

Food and Agriculture Organization of the United Nations

### AFRICA SUSTAINABLE LIVESTOCK 2050

Women and biosecurity practices in urban and peri-urban poultry value chains

Evidence from

Kenya & Uganda

ASL

2050



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### Key highlights

- In Kenya and Uganda there is a high presence of women along the urban and peri-urban poultry value chain at the production (57 percent) and market (48 percent) nodes.
- Men have on average higher business volumes than women.
- In most cases, women have a lower compliance with biosecurity practices that involve interaction with veterinarians, such as disease reporting.
- Less women than men use easily cleanable plastic and metal cages at the transport and market node, but there is no difference in frequency of cleaning between the two genders and more women can name at least one disinfectant than men.
- At all the assessed value chain nodes, a higher share of women are above 40 years old than men.
- To our knowledge, it is the first time gender disaggregated data are presented on adoption of biosecurity related practices across the poultry value chain.
- A value chain approach to assess gender differences is an effective way to better design policies and investments that aim at empowering women and support gender equity.

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### Introduction

Sustainable Development Goal (SDG) five promotes women's empowerment and equality of opportunities between men and women. FAO is dedicated to achieve this goal: it recognizes the essential role women play in agriculture and that eliminating inequalities between genders is important to building sustainable and inclusive food systems (FAO, 2020). To this end, it is important to understand women's role in agriculture through available evidence.

It is often stated that two-thirds of the 600 million poor livestock keepers are women (for example: FAO, 2017 or ILRI, 2018). While this estimate has to be handled with caution (LD4D, 2020), it is without doubt that women play an important role in livestock keeping, while they often have limited access to resources through which they could achieve their full potential (FAO, 2011).

The FAO Africa Sustainable Livestock 2050 (ASL 2050) collected data on the practices of actors of the poultry value chain in selected sub regions<sup>1</sup> in urban and peri-urban areas of Kenya and Uganda through key informant interviews. The purpose was to identify gaps in the implementation of biosecurity related practices that reduce public health risks coming from the sector, such as outbreaks of zoonotic diseases and livestock-associated antimicrobial resistance (AMR), to then support policy changes for a more sustainable development of the poultry sector in the long-term. Data were gathered in rapidly expanding urban and peri-urban areas where growing human and animal population density can lead to more frequent human-livestock interaction, which may in turn increase the risk of outbreak and spread of zoonotic diseases. Indeed, out of the total population increase up to 2050 in Kenya and Uganda, 66 percent (FAO, 2019a) and 60 percent (FAO, 2019b) will occur in urban areas and already today there's evidence that livestock density in cities and towns is as high as in rural areas.

<sup>1</sup> Counties in Kenya, districts in Uganda

This brief presents results of the ASL 2050 survey disaggregated by gender. Note that the sample size is small and focused on specific areas and target audiences, i.e. poultry value chain actors in urban and peri-urban areas. Results, therefore, should be evaluated within this context and cannot be generalized to the entire country or other stakeholders. In any case, they provide an insight on women's role and behaviour in urban and peri-urban poultry operations that are likely to become more and more relevant in the future given the current demand and production trends. In addition, at least to our knowledge, it is the first time gender disaggregated data are presented on adoption of biosecurity related practices across the poultry value chain.

### Value chain nodes, data collection and sampling

On the ground, the poultry value chain differs by production system, connections are nonlinear, and it includes a wide range of nodes and related actors, often overlapping (e.g. slaughtering on farm or at the market). As the objective of the survey is to assess actors' compliance with biosecurity related practices and not to characterize the poultry value chain, we interviewed actors performing four key functions along the poultry value chain: production, transport of live birds and meat, processing or slaughtering and marketing/retail. Accordingly, we developed a survey questionnaire on biosecurity related practices for each of these actors.

The survey did not directly enquire about compliance with selected biosecurity practices, but rather asked descriptive questions that did not suggest the "correct" answer, to avoid social desirability bias. Therefore, in some cases, we do not have explicit information on the practice itself (e.g. cleaning) but a proxy (e.g. access to clean water). In both countries, we trained local government staff to carry out the data collection through interviews. Between July and September 2020, we collected data in urban and peri-urban areas in Kenya and Uganda: two counties, Kiambu and Nairobi City in Kenya, and two districts, Mukono and Wakiso in Uganda. All four areas are among the most populous in their respective countries, with total population ranging from 0.6 million people in Mukono (Uganda) to 4.3 million people in Nairobi City (Kenya).





The data from the four study areas- though not nationally representative - confirm a strong

presence of women in the poultry sectors of Kenya and Uganda, particularly among poultry producers (58 percent) and in marketing/retailing (48 percent). Their presence is lower among transporters (16 percent) and slaughterers (28 percent), with great differences between the countries at these two value chain nodes (see Figure 1 and node-specific subsections).

In Uganda, we approached local frontline officers to have a list of key actors at the different value chain nodes, and then used a snowball sampling approach2 to generate the total sample. Only producers with a batch size of at least 200 birds were targeted, and the final sample included 214 participants in representation of all subcounty/administrative units in the two districts. For transporting, processing and marketing all accessible subjects were approached, resulting in a sample size of 41, 55 and 99, respectively. In Kenya, the interviewees were randomly selected from a list of poultry actors possessed by the frontline staff in three sub counties of Kiambu and two in Nairobi, where poultry related activities are widespread. A total of 180 respondents were reached including 100 producers, 20 transporters, 30 processors/ slaughterers and 30 live bird/poultry meat retailers. The gender of the recipients was not a determining factor in the sampling process.

## Poultry production

#### Table 1. Sample size of producers

Producers	Kenya	Uganda	Total
Female	57 (57%)	125 (59%)	182 (58%)
Male	43 (43%)	88 (42%)	131 (42%)
Total	100	213	313

In both Kenya and Uganda, nearly 60 percent of the 313 respondents among producers were women, making it the only node where women are the majority. Nearly 70 percent of the female respondents belong to the age groups 30-50, while the age of men is more equally distributed among the four categories. A smaller share of female respondents (78 percent) received secondary or tertiary level education than men (91 percent), though both shares are high. Most of respondents are farm owners (84 percent) and are located in peri-urban areas (67-69 percent), with no notable difference between genders. Women raise on average six batches of birds per year while men only five. However, the average size of the batches is larger for men who, as a result, raise more birds on an average year: around 7 500 birds with respect to an average of 4 300 birds per year for women. The median number of batches is five for both genders while the median number of birds kept per year is 1 500 for men and 1 675 for women.

#### Figure 2 Producers' age distribution



#### Figure 4 Role at farm



#### Figure 3 Producers' educational background



Figure 5 Farm location



#### Figure 6 Number of batches at farm per year



Female Male



Table 2 presents a list of biosecurity related practices that the survey included. The practices are ordered based on the level of stakeholder compliance of the total sample, from the lowest to the highest percentage. Less than half of the respondents indicated to report sick or dead birds to a veterinarian or an animal health professional. Around 60 percent incinerate or bury dead birds in order to avoid contagion. Around 70 percent use veterinary medicine as advised by a veterinarian or animal health professional. For the biosecurity practices covering cleaning, disinfection, separation of sick birds and vaccination, more than three-quarters of the respondents were compliant. Responses between men and women were very similar; the largest difference was 9 percentage points (66 percent women, 75 percent men) for using veterinary medicine as recommended by a veterinarian.

 Table 2. Share of producers complying with good practices

Assessment criteria	Female	Male	Total
Report dead birds to veterinary official	31%	34%	33%
Report sick birds to veterinary official	35%	42%	38%
Bury/incinerate dead birds	58%	64%	61%
Always gives medicine as advised by vet/health professional	66%	75%	70%
Can name at least one disinfectant	77%	76%	77%
Separate bird from flock if suspected sick	78%	75%	77%
Can easily find veterinary professional	81%	82%	82%
Always observes recommended dosage of medicine	85%	82%	84%
Do not sell sick or dead birds	86%	91%	88%
Always have access to sufficient amount of cleaning water	91%	89%	90%
Can afford necessary vaccines	92%	88%	90%
Clean drinkers daily	94%	92%	93%

## Poultry transporting

Table 3. Sample size of transporters

Transporters	Kenya	Uganda	Total
Female	9 (45%)	1 (2%)	10 (16%)
Male	11 (55%)	40 (98%)	51 (84%)
Total	20	41	61

In Kenya, nearly half (45 percent) of the 20 respondents at the transporting node were women. In Uganda, only one woman was interviewed among the 41 respondents. This results in a total of 16 percent of women in the sample that is 10 observations as opposed to 51 observations for men. About 70 percent of women in the sample are above forty years old, while this share is only



#### Figure 10 Number of live birds transported per week



29 percent among men. Most women (nine out of ten) have finished at least a secondary level education, while 40 percent of the interviewed men have only primary level or no education at all. Women usually transport significantly less birds per week than men do. Only three female respondents transport carcasses, which makes comparison difficult.

#### Figure 9 Transporters' educational background



#### Figure 11 Number of carcasses transported per week



The data on biosecurity related practices shows lowest level of compliance for having a movement permit and reporting dead birds to officials. Most transporters comply with practices related to the three key pillars of biosecurity: segregation (e.g. 95 percent never transport poultry together with other animals), cleaning (e.g. 51 percent clean cages after each transport) and disinfection (e.g. 90 percent could name at least one disinfectant). There is little difference between female and male respondents in compliance with most biosecurity practices, but for two remarkable differences: only 40 percent of women have a plastic or metal cage that can easily be cleaned *vis-à-vis* the 73 percent among men; only 20 percent of men bury or incinerate dead birds with respect to the 44 percent among women.

 Table 4. Share of transporters complying with good practices

Assessment criteria	Female	Male	Total
Always has movement permit	10%	8%	8%
Report dead bird to an official	11%	12%	12%
Bury/incinerate dead birds	44%	20%	24%
Separate bird from flock when sickness suspected	44%	50%	49%
Clean cages after each transport	50%	51%	51%
Can name at least one disinfectant	70%	63%	64%
Use metal or plastic cage (not a wooden crate)	40%	73%	67%
Always has access to sufficient amount of cleaning water	90%	90%	90%
Never transports poultry with other animals	100%	94%	95%

# Poultry slaughtering

Table 5. Sample size of slaughterers

Slaughterers	Kenya	Uganda	Total
Female	4 (13%)	19 (36%)	23 (28%)
Male	26 (87%)	34 (64%)	60 (72%)
Total	30	53	83

There is a relatively low presence of women at the processing/slaughtering node: only 13 percent and 36 percent of the sample were women in Kenya and Uganda, respectively. Around 60 percent of women in the sample are over 40 years old, while among men this share is 24 percent. The distribution of educational background is very similar between the two genders, with the majority having secondary level education (64 percent and 56 percent among women and men, respectively). It is more common

Figure 12 Slaughterers' age distribution



among men to slaughter daily (61 percent with respect to 45 percent among women), but the distribution of the number of birds slaughtered in a month is more equally distributed among women. Men slaughter on average around 825 birds per month, while women only 625. While the median is slightly higher for women, (450 *vis-à-vis* 400 for men) the top 25 percent of men slaughter more than 900 birds per month while this number is only 600 for women.

#### Figure 13 Slaughterers' educational background



#### Figure 14 Frequency of slaughter



#### Figure 15 Number of birds slaughtered per month



#### Table 6. Number of birds slaughtered per month

Number of birds slaughtered per month	Mean	25th percentile	Median	75th percentile	90th percentile
Female	625	200	450	600	2000
Male	828	200	400	900	2000
Total	770	200	400	900	2000

#### Table 7. Share of processors slaughtering at own farm

Slaughtering at own farm	Female (N=23)	Male (N=60)
No	30%	72%
Yes	70%	28%

There is a notable difference between the proportions slaughtering at their own farm: among women 70 percent slaughter at their own farm while among men this share is only 28 percent.

In the overall sample, the lowest level of compliance with biosecurity related practices can be found in using traps against pest or vermin in or around the

 Table 8. Share of slaughterers complying with good practices

slaughtering facility and in declining to slaughter sick birds. The biosecurity practices related to cleaning and disinfection have highest level of compliance (above 70 percent). Overall, for six out of the ten listed practices less than half of the respondents comply.

For several practices, there is a notable difference between female and male respondents. The largest difference can be found in slaughtering in a licensed facility, having a license renewed in the last 6 months and regular inspection by a veterinarian. These differences may be because women mostly slaughter at their own farm, i.e. slaughtering takes place in more informal settings.

Assessment criteria	Female	Male	Total
Use traps against pest/vermin	9%	29%	23%
Declined slaughter in last 12 months because bird was sick	10%	33%	28%
Report sick bird to an official	33%	25%	28%
Have license renewed in the last 6 months	9%	42%	33%
Visit by vet/inspector at least weekly	9%	47%	36%
Slaughter in a licensed facility	17%	52%	41%
Cleans the premises after each slaughter	43%	53%	51%
Keep clean environment around slaughterhouse	64%	72%	71%
Can name at least one disinfectant	83%	72%	75%
Always has sufficient amount of cleaning water	91%	90%	90%

# Poultry marketing

Table 9. Sample size of retailers

Retailers	Kenya	Uganda	Total
Female	13 (43%)	48 (49%)	61 (48%)
Male	17 (57%)	49 (51%)	66 (52%)
Total	30	97	127

There is a nearly equal representation of women to men (48 percent to 52 percent) among market retailers, with a slightly lower (43 percent) share in Kenya. A larger share of women are above 40 years old (50 percent) than men (21 percent). Women have on average a slightly higher educational background: 75 percent of female respondents and 63 percent of male respondents have at least a secondary level education. The number of birds sold per week are similar between both genders: roughly one third sell between 11 and 50 birds per week, while another third between 51 and 200. Women keep on average more birds per day at the market: one quarter keep more than 500 birds while this share is only 8 percent among men.



Male (N=66)

#### Figure 17 Retailers' educational background



#### Figure 18 Number of birds sold per week

Female (N=61)



Figure 19 Number of birds kept at the market per day



Most retailers (93 percent) keep birds for more than a day at the market, which may increase risk of spread of diseases. Reporting levels are also very low: only 14 percent and 31 percent of retailers report dead or sick birds to an official, respectively. On the other hand, nearly two-thirds of retailers clean the cages daily and do not sell any sick or dead birds. More than 80 percent have a fixed stall, metal or plastic cages that are easy to clean and have sufficient access to clean water. For most good practices, there is no remarkable difference between female and male respondents. Women have a slightly higher rate of reporting and are less likely to sell sick or dead birds to consumers. Men more often have fixed stalls and plastic or metal cages to keep the birds safe.

#### Table 10. Share of retailers complying with good practices

Assessment criteria	Female	Male	Total
Keep birds for less than a day at the market	5%	9%	7%
Report dead bird to official	18%	12%	14%
Report sick bird to official	38%	26%	31%
Cleaning cages daily	61%	65%	63%
Not selling dead/sick birds	69%	58%	63%
Use metal/plastic cage	71%	89%	80%
Have a fixed stall	72%	88%	81%
Access to sufficient cleaning water	86%	86%	86%

## Discussion and conclusion

The data provides some insight on women's involvement, characteristics and practices along the poultry value chains in urban and peri-urban areas of Kenya and Uganda. Results should be taken with a pinch of salt and cannot be generalized because the sample size is small and the survey was not designed to assess gender issues and data were collected only in urban and peri-urban areas. They show that women have a strong presence along the poultry value chain (Figure 20), particularly at the production and market level. Women typically manage small animals (FAO, 2011) therefore their presence is likely higher along the poultry than other livestock value chains.



The share of female respondents belonging to the age groups above 40 was higher than that of men at all of the nodes, the smallest difference being 5 percentage points among producers and the largest difference being 42 percent point among transporters. The educational background of the respondents is varying: there is a higher proportion of women with a level of at least secondary education at the transporting, processing and marketing node, though at all nodes men have a slightly higher proportion in tertiary level education. Male transporters and slaughterers have on average larger businesses (more birds transported/slaughtered).

The differences in compliance with biosecurity practices between men and women are presented in Figures 21 to 24. It is important to note that the data does not provide information on whether the non-compliance with certain practices is a personal choice or lack of necessary inputs and information. At the production and marketing node, where women are mostly present, we could not find any notable difference in compliance with biosecurity related practices between genders.

We found the largest differences at the slaughtering node, where women's level of compliance was at least 20 percentage points lower for five out of the assessed ten practices. At the slaughtering node, 70 percent of women slaughter at their own farm with respect to 28 percent of men. This might suggest a more informal environment that can explain the differences, but further investigation and evidence is needed for confirmation.

We found a lower compliance among women for most practices that involve interaction with veterinarians, such as disease reporting (only at production node), advice on medicine use and veterinary inspection at slaughter. This may be due to the dominance of men in the veterinary profession, which might affect communication on both sides.

Another notable difference is that fewer female transporters (33 percentage points less) and retailers (18 percentage points less) use plastic or metal cages to keep the birds.<sup>2</sup> At both nodes, however there is no significant difference between genders in regularly cleaning the cages (only 1 and 3 percentage points). Indeed at the three nodes of the value chain (production, transport, processing) where the respondents were asked to name disinfectants, a larger share of women could name at least one.

The data shows that women play an important role at the different nodes of the poultry value chain in urban and peri-urban areas of Kenya and Uganda, though the men dominate the business at the transport and slaughter nodes. While additional research is necessary to better portray the role of women in the poultry sector, a value chain approach to assess gender differences is an effective way to better design policies and investments that aim at empowering women and support gender equity.

<sup>&</sup>lt;sup>2</sup> Using such cages is recommended as they can be easily cleaned and disinfected (FAO, 2015).

Cleaning drinkers daily	2%
Can afford necessary vaccines	4%
Always have access to sufficient amount of water for	2%
Do not sell sick or dead birds	-5%
Always observes recommended dosage of medicine	4%
Can easily find veterinary professional	-1% 🗖
Separate bird from flock if suspected sick	2%
Can name at least one disinfectant	1%
Always gives medicine as advised by veterinary health	-9%
Bury/incinerate dead birds	-6%
Report sick birds to veterinary official	-7%
Report dead birds to veterinary official	-3% 💻

#### Figure 22 Differences in share of respondents complying with practices in percentage points at the transport node



#### Figure 23 Differences in share of respondents complying with practices in percentage points at the slaughtering node

Always has sufficient amount of cleaning water		1%
Can name at least one disinfectant		11%
Keep clean environment around slaughterhouse	-9%	
Cleans the premises after each slaughter	-10%	
Slaughter in a licensed facility	-34%	
Visit by vet/inspector at least weekly	-38%	
Have license renewed in the last 6 months	-33%	
Report sick bird to an official		8%
Declined slaughter in last 12 months because bird was sick	-23%	
Use traps against pest/vermin	-20%	

#### Figure 24 Differences in share of respondents complying with practices in percentage points at the marketing node



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