



# Characterizing the livestock production system and the potential for improving production in Selonga, Gwanda District, Matabeleland South, Zimbabwe

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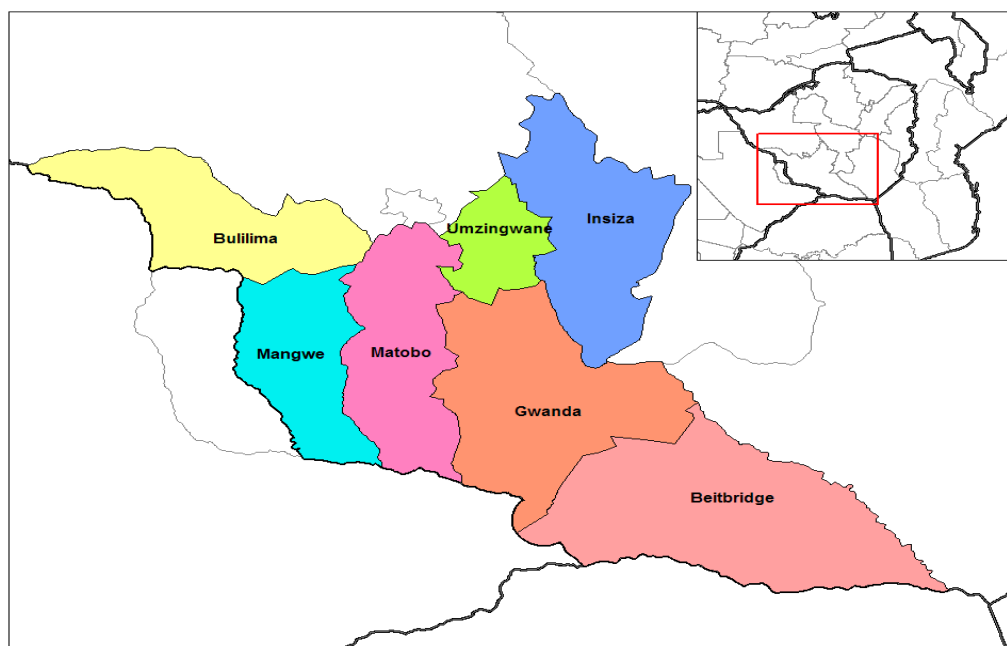
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# 1. Introduction

The livestock production systems in Selonga community, Gwanda District, Zimbabwe was characterized by implementing the Gendered Feed Assessment Tool (G-FEAST) in the district after training of the data collection team. The G-FEAST protocol gathers both qualitative and quantitative data on farmers' perspective on feed and other hindrances to livestock productivity in their locality. It recognizes the fact that these hindrances may be dependent on the gender of the farmers. G-FEAST considers how the factors of production, mainly labour, credit, feed resources and water resources affect livestock production from the farmers' viewpoint.

Selonga is located in Gwanda District, 180 km southeast of Bulawayo, the second largest city in Zimbabwe. The latitude of the site was -21,37008450 and longitude 29,1933006733330. Figure 1 shows the study area, which lies in agro-ecological zone IV. Expected average rainfall is 450–600 mm with a length of growing period (LGP) of 105 to 135 days per annum. Natural region IV is suitable for extensive livestock production with a possibility of growing drought resistant crops like sorghum and millets. Farmers can also grow some short season varieties of maize (Mugandani et al. 2012). Thus, the production system has evolved under the influence of the unimodal rainfall with a short growing period. Most of the vegetation has browsable shrubs and tree species that include Acacia and Mopane species. Animal production is mostly meat animal production with minimal milk production. The most popular breed of goats is the larger strain of the small East African goat commonly referred to as the 'Matabele'. The province has considerable cattle and goat populations in the country. This report presents the findings of the assessment and conclusions for further action

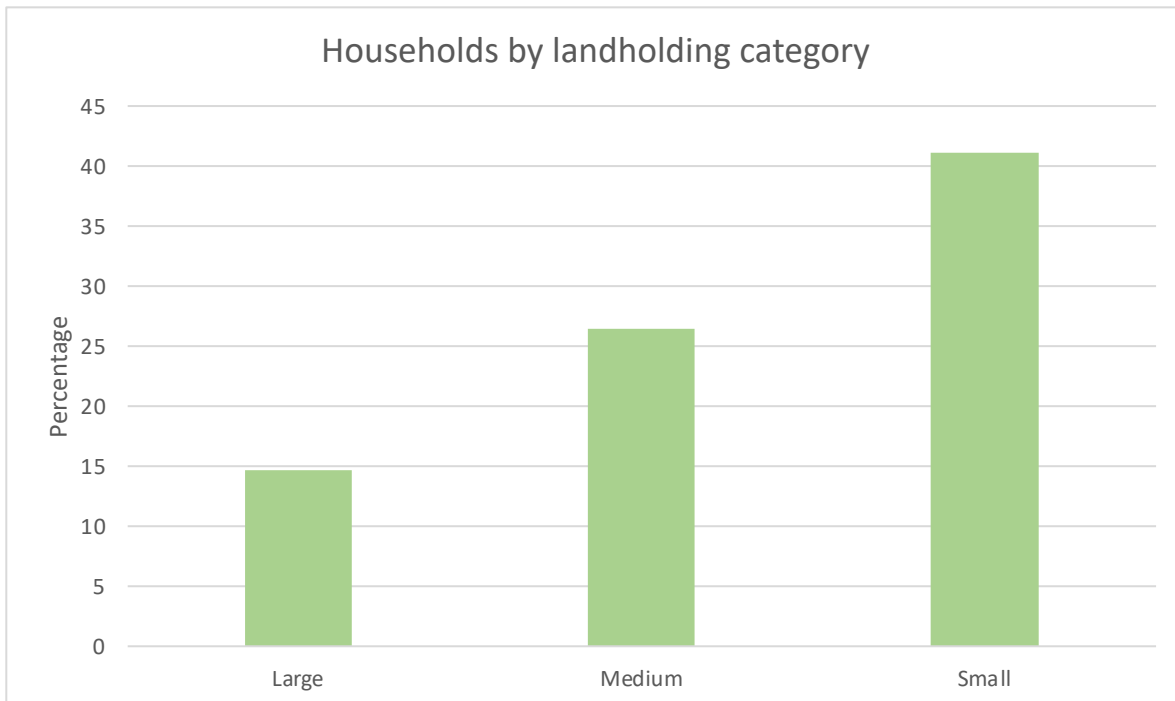
Figure 1. Map and location of Gwanda District.



## 2 Process and sample description

With the help of local livestock extension officers working in the ward, individuals and farmers groups were identified for participation in the project. Two focus groups of males separately and females separately were held. The male focus group had four farmers and two officials from government ministries of Agriculture and Women and Gender. The female group had 8 farmers. The focus group discussion lasted 1 hour and 50 minutes while the individual interviews lasted 2 hours. The selection of the farmers for the individual interviews used the land holdings as a proxy for wealth status of the farmers. But due to the low turnout, this was not achieved. The final sample size according to farm size is shown in Figure 2. The farmers had agreed to participate and be recorded after the team leader had asked for permission through the local leadership. The interviews were done in the local language SiNdebele. Every session had a note taker and a time keeper to manage the process. The recorded discussion and the notes were later transcribed i to English in Microsoft Word.

Figure 2. Per cent distribution of farmers by farm size.





## 3 Results

### 3.1 Farming systems

Extensive mixed crop and livestock is the agricultural production system in the area. The average land holding in Zwavambanga was 2 ha with much of it dedicated to livestock production and little left for cropping. Very few farmers reported growing fodder crops for their animals. All the farmers reported joint ownership of the land. Farmers stated that women can also own land in the area. And the greatest number of land owners were old women who inherited the land when their husbands died. This was unexpected that women could possess bigger pieces of land than men in a community. There was only one type of land tenure system in the study area, i.e. communal land in which the whole community owns the land.

The range of crops grown by the farmers was narrow. Maize (*Zea mays*) was the dominant food crop grown in the area. The others were pearl millet (*Pennisetum glaucum*), sorghum (*Sorghum bicolor*) and groundnuts (*Arachis hypogaea*). The five crops grown are shown in Figure 3. Fodder crops were lablab (*Lablab purpureus*) and mucuna (*Mucuna pruriens*) as shown in Figure 4. There was no cash crop grown in the area. The crops sold were those in excess of the household consumption. Of the food crops, groundnuts were for the women and they controlled the decisions on how to use them even the sales. None of the crops grown was processed for feeding animals. The farmers stated that they needed training on how to grow and process fodder crops for their animals. In the last season they had received some inputs for growing these fodders but could not do so due to lack of knowledge.

Figure 3. Dominant crop types cultivated (ha).

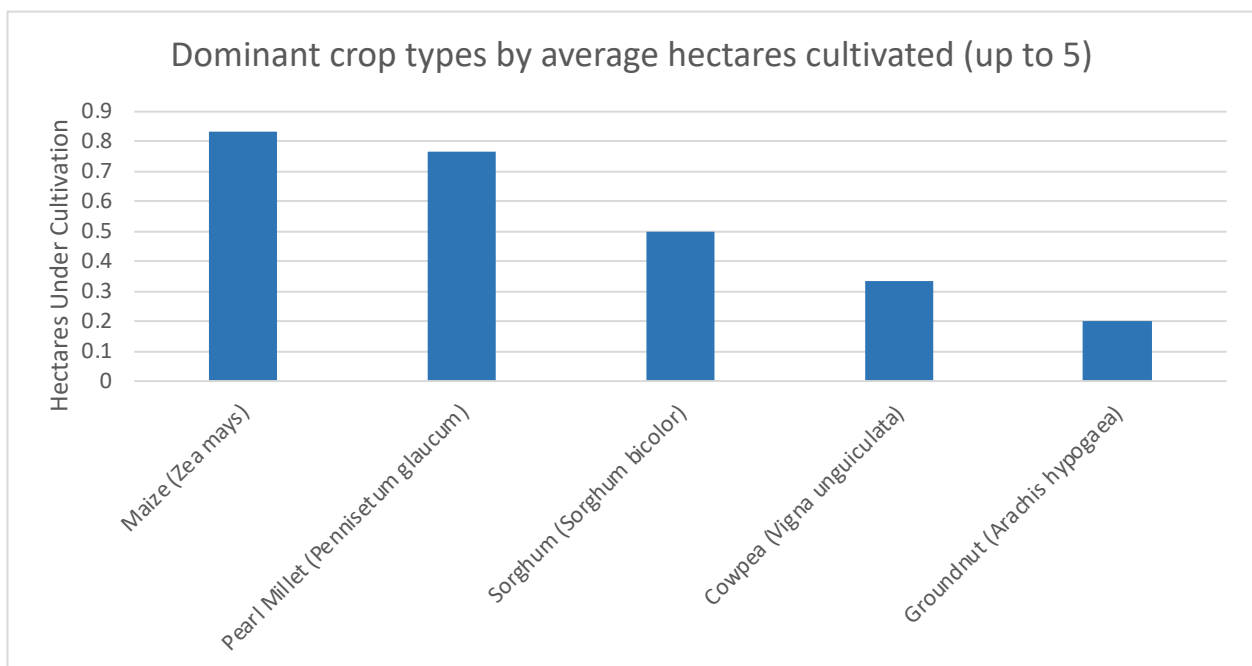
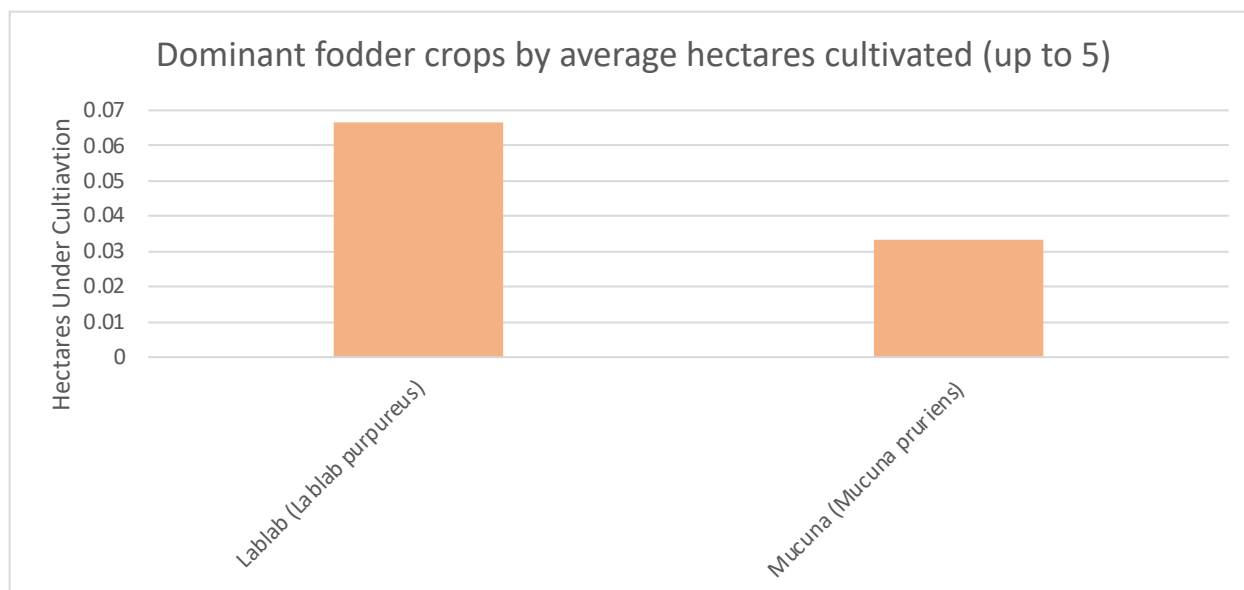


Figure 4. The dominant fodder crops grown by the farmers in Selonga.



The rainfall was unimodal falling in the summer months with a severe mid-season drought in January. The short growing season forced the farmers to grow the drought tolerant and short season crops in the area as described above. During the long dry season from April to October, there is severe shortage of grazing for the animals and water for irrigating the gardens where they grow vegetables. During this time the animals rely on the browse shrubs. Table 1 illustrates the rainfall pattern by season in the area. The cropping activities are done in the ukuchisa/summer season months spanning from November of one year to April of the following year. This is the rainy season characterised with a January mid-season drought. Harvesting occurs in somuqando/winter months as shown in Table 1. The last season is entwesa/spring, which is very short running from September to October. In ukuchisa/summer the main activities are input acquisition, servicing the equipment, repairing fences, manuring and stumping. In somuqando/winter the farmers reported to be gardening, threshing and shelling and collecting crop residues and in entwesa/spring the main activities were preparing land, manuring and repairing and maintaining contours.

Table 1. Seasonal cropping patterns in Selonga

Season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ukuchisa/summer												
Somuqando/winter												
Entwesa/spring												

The cost changed with the farming activity. Although the farmers reported no labour shortages, there was considerable migration of the youth out of the area to seek employment and education. There was no difference between the wages paid to men and women in the area with the average daily rate of USD 6.

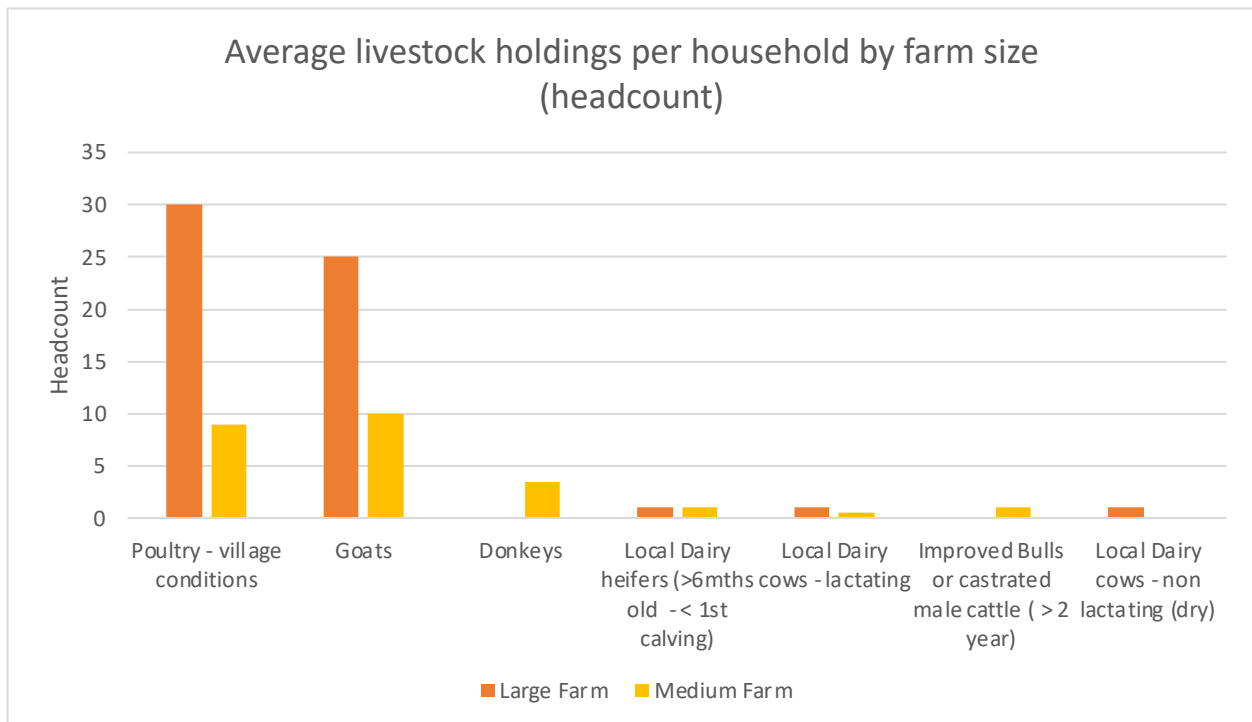
## 3.2 Livestock production

Farmers in Gwanda District predominantly keep goats and poultry as shown in Figure 5. Most of the indigenous free range chickens are kept by the women who have control over their production and usage. Donkeys were also kept by the farmers mostly to provide draught power only. Cattle were kept mostly for beef with minimal milking. The milk was mostly for subsistence use. During the growing season animals graze on herbaceous plants. During the dry season much of the herbaceous feed runs out and the animals survive on woody species and towards the end that is when the farmers buy some fattening meal to supplement their animals.

The farmers do not process the feed given to the animals at all and they expressed interest in getting training in forage production and processing. The most common diseases are lumpy skin disease, blackleg and tick-borne diseases. Most

of the help on animal diseases came from government veterinary officers. These services are dwindling as government of Zimbabwe fails to support these services. There was no use of artificial insemination (AI) which meant that all mating were through bull service. The reason for this was that AI was attempted in the past by some non-governmental organizations, but it was a big failure and farmers think that AI does not work. Also, the services are not readily available in the area. Interestingly there was no gendered pattern in terms of access to goods and services in the district and possibly technology adoption. This agrees with the findings of (Jera and Ajay 2008). Generally, most of the decisions and ownership were made jointly in the households. Thus, women in Selonga although they could not individually own large livestock, they participated in management decisions. The farmers mentioned the existence of some cooperative in the area but could not specify how this was helping. Only 10.29% of the farmers had access to credit (FDG data). However, on a scale of 0 to 4 men gave a score of 0 to the ease of accessing credit. This meant that the farmers had limited if any sources of money to finance their livestock production.

Figure 5. Average livestock holdings per household by farm size in Selonga.



### 3.3 Major income sources

As expected from the location of the district, livestock activity mainly goat breeding, contributed (55%) the most to household income followed by remittances as shown in Figure 8. The sale of excess food crops contributed the least at only 3% to income of the farmers. Labour/services contributed 12% to income and off-farm business brought 7% to income of the male headed households. The order of the sources of income for the farmers in Selonga were, in decreasing order, goat breeding, labour/services, off-farm business and sale of excess food crops.

There was not much difference in sources of income for women and men. The graph (Figure 6) below shows the relative contribution of major sources of income to household and women's income. The decisions on major sources of income were made jointly in the households in Selonga as depicted in Figure 7 below.

Figure 6: Relative contribution of major sources of income to household and women’s income in Selonga.

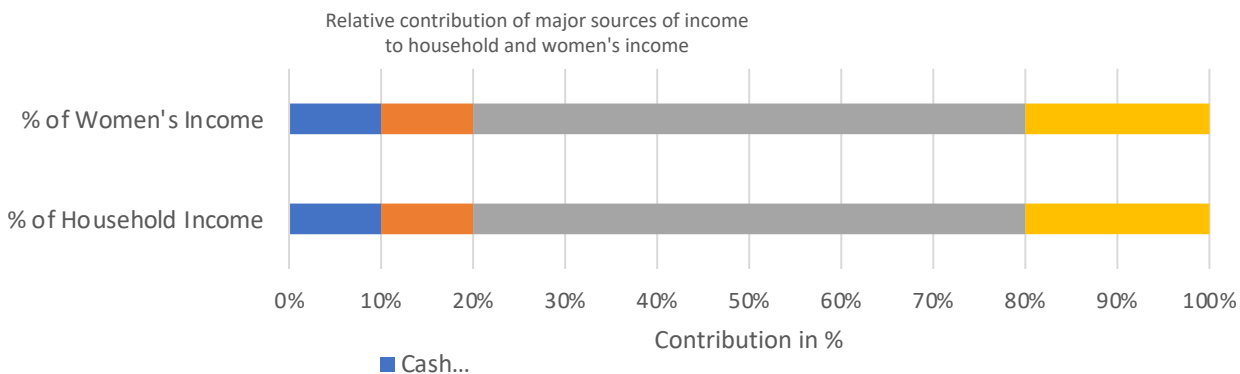
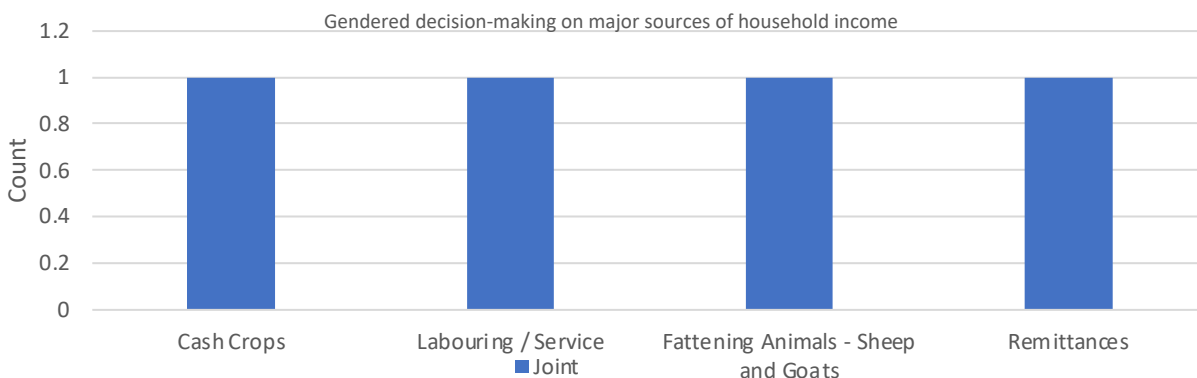
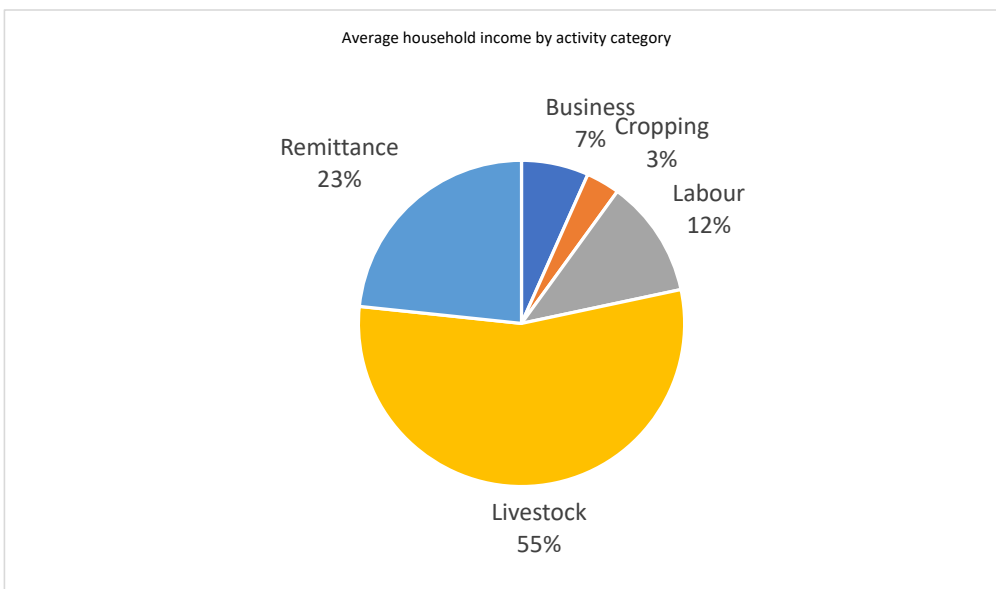


Figure 7: Gendered decision-making on major sources of household income.



The prices for large ruminants and small ruminants had similar fluctuations patterns. The prices were highest during December. This could be due to the increased demand during the festive season. They would drop significantly and level up in May. Thereafter they start to fall until September/October period. This could be as a result of severe feed shortages at this time of the year which forces farmers to sell animals. The increased supply of animals on sale pulls down the prices. The drop-in prices in January is due to increased animals for sale as the farmers sell animals to buy inputs and pay school fees.

Figure 8. Average household income by activity category in Selonga.



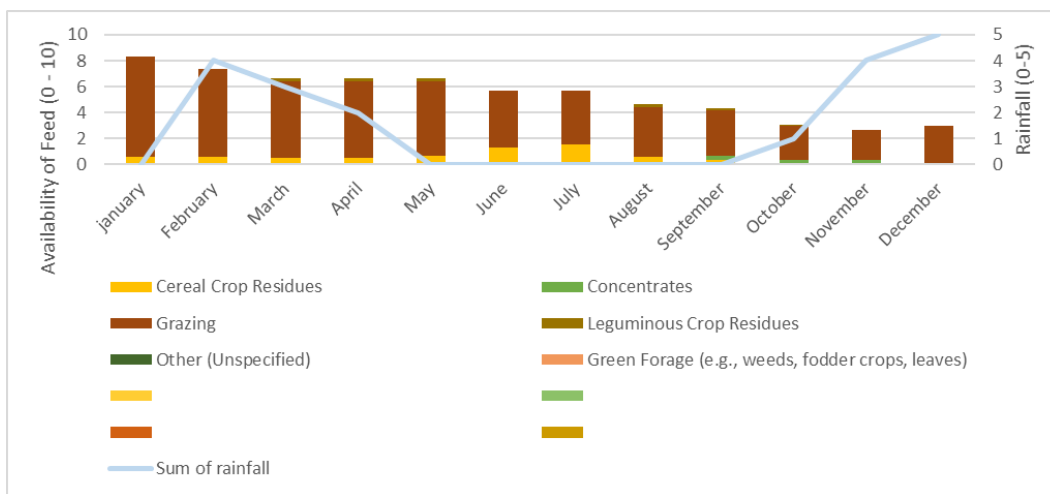
### 3.4 Major feed sources

During the growing season annual grasses make up the greater proportion of the grazing. This source of feed gets exhausted in the dry period and animals start to depend on browse species found in the area. Crop residues are used after harvesting for a short period of time. Entwasa/spring time is when feed sources are least available and is the time when the farmers buy commercial mixed rations to supplement their animals.

Grazing contributed the largest proportion of the diet of the animals although this contribution varied with time of the year. Crop residues contributed 31% of the diet. The collected fodder contributed 7%, purchased feed 4% and cultivated fodder contributed 3% of the dry matter intake by the animals (Figure 7).

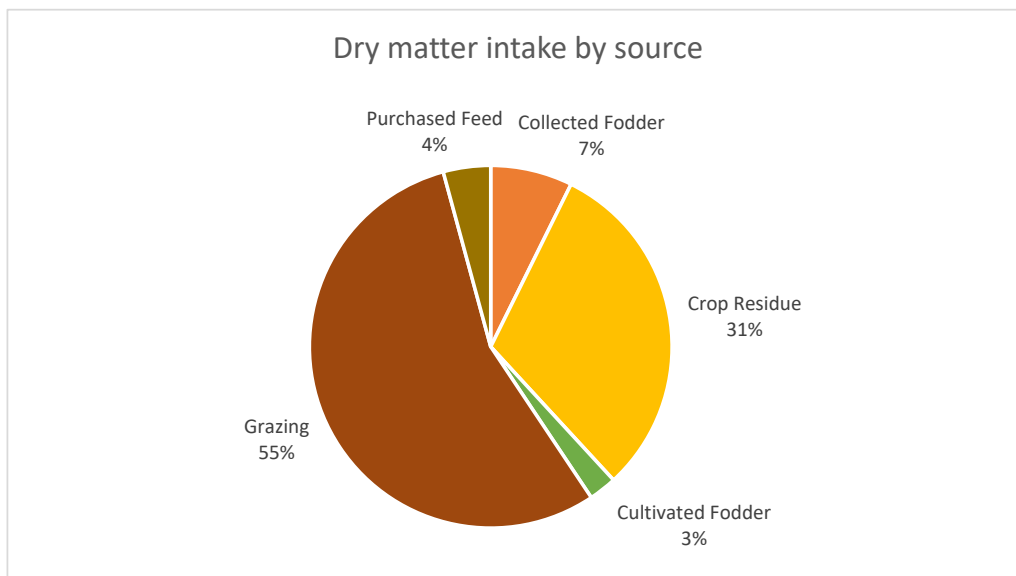
More than half of the metabolisable energy (ME/kg) intake by the animals came from grazing. Crop residues contributed 31% ME/kg followed by collected fodder at 8%, purchased feed 5% and cultivated fodder contributed 3% as shown in Figure 9.

Figure 9. The contribution of different feed source in relation to the rainfall pattern in Selonga.



The ME contribution followed the same pattern as the diet contribution of the sources. This indicated that the ME content of the sources does not differ much. The pattern did not change with crude protein contribution of the sources to the animals (Figure 10). The grazing contribution fell to 52%. This would be expected as the grazing of the animals included significant browse.

Figure 10. Dry matter intake by source.



The browse species comprise of acacia trees and some shrubs. It is known that the crude protein content of browse sources of feed does not change significantly with time compared with crude protein content of herbaceous plants (Figure 11 and 12). It also implied that browse formed a significant proportion of the diet of the animals in the area.

Figure 11. Metabolizable energy intake by sources.

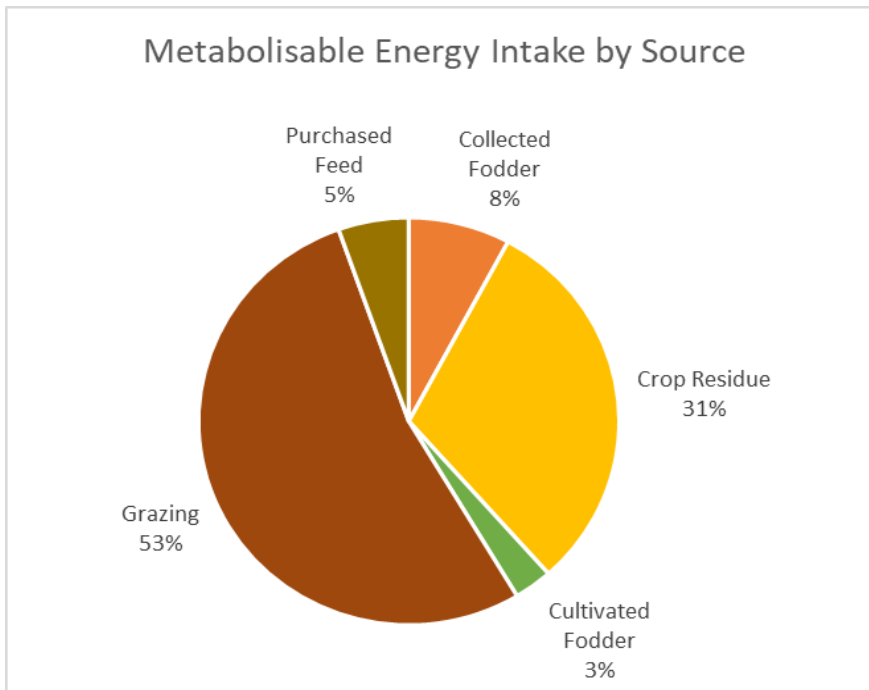
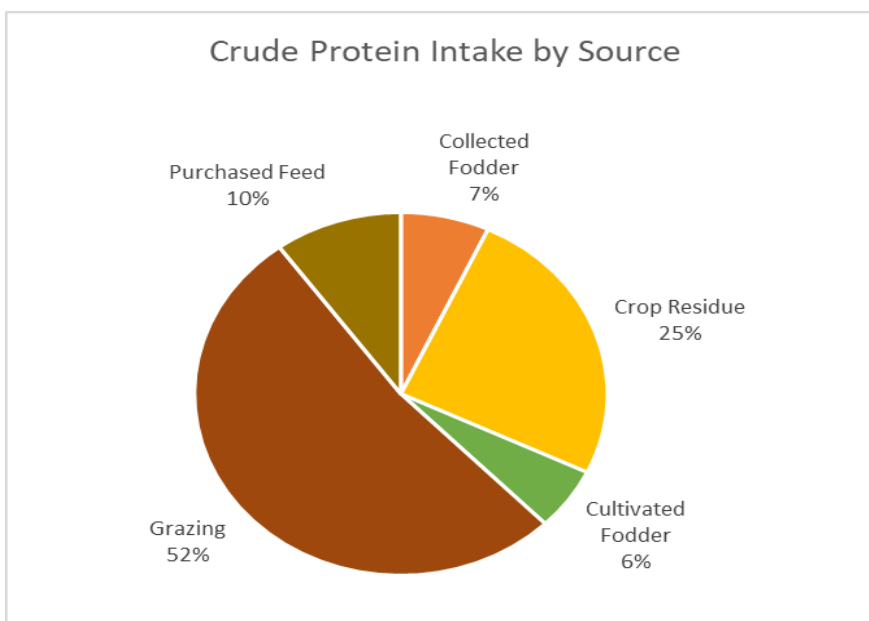


Figure 12. Crude protein intake by source.



### 3.5 Gender division of labour and gendered decision-making on livestock feed related activities

For the large ruminants and small ruminants' management was by joint decision-making. However, women were the sole decision-makers for poultry management as shown in Figure 10. With regards to what crops were grown, there were crops like groundnuts that were chosen by women alone. In the other crops joint decision-making was used. Use of crop residues was decided on the main jointly with a small proportion when men alone would decide.

Men decided alone on type and where to grow fodder crops. Purchases of feed were on the main decided jointly with a small proportion where men alone would decide. With regards to gender division of labour in feed preparation, harvesting and feeding, men alone would do land preparation, preparation for planting forages, collection of off-farm forages, purchasing of feeds and forages and transportation, mixing of feeds and feeding. The rest of the activities were done by both men and women. In these cases, men did a greater proportion of harvesting forages and crop residues and watering. Women did much of the storage of feeds and forages as well as cleaning of feeding and watering facilities.

### 3.6 Problems and opportunities

Farmers were asked to list and rank the five most important problems affecting livestock production in their area and possible solutions (Table 2). The main challenges identified by men in the communities are stock theft, drought, diseases, markets and predators

Theft was identified as the major challenge affecting production in Zwavambanga village. This is severe to the point that no one is spared and according to one famer 'they will even steal from one farmer with just one goat during the day'. There is not much help from the police and forming the neighbourhood patrol to reduce the mistrust among the farmers. All the problems encountered by the farmers are shown in Table 2.

Table 2. Problems and solutions as given by the farmers in Selonga

Problem	Proposed farmer solutions	Rank
Stock theft	Neighbourhood patrol Fight the corruption that is making police ineffective	1
Drought	Irrigated pasture growing Training in pasture production Harvesting water	2
Diseases	Regular veterinary consultations Group approach to acquire veterinary medicines. Vaccination and frequent dipping Quarantining infected animals Trainings on diseases management	3
Markets	Group marketing of farm produce Farmers associations to facilitate acquisition of inputs and lobbying Improve transport infrastructure	4
Predators	Constructing raised goat houses Reporting to Parks and Wildlife Authorities Seeking ways to reduce wildlife–human conflicts	5

## 4. Potential interventions

The following are the proposed interventions for Selonga, Gwanda District:

- Training the farmers in feed conservation and processing (e.g. silage and hay making). The area experiences a unimodal rainfall in summer which gives a short growing period in which there will be excess of grazing at some point. After this comes the long dry period of close to 260 days when there is severe grass shortage.
- Introducing fodder varieties of high nutritive value especially those are well adapted to the natural region IV and V. These varieties need to be identified and worked before introducing them to the farmers. In order to increase forage production, farmers can adopt adding value to locally available crop residues. This can be done by training farmers on strategies to better use crop residues. Farmers need to be educated on feed conservation, processing and utilization technologies such as hay and silage making.
- Providing experiential learning for the farmers in good fodder production practices through demonstration plots. The farmers in the 2020/21 season reported to have received seeds and other inputs for fodder production but had not been trained and did not know how to use the inputs.
- Introducing affordable and effective pest and disease management practices to reduce the disease prevalence.
- Introducing predator proof houses especially for small ruminants just like in other districts in Zimbabwe.
- Working with social scientists to develop the sense of community among the farmers to encourage the development of cooperatives and other social groupings like the farmers' associations for lobbying by the farmers. This will also help to combat stock theft which was ranked number one problem in the district.



## 5. Conclusion

The farmers in Selonga are rearing small ruminant in a mixed crop–livestock system for subsistence. The farmers should be trained in the growing and conservation and processing of improved pastures. The species to be used should be those adapted to the natural region. The farmers should be trained in animal nutrition to make balanced ration formulation, use improved forages to achieve improved animal productivity. The youth should be enticed into feed and livestock production by making them financially attractive.

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