

Characterization of the livestock production system and potential for enhancing fodder production in communal areas of Mafuta Camp, Zambia

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Report



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Introduction

The Gendered Feed Assessment Tool (G-FEAST) was implemented to characterize the feed-related aspects of the livestock production system in Chipangali District, one of the 15 districts of the Eastern Province of Zambia. The district shares borders with three other districts: Lumezi to the north, Mambwe to the northwest, Kasenengwa to the southwest, and Chipata to the south. Malawi borders it to the East (Central Statistical Office 2022). The G-FEAST exercise was conducted on 15 May 2024 in Mafuta Camp in Kasenga Ward 51 km from Chipata. Maize, soya bean and tobacco are the major crops produced in Mafuta. The tool combined qualitative and quantitative research techniques to elicit the viewpoints and perspectives of women and men farmers in the community regarding feeding practices and general livestock production. This report presents the findings of the assessment and conclusions for further action.

Sample description

A scoping exercise was conducted with the help of the local livestock and fisheries district officer to identify farmers. Two separate gendered focus group discussions (FGDs) were carried out one with men only (22) and another with women only (18). Additionally, individual interviews were conducted with six respondents for each group. Female and male household heads participating in the individual interviews were selected to represent different wealth groups specifically those with land holdings. The composition of the sample is shown in Table 1.

Table 1: Male and female respondents by farm size

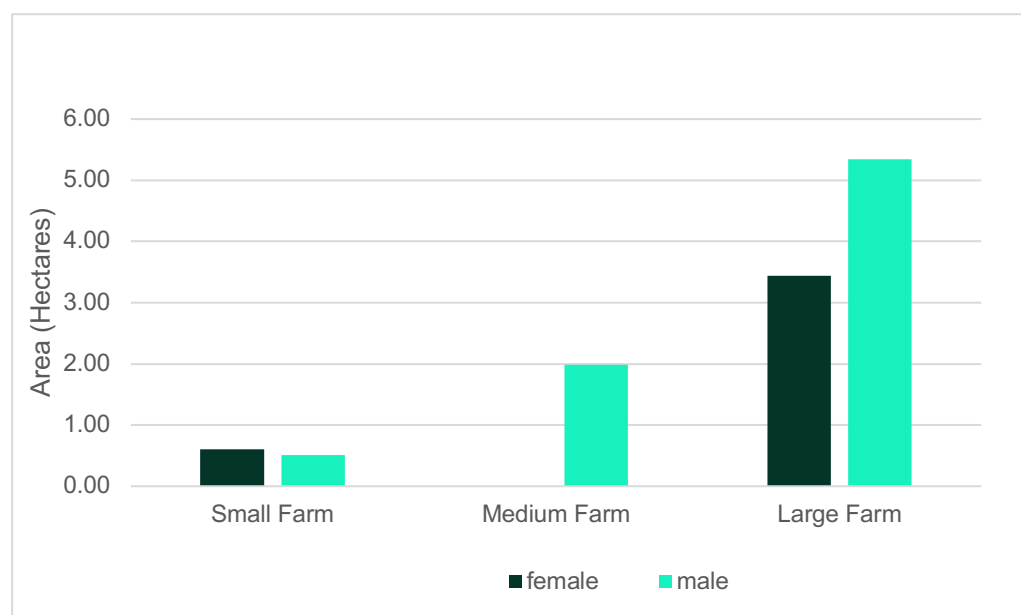
Individual interviews	Men respondents	Women respondents
Small farm size (0–1 ha)	2	2
Medium farm size (1–3 ha)	2	2
Large farm size (3 ha and above)	2	2
Totals	6	6

Results

Farming systems

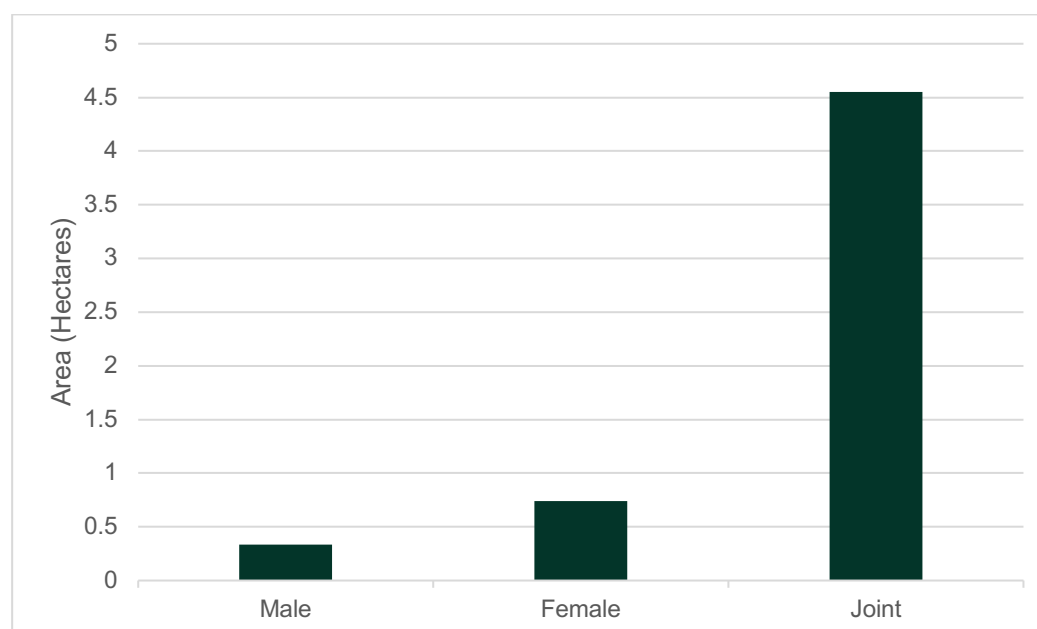
The farming system in Mafuta Camp is extensive mixed crop/livestock production. The average farm size is three hectares, with most of the land dedicated to crop production. The average household size is eight people. Figure 1 presents farm sizes by gender of the household head. Both men and women own land in three land-holding categories except the medium farm category where only men own land. The largest proportion of female-headed households falls in the large-scale farms category.

Figure 1: Farm size by household type.



Common land tenure systems include leasehold and traditional tenure systems governed by customary law and administered by chiefs and village headmen. Figure 2 shows land ownership by gender within a household. The results indicate that men own most of the medium farms. However, most households where land is jointly owned by the man and the spouse are large farms. In other households, men own less than 0.5 ha. There was a consensus in both focus groups that women can own land just as men do. Therefore, the land tenure system does not affect the participation of women and men in crops and livestock production.

Figure 2: Land ownership by gender.



Households in the study commonly grow a variety of food crops as shown in Figure 3. The most dominant food crops include maize (*Zea mays*), soya beans (*Glycine max*), and tobacco (*Nicotiana tabacum*). Other crops grown include sunflowers (*Helianthus annuus*), and groundnuts (*Arachis hypogaea*). Among the dominant crops, soya beans are the major cultivated crop (1–2 ha on average). Female-headed households are more likely to grow soya beans and maize and less likely to grow sunflower and groundnuts.

Figure 3: Dominant crop types by gender of the household head.

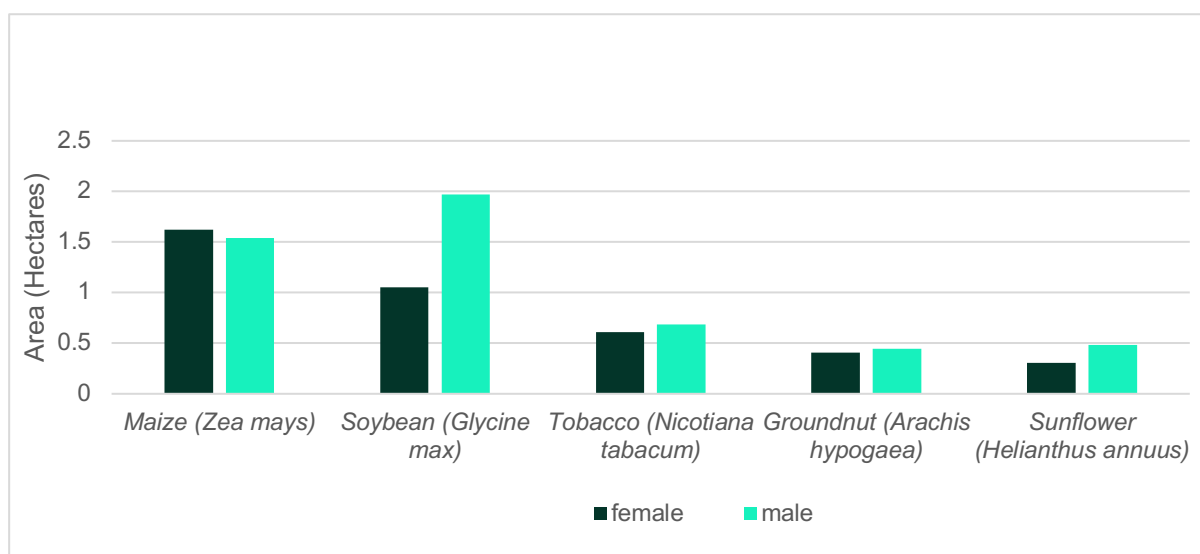
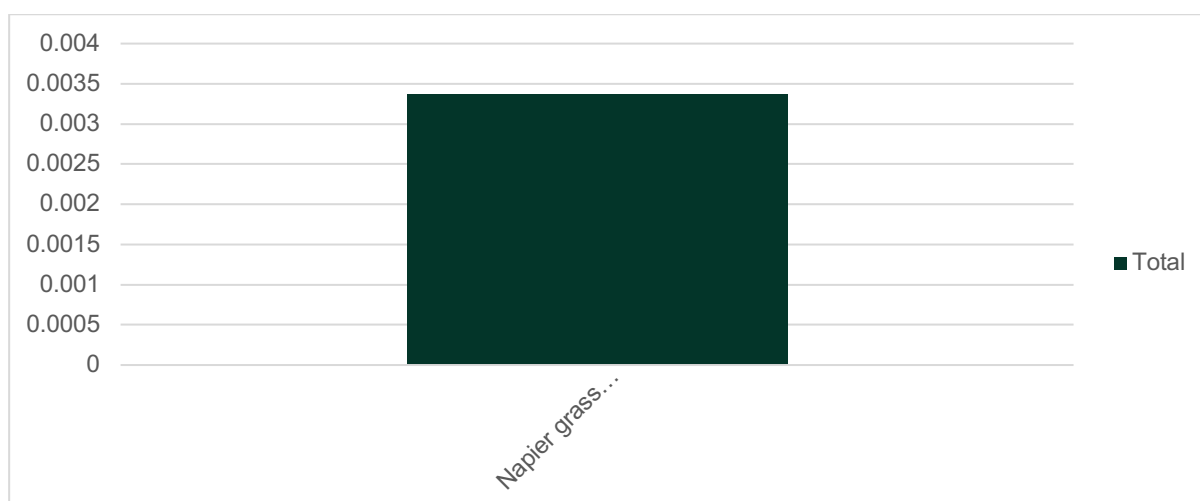


Figure 4 indicates the dominant fodder crop cultivated by livestock producers in Mafuta Camp. Napier grass (*Pennisetum purpureum*) is the only commonly grown fodder on small pieces of land averaging 0.003 ha.

Figure 4: Dominant planted forage types.



Rainfall levels are generally adequate to support agricultural activities during the two major cropping seasons. However, over time unpredictable weather patterns have threatened reliance on rain-fed agriculture. Table 2 shows the rainfall pattern by season in Mafuta Camp.

Table 2: Seasonal cropping patterns in Mafuta Camp

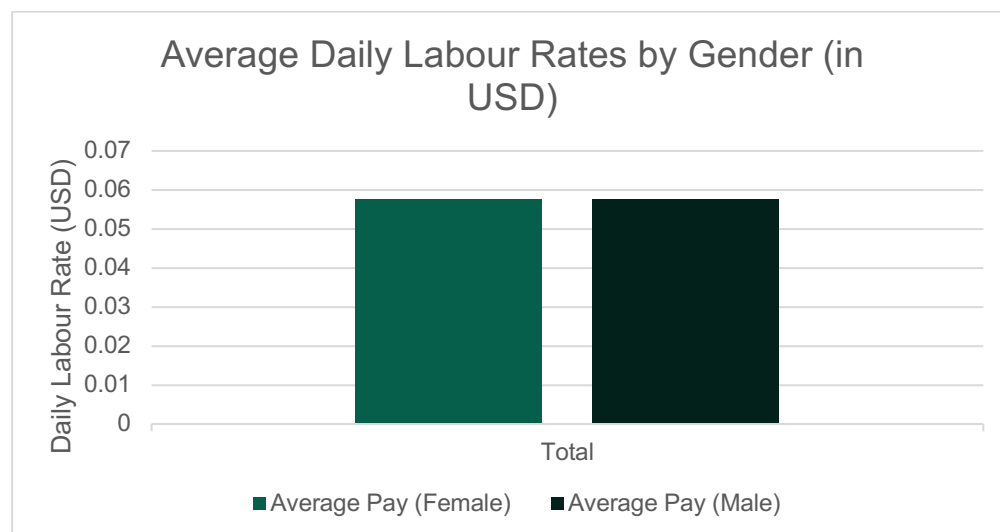
Name of season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cold season (<i>Mwela</i>)												
Dry season (<i>Lusuba</i>)												
Rain season (<i>Mainsa</i>)												

The rainy season for farmers is locally known as “Mainsa”. It starts in December through to March. Common

farming practices include ploughing, seeding, weeding, and harvesting. The dry season is known as “Lusuba” (rainfall intensity below 1) and runs between August and November. During Lusuba, farmers prepare their land for cultivation and herd livestock.

Labor is sometimes scarce with the minimum and maximum daily wage rated at 200–250 Zambian kwacha, respectively. The costs vary with activity and labor becomes scarcer during the planting season. The migration of youths from Mafuta is less than 10%. There is no difference in the wage rate paid to men and women. Figure 5 shows that on average, a man in Mafuta would earn as much as USD 7.30 compared to a woman (USD 3.60) per hour/ day/month? This could be because men work longer hours or are more efficient in related activities than women men.

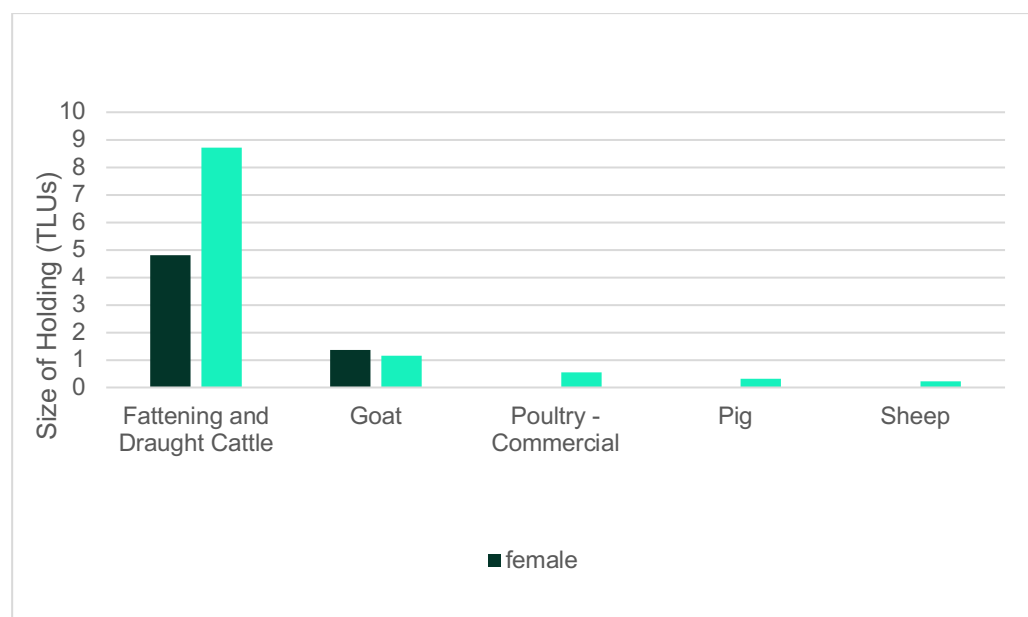
Figure 5: Average daily labor rates by gender (in USD).



Livestock production system

The most dominant livestock husbandry activities practiced by farmers in Mafuta are cattle fattening and use of animals for draft (Figure 6). The most dominant breed of cattle is the local Angoni. Farmers also rear local goats for meat production. Sheep, pigs, and poultry are mainly kept for sale as live animals for household income. Their products such as eggs are also sold when available.

Figure 6: Dominant livestock categories by gender of the household head.

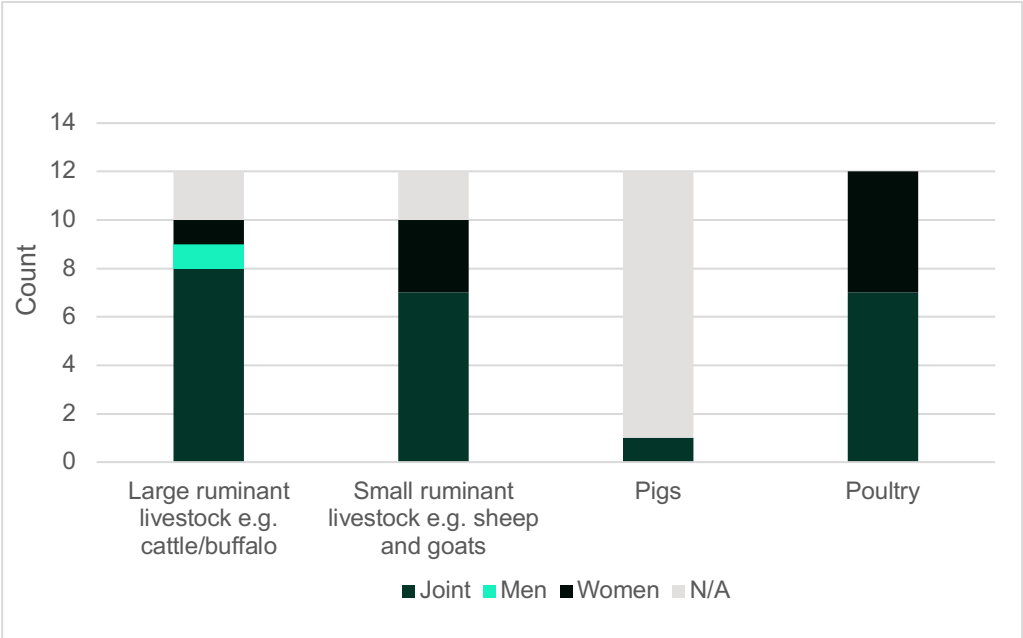


Farmers in Mafuta do not keep dairy breeds such as Holstein and Jersey for commercial milk production. Most of the farmers own male castrates and bulls for draft power. Female-headed households dominate in goat production, whilst male-headed households dominate in all other categories highlighted in Figure 6. Gender does not affect participation in livestock enterprise, especially goat keeping, which is mainly done in extensive grazing and browsing. Farmers with goats practice tethering within the compound mostly during the growing season and harvesting time. Chicken can be housed or free range.

Common ruminant livestock diseases include East Coast fever (ECF), other tick-borne diseases, and lumpy skin disease. Poultry diseases such as coccidiosis are also common in Mafuta. Farmers rely mainly on government veterinary officers in the area for animal treatment. They complement veterinary services with traditional ethno-veterinary practices. Artificial insemination (AI) services have never been practiced according to both male and female focus groups in both sites. All farmers use bull services for livestock reproduction. Some of the challenges associated with bull services are increased incidence of diseases and high reoccurrence.

A gendered pattern in access to input and services was observed. The services include disease control, extension, and vaccination. Men and women equally listed similar input suppliers implying both genders understand their needs for each enterprise. This is reflected in the decision-making process at the household level where spouses make most livestock management decisions jointly (Figure 7). This implies that even though women may not own livestock but are actively involved in animal production decisions.

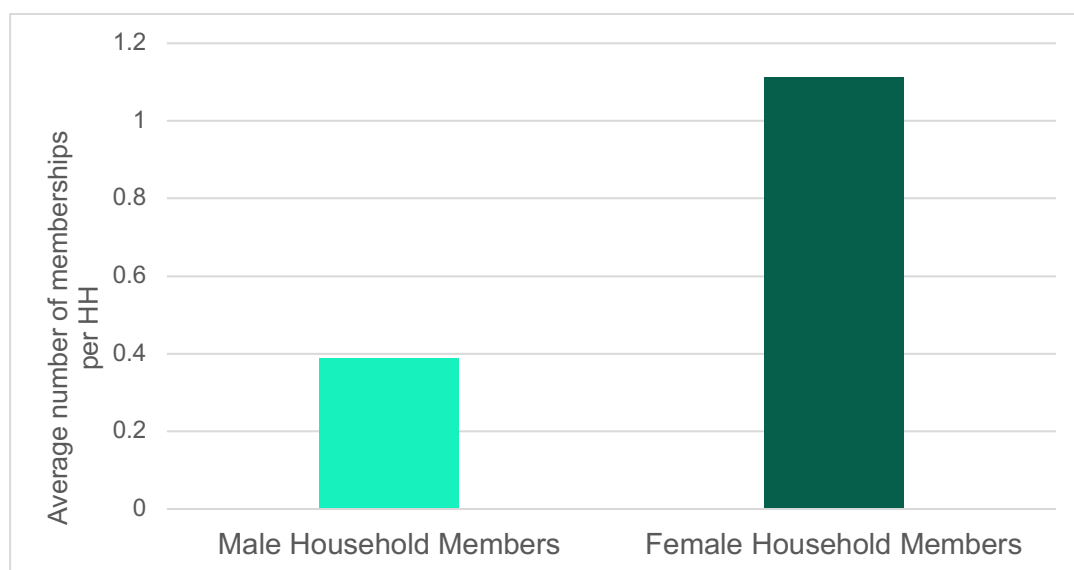
Figure 7: Gendered decision-making on livestock in Mafuta Camp.



The main sources of financial service (credit) include village saving and loan associations (VSLAs) micro finance institutions, banks, cooperatives, and individual farmers. Credit is often obtained for purchasing livestock, farm inputs, and meeting personal needs. In Mafuta, formal sources dominate the share of credit (70%) compared to informal credit sources (30%). The conditions for accessing credit vary depending to the source. Some common conditions for obtaining credit for agricultural production include guarantors, possession of the land title, and membership in case of VSLAs or cooperatives. Around 50% of the farmers are estimated to have access to credit. Ease of credit access for men and women was rated at 2 and 3 on a scale of 0-4 for each respective gender. Results from the gendered FDGs show that 50% of men and women aspired to access credit, with both genders agreeing that women in male-headed households would be more constrained in accessing credit. This is a result of the women not controlling the needed collateral. Youths would also be constrained in accessing credit due to a lack of collateral. In the women’s FGD, the participants said men would be constrained in accessing credit especially from VSLAs because most men are not members of these associations.

Figure 8 shows membership in cooperatives or farmer groups by gender. Both women and men are members of cooperatives and farmer organizations. However, female household members are more likely to belong to cooperatives or farmer organizations than male members. In a random household, at least one female member will belong to a farmer organization compared to men (0.4).

Figure 8: Household members in cooperatives or farmer organizations by gender in Mafuta Camp.



Major income sources

Figure 9 presents major sources of household income in Mafuta. Cropping-related activities (predominantly tobacco and maize) contribute 70% to household income. Goat production contributes the highest share of income within the livestock category. Income from the regular sale of livestock is uncommon in the area as indicated by the proportional off-take rate of 1% and 4% for cattle and goats, respectively. Cropping of food and cash crops forms the bulk of household income contribution. A small percentage (1%) of other income sources includes off-farm business, employment, and income from labor provision activities.

Figure 9: Primary sources of household income in Mafuta Camp.

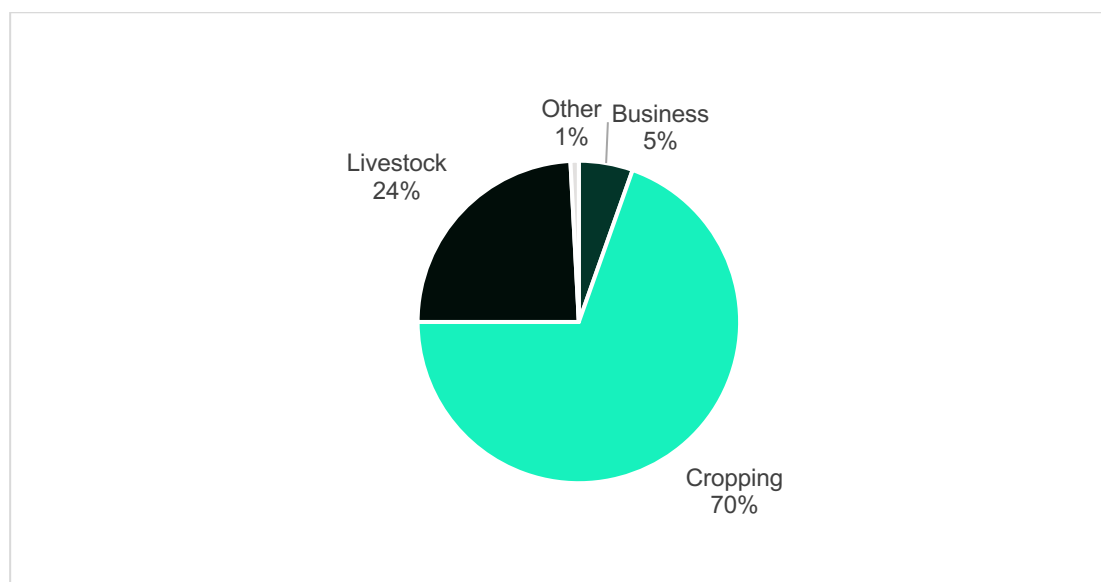


Figure 10 shows the relative contribution of major sources of income to household and women's income. Cash crops and poultry contribute the greatest shares to a woman's income. Other income sources for the women include off-farm businesses, food crops, and fattening livestock.

Figure 10: Relative contribution of income sources to household and women's income.

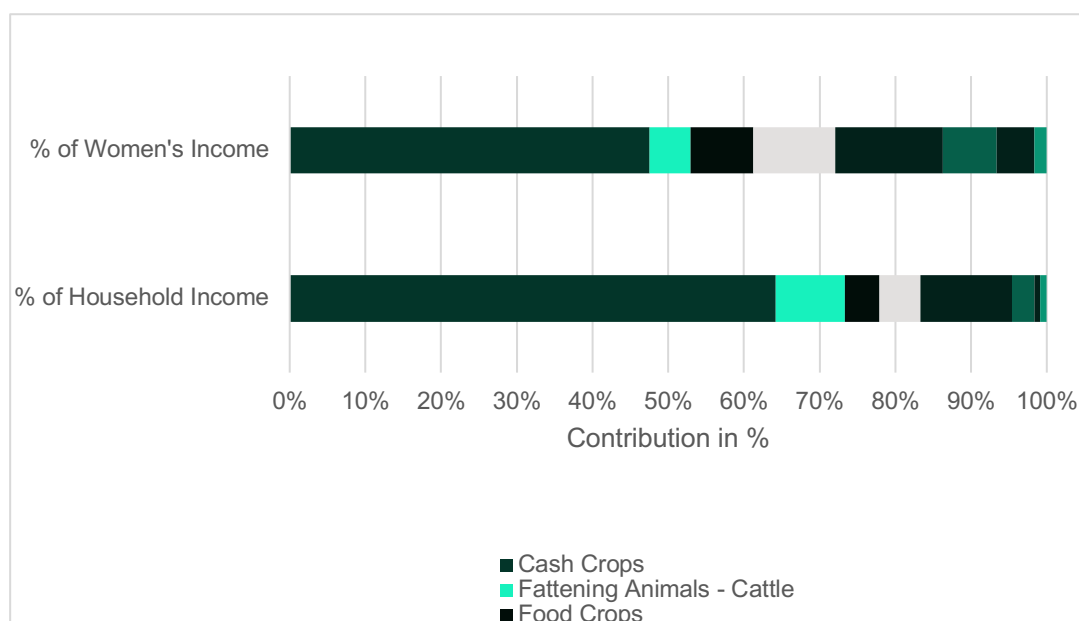
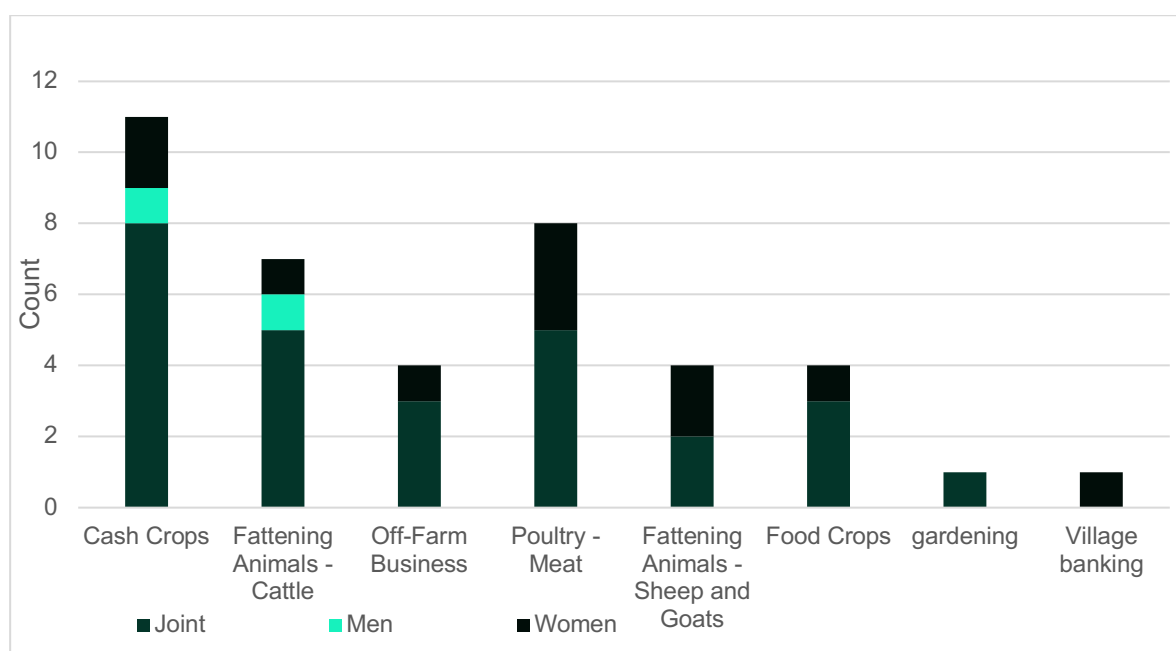


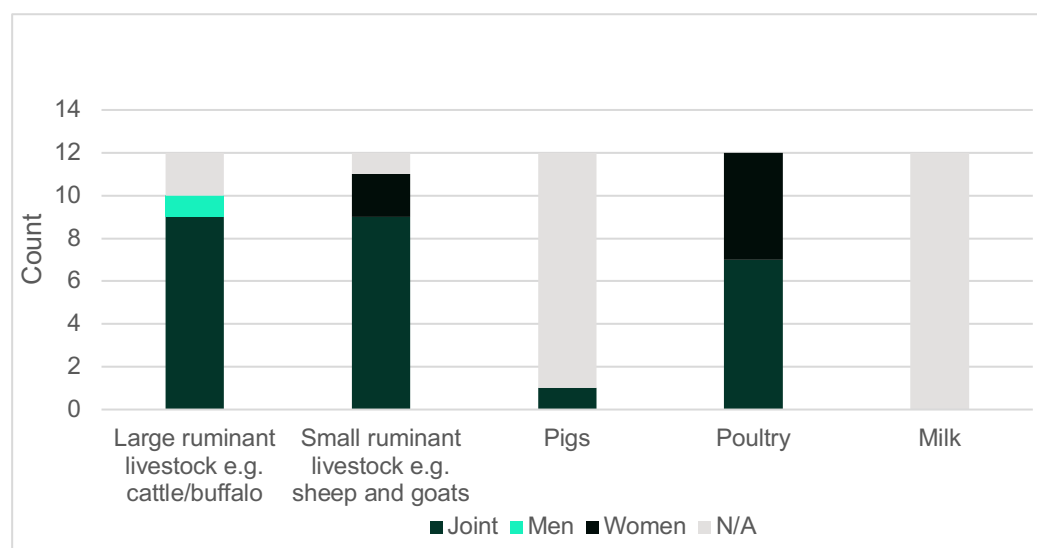
Figure 11 indicates that men make most of the decisions on income from cash crops and fattening cattle. Women make most decisions on poultry, cash crops, food crops, and off-farm business. However, males and females make joint decisions across all enterprise categories in most households.

Figure 11: Gendered decision-making on major sources of household income in Mafuta Camp.



Focusing on income from livestock sales, women make meaningful decisions alone only on poultry sales. Decisions on large ruminants, small ruminants, and pigs are jointly made. This implies inclusivity between men and women on livestock-related income.

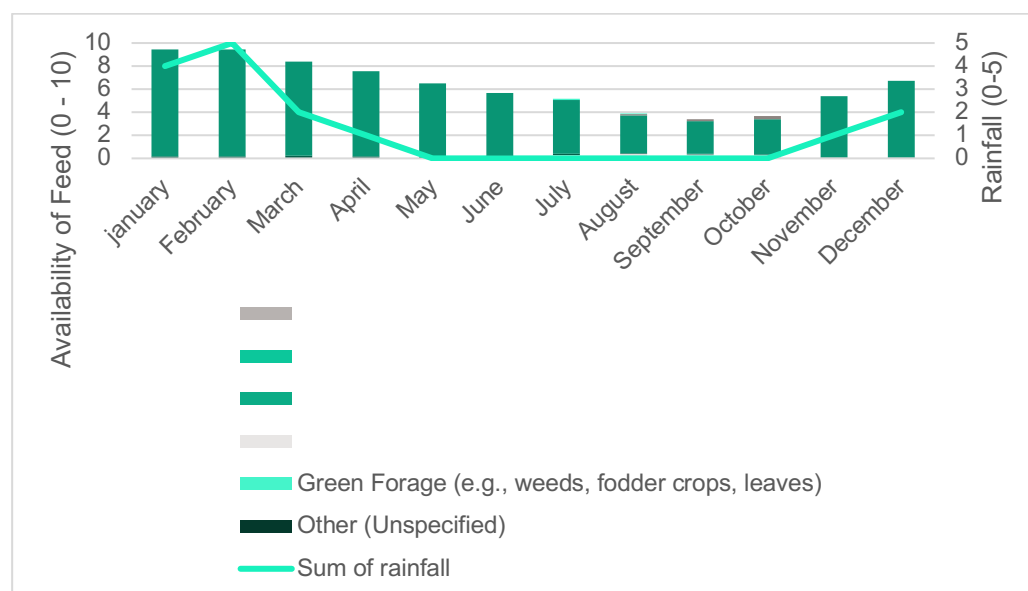
Figure 12: Gendered decision-making on the sale of livestock.



Major feed sources

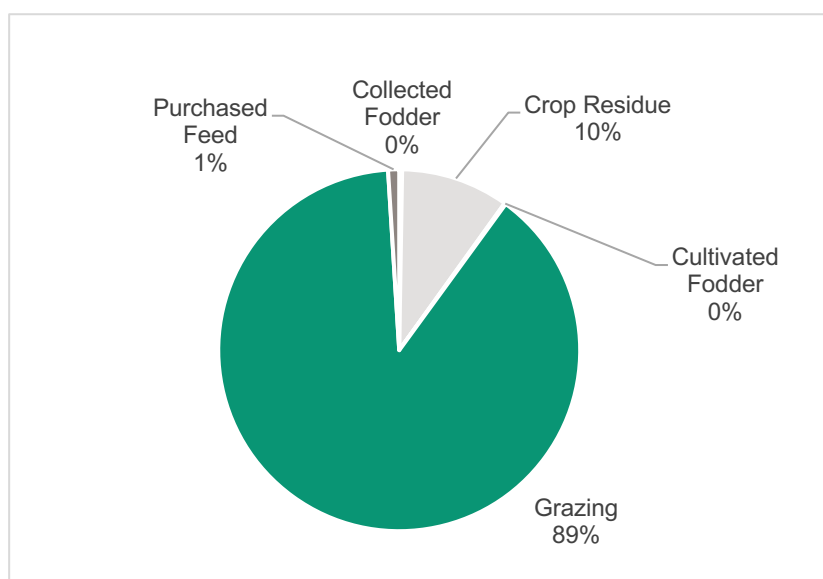
Grazing, cereal crop residue, leguminous crop residues, and concentrates constitute the main feed sources for cattle in Mafuta as shown in Figure 13. The contribution made by these feed sources to the diet varies throughout the year. Grazing contributes the most to animal diet and farmers graze their animals on naturally occurring grass. Grazing intensities increase during the wet season (Nov-Feb) and reduce in the dry season. During the dry season, cereal crop residues and legumes are incorporated into the diet in larger quantities. Concentrates are used in small amounts for poultry in most cases and their use appears higher in the wet compared to the dry seasons of the year.

Figure 13: Changes in rainfall patterns and dietary composition for cattle in Mafuta throughout the year.



Grazing contributes 89% to the total dry matter (DM) intake. Crop residues contribute 10% of total dry matter intake on farms followed by purchased feed (1%) (Figure 14).

Figure 14: Contribution of dietary dry matter (DM) to the total diet by feed source in Mafuta.



The contributions of total metabolizable energy (ME) (MJ/kg) and crude protein (CP %) are shown in Figures 15 and 16, respectively. Grazing contributes the highest share of ME (MJ/kg) at 80 % and crude protein at 90%. Cultivated fodder contributes none of the total ME (MJ/kg) and crude protein. This implies that farmers in Mafuta Camp are unaware of the potential of fodder as livestock feed because they rely mostly on grazing and crop residues for feeding. Crop residues contribute 9% of the total ME (MJ/kg) and 7% crude protein, respectively (figures 15 and 16).

Figure 15: Contribution of dietary metabolizable energy (ME, MJ/kg) to total diet on-farm in Mafuta.

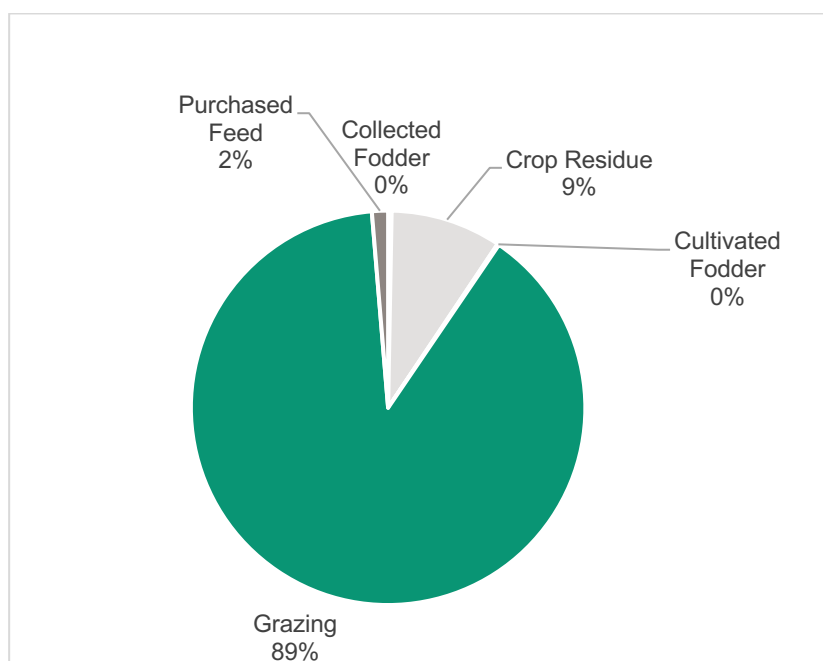
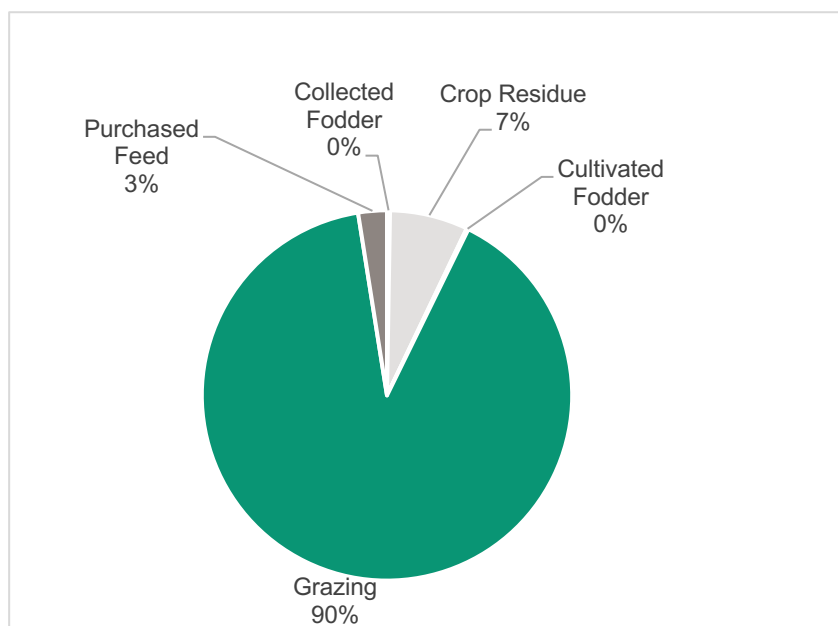


Figure 16: Contribution of crude protein (CP %) to the total diet on-farm in Mafuta.



Gender division of labor and gendered decision-making on livestock and feed-related activities

Figure 17 shows the different activities and roles played by household members in livestock feeding. Men are predominantly involved in crop residue collection, feed processing, purchasing, and mixing. Women are predominantly responsible for livestock feed storage, watering, and feeding. Youths are mainly involved in collecting off-farm forages, cleaning feeding and watering facilities, and watering livestock. Results indicate no forage production for livestock in Mafuta.

Figure 17: Gender division of labor in feed production, harvesting, and feeding in Mafuta.

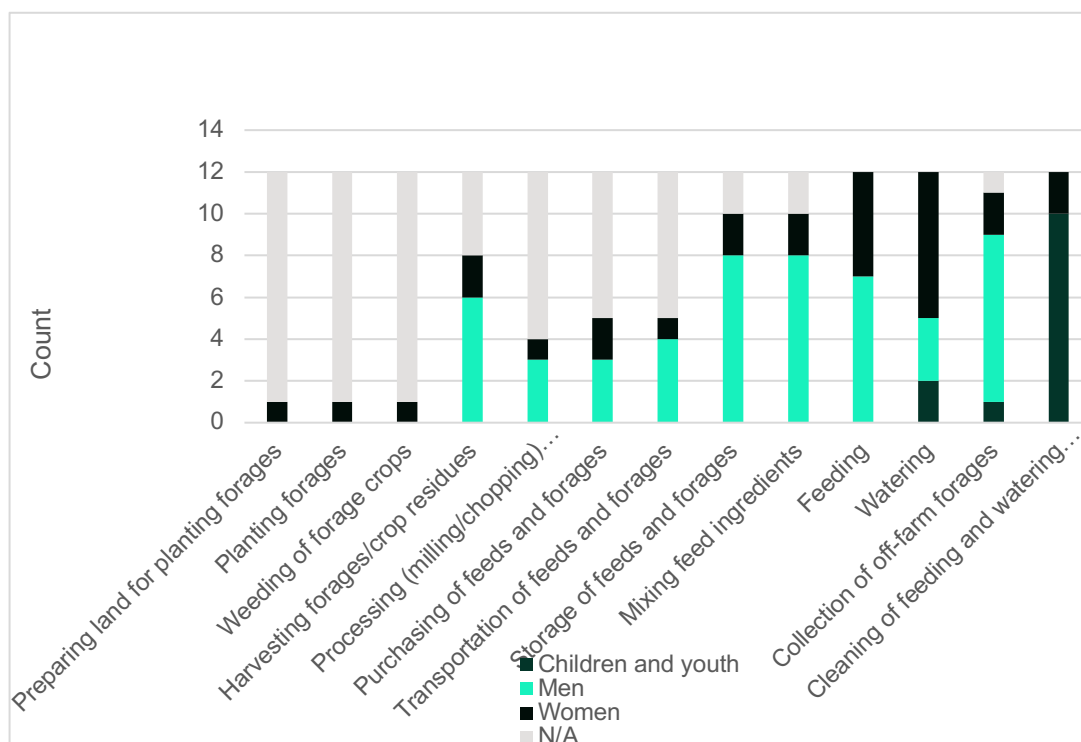
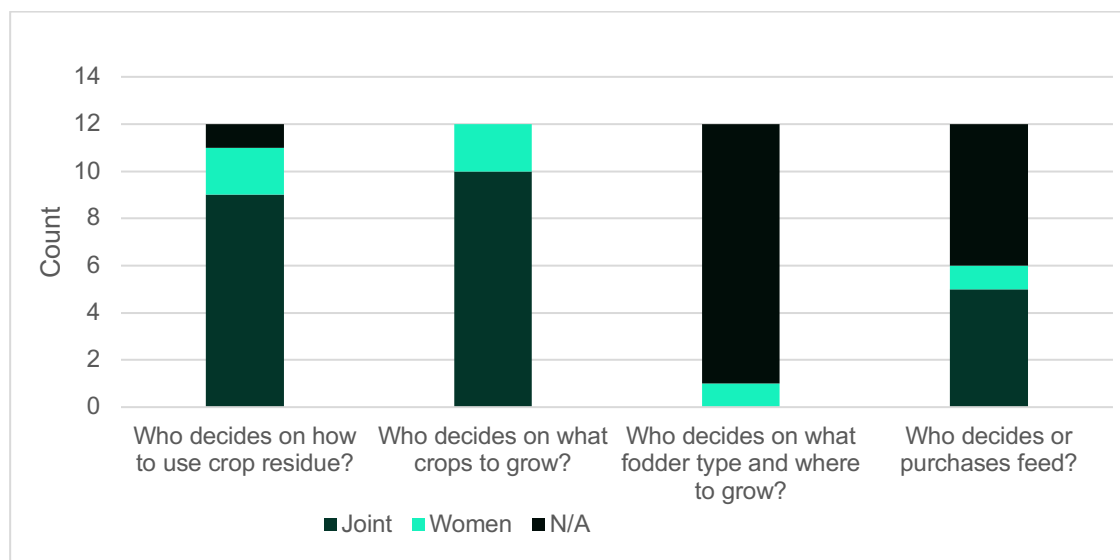


Figure 18 shows the decision-making roles of men and women regarding crops and feeds. Most decisions relating to feeds are made jointly. Some women decide on the type of crop to be planted and how to use the crop residues. In other households, these decisions are undertaken jointly as observed. Both men and women in a household make joint decisions on what to grow, where, and how.

Figure 18: Gendered decision-making on crops and feeds in Mafuta.



Problems and opportunities

Table 3 shows a summary of livestock production challenges farmers in Mafuta Camp face and possible solutions, as suggested by the farmers.

The main challenges identified by men in the community are livestock diseases, low-quality feeds, limited access to vet services, water unavailability, and poor-quality breeds. Women listed their main problems as feed scarcity, animals diseases, poor-quality breeds, limited access to extension services, and water unavailability.

Table 3: Problems, issues, and proposed farmer solutions within production systems in Mafuta

Main problem	Who is affected most?	Proposed solutions by farmers	Ranking in men FGD	Ranking in women FGD
Diseases/disease resistance	All	- Vaccination - Control of fake drugs - Subsidy on drugs - Regular spraying of animals	1	2
Feed scarcity/low-quality feeds	All	- Adoption of improved high-quality forages - Purchasing feeds - Fodder conservation in the wet season - Training on animal feeding	2	1
Limited access to vet/extension services	All	Increasing the number of extension/vet personnel	3	4
Water unavailability	All	- Borehole drilling (solar) - Construction of dams	4	5
Poor-quality breeds	All	- Community breeding systems using pedigree bulls - Artificial insemination	5	3

Potential interventions

The proposed interventions include:

- Introducing fodder varieties with higher nutritive quality that are adapted to the livestock production system.
- Training farmers on proper feed management practices such as feed conservation and processing e.g. haymaking and silage.
- Training on proper fodder husbandry/production techniques on-farm using demo plots.
- Introducing alternative pest and disease management mechanisms to reduce disease prevalence.
- Training farmers on animal nutrition for increased production of high-quality livestock products (emphasis on concentrates and other minerals)
- Educating farmer on feed conservation, processing, and utilization technologies such as hay and silage making.
- Introducing mobile-based (SMS) extension model platforms to increase access to extension services.
- Introducing and promoting artificial insemination services and use of sexed semen to improve breeds.
- Introducing small-scale dairying as a business.

Conclusion

Farming in Mafuta communal areas is mixed crop and livestock production system with cereals and tobacco as major crops. Livestock farmers' reliance entirely on grazing calls for livestock husbandry limits productivity because livestock feeding, which relies on grazing and crop residues, is poor. The introduction of improved planted forages is therefore an important intervention in Mafuta Camp. Different forage varieties such as X and farmer training forage production and management can bring about increased livestock productivity and food security. Farmers could also benefit from training on animal nutrition focusing on feed ration formulation. The efforts should ensure incorporation of women and youth in different levels of the livestock feed value chain.

References

1. Duncan, A., Eerdewijk, A. Van, Lukuyu, B., Kinati, W., Sultana, N. and Mulema, A. 2019. Gendered Feed Assessment Tool (G-FEAST) focus group discussion guide. CGSpace, (June), 1–31.
2. Zambia Statistics Agency. 2022. The 2022 Livestock Survey Report. Lusaka: Ministry of Fisheries and Livestock.



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