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Livestock and livelihoods spotlight

UGANDA

Cattle and
poultry sectors



The Republic of Uganda



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Cattle, poultry and livelihoods spotlight: Uganda

Introduction

Livestock in Uganda contribute to people's livelihoods through numerous channels, such as cash and income, animal source foods, employment, transport, draft power, manure, savings, insurance, social status and other. This brief estimates the benefits livestock generate for households in cattle and poultry production systems, with a focus on meat producing households.

Cattle is the most important source of meat and milk in Uganda, with the country producing over 200 metric tonnes of beef and over 1.5 billion litres of milk per year (UBOS 2015). The majority of cattle farmers are smallholders, who mainly keep indigenous animals. The poultry sector contributes less to the overall supply of meat (about 65 metric tonnes), but households throughout the country keep flocks of birds that their livelihoods. Chickens are the most popular domesticated animal in Uganda and provide a regular source of meat and eggs to a large share of the population. Both the Second National Development Plan 2015/16 – 2019/20 and the Agriculture Sector Strategic Plan 2015/16 – 2019/20 target beef and chicken as priority commodities for development.

Cattle and poultry are raised in a variety of production systems, which differently contribute to household livelihoods. As part of the implementation of FAO Africa Sustainable Livestock 2050 (ASL2050) programme, the Ministry of Agriculture Animal Industry and Fisheries, the Ministry of Health and the Ministry of Water and Environment have engaged stakeholders to characterize the major beef cattle and poultry meat production systems in the country. Stakeholders identified four production systems related to beef and three to poultry meat (table 1 and table 2).

This brief provides evidence of the contribution of livestock to the livelihoods of farmers in the pastoral, agro-pastoral and semi-intensive beef systems, and in the free range, semi-intensive and intensive poultry meat systems. It relies on data from the Uganda National Panel Survey 2013/14, implemented by the Ugandan Bureau of Statistics (UBOS). The National Panel Survey (NPS) is a multi-topic household survey with a specific focus on agriculture and, as such, it allows estimating the contribution of livestock to household livelihoods from different perspectives, including shedding light on the cash income and nutrition related benefits from livestock. The information on household location, herd size, breeds, feeding, watering, housing systems, production, and marketing practices allows assigning households across the different production systems, as defined by stakeholders. Our sample thus consists of cattle keeping and poultry keeping households that have produced some meat out of their animals over the reference period of the survey. Note that as the NPS is administered to about 3 200 households in total, neither it captures information from commercial livestock enterprises nor does it allow the generation of accurate statistics for those livestock sub-sectors that employ a few number of households. Statistics for the beef ranching sub-sector cannot be thus not presented in this brief. This sub-sector, however, while accounting for about 10 percent of the national herd, it only employs few people: the 2010/11 UBOS Census of business establishments reports that there are less than 1 400 animal production enterprises in Uganda, with a total of less than 6 400 employees. In addition, as the survey has not been designed specifically to characterize livestock keepers, statistics at regional level are not presented as not statistically representative. For more information on NPS survey design and sampling refer to Annex 2.

Table 1. Cattle production systems in Uganda

Production systems	Narrative description
Ranching	In ranching system, farmers keep large number of animals (500 – 3 000 per holding) in perimeter fencing, paddocked structures and grazing fields. They keep a mixture of indigenous, cross and exotic beef animals and make substantial investment in animal health management, the purpose of ranching system being the production and marketing of beef, with milk being a by-product. This system is prevalent in the Southwest and the Central 2 sub-regions.
Pastoral	In pastoral or free grazing systems, farmers move cattle from place to place in search of pastures and water. They keep indigenous breeds, with herd size ranging from few to 100 heads. Main products include beef, milk, blood, hides, manure and horns. This system is dominant in the Northeastern sub-region.
Agro Pastoral	Farmers graze largely indigenous cattle in both private and public pastures and also feed them with crops by-products. Cattle produce beef and milk, hides, manure and horns and also provide draught power. Investments in improved husbandry practices, including animal health, are none to minimal. This system is present in the Eastern, Central 2, Western, North and West Nile Sub-regions.
Semi-intensive	Farmers keep cattle, mainly cross-bred, confined in kraals, paddocks and cattle barns/stalls and feed them with compound feed. They also make significant investments in animal health, such as in vaccination and deworming. Cattle produce milk and beef. This system is mainly found in Central 1 and 2 and the Southwest sub-regions.

Source: FAO ASL2050 National expert consultation, 2017

Table 2. Poultry production systems in Uganda

Production systems	Narrative description
Free Range	Farmers keep flocks from a few to a dozen indigenous chickens, which are left to roam around and scavenge for food. Birds are dual purpose, producing both eggs and meat. Live birds are well valued in the market because of consumers preferring their organoleptic characteristics over those of exotic breeds. This system is present across the country, both in rural and urban areas, and particularly pervasive in the West Nile and Southwest sub-regions.
Semi-Intensive	Farmers in semi-intensive poultry systems keep flocks of hundreds birds and are commercially oriented, producing either meat or eggs for the market. They keep birds in permanent structures in deep litter systems and feed them with compounds. Semi-intensive poultry farms are mainly located in peri-urban areas, and predominantly in the East Central and Central 2 sub-regions.
Intensive	In intensive systems, farmers keep thousands of exotic birds of one species, producing either meat or eggs for the market. Housing structures are permanent and feeding is by deep litter system, with maize being the main feed. This system is dominant in Central 1 and 2 and East Central sub-regions, with farms mainly located peri-urban areas.

Source: FAO ASL2050 National expert consultation, 2017

Beef production systems and households' livelihoods

Population depending on cattle

About a quarter of the total Uganda population partly or fully depend on cattle for their livelihoods. In particular, there are about over 8.5 million people living in households keeping cattle and producing some beef, estimated by combining the data from the 2013/14 National Panel Survey and the 2014 Housing and Population Census (UBOS 2014). About 5.7 million people raise cattle in agro-pastoral systems, 2.5 million in pastoral systems, and 0.4 million in semi-intensive systems. There is also off-farm and non-farm employment generated along the beef value chain, such as in slaughterhouses and the retail sector, for which however robust statistics are not available.

Table 3. Number of people keeping cattle and producing beef

Number of people	
Agro-pastoral	5 697 303
Semi-intensive	370 060
Pastoral	2 447 491
TOTAL	8 514 854

Contribution to household income

Figure 1 shows the share of the different income sources for households in the three major beef cattle production systems. These include livestock and crop income, off-farm self-employment, wage employment (salaries) and transfers (including public and private, international and domestic). Livestock income includes revenues from raising all types of animals; self-employment refers to off and non-farm businesses, such as petty craft and trade. Livestock income is estimated as cash income (revenues from sale of live animals and livestock products), plus the value of self-consumed livestock products, minus operating costs such as feed, water and veterinary expenses. The value of non-tradable, such as the provision of haling services and insurances, is not estimated because of lack of data (see appendix 1 for details on the income calculation).

Livestock are a major contributor to household livelihoods in all cattle beef production systems. They represent the largest source of household income in semi-intensive systems (55%), while they contribute 29 and 19 percent to total household income in pastoral and agro-pastoral systems, respectively. In all three beef production systems, wage-employment contributes almost a fifth to total household income.

Table 4 looks at the contribution of cattle to total household income in the different beef production systems. Cattle contributes the most to total income in semi-intensive systems, which also appears the most profitable. One beef cattle in semi-intensive systems is expected to generate an average net income of UGX 476 000 per year, while in pastoral and agro-pastoral systems it generates about UGX 334 000 and 151 000, respectively. As a consequence, and in spite of smaller herds, households in semi-intensive system benefits more from their cattle than households in pastoral and agro-pastoral production systems.

Figure 1. Total annual household income by source for households in different beef production systems

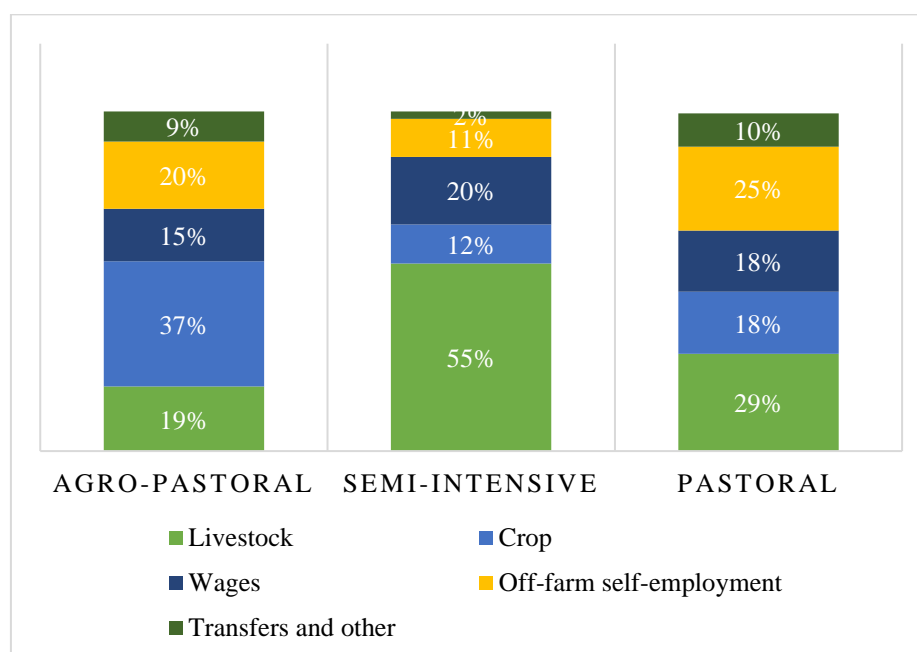
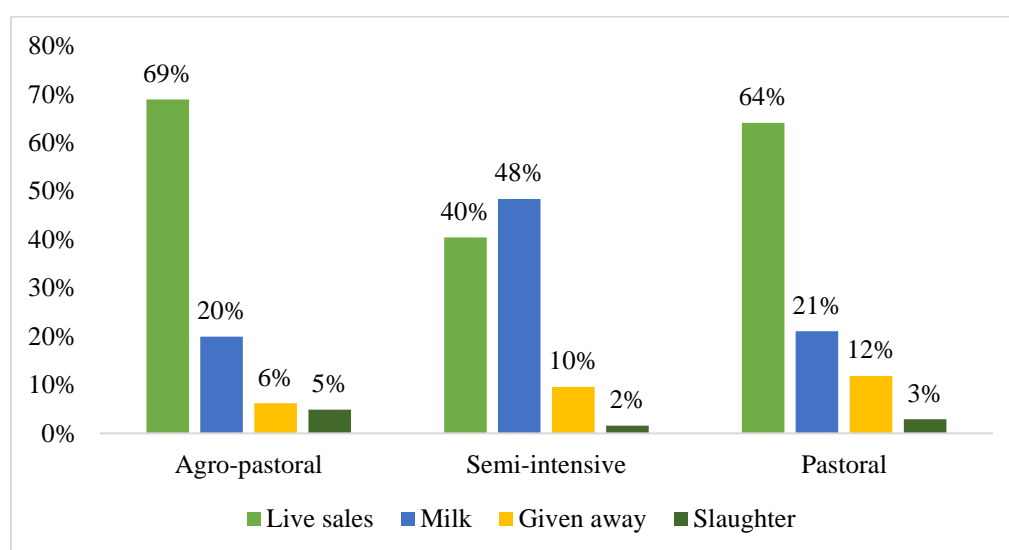


Table 4. Livestock and cattle contribution to household income by beef production system

	Total annual income	Livestock income	Cattle income	Share livestock	Share cattle	Average net income per beef cattle
Agro-pastoral	3 401 847	807 106	625 462	19%	12%	150 936
Semi-intensive	21 100 000	14 900 000	12 500 000	55%	45%	475 825
Pastoral	6 276 189	2 375 127	2 021 779	29%	19%	333 672
All	4 898 197	1 759 340	1 485 765	23%	15%	263 720

Income from cattle in all production systems originates from four main sources, including the sale of live animals; the sale and consumption of meat from own-slaughtered cattle; sale and self-consumption of milk; and the value of animals given away in exchange for goods and services or as social obligations. In all production systems, sale of live animals and milk represent almost 90 percent of all revenues from cattle. However, while in pastoral and agro-pastoral systems the sale of live cattle contributes the most (64 and 69 percent, respectively) to household's cattle income, it is the sale and self-consumption of milk that contributes the most to household's cattle income (48%) in semi-intensive systems.

Figure 2. Source of cattle income for households in different beef production systems



Consumption of animal source foods

Beyond income, cattle contribute to household livelihoods through the provision of food, including mainly milk and meat. Table 5 shows that households in all production systems sell over 50 percent of the meat from own-slaughtered animals, with this share being higher in semi-intensive systems (65%). Households tend to largely consume the milk they produce, particularly in agro-pastoral and pastoral systems, where they consume 72 and 67 percent of the milk produced, respectively.

Table 5. Household sale and self-consumption (%) of beef and milk

	% beef production sold (animals slaughtered at home)	% beef production consumed (animals slaughtered at home)	% milk production sold	% milk production consumed
Agro-pastoral	52%	48%	28%	72%
Semi-intensive	65%	35%	50%	50%
Pastoral	56%	44%	33%	67%

Consumption of livestock products is correlated with income level, with better off households, those in the upper income quintiles, consuming not only more frequently but also larger quantities of both beef and milk than households in the lower income quintiles. About 57 and 61 percent of households in the top income quintile consume on a weekly basis beef and milk, respectively, versus 20 percent of households in the bottom income quintile. The former consume an average of 344 grams of beef and 1.1 litres of milk per week, and the latter about 135 grams of beef and 0.3 litres of milk (tables 6 and 7).

Table 6. Beef consumption by household in different income quintiles

Income group	% of household consuming	Per capita consumption per week (g)
Poorest quintile	20%	135
Moderately poor quintile	30%	190
Middle quintile	41%	242
Moderately rich quintile	48%	276
Richest quintile	57%	344

Table 7. Milk consumption by household in different income quintiles

Income group	% of household consuming	Per capita consumption per week (g)
Poorest quintile	20%	333
Moderately poor quintile	32%	525
Middle quintile	44%	697
Moderately rich quintile	52%	863
Richest quintile	61%	1 136

Poultry production systems and households' livelihoods

Population depending on poultry

Poultry are a popular asset among Ugandan households, with almost 17 million people or over 40 percent of the country population living in households producing some chicken meat. This figure is an underestimation of the contribution of poultry to livelihoods as it does not account for those employed along the poultry value chain, such as traders, feed suppliers, veterinarians and para-veterinarians. About 14 million people raise birds in free-range systems and produce some meat, with 2.2 million people (16%) and 0.6 million (4%) keeping birds in semi-intensive and intensive systems, respectively.

Table 8. Number of people keeping chickens and producing chicken meat

	Number of people
Free-range	14 000 000
Semi-intensive	2 238 873
Intensive	573 241
<i>Total</i>	<i>16 812 114</i>

Contribution to household income

Figure 3 shows the share of the different income sources for households producing chicken meat in the three major poultry production systems. These include livestock and crop income, off-farm self-employment, wage employment (salaries) and transfers (including public and private, international and domestic). Livestock income includes revenues from raising all types of animals; self-employment refers to off and non-farm businesses, such as petty craft and trade. Livestock income is estimated as cash income (revenues from sale of live animals and livestock products), plus the value of self-consumed livestock products, minus operating costs such as feed, water and

veterinary expenses. The value of non-tradable, such as the provision of haling services and insurances, is not estimated because of lack of data (see appendix 1 for details on the income calculation).

In the different poultry production systems, livestock contribute between 18 to 27 percent to total household income. Crop farming is the main income source in free-range and semi-intensive poultry systems, accounting in both systems for about one third of total household income. In intensive poultry systems, livestock is the major source of income (27%), followed by wage employment (25%) and off-farm employment (24%).

Figure 3. Total annual household income by source for households in different poultry production systems

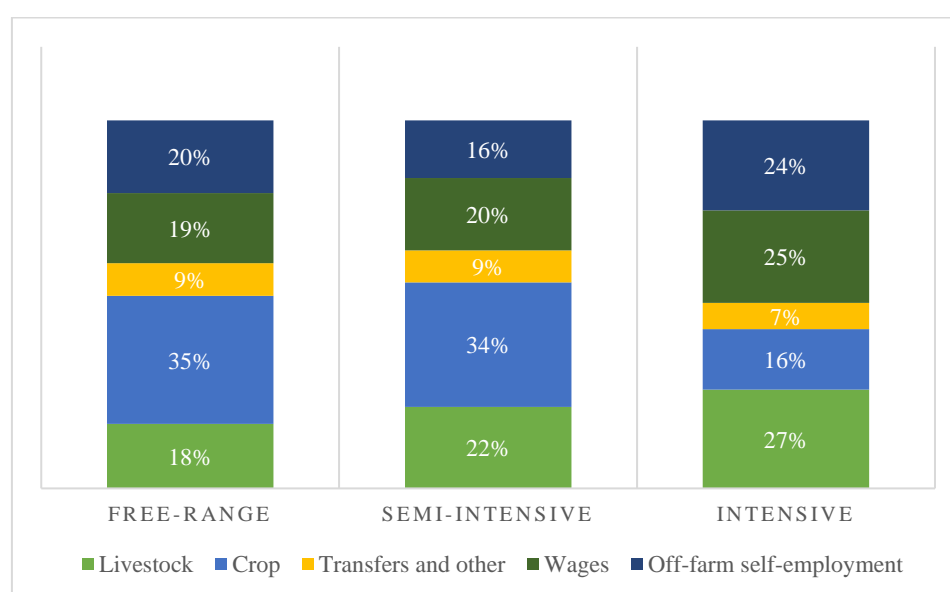


Table 9 looks specifically at the contribution of poultry to household income. On average, poultry contributes about 8 percent to the income of households in the different production systems, and in particular 18, 11 and 7 percent in intensive, semi-intensive and free range systems, respectively. Intensive systems appear the most productive, with an average income per bird of UGX 53 000 vs UGX 25 000 and UGX 8 000 in semi-intensive and free range systems, respectively.

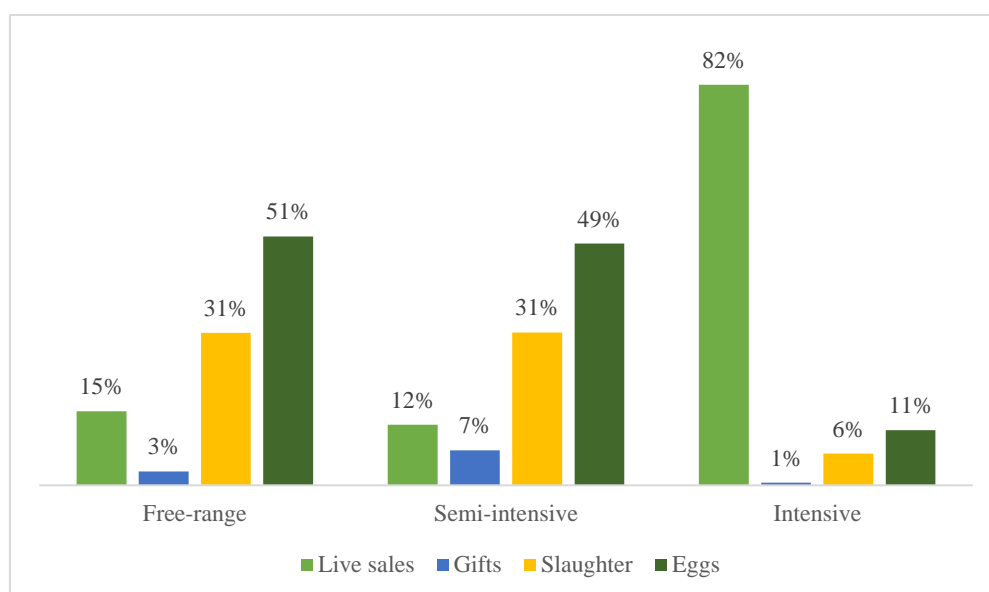
Table 9. Livestock and poultry contribution to household income by poultry production system

	Total annual income	Livestock income	Poultry income	Share livestock	Share poultry	Net income per chicken
Free-range	3 597 400	460 976	73 846	18%	7%	25 093
Semi-intensive	5 151 126	1 131 311	223 978	22%	11%	7 588
Intensive	9 373 757	4 310 818	1 642 010	27%	18%	52 540
Total	4 073 212	727 612	165 464	19%	8%	22 907

Poultry derived income increases with level of commercialization (in intensive systems, it amounts to over UGX 1.7 million UGX versus UGS 230 000 and 80 000 in semi-intensive and the free-range systems, respectively) with income sources also being different by production system. Income from poultry originates from four main sources, including the sale of live birds; the value of birds given away as gifts or in exchange for goods and services; the sale and self-consumption of meat from own-slaughtered birds; the sale and self-consumption of eggs. In free-range and semi-intensive systems, the largest share of poultry income derives from the sale of eggs and meat, contributing in total about 80 percent to total household income in both systems. In the intensive

production systems, it is the sale of birds that contributes the most (80%) to poultry income (fig. 4).

Figure 4. Source of poultry income for households in different poultry production systems



Consumption of animal source foods

Birds generate a regular flow food for household members, mainly thought the provision of eggs and meat. In particular, households in free-range and semi-intensive productions systems consume over 80 percent of the eggs and chicken meat they produce. On the contrary, households in intensive systems, which are characterized for their commercial orientation, sell about 85 percent of their egg and chicken meat production.

Table 10. Household sale and self-consumption (%) of chicken meat and eggs

	% of chicken meat / egg production sold	% of chicken meat / egg production consumed
Free-range	17%	83%
Semi-intensive	16%	84%
Intensive	85%	15%

At national level, there is a positive correlation between household income level and chicken meat and egg consumption. Better off households, those in the upper income quintiles, consume not only more frequently but also large quantities of chicken meat and eggs than households in the lower income quintiles. About 21 and 37 percent of households in the top income quintile consume on a weekly basis chicken meat and eggs, respectively, versus 7 percent of households in the bottom income quintile. The forme consumer an average of 326 grams of chicken meat and 2.2 eggs per week, and the latter about 54 grams of chicken meat and 0.7 eggs per week (tables 11 and 12).

Table 11. Chicken meat consumption by household in different income quintiles

Income group	Share of population consuming	Average weekly per capita consumption (g)
Poorest quintile	7%	54
Moderately poor quintile	9%	86
Middle quintile	13%	93
Moderately rich quintile	10%	108
Richest quintile	21%	326

Table 12. Egg consumption by household in different income quintiles

Income group	Share of population consuming	Average weekly per capita consumption (pieces)
Poorest quintile	7%	0.7
Moderately poor quintile	12%	1.1
Middle quintile	19%	1.2
Moderately rich quintile	24%	1.5
Richest quintile	37%	2.2

Conclusion

Livestock are a popular asset in Uganda and a major contributor to household livelihoods, both in terms of income and food. However, there is heterogeneity between households in the different production systems. This brief described how cattle and poultry contribute and contribute differently to the livelihoods of households in semi-intensive, agro-pastoral and pastoral cattle systems and free-range, semi-intensive and intensive poultry systems. The focus is on households producing some meat. In all cattle and poultry production systems, livestock – including all animals – contribute between 18 and 29 percent to total household income, the exception being for households in semi-intensive cattle systems, for whom livestock contribute 55 percent to their income. As expected there are large differences between and within systems, with on average large ruminants contributing more (15%) to total household income than poultry (8%). Households in all systems also derive much benefit from consuming animal source foods, including meat, beef and milk. While there is a correlation between level of income and consumption of livestock products, the ownership of both cattle and poultry support the consumption of animal source foods, with households in all systems, but for the semi-intensive market-oriented poultry and cattle systems, consuming the largest share of their meat, milk and egg production.

Policy aimed to support livestock sector growth should consider that any transformation of the livestock sector will have direct implications on the livelihoods of a large share of the Uganda population. Decision-makers should not only use production and productivity as the metrics to assess the impact of their livestock sector policies, but also consider their impact on household income, consumption of animal source foods, and poverty and food security more in general.

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Annex 1. Livestock income calculation

Livestock income is calculated using the approach of the FAO Rural Livelihoods Information System. On the revenue side, cash income from live animal and product (milk, meat, eggs etc.) sales and value of products self-consumed is counted. There is some information that we cannot capture using the survey: a proper evaluation of the change in the value of stock cannot be done, since weight gain/loss and changes in value due to age are not available. Additionally, value of dung and draft power used are not included. On the cost side, we deduct the value of livestock purchased and other operational costs including feed, water, medical expenses etc. Livestock sale and purchase prices are determined using self-reported values, taking the median price for each species at the lowest administrative level where at least 3 prices are observable.

Revenues (+)	Costs (-)
A. Livestock activities: change in the cash value of the stock at the average price	
Livestock sold (alive)	Livestock bought Livestock additional expenditures* Crop used as feed Technical assistance/extension costs
B. Livestock products and by-products production	
Livestock by-/products sold Livestock products self-consumed	Livestock by-/products additional expenditures

* Total value of cash expenditures on hired labor, fodder, medicines, vaccination, utensils.

Annex 2. The Uganda National Panel Survey (UNPS) 2013/14

The UNPS is carried out on a regular basis, over a twelve-month period on a nationally representative sample of households. The survey is conducted in two visits in order to better capture agricultural outcomes associated with the two cropping seasons of the country. A household is defined as a group of people who have normally been living and eating their meals together for at least 6 of the 12 months preceding the interview. The UNPS has been set out to track and re interview 3 123 households that were distributed over 322 clusters (UBOS, 2014).

