

The Role of Extension Training in Enhancing Participation of Women Smallholder Goat and Chicken Farmers in The Livestock Vaccine Value Chain, Sembabule District, Uganda

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ABSTRACT: *This paper explores the role of extension training in enhancing women smallholder livestock farmers' participation in and benefiting from the livestock vaccine value chain (LVVC). The emphasis was on the Peste des Petits Ruminants (PPR) vaccine for goats and New Castle Disease vaccine (ND) for chicken. Using the Focus Group discussions, Participatory Impact Assessment, Outcome mapping, Key Informant Interviews, Questionnaire Survey and Kirkpatrick model of change, the study assessed the impact of extension training which equipped extensionists and women farmers with knowledge, skills, attitude and practice in livestock vaccination and empowerment. The study found that extension training made a tremendous impact on the availability of knowledge and information to women farmers as well as in empowering women's self-autonomy, improved economic status, decision making role in both farm related and family related matters, reduced Gender Based Violence cases and improved productivity in the community.*

KEY WORDS: Extension training, Women agency, smallholder farmers, Livestock, vaccination, Men Role Models

INTRODUCTION

This study was part of a wider project entitled "Hearing their voices: An action research to support women's agency and empowerment in the livestock vaccine distribution, delivery and

use in Uganda, Kanya, and Rwanda”. Nonetheless, this article is focusing on the Ugandan study. The study carried out a baseline assessment in year one (2019), and it was on this assessment that the research established the barriers impeding smallholder women goat and chicken farmers’ participation in the livestock vaccine value chain. The emphasis was on the Peste des Petits Ruminants (PPR) vaccine for goats and New Castle Disease vaccine (ND) for chicken. During the baseline assessment, the participants identified some interventions that could help them improve on farming, amongst which extension training was ranked number one as a priority intervention. This paper therefore, focused on extension training of women smallholder farmers to establish how it caused impact on their participation and benefiting from the livestock vaccine value chain, and how it contributed to women empowerment.

LITERATURE/THEORETICAL UNDERPINNING

Livestock play a critical role in the livelihoods of more than 900 million people in sub-Saharan Africa and South Asia (FAO 2018). Livestock, as a store of wealth as well as a source of income and nutritious food, can provide meaningful opportunities to support livelihoods in low- and middle-income countries, particularly for rural women (Baltenweck, 2022). Livestock has been described as an asset that women can own more easily and this can contribute to a reduction in the gender asset gap within households (Njuki et al., 2013). Furthermore, farmer groups in sub-Saharan Africa are considered important vehicles for rural development, promotion of agricultural productivity, and improved economic growth of communities, especially women (Kimaiyo et al. 2017). In Uganda, women comprise 70–80 per cent of the agricultural workforce, yet at least a third of the women live in absolute poverty (Uganda Bureau of Statistics 2016). Majority of agricultural works are done by women farmers (FAO, 2011) and thus empowering them will have far reaching effect on agricultural development. Also, it has been reported that women provide most of the labour related to livestock particularly goats and chicken raising (Tukahirwa et. al., 2022). Most of these women farmers are on smallholder scale. Smallholder farmers have different definitions varying from area to area and country to country. Smallholders are small-scale farmers, pastoralists, forest keepers, fishers who manage areas varying from less than one hectare to 10 hectares. Also according to Knight (2022), smallholder farmer is a producer who rears livestock, raises fish or cultivates crops on a limited scale.

In the developing world, a smallholder farm is a family- owned enterprise operating on up to 10 hectares, or 24 acres, with most smallholder farmers cultivating less than 2 hectares, or 5 acres, of land.

On the other hand, farmers need extension training in order to improve on their knowledge and information that they have on livestock keeping and this helps them increase on their income and productivity. According to FAO (2019), extension is essentially the means by which new knowledge and ideas are introduced into rural areas in order to bring about change and improve the lives of farmers and their families. Extension, therefore, is of critical importance. Without agricultural extension, farmers would lack access to the support and services required to improve their agriculture and other productive activities. Extension is an

informal educational process directed towards the rural population. This process offers advice and information to help them solve their problems. Extension training also aims to increase the efficiency of the family farm, increase production and generally increase the standard of living of the farm family (Khalid, 2019). Agricultural extension programmes have been one of the main conduits of addressing rural poverty and food insecurity. Furthermore, extension programmes help in increasing farm productivity, farm revenue, reduce poverty and minimize food insecurity (Abbeam, et al., 2018). According to Feder et al, (2010), extension training helps in detecting illnesses amongst livestock and implement preventive measures, thereby reducing the need for costly veterinary services. Extension must build on the knowledge that already exists. However, studies in Africa and elsewhere have established that farmers, both men and women, lack access to the information and knowledge they need to improve their livelihoods (Mudege et al. 2015). However, women are regarded as worse off. Extension training of women smallholder farmers is an important and critical component in enhancing farming skills and taking knowledge based decisions.

For women farmers to improve on their productivity, they need to be empowered. Empowerment is defined as increased women's decision-making authority related to agricultural resources, management and production, and income (Anderson et al., 2020). The empowerment of women is related to poverty alleviation which is one of the objectives of the Millennium Development Goals (MDGs) that were launched in 2010. Empowerment means "giving authority" since power means not only "effort" but also "power—control" so that "empower" is not only stands for "able" but also "having a power—control" (McIntosh & S, 1991).

Furthermore, access to agricultural extension is regarded as important in achieving agricultural development, poverty reduction, and food security according to Feder, Birner, and Anderson (2010). Even though the agriculture sector is increasingly becoming more technologically sophisticated, commercially oriented and globally integrated, women have little access to agricultural information/extension training provided by agricultural extension officers (IFPRI, 2020). Most of the Agricultural Extension Systems (AES) and programmes that provide training and assistance to small scale farmers tend to target men because they are the household heads and often have more access to productive resources such as land. In the process women who constitute more than 70% of the farmers are overlooked. Due to this reason, rural women face a number of constraints which negatively affect their role in agricultural production (IFPRI, 2020), however, according to Galie et al. (2018), numerous strategies have been proposed and used to enhance farmers in low- and middle-income countries such as giving those agricultural inputs and extension trainings. Pealore (2020) argues the need for what he calls true participation; a process where technologies, problem assessments and solutions are designed by communities rather than prescribed for. This can be achieved by better understanding the cultural and social set up of communities. Unfortunately, development agents or planners and donors (development partners) are quite distant from this reality and tend to define the development path for communities (Pealore 2020).

Thus, extension training is one of the important components to educate, up skill and motivate smallholder women farmers, community vaccinators and role men models to apply scientific practices in farming. Generally, participation of women farmers were observed to be below the desired level in various agriculture extension training programs. Extension training is vital; reason being that when women possess less information, they are less able to participate in decision-making processes on the farm (Fisher and Carr 2015). This is so, despite the fact that women are the key actors for the implementation of disease mitigation strategies. Once they are given information about the ways in which these diseases are transmitted and trained in safe food processing practices, there will be an increase in livestock and in production respectively (Miller, 2011).

In this case, this study assessed extension training as the process of imparting knowledge and skills to smallholder women farmers in vaccine distribution, delivery and use. The study first conducted extension training to men and women farmers, men role models, Community Development officers, Veterinary Officers and community vaccinators before an end line assessment was conducted. Community Vaccinators were further given internship attachment to various drug shop operators to gain more skills and experience. The study was part of an action research set out to assess the role of extension training on the vaccination uptake and women empowerment amongst women small holder chicken and goat farmers in Sembabule District.

METHODOLOGICAL APPROACH

Study Area

The Study was conducted in Sembabule District of Uganda between June 2021 and March 2023. This consisted of a one and half year of intervention of extension training in the target communities and was then followed by a four months end line study running from December 2022 to March 2023. This article specifically presents the results of the end line assessment. The assessment was a cross sectional study targeting the five sub-counties in Sembabule where training intervention had been carried out. The sub-counties were; Mateete, and Mijwala in Mawogola County, and Kyera, Ntuusi and Bulongo sub-counties in Lwemiyaga County. The district has a population of 252,597; 50.2% males and 49.8% females (Ministry of Trade Industry & Cooperatives 2019). Sembabule District was purposively selected because it is predominantly livestock keeping with a history of PPR disease outbreaks. It consists of two counties, Mawogola and Lwemiyaga: pastoral and mixed farming.



**Figure 1: A map of Sembabule District
Data Collection**

DATA COLLECTION METHODS

The study adopted a combined research approach using quantitative research methods (questionnaire survey) and qualitative/participatory research methodologies, involving desk top review for secondary data, Focus Group Discussions (FGDs), Key Informant Interviews (KIIs) and Participant Observations and was cross sectional in nature which took four months from December 2022 to March 2023. All the focus group discussions and key informant interviews were guided by checklist tool questions.

Participants in the focus group discussions and key informant interviews were purposively selected. A homogenous group of 6-10 participants were engaged for 2 hours. Participants were in the categories of: 1. Women farmers 2. Men farmers 3. Veterinary personnel 4. Community Development Officers 5. Community Vaccinators 6. Photo-voice women participants 7. Community and political leaders 8. District and sub-county administrators 9. Agro-vet shop operators 10. Veterinary drug and vaccine distributors and 11. Vaccine manufacturers. In FGDs, participants were facilitated to discuss and analyse the issues of concern. These were guided by a researcher and a note taker.

Data Collection Tools

The data collected was in form of information from the participants only after signing a consent form to participate. Data collected was on: 1. Vaccines, vaccination and vaccine cold chain, 2. Training, knowledge and information sharing, 3. Women groups and networks and 4. Women status and empowerment. The qualitative data collection tools used were: Proportional piling, before and after scoring and Pair-wise ranking. These methods also involved the use of Semi-structured interviews as part of the methods and they were conducted through FGDs (See Table 1) and KIIs with the support of checklist tool of questions guiding the interviews.

Sample Achieved

For both qualitative and questionnaire survey the methods and number of participants are summarized in table1.

Table 1: Summary of the methods used and number of participants

Method used	N° of events	N° of participants								
		Technical staff		Farmers		Leaders		Agro-vet shops and distributors		Total
		Men	Women	Men	Women	Men	Women	Men	Women	
Focus Group Discussions (Using USAID 5 Domains of Gender Analysis- Qualitative)	4	-	-	18	24	-	-	-	-	42
Participatory Impact Assessment (PIA)- Focus Group Discussions	10	7	11	32	48	-	-	-	-	98
Outcome mapping Focus Group Discussions	4	-	-	16	24	-	-	-	-	40
Key Informant Interviews	19	3	4	1	2	1	2	5	1	19
Questionnaire survey	1	-	-	77	242	-	-	-	-	319

Informed Consent

A standardized written informed consent document was developed and used for selected participants to obtain their consent to participate in the study, prior to their participation. One participant was chosen by the participant to sign on the consent form on their behalf. Consent forms were only available in English and for the local language, a team member or a participant was picked to help in the interpretation. Participation of the interviewees was completely voluntary and anyone that was not interested was excluded.

Confidentiality and Organization of the Data

Participants at the focus groups were given codes, and personal identifiers were not stored directly with the data. For any future reference, a list of names and contact information of participants is maintained.

Questionnaire survey

The aim of the questionnaire survey was to collect quantitative data to complement data collected through the qualitative study assessments. Ten enumerators were recruited from ten parishes in the 5 sub-counties where data was collected from. The enumerators were all trained on filling the survey questionnaire using a smartphone. A range of 30 minutes to 1 hour was determined to be the average time for completing one interview. Pre-testing was done in Lwabaana parish in Mijwala Sub-county and it was agreed that data collection immediately commences after pretesting.

As for data collection and supervision, each enumerator was tasked to interview at least 30 farmers of which 3 to 6 had to be males and 24 to 27 females. Respondents were randomly selected but the requirement of being either a goat or indigenous chicken farmer had to be observed. After this, data cleaning and management was done. In total, 319 farmers were successfully interviewed from 251 households. Of these 73.3% were females and 26.7% males. In regard to type of household, 182 women and 85 men interviewed were from dual male-female adult households and 73 from female adult-only households.

Data Analysis

The data collected was analyzed using qualitative and quantitative analysis tools. For qualitative analysis the following tools were used: Coding, Organizing data into categories and themes, Using extracts and quotes, organize the information from different groups and interviews, Present semi-quantitative data from scoring and ranking matrices and use of pictures.

As for the quantitative data, the main analysis was descriptive statistical analysis using frequency tables, proportions, and graphs (both pie charts and bar graphs).

RESULTS/FINDINGS

The study results are organized and discussed in sections and sub-sections, under the respective sub-headings below:

Knowledge and information

From both the qualitative assessment and the questionnaire survey, training was reported to have had the greatest impact amongst all the study interventions. As shown in table2, the Focus Group Discussions (FGDs) by the technical staff scored and ranked training as number one amongst the various interventions during the study. The technical staff that participated in the FGDs were the Community Development Officers, Veterinary Officers and Community Vaccinators. Extension training was scored highly because farmers needed more knowledge

and information in order to improve on goat and chicken vaccination and other farming practices.

Table 2: Study interventions by the technical staff: Tool used, Pair wise ranking

Activity	Score	Rank
Extension Training	12	1
Cold Chain	10	2
Community vaccinator	8	3
Women Group Networks	6	4
Restocking	0	6
Photo Voice	2	5

Using the before and after scoring tool, women participants scored acquiring knowledge in animal health and management to have been the greatest change caused by the study intervention (**Table 3**). This was across all the five sub counties where the interventions were administered. Women participants argued that, since they have been having high mortality rate of their livestock due to little or no knowledge and information about animal health and management, the extension training equipped them with what they had longed for, thus scoring it the greatest amongst all the interventions that they received.

Table 3: Women participants scoring the changes caused by the study interventions

Tool used: Before and After Scoring

CHANGES DUE TO INTERVENTIONS	BEFORE (SCORES)	AFTER (SCORES)
Knowledge in animal health and Management	2	13
Knowledge in gender	3	7
Community vaccinators	2	9
Accessibility to vaccines	4	10
Availability of Cold chain-(Solar fridges)	0	3
Development (Household and community)	6	9
Vaccination of chickens and goats	4	10
Cooperation in homes	4	6
Household Income	6	8
Increase in chickens and goats	3	10

Extension trainings empowered women with skills in livestock management including vaccination and animal healthcare which has enhanced their ability to care for their animals thus, improved ability to care for their animals effectively. Although the training was largely

targeting women, men also participated actively. The involvement of men in the trainings indicated the appreciation and support from the community as a whole, highlighting the importance of these skills in the overall development and prosperity.

Similarly, for men, they noted that the trainings have had a positive impact on livestock rearing and animal healthcare. They gained knowledge and skills that have resulted in increased income and reduced animal mortality. However, unlike women, the men indicated challenges such as the availability, pricing, and accessibility of vaccines and veterinary services still exist and need to be addressed to further enhance livestock rearing practices and animal health in the communities.

The Sembabule District Veterinary Authority also reported that extension training had the greatest impact. One of the veterinary authority respondent had this to say: *“The most successful intervention was extension training and imparting knowledge on private and public animal health officers, building their capacity especially on animal health services on goats and poultry diseases, and now farmers know vaccination. Goat and poultry production has really been enhanced”*- (KII- District Veterinary Authority, Sembabule).

In the study it was pointed out that a component of training of trainers (TOTs) built capacity of both the veterinary personnel and community development staff who were adequately trained, and they were able to extend the knowledge on animal health and gender to women farmers and some men in the communities. As can be seen in figure1, the majority of the people who benefited from the training; that is both women and men farmers had primary level of education, followed by no formal education and the least proportion was that who had studied up to tertiary level. Nonetheless, this did not hinder them from acquiring new knowledge information since the training was in the local language and also appropriate facilitatory methods were used to deliver the training.

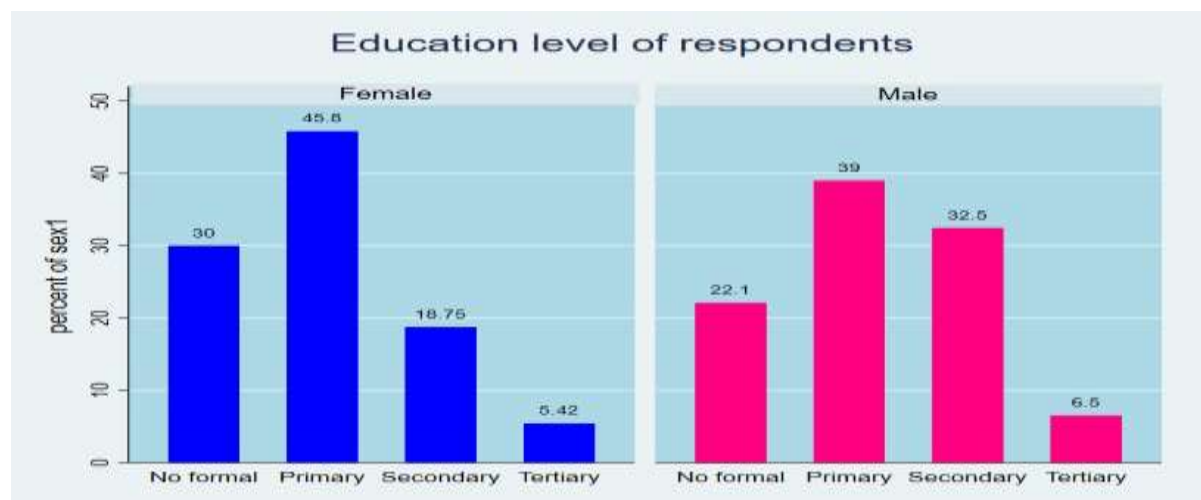


Figure 1: Level of education of the respondents by Gender (Questionnaire survey)

Despite the low level of educational attainment, majority of the respondents (66%) indicated that they had attended training in the last 12 months (**Figure 2**).

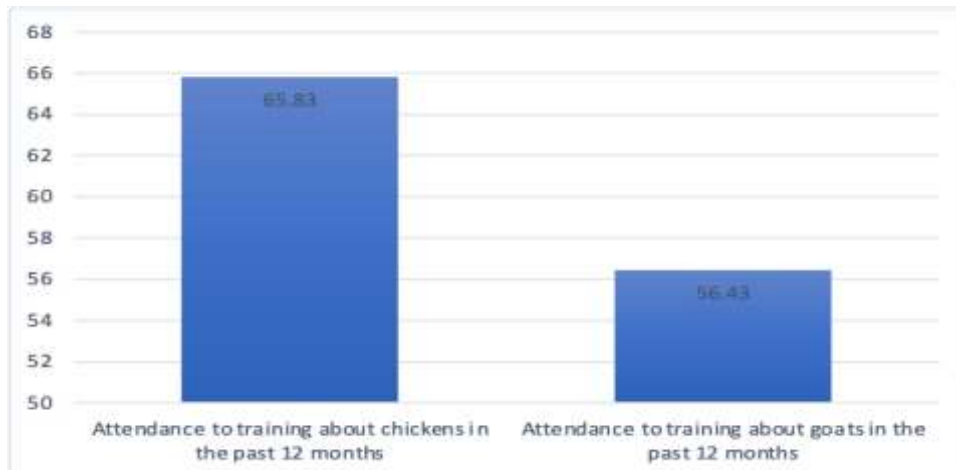


Figure 2: Respondents who attended training in the last 12 months (Questionnaire survey)

Furthermore, the acquisition of knowledge from training was segregated by gender in **Fig 3**. Women who had knowledge on chicken health were 76.5% and knowledge on goat health 75.6%. Men who had knowledge on chicken health 23.5% and knowledge on goat health 24.4%.

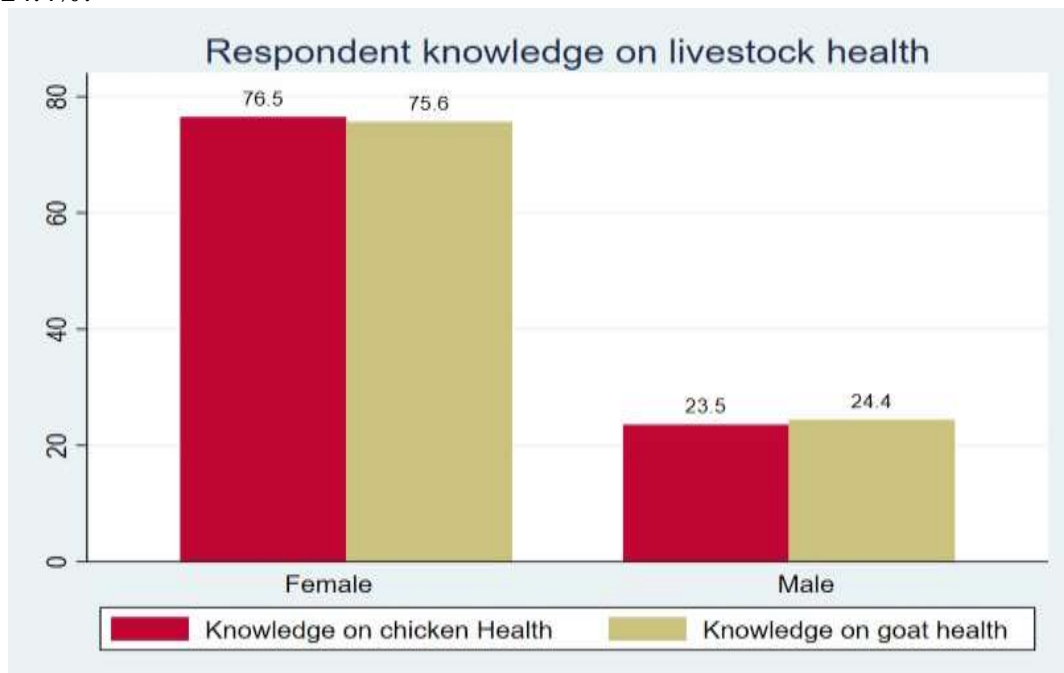


Figure 3: Respondents Knowledge on livestock health by Gender (Questionnaire survey)

This is because the training intervention targeted mainly women with some few men encouraged to attend the trainings.

Knowledge that participants achieved from the training

The farmer participants mentioned that they acquired some knowledge from the training as mentioned below:

- Types of diseases for livestock and when they occur (outbreaks)
- Vaccination of chickens and goats
- Modern farming
- Treatment of chickens and goats
- Making Brooders
- Budgeting and planning in the homes
- Feeding of animals
- Working together at household level
- Sharing of gender roles in households
- Respect in homes (Man, Woman and children)
- Paying school fees for children
- Some women now contributes to building houses
- General Cleanliness

This has equipped the poultry and goat farmers to prevent animal diseases, rather than waiting for the disease out breaks like ND and PPR come and wipe off their flocks. Nonetheless, Sembabule smallholder poultry and goat producers, did not understand biosecurity and disease prevention prior to the training.

Even service providers benefited a lot from training. The majority of Community Vaccinators highlighted that internship training both in Sembabule and Masaka exposed them to a great deal of knowledge and skills. Training bridged up the knowledge gap i.e., animal health, gender issues and group dynamics. So, in areas of animal health, gender and group dynamics, there was more knowledge that the participants acquired.

The information obtained through focus group discussions and key informant interviews with women and men farmers was in agreement with the results from the questionnaire survey. For instance, 75% and 66% of women respondents indicated that they had easy access to information on chicken and goat raising respectively. On the other hand, 62% and 64% of men respondents indicated that they had easy access to information on chicken and goat raising respectively (**Figure 4**).

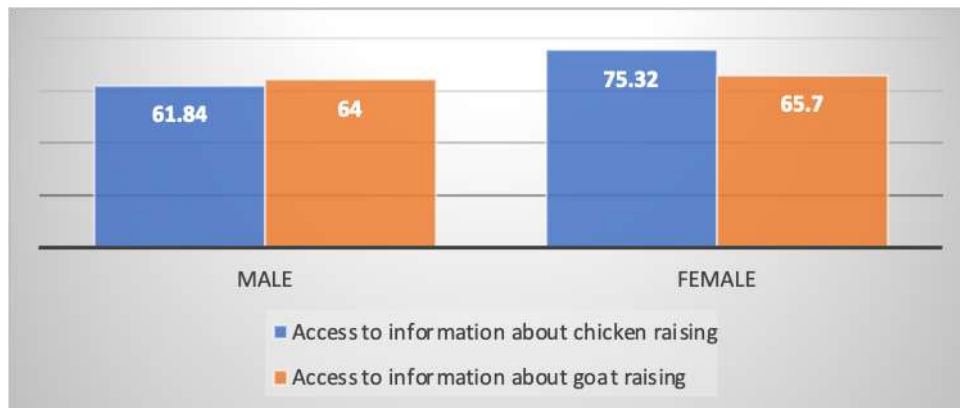


Figure 4: Ease of access to information about chicken and goat raising (Questionnaire survey respondents) gender perspective

Furthermore, 61% and 56% of the respondents indicated that they acquired some knowledge on chicken health and goat health respectively (**Figure 5**)

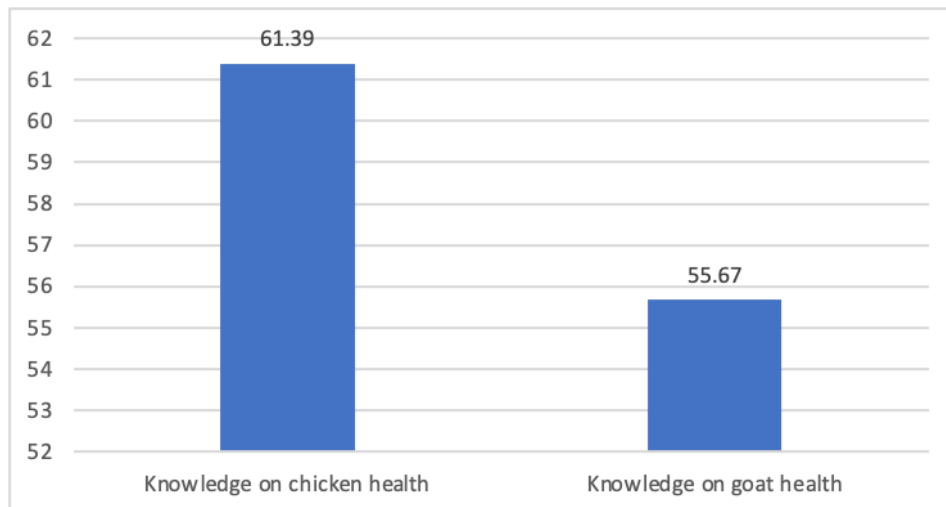


Figure 5: Knowledge on goat and chicken health (Questionnaire survey respondents)

In addition, as can be seen in **Fig 6**, women who knew about ND were 77%, those that had information on ND vaccination were 77%, those that knew that there is PPR vaccine were 73.9%, those that knew about PPR disease in goats were 75.7% and those that had information about PPR vaccination were 74.5%. On the other hand, men who knew about ND were 22.9%, those that had information on ND vaccination were 23.1%, those that knew there is PPR vaccine were 26.1%, those that knew that there was ND vaccine were 23.2%, those that knew about PPR disease in goats were 24.3% and those that have information about PPR vaccination were 25.5% respectively.

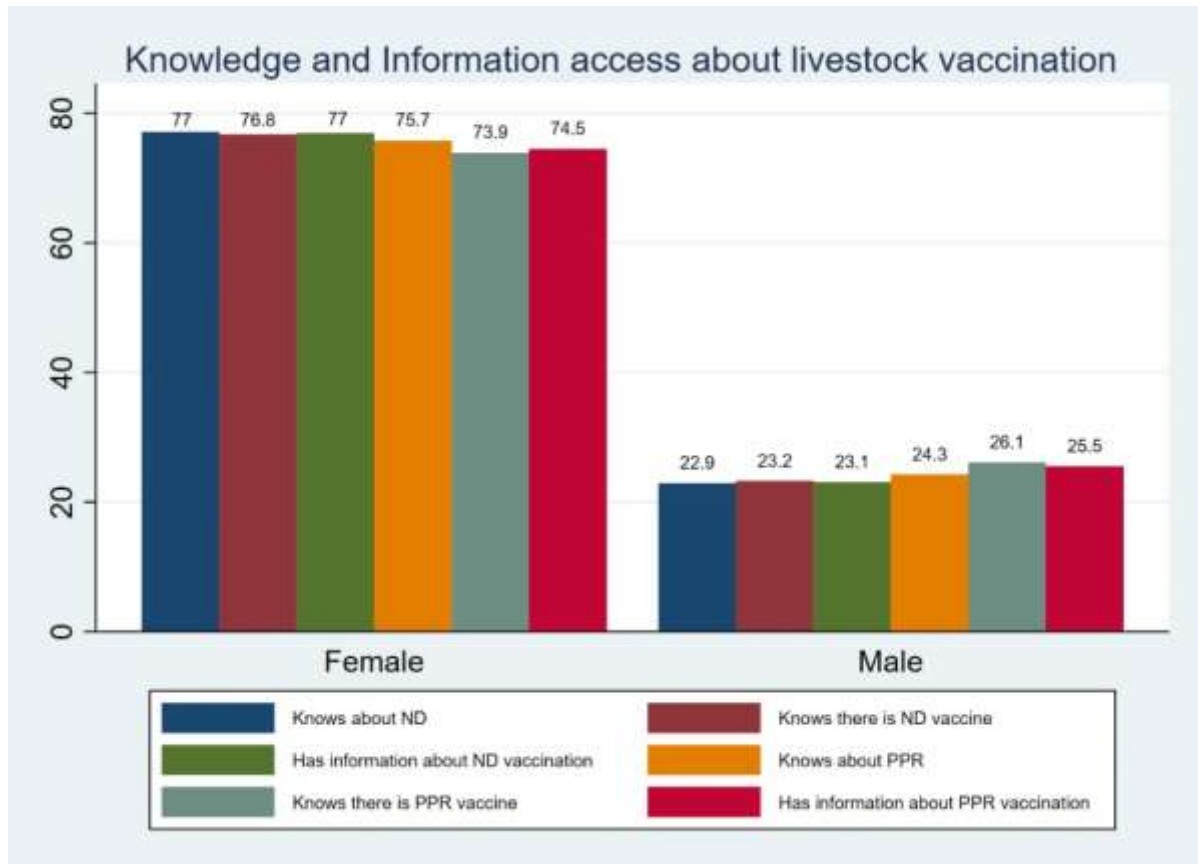


Figure 6: Knowledge and access to information about chicken and goat vaccine by gender (Questionnaire survey respondents)

During the FGD of technical team in Sembabule, increase in disease awareness was scored as follows:

1. Before the training, PPR awareness was at around 40 and then after it rose to 85. For ND, it was at around 20, then after the trainings it shot up to around 70. The reason was that farmers did not know the different diseases and how to detect them in their flocks before the training.
2. Internship training of community vaccinators was ranked second. Reason being that it changed the private animal health service providers since they got more knowledge, income, and skills in financial management. It also helped them to gain skills in disease diagnosis, but also it improved their status in the community as Community Vaccinators since they were confident of what they were doing. Interns also learnt customer care, how to handle cold chain, different ways of identifying and distinguishing different drugs and vaccines, when to treat and vaccinate.

During FGD, one participant had this to say: *“For me I kept chicken but I didn’t know that even chicken take water. I learnt that the chicken can be fed and be given water from the*

training. I learnt how to keep goats. At first I thought that when you buy a goat or when you are keeping goats, you just open for it and it just goes and looks for food and brings itself back in the evening. But I learnt from the training that the goat is supposed to be vaccinated and looked after, a goat takes water and also when you go to the market and buy a goat, you are not supposed to mix it with the rest. First isolate it from the rest and monitor it and confirm if it has not come with the disease”- (Bulongo-Women Farmers FGD). This really proves that trainees were equipped with knowledge and information in disease biosecurity.

Another participant had this perspective: *“The study taught us to work together. We learned to unite with our husbands and children. Working together in rearing livestock. We also learned that when a woman gets a problem you need to work together with your husband”- (Matete female farmers OM FGD).*

Attitude and behavior

It was reported that extension training on animal health, husbandry and vaccination enabled farmers to realize the importance of vaccination and therefore increased the demand for PPR and ND vaccination services. This changed their behavior from the unsafe and local self-vaccination tendencies to seeking help from the trained personnel. However, previously, farmers had a negative attitude towards female animal health service providers and they despised them. They thought that female vaccinators can't do the same job of animal vaccination as male.

They used not to call them to vaccinate their livestock but after extension training they drastically changed their attitude and behaviour towards the female vaccinators. They now trust them and believe that they can do the same job as their male counterparts. They call them for advice, to treat and do vaccination of their livestock. Also due to gender trainings, men, women and children changed their behaviour and this brought peace and harmony in homes.

During the FGD of the technical team in Sembabule, one of the participants had this to say: *“Before these trainings about business and mindset change, a man was viewed as the sole owner of all the household property; currently, there has been change of attitude and mindsets about household resource ownership”.* This is a positive development in the rural household dynamics in Sembabule District.

In Sembabule, women now own property most especially the inherited ones and those who have money can also buy land and own it. However, that was not the case before, even the inherited property, men couldn't allow their women to own it. The trainees more so, the service providers reported a change in their behavior and attitude towards farmers. This was so because they reported previously having been ridged and non-cooperative to farmers. For example, one of the Community Vaccinators had this to say: *“If a farmer showed up and asked me for help, I would sometimes rudely send him/her away saying that I was busy yet in real sense, I lacked some knowledge and had no vaccines. But since I have knowledge and vaccines now, I welcome them, talk to them soothingly and end up providing a service that they end up paying for. Even in circumstances where I am unable to handle the issue at hand,*

*I still give these farmers hope and then refer them to some more qualified service providers like veterinary doctor. Also during mobilization, I have learnt to keep time because it is always more meaningful if I arrived first on the training site. Basically having the business concept at the back of my mind guides me on how to handle my clients, the farmers, such that they are able to come back for more services. My business skills have now elevated in terms of how to speak to customers and the quality of services I offer”- **A Community Vaccinator during the FGD of Technical team, Sembabule.***

The gender and development training that was given to women farmers had a lot of impact not only on the farmers but on service providers as well. One Community Development Officer (CDO) had this to say: *“Previously I never took it seriously and thought that if both husband and wife had income generating activities they were running separately in a home, they were likely to fight and split up. But after looking at the concept of working together as husband and wife and supporting each other, it has emerged clearly that joint income generation develops and stabilizes the home better and to its climax”.*

Another female Community Vaccinator had this to say: *“These trainings have not only changed us, but also the farmers’ perceptions and acceptance of the female extension service providers, who, in the past, were highly associated with inferiority, inability and weakness. But after the training (of both the service providers and farmers), the farmers prefer to specifically seek services from the female service providers. The farmers now know, respect and consider us capable excellent service deliverers”.*

Another Community Vaccinator had this to say: *“According to me, the observed community change has improved and informed vaccination services seeking behavior. Previously, the farmers used to ignorantly pick vaccines and at irregular intervals; but with time, I have noticed improved knowledge on the use of vaccines and when to apply them, especially the ND vaccine. So, the extension training given by the project has caused a lot of change in the way farmers perceive and use vaccines”.*

Also, there were reports that after training, more men are allowing their women to attend trainings unlike before, especially in the communities of predominantly cattle keepers, where men are considered superior and overall decision makers. In the past, farmers used to associate invitation to attend trainings with incentives like sodas and transport refund and as such, those organizing the training would struggle begging them to attend trainings. But after realizing how important these trainings have been, it’s the farmers who have been begging the training organizers to allow them attend training.

Gender transformative training of women farmers was ranked third. The reason being that many women farmers had lost morale in doing business, and through the gender trainings, they came back to do business. For example, they were empowered on the ownership of property after the training, also it was reported that the inferiority complex amongst women who participated in the gender training was broken i.e., women’s self-image after the training improved as they could engage in leadership.

Even in homes, they reported lots of changes in attitude attributable to the training by SheVax. These changes are:

- There is now transparency amongst family members, particularly men and women
- Men and women are working together for the good of their families
- Men are able to help their wives in some household chores.
- Willingness to pay for animal health services
- Women are contributors to development of the home
- Men know their responsibilities and know the responsibility and capability of women.

One woman participant had this to say: *“My husband can now come to the kitchen and we chat as I prepare or cook. Before, he used not to go to the kitchen”*- (**Bulongo-Women**

Farmers FGD).

Others had this to say: *“I used to know that it was a man to buy sauce for a visitor at home, but now women also do it”*- (**Bulongo-Women Farmers FGD**). *“I appreciate the importance of training for behaviour change. School fees, medical bills, clothes and other basic needs have increasingly become very hard to meet; but when my husband attended trainings, he comes around and help”*- (**Woman farmer, FGD Mijwala- Mabindo**).

Skills and practice

Participants in the various FGDs highlighted the following as what they have been able to put into practice:

- Vaccinating goats and chickens
- Keeping local chicken as commercial initiatives
- Keeping goats for commercial purposes
- Training fellow women at village level
- Caring for their husbands at home
- Respecting the children at home

Participants went on to give details on what they have been able to put into practice after SheVax training. Training has increased the skills for Community Vaccinators. One Vaccinator in an FGD of the technical team, Sembabule had this to say: *“My skills in vaccination have improved greatly, I have made more friends as well, and now am popular in the community”*. Vaccinators got more skills in vaccinating goats and chickens after the SheVax training interventions. Trainings on gender that were offered to women groups have helped so much in empowering the women farmers and also given room for help from their husbands. Also Community Vaccinators reported that after the training, their communication skills with the farmers have improved. They now communicate with customer care in mind and they are able to build rapport, which give them confidence and freedom to share ideas with farmers.

Also the trainees have improved in their time management skills. The trained veterinary personnel, especially when mobilizing farmers, they are considerate of their daily activities and schedules.

Furthermore, the farmers' capacity to keep farm records has improved. This was after the training and enhancement by use of vaxxer calendars. The training team was engaged to train other famers especially on cost benefit analysis and the economics of farming, particularly poultry agri-business.

Training resulted into the increase of the number of people demanding for vaccines. It also resulted in the increase of awareness of the diseases by women farmers and especially ND in chicken and PPR disease in goats. One participant attested thus: *"I had about 28 chicken, they fell sick and started dying when I was still there, we went for trainings and from there, I called the vaccinator and vaccinated them as I talk now, other than the family problems, I have 68 chicken now from 28. I have 3 chicken that lay eggs twice in 24hrs"*-(**Bulongo-Women Farmers FGD**).

DISCUSSION

From this study, it was clear that extension training intervention contributed to the increase of farmers' income and productivity reason being that the knowledge and information that the technical staff received was transferred to the farmers. Though farmers also received extension training, the technical staff had to continue nurturing, giving them knowledge and advice on issues regarding farming and gender respectively. This perspective was both from the farmers and the technical staff and this in agreement with Bonye et al., (2012) who reported that agricultural extension had great impact on development of rural communities. Women participants arguing that, since they have been having high mortality rate of their livestock due to little or no knowledge and information about animal health and management, the extension training equipped them with what they had longed for, thus scoring it the greatest amongst all the interventions that they received. This agrees with the study by Feder et al, (2010), who reported that extension training helps in detecting illnesses amongst livestock and implement preventive measures.

From this study, it was clear both men and women benefited from the extension trainings and acquired valuable knowledge in this area. This agrees with Galie et al., (2018) who reported that numerous strategies have been proposed and used to enhance the empowerment of farmers in low- and middle-income countries. Some strategies have focused on empowerment through education and marketing training. Participants gained knowledge on better animal husbandry practices and appreciated utility out of use of available limited land resources for production of chicken and goats, as well as attaching value to local chicken breeds as opposed to their traditional practices of not taking care of local chicken. Similarly, for men, they noted that the trainings have had a positive impact on livestock rearing and animal healthcare. They gained knowledge and skills that have resulted in increased income and reduced animal mortality. This agrees with Feder et al, (2010), who reported that extension training helps in detecting illnesses amongst livestock and implement preventive measures, thereby reducing the need for costly veterinary services. However, unlike women, the men indicated challenges such as the availability, pricing, and accessibility of vaccines and veterinary services still exist

and need to be addressed to further enhance livestock rearing practices and animal health in the communities.

The transformative power of the extension trainings on both men and women, contributing to community-level development, empowerment, and positive change and the collective efforts of both genders play a vital role in fostering progress and inspiring others to follow suit. This is supported by Fletschner et al., (2011) who states that to empower women in collaboration with their male household co-heads, information should be provided to them together and this could contribute to greater involvement of women in joint decision-making and joint action. The Sembabule District Veterinary Authority also reported that extension training had the greatest impact. This agrees with FAO (2019) which argues that extension is a means by which new knowledge and ideas are introduced into rural areas in order to bring about change and improve the lives of farmers and their families. This also is in agreement with Abbeam, et al., (2018) who reported that extension programmes help in increasing farm productivity, farm revenue, reduce poverty and minimize food insecurity.

The deliberate and conscious inclusion of women in extension training is therefore to be seen as one of the interventions in the production systems that help to address gender inequality in agriculture. However, in many countries, women in poultry production operate under greater constraints (Tabler et al., 2020). The common constraints in all the sectors being lack of education, limited access to credit and input, land availability and tenure, lack of suitable farm and household technology and training centers (Hassan et al., 2012). Nonetheless, Sembabule smallholder poultry and goat producers, like their counterparts across the East Africa region, and as reported by Tabler et al., (2020), did not understand biosecurity and disease prevention prior to the training. So, in areas of animal health, gender and group dynamics, there was more knowledge that the participants acquired. This agrees with (Fletschner and Mesbah 2011) who reported that most extension strategies target the male household head, implicitly assuming that a married woman's interaction with her husband will provide her with the necessary information on agriculture. However, Fletschner et al., (2011) urges that, to empower women in collaboration with their male household co-heads, information should be provided to them together.

It was further argued that before the training, farmers did not know the different diseases and how to detect them in their flocks. This agrees with the study conducted in South Africa in which 68% of the farmers indicated that they did not know enough about vaccines and their roles in the livestock productivity Girma et al., (2022). Internship training of community vaccinators impacted highly non the private animal health service providers since they got more knowledge, income, and skills in financial management. It also helped them to gain skills in disease diagnosis, but also it improved their status in the community as Community Vaccinators since they were confident of what they were doing. This agrees with Feder et al, (2010) who argues that other benefits of training include improved self-confidence and innovation on the part of rural extensionists of the communities.

Training also improved on the terrain in household gender relations. Many participants indicated that before the trainings, a man was viewed as the sole owner of all the household

property. But there was reported change of attitude and mindsets about household resource ownership. This is a positive development in the rural household dynamics in Sembabule District. It is likely to lead to equitable development like argued by Bird, (2007 who states that if asset ownership is an important source of resources, it is equally true that exclusion of individuals from asset inheritance exacerbates vulnerability to chronic and intergenerational poverty transmission. Land is the most important asset in rural Uganda. Land rights and ownership are embedded deeply in social norms and customary law, including those related to marriage and inheritance Doss et al., (2012). For instance, it is said that before training, a certain man had vowed never to allow his wife to rear any livestock on his land without sharing the benefits, otherwise she would be stopped. However, after the training the same man said that he wouldn't block his wife from keeping livestock anymore after realizing that the generated income would be spent on his family, the children and wife. In Sembabule, women now own property most especially the inherited ones and those who have money can also buy land and own it. However, that was not the case before, even the inherited property, men couldn't allow their women to own it. A growing consensus in development policy and research holds that control over assets can be critical to increasing productivity, especially in agriculture, and to enabling people to move out of poverty Doss et al , (2012).

IMPLICATIONS TO RESEARCH AND PRACTICE

Extension training of smallholder farmers and animal health service providers should be treated as a priority. Lack of vaccines and knowledge on how to administer them is a big challenge to smallholder farmers. Extension training should be well organized, timely and also gender sensitive. Access to agricultural extension should be regarded as a priority in achieving agricultural development, poverty reduction, and food security. Needless to say smallholder farmers should be provided with extension training and information. Extension training of smallholder farmers would promote farming when true participation; a process where technologies, problem assessments and solutions are designed by communities rather than prescribed for. This can be achieved better by understanding the cultural and social set up of communities. Unfortunately, development agents or planners and donors (development partners) are quite distant from this reality and tend to define the development path for communities. Women possess less information and this has made them less able to participate in decision-making processes on the farm.

CONCLUSION

It can be concluded from this study that even within a short time of one and a half years of intervention, extension training had a tremendous impact on individuals, households and communities. This perspective is by both farmers and the technical staff alike, women and men. For women, they are happy that the extension training empowered them with skills in livestock management including vaccination and animal healthcare which has enhanced their ability to care for their animals. This has improved their ability to care for their animals

effectively. This transformative power of the training on both men and women, contributing to community-level development, empowerment, and positive change and the collective efforts of both genders play a vital role in fostering progress and inspiring others to follow suit. Extension training has bridged up the knowledge gap i.e., animal health, gender issues and group dynamics. Extension training resulted into the increase of the number of people demanding for vaccines. It also resulted in the increase of awareness of the diseases by women farmers and especially ND in chicken and PPR disease in goats. Training has greatly changed the status of women in households and in the community. Disputes between women and men have greatly reduced especially those related to income generation, since now both men and women are able to use benefits for the good of everyone in the household.

The positive changes experienced by women and men in the study area have not only improved their own household lives but have also inspired and impressed others, creating a ripple effect of positive change and igniting aspirations for similar transformations in neighboring communities. The men role models' perspectives align with the women's view noting that the extension training intervention equipped them with valuable skills that they utilized beginning from their homes but also inspired them to become agents of change by teaching and mentoring others within their communities. Their efforts had positively impacted their communities, leading to improved practices, and recognition for their exemplary work. The commitment and dedication of the male role models had served as an inspiration for others and contributed to the overall progress and development of their respective communities. Overall, the insights from both women and men highlight the positive outcomes and importance of empowering individuals within households, promoting collaboration and shared responsibilities in fostering harmonious relationships for the overall well-being and development of families and their neighboring communities. This study therefore, concludes that agricultural extension training services should be boosted through timely recruitment of extension service providers, periodic extension training of women farmers and provision of adequate farm inputs which improves farmer's knowledge and skills.

Agricultural extension services have been identified as critical to the promotion of agricultural and rural development

FUTURE RESEARCH

This study was carried out in one district in Uganda. There is need to scale out the study to a wider area of coverage in the country.

Also, there is need to understand the role played by forming women groups networks in enhancing extension training to rural women.

There is need to test out new approaches in information and knowledge sharing, approaches like focus meals and role plays.

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