



Assessing the challenges hindering livestock productivity, fodder availability and use in Ward 16 of Mutoko District, Zimbabwe

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Summary

A study was conducted in Ward 16 of Mutoko District, Zimbabwe, to assess the challenges affecting livestock production and subsequently people's livelihoods. Thirteen female farmers of various ages drawn from across the whole ward were interviewed in a focus group discussion. From these, 6 farmers from different villages were further selected on the basis of land holding size and then interviewed individually to gather data at household level. The main sources of their livelihoods were identified as livestock production, horticultural crop production and other non-formal business. Apart from livestock production constraints, knowledge, access to markets, labour constraints, land holding and land tenure system were also identified as some of the factors affecting people's livelihoods. In terms of livestock productivity, the main challenges were identified in order of severity as predation, theft, feed unavailability, shortage of drinking water and diseases prevalence.

1 Introduction

The study was conducted by a team of two Mutoko District agricultural extension staff and a veld and pasture specialist researcher from Henderson Research Institute on 7 May 2021. The study sought to identify challenges and opportunities faced by Ward 16 community of Mutoko District in terms of livestock production for their livelihoods. Livestock production is one of the most important components of the Zimbabwean rural livelihoods, as such this study aimed at coming up with intervention strategies which would enhance livestock productivity.

Mutoko District is located in Mashonaland East Province of Zimbabwe. It is located 143 km along Harare-Nyamapanda road north-east of the capital Harare. The district overlaps into agro-ecological regions 3 and 4 according to agro potential zonation system of the country. By coordinates, the place lies at a latitude of 17°22.654' and a longitude of 32°23.012'.

In terms of population, respondents had varying opinions, some felt that it could be as low as 2,000 households while others thought it could be as high as 10,000 households. However, an average of 7,000 households with an average of 7 people per household was eventually agreed upon. About 5,000 of these households were reported to be female headed while 2,000 being male headed. The higher numbers of female headed households was attributed to the fact that men have a shorter life expectancy than women besides the fact that a lot of men are formally employed in towns.

Ward 16 of Mutoko District is purely communal with crop and livestock production being the main sources of livelihoods. Horticultural crops are basically grown for sale while field crops are usually grown on a subsistence basis. Main livestock species kept include cattle, goats, pigs and the local village chickens.

1.1 Objectives

- Identify the livelihoods sources in Ward 16 of Mutoko District.
- Assess the contribution of various livelihoods sources to households and women's income.
- Identify the sources of forages for livestock in the community.
- Assess if forage availability affects livestock production in the area.
- Identify other challenges which affect livestock productivity in the area.

1.2 Data management and analysis

In terms of data management, both quantitative and qualitative data were collected for both the focus group discussion and individual questionnaire, respectively. Quantitative data was then analysed using the Gendered Feed Assessment Tool (G-FEAST) tool to give summary statistics of the data.

The G-FEAST focus group discussion and individual questionnaires were used to gather and collect information on crop and livestock production information, challenges, fodder availability and use in the area. Focus group discussion with 13 female farmers was done and this was followed by individual questionnaire involving 6 selected

farmers. Focus group farmers were purposefully selected across the whole ward from the various villages to reduce chances of biased results. The selection aimed at equal representation in terms of age. Individual respondents were selected from the focus group members on the basis of size of land holding, that is small-scale, medium-scale and large-scale. For large-scale, only one person was selected with the other one picked from medium-scale since there was only one person in the large-scale land holding category in the group. Those with less than 1.5 ha constituted the small land holding, 1.5–3.5 ha in the medium-scale while those with more than 3.5 ha constituted the large-scale. Table 1 gives a summary of land holding by the respondents of the individual questionnaire.

Table 1. Individual questionnaire respondents data

Full name	Age	Village	Size of land holding	Household type
Respondent 1	60	Chabvuta	Small-scale	Male headed
Respondent 2	71	Gadzai	Small-scale	Male headed
Respondent 3	41	Mazarura	Medium-scale	Male headed
Respondent 4	32	Gwati	Medium-scale	Male headed
Respondent 5	23	Nyamukondiwa	Medium-scale	Male headed
Respondent 6	62	Enerst	Large-scale	Male headed

Proceedings during both focus group discussion and individual questionnaire are presented pictorially below on Plate 1.

Plate 1. Proceedings during the interviews.



Prior to holding of interviews there was registration of participants followed by signing of a consent form by one of the farmers representing the consent of the group with respect to what was going to be discussed and captured. Plates 2 and 3 below show the registration list and signed consent form.

Plate 2. Participants register.

Female Register
G-FEAST PARTICIPANT REGISTER

DATE: 7/5/2021 VENUE: W16

NAME	Gender	Village
Beauty Chigede	F	Chabvuta
Tsitsi Bhonda	F	Mushamba
Hai Chimwata	F	Mushamba
Patite Tembere	F	Chabvuta
Dorothy Sizi Saizi	F	Nyawasho
May Tebaga	F	Gadza
Tsitsi Mudiyi	F	Gwati
Egania Nyamukarosa	F	Enerst
Talent Gomo	F	Enerst
Talent Shambambo	F	Nyamukondwa
Patricia makamba	F	Nyamukondwa
Rana Mazana	F	Mazarungu
Chipo Harobani	F	Enerst

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Plate 3. Consent form.

Gendered Feed Assessment Tool (G-FEAST)

Consent

You are being invited to participate in a study that aims to assess feed resources at local level with a view to developing a site-specific strategy for improving feed supply and utilization through technical or organizational interventions.

Any responses you give will be kept confidential and there is no way anyone will be able to identify you or your household. Note that participation is voluntary. If you choose to participate, you have the right to terminate this interview at any time. You also have the right to refuse to answer any question you might not want to respond to. There are no anticipated risks involved in the study.

Do you agree to participate? Y/N

Name: Patricia Makamba Signature: [Signature] Date: 7/5/2021

SITE: Bukati ward 16

1.3 Challenges encountered during the survey

Although women were interviewed without men, they appeared to exhibit fear and lack of confidence and this could be attributed to the African patriarchal societies. This brought about some challenges which needed a lot of probing so as to get the information from both the focus group and individual respondents. Below were some of the observations noted during the survey:

1. Dominancy of women by men was still evident despite the fact that women were being interviewed alone, thus they would suggest that they call the man to respond to all livestock and land holding issues.
2. Understating of the livestock holdings and this might have been due to:
 - Possible exclusion from donor aid as need for aid is said to be partly measured by the number of livestock one owns.
 - Fear of forced destocking as previously such exercises ended up forcing those who had big numbers of animals were forced to reduce their herd size to ease pressure on the grazing areas.
3. Under estimation of land holding, this was due to:
 - Mathematical literacy level was a challenge within majority of the respondents. Those who were knowledgeable were masked out by majority vote. The local unit of blocks was understood differently by participants, so the facilitators had to assist by further probing and converting the local units to standard units (hectares).
 - Understating land holding possibly because people anticipated that the survey would pave a way for resettlement of those seen to be in need of land, this was, however, noted and addressed.

2 Farming systems

About 60% of Zimbabwe falls in the communal category, UNFPA Zimbabwe (2017), so is Mutoko District. Both men and women can own land but land ownership by women is mostly for the widowed who automatically inherit it from the late spouse. There are also landless households, and these are usually the new couples who would not have been allocated land by the village head. Table 2 summarizes land holdings in the ward.

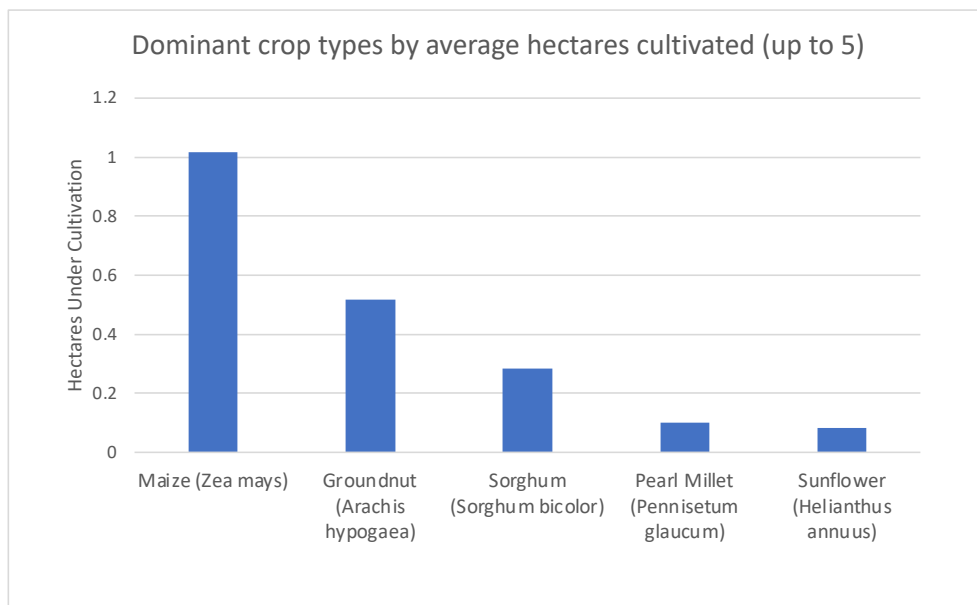
Table 2. Gendered households land holding

Category	Land Size (Ha)	Percent of Households	Percentage of Male Headed Households	Percentage of Women Headed Households
Landless	0	5	30	70
Small Farm	≤ 1.5	20	70	30
Medium Farm	1.5 – 3.5	60	65	35
Large Farm	>3.5	15	80	20

From the discussion it emerged that on average 30% of the community members were migrating out of the area mainly for vending in neighbouring countries, for job seeking and education. Other members, however, felt that the number of people migrating could be as high as 50% considering the movement by the youths. Youths were thus reported to constitute 70% of those migrating, apparently, they are the energetic group, and hence there is a general shortage of labour during peak labour demanding operations. Despite this movement, land holding size per household was reported to be decreasing due to population growth and the land tenure system.

Ward 16 of Mutoko District lies in natural farming region 4 where average annual rainfall ranges between 450–600 mm (Mugandani et al. 2012). This is well supported by the rainfall information provided by the farmers in this study. The rainfall is received from November to February but in small amounts which cannot fully sustain field crop production, irrigation is thus a key requirement. The amount was reported to be low in December and January, very low in November and February and nil throughout all the other months of the year, such that most dams and all river systems are seasonal. Only one big dam and few boreholes were said to be perennial, this affects both livestock and horticultural production. Horticultural production is mostly done by women and is seasonal in most parts of the area except for only those with access to irrigation water. Major field crops include maize, groundnuts and sorghum with groundnut production championed by women. Figure 1 shows the range of field crops that are grown in the area.

Figure 1. Range of crops grown.



Cropping seasons follow the rainfall pattern which gives rise to four distinct seasons and these are summer (December–February), autumn (March–May), winter (June–August) and spring (September–November). Table 3 illustrates the rainfall pattern of Mutoko District, Ward 16 while Table 4 illustrates the four seasons.

Table 3. Rainfall pattern of Ward 16, Mutoko District (on a scale of 0–50)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (0–5)	2	1	0	0	0	0	0	0	0	0	1	2

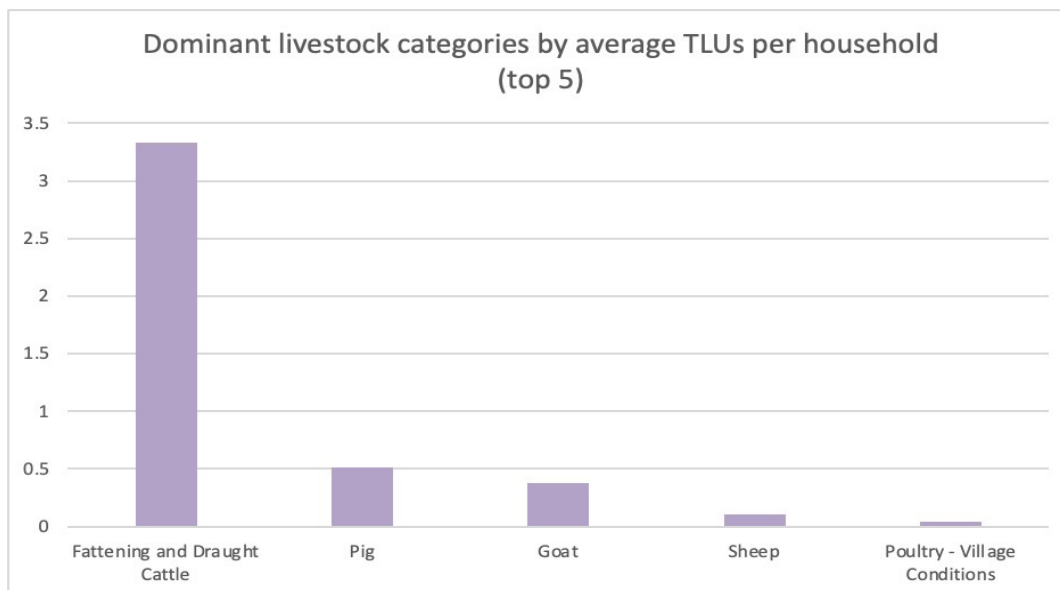
Table 4. Distinct seasons of Ward 16, Mutoko District

Season	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Summer	√	√										√
Autumn			√	√	√							
Winter						√	√	√				
Spring									√	√	√	

3 Livestock production system

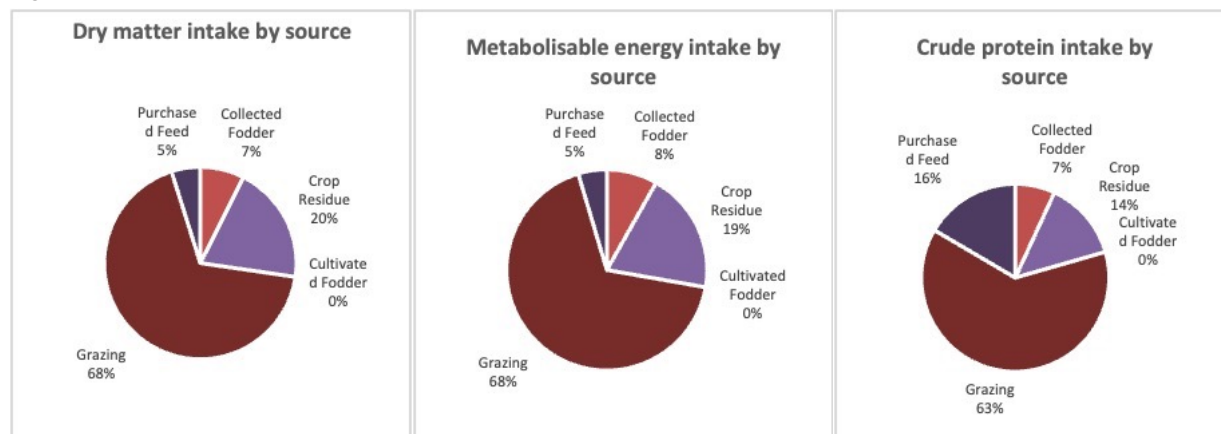
Livestock are a key source of livelihood in the area constituting their source of protein (chickens), source of income (chickens, goats and pigs), draught power source and symbol of wealth and lobola (wedding gift) payment (cattle). Cattle are thus controlled by men, chickens are generally owned by women while goats, sheep and pigs are jointly owned. As shown in Figure 2, cattle were said to be the main type of livestock in most households. Cattle ownership was reported to vary from 20% to as high as 80% by households. An average of 60% of households was, however, agreed as true representative of the ward with an average number of 5 animals per household. Piggery was also reported to be a crucial component of livestock with 70% of the households owning an average of 4 pigs per household. Similarly, goats were said to be common with 80% of households owning about 5 goats per household. Village chickens were reported to be owned by almost every household, 95% of the households owning an average of 10 birds per household.

Figure 2. Dominant livestock categories by average TLUs per household.



Livestock production in the area is purely extensive with minimum inputs factored in. The bulk of feed for the animals is constituted by natural veld while crop residues are brought in during winter season. Cattle, sheep and goats are generally herded in summer but are let free after crops are harvested. Crop residues are important during the winter season as they supplement the diet of the livestock. The veld provides much of the dry matter, metabolizable energy and crude protein for the ruminant animals. Pigs are supplemented with concentrates while chickens are occasionally supplemented either using commercial or cereal based grain crushes when need arises. Figure 3 shows the contribution of some of the main feed sources to livestock nutrition.

Figure 3. Contribution of various feed sources to livestock nutrition.



These feeds and other livestock related inputs especially veterinary drugs are not easily accessible to everybody owing to cost. This is why farmers rely on government for conventional disease control, however, elderly men headed households use traditional means especially treating of wounds and dosing.

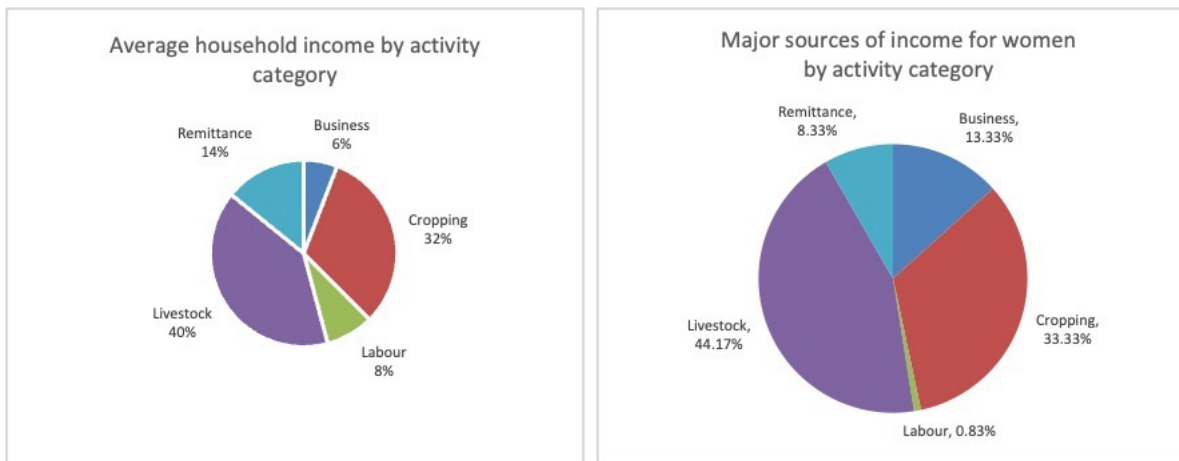
Livestock inputs and markets are on average at a radius of 10 km and at a cost of 168 Zimbabwean dollar (ZWD) to access them (USD 1 = ZWD 361.9000 at 30 June 2022). Those closest are within a kilometre radius while those far away are at 15 km radius. Marketing of livestock is generally informal, and this happens when the seller is in financial crisis. Therefore, livestock is sold at prices far below those of formal markets. Livestock breeding is through natural means using local bulls. Animals usually mate uncontrolled as they are grazed in community owned grazing areas and this presents challenges of inbreeding.

Owing to seasonality of water sources, drinking water for livestock is a challenge during the dry season with majority of the villagers having to travel an average distance of 5 to 8 km to water their livestock especially cattle. Although villagers close to watering points may walk for less than a kilometre, some villagers were said to travel long distances of up to 10 km to water their livestock. Sheep and goats are occasionally watered from boreholes. Water crisis challenge was reported to predispose the animals to predators and thieves if the animals are not accompanied to watering points.

4 Major income sources

Results of the study conform to the fact that Zimbabwean rural livelihoods are agro-based and this is in agreement with FAO's findings (www.fao.org). The fact that natural regions 4 and 5 are livestock producing regions (www.researchgate.net) also holds true from the results of this study. The results show that livestock proceeds take a lead in supporting households and income contribution for women (Figure 4). Cropping horticulture comes second and does not only bring in cash but also nutritional security to the households while field crops are important in ensuring food security for the people. Poultry and horticulture make the biggest contribution to women's income (Figure 4). Recommendations meant to improve the households' livelihoods and women's income should therefore revolve around improving livestock productivity first, followed by cropping since crops compliment livestock.

Figure 4. Top five sources of households and women's income.



Income contribution for women by different enterprises is directly related to the control they have on the respective activities. Women have much influence on poultry and horticultural cash crops (Figure 6). This directly translates to the percentage income they get from these enterprises (Figure 5). The enterprises which women have control over are also their cash cows in terms of their income.

Figure 5. Contribution of all enterprises to household and women’s income.

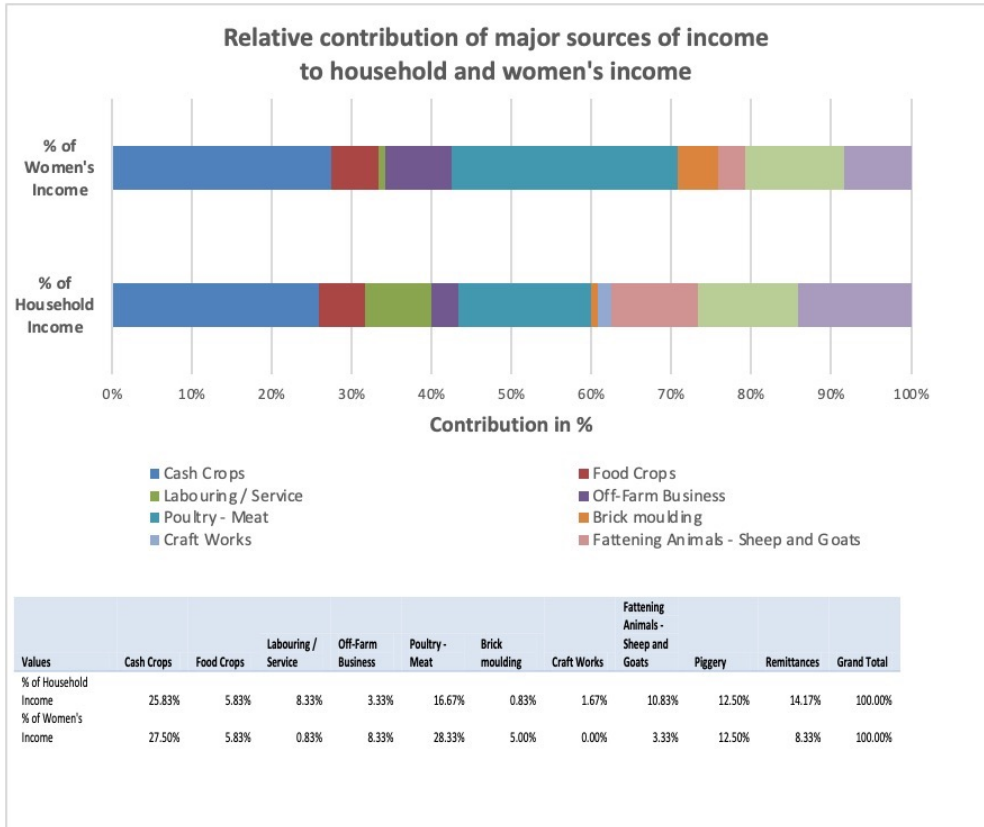
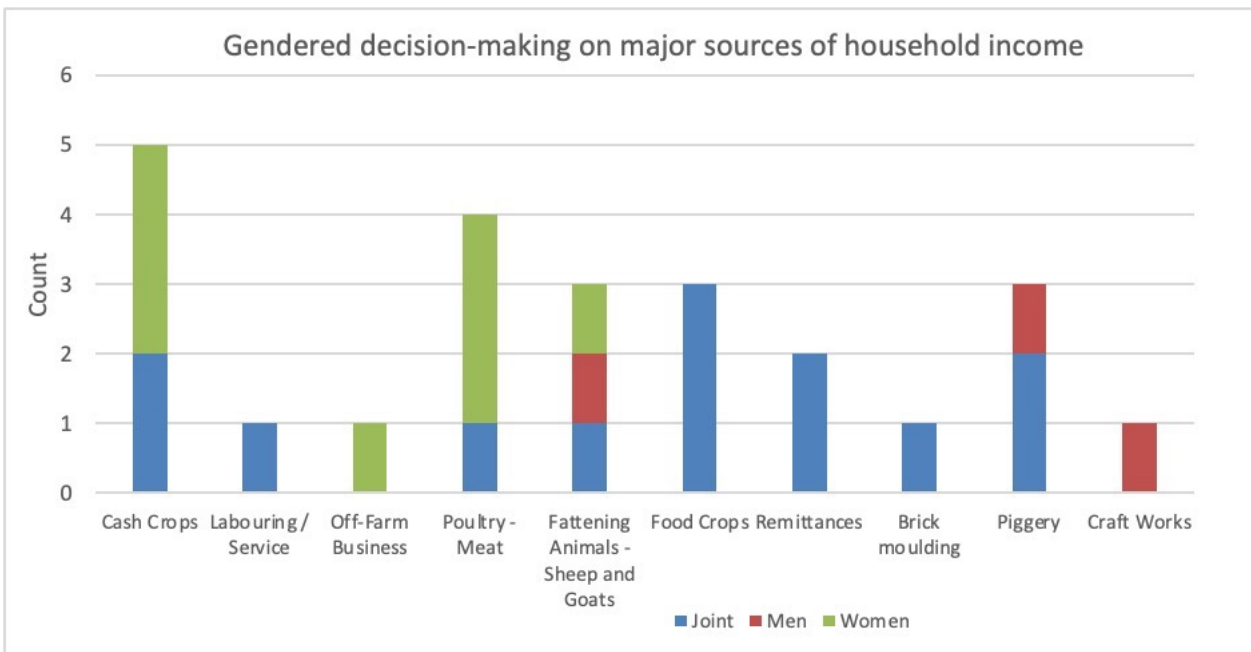


Figure 6. Gendered decisions on household income.



Decisions on sales of livestock are mostly decided by men or jointly done except for poultry which are considered to be a women’s project. This explains why most of the women’s income from livestock proceeds is contributed from poultry projects. Sales of the other livestock projects are jointly decided by men and women; however, expenditure from the proceeds is usually influenced by men. This is the reason also why women do not benefit much from such projects.

5 Major feed sources

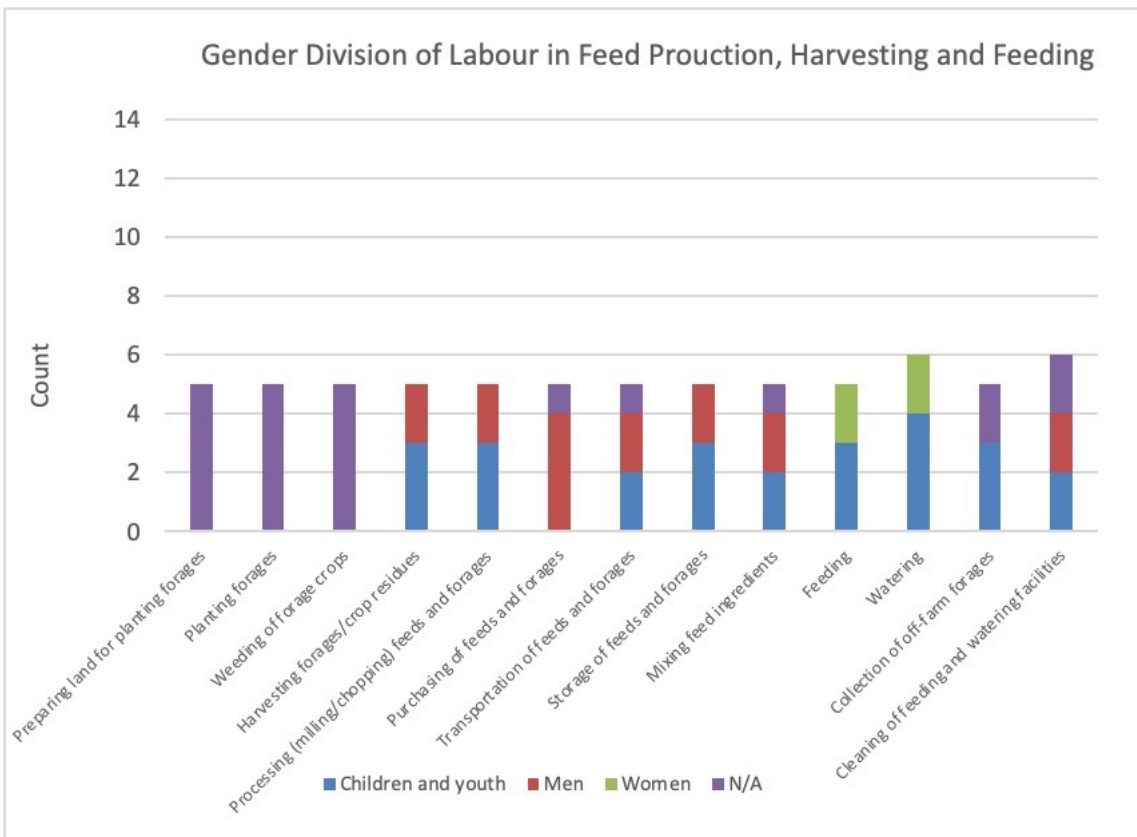
The different sources of feed which constitute the diet of livestock are shown in Figure 3. The main source and readily available for livestock are the veld and it constitutes 68% of dry matter intake for cattle, sheep and goats. Crop residues mainly maize stover and sorghum become a key component of livestock diet in the winter to spring period constituting 20% of the total dry matter intake of ruminants (Figure 3). Immediately after harvesting groundnuts, hay is also put in the kraals. Though intended for manure build up, the animals also feed on it while fresh before spoilage by dung. Much of groundnuts hay is also threshed and fed to pigs and Road Runner chickens. Collected fodder in the form of grass hay also play an important role in the winter to spring period. Commercial feed is basically for pigs and occasionally for chickens which are preferentially supplemented when need arises.

Dietary requirements of the livestock are basically met by the veld (graze), crop residues and collected fodder. The condition of the livestock also follows the state of the veld, thus animals are always reported to be in poor shape after summer, with occasional deaths due to starvation recorded. Pigs get their balanced diet from the commercial feed but are sometimes let outside for scavenging around the yard.

6 Gender division of labour

Division of labour on livestock feed issues involves men, women and the youth. Men do most of feed sourcing but with female headed households it is usually the women who do so with children coming in to gather stover, prepare the stover and feed the animals. The youth also do drive the animals for watering (Figure 7). Where there are no capable youths most of these operations are done by women and men interchangeably depending on other households' operations.

Figure 7. Division of labour.



7 Problems and opportunities

Livestock production in the area is on an extensive system with undefined breeding approach. Animals from different households within the community freely interact as they graze in community owned areas. This brings about many complications in terms of grazing control systems and this impact negatively on management of the livestock; as such problems encountered are closely linked to the management approach. Problems sighted during the survey are summarized below.

7.1 Feed shortage

Potential of veld to support livestock varies with season. Although regions 4 and 5 are characterized by highly nutritious and palatable grass species, quantity is, however, reported to be a challenge during off summer seasons. While people make use of crop residues and collected grass hay, it does not satisfy the bulk requirements especially of cattle. These also require treatment to improve on their nutritive value of which most households are reported not doing. According to the statistics provided by the respondents, on average, 20% cattle losses have been recorded in a bad year. Other respondents reported up to 80% losses. In as much as both male and female headed households are affected female headed ones were reported to be worse since gathering and storing of grass hays and crop residues are mostly done by men and youth.

Possible solutions

Pressure on the veld due to overpopulation was said to be the main cause of feed shortages. Decongesting households through resettlement could relieve pressure on the limited veld. There is also need to enlighten people about fodder production so that the forage base is increased. While area is limited over half of the participants expressed some interest in fodder production using the little fallowed land. There is also need to educate farmers so that they appreciate livestock production as business. This would mean that sell livestock and plough back the proceeds especially in terms of supplementary feed in the case of drought situations.

Opportunities

The ongoing land redistribution exercise could be taken advantage of to ease population pressure. New upcoming households could be resettled so that land holding does not continue to decrease. Agricultural support organizations can also be roped in to support forage production and processing programs.

7.2 Livestock diseases

Animal health issues were reported to have caused huge losses especially the current problem of tick bone diseases. Cattle losses from disease challenges were estimated at 50% of the total losses. There were also reports of instances where total losses of the whole herd of cattle have been recorded with some households. Animal health issues are usually handled by veterinary department (government animal health services) especially dipping remedies and control of notifiable diseases. This has brought reluctance in the way people manage their animals with the hope that government will chip in. Livestock diseases affect both male and female households equally.

Possible solutions

Since major losses emanate from tick bone diseases, sticking to the stipulated dipping sessions especially in summer (5, 5, 4 day dipping session) where tick challenge is reported to be high could help to reduce severity of the disease. Use of specifically designed for the dip resistant brown ear tick (multi-dip) could also reduce the challenge. This, however, requires community efforts since their livestock always mix. Farmers also need to be weaned from dependency syndrome from the government so that they take responsibility of their stock by appreciating livestock farming as a business.

Opportunities

The area falls in a livestock producing region where government is said to be keen to be supportive of livestock production programs. The government occasionally supplies dips when available and also takes charge of all notifiable diseases through the veterinary services department. Presence of a veterinary extension agent who is a resident in the area offer immediate technical advice. The presence of a full stocked veterinary outlet within a 15 km radius (Mutoko centre) gives assurance of readily available livestock medical facility.

7.3 Drinking water

Coupled with grazing, drinking water challenges were reported to exacerbate theft and predation of livestock. Perennial dams which are said to be the only source of drinking water in the spring season are far away from the majority of the households they supply. Most theft and predation incidences happen when animals move long distance without attendance especially during the winter and spring time when they are not headed. During this time, majority of the households would travel distances of up to 10 km daily to water their animals.

Possible solutions

There are quite a number of dams which are seasonal. Seasonality is partly due to high competition for water between livestock and irrigation. Strategic dams could be left solely for supplying drinking water to livestock. This will lengthen the time period they can extend without drying up. Earth dams that are strategic for livestock water supply require some upgrading of dam walls and deepening to increase their carrying capacity. While boreholes are primarily meant to supply domestic water, increasing their number in the community would also help in the supply of livestock water especially to the group of animals that require special attention.

Opportunities

The ward attracts a considerable number of charity organizations and developmental partners who can be made use of to fund borehole drilling and dam wall upgrading programs.

7.4 Theft of livestock

Theft is reported to be a challenge with livestock being prone to theft at any time of the day. Cattle and goats are reported to be the targets. Although this challenge spares nobody, female headed households suffer bigger losses than male headed ones especially during the night. Generally, the thieving issue tend to target female households, women are said to be less fearsome to the culprits. The extent of the problem makes villagers to believe that even the police who are supposed to protect their stock are accomplices, hence the problem cannot be solved. Elderly traditionalists are, however, less affected as they are believed to play magic.

Possible solutions

Theft is regarded to be a challenge to deal with given that the law enforcers are reluctant to do justice with the matter. The most effective way to reduce theft of livestock would involve penning the animals at night while herding them during the day.

Opportunities

Presence of neighbourhood police, being local residents, they are also not spared from the problem. The potential for community collaboration is therefore very high. Well coordinated livestock programs by non-governmental organizations can be taken advantage of to establish community paddocks and take turns to monitor the animals.

7.5 Predation

Predation was reported to be happening at any time of the day with a wide range of predators involved, no category of livestock being spared. The poultry group suffers heavy predation from large birds and reptiles. Lambs, kids and calves are attacked by jackals, baboons and leopards while crocodiles and hyenas attack any animals that come their way. 'Mapere arimuno anogona kudya iwe muridziwezvipfuwo kana ukamashungurudza' meaning that the troublesome hyenas can even pounce on the person herding the livestock. This was the expression from one of the participants describing the extent of predation on livestock by hyenas. Pigs are, however, somehow safe from predation as they are most of the times kept housed. Even if they are occasionally let free, they just roam around the homesteads.

Possible solutions

Wild animals can be transferred to designated game parks which are manned by Parks and Wildlife Authority. Baboons are classified as troublesome animals (Jarvis and La Grange 1982), as such these can easily be depopulated and scared away by the responsible authority (Parks and Wildlife). Poultry can easily be raised under dip litter system to reduce their vulnerability to predation.

Opportunities

Crocodiles are a source of protein which can benefit the community through crocodile farming. Financial proceeds from their sales can also be a source of funds for community projects like dam upgrading and paddock construction. Wild animals can offer local recreation facility in form of domestic tourism, thus giving financial proceeds to the community.

The severity of the problems affecting livestock productivity in the area was ranked as shown in Table 5. Problem of livestock diseases was considered the greatest challenge, followed by drinking water shortages, feed shortages, theft and predator incidences.

Table 5. Problems ranking

Problem	Pair-wise comparison	More important
1 Feed shortages	Problem 1 versus Problem 2	2
	Problem 1 versus Problem 3	3
2 Diseases	Problem 1 versus Problem 4	1
	Problem 1 versus Problem 5	1
3 Drinking water	Problem 2 versus Problem 3	2
	Problem 2 versus Problem 4	2
4 Theft	Problem 2 versus Problem 5	2
	Problem 3 versus Problem 4	3
5 Predators	Problem 3 versus Problem 5	3
	Problem 4 versus Problem 5	4

Based on problems pair-wise ranking, the problems identified by women as affecting livestock production in Ward 16 of Mutoko District were ranked in order of severity as predation, theft, feed unavailability, shortage of drinking water and diseases prevalence.

8 Conclusion and recommendations

Mutoko District Ward 16 is an agro-based community whose livelihoods are dependent on subsistence agriculture. Livestock especially small stock, their products and horticultural crops are the main sources of households and women. In terms of livestock feeds, the main sources of feeds are the veld and crop residues. There is no pasture production to boost livestock nutrition, as such winter feeding is a challenge. Seasonality remains the major setback in terms of feed availability and livestock production. The situation is observed during the dry seasons where natural forages are unavailable thereby affecting quantity and quality of feeds in the area. Forage processing has not yet been explored in the area. This is, however, a key area considering the loss of quality of the veld and crop residues in winter. This would help to stabilize feed quality throughout the year. While forages are limited and thus an area of concern, livestock diseases and shortage of drinking water affect livestock production more than forage issues. This means that any intervention strategies should concurrently address the top most problem (diseases) and the feed challenge as feeding has a direct impact on the diseases resistance of animals.

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