to think carefully about the types of discrepancies that are likely to arise, and the tradeoffs associated with the chosen solution.

Table 3: Survey design options

Approach	Advantages	Disadvantages
Survey multiple household members	Works well regardless of the cause of the discrepancy and makes it easy to study gendered differences in responses.	Potentially costly, particularly in polygynous households.
Randomize respondent gender	Works well if discrepancies are due to differences in knowledge, it is not easy to reliably determine who has the most accurate information, and surveying multiple members is too costly or time-consuming.	Effectively reduces the number of data points if discrepancies are due to differences in opinion or perspective.
Survey most knowledgeable member	Works well if discrepancies are due to differences in knowledge and identifying the most knowledgeable person is straightforward.	Requires enumerators to accurately identify the most knowledgeable household member, which itself may be subject to gender biases.
		Does not solve the problem when discrepancies are due to differences in opinion or perspective.
Survey member(s) of a single gender	Works well if discrepancies are due to differences in opinion or perception and researchers are most interested in the perspective of a particular gender.	Does not solve problems caused by differences in knowledge.

6 Potential research

Our analysis shows that most of the datasets we examined contain some gender-disaggregated information, though as none of the surveys capture all of the domains of empowerment included in the WEAI/ WELI/ pro-WEAI. Further, all the datasets we surveyed with the exception of Pakistan focused interviews on heads of household, meaning the data is likely biased in many cases by the knowledge and/or perceptions of the respondent (for more on this issue see Doss and Kieran (2014)). Despite the limitations we discussed, the datasets identified provide ample opportunities for studying gender and livestock.

Descriptive studies

Regional differences: descriptive analyses of how gendered control of livestock varies regionally between countries, within a country, by ethnic group, or by distance to urban centers may provide useful information for national governments interested in promoting or tracking gender equality. The LSMS-ISA, RHoMIS, ADGG, ACGG, ICRISAT, and FAO RIGA data all provide the necessary information to conduct this sort of study, though coverage in some countries is more thorough than in others.

Time trends: the LSMS-ISA, ACGG, and ADGG data all have a panel structure, and RHoMIS is expected to in the future. This makes it possible to analyze changes over time at the national or regional level. This may be of particular interest for governments or NGOs that have been engaged in efforts to promote greater gender equality in particular countries or regions or who are interested in measuring regional progress in women empowerment in livestock.

The ICRISAT data focuses on decision power, and given its large size and panel structure, provides an excellent opportunity to track changes over time on a regional basis. However, the questions about livestock are unfortunately not gender disaggregated. It may be possible to assess, for example, how empowerment in households who depend heavily on livestock differ from other households, but a detailed assessment of livestock ownership or the roles of women and men in caring for animals is not possible.

Correlations: there is a large literature documenting that in many cases when women have more control over household income and assets, the composition of household expenditures changes. The LSMS-ISA, FAO RIGA Pakistan, or ICRISAT data could be used to explore for example whether households in which women own more livestock or have more control over income from livestock are more likely to keep their children in school or provide adequate nutrition. The next section will explore possible strategies for testing whether any observed relationships are causal.

Informant studies: the FAO RIGA Pakistan data is exceptional in that separate questionnaires were collected for women and men within each household. This provides a rare opportunity to directly compare answers to similar questions and to observe both perspectives within the same household. It also asks uncommonly detailed questions on livestock ownership and labor, using 7-day recall for tasks such as milking.

Causal studies

Some of the most interesting and important questions about gender and livestock are causal. For example, does increasing women's control over earnings from livestock improve household nutrition or education? Do disasters cause women to lose their livestock at a greater rate than men? What factors increase women's say as to when and why livestock are sold?

Answering any of the above questions requires a source of random variation in the variable whose impact we want to measure. This could come from a randomized controlled trial conducted in one of the areas where data are collected, but more likely may come in the form of a quasi-random government policy rollout or weather shocks. Since the data in most of the datasets we studied are georeferenced at some level of precision, it is easy to link to data on rainfall, vegetation indices, and other drought indicators. Droughts are a leading cause of livestock mortality, which means they generate quasi-random variation in the number of livestock deaths. The relationship between droughts and livestock holdings by gender is interesting in itself: existing literature suggests that women and men may not be equally affected. In addition, if droughts affect households (and by extension women) in some areas but not others, it may be possible to study the effect of livestock holdings on other variables such as health and education.

Another common source of quasi-random variation is government policy or NGO programs. Programs providing livestock grants or support in one region and not another, or at one time and not another, may provide opportunities to study the effects of livestock ownership. Specific knowledge of these policies and programs would be required, and we hope this report can help connect people with country-specific knowledge on spatially or temporally constrained policies or programs to basic information about what data they might use to study those programs.

Priority studies

This section details several potential studies regarding two specific areas of research that the authors of this study feel are particularly promising. As described above in the more general discussion, we feel that these data could be useful in answering a range of questions, but these two stand out because we feel they could provide important contributions to the existing knowledge base on gender and agriculture and have potentially significant policy implications.

7 Respondent gender effects in Pakistan

Most household surveys are collected from a single respondent or group of respondents, and in many cases, it is not entirely clear who provided the information in each section. Kilic et al. (2020) find evidence that the common approach of collecting data from the 'most knowledgeable' household member leads to more report's ownership of agricultural land by men and fewer reports of joint ownership among women. Ambler et al. (2019) similarly report that women are more likely to report joint ownership and decision-making while men are more likely to report sole ownership and decision-making.

The FAO RIGA Pakistan dataset is distinct in that it employed separate questionnaires for women and men and ensured that respondents were interviewed by enumerators of their own gender. This creates an uncommon opportunity to study gendered differences in responses - many other studies either do not identify the gender of the respondent or specify that various sections of the survey should be answered by the person most knowledgeable about that topic. In either case, it is difficult or impossible to study discrepancies in responses between women and men, which is particularly problematic for subjective questions. The FAO RIGA Pakistan survey includes a number of such questions, in particular "who in the household is most knowledgeable about the household's farming and livestock activities?". Further, differences in reports of who owns or cares for livestock would be informative, as would differences in more general survey questions about health and nutrition.

8 Gendered impacts of income shocks

A growing body of literature documents the fact that shocks to household income are particularly harmful for women and girls. The LSMS-ISA data, particularly the Tanzania and Uganda datasets, are particularly well suited to study this for several reasons. First, they have a panel structure, which makes it possible to track individual households over time. Second, they have relatively granular geolocation data. The geolocation data is useful because it makes it possible to link the survey data to geospatial data that detect agricultural conditions. Precipitation data, vegetation indices, and soil moisture data are all related to both agricultural yields and livestock mortality. When weather deviates from the norm in a particular area, we can use this exogenous variation as an instrumental variable for household income or agricultural income in particular. This makes it possible to estimate the causal effect of income shocks on outcomes within the household.

The impact of weather shocks on a range of variables could be of interest, but we would be particularly interested to study sales of gendered livestock assets and changes in school enrollment for girls and boys. Gendered livestock assets are in some households the primary store of wealth for both women and men, and the questions in the LSMS-ISA survey make it possible for us to identify which livestock tend to be owned or controlled by each gender. It seems likely that in households where women have less power, the livestock they control will be sold first in the event of a disaster: these data would allow us to test that hypothesis. Similarly, girls may be more likely than boys to be removed from school when households that tend to disproportionately sell women's livestock when droughts strike also more likely to remove girls than boys from school?

9 Conclusion

While the availability and quality of gender-disaggregated data on livestock varied across the datasets we studied, we saw significant evidence of improvement in recent datasets. In particular, the LSMS-ISA, ACGG, ADGG, and RHoMIS datasets appeared to have a quality suite of questions that provide much improved quantitative information on gender and livestock.

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II Appendix

Detailed coverage by dataset

Here we list all of the questions found in each dataset. This information is also stored in the accompanying spreadsheet.

Living Standards Measurement Survey (LSMS)

The World Bank's Living Standards Measurement Survey has provided technical assistance to national statistics offices worldwide since the 1980s. Since surveys are administered at the country level, each is unique, but some uniformity across countries is evident. We reviewed LSMS surveys for Brazil, Cambodia, and China, and found limited gender/ agriculture information. China and Brazil have broad coverage of agriculture, but data aren't disaggregated by gender. Cambodia has only limited coverage of agriculture and also lacks gender disaggregation.

Question	China	Cambodia
Who in the household controls/decides on the use of your earnings?		Х
Who in your household knows the farmland and cropping best?	Х	
Did any of your household members raise poultry or other animals at home in 1994?	х	
Do you or does any member of this household own any livestock, either alone or jointly with someone else?	X*	Х
What type of livestock did your household raise in 1994?	х	
What was the number of livestock in the household inventory at the end of 1993?	Х	
What is the number of livestock you sold or consumed in 1994?	х	

Living standards measurement survey: integrated surveys on agriculture

The Living Standards Measurement Survey Integrated Surveys on Agriculture were designed with the specific goal of quality and extent of data collection relating to agriculture. As a result, they contain much more detailed information on this topic than most other surveys.

Country	Year(s)	Sample Size (most recent)	Informant specified*
Burkina Faso	2014	10,860	No
Ethiopia	2011–2012; 2013–2014; 2015–2016	4,954	Yes
Malawi	2010–2011; 2013; 2016–2017	4,000	Yes
Mali	2014, 2017	8,390	Yes
Niger	2011; 2014	3,617	No
Nigeria	2010–2011; 2012–2013; 2015–2016	5,000	Yes
Tanzania	2008–2009; 2010–2011; 2012–2013; 2014–2015	3,352	Yes
Uganda	2009–2010; 2010–2011; 2011–2012; 2013–2014; 2015–2016	3,305	No

All eight LSMS-ISA databases for all covered countries¹ were studied as part of a previous effort. All with the exception of Burkina Faso include gender-disaggregated information on livestock ownership, management, and/or control of earnings. The two questions most consistently asked pertained to ownership and management. Four surveys asked respondents to list owners for each type of livestock, and six asked respondents to list who was primarily responsible for keeping/managing livestock overall. The table below shows a range of questions asked across all surveys.

Question	Burkina Faso	Ethiopia	Malawi	Mali	Niger	Nigeria	Tanzania	Uganda
Who owns?			х		х	х		×
Who keeps/ manages?		×	х		х	×		x
Who decides to sell?		X*						
Who takes to market?		X*						
Who controls earnings from sale?		X*					х	

Question	Burkina Faso	Ethiopia	Malawi	Mali	Niger	Nigeria	Tanzania	Uganda
Who controls earnings from meat/ slaughter?							х	x
Who controls earnings from milk?						х	х	х
Who controls earnings from eggs?						Х	х	х
Who controls earnings from other livestock prod- ucts?**		X*				х	х	
Who is responsible for purchase?				х				
Who is responsible for selling?				Х				
Who is responsible for watering?				х				
Who is responsible for feeding?				х				
Who is responsible for treatments and vaccinations?				х				

* In Ethiopia, several questions were asked about livestock in general, but data aren't available for

** In Nigeria, other specific products (e.g. hides, hunting) were listed.

ICRISAT Village Dynamics in South Asia (VDSA) survey

Question	India	Bangladesh
Who influences the utilization of assets, inputs, outputs, household maintenance, education of children migration, trips among other things done in the household?	Х	Х
Who makes decisions regarding the household's assets, inputs, outputs, household maintenance, education of children, migration and trips among other things?	х	Х
Who makes decisions regarding resource ownership in the household?	Х	Х
Whose role is it in crop cultivation to do the below; Selection of crop, Selection of variety, Land preparation, Transport of FYM & application, Sowing seed, Chemical fertilizer application, Hand weeding, Interculture, Plant protection measures, Irrigation, watching, Harvesting, Threshing, Marketing, Seed selection and storage	Х	×

Rural Household Multi-Indicator Survey (RHoMIS)

The RHoMIS survey asks a wide range of questions, and one of its strengths is that it will be administered identically in multiple countries. While comparing across countries remains complex since questions may be interpreted differently and words such as "own" may be interpreted differently in different contexts, it is still very useful to observe differences across countries. Further, as future datasets are collected, this dataset will provide an opportunity to assess how progress is being made differentially across countries.

- Who in the family owns the household's land?
- Which crops were grown by your household during the last 12 months?
- Who decided which crops to plant?
- Did you make any of your crops into products you can store or sell during the last 12 months? Please mark those that
 you sold and approximate income from the sales. Please specify units
- Who decides when to eat or use these products?
- Who usually decides what to do with the income from selling these products?
- Does your household own any livestock, animals or beehives?
- Who in the household owns the livestock?
- Who usually decides what to do with the income?

Townsend Thai Data

The survey questions were not really gender specific, but a few questions on agriculture were captured. We didn't find any questions in relation to livestock rearing.

- Is this household involved in agricultural activities?
- What type of agricultural activity or activities is this household involved in?
- Does anyone who lives in this household own agricultural equipment e.g., tractors? If so, how many?

FAO RIGA

The FAO RIGA Pakistan dataset is exceptional in that separate questionnaires were used for women and men within the household. The Indonesia and Nigeria datasets ask some relevant question, but in general appear less useful for gender analysis.

Question	Pakistan	Indonesia	Nigeria
Who in the household is mainly responsible for fetching water?	Х		
Who knows most about the household's farming and livestock activities?	Х	X*	X*
Did you spend any time working on the household's own farm, or tending livestock during the past seven days?	х		
Other than the processing of your own farm output for sale (for example, husking rice you grow, making gur, selling eggs from your own chickens) does your household operate one or more non-agricultural enterprises which produce goods or services (for example, artisan, metalworking, tailoring, repair of farm implements) or is your household involved in the retail or trade sector (for example, do you own a shop or operate a trading business)?	х	X	
Do you presently, or did you at any time over the past 12 months, own livestock or tend livestock for others?	х		X*
Do you presently own, did you own, or do you tend an animal?	Х		
How many animals/livestock in relation to the above question do you presently own?	Х		

Question	Pakistan	Indonesia	Nigeria
In the past 7 days, how many days did you spend working on someone else's farm? How many hours did you normally work each day?	х		
Does your household sow crops either on your own land or land rented in/sharecropped or does your household tend livestock (for example, cattle, goats, sheep etc.)?	х		
Who knows most about the household's farming and livestock activities?	Х		
During the past 7 days, how much time did you spend working on the household's own farm in each of the following activities?	х		
How many times in the past seven days did you fetch water?	Х		
How many times in the past seven days did you gather firewood?	Х		
How many times in the past seven days were you responsible for animal care, grazing, herding and collecting fodder?	х		
How many times in the past seven days did you prepare dung cakes?	Х		
How many times in the past seven days did you milk animals/make ghee?	Х		
Which household member is responsible for fishing?		X*	Х
Are any crop or fish caught and processed for sale or use by the household (e.g., flour, cassava)?			Х

ILRI African Dairy Genetic Gains (ADGG)

- Who is the owner of the bull that sired the animal?
- Who in the household owns the plot of land?
- Who made the decision to use an OWN BULL for breeding?
- Who makes the decision to use ANOTHER FARMERS BULL for breeding?
- Who made the decision to use the BULL SCHEME BULL service?
- Who made the decision to use the AI service / service provider?
- · Who made the decision to use the deworming service/ service provider?
- · Who made the decision to use Other deworming methods?
- Who made the decision to use the Parasite Control service/ service provider?
- Who made the decision to use Other Parasite Control methods?
- Who made the decision to use a Vaccination service / service provider?
- Who made the decision to use Other Vaccination methods?
- Who made the decision to use the PROPHYLACTIC TREATMENT service/ service provider?
- Who made the decision to use Other PROPHYLACTIC TREATMENT methods?

ILRI African Chicken Genetic Gains (ACGG)

The fact that the questionnaire considers that the head of the household could be either a male or a female shows that it's off to a good start.

- Were there any "entries" of chicken in the last 3 months? if yes, whose decision was it to purchase?
- Were there any "exits" of chicken in the last 3 months? if yes, who pays for transportation?
- · Have you sold any chicken eggs in the last 3 months? if yes, whose decision was it to sell?
- Have you sold any other chicken products in the last 3 months? if yes, whose decision was it to sell?
- Have you received any extension visits or training in the last 12 months? If yes, who used the service / attended training? (code b)
- Has any member of your household taken any loans (cash or in-kind) from this source in the past 12 months?
- If yes, what type of loan, who made the decision to borrow?
- Who makes the decision about what to do with the money/ item borrowed from this source? (code b)

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