ASSESSING KEY SOCIO-ECONOMIC CONSTRAINTS AND IDENTIFYING STRATERGIES TO ENHANCE SHEEP MEET PRODUCTION FOR SMALL-SCALE FARMERS IN MAKONDE DISTRICT, MASHONALAND WEST

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Approval page

The undersigned hereby certify that they have read and recommended to the Bindura University of Science Education for acceptance a dissertation of a research project entitled: “Assessing key socio-economic constraints and identifying strategies to enhance sheep meet production for small-scale farmers in Makonde District in Mashonaland West”, submitted by Melisa Mupeuka (B213210B)

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Declaration

I hereby declare that the research project I submitted to the Department of Animal Science at Bindura University of Science Education, Faculty of Agriculture and Environmental Science, entitled: "Assessing key socio-economic constraints and identifying strategies to enhance sheep meet production for small-scale farmers in Makonde District in Mashonaland West" is a record of original work I completed under the direction and supervision of Mr. A Pagute. This work is being submitted in partial fulfillment of the requirements for the award of a Bachelor of Science degree. No university or institute has accepted the findings contained in this thesis for the purpose of awarding a degree or diploma.

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Dedication

I dedicate this project to my hardworking self for all the trials and hardships I have faced and conquered. I also dedicate this project to my family for the support and financial assistance they have been showering towards my whole academic journey. Mom and dad, this project is for you inasmuch as it is mine. You made sure that I never lacked and that I was provided for, thank you. To my sister, Melody, your assistance did not go unnoticed. I appreciate all your efforts and I am grateful. To my dear roommates (Paida, Pauline and Vendra) thank you for providing not just a roof over my head, but a truly supportive environment. From tolerating my erratic sleep schedule to ensuring I actually ate something besides instant noodles, your practical help and good humour always came in handy. Last but not least, to everyone who assisted me and checked up on me during this whole phase, thank you so much.

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First and foremost all glory and honour to God most high for His unending love, guidance and amazing grace in my life. My heart is full of gratitude. God did!

I would like to acknowledge my supervisor, Mr Pagute for his guidance throughout this project, I am really grateful.

I am also indebted to my family and friends for their love and support during my whole academic journey .Their love was like sunshine on a cloudy day.

Abstract

This study examines the constraints affecting sheep meat production for small holder farmers in Makonde District region of Zimbabwe and identifies strategies to revive its production. The production of sheep meat is important to the livelihoods and food security of rural community nevertheless, this sector encounters a massive number of challenges that limit the potential for increasing sheep meat (mutton).These challenges include poor animal husbandry knowledge, limited access to markets and socio-economic factors. This study endeavours to meticulously identify and analyse these constraints within the context of Makonde District, employing qualitative and quantitative methods including, questionnaires and secondary data analysis to explore these constraints. A farm level cross sectional data of 40 small-scale sheep farmers in Makonde District were used to gather data .Furthermore, the research seeks to propose evidence-based interventions, ranging from optimized feeding protocols and enhanced veterinary services to farmer capacity-building and the development of robust market systems. By addressing these issues, the study aspires to contribute significantly to the sustainable enhancement of sheep meat production, thereby fostering economic advancement and improving nutritional outcomes for the local populace.

List of acronyms and abbreviations

GDP	Gross Domestic Product
FAO	Food And Agriculture Organization
SPSS	Statistical Package For The Social Science
NGO	Non-Governmental Organization
ICT	Information Communication Technology
VET	Veterinary
FPO	Farmer Producer Organization

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CHAPTER 1

1.0 Introduction

The agricultural sector in Zimbabwe generates about 17% of the country's Gross Domestic Product (GDP) (O'Neill, 2022) with cattle accounting for 35-38% of the country's GDP (FAO, 2021).It is estimated that up to 60% of rural households own cattle70-90% have goats , more than 80% have chickens and yet sheep production remains unnoticed. The demand for animal products as a source of food is growing rapidly around the world and it is a call for the sector to accommodate this growing demand for livestock products (Y.S. Nyam).Zimbabwe's animal husbandry industry is comprised of small-scale (smallholder) and large scale (commercial) production systems (Mapiye *et al* 2008).Although the small-scale sector is home to the largest population of the livestock industry, most of the country's income in terms of agriculture is happening outside of the small-scale sector. Sheep production by small-scale farmers is mainly characterised by small herds, animals graze in open rangelands with few or no fences at all and with no defined property rights. Zimbabwe's agriculture sector particularly the sheep meat production, faces a complex interplay of constraints that hinder its potential to contribute to food security and economic growth (Madududu *et al*., 2021).Understanding these limitations and devising appropriate strategies for improvement is crucial for unlocking the sector's capacity and realizing the full potential of the sheep meat production in the Makonde District area and the country at large (Getaneh, Tesfaye and Alemayehu, 2021).Climate change, unfavourable economic conditions and lack of knowledge have reduced the availability and access to food for many small-scale farmer households. Addressing these challenges through strategic interventions in the sheep meat production could be the jumpstart to enhancing food security and drive economic development in the region. Unlocking the sheep meat industry's full potential and enhancing its contribution to food security and economic growth in Makonde District requires a comprehensive approach that tackles the complex web of constraints faced by the sector.

1.1 Problem statement

Small-scale sheep farmers face a significant amount of challenges in enhancing their sheep meat production despite the potential benefits of the industry. Constraints such as poor animal husbandry knowledge, limited access to markets and socio-economic factors like lack of capital and theft result in low productivity and reduced profitability. These challenges undermine the potential of small-scale sheep farming as a sustainable livelihood option, limiting the benefits that could accrue to the rural communities. There is great need for an assessment that is systematic to these constraints and identification of feasible strategies that could revive and empower small-scale farmers to increase their sheep meat production. This research aims to bridge this gap by providing a compressive analysis of the challenges and potential solutions.

1.2 Justification

Enhancing sheep meat production among small-scale farmers is essential for improving rural livelihoods and strengthening food systems. Sheep farming is a viable enterprise due to its adaptability to diverse environments and its ability to provide multiple benefits, including meat, wool, and manure. By addressing production constraints and implementing effective strategies, small-scale farmers can achieve higher yields, better market access, and increased income. Furthermore, promoting sustainable practices in sheep farming aligns with global efforts to combat poverty and ensure food security. This study is justified by the need to empower small-scale farmers, optimize resource utilization, and contribute to the economic development of rural communities while also shedding more light on sheep production since it is understudied comparing with the other livestock sector.

1.3 Objectives

1. To identify major constraints affecting sheep meat production for small-scale farmers.
2. To propose interventions and sustainable strategies to overcome the constraints and enhance production and profitability.
3. To gather information on sheep meat production practices among small-scale farmers

1.4 Research questions

1. What are the main constraints faced by small-scale sheep farmers in meat production?
2. What strategies have been used or could be implemented to overcome these constraints?
3. What are the key characteristics of small-scale sheep production?

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter seeks to review the literature on socio-economic constraints to small-scale sheep production in Zimbabwe. . By examining what previous researchers have found in their numerous investigations on relevant subjects, it establishes the groundwork for the study. The researcher will additionally take a close look at experiences in various settings where the topic is present. The first section covers literature which includes the knowledge regarding the role of agriculture in particular small-scale sheep production to the household and national economy. The last section covers small-scale sheep production, the socio-economic constraints and the strategies with the aim to provide a clear understanding of the sector.

2.2 The role of agriculture in Zimbabwe

Zimbabwe is an agro based economy with agriculture being regarded as the foundation and anchor of its economy and it will continue being so for the foreseeable future (Sithole 2006). The country is endowed with has vast fertile land suitable for both livestock and crop production due to a good tropical climate. Currently, the agricultural sector generates only 17% of the country's GDP. (FAO, 2021; O'Neill, 2022), and there is potential to increase its contribution to economic development if the right fundamentals and production practices are adopted on a wider scale. Although agriculture’s contribution to the national GDP is relatively low, the sector provides 60% of all raw materials (primary commodities) required by industry hence it’s also critical for industrialization. The sector generates about 45% of the country exports, which brings in the much needed foreign currency (Sithole 2006). In addition, over 70% of the country’s rural population depends on agriculture for food security, income generation and employment creation (World Bank, 2010).

2.3 Characteristics of small-scale farmers in Zimbabwe

According to (Nagayets, 2005), a small-scale farm is one that is 2 hectares or less in size and is based on the amount of land or livestock kept on the farm. The definition based on size has been criticized by (Berdegue and Fuentealba, 2011) because they claim that it does not reflect the labour arrangement, productivity, and efficiency of the farm. Family-run farms are included in small holder agriculture, and family members often perform the majority of the labour, according to (Berdegue and Fuentealba, 2011). The two also mentioned the distinction between commercial family farmers and subsistence farmers, two categories into which small-scale farmers might be classified. On a small-scale farm, decisions are usually made with the welfare of the family before considering profit (Mudhara 2010).

Small-scale farmers are also characterized by low levels of education, restricted access to information, and insufficient managerial abilities to effectively run their farms. According to (DAFF, 2012), small-scale farmers use out-dated production techniques, which results in low yields. Another characteristic that distinguishes small size farms is the proportion of time spent on farming activities compared to non-farming activities. Small - scale farmers' households typically have limited access to facilities like power and clean water (Stats SA, 2013). Small-scale farmers are also defined as those with little academic qualifications, low incomes, and ages that often range between 45 and 54 years.

2.4 Small-scale sheep production in Zimbabwe

Small-scale sheep production in Zimbabwe is characterized by a complex interplay of factors that influence its productivity and contribution to food security and economic growth.Despite its relatively low contribution compared to cattle and goats, sheep farming is crucial for many households ,offering a source of income, nutrition and financial security(Nyamushamba et al., 2017). Small-scale sheep farmers face several challenges, mostly disease management, inadequate nutrition and limited access to markets (Mavedzenge et al., 2006).

Small-scale farmers in Zimbabwe rear both indigenous and exotic breeds. The indigenous Sabi breed is the most common in communal lands due to their adaptability to harsh climatic conditions and disease resistance (Hanyani Mlambo,2002).Exotic breeds like the Dorper and

Merino are also common and are kept for meat and wool production but these breeds require more attention and better management and veterinary care (Nyamushamba et al., 2017)

The three main systems of sheep farming in Zimbabwe are smallholder, commercial, and community production. Sheep rearing is mostly done by small-scale farmers in the community sector, but they face obstacles such inadequate animal husbandry techniques and restricted access to veterinary care (Hanyani-Mlambo, 2002). Due to their larger operations, commercial farmers typically have better resources and improved genetics, which results in higher output.

2.4 Socio-economic constraints in small-scale sheep production

This part of the literature review explores key challenges faced by small-scale sheep farmers. Small-scale farmers in Africa as a whole face a variety of challenges in sheep production .The biggest challenge in Zimbabwe is limited market access, inadequate financial resources, poor veterinary services, lack of knowledge on sheep production and climate-related risks.

2.4.1 Limited market access

One of the most significant obstacles for small-scale sheep breeders is limited access to viable markets. Smallholder farmers frequently sell their sheep at cheap rates due to inadequate infrastructure, a lack of established marketing channels, and limited negotiating power (Nyamushamba et al., 2017). Farmers are forced to rely on middlemen because there are no formal marketing mechanisms (Mavedzenge et al., 2006). Furthermore, smallholder farmers struggle to match the quality and quantity needs of commercial buyers, limiting their market involvement (Hanyani-Mlambo, 2002).These two authors are both highlighting how the lack of organised markets forces small-scale farmers to rely on less profitable informal markets to sell their produce. However, Zenda and Malan (2021) suggest that collective marketing through farmer groups or cooperatives can partially offset this challenge. This contrast indicates how market exclusion is a common issue but also its impact may vary depending on the degree of farmer organization.

2.4.2 Inadequate financial resources

Another significant challenge for small-scale sheep farmers is a lack of access to financing and financial institutions.This is mainly because many smallholder farmers lack collateral such as land titles for loans, or they are considered too risky by lenders. This in turn prevents them from investing in things like superior breeds, better feeding techniques, and disease management measures (Mavedzenge et al., 2006). On the other hand, the high cost of production inputs, such as additional feeds and medication, significantly affects farmers' profit margins (Nyamushamba et al. 2017).In this way, financial constraints are not just about accessing loans and money, they are also about input unaffordability where farmers are not able to get key inputs even with cash in hand.

When asked about their future plans, respondents, according to (Babubi *et al*. 2004) and (Faranisi and Mupangwa 2011), almost all producers expressed a desire to increase their production, and more than half expressed a desire to change market trends. To improve this, solutions need to address both access to credit and input affordability. Furthermore, inadequate financial literacy and the lack of financial institutions that specialize exclusively to livestock producers make it difficult for smallholders to obtain credit (Hanyani-Mlambo, 2002).

2.4.3 Poor veterinary services and disease management

Disease outbreaks and poor veterinary services have a substantial impact on small-scale sheep farming. Sheep in communal grazing systems are vulnerable to infectious diseases such pneumonia, foot rot, and internal parasites (Nyamushamba et al., 2017). However, many smallholder farmers are unable to afford veterinary services due to high treatment costs and restricted access to skilled professionals (Mavedzenge et al. 2006). The lack of government assistance for subsidized veterinary treatment exacerbates the problem, resulting in high mortality rates and lower productivity (Hanyani-Mlambo, 2002).

On the other hand, international organizations like the FAO(2023) suggest the introduction of community based animal health workers .These are trained local farmers or para-veterinaries who can provide basic animal healthcare services such as deworming, vaccination and first aid. This approach has been a success in most countries even the remote areas.

This highlights how the issue is not only about lack of veterinary services but also about the failure to adopt solutions to rural contexts. While the traditional support is important, it is often overstretched and underfunded. Training and equipping the community members to deliver basic services is the way to go solution. However this approach needs to be supported by proper training and supervision.

2.4.4 Climate-related risks

Climate variability, such as droughts and unpredictable rainfall, has a severe impact on small-scale sheep ranching in Zimbabwe. In communal regions where sheep rely on natural pastures, extended dry spells causes feed shortages, resulting in malnutrition and poor reproductive performance (Mavedzenge et al., 2006).These studies also mention how communal grazing areas are overstocked and degraded which makes the situation worse. When too many animals graze the same land repeatedly without proper management, the grass cannot regenerate and soil erosion increases. This not only affects sheep but also other livestock and it reduces long-term farm production. Smallholder farmers frequently lack the finances to acquire extra feed, leaving their flocks exposed to climate shocks (Nyamushamba et al., 2017). Furthermore, extreme weather conditions raise the prevalence of illnesses and parasites, endangering cattle health and farm productivity (Hanyani-Mlambo, 2002).

While the literature clearly lines out the effect of climate on sheep production, there is a gap in exploring the adaptive strategies that are affordable and suitable for small-scale farmers.

2.5 Strategies to enhance sheep production

Sheep production in Zimbabwe holds significant potential and many research have been done to provide strategies that improve sheep production including market access and value addition, improved feeding strategies, disease control and climate smart practices. Comparing and analysing the literature reveals differences in context and sustainability.

2.5.1 Market access and value addition

The ability of smallholder sheep producers to generate revenue is restricted by the absence of consistent market access. To guarantee that farmers receive fair prices for their goods, organized and inclusive market structures must be established. Farmers can increase their bargaining power, access bigger, more lucrative marketplaces, and combine their animals for bulk sales with the use of cooperative marketing strategies (Mavedzenge et al., 2006). Along the value chain, value addition through regional processing of meat, hides, and wool may also generate new sources of income and job possibilities. Improve market access through marketing cooperatives and value addition initiatives to enhance profitability (Zenda & Malan, 2021). Farmers' capacity to compete in local and regional markets would be further improved by training in marketing techniques, grading schemes, and product diversification.

Inasmuch as forming cooperatives is a good idea, the process is difficult. The success of the idea depends on strong social and institutional support.

2.5.2 Improved feeding strategies

Nutrition remains a critical constraint in small-scale sheep production. Inadequate feed quality and seasonal fluctuations in forage availability adversely affect growth rate and reproductive performance. Addressing feed shortages especially during the dry season with supplementary cost effective feeding from locally available resources (Mudzengi et al., 2020) can be a smart move in aiding nutritional value and content to the sheep thus boosting production. Farmers can also use non-conventional protein supplements and feeding strategies to help their animals survive the dry season (Gusha et al., 2015). Such innovations could provide high-protein supplements that improve growth performance, especially during the dry season when natural pastures are scarce. These approaches are affordable and practical for most communal farmers but adoption rate remain low due to limited knowledge and training. The solution also lies in training farmers in pasture management, fodder conservation, and feed formulation so as to significantly enhance nutritional outcomes.

2.5.3 Disease and parasite control

In sheep flocks, lowering mortality and increasing productivity are largely dependent on efficient disease prevention and management. Due to farmers' lack of access to veterinary care and their ignorance of disease management, common illnesses such lung infections, intestinal parasites, and foot rot continues to present serious problems (FAO, 2023). Implementing stronger disease and parasite control measures, including vaccinations and deworming, to reduce sheep morbidity and mortality could be a game changer. This gap could be filled by bolstering locally based animal health services and setting up mobile veterinarian clinics in outlying locations. Additionally, providing farmers with information on disease detection, immunization schedules, and biosecurity procedures will improve flock health and lower financial losses.

2.5.4 Genetic improvement

One of the most effective strategies for improving sheep production is the introduction and promotion of genetic stock. Selective breeding programs that incorporate high-performing breeds such as the Dorper can massively boost meat yields, reproductive efficiency and adaptability to semi-arid environments (FAO, 2023). In Zimbabwe's communal farming systems, the Dorper breed in particular is perfect for integration because of its exceptional growth rates and resilience in arid environments. To enhance genetic diversity and meat production in the area, a local farmer successfully introduced and propagated Dorper sheep in Nyamandlovu, providing a real-world example (The Chronicle, 2022).

However, Hanyani-Mlambo (2002) warns that exotic breeds often require more feed and veterinary care than the indigenous ones. Without proper support, these improved breeds may fail or rather increase production costs. This shows that yes, improved genetics may be a solution but it must be accompanied by the appropriate investments in the agricultural sector. Initiatives for farmer education centered on genetic selection and management should be implemented in tandem with breeding programs to guarantee long-term sustainability.

2.5.5 Optimized breeding and reproduction management

Managing reproduction is essential to raising flock productivity. It is been demonstrated that switching from seasonal to year-round breeding increases the frequency of lambing and decreases the time between lambing (FAO, 2023). By doing this, small-scale farmers can increase the stability of their revenue and keep a steady supply of animals that are ready for the market. The physiological needs of frequent reproduction must be supported by improved nutritional and health management techniques, nevertheless, if this strategy is to be effective. Estrus synchronization and artificial insemination are two reproductive technologies that are currently underutilized but may increase productivity if they were made available through extension services.

2.5.6 Agricultural Extension Services and Capacity Building

Strong extension services and continual farmer education are essential for long-term gains in sheep productivity. Best practices in breeding, feeding, illness prevention, documentation, and company management should be the main topics of training courses. According to Nyamushamba et al. (2017), a large number of smallholder farmers lack formal training and mostly rely on traditional knowledge, which is valuable but might not be enough to handle new issues in livestock production. In order to give farmers in both communal and resettlement areas context-specific, science-based help, government and non-governmental organizations must make investments in bolstering extension systems and guaranteeing that extension staff are properly prepared.

In addition yes, this initiative is widely agreed on but few discuss on how extension services can be improved aside from the technical knowledge they offer. There is need for the services to be more participatory, inclusive of women and youth so that no one is left behind.

2.6 Animal welfare

The phrase "animal welfare" refers to an animal's overall quality of life, which includes how well the animal is adapting to his or her surroundings and current circumstances. According to World Animal Protection, human-animal interactions have an effect on animal welfare, and it is our

duty to make sure that every animal is treated with kindness, responsibility, and respect. In all human interactions with animals, the welfare of the animals should come first (Mellor, 2016). To address the physical and mental requirements of the animals in our care, five freedoms must be upheld. The freedom from hunger and thirst, discomfort, suffering, damage, and disease, the freedom to express normal and natural behaviour and the freedom from fear and distress are among the five freedoms that are commonly considered to be the gold standard in animal welfare.

The availability of fresh water and a diet that promotes health and vitality can satisfy the first four freedoms of animal care. The freedom from discomfort is achieved by offering a suitable environment that includes shelter and a comfortable resting place. By preventing or quickly diagnosing and treating the animal, the freedom from pain, injury, and diseases is achieved. The freedom of animals to behave normally and naturally, as well as their freedom from fear and suffering, is satisfied by giving them enough room, suitable facilities, and other animals of their own type.

Adopting high welfare farming practices, where animals experience less stress, boost their immunity, and become disease-resistant, could drastically minimize many of the negative health effects associated with factory farming systems (WAP, 2022). It is important to make sure that all livestock producers adhere to minimal standards for the care, handling, and slaughter of farm animals. The plan is made to get rid of things like cages, confinement, barren habitats, painful operations, extreme genetics, long distance transport, and inhumane slaughter that cause the worst kinds of suffering on farm animals. These standards can be used to improve the welfare and quality of life for farm animals.

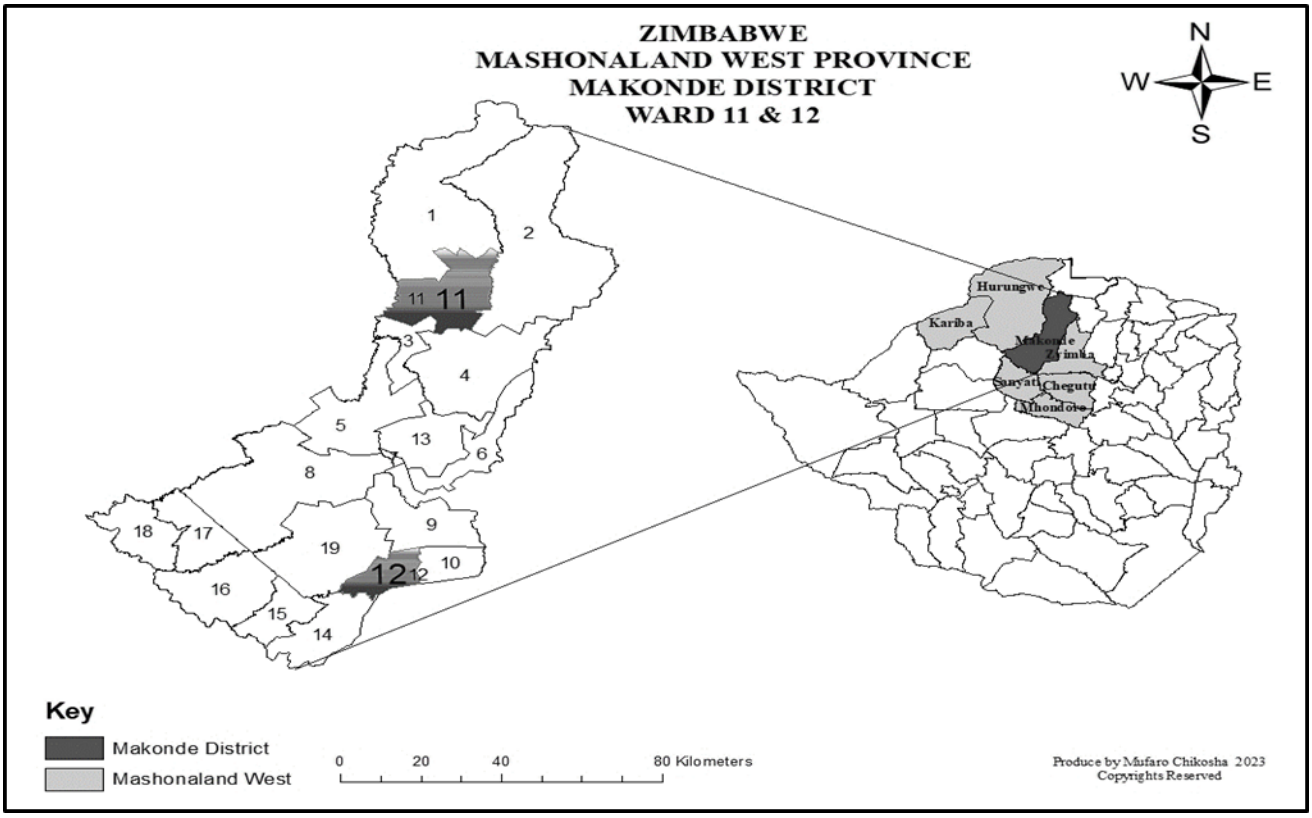
Animal welfare is gaining momentum and attention but it is mostly left out in the strategies. Promoting animal welfare can be a low-cost and highly impactful strategy that can boost production especially when the buyers or processors demand ethical standards.

2.7 Conclusion

A thorough and integrated strategy that tackles the various issues small-scale farmers confront is necessary to increase sheep production in Zimbabwe. A more resilient and successful sheep

farming industry is built on the foundation of important tactics including genetic improvement, optimal reproductive management, better nutrition, efficient disease control, increased market accessibility, and strong extension services. Stakeholders—including the government, non-governmental organizations, and private sector partners—can establish an environment that enables smallholder farmers to enhance flock productivity, raise household incomes, and make a significant contribution to national food security by investing in farmer education, infrastructure development, and supportive policies. The application of these evidence-based techniques is both necessary and relevant for the transformation of Zimbabwe's small ruminant sector in light of increasing economic uncertainties and climate variability.

CHAPTER 3: MATERIALS AND METHOD



3.0 Study area

Figure 3.1: Map showing study area

This study was conducted in Makonde district ward 11 and 12.Makonde District is situated in Mashonaland West with latitude of 17.325056 and longitude of 30.140165.Population in the District was found to be 199 114 in 2022.The district was chosen because of its significant agricultural activities including small ruminant farming in both communal and resettlement areas. Sheep production in Makonde is predominantly practiced by small-scale farmers who often integrate livestock with crop production as a livelihood strategy. The area is characterised

with semi-arid conditions and seasonal rainfall which influence the productivity of sheep farming and present unique challenges and opportunities.

3.1 Sample size

Sampling size refers to the number of respondents selected from the target population to be included in the study (Majid 2018). The target population included small-scale sheep farmers in Makonde District and local agribusiness stakeholders that had at least a year experience in sheep farming. The target sample size consists of 40 households, 20 from Ward 11 and the other 20 from Ward 12. Given the available time and resources devoted to this study, the sample size is deemed to be ideal and practical. Simple random sampling technique was used to select those that constituted the sample.

3.2 Study design

This study adopted a descriptive cross-sectional research design. This is a type of research method used to collect both qualitative and quantitative data from a population at a single point in time. In this design, data is collected simultaneously on multiple variables to provide a clear picture of the situation as it exists.

The cross-sectional nature of the study allowed for the collection of both qualitative and quantitative data simultaneously from 40 households thus providing a snapshot of current farming practises, constraints and perceptions of the farmers.

Qualitative data were gathered through structured questionnaires administered to small-scale sheep farmers while qualitative data were obtained through key informant interviews and focus group discussion.

Key advantages of this design are that it is time and cost efficient thus making it ideal for research with limited timeframes and resources. The design also allowed for the collection of data at a single point in time which made it more practical for farmers to participate thus increasing response rate and participation.

3.3 Research instruments

The researcher used both primary and secondary data. The combination of tools was meant to improve the accuracy and reliability of the data collected and is a widely used technique in research (Waters, 1997).In this research, questionnaires were used since they are simple to prepare and administer (Nayak and Narayan 2019).Questionnaires design included both closed-ended and Likert-scale questions to ensure ease of analysis and these questionnaires were employed in English. A structured questionnaire consisting of 24 closed and open ended questions was administered to a random sample of 40 small-scale farmers in Makonde District.

The stratified random sampling method was used to select respondents. The target population was divided into two strata based on geographical location, Ward 11 and Ward 12.From each ward, 20 small-scale sheep farmers were randomly selected resulting in a total sample size of 40 respondents. This method ensured equal representation from both wards and to reduce selection bias. Field observations were conducted to validate data on housing, grazing systems and general animal health conditions.

3.4 Ethical consideration

The research adhered to ethical research standards. All participants were informed about the purpose and provided informed consent. The respondents were assured of the confidentiality and anonymity of their responses.

3.5 Quality control procedures

To ensure the accuracy, reliability and validity of the collected data, several quality control measures were implemented throughout the research:

- Before administering the actual questionnaire, a pilot test was conducted with five small-scale sheep farmers from a different ward. The purpose was to evaluate the clarity and relevance of the questions to the study. Feedback from the pre-test was used to revise the wording of certain questions and eliminate others.

- Where necessary, questions were translated into the local language (Shona) to ensure full understanding by respondents. This reduced the risk of misinterpretation and improved the quality of the responses.
- After data collection, all completed questionnaires were cross-checked for completeness and accuracy before entry. Errors such as missing responses or contradictory answers were flagged and where possible, clarified with respondents or discarded from analysis.

3.6 Data management and analysis

All responses were recorded in English and entered into Microsoft excel and cleaned quantitative data were analysed using SPSS (Statistical Package for the Social Science) to generate descriptive statistics such as frequencies, percentages and mean values.

CHAPTER 4: RESULTS

4.0 Introduction

This chapter presents the findings from the data analysis conducted using SPSS. It includes the demographic characteristics of the respondents, key socio-economic constraints affecting sheep meat production and the strategies identified by small-scale farmers to enhance production.

4.1 Household Demographic socio-economic characteristics

Table 4.1: Household Demographic socio-economic characteristics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	23	57.5	57.5	57.5
	female	17	42.5	42.5	100.0
	Total	40	100.0	100.0	

Out of a total of 40 respondents, the majority 23 respondents (57.5%) were male whereas 17 (42.5%) were females. This is shown above in Table 4.1

4.1.1 Gender of respondents

The figure (fig 4.1) below is showing the distribution of respondents by gender.

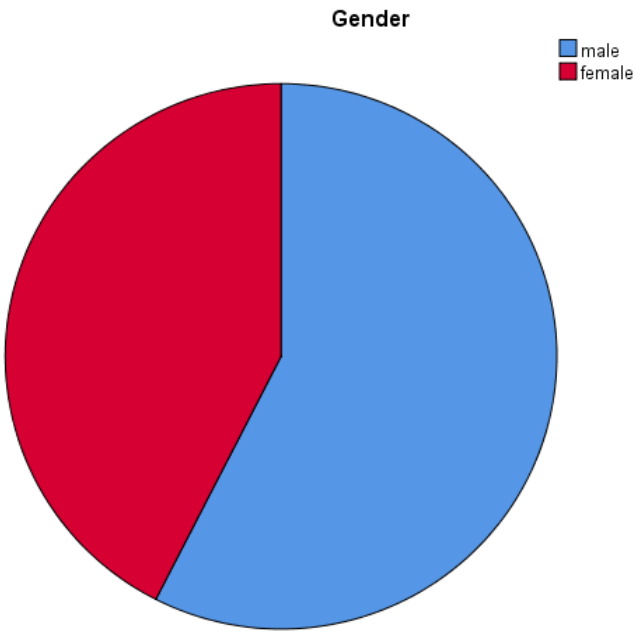


Figure 4.1: Gender of respondents

4.1.2 Age distribution of respondents

The majority which constitutes 42.5% of the respondents were in the 36-45 years' age group whereas the least of the respondents were in both 18-25 years' and the 26-35 years' age group (Table 4.2).

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25years	4	10.0	10.0	10.0
	26-35years	4	10.0	10.0	20.0
	36-45years	17	42.5	42.5	62.5
	46-55years	15	37.5	37.5	100.0
	Total	40	100.0	100.0	

Table 4.2: Age of respondents

4.1.3 Educational Qualifications

The majority (45% of the respondents) in the study had secondary education qualifications whereas the least of the respondents (22.50%) had tertiary education (Figure 4.2)

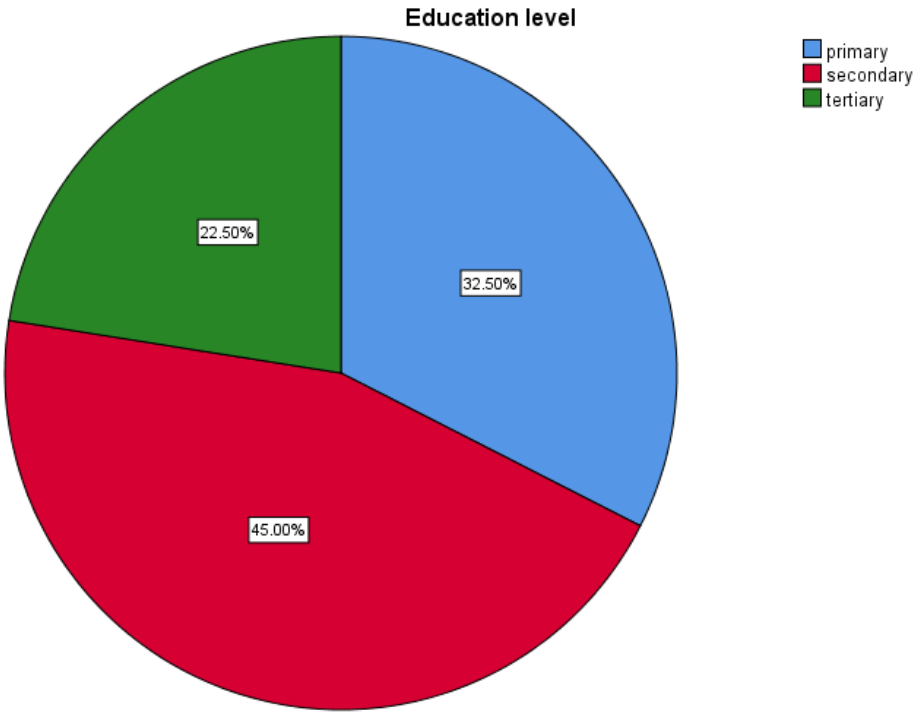


Figure 4.2: Education qualifications of respondents

4.2 Sheep production practices

This section shows presentation of data on the objective on gathering information on sheep meat production practices among small-scale farmers.

4.2.1 Production size

The average number of sheep owned by the 40 respondents was 18.4, with a minimum of 8sheep and a maximum flock of 29 sheep (Table 4.3). This indicates a relatively small-scale level of production among surveyed farmers.

Descriptive Statistics

	N	Minimum	Maximum	Mean
Sheep number	40	8	29	18.40
Valid N (listwise)	40			

Table 4.3: Production size

4.2.2 Nutrition

Majority (80%) of the respondents indicated that they rely on communal grazing as their primary feeding strategy for sheep while the remaining (20%) utilize a mixed feeding system that combines grazing with supplementary feeding (Table 4.4 & Figure 4.3)

Feeding system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	communal grazing	32	80.0	80.0	80.0
	mixed feeding system (grazing &supplementary feeding)	8	20.0	20.0	100.0
	Total	40	100.0	100.0	

Table 4.4: Feeding system

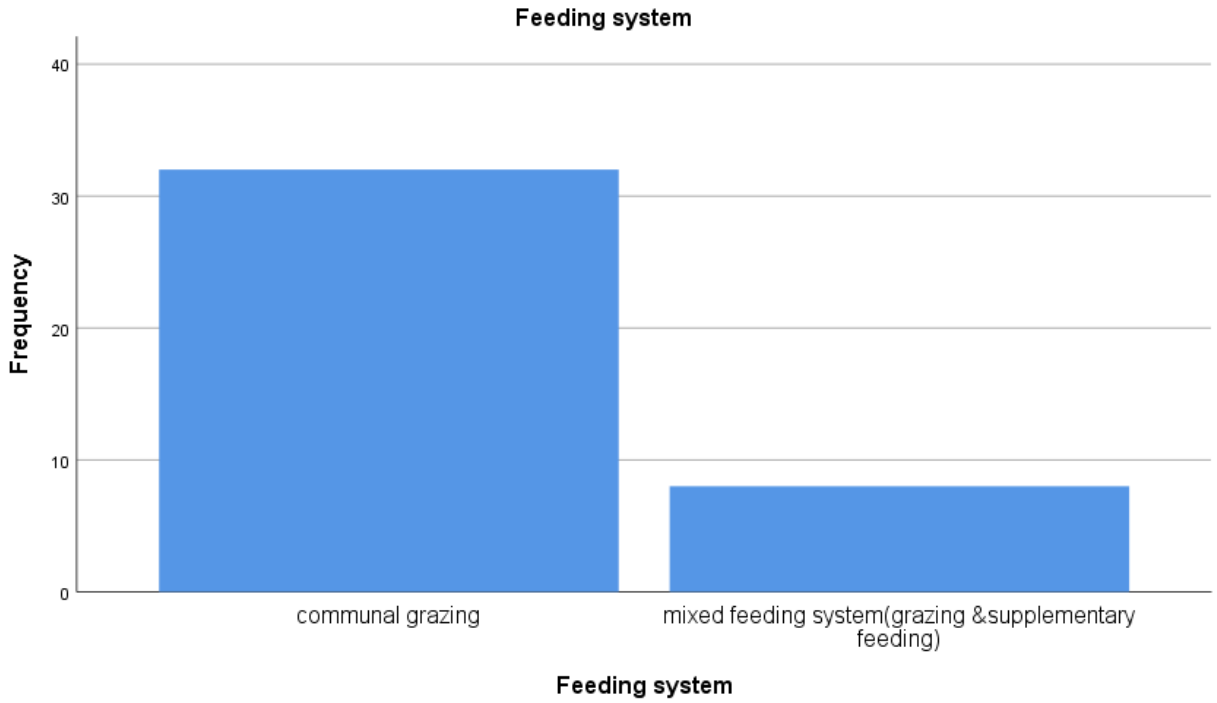


Figure 4.3: Feeding system

Findings indicate that access to veterinary service is limited. Only 42.5% reported having regular access to veterinary services, while 52.5% indicated they sometimes receive veterinary support. A small 5% had no access at all. (Table 4.5)

Vet access

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	17	42.5	42.5	42.5
	no	2	5.0	5.0	47.5
	sometimes	21	52.5	52.5	100.0
	Total	40	100.0	100.0	

Table 4.5: Veterinary access

4.2.4 Key reasons for keeping sheep

Figure 4.4 below shows that the majority of respondents keep sheep primarily for meat consumption and investment purposes. These two reasons were the most frequently mentioned while on the other hand, a smaller proportion of farmers reported keeping sheep for income and cultural purposes.

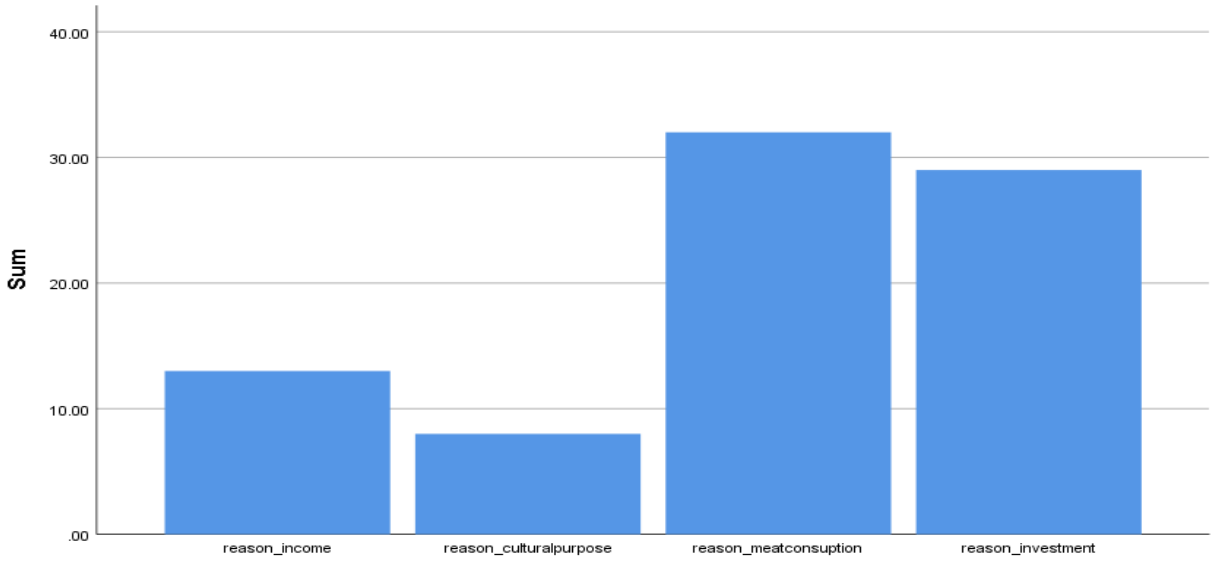


Figure 4.4: Key reasons for keeping sheep

4.2.5 Main source of income for farmers

The results indicate that the main source of income for most farmers is livestock production of other animals like cattle, goats and a pig, accounting for 60.38% of the respondents. This is followed by crop production at 24.53% while sheep production contributes the least with only 15%.This suggests that while sheep production is important, most farmers rely more heavily on

other types of livestock possibly due to higher market value, better productivity or fewer constraints compared to sheep production.

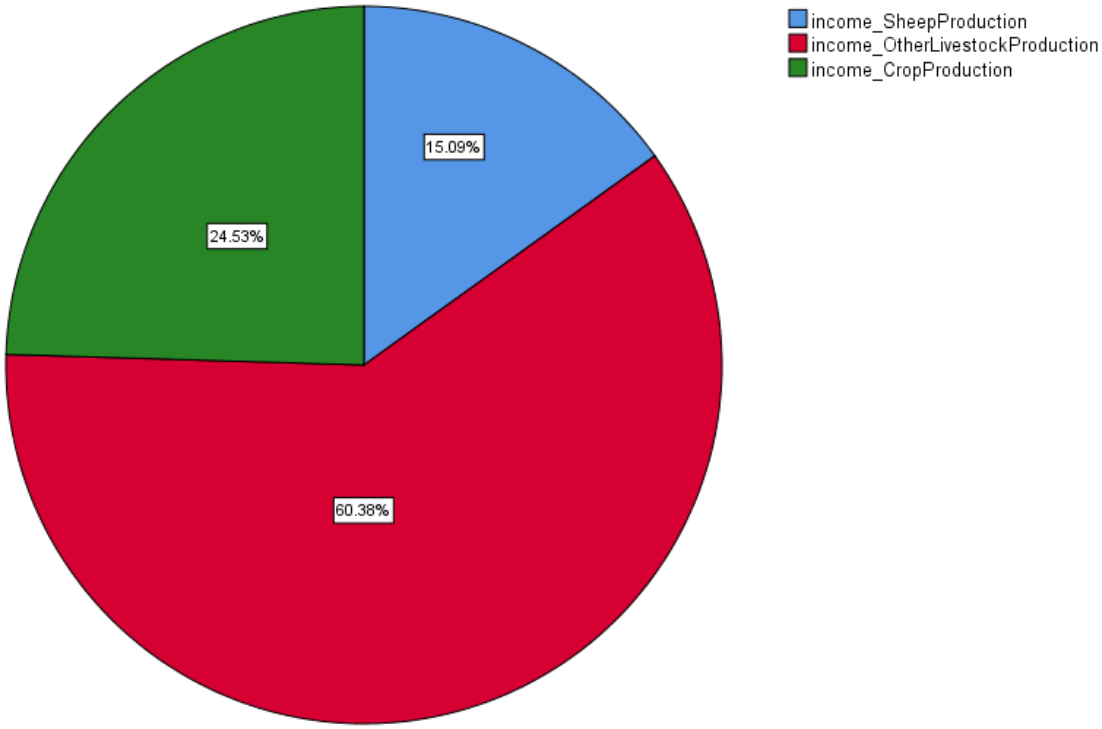


Figure 4.5: Key sources of income for farmers

4.3 Socio-Economic Constraints

This section shows the presentation of data on the objective on identifying major constraints affecting sheep meat production for small-scale farmers. Figure 4.4 shows that the major constraint being faced by small-scale farmers in sheep meat production is poor markets (23.1%) whereas one of the least constraints is shortage of grazing land (6.8%).

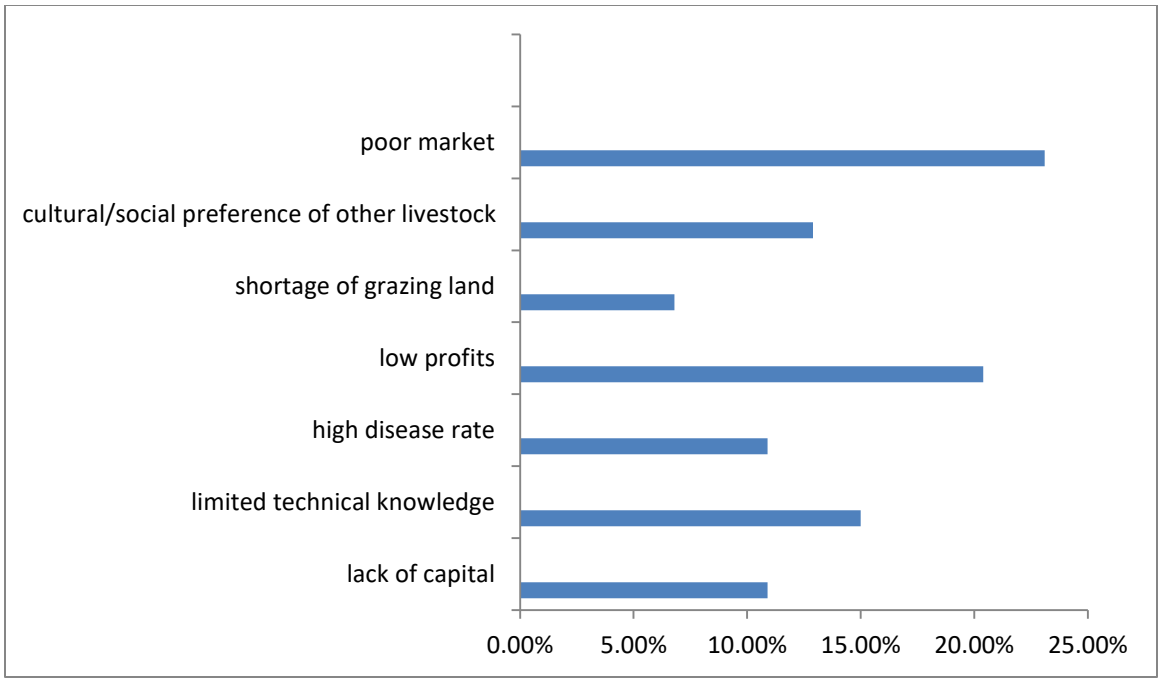


Figure 4.4: Key Constraints

4.4 Proposed strategies

4.4.1 Strategies to improving sheep production

This section shows the presentation of data on the objective on proposing interventions and sustainable strategies to overcome the constraints and enhance production and profitability. The majority of the respondents suggested access to training and creation of reliable markets as key factors that can enhance sheep production. On the other hand, veterinary support was the least mentioned strategy. This may suggest that while animal health is important, farmers either lack awareness of its significance or may have access to it. (Figure 4.5)

Figure 4.5: Proposed strategies to improving sheep production

4.4.2 Strategies to improving marketing of sheep meat

The most highly suggested strategy to improve sheep meat marketing was value addition indicated by the largest number of respondents. This shows great desire by farmers to produce quality products that attract better market prices. Other notable strategies included advertising, branding and building relations with local butcheries which also reflects the need by farmers to enhance visibility and establish reliable sales channels.

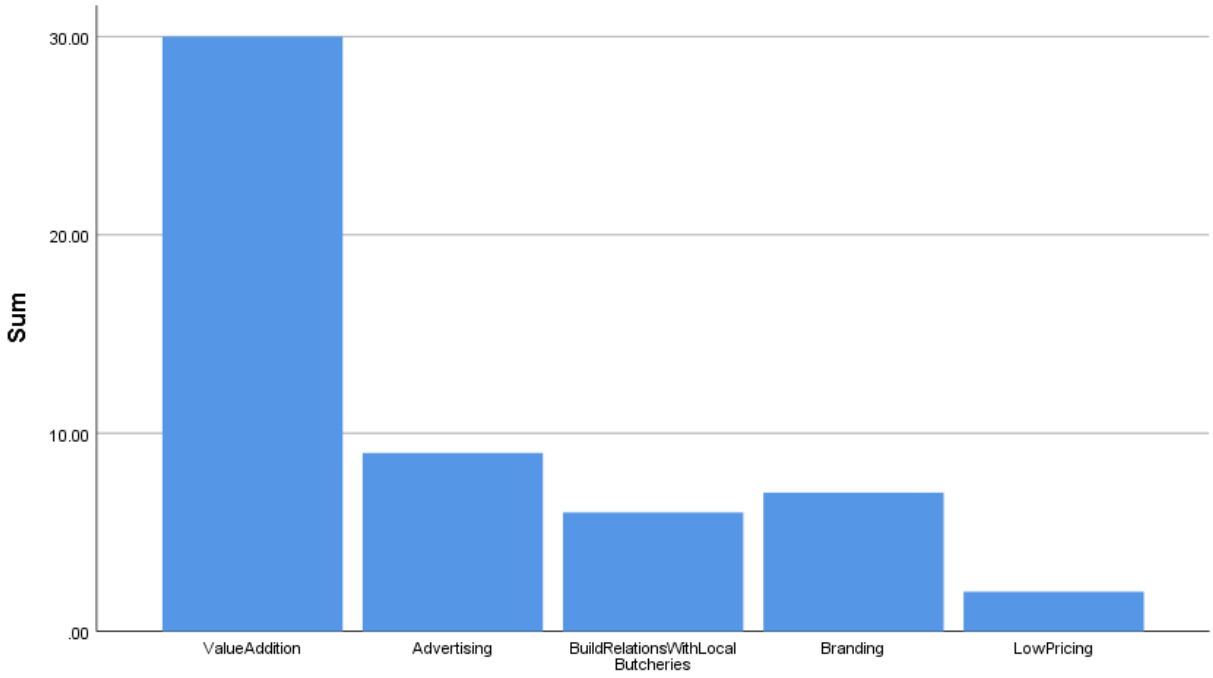


Figure 4.6: Strategies to improve sheep meat marketing

CHAPTER 5: DISCUSSION OF RESULTS

5.1 Demographic socio-economic characteristics of respondents

5.1.1 Gender distribution

The study revealed that the majority of the respondents (57.5%) were male while only 42.5% were female; indicating that sheep meat production is male dominated in the area. This finding is consistent with (De la Torre-Castro, Fröcklin et al. 2017) who observed that the general pattern observed in agricultural sectors in many regions, were male farmers tend to dominate.This gender disparity may be attributed to traditional gender roles in rural communities where livestock management is considered a male activity. Studies have shown that women often face more limited access to resources including land, capital, and agricultural inputs, which can affect their participation in livestock farming practices (Mutua et al., 2017; Mokoele et al., 2017).However ,the significant representation of women suggest their active involvement in sheep production, particularly in support roles such as feeding, cleaning and marketing.). Addressing gender inequalities in agriculture is crucial for promoting inclusive and sustainable agricultural development growth (Adegbite and Machethe 2020).

5.1.2 Age distribution

The majority of the respondents were middle aged while the 18-25 age group was least represented. This indicates that middle and older-aged individuals dominate sheep meat production, likely due to their accumulated experience, land access, economic stability. Deka et al. (2018) postulated that the notion of livestock farming, including sheep production, often requires significant physical labor and experience, which may be gained over time hence the reason why the physically active population is involved. The low participation of youth may be due to migration to urban areas for better opportunities, lack of interest in agriculture which is often perceived as less lucrative .The youth's limited involvement in livestock farming is a widespread issue in many African countries, driven by low profitability and lack of support systems (FAO, 2014). Efforts to engage youth in agriculture are therefore critical to ensuring the sector’s sustainability.

5.1.3 Education level

With most respondents having primary and secondary education, and very few having tertiary qualifications, the data suggest that formal education among small-scale sheep farmers is generally modest. Education plays a crucial role in enhancing farmers' knowledge and skills, promoting improved farming practices, and facilitating access to information and technological advancements in the agricultural sector (Nath et al., 2017). Basic literacy and numeracy can support the understanding of simple record-keeping and technical training; however the limited presence of higher education may hinder the adoption of more complex innovations. As noted by Otte and Chilonda (2002), education level influences the adoption of new technologies and management practices in livestock farming. Nonetheless, access to targeted extension services can help bridge the knowledge gap among farmers with lower formal education levels.

5.2 Sheep production practices

The results showed that sheep production among small-scale farmers in Makonde District is maintained at a modest level with an average of 18 sheep per household. The flock size is a representation of how sheep production in these two districts is subsistence-oriented which is a common observation in Zimbabwe’s communal areas, where livestock keeping and rearing is integrated with crop cultivation to diversify livelihood strategies (Chikazunga et al., 2021).A limited flock size may be attributed to constraints in resources such as feed shortages, diseases, theft and limited access to finance and extension services. . Encouraging farmers to increase the number of sheep can lead to higher production outputs and better economic outcomes.
A dominant 80% of farmers rely on communal grazing systems which exposes their animals to variable pasture quality especially during the dry season. This goes hand in hand with the findings of Ndebele et al. (2020), who noted that open grazing exposes animals to inconsistent and inadequate nutrition and competition for resources thus ultimately lowering production efficiency. A small portion (20%) of respondents use supplementary feeding in combination with communal grazing. This small proportion indicates that the majority of the farmers may be constrained by costs and availability of commercial feed or lack knowledge of low cost supplementation using the locally available resources.

Veterinary access was found to be inconsistent. While 42.5% of respondents had regular access, a larger proportion (52.5%) only occasionally accessed veterinary support, and 5% had no access at all. This is a significant concern since small ruminants are susceptible to infections and parasitic diseases, which can spread quickly in communal grazing systems (Mugabe et al., 2017). The irregular access to veterinary care may stem from poor infrastructure, limited government support, and unaffordability of private services. According to Mapiye et al. (2021), inadequate access to animal health services continues to hinder smallholder livestock productivity across Southern Africa.

Respondents also indicated that their main motivations for sheep rearing were for meat consumption and investment. This is a reflection of dual economic and cultural role of sheep production within rural livelihoods .Sheep production may be important to household food security but its contribution to overall income generation compared to cattle and crop production was found to be least. Similar findings were reported by Muleya et al. (2023), who stipulated that the marginalization of sheep production in the rural is due to low commercial returns and a lack of proper structured markets.

The findings from this study provide valuable insights into the current practices and areas that require attention in smallholder sheep production systems in Zimbabwe. Addressing these issues through awareness campaigns, training programs, and access to resources and technologies can contribute to the improvement of sheep production practices, ultimately enhancing the livelihoods of smallholder farmers.

5.3 Socio-Economic Constraints

The study showed that small-scale sheep farmers in Makonde District face multiple socio-economic constraints that hinder maximum productivity and in turn limit the profitability of sheep meat production. The most prominent challenge identified was limited market access. Majority of farmers operate within informal market structures, often selling their sheep to local traders or middlemen at very low prices. This arrangement leaves farmers with very little bargaining power and no influence or control at all over market pricing. The lack of proper structured, transparent and regulated marketing channels not only reduces farmer income but also discourages farmer from scaling up production as they will be getting little returns from their toil. Similar findings have been reported by Zenda, Malan and Mazwi (2022), who also noted how smallholder livestock farmers are often excluded from formal markets due to infrastructural barriers and stringent quality requirement they are unable to meet.

In addition to poor market access, farmers also indicated the insufficiency of veterinary services. While some respondents receive veterinary assistance occasionally, consistent access remains a stumbling block. Diseases such as internal parasites, pneumonia and foot rot are common in communal grazing systems and they drastically reduce productivity through increased mortality and lower weight gain. Absence of regular and affordable vet services in such conditions causes great difficulty for farmers to implement preventive health measures such as vaccination and deworming. Mugabe, Sibiya and Mhlanga (2017) emphasized that veterinary outreach in rural Zimbabwe is limited by low staffing levels, inadequate transport, and resource shortages, leaving many farmers to rely on informal advice or traditional methods that may be ineffective or might even complicate and worsen the situation.

Another critical constraint identified was the shortage of quality grazing land particularly during the dry season. Communal grazing systems, which dominate in the district, are often overstocked and lack pasture management strategies. As a result, feed becomes scarce, and animals are forced

to compete for limited resources, leading to malnutrition and reduced reproductive performance. This challenge is further worsened by environmental degradation and climate variability, which affect the quantity and quality of available forage. According to Ndebele, Sibanda and Mpofu (2020), the seasonal variability in feed availability is a major limiting factor in small ruminant production across Southern Africa, especially for farmers who cannot afford supplementary feeding.

The study also revealed that many farmers lack financial capacity. Finances are a necessity to a farmer in order to invest in improved inputs such as high-quality feed, veterinary drugs, breeding stock or even security materials. Sheep farming, like other forms of livestock production, requires capital investment but most small-scale farmers operate under significant financial constraints. Mapiye et al. (2021) argue that the absence of livestock-inclusive financing models remains one of the most pressing barriers to livestock development in Zimbabwe, with many smallholders trapped in low-input, low-output production cycles. Formal credit facilities are either unavailable or inaccessible due to the absence of collateral, limited financial literacy and the perception of livestock as a high-risk enterprise by financial institution.

The problem of inadequate extension services also emerged as a major concern. Most of the farmers are relying on traditional knowledge passed down through generations. While this information might have carried sheep production for the past years, it might not be sufficient to address current challenges such as emerging diseases, climate change and modern breeding technologies. As noted by Ngulube, Ncube and Moyo (2019), the effectiveness of extension services in Zimbabwe is limited by institutional underfunding and lack of continuous professional development for staff, reducing their ability to provide relevant and timely support to farmers. Government extension workers and underpaid in most cases and may even lack specialization needed to offer targeted support to sheep farmers therefore it remains a challenge to sheep farmers to get the exact information that they might need at a specific time.

Sheep farming is impacted by sociocultural issues in addition to these institutional and technical ones. Production can be severely disrupted by problems including cattle theft, conflicts over shared property, and customs surrounding land and animal ownership. Women and young people

may not be able to fully participate in the sheep value chain in some communities due to restrictions on their ability to own or manage livestock. According to Chikazunga, Mapfumo, and Moyo (2021), social structures that restrict fair access to production assets and decision-making authority are just as much a constraint on Zimbabwe's rural livestock systems as knowledge and resources.

Moreover, these difficulties have persisted in part due to institutional fragmentation. When veterinary clinics, market development organizations, and agricultural extension departments do not coordinate, the result is fragmented solutions that do not address the complex and interrelated nature of livestock production.

5.4 Strategies to enhance sheep production

The study revealed that small-scale sheep farmers in Makonde District proposed a range of strategies aimed at overcoming the challenges limiting their production. These strategies include increased access to training, development of reliable market systems, and improvement in feed resources, better veterinary service delivery, adoption of improved breeds, and enhanced extension services. Together, these recommendations underscore the importance of both technical and institutional support systems in enhancing productivity and profitability of sheep meat production.

Chief among the proposed strategies were access to training and establishment of reliable markets. The responses are an indication of how farmers are aware of knowledge gaps affecting their production and marketing efficiency. According to Ngulube, Ncube and Moyo (2019), many communal farmers rely heavily on indigenous knowledge, which, while valuable, often lacks the scientific basis required to respond to modern challenges such as climate variability, emerging diseases, and market standards. Training programs delivered through farmer field schools, workshops, and on-farm demonstrations could significantly improve management practices, increase adoption of innovations, and lead to better animal performance. These initiatives should also target marginalized groups such as women and youth, who are frequently excluded from extension and training efforts despite playing important roles in the sector.

Farmers also highlighted development of reliable and inclusive markets and better pricing structures, reduced exploitation by middlemen and creation of formalized market platforms. This also aligns with Zenda, Malan and Mazwi (2022), who argue that improving access to formal and transparent markets can significantly increase smallholder profitability and investment in livestock enterprises. Government intervention can assist in development of Farmer Producer Organizations (FPOs) that assist farmers in pooling resources, collectively bargain for better pricing and share knowledge. The state should also work on opening up new export markets for the farmers especially in regions where there is high demand. Moreover, investment in infrastructure such as slaughter facilities, cold storage, and transportation would reduce post-harvest losses and facilitate the marketing of quality sheep meat products.

Feed shortages during dry seasons were also raised as a key issue. Interventions such as fodder banking, hay production, and the use of drought-resistant legumes have been shown to be effective in addressing nutritional deficiencies (Ndebele et al., 2020). Supplementing communal grazing with locally sourced protein-rich feed (e.g., crop residues or agro-industrial by-products) could help improve weight gain and reproductive performance.

It is interesting to note that veterinarian assistance was one of the least mentioned strategies to improve production, which could indicate mistrust of service delivery systems or a lack of understanding of its significance. However, enhancing animal health services with government subsidies, community para-vets, and mobile clinics would significantly lower mortality and improve production results (Chikazunga et al., 2021).

5.5 Strategies to improve marketing of sheep meat

One of the most prominent strategies proposed by farmers in the study is value addition, which refers to the transformation of raw sheep meat into higher-value products that meet market preferences and can be sold at premium prices. Value addition plays a critical role not only in increasing income but also in reducing post-harvest losses, improving product shelf-life, and opening access to more formal and distant markets.

Most smallholder farmers sell live animals directly to local consumers or intermediaries. Poor bargaining power, a lack of price transparency, and restricted access to higher-end customers all

contribute to this system's low returns. Farmers can add value by processing sheep into carcasses, portioned cuts, or specialized goods like marinated, smoked, or dried meat. As a result, they are able to market branded food items instead of commodity livestock. According to Zenda, Malan, and Mazwi (2022) in saturated markets, where customers are increasingly looking for quick, packaged, and traceable food options, value addition boosts product competitiveness and offers potential for differentiation.

One of the main benefits of value addition is getting a bigger piece of the ultimate consumer price. Instead of selling a live animal at a local market, for example, a farmer could butcher the animal, prepare the meat into different parts that are ready for retail, and then sell each cut at a significantly higher total price. Additionally, leftover materials like hides, offal, and bones can be used into secondary goods like bone meal, or pet food. Smallholder livestock producers often ignore these secondary marketplaces because they lack the necessary skills or technology, but Muleya, Dube, and Musundire (2023) point out that there are unexplored revenue and job opportunities.

Additional suggested tactics included branding, advertising, and establishing alliances with nearby butchers. These demonstrate an understanding of how important it is to stand out from the competition in markets. According to Muleya et al. (2023), the establishment of cooperatives could help with product aggregation, lower transaction costs, and increase farmers' negotiating power. Policy support is needed to improve market connections, infrastructure investment (such as cold chains) and also capacity building in quality assurance and business management are all necessary for these initiatives to succeed.

CHAPTER 6: CONCLUSION AND RECCOMMENDATIONS

6.1 Conclusion

This study set out to assess the key socio-economic constraints and identify strategies to enhance sheep meat production for small-scale farmers in Makonde District, Zimbabwe. The findings from the research have illustrated clearly that sheep farming among smallholders is an essential livelihood activity, providing meat for household consumption and limited income. However, its potential remains largely untapped due to a host of socio-economic and even technical challenges.

According to the research results, sheep production in the study area is primarily small-scale and low-input, with farmers owning an average of 18 sheep. Most farmers rely on communal grazing systems which exposes livestock to poor nutrition and high disease risk, and only a small percentage of farmers use supplemental feeding. Access to veterinary services was found to be inconsistent. Although farmers acknowledged the value of sheep for investment and food security, their economic returns were minimal comparing to other livestock like cattle and goats showing need for great improvement.

The key constraints noted include restricted market accessibility, subpar veterinary care, feed scarcity, particularly in dry seasons, low financial resources, and insufficient extension services. Sociocultural obstacles were also mentioned, including gender-based limitations and livestock theft. To overcome these challenges, farmers proposed a variety of strategies including improved training, development of structured markets, value addition, and enhanced veterinary and extension services. The most promising marketing strategy identified was value addition, where farmers showed strong interest in processing sheep into market-ready products to grow market base and increase returns. A holistic and multi-sectorial approach is needed to address these constraints and unlock the full potential of sheep meat production in Makonde and beyond.

6.2 Recommendations

Based on the findings and analysis of this study, the following recommendations are proposed to enhance sheep meat production and marketing among small-scale farmers in Makonde District:

- Improve market access: efforts should be made to establish farmer cooperatives and marketing groups to improve aggregation reduce transaction cost and enhance farmer bargaining power. Government and local authorities should also invest in rural infrastructure such as slaughter facilities, cold storage and rural market centres to support commercialization.
- Promote value addition and local branding: small-scale farmers should be encouraged and supported to engage in value-added activities such as meat processing, drying, packaging and branding in order to increase returns. Development of local brands can help farmers distinguish their products in urban and regional markets.
- Enhance farmer training and capacity building: Farmers should be provided with targeted training programs focused on improved husbandry practices, nutrition, disease management, breeding, and marketing. This can be facilitated through farmer field schools, peer-to-peer knowledge exchange, and digital platforms. Training should also actively include women and youth to ensure inclusivity and long-term sector sustainability. Training in food safety and hygiene standards is critical for success in formal markets.
- Utilize social media and digital marketing tools: Farmers and cooperatives should be trained to use social media platforms (e.g., Facebook, WhatsApp, Instagram) for marketing, networking, and disseminating product information. Social media offers a low-cost way to reach a vast number of consumers, advertise products, receive feedback, and promote rural livestock businesses. Integrating social media into livestock marketing strategies can greatly improve visibility and customer engagement.
- Develop on-farm restaurants and agri-tourism experiences: Farmers should consider integrating on-farm restaurants like KwaTerry or farm-to-table culinary experiences as part of rural agri-tourism initiatives. By serving dishes made from their own sheep meat and local produce, farmers can attract tourists and generate

additional income. This strategy not only promotes local food culture but also boosts product visibility, strengthens customer loyalty, and creates diversified rural employment.

- Strengthen veterinary and animal health services: The government, NGOs, and private sector actors should collaborate to improve access to affordable and consistent veterinary services in rural areas. They should provide access to affordable and effective vaccines and educate farmers on proper vaccination protocols. This can be achieved through training and proper dissemination of information. Improved flock health is fundamental to increasing productivity.
- Facilitate Access to Finance and Capital: Collaborate with financial institutions and microfinance organizations to develop tailored financial products and services for smallholder pig farmers. This includes livestock insurance, loan schemes for buying inputs, and saving platforms. Financial literacy programs should accompany these services to ensure responsible use of credit and long-term sustainability.
- Address feed shortages through sustainable forage development: Farmers should be supported and educated in cultivating drought-tolerant fodder crops and conserving feed (e.g., hay, silage). The use of locally available feed supplements should be promoted to improve nutrition during dry seasons. Training in pasture management and feed formulation is essential for sustainable flock performance.
- Promote gender and youth inclusion in sheep production: Stakeholders should ensure equitable access to land, livestock, training, and credit for women and youth. Empowering these groups will expand the labour pool and inject innovation into the sector, while also addressing social equity.

By implementing these recommendations, stakeholders can create an enabling environment for small-scale sheep farmers to improve productivity, access markets, and contribute more meaningfully to household incomes, local economies, and national food security.

REFERENCES

Adegbite, D.A. and Machethe, C.L., 2020. Bridging the gender gap in agricultural productivity in Nigeria: Evidence from the livestock sector. *Agrekon*, 59(1), pp.1–17.

AP News, 2023. *In Zimbabwe, black soldier flies offer farmers a sustainable feed alternative*.Availableat: https://apnews.com/article/641036f2ae0b85fde4e2007800781566 (Accessed: 2 April 2025).

Chikazunga, D., Mapfumo, L. and Moyo, D., 2021. Socioeconomic barriers to livestock productivity among communal farmers in Zimbabwe. *African Journal of Agricultural Research*, 16(12), pp.1457–1466.

Christopher, R. and Ndudzo, O., 2020. Breeding of goats: An indigenous approach to enhancing opportunities for smallholder farmers in Inyathi, Zimbabwe. *International Journal of Livestock Production*, 11(1).

De la Torre-Castro, M., 2017. Inclusive management through gender consideration in small-scale fisheries: The why and the how. *Development in Practice*, 27(9), pp.1272–1284. https://doi.org/10.1080/09614524.2017.1360283

FAO, 2014. *Youth and agriculture: Key challenges and concrete solutions*. Rome: Food and Agriculture Organization of the United Nations.

FAO, 2023. *Small Ruminant Production and Management in Dry Areas of Sub-Saharan Africa*. Rome: Food and Agriculture Organization of the United Nations. Available at: https://openknowledge.fao.org/server/api/core/bitstreams/89440b31-7c28-428a-b436-b76a611959ef/content (Accessed: 2 April 2025).

Getaneh, F., Tesfaye, B. and Alemayehu, Y., 2021. Characterization of farming and agricultural production systems, production constraints and need identification in Debub Ari

and Benatsemay districts of Southern Ethiopia. *International Research Journal of Science and Technology*, [online] Available at: https://www.irjst.org [Accessed date].

Hanyani-Mlambo, B., 2002. Livestock research and development in communal areas of Zimbabwe. *Agricultural Systems*, 72(1), pp.1–10.

Lakew, A., Melesse, A. and Sandip, B., 2017. Traditional sheep production systems and breeding practice in Wolayita Zone of Southern Ethiopia. *African Journal of Agricultural Research*, 12(20), pp.1742–1749.

Madududu, W.-M., Mwakiwa, E. and Mutambara, J., 2021. Impact of agricultural commercialization on household food security among smallholder farmers in Zhombe North Rural District, Zimbabwe. *East African Journal of Science, Technology and Innovation*, 2(2).

Mapiye, C., Kunene, N.W., Chimonyo, M., Dzama, K. and Muchenje, V., 2021. Improving livestock production for food security and resilience in Southern Africa: Policy and practice. *Livestock Research for Rural Development*, 33(5), pp.85–94.

Mavedzenge, B., Mahenehene, J. and Scoones, I., 2006. Farming households and rural livelihoods in Zimbabwe. *Journal of Development Studies*, 42(2), pp.233–251. https://doi.org/10.1080/00220380500405373 (Accessed: 2 April 2025).

Mokoele, J.M., Nephawe, K.A., Maiwashe, A.N. and Norris, D., 2020. Socio-economic factors influencing smallholder sheep production in the Eastern Cape Province, South Africa. *South African Journal of Animal Science*, 50(6), pp.803–812.

Mugabe, P.H., Sibiya, J. and Mhlanga, F., 2017. Assessment of animal health delivery systems in Zimbabwe's communal areas. *Veterinary World*, 10(6), pp.617–623.

Muleya, C., Dube, L. and Musundire, H., 2023. Enhancing small ruminant value chains in Zimbabwe: Constraints, strategies and policy recommendations. *Journal of Development and Agricultural Economics*, 15(2), pp.22–34.

Mutua, F., Randolph, T.F., Arimi, S., Kitala, P., Githigia, S., Willingham, A.L. and Njeruh, F.M., 2017. Palpable efforts: The role of smallholder farmers in livestock disease surveillance in Kenya. *Tropical Animal Health and Production*, 49(1), pp.1–10.

Ndebele, N., Sibanda, S. and Mpofu, T., 2020. Alternative feeding strategies for small ruminants under smallholder systems in Southern Africa. *Tropical Animal Health and Production*, 52(3), pp.987–994.

Ngulube, S.M., Ncube, B. and Moyo, S., 2019. Knowledge transfer in livestock extension services: A Zimbabwean case study. *Development Southern Africa*, 36(5), pp.688–702.

Nyamushamba, G.B., Muchenje, V. and Masama, E., 2017. Sheep farming in smallholder farming systems of Zimbabwe. *Tropical Animal Health and Production*, 49(3), pp.497–506. https://doi.org/10.1007/s11250-017-1220-x (Accessed: 2 April 2025).

Otte, J. and Chilonda, P., 2002. *Cattle and small ruminant production systems in sub-Saharan Africa: A systematic review*. Rome: Food and Agriculture Organization of the United Nations.

Phiri, E., Ndlovu, L., Mpofu, T. and Moyo, S., 2020. Addressing climate change vulnerability through small livestock rearing in Matobo, Zimbabwe. In: *Springer eBooks*.

The Chronicle, 2022. *Nyamandlovu farmer revolutionises sheep breeding*. Available at: https://www.chronicle.co.zw/nyamandlovu-farmer-revolutionises-sheep-breeding (Accessed: 2 April 2025).

Zenda, T. and Malan, M., 2021. The sustainability of small-scale sheep farming systems in the Northern Cape (Hantam Karoo), South Africa. *Suid-Afrikaanse Tydskrif vir Landbouvoorligting/South African Journal of Agricultural Extension*, 49(1), pp.105–121.

Zenda, T., Malan, M. and Mazwi, S., 2022. Strengthening livestock marketing systems for smallholder farmers in Zimbabwe. *Journal of Agribusiness and Rural Development*, 64(2), pp.91–103.

APPENDIX

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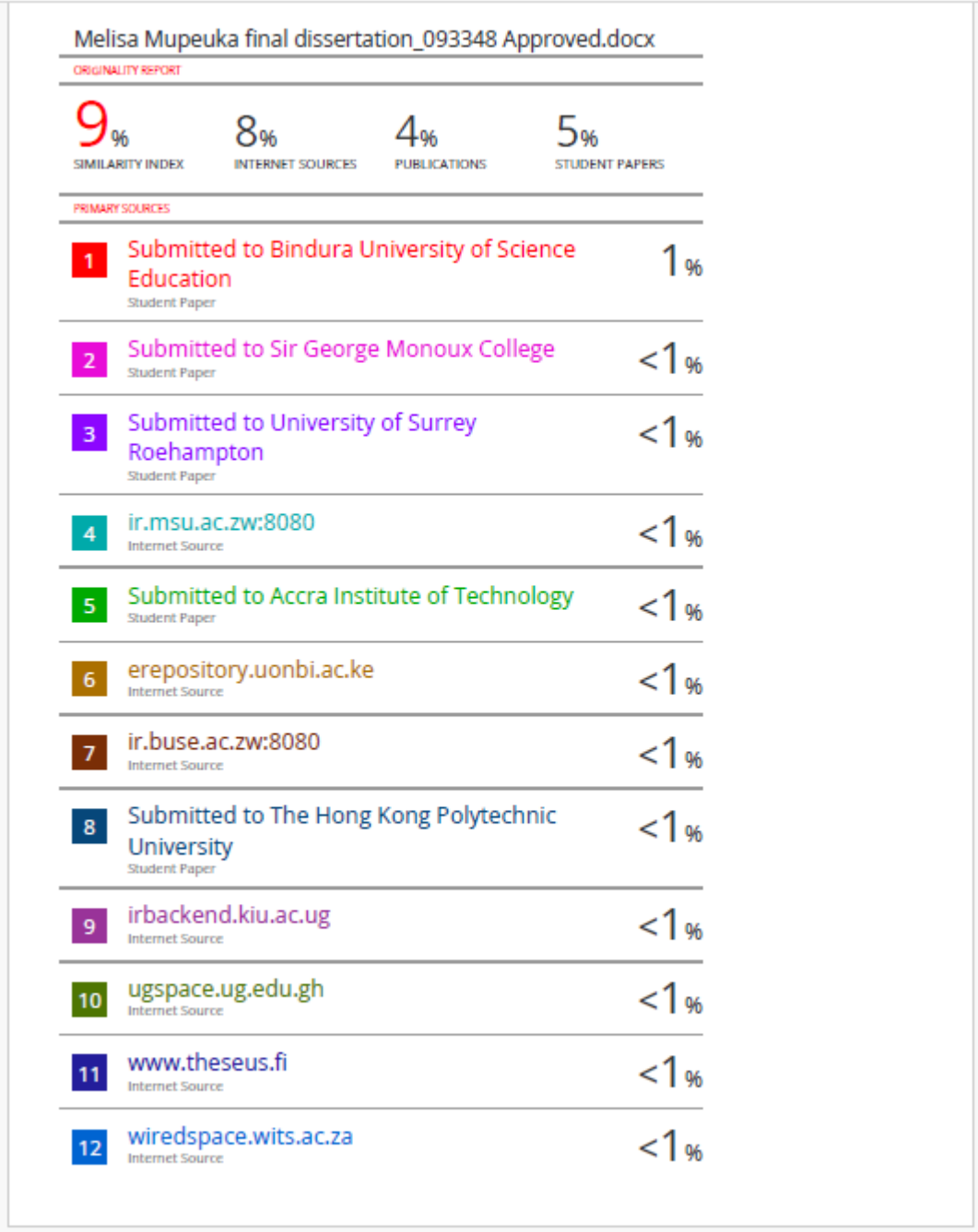

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Appendix: Academic Survey Questionnaire Template

Section A: Demographic Profile of Respondents

- 1. Gender of Respondent (Required)
- [ ] Male [ ] Female
- 2. Please indicate your age category: (Required)
- [ ] 18-25 years [ ] 26-35 years [ ] 36-45 years [ ] 46-55 years [ ] Above 55 years
- 3. What is your highest completed level of formal education?
- [ ] Primary [ ] Secondary [ ] Tertiary (university/college) [ ] Other: _____
- 4. How many years have you been involved in sheep production?
- _____
- 5. What is the primary source of your household income?
- [ ] Sheep farming [ ] Crop production [ ] Other livestock (e.g., cattle, goats, poultry) [ ] Other: _____

Section B: Factors Affecting Sheep Production

- 6. Approximately how many sheep do you currently keep?
- _____
- 7. What is the main reason for keeping sheep in your household? (Select all that apply)
- [ ] Source of income [ ] Cultural purpose [ ] Meat consumption [ ] Investment/saving
- 8. What factors discourage you or others in your community from keeping more sheep? (Select all that apply)
- [ ] Poor market access [ ] Lack of start-up capital [ ] Limited technical knowledge [ ] High disease burden
- [ ] Low profit margins [ ] Shortage of grazing land [ ] Preference for other livestock
- 9. What is the predominant feeding system you use for your sheep?
- [ ] Communal grazing [ ] Zero grazing (pen/stall feeding) [ ] Mixed system
- 10. Do you face seasonal feed shortages for your sheep?
- [ ] Yes [ ] No
- 11. Do you have access to veterinary services when needed?
- [ ] Yes [ ] No [ ] Sometimes [ ] Never

Section C: Constraints in Sheep Production

- Please indicate your agreement with the statements: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree.
- 12. Limited access to veterinary services reduces capacity to keep sheep.
- 13. Lack of training and information discourages wider participation.
- 14. High cost/unavailability of quality feed discourages flock expansion.
- 15. Other livestock are perceived as more profitable or preferred.

- 16. Sheep meat is rarely found in local butchers.
- 17. No reliable buyers or markets for selling sheep.

Section D: Institutional Support and Perceived Opportunities

- 18. Have you received any support to improve sheep production?
- [ ] Yes [ ] No
- 19. If yes, what type of support? (Select all that apply)
- [ ] Training [ ] Veterinary support [ ] Financial/input provision [ ] Breeding stock [ ] Other: _____
- 20. What support would help increase sheep production in your area?
- _____
- 21. Are you a member of any livestock farmer's association/cooperative?
- [ ] Yes [ ] No
- 22. Government and NGO involvement is critical in overcoming challenges.
- [ ] Yes [ ] No [ ] Maybe
- 23. What can be done to improve sheep meat marketing in butcheries?
- _____
- 24. Are there any myths or cultural norms causing low production/consumption?
- _____