Gendered roles and disease management in small ruminant enterprises in agropastoral and pastoral systems: Implications for PPR control

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Key messages

More than half of all ruminant livestock in sub-Saharan Africa are kept in the arid and semi-arid zones, with goats and sheep being the most dominant in terms of population, followed by cattle (Otte and Chilonda 2002; Fereja 2016). Goats and sheep support smallholder farmers by improving their livelihoods (Lie et al. 2012). Small ruminants are the most preferred livestock species for many smallholder farmers because of their fast growth rates, twinning abilities and modest capital input required to start the venture (Oluka et al. 2004).

In pastoral systems, women and children play significant roles in small ruminant production; they are more likely to herd and water the animals, although this varies by distance from the homestead to the grazing grounds, pasture availability, and ethnicity (Miller 2011). Despite women’s prominent role in caring for small ruminants, married women are significantly less likely to have sole ownership of livestock as well as make decisions over use of livestock and livestock products than married men (Kes, Jacobs and Namy 2011). Small ruminant production for both women and men is constrained by many challenges such as disease, ineffective disease control limited access to veterinary services, and lack of an established marketing chain (Armson et al. 2021).

Peste des petits ruminants (PPR), which is also known as ‘sheep and goat plague’, is a highly contagious viral animal disease that is a threat to small ruminant production globally. In eastern Africa, the disease is considered endemic (Banyard et al. 2010). PPR is characterized by high fever, ocular and nasal discharge, pneumonia, breathing difficulty, and severe diarrhoea. Mortality and morbidity rates vary depending on factors such as immune status, age, species, and presence of other co-infections, but can be as high as 90% and 100%, respectively (Torsson et al. 2017; Ruget et al. 2019). Clinical presentation of PPR can be difficult to
differentiate from other diseases affecting small ruminants such as bluetongue, orf, foot-and-mouth disease (FMD), and contagious caprine pleuropneumonia (CCPP) (Balamurugan et al. 2014). PPR was first confirmed in Uganda in 2007 despite PPR antibodies being retrospectively detected in serum samples collected in the mid-1980s (Luka et al. 2011). The first confirmed PPR outbreak occurred in 2007 in the northeastern districts of Kotido, Moroto, Kaabong, Nakapiripiti and Abim, in the Karamoja region (Mulindwa et al. 2011).

PPR transmission between susceptible animals occurs through aerosols, direct contact, or fomites such as shared feed or water troughs (OIE 2020). Between herds, disease transmission occurs when animals share pastures and/or water points, and at live animal markets. Gathering points for livestock drinking water such as rivers, animal movements during marketing, and animal theft/livestock raids in pastoral systems increase the risk of transmission and spread of PPR in livestock (Ruget et al. 2019). Grazing sheep and goats in close proximity to or on wildlife grazing areas is also a potential risk factor for PPR occurrence in wild small ruminants (Masalski and Najdenski 2019; Idoga et al. 2020). PPR outbreaks are also associated with social, cultural, and economic activities that promote animal contact such as livestock trade, cultural festivals, husbandry practices such as nomadism, as well as environmental and climatic factors (Kihu et al. 2013). Consequently, the socio-economic context of the livestock keepers directly influences risk of transmission and disease control. Vaccines to prevent PPR are one of the most important disease control tools available. Although PPR vaccination campaigns have been conducted by the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) in Uganda on an ad hoc basis following outbreaks, the country is still unable to control disease outbreaks among small ruminants. This is possibly due to the low PPR vaccine coverage. The limited provision of vaccines challenges the control of PPR (Kumar et al. 2014) as does the differing abilities and willingness of livestock keepers to adopt vaccine depending on their socio-economic contexts.

This brief highlights some of the findings from the qualitative studies undertaken to investigate the gendered division of labour in small ruminant production and relates them to implications for PPR control in Uganda. More specifically, findings explore the views of men and women on access to animal health services, sources of vaccines, market dynamics, and gendered constraints in the production and marketing of small ruminants. The study was conducted by the PPR socioeconomics and epidemiology team under the Boosting Uganda’s Investment in Livestock Development (BUILD) Uganda project, which is funded by the Federal Ministry of Economic Cooperation and Development (BMZ) and implemented by the International Livestock Research Institute (ILRI) in partnership with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF).

**Study areas**

The study districts were Nakapiripirit, Serere, and Isingiro, which lie within the cattle corridor of Uganda (Figure 1). Nakapiripirit was selected because of its high small ruminant population density, pastoral production system, and high relative PPR risk. Serere was selected because of its moderate small ruminant population density, medium relative risk, and semi-intensive production system while Isingiro was selected because of its agropastoral production system and relatively low PPR risk. Following the scoping visit conducted by the epidemiology and socio-economics team in December 2020, and in consultation with the respective district personnel, two sub-counties were selected from each district. All the selected sub-counties had a history of PPR outbreaks and vaccinations by MAAIF. The following sub-counties were selected: Moruita and Kakomongole in Nakapiripirit District, Pingire and Kyere in Serere District, and Rushasa and Mbaare in Isingiro District.

*Figure 1: Map showing the study districts within Uganda.*

Source: GIS generated by ILRI/Marsy Asindu
The study used a purposive sampling strategy beginning with referrals from district veterinary offices. Livestock keepers and animal health professionals were engaged through focus group discussions (FGDs) and key informant interviews (KIs). The key informants were veterinarian/animal husbandry officers, community animal health workers (CAHWs), district veterinary officers, district production and marketing officers, veterinary drug stockists, and local council chairpersons and farmer group leaders. For the FGDs, lists of small ruminant rearing households were obtained from the district production office and were stratified by gender; 10-15 members were randomly selected to participate.

Both men and women were interviewed, acknowledging that men and women have different roles in small ruminant production and therefore different knowledge and viewpoints. Twelve men and two women were interviewed as key informants, and 24 FGDs were conducted, comprising 210 livestock keepers (112 men, 98 women), with four sex disaggregated FGDs from each parish. For the women only FGDs, participants were drawn from both women-headed and male-headed households. While the interview guide covered multiple topics, this brief summarizes 1) what livestock keepers shared about gender roles, practices, and beliefs because this influences how small ruminants are managed, with implications for PPR transmission, and 2) livestock keepers self-reported challenges to controlling PPR, with implications for adoption of control measures.

**Gender roles, practices and beliefs**

The drinking points for goats and sheep in Nakapiripirit, Serere, and Isingiro included rivers, dams, boreholes, swamps and open wells, which are mostly shared by the community without restrictions. One man from Nakapiripirit noted,

‘Our animals roam in the wilderness without a caretaker, even grazing and watering is in the wilderness.’

In Nakapiripirit, although men take animals for grazing and watering, it is mainly boys who perform this role and men follow them later. Women are culturally meant to be home keepers. The weak or sick animals are watered from home by women using open containers such as basins.

In Serere, grazing and watering resources are normally shared with other neighbouring villages because it is believed that if one does not share, none of their neighbours will offer a helping hand when they get problems. Women normally tether goats and sheep in a bush near their homes since some of the swamps are very far, but men normally graze the animals around swamps to give animals access to water. In case of any snake attacks, for example from a python, it is men who are expected to kill it.

In Isingiro, grazing land is scarce, and therefore goats and sheep are normally reared on freehold property or hired land for a period agreed upon with the landowner. Women supplement grazing with banana peelings as feed. Men from households with many goats and limited land graze animals in wetlands, road reserves, playgrounds, riverbanks, and parklands as these are considered free grazing zones. Grazing near wetlands is advantageous because they do not dry up quickly since water is available all year round. In Isingiro, it is culturally believed that grazing small ruminants is a chore for women and children, not men. Therefore, children normally graze small ruminants further away while the women tether them near homesteads. In Serere, when there are no cattle at home, some men believe they have no grazing to do. Women ensure that the goats or sheep are grazed, watered, and moved from wherever they were tied to another place so that they have eaten enough grass and then brought back home at the end of the day.

For livestock marketing, the results varied across location. In Isingiro, animals are sold off at farmgate, as livestock markets were closed due to disease outbreaks. However, although it is easy for women to sell at farmgate to minimize transactions with traders, they often receive lower prices. Besides the farmgate, men can sell animals to butchers and traders at loading sites. In Serere, small ruminants are usually sold within the trading centres to butchers or in the weekly livestock markets. Although women in male-headed households are responsible for grazing goats and sheep, men make the decisions when it comes to selling.

In Nakapiripirit, it is men who culturally own goats and sheep whereas women own chickens, which can be slaughtered for visitors to the home at any time. As a 22-year-old married woman explained,

‘For me, my husband limits my rearing to only chickens as he assumes when a woman rears goats or sheep and starts to earn some money, they start disrespecting men.’

In the Karamoja region, it is mostly the men who take animals to the livestock markets or sell to the butcheries within their trading centres. When it comes to marketing of animals, women are culturally constrained, as a married woman aged 50 years explained,

‘Women in Karamoja culture are not meant to sell animals since they are assumed to have low bargaining capacity and can easily be cheated. It’s men that are therefore entrusted with market issues, making it hard for women to access the market.’
A widowed 41-year-old woman added,

‘It is mostly men who take animals to sell in markets or to the butcher, hence their domination in the butchers and livestock markets.’

A 30-year-old married man described access to livestock markets within his community:

‘We don’t have butchers here until Christmas time when we are able to kill or slaughter our old cows and goats; we use our eyes to estimate the weight of meat.’

In Nakapiripirit, the markets are usually very far and operate only once a week, affecting both women and men. As a 50-year-old married woman and 49-year-old married man described, respectively,

‘In this village, the livestock market is located in Nambole, which is found in Naturum centre, which is very far, like 25 km from here.’

and

‘There are no cattle markets in Kakomongole sub-county for us to sell goats or sheep, we need to move for so long, like 10 km to another sub-county like Lolachat or Loregae to sell our animals.’

Communal grazing practices and shared water sources are among the management practices that are associated with increased transmission of PPR. Interventions aimed at changing management practices need to consider the demographics involved in the respective activity, which as shown above, vary by gender, location, production type, and other factors.

### Challenges to controlling PPR

In Isingiro, a male animal husbandry officer reported that the last PPR outbreak occurred in March 2019, but farmers were not aware of the disease until they were notified by a veterinary officer. The veterinary officer noted that where PPR hit hard, losses were up to 100%, especially in predominantly goat rearing communities in the Nakivale Refugee Settlement. In Nakapiripirit, the district agriculture officer (DAO) reported that PPR first affected small ruminants around 2009-2010, but people did not know about the disease; they thought it was worms infestation. In Serere, a farmer-group leader who has been rearing small ruminants for over 15 years explained that when PPR first occurred, livestock keepers thought the disease was caused by mist, because of the resulting watery eyes.

Respondents from Isingiro and Serere also consistently stressed the small number of vaccine doses provided compared to the number of livestock, making disease control through vaccination ineffective. The use of the vaccines is limited by the poor availability; vaccines are only stocked by the district veterinary office. As the DAO in Nakapiripirit explained, ‘all along there has been free PPR vaccination but vaccines are not enough.’

The assistant district veterinary officer from Nakapiripirit reported that even though mobilization of livestock keepers is done, vaccination coverage is usually less than 5%. The low coverage is attributed first to limited number of vaccine doses provided by MAAIF meaning many households are left out and second, rejection of vaccines by livestock keepers, due to past experiences. Livestock keepers reported negative side effects, including death of animals after vaccination, causing some of them to reject the services. As a male assistant animal husbandry officer from Nakapiripirit explained,

‘Vaccination is a bit tricky here. We share a border with Kenya, and sometimes vets from Kenya vaccinate animals on the Uganda side against FMD, PPR and CCPP/CBPP. At the end of 2019, vaccination was conducted, unfortunately, some animals had side effects that made livestock keepers develop a negative perception towards vaccination.’

A community animal health worker said,

‘These people say the vaccine makes their goats and sheep abort while others die. This makes mobilization for vaccination difficult.’

Third, farmers feel sheep and goats are more resistant to diseases compared to large ruminants, therefore livestock keepers are more inclined to vaccinate their cattle rather than small ruminants. Lastly, it is difficult for farmers to keep small ruminants for more than 3-4 years because they can be sold at any time. As such, farmers do not care as much about the vaccination of small ruminants even when there may be positive cases of PPR.

A common misconception among livestock keepers is a belief that when animals receive vaccination for one disease, they are protected against all other diseases. In Nakapiripirit, women are not usually involved in vaccination programs, except those in female-headed households. Communities believe men tend to the animals much better than women and the animals listen and move. Consequently, women find it difficult to drive the animals to vaccination centres. Furthermore, women who own animals in households with no male figure face more challenges during vaccinations. If a woman brought her animals for vaccination first, a man who came later could pass her in the queue, possibly making her miss out on the vaccines. The percentage of female-headed households in Nakapiripirit is estimated to be high, approximately 30%. The insecurity in Karamoja is a contributing factor; many men were killed during violent ethnic cattle raids either within the borders of Karamoja or in neighbouring districts or across...
Uganda’s international borders leaving women and children behind. In Serere, women did not face specific challenges in accessing vaccination services since all households within the targeted parishes are mobilized and when some men receive information concerning vaccination, they usually direct the woman who will be responsible for taking the animals for vaccination. In Isingiro, it is mostly men who initiate contact with the veterinary officers to vaccinate/treat the goats/cattle. As one animal husbandry officer in the region noted, ‘Having worked as an animal husbandry officer since 2006, women have only contacted me thrice to vaccinate or treat their animals and female-headed households are approximately 10%.’

Proximity to international borders is another challenge for disease control in the study areas. Nakapiripiti borders Kenya, and because of the seasonal movements of pastoralists in search for water and pasture, some livestock keepers cross the border to Turkana in Kenya and increase the possibility of disease transmission. Since Isingiro is near the Tanzanian border, there is cross-border movement of animals thus increasing the spread of animal diseases.

Opportunities

There are opportunities for controlling PPR through reducing transmission and vaccination. However, vaccinating is arguably a more realistic control strategy for the Ugandan context than changing management practices. Key challenges to controlling PPR through vaccination were related to vaccine supply and the general attitude towards small ruminant disease control. Without adequate vaccine supply and distribution, livestock keepers are unable to take action to prevent PPR. Attitudes about small ruminants, such as believing that they are more disease resistant or concerns about vaccine side effects also contribute to low vaccination rates. There is need to sensitize women and men about the benefits of vaccinating animals and to conduct a thorough mobilization of livestock keepers, especially in pastoral areas where there is frequent cross-border movement of animals.

Supporting women in the animal health sector may be one way to support extension in these communities by making women feel comfortable with or engaged in veterinary decision-making. The small number of women key informants in this study reflects the trend of few women working in the animal health sector in Uganda. Key informants explained that even though vacancies are advertised, very few women apply. It is believed that women fear the profession and instead join non-governmental organizations (NGOs) or the business sector as they find it hard to manage stubborn animals during vaccinations and treatment. As a male animal husbandry officer who has been working in Nakapiripirit since 2015 explained, ‘In the veterinary sector, we have one lady and five men. We have few women because women fear this profession. I have this experience with a female colleague. She doesn’t know how to ride a motorcycle; I therefore give her a ride. When we go for vaccinations, the community welcomes her, and this leads to a change of mindset because in most cases, they believe that there are no female vet doctors and when they see her, they get excited. They believe women are more patient, understanding, and tolerant.’

The female vet officer from Nakapiripirit described her experience as a woman veterinarian. ‘The challenge is that expectations are high and it’s tiresome to handle the animals, but the owners help restrain them, and I just inject or treat. The community also admires you when you do what they don’t expect.’

The general attitude is that the veterinary medicine discipline is masculine and even the women who are trained in the field venture into pharmaceuticals or the agriculture sector. In conclusion, understanding gendered practices and beliefs of livestock keepers can be used to understand PPR transmission risks and guide disease control interventions by identifying the relevant audience and their respective barriers to vaccinating.

References


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Photo credit
Cattle, sheep, and goats trekking along a road in Uganda (ILRI/ Joseph Nkamwesiga).

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