

**DETERMINANTS OF MARKET PRICE OF INDIGENOUS VELD GOATS IN
LIMPOPO PROVINCE, SOUTH AFRICA**

By

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DECLARATION

I declare that the research project on the DETERMINANTS OF MARKET PRICE OF INDIGENOUS VELD GOATS IN LIMPOPO PROVINCE hereby submitted to the University of Limpopo for the degree Master of Business Administration has not been submitted by me for a degree at this or any other University. The project is my own work in design and in execution, and all materials herein have been duly acknowledged.



29 November, 2024

Signature: Mugwabana TJ (Dr)

Date

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Thank you all.

ABSTRACT

Market price is a key factor that determines revenue generation and the potential profitability of the enterprise. The aim of this study was to analyse determinants of market price in indigenous veld goats in Limpopo Province, South Africa. The study had three objectives: (1) to determine the socio-economic characteristics of indigenous veld goat farmers in Limpopo Province, (2) to analyse the determinants of market price of indigenous veld goats in Limpopo Province, and (3) to describe conditions that will lead to high market price for indigenous veld goats in Limpopo Province.

The study was conducted in the five districts of Limpopo Province, namely: Vhembe, Mopani, Capricorn, Sekhukhune and Waterberg. The study used a quantitative approach that followed a cross-sectional design where the data was collected once from IVG farmers. The study targeted all the 86 active members of the Limpopo IVG farmers' club, however, only 35 voluntarily participated in the study, representing a response rate of 41%. The data was analysed using SPSS (version 28) and the results presented using descriptive (frequencies) and inferential (t-test and regression) statistical techniques.

The descriptive study results found that male farmers dominate (85.7%) in the goat farming sector in Limpopo Province. The majority (28.6%) are retirees that farm with goats on a part-time basis (54.3%). While most of the IVG farmers (65.7%) have tertiary education, only a quarter of them (25.7%) had formal training on goat production. Land ownership by IVG farmers is predominantly communal (62.9%) with private ownership being less common (37.1%). The main source of capital for acquiring goats is through savings (85.7%) and the most number of goats owned (34.2%) averages between 21-49 goats per herd.

The inferential study results identified five key independent variables that significantly influence the market price of indigenous veld goats, namely: body condition score, female physiological state, herd size, distance to the market and

type of farming system. These independent variables significantly positively influence the market price with the exception of the female physiological state. However, for optimal market price in IVG it is important to consider all other factors despite their significant status, for as long as they have an influence in the market price of goats. This research contributes to the body of knowledge on determinants of market price in indigenous veld goats in Limpopo Province and to some extent throughout South Africa.

Keywords: Indigenous veld goats, market price, determinants, goat production, smallholder farmers

TABLE OF CONTENTS

DECLARATION	i
ACKNOWLEDGEMENTS.....	ii
ABSTRACT	iii
TABLE OF CONTENTS.....	v
LIST OF TABLES	ix
LIST OF FIGURES.....	x
LIST OF ABBREVIATION AND ACRONYMS	xi
CHAPTER 1	1
INTRODUCTION AND BACKGROUND OF THE STUDY	1
1.1 INTRODUCTION.....	1
1.3 PROBLEM STATEMENT	4
1.4 RATIONALE FOR THE STUDY	5
1.5 THE AIM AND OBJECTIVES OF THE STUDY.....	6
1.5.1 The aim of the research	6
1.5.2 Objective of the study.....	6
1.5.3 Hypothesis of the study	6
1.6 DEFINITION OF KEY CONCEPTS.....	6
1.6.1 Market price	6
1.6.2 Smallholder goat farmers	7
1.6.3 Non-descript goat type	7
1.6.4 Indigenous veld goats	7
1.7 RESEARCH METHODOLOGY.....	7
1.7.1 Research design	7
1.7.2 Sampling	7
1.7.3 Data collection.....	8
1.7.4 Data analysis.....	8

1.7.5 Reliability, Validity and Objectivity	8
1.7.6 Bias	8
1.8 ETHICAL CONSIDERATIONS	8
1.8.1 Permission to conduct the study.....	9
1.8.2 Informed consent.....	9
1.8.3 Confidentiality and anonymity	9
1.8.4 Avoidance of harm.....	9
1.8.5 Voluntary participation	9
1.9 SIGNIFICANCE OF PROPOSED RESEARCH	10
1.10 OUTLINE OF THE RESEARCH REPORT.....	10
1.11 CONCLUSION	11
CHAPTER 2	12
LITERATURE REVIEW.....	12
2.1 INTRODUCTION	12
2.3 HISTORY AND CHARACTERISATION OF INDIGENOUS VELD GOATS	13
2.4 THE POPULATION OF GOATS IN SOUTH AFRICA.....	15
2.5 ADVANTAGES OF FARMING WITH INDIGENOUS GOATS.....	16
2.6 PRODUCTION SYSTEMS USED BY INDIGENOUS GOAT FARMERS	17
2.7 BREEDING OBJECTIVES OF INDIGENOUS GOAT FARMERS	17
2.8 MARKETING OF INDIGENOUS GOAT UNDER SMALLHOLDER FARMING	18
2.9 CONSUMPTION OF GOAT MEAT IN SOUTH AFRICA.....	20
2.10 SOME FACTORS AFFECTING MARKET PARTICIPATION IN RURAL AREAS.....	21
2.10.1 The size of the herd.....	21

2.10.2 Time of sale	22
2.10.3 The animal factor.....	22
2.10.4 The socio-economic characteristics of the farmer	23
2.11 CONCLUSION	24
CHAPTER 3	25
RESEARCH METHODOLOGY.....	25
3.1 INTRODUCTION	25
3.2 RESEARCH METHOD	25
3.3 RESEARCH DESIGN	25
3.3.1 Sampling.....	26
3.3.2 Data collection.....	31
3.3.3 Data analysis.....	33
3.4 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY	35
3.5 CONCLUSION	36
CHAPTER 4	37
PRESENTATION AND DISCUSSION OF THE RESULTS.....	37
4.1 INTRODUCTION	37
4.2 DATA MANAGEMENT AND ANALYSIS	37
4.3 RESEARCH RESULTS.....	37
4.4 DESCRIPTIVE ANALYSIS.....	37
4.4.1 Response rate	38
4.4.2 Demographic characteristics of respondents	38
4.4.3 Socio-economic characteristics of responds	43
4.5 IFERENTIAL ANALYSIS	46
4.5.1 Evaluation of the model's assumption	46

4.5.2 Analysis of factors determining market price in IVG	49
4.5.3 Conditions for high market price in IVG.....	53
4.5 OVERVIEW OF RESEARCH FINDINGS.....	54
4.5.1 Descriptive analysis.....	54
4.5.2 Inferential analysis.....	56
4.6 CONCLUSION.....	57
CHAPTER 5	58
CONCLUSION AND RECOMENDATIONS.....	58
5.1 INTRODUCTION	58
5.2 RESEARCH DESIGN AND METHOD	58
5.3 INTERPRETATION OF THE RESEARCH FINDINGS	58
5.4 RECOMMENDATIONS.....	60
5.5 CONTRIBUTION OF THE STUDY	61
5.6 LIMITATIONS OF THE STUDY.....	62
5.6 CONCLUSION.....	63
CHAPTER 6	64
SUMMARY AND CONCLUSIONS	64
LIST OF REFERENCES.....	66
APPENDIX A: QUESTIONNAIRE	82
APPENDIX B: CONSENT FORM.....	89
APPENDIX C: PERMISSION LETTER	90
APPENDIX D: FACULTY APPROVAL LETTER.....	91
APPENDIX E: ETHICAL APPROVAL LETTER	92

LIST OF TABLES

Table 2.1 Common IVG breeds found in South Africa and elsewhere.	14
Table 2.2 The estimated number of goats per province	16
Table 3.2 Description of variables used in the model.	34
Table 4.1 Social characteristics of IVG goat farmers per district in Limpopo Province	39
Table 4.2 Socio-economic characteristics of IVG farmers per district.	44
Table 5.1 Test for multivariate outliers using residual statistics (N=35).	49
Table 5.2 Estimated parameters of factors affecting price in IVG	50
Table 5.3 Factors that promote market price in IVG.....	54
Table 5.4 Factors that hinder market price in IVG.....	54

LIST OF FIGURES

Figure 2.1 Some of the South African indigenous goats.....	15
Figure 2.2 Marketing channels of goats in South Africa (DALRRD, 2021b).	19
Figure 2.3 Production and consumption of goat meat in South Africa (2009-2018) (DALRRD, 2021b).	20
Figure 3.1 A map of South Africa showing Limpopo Province, and the main study area surveyed.	27
Figure 3.2 The researcher conducting interview with IVG club president Emmanuel Mudau at his farm in Ha-Ravele.	33
Figure 4.1 Percentage of respondents interviewed according to gender.	40
Figure 4.2 Marital status of interviewed IVG farmers per district.	41
Figure 4.3 Educational status of interviewed IVG goat farmers.	42
Figure 4.3 Sources of income mentioned by IVG farmers during data collection.	43
Figure 5.1 Test for normality using a standardised residual plot.	47
Figure 5.2 Homoscedasticity of the status of the market price.	48

LIST OF ABBREVIATION AND ACRONYMS

DALRRD:	Department of Agriculture, Land Reform and Rural development
FAO:	Food and Agriculture Organization
IVG:	Indigenous Veld Goats
KZN:	Kwazulu-Natal
NDP:	National Development Plan
SADC:	Southern African Development Community
SPSS:	Statistical Package for Social Science
TREC:	Turfloop Research and Ethics Committee

CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

About 35 million of the more than 423 million goat population in Africa are found in Southern Africa (Mataveia, Visser and Siteo, 2021). The goat population in South Africa is about 5.2 million, with a provincial distribution ranging from 04% in Gauteng to 39% in the Eastern Cape (Department of Agriculture, Land Reform and Rural Development (DALRRD), 2021a; Magoro, Mtileni, Hadebe and Zwane, 2022). Limpopo Province comes in second contributing about 17% to the total flock - these after the Eastern Cape (DALRRD, 2021a). Sixty-five percent of the total goat population in the country is in the hands of smallholder farmers while only 35% is managed under commercial setups (DALRRD, 2021a). The main goats under smallholder farming are the indigenous and non-descript type, while commercial setups farm with Boer goats, Savanna and Kalahari Red (for meat), Saanen, Toggenburg and Alpine (for milk) and Gorno Altai (for cashmere) (DALRRD, 2021a).

Indigenous Veld Goats (IVG), which are raised primarily for meat production, are well represented in the Limpopo Province, South Africa (Mudau, 2023). Indigenous goat refers to various goat eco-types that are raised under smallholder farming, and are disease tolerant and adapted to hot climatic conditions. Indigenous veld goats refers to a group of pure-bred indigenous ecotypes that possess certain characteristics that a goat must have so that it can be considered as one ecotypes such as Mbuzi, Xhosa Lobbed Ear and Cape Speckled (Van Wyk, Hoffman and Frylinck, 2022; Louw, 2023). IVG are one of the hardy small ruminants and some have large frames that can compete with Boer goats in terms of meat yield (Van Wyk *et al.*, 2022). The fast growing human population and the threat of global warming create a favourable environment for the promotion of goat production especially from IVG ecotypes. Some of the smallholder farmers who rear IVG are members of the Limpopo IVG club. The Limpopo IVG club members raise and manage their goats according to their

knowledge and management practices, however, members must adhere to certain practices that are non-negotiable in the club, e.g. ensure that animals farmed with are pure breed with no infusion of other blood lines such as the Boer goats and the Kalahari red (Mudau, 2023).

In rural areas, goats are sold largely as live animals directly to individuals and households within their community or areas of residence; these often through informal networks (Namonje-Kapembwa, Chiwawa and Sitko, 2022). There are few instances where middlemen or intermediaries play a role in goat marketing in rural areas. Factors such as population density, cultural preferences, economic conditions and time of sales (Doelamo and Assefa, 2017; Maropofela, 2017; Ntshangase, Sanelise, Moyo, Misery and Van Niekerk, 2023). An understanding of the price determinant is crucial for improving market access and profitability for smallholder goat farmers. Therefore, this study aims to investigate the factors affecting the market price of IVG in Limpopo Province, with a special focus on local market dynamics and production practices.

1.2 BACKGROUND OF THE STUDY

Agriculture serves as a source of income for poorly resourced farmers and about 80% of these farmers are found in communal areas of Sub-Saharan Africa where they mainly depend on livestock and crop farming systems for a living (FAO, 2005; Homann, Van Rooyen, Moyo and Nengomasha, 2007). According to the Southern African Development Community (SADC) (2022), livestock also plays a crucial role as a valuable natural asset in the Southern African Region. In addition, more than 60% of the total land area in the region is well-suited for livestock farming, making a substantial contribution to ensuring food security throughout the SADC region (SADC, 2022). According to Maluleke (2024), unemployment in South Africa sits at 33.5% during the second quarter of the year. Ng'ambi, Alabi and Norris (2013) reported that 50% of the indigenous goats in South Africa are in the hands of small-scale farmers. Livestock production has the potential to alleviate poverty and provide employment opportunities for millions of people involved on livestock farming and marketing. Livestock farming

can help the South African government in achieving its goal of job creation as part of the National Development Plan 2030 (NDP, 2012).

Variations in climatic conditions have led to repeated droughts, causing significant harm to livestock and crop production (Masikati, 2010). Livestock stands a better chance of surviving harsh climatic conditions than crops, hence they provide a long-lasting option for effective poverty alleviation strategies. Many of the poorly resourced farmers own goats as part of their survival strategy (FAO, 2005). Goat production is said to be a more relevant and lasting option to take the edge of poverty off from communal communities. (Masikati, 2010). According to Lebbie (2004), goats produce about 17% of meat and 12% of milk in tropical Africa and this remains underestimated because of poor recordings. Goat production in Limpopo province provides multiple benefits to the rural poor, which include the supply of meat, manure, milk and cash from selling live ones and their by-products (Mataveia *et al.*, 2021). Goats are non-selective feeders where it allows them to consume different feedstuff, which includes fibrous crop residues (Kujoana, Mugwabana, Tyasi and Chitura, 2022). Simela and Merkel (2008) stated that goats are productive compared to larger ruminants, thus having short generational intervals reaching puberty stage at around five to nine months of age (Saico and Abul, 2007).

With the surge in human population and the growing demand for goats, a notable obstacle emerged: a limited number of farmers engaged in the market. The prevailing approach in goat marketing is individual and private sales rather than dealing with retailers and wholesalers. The methods employed for selling these goats and their marketing are contingent on the initiative of the producers. Nevertheless, changes in the meat industry and the growing emphasis on consumer health are gradually facilitating the entry of goats into the formal market. Goat meat is now accessible in selected retail establishment in Eastern Cape, Gauteng and limited outlets in KZN (DALRRD, 2021b). The researcher has also noticed a few outlets in Limpopo Province that sells goat meat although the supply is inconsistent. Farmers view goat farming as a viable option to address

food security (FAO, 2005), given its high demand in the informal market. Despite its significant, goats are often labelled as a trade associated with lower economic status. This characterisation stems from the sector's informal nature, marked by a lack of industry organisation, limited value addition and reliance on traditional channels. The majority of farmers opt not to sell their goats through abattoirs as they primarily cater to consumers driven by cultural and traditional beliefs. The other reason might be number of goats that are kept by rural farmers, usually averaging less than 10 per farmer (Lehloenya, Greyling and Schwalbach, 2007). Goat farming remains a viable option, and an understanding of factors that affect their market price can help improve goat production and the profitability of the enterprise.

1.3 PROBLEM STATEMENT

The market price of indigenous veld goats is subjected to various factors that influence their market value (Doelamo and Assefa, 2017). In South Africa, goat marketing is notably limited and informal largely as a result of lack of market information (Hlatshwayo, Ngidi, Ojo, Modi, Mabhaudhi and Slotow, 2021). Without a clear understanding of the factors that influence the market price, farmers, traders, and policymakers are at a disadvantage when making critical decisions related to goat farming and trading (Doelamo and Assefa, 2017; Yesufu, Kassali, Aremu and Ojo, 2017; Monau, Raphaka, Zvinorova-Chimboza and Gondwe, 2020). The absence of these knowledge hampers the ability to accurately predict market trends, assess profitability, and develop effective pricing strategies. Moreover, the lack of insight into price inhibits the formulation of appropriate policies and interventions by government and livestock development agencies to support the indigenous veld goat industry. Consequently, the management of goat farms, market transactions, and overall industry development suffer, potentially leading to reduced profitability, inefficiencies, and missed opportunity for growth. Goat producers also find it difficult to optimise their breeding and management practices to satisfy market demands without a good understanding of factors that affect the market price. Therefore, a comprehensive understanding of these determinants is crucial for

the advancement of the management sciences and the sustainability development of the indigenous veld goat market in Limpopo Province.

1.4 RATIONALE FOR THE STUDY

The indigenous veld goat business in South Africa's Limpopo Province is crucial to the livelihoods of local farmers. Goats are kept by smallholder farmers for the multiple benefits that they offer such as the provision of meat, milk, skin, cash through sales, and can be used to satisfy cultural and traditional practices including the payment of fines (Mohlatlole, Dzomba and Muchadeyi, 2015). Goats are also an immediate accessible source of earnings that can help address financial needs of the rural poor. More goats can be raised and cared for on a piece of land that might be suitable for one cow (Van Marle-Koster and Visser, 2016). Given the increase in land constraints in rural areas, goat farming might be the best investment option because they require less space compared to other livestock such as cattle.

Indigenous veld type goats are treasured for their capacity to adapt, survive and reproduce even under unfavourable conditions (Mataveia *et al.*, 2021; Magoro *et al.*, 2022). They have strong legs, can walk longer distance in search of feed, and can feed on leaves, fruits seeds, stems, grasses and even pods (Kujoana *et al.*, 2022). Because of their small body size, they can be slaughtered and the full carcass consumed by a family within a few days without the need for refrigerating facilities. South Africa has not yet capitalised on the growing market for goat meat, and an understanding of factors influencing market pricing can increase market efficiency. The goat, especially the indigenous veld type is the most sought after animal by the rural communities when compared to sheep (Mataveia *et al.*, 2021). The goat meat cannot be purchased in large popular retail stores despite its high demand under informal markets. So, a good market price can serve as a motivation for poor rural household to get involved in goat farming, consequently reducing unemployment and the over reliance on handouts.

1.5 THE AIM AND OBJECTIVES OF THE STUDY

The aims and objective in a research study helps define the scope and boundaries of the research. They provide a clear focus on what the study aims to achieve and the specific objectives that need to be accomplished (Creswell, 2014).

1.5.1 The aim of the research

The aim of the study will be to analyse determinants of market price of indigenous veld goats in Limpopo Province, South Africa.

1.5.2 Objective of the study

The objectives of the study will be:

- I. To identify and determine the socio-economic characteristics of indigenous veld goat farmers in Limpopo Province, South Africa.
- II. To analyse determinants of market price of indigenous veld goats in Limpopo Province, South Africa.
- III. To describe conditions that will lead to high market price for indigenous veld goats in Limpopo Province.

1.5.3 Hypothesis of the study

- I. There are no determinants of market price of indigenous veld goats in Limpopo Province, South Africa.
- II. There are no conditions that will lead to high market price for indigenous veld goats in Limpopo Province.

1.6 DEFINITION OF KEY CONCEPTS

1.6.1 Market price

Market price refers to the current or prevailing price at which a product, service or commodity is purchased in an open market (Kotler, Keller, Bradly, Goodman and Hansen, 2016). It represents the value at which buyers and sellers agree to exchange goods and services based on the market forces of demand and supply.

1.6.2 Smallholder goat farmers

These are individuals or households that engage in raising goats for various purposes such as meat, milk, fibre and breeding stock. They are characterised by owning a small number of goats and operating with limited resources including land (Mataveia *et al.*, 2021).

1.6.3 Non-descript goat

Non-descript goat refers to a goat that does not belong to any specific breed. The term describes goats that do not possess distinct breed characteristics or lineage, they are a mix of different breeds and may have unknown ancestry (Van Wyk *et al.*, 2022).

1.6.4 Indigenous veld goats

Indigenous veld goats (IVG) refer to a group of pure-bred indigenous ecotypes that pronounce certain characteristics that a goat must have so that it can be considered as one ecotype such as Mbuzi, Xhosa Lobbed Ear and Cape Speckled (Magoro *et al.*, 2022; Van Wyk *et al.*, 2022). Indigenous veld goats are native to a specific region, raised by smallholder farmers, and are characterised by their hardiness, disease resistance and ability to survive from low quality feed.

1.7 RESEARCH METHODOLOGY

1.7.1 Research design

The research design refers to the overall plan or strategy that researchers will follow when gathering and analysing data to address specific research question or objective (Kazdin, 2021).

1.7.2 Sampling

Sampling is the selection of a subset of the population of interest in a research study. In many research studies, the participation of the entire population of interest is not possible, a small group is relied upon for data collection (Turner, 2020).

1.7.3 Data collection

The data collection process involves the collection and evaluation of information or data from multiple sources to find answers to research problems, trends and probabilities, etc. When carried out correctly, data collection enhances the quality of the research (Bilsborrow, 2016).

1.7.4 Data analysis

Data analysis is the process of systematically collecting, cleaning, transforming, describing, modelling and interpreting data often applying statistical techniques (Eldridge, 2024).

1.7.5 Reliability, Validity and Objectivity

Reliability measures the consistency or stability of a measurement or research method over time while validity is the extent to which a test or research method measures what it claims to measure (Maxwel, 2017). Objectivity in research ensures that the results are supported by evidence and not by the researcher's own opinion and desire (Khatwani and Panhwar, 2019). Reliability, validity and objectivity helps ensure that the research is credible, and its findings are scientifically sound.

1.7.6 Bias

In research, bias is a systematic error or deviation from the truth that affect the outcomes or conclusion of a study (Hammersley and Gomm, 1997). Bias can occur at various stages of research, from the design and data collection to analysis and interpretation of results (Krishna, Maithreyi and Surapaneni, 2010).

1.8 ETHICAL CONSIDERATIONS

In research, ethical considerations are a set of moral standards that guide the researcher when conducting the research (Fleming and Zegwaard, 2018; Hasan, Rana, Chowdhury, Dola and Rony, 2021). In this study, the following principles of research will be followed:

1.8.1 Permission to conduct the study

Before the study commences, the researcher will obtain ethical clearance from the Turfloop Research Ethics Committee (TREC). The researcher will further seek permission from the Limpopo Indigenous Veld Goat Club for its members to participate in the study.

1.8.2 Informed consent

The purpose and objectives of the study will be shared with the participants prior to data collection. The participants will also be required to append their signature in the consent form as way to show that they agree to form part of the study. According to Fleming and Zegwaard (2018), informed consent can be viewed as a contract between the researcher and the participants and should spell out the level of commitment required from participants.

1.8.3 Confidentiality and anonymity

The researcher will keep the identity of participants private and confidential, thus guaranteeing anonymity. Privacy, in its basic meaning, is to prohibit access to whatever information which normally not scheduled for others to observe. Everyone has the right to privacy, and it remain their right to decide when, where and how they want their information revealed or shared.

1.8.4 Avoidance of harm

The research will not bring any ham to the participants, and if any participants will be informed of the potential harm and its impact on the study. According to Fleming and Zegwaard (2018), the harm in research can range from emotional, resource loss, reputational or even physical. The study possesses no risk to the participants and data will be collected through the use of a questionnaire.

1.8.5 Voluntary participation

Participation in the study will be done on a voluntary basis, and that no one will be forced to participate in the research study. All relevant information that will be important for participants to known will be well explained before the consent of

the research study, and that participants will be allowed to give responses at free will without being coerced into a certain choice.

1.9 SIGNIFICANCE OF PROPOSED RESEARCH

The study intends to add to the existing body of knowledge on goat pricing conditions in rural areas through analysing various contributors to the market price of indigenous veld goats in Limpopo Province and in South Africa as a whole. Such information will help IVG goat farmers when designing pricing procedures that will reflect on the value of the animal. An improved income generated from the sales of goats will help create jobs, and sustain the goat business industry in rural areas. Furthermore, the results of this study will assist in policy formulation by government departments and development agencies that are tasked with livestock marketing elsewhere.

1.10 OUTLINE OF THE RESEARCH REPORT

CHAPTER 1: BACKGROUND AND INTRODUCTION

This is the first and introductory chapter in which the background of the study which serve as the foundation for understanding the research study is outlined. The chapter also lays out the problem statement, study justification, the study aim and objectives, and the research methodology of the study.

CHAPTER 2: LITERATURE REVIEW

This chapter provides a thorough review of previous literature on goat production and management in rural areas, and also the theoretical framework used in the study. The section will also review factors that contribute to the market price of indigenous goats in rural areas of South Africa and elsewhere in Africa.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter outlines the research methodology used to conduct the study, it provides a detailed explanation of the study population, sampling process, data collection techniques and the systems of data analysis.

CHAPTER 4: PRESENTATION AND DISCUSSIONS OF THE RESULTS

This chapter of the study focusses on the presentation and discussion of the results of descriptive and inferential analysis. The discussion of the results is done taking into account similar studies conducted elsewhere.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSION

This will be the second last chapter of the study. The chapter provide conclusion and present possible interventions that could be made to improve goat production and their selling prices.

CHAPTER 6: SUMMARY AND CONCLUSIONS

This is the last chapter of the study. The chapter presents the summary of the chapters and the conclusions of the research in relation to the study objectives.

1.11 CONCUSION

This chapter explained the introduction and background to the study, the chapter stated the research problem, aims and objectives, and the hypothesis. The chapter further explained key concepts used in the research study including delimitations and significant of the study. The researcher reviews related literature to situate the study in appropriate theoretical framework and context in the next chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Indigenous goat farming refers to the breeding, rearing and management of native or local breeds within a particular geographic area or ecology. These goats have evolved over generations to adapt to specific environmental conditions, making them well-suited to local climates, diets and are disease resistance (Mataveia *et al.*, 2021). They are important in rural communities because they can meet financial and other social related obligations. This section provides an understanding of the origin of indigenous goats, their population, and production and management under smallholder setups. The section will also discuss the factors that influence market price in goats. The information generated can be used by farmers and other livestock stakeholders to enhance the competitiveness and sustainability of indigenous goats in Limpopo Province.

2.2 THEORETICAL FRAMEWORK FOR THE STUDY

The theoretical framework refers to theories that explain the patterns and connections of the study which help the researcher to understand the findings of the study (Fisher and Buglear, 2010). The study on the determinants of market price for indigenous veld goats in Limpopo Province of South Africa is grounded on the Theory of Supply and Demand which is a key concept in microeconomics that explores the mechanisms that determine the market prices of goods based on their demand and supply dynamics. The concept of demand and supply was first introduced by Adam Smith in 1776 (Inoua and Smith, 2023). Demand is the quantity of goods or services that consumers are willing and able to purchase at various prices at a given time while supply represents the quantity of goods or services that producers are willing and able to offer for sale at different prices over a specific time (Pinkasovitch, 2024). When the supply of a product or service increases but the demand stays the same, the seller may reduce the price hoping to increase demand for the product or service. The opposite is applicable for the demand, and when there is not enough supply to meet the demand, the price

usually increases. The shift in the demand and supply will occur until a point is reached where the market supply and the demand balance each other (equilibrium point) leading to price stability (Farnham, 2014; Pinkasovitch, 2024).

According to Mohr and associates (2020), the price of a product in a competitive market is determined by the intersection of the supply and demand curve. In the context of indigenous veld goats, we hypothesize that factors influencing the supply, such as the availability of goats for sale, breeding practices and environmental conditions, will interact with demand-side factors, including consumer preference, cultural practices and economic conditions to shape the market price of these goats. The following section will provide a comprehensive understanding of the origin of indigenous goats, market opportunity for goats in South Africa, marketing channels and dynamic forces influencing the market price of indigenous veld goats in South Africa.

2.3 HISTORY AND CHARACTERISATION OF INDIGENOUS VELD GOATS

Indigenous veld goat (IVG) breeds are a group of pure-bred ecotypes represented by the IVG-Association in South Africa (Van Wyk *et al.*, 2022). The IVG are found mainly in the southern region of Africa and were only registered as breeds in 2006. The registered indigenous veld goats are of four ecotypes, namely; Nguni, Northern Cape Speckled, Eastern Cape Xhosa and Kunene/Kaokoland, and they differ mainly in colours, hair length and body frame (Ndukeva, 2018). They are well adapted to hot climatic conditions and are resistant to diseases (Van Wyk *et al.*, 2022; Khowa, Tsvuura, Slotov and Kraai, 2023). Indigenous veld goat types are predominantly multi-coloured, and can range in size from small to large, bearded and horned with medium to broad lopped ears (Monau *et al.*, 2020). The Boer goat was created from indigenous goats in the 1950s by farmers in Somerset East District of the Eastern Cape in South Africa (Pophiwa, 2017). The purifying process of the Boer goats nearly caused the existence of such ecotypes to disperse. Table 2.1 below provides some common indigenous veld goat types found in South Africa and elsewhere, while Figure 2.1 shows some of the indigenous goats found in South Africa.

Table 2.1 Common IVG breeds found in South Africa and elsewhere.

Breed	Description	Country
Tankwa (feral)	Extremely variable in terms of colour and appearance; longer hair; black, red, white and grey coat colours, mixed with spotted, dappled and tricolour.	South Africa
Nguni type	Fairly large in stature; floppy ears; short coat (males may have lengthy hair on the upper part of the extremities); coat in plain or patterned black, white or grey in colour.	South Africa, Eswatini
Zulu type	Somewhat large in stature, with medium-length, broad and lopped ears; coat colour varies, with the predominant colours being black, white and grey.	South Africa
Swazi type	Large framed, with medium-long, broad and lopped ears; coat colour varies with grey, black and white being the most common colours.	South Africa, Eswatini
Northern Cape type	Medium to large body frame, hanging ears; coat colour varies with black, red-brown or black and red being the most common.	South Africa, Namibia
Xhosa type	Medium to large frame with multiple colours (red-brown, black, pied, fawn, speckled and white).	South Africa
Kunene type/Kaokoland	Large frame body with slender, finely boned legs, they are multi-coloured with lob ears.	South Africa, Namibia
Tswana type	Relatively large frame, flat forehead; multi-coloured medium sized with long lopping ears, and short coarse hair.	South Africa, Botswana, Zambia, Zimbabwe

Source: Visser (2019); Monau *et al.* (2020).



Figure 2.1 Some of the South African indigenous goats.

Source: Louw (2023).

2.4 THE POPULATION OF GOATS IN SOUTH AFRICA

The global goat population of the world has increased by 75% from about 589 million animals in 1990 to 1034 million in 2017 (FAOSTAT, 2019). During the same period, the population of goats expanded by almost 150% in Africa. An elevation in Africa goat number bolsters the notion by Dubeuf and Boyazoglu (2009) that the rise in goat population is most likely due to subsistence farming, rather than due to species development. South Africa account for about 3% of goat population in Africa, and less than 1% of the world's goat population. According to Department of Agriculture, Land Reform and Rural Development (2021b) the number of goats in South Africa is about 5.2 million, and 65% of those are of indigenous type, with more goats in the Eastern Cape followed by Limpopo

Province, and Gauteng Province has the lowest number of goats. Table 2.2 shows the estimated number of goats per province in South Africa.

Table 2.2 The estimated number of goats per province

Province	Numbers	Percentage
Eastern Cape	2 028 000	(39%)
Limpopo	884 000	(17%)
KwaZulu-Natal	676 000	(13%)
North West	676 000	(13%)
Northern Cape	468 000	(9%)
Western Cape	208 000	(4%)
Mpumalanga	52 000	(1%)
Free State	208 000	(4%)
Gauteng	20 8000	(0.4%)

Source: Department of Agriculture, Land Reform and Rural Development, (2021b).

2.5 ADVANTAGES AND DISADVANTAGES OF FARMING WITH INDIGENOUS GOATS

Goat farming enterprise is counted among key sources of livelihood in rural areas of South Africa. Indigenous veld goats are promoted because of their disease resistance and adaptation to the hot climatic conditions; these in addition to many other benefits (Monau *et al.*, 2020; Magoro *et al.*, 2022; Van Wyk *et al.*, 2022). Goats especially the indigenous type can survive drought, and can feed from shrubs, weeds, crop residues and agricultural by-products unsuitable for human consumption (Magoro *et al.*, 2022; Kujoana *et al.*, 2022). Goats are easier to manage compared to other livestock; reach sexual maturity between 10 – 12 months of age with a short gestation period of about 150 days; and twinning is very common (Yesufu *et al.*, 2017; Mdladla, Dzomba and Muchadeyi, 2017; Kaumbata, Nakimbugwe, Nandolo, Banda, Mészáros, Gondwe, Woodward-Greene, Rosen, Van Tassell, Sölkner and Wurzinger, 2021.). In the absence of formal financial and insurance institutions in rural areas, goats are easy assets to

cash on to settle family expenses including purchasing food, paying school fees and buying agricultural inputs (Mohlalole *et al.*, 2015). Taking into account the untapped formal retail market opportunity for goat, goat production by smallholder farmers can help reduce poverty and unemployment especially in rural areas. There is a need to support smallholder goat production so that the sector can reach commercial status with much benefits to all stakeholders involved.

On the other hand, there are disadvantages of farming with indigenous goats. Inadequate feeding has been acknowledged as one of the restrictive factors in traditional goat farming. Feed availability in South Africa follows the rainfall patterns with more nutritious feed during the rainy season, and insufficient and low quality during the dry winter season (Kujoana *et al.*, 2022). It is the feeding process that will influence the animal productivity by affecting the overall growth performance, and the rapid attainment of marketable size in goats. Even though this information is well known, smallholder farmers continue to subject their animals to a period of undernutrition because they generally believe that goats are self-managed and can survive on a low plane of nutrition.

2.6 PRODUCTION SYSTEMS USED BY INDIGENOUS GOAT FARMERS

The semi-intensive system is the most common production system used by smallholder farmers in rural areas where animals are provided a shelter at night and are left to feed freely during the day at nearby communal land (Namonje-Kapembwa *et al.*, 2022). The natural pasture and crop residues are the most common feed available for goat feeding for the most part of the year (Ntshangase *et al.*, 2023). However, due to limited space and a growing interest in goat farming, some smallholder farmers offer additional feed when goats are back in the kraal either in the form hay, damaged fruits, agro by-products and/or pellets (Kaumbata *et al.*, 2021; Khowa *et al.*, 2021).

2.7 BREEDING OBJECTIVES OF INDIGENOUS GOAT FARMERS

Breeding objectives refers to the specific goals or traits that breeders/farmers aim to achieve within the herd. This is an important component in the livestock

business project. According to Monau *et al.* (2020) breeding objectives should not only focus on raising product but should also be aligned with the market requirements as consumers are the recipient of the final product. In the goat business project, so consumers might consider colour and twinning as important. Tyasi, Mathapo, Mokoena, Maluleke, Rashijane, Makgowo, Danguru, Molabe, Bopape and Mathye (2020) reported that meat was the main purpose of keeping goats in Lepelle-Nkumpi Local Municipality. Mataveia *et al.* (2019) found that income generation through sales was the main consideration for farming with goats. Gebreyesus, Haile and Dessie (2013) found that goat farmers raised goats primarily for milk production in Dire Dawa, Ethiopia.

Once the breeding objectives are known, breeding practices that support the breeding objectives must be developed and applied. For example, Sheriff, Alemayehu and Haile (2020) found that the reason for castration in north-western part of Ethiopia was for fattening the castrates and sell them at a better price. Genateh, Mengistie, Taye and Kabede (2022) reported that castration was practiced to get rid of the buck's smell.

2.8 MARKETING OF INDIGENOUS GOATS UNDER SMALLHOLDER FARMING

The marketing of goats in rural areas of Southern Africa is a three-channel process largely dominated by informal trading, namely; direct sales from farmers to individuals or households (first channel), sales by traders/speculators (second channel) and direct sales from farmers to large retailers (third channel) (DALRRD, 2021b; Ntshangase *et al.*, 2023). Figure 2.2 below shows the marketing channel of goats and chevon in South Africa.

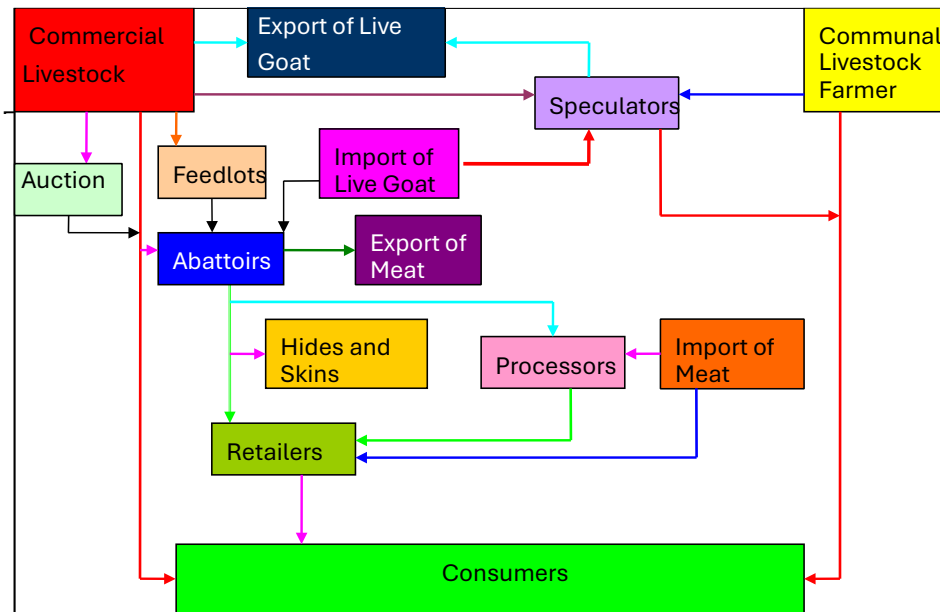


Figure 2.2 Marketing channels of goats in South Africa (DALRRD, 2021b).

In the first channel, farmers predominantly sell live goats directly to individuals and households within their community or areas of residence (Chipasha, Ariyawardana and Mortlock, 2017; DALRRD, 2021b; Ntshangase *et al.*, 2023). This is the most common marketing channel used by smallholder farmers in rural areas of South Africa including Limpopo Province. The second channel is characterised by traders/speculators who buy goats from smallholder farmers and resell to consumers and other traders (Namonje-Kapembwa *et al.*, 2022). This practice is gaining popularity in rural areas because of the increased demand for goat meat by the Indian communities in rural and peri-urban areas of South Africa (Khowa *et al.*, 2021). However, individuals and households in rural areas prefer to buy goats at farm gate prices than buying from traders. The belief is that dealing directly with goat farmers can guarantee them a reasonable purchase price than buying from traders. According to Namonje-Kapembwa *et al.* (2022), there is no standardised pricing in informal markets, and it is the size of the goat that determines the selling price. The third channel is characterised by farmers who sell their goats to large private firms (butcheries and abattoirs) that later sell to consumers at a retail price (Chipasha *et al.*, 2017; Ntshangase *et al.*, 2023). This channel is picking up from the ground in South Africa, and goat meat can

now be purchased in some retail stores in Eastern Cape, Gauteng and a few outlets in KwaZulu-Natal (DALRRD, 2021b). However, elsewhere such as in Zambia, goat meat is the second most popular meat type after chicken and can be purchased by consumers from rural and urban retail stores (Namonje-Kapembwa *et al.*, 2022).

2.9 CONSUMPTION OF GOAT MEAT IN SOUTH AFRICA

The patterns of goat production and consumption in South Africa have been on the rise for the past decade. This indicates that South Africa is self-reliant with goat meat production. Figure 2.3 below shows the production and consumption of goat meat in South Africa between 2009-2018.

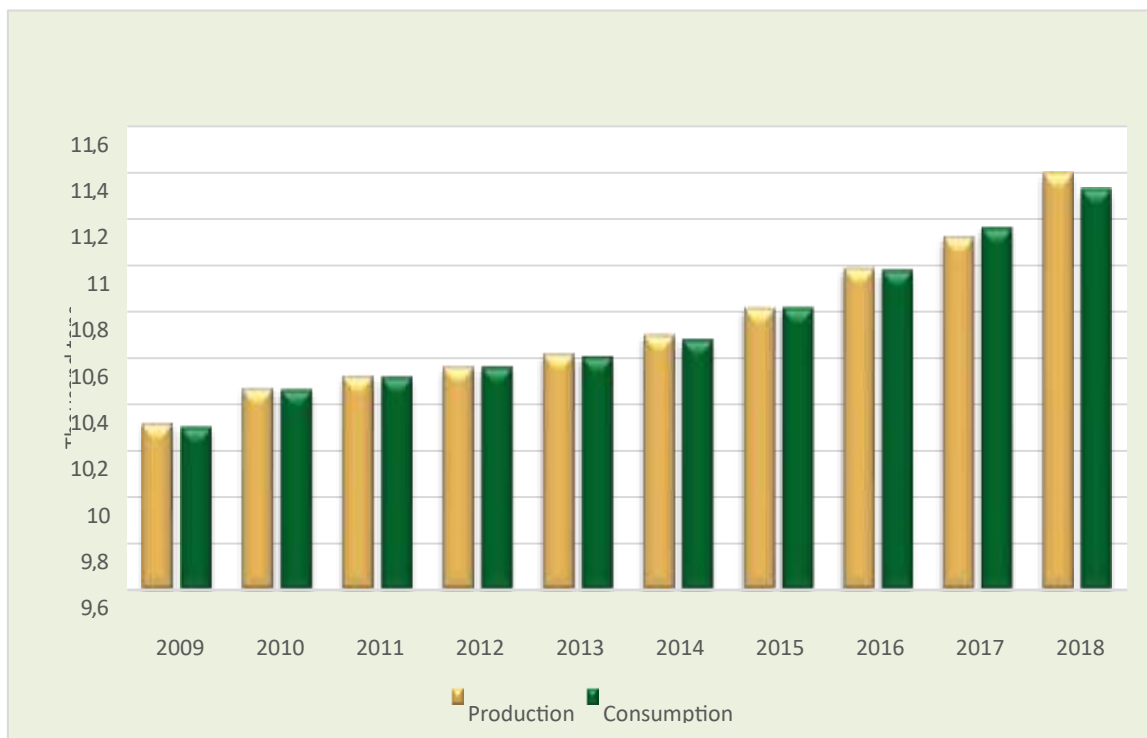


Figure 2.3 Production and consumption of goat meat in South Africa (2009-2018) (DALRRD, 2021b).

It is clear from the figure above that production of goat meat was slightly higher than its consumption in 2018. According to DALRRD (2021b) the growth in goat meat consumption illustrates a 7% rise in both production and consumption from

2009 to 2018. This is positive for the country despite the fact that the data used is from formal market as informal markets lacks record keeping. Again, given this trend one could project a continuous rise in production and consumption levels provided there are no significant policy changes, health crisis or economic shift.

2.10 SOME FACTORS AFFECTING MARKET PARTICIPATION IN RURAL AREAS

Market participation in rural areas is a complex phenomenon influenced wide range of influences. Understanding the determinants of market participation is essential to indigenous veld goat producers, livestock development practitioners, researchers and policymakers seeking to promote inclusive growth and poverty reduction in rural areas.

2.10.1 The size of the herd

The average number of goats kept by smallholder farmers differs from one area to the other. Enwelu, Ezeuko and Machebe (2015) reported an average of 7 goats per household in Anambra State of Nigeria, while Qushim, Gillespie and McMillin (2016) reported an average of 54 goats in the United State of America. Despite the observed trend that the goat population seems to follow the human population, herd size in goats remain relatively small. Mataveira *et al.* (2017) reported that the other reason why smallholder goat farmers keep a small herd size is because of the traditional mixed crop-livestock farming approach where a small number of various classes of animals are kept together. Yesufu *et al.* (2017) found that herd size significantly influenced the profitability of smallholder goat production enterprise in Nigeria. When farmers have a bigger herd size, they will have more animals available for sales and that will influence the profitability of their business. The few numbers of animals kept by smallholder goat farmers will impact negatively on the profitability of their operations. There is dire need to improve the productivity of smallholder goats so that their numbers can be increased for the sustainability and profitability of the business.

2.10.2 Time of sale

The time of sale has a significant effect on the market participation by smallholder goat farmers. Ntshangase *et al.* (2023) reported that the demand for goat meat is high during traditional ceremonies that usually take place during the holiday of April, June and December. My personal observation is that more goats are sold in rural areas during the festive season (Christmas and Good Friday) in Limpopo Province. This trend is driven by an influx of those who works outside the province but reunite with their families during these periods. The price of goats will increase significantly due to a sharp increase in the demand for goat meat, and farmers with no pressing need for cash will wait to sell their animals when the demand is high. However, in some areas where goat production is prominent, it is the time of transaction on market day affect goat pricing. Doelamo and Assefa (2017) found that the goat price increases during the early morning and late afternoon in Afar region in Nigeria. Because of these, goat farmers will participate in the market when the demand is high.

2.10.3 The animal factor

The animal factor is an important component of goat pricing during sales. The market price of goats increases as the age of the animal increases (Doelamo and Assefa (2017), however, consumers prefer mature animals for consumption and not young and old animals (Sehar, 2018; Mataveia *et al.*, 2021). Through experience, the researcher has learnt that male animals of castrated type that are either of medium and large framed structure are preferred for slaughter by consumers. So, farmers with more male goats might earn more money that the farmer that is selling mainly female ones due to consumer preference. Though the animal weight is a matter of interest, indigenous goats are not weighed before they are sold, and the price is determined based on visual assessment so the price at which the goat is sold is a reflection of the mutual agreement between the buyer and the seller.

2.10.4 The socio-economic characteristics of the farmer

The socio-economic characteristics of indigenous goat farmers can influence their level of market participation in rural areas. An appreciation of the socio-economic dimensions is crucial when designing targeted interventions aimed at enhancing farmer's economic well-being and market integration.

2.10.4.1 Level of education

The socio-economic characteristics of the goat farmer has an impact on the extend of market participation. Khapayi and Celliers (2016), Kaumbata *et al.* (2021) and Ntshangase *et al.* (2023) found that skilled and educated farmers are more likely to participate in the market than unskilled and uneducated ones because of their ability to access and interpret market information. Many development initiatives including training on livestock production did not yield anticipated results due to low literacy level of farmers in rural areas (Mugwabana, Muchenje, Nengovhela, Nephawe and Nedambale, 2018). It is easier for an educated farmer to adopt new technologies that will improve goat production and consequently market participation.

2.10.4.2 Purpose of buyer

The purpose of the buyer is an important factor in market participation. Some individuals and households are compelled to buy indigenous goats because they wanted to use them for cultural rituals that are often performed with indigenous goat type of a specific colour (Magoro *et al.*, 2022; Ntshangase *et al.*, 2023). There are others who will buy goats for home consumption, and this normally happens when members of a household come together or when they are celebrating specific activity such as on birthdays, graduation ceremonies, etc. Goats can also be sold or purchased for breeding purposes. Breeding animals, especially pure breed often achieve high market prices compared to goats that are sold or bought for meat.

2.10.4.3 Type of seller

Doelamo and Assefa (2017) reported about a significant variation on market price as a result of the type of seller. Traders or middlemen buy goats from farm gate for resale at a higher price in urban and peri-urban areas to attain profits. According to Chipasha *et al.* (2017), traders upon buying goats from smallholder farmers provide storage facilities and feed prior to offloading them to consumers and retailers. This type of business operation can help create employment among the youth, and create a link between rural farmers and urban markets under the current setup. In some areas, goats are sold through auctions or designated market where multiple sellers come together to sell their animals (Namonje-Kapembwa *et al.*, 2022). Under these circumstances, the market price can be influenced by competition among sellers leading to a more competitive market.

2.11 CONCLUSION

Indigenous goat production is an important component of the rural economy in South Africa and Limpopo Province. The goats are well adapted to the prevailing conditions and are disease and drought tolerant. They are raised largely under semi-intensive conditions and can survive on a wide range of feeding materials including shrubs, weeds and crop residues. There has been a rise in goat meat production and consumption in South Africa over the past ten years, and indigenous goat production contribute significantly to the rural sales of live goats. There is a huge market potential for indigenous goats which can help create employment and generate the much needed revenues for farmers, sellers and retailers while satisfying the needs of consumers. There is a need to expand the herd size under smallholder farming so that the operation can become profitable. Indigenous goat farmers need to be made aware of factors that affect the market price so that production is targeted. Market information is an important aspect of agricultural development as it can enhance rural goat farmers' productivity.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter addresses the question of the research design and methodology that was employed in the study. The chapter specifically explains the plan used for selecting the population, sampling procedures, data collection methods and data analysis techniques.

3.2 RESEARCH METHODOLOGY

The research methodology is described as a structured, systematic and strategic approach utilised in conducting research (Antwi and Hamza, 2015; Kamal, 2019.). It involves a detailed plan that outlines the methods and tools a researcher will use to gather, analyse and interpret data (Rehman and Alharthi, 2016). So, a research methodology is like a transparent roadmap that provide a guide for the entire research process, giving other researchers an opportunity to understand and evaluate how the research was conducted.

3.3 RESEARCH DESIGN

The research design refers to the overall plan or strategy that researchers followed when gathering and analysing data to address specific research question or objective (Kazdin, 2021). An understanding of the research questions, the type of data needed and how it is collected is critically important when conducting research. This study will follow a quantitative study design. According to Sukamolson (2007), quantitative research is the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect. Daniel, Kumar and Omar (2018) defined quantitative research as the type of research that is explaining phenomena that are analysed using mathematically based methods. The specificity of quantitative research design lies in the numerical data and the mathematically based analytical methods which enhance the objectivity and reliability of the data. However, quantitative research often lacks the depth that

qualitative methods can provide, as it focuses on numbers and statistical relationships rather than exploring individual experiences and insights (Rahman, 2016). Wang and Cheng (2020) describe cross-sectional studies as observational studies that analyse data from a population at a single point in time. This type of studies is often used to measure the pre-valence of health outcomes, understand determinants of health and describes features of a population (Daniel, Kumar and Omar, 2018.). They are usually inexpensive and easy to conduct (Wang and Cheng, 2020). It is for this reason that the quantitative study used for this research followed the cross-sectional design approach.

3.3.1 Sampling

The study adopted a purposive sampling technique. According to Campbell, Greenwood, Prior, Shearer, Walkem, Young, Bywaters and Walker (2020) a purposive sampling technique is a non-probability sampling method where researchers select participants based on specific characteristics, knowledge, expertise or experience that align with the objectives of the study. The sample is chosen based on pre-defined criteria that align with the research questions or study objective. While the study provides in-depth understanding from intentionally selected participants, the results from this type of sampling approach may not be representative of the wider population.

3.3.1.1 Population and study area

Thom (1998) characterised a population as a collection of components to which the study findings should be applied. Klinck and Swanepoel (2019) define a population as category of individuals sharing common characteristics. There are only 86 active IVG farmers in Limpopo Province (Mudau, 2023). Table 3.1 below shows the number of Limpopo IVG farmers and their goat population per district.

Table 3.1 The number of indigenous veld goats (IVG) farmers and IVGs per district.

Districts	Number of IVG farmers	IVG members goat population
Vhembe	25	450
Capricorn	22	300
Mopani	20	120
Sekhukhune	17	80
Waterberg	02	30
Total	86	980

Source: Mudau (2023)

The study was conducted in the five districts of Limpopo Province: Vhembe, Capricorn, Mopani, Sekhukhune and Waterberg as indicated in Figure 3.1 below.

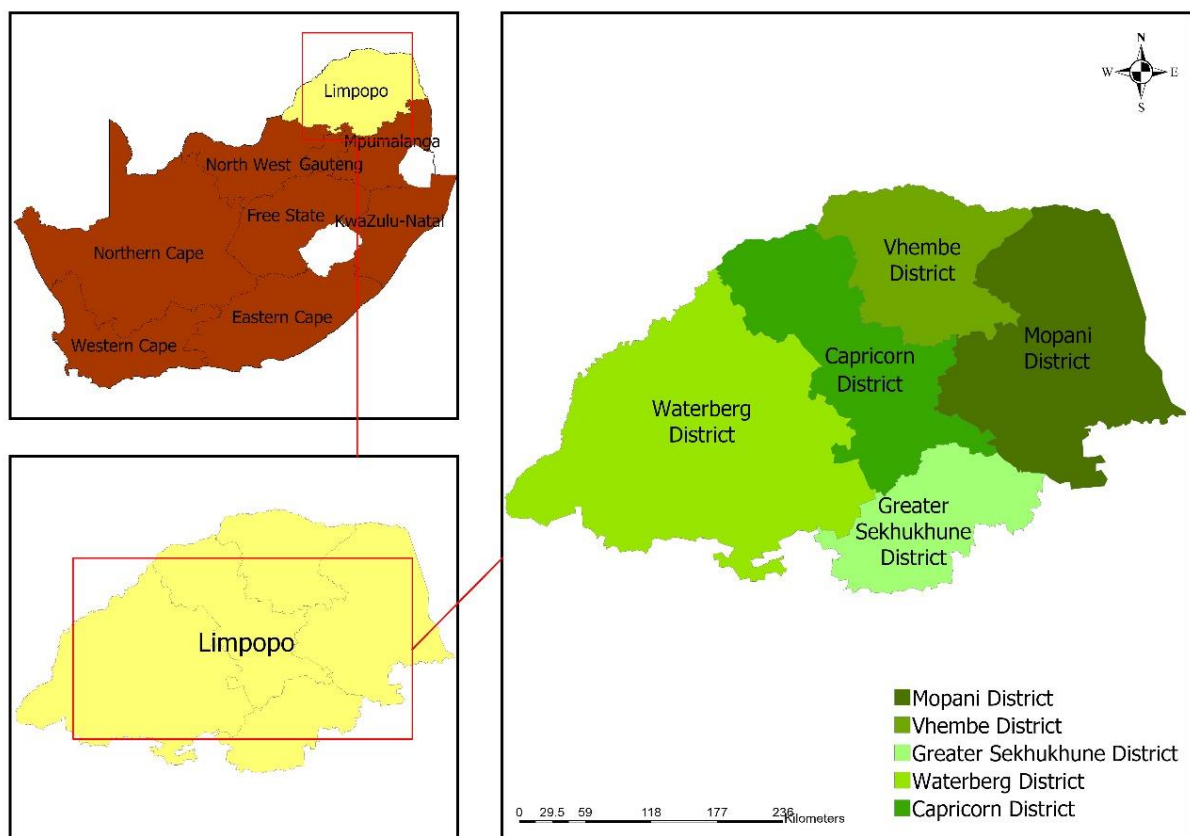


Figure 3.1 A map of South Africa showing Limpopo Province, and the main study area surveyed.

These districts represent different agro-ecological zones found in Limpopo Province which differs in terms of vegetation, soil type, topography, rainfall and temperature (Mpofu, Ginindza, Siwendu, Nephawe and Mtileni, 2017).

Vhembe District: Located in the northern part of Limpopo Province, covering an area of about 25,592 km², with annual rainfall between 246 mm and 681 mm and average temperatures ranging from 14°C to 29°C (Mpandeli, Nesamvuni and Maponya, 2015; Shikwambana, Malaza and Shale, 2021).

Mopani District: Situated in the north-eastern part of Limpopo Province, covering an area of about 25,433.13 km², with annual rainfall between 400 mm and 900 mm and average temperatures ranging from 13°C to 27°C (Mapandeli *et al.*, 2015; Shikwambana *et al.*, 2021).

Sekhukhune District: Located northwest of Mpumalanga and south of Limpopo Province, covering an area of 13,528 km², with annual rainfall averaging 560 mm and temperatures ranging from 5°C to 23°C (Ubisi, Mafongoya, Kolanisi and Jiri, 2017; Mpandeli, Nhamo and Moeletsi, 2019).

Capricorn District: Located in the centre of Limpopo Province, covering an area of about 21,705 km², with annual rainfall between 300 mm and 1,000 mm and average temperatures ranging from 6°C to 27°C (Mpandeli *et al.*, 2019).

Waterberg District: Located in the western part of the Limpopo Province, covering an area of 49 523 km² (Maema, Potgieter and Samie, 2019; Pandy and Rogerson, 2023), making it the largest district in the province. The average annual rainfall averages 577 mm and temperatures ranges between 11.9 °C and 27.2°C (Netshipale, Raidimi, Mashiloane, de Boer and Oosting, 2022).

3.3.1.2 Sampling technique utilised

The primary aim of the study was to understand the factors influencing market price in indigenous veld goats by collecting data from a diverse group of

participants directly engaged in goat marketing. A purposive sampling technique was used to obtain a comprehensive and representative dataset. This approach ensured that the data collected was rich and relevant for the research objectives as it targeted participants with high level of expertise in indigenous goat production and marketing.

3.3.1.3 Ethical issues related to sampling

Ethical issues related to sampling are particularly crucial as they influence the study's integrity, the welfare of participants and reliability of the findings (Fleming and Zegwaard, 2018; Hasan *et al.*, 2021). The following concerns were managed during the sampling phase:

3.3.1.3.1 Informed consent

It was essential to obtain informed consent from all participants involved in the study. Participants were thoroughly informed about the study's purpose, objectives, procedures, and how their information would contribute to understanding market price determinants. They were given an opportunity to ask questions and provided consent voluntarily, without any coercion.

3.3.1.3.2 Confidentiality and privacy

Given that market participants may consider certain information sensitive—such as pricing strategies, profit margins, or business practices—the study took necessary steps to safeguard participants' confidentiality and privacy. Identifiable information was anonymized, and responses were kept confidential to prevent any potential harm to the individuals' reputations or market positions. The data was stored securely, and only the research team had access, ensuring that individual responses could not be traced back to specific participants.

3.3.1.3.3 Avoiding exploitation

Since the study targeted smallholder farmers and livestock traders, there was a risk of perceived or real exploitation if participants felt that they were being used solely for research purposes without any direct benefits. To mitigate this, the study

emphasized the benefits that findings could bring to the community, such as better market insights that might contribute to fair pricing or more effective market support structures.

3.3.1.3.4 Cultural sensitivity

The study involved indigenous veld goat farmers, who often belong to specific cultural and traditional backgrounds. It was critical to approach participants with cultural sensitivity, respecting their traditions, beliefs, and market practices. This included using respectful language, engaging with community leaders or agricultural extension officers where appropriate, and understanding local customs related to market activities. Respect for cultural norms helped build trust with participants and facilitated more honest and open responses.

3.3.1.3.5 Representation and avoiding sampling bias

Ethically, it was essential to avoid sampling bias by ensuring diverse representation across Limpopo Province. This required a balanced sampling approach that did not favour any specific group, market size, or region disproportionately. Avoiding sampling bias ensured that the study did not overlook specific perspectives, leading to a fairer, more accurate representation of factors influencing market prices.

3.3.1.3.6 Potential conflict of interest

In conducting market-related research, there is a possibility that conflicts of interest could arise if the research team had any ties to market entities, stakeholders, or goat farming associations that might benefit from findings of the study. To avoid this, the study adhered to impartial sampling practices, and researchers disclosed any affiliations that might impact objectivity.

3.3.1.4 Sample

In this study, the sample consisted of smallholder farmers involved in the production and selling of indigenous veld goats in Limpopo Province. These participants could provide valuable insights into the factors that influence market

price within the province. The list of indigenous veld goat farmers was provided by the IVG Club president, Emmanuel Mudau, and all members were sampled due to the small population size.

3.3.2 Data collection

Data collection implies an accurate and structured gathering of views and opinion to address the research problem (Maziriri, 2018). Golafshani (2003) also defined this concept as the process of gathering and measuring information on variables of interest, in an established systematic way that enables the researcher to answer the research questions and to evaluate the outcomes. The data collection techniques refer to how the researcher collects data from respective respondents (Saah, 2019). The next section will address the data collection techniques followed by the researcher.

3.3.2.1 Data collection approach and method

The study employs a quantitative research design to objectively measure and analyse the factors influencing the market price of indigenous veld goats. This approach enables statistical analysis of the data collected to establish the relationship or patterns between specific variables (Roopa and Rani, 2012). The data collection is both descriptive, to address the socio-economic characteristics of respondents, and analytical, to assess and identify the specific factors that significantly influence pricing of indigenous veld goats. The data collection followed a self-administered questionnaire with members of the Limpopo IVG club.

3.3.2.2 Development and testing of the data collection instrument

The researcher developed the questionnaire that was used for data collection to capture relevant information from IVG farmers. According to Mofokeng (2017), a questionnaire is an important instrument that can help elicits the thoughts, opinions, memories, expectations or attitude of the participants. The questionnaire was pre-tested for relevancy and to identify ambiguous questions that proved difficult for farmers to understand and respond appropriately.

Adjustments were made based on the feedback received during the pre-test to enhance the validity and reliability of the instrument.

3.3.2.3 Characteristics of the data collection instrument

A structured questionnaire was used for data collection. A structured questionnaire is a data collection tool that consists of predefined set of questions that are administered in a standardised order and format to all respondents (Roopa and Rani, 2012). The advantage of structured questionnaire is that they are designed with closed-ended response options to ensure uniformity in responses and can facilitate quantitative analysis. However, this kind of questionnaires are restrictive and limit the depth of insights on issues by respondents. The questionnaire was divided into four sections:

1. Section A (Socio-economic Status): collected data on age, gender, education level, household size, and farming experience.
2. Section B (Animal Factors): collected data on age, sex, body size, body condition score, age of the animal, physiological state, breed type, coat colour, and flock size of the goats.
3. Section C (Market Factors): collected data on the time of year, type of seller, purpose of buyer, and distance to the market.
4. Section D (Production Systems): collected data on the farming system in use, including management practices and adherence to club guidelines.

3.3.2.4 Data collection process

The primary objective of data collection process in this study is to gather information on factors influencing the market price of indigenous veld goats in Limpopo Province. Given the quantitative nature of the study, a structured questionnaire is suitable as it allows for systematic data collection and enables the application of appropriate statistical analysis. The questionnaire was administered by the researcher in line with the quantitative research design. Figure 3.1 shows the researcher with IVG Club president during data collection.



Figure 3.2 The researcher conducting interview with IVG club president Emmanuel Mudau at his farm in Ha-Ravele.

3.3.2.5 Ethical considerations related to the data collection

This study considered research ethics policy and procedure of the University of Limpopo. An ethical clearance certificate was obtained to conduct the research. This certificate was obtained from Turfloop Research Ethics Committee (PN: TREC/136/2024:PG), and a letter of approval to conduct the study was obtained from the president of IVG Club in Limpopo Province, Mr Emanuel Mudau (APPENDIX C: Permission Letter).

3.3.3 Data analysis

The data was analysed using Statistical Package for Social Sciences (IBM SPSS, 2020) version 28.0.0. Descriptive statistics such as frequencies and percentages were used to address the socio-economic characteristics of indigenous veld goat farmers in Limpopo Province. Descriptive statistics gave a summary of the data collected in a clear and understandable way and provided a basis for further

analysis (Cohen, Cohen, West and Aiken, 2013). Multiple linear regression analysis was used to analyse the determinants of market price of indigenous veld goats. The dependent variable was the market price while the independent variables were drawn from animal factors, market factors and production systems. The third objective was addressed using information drawn from an analysis of objective number two. Table 3.2 below shows the description of the variables that was used in the model.

The Multiple Linear Regression Model used was as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots \beta_nX_n + U$$

Where: Y is the dependent variable

β_0 is the intercept

β_1 - β_n are the regression coefficients, $X_1 - X_n$ represents all the independent variables, and U represents the error term.

Table 3.2 Description of variables used in the model.

Variable	Description	Unit of measurement	Expected sign
Dependent			
MPIVG	Market price of IVG	Rands	+
Independent			
AOA	Age of animal	Categorical	+/-
SOA	1 - male, 0 – otherwise	Dummy	+
BSOA	Body size of animal	Categorical	+/-
BCOA	Body condition of animal	Categorical	+/-
PSOA	Physiological state of animal	Categorical	+
BTOA	Breed type of animal	Categorical	+
CCOA	1 - if solid uniform colour, 0 - if otherwise	Dummy	+
FSOA	1 - if overcapacity, 0 - if otherwise	Dummy	+
TYMF	1 - if festive period, 0 - if otherwise	Dummy	+
TSMF	1 - if farmer, 0 - if otherwise	Dummy	+
PBMF	Purpose of buyer	Categorical	+
DMMF	Distance to the market	Categorical	+
FSPS	Farming system used	Categorical	+

Specific Model is as follows:

$$\text{MPIVG} = \beta_0 + \beta_1 \text{AOA} + \beta_2 \text{SOA} + \beta_3 \text{BSOA} + \beta_4 \text{BCOA} + \beta_5 \text{PSOA} + \beta_6 \text{BTOA} + \beta_7 \text{CCOA} + \beta_8 \text{TYMF} + \beta_9 \text{TYMF} + \beta_{10} \text{TSMF} + \beta_{11} \text{PBMF} + \beta_{12} \text{DMMF} + \beta_{13} \text{FSPS} + U$$

Where:

MPIVG = market price of IVG

AOA = age of animal

SOA = sex of animal

BSOA = body size of animal

BCOA = body condition score

PSOA = physiological state of animal

BTOA = breed type

CCOA = coat colour

FSSA = flock size

TYMF = time of year

TSMF = type of seller

PBMF = purpose of buyer

DMMF = distance to the market

FSPS = production system

3.4 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY

Internal and external validity considerations are critical for ensuring that the findings reflect the factors influencing market prices within this context. Internal validity refers to the degree to which the study accurately identifies cause and effect relationship within a specific context, minimising the influence of confounding variables, while external validity refers to the extent to which the study's findings can be generalised to the broader population beyond the sample studied (Slack and Draugalis Jr, 2001; Baldwin, 2018). Internal validity was strengthened

through careful selection of independent variables and consistent data collection methods. External validity was carefully considered through geographic coverage of the sampling process and the use of relevant study context.

3.5 CONCLUSION

This chapter on research methodology provides a comprehensive overview of the structural approach taken to investigate the factors influencing the market price of indigenous veld goats in Limpopo Province. The study employed a quantitative research design, utilising a structured questionnaire to gather data from smallholder farmers. There are fewer indigenous veld goats in Limpopo Province. The purposive sampling technique was adopted and all IVG farmers were targeted due to the small population size. The collected data was analysed using Statistical Package for Social Sciences (IBM SPSS) which facilitate the application of descriptive statistics and multiple linear regression analysis to identify key determinants of market price in indigenous veld goats.

CHAPTER 4

PRESENTATION AND DISCUSSION OF THE RESULTS

4.1 INTRODUCTION

Chapter three focused on the research methodology followed when undertaking this study including the data analysis processes. Chapter four presents and discusses the study results. The participants in the study were smallholder farmers who were keeping IVG in all the districts of Limpopo Province. The chapter mainly focuses on presenting the results of the findings, and these results are utilised to either accept or reject the hypotheses of the study.

4.2 DATA MANAGEMENT AND ANALYSIS

The collected data was reviewed to ensure that all questions were answered, and responses were captured. Each data was captured in excel and assessed for any outliers. Outliers were evaluated to determine if they were genuine or due to data entry errors. Outliers simply refers to unusual values that may skew the data (Maziriri, 2018). The data was saved on the researcher's personal computer, google drive and external drive to prevent loss. The data was later transferred to SPSS for descriptive and inferential statistical analysis.

4.3 RESEARCH FINDINGS

The study results are presented in two main parts, descriptive analysis and inferential analysis. The descriptive analysis addresses the first study objective; the identification and determination of the socio-economic characteristics of indigenous veld goat farmers in Limpopo Province, South Africa. The inferential analysis addresses study objective two and three; (1) an analysis of determinants of market price of indigenous veld goats, (2) and description of conditions that will lead to high market price for indigenous veld goats.

4.4 DESCRIPTIVE ANALYSIS

Descriptive statistical analysis describes or summarises the research data. (Christiansen, Arístegui Ruiz, Bett, Kiriakoulakis, Martins, Menezes and White,

2015). It uses frequencies, percentage, standard deviation and means to characterise the population or the sample. Bubihelela (2012) states that descriptive statistics measure location and dispersion of variability. The analysis on the socio-economic characteristics is presented in two sections: the demographic characteristics and the economic characteristics. In the demographic characteristics analysis section; gender, age, marital status, educational status, training and farming experience are presented. The economic features of the socio-economic characteristics presentation is based on; goat acquisition, source of capital, need for expansion, land ownership, employment status, farming status and source of income.

4.4.1 Response rate

The response rate is the percentage of individuals who responded to a survey out of a total number of individuals who were invited to participate (Mellahi and Harris, 2016). The response rate provides insight into how successful a survey was in eliciting feedback from the target population. Out of 86 indigenous veld goat farmers in the five districts of Limpopo Province, a total of 35 farmers voluntarily participated in the study, giving a response rate of 41%. According to Ali, Ciftci, Nanu, Cobanoglu and Ryu (2021), there is no general on the standard response rate. However, Mellahi and Harris (2016) provided some minimum acceptable response rate in survey studies and suggested that a response rate of over 35% should be considered 'good' for studies in marketing and international business. This was supported by Maswana, Mphahlele, Mathapo, Hlokoe and Tyasi (2022), who indicated that a sample size of at least 26 farmers based on their willingness to participate in this kind of study is suitable.

4.4.2 Demographic characteristics of respondents

4.4.2.1 Gender of respondents

A total of 35 IVG goat farmers were interviewed across the five districts of Limpopo Province. The study results revealed that 30 (85.7%) males and 5 (14.3% females participated in the study. Table 4.1 and Figure 4.1 show the biographical information of respondents.

Table 4.1 Social characteristics of IVG goat farmers per district in Limpopo Province

Variable	District Municipalities					Total	%
	Vhembe	Mopani	Capricorn	Sekhukhune	Waterberg		
Gender							
Male	17	0	5	6	2	30	85.7
Female	0	1	3	1	0	5	14.3
Marital status							
Single	2	1	3	3	1	10	28.6
Married	15	0	5	4	1	25	71.4
Age (years)							
<30	1	1	2	1	1	6	17.1
31-40	4	0	0	0	0	4	11.4
41-50	3	0	0	3	1	7	20
51-60	5	0	1	2	0	8	22.9
>61	4	0	5	1	0	10	28.6
Educational status							
Non-formal	0	0	2	1	0	3	8.6
Primary	0	0	2	1	0	3	8.6
Secondary	2	0	3	1	0	6	17.1
Tertiary	15	1	1	4	2	23	65.7
Training received							
Yes	5	1	0	2	1	9	25.7
No	12	0	8	5	1	26	74.3
Experience							
<5 years	3	1	2	0	1	7	20
5-10 years	3	0	2	3	0	8	22.9
11-15 years	5	0	1	0	1	7	20
16-20 years	2	0	1	2	0	5	14.2
>20 years	4	0	2	2	0	8	22.9

Source: Survey data (2024)

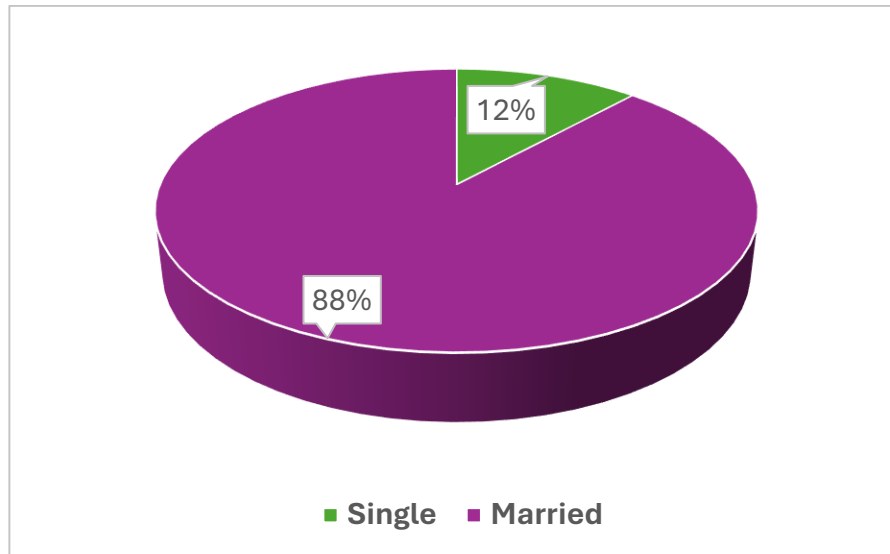


Figure 4.1 Percentage of respondents interviewed according to gender.

These results are consistent with the findings of Alemu (2015) and Abd-Allah, Mohamed, Shoukry, Salman and Abd-El Rahman (2019) who reported that men were the dominant gender in goat keeping. However, Agholor and Ogujiuba (2022) reported that more females (67%) kept goats than males (33%) in Bushbuckridge in South Africa. The Vhembe and Waterberg districts had no female IVG goat farmer while the Mopani district had no male IVG goat farmer.

4.4.2.2 Marital status of respondents

Marital status is a family structure indicator and is an important economic and food security indicator (Manasoe, 2021). The study results showed that 25 (71.4%) of the IVG goat farmers interviewed were married, and only 10 (28.6%) were single. The findings were similar to that of Dhara, Moitra, Misra, Ghosh, Bose and Poddar (2019) who reported the most number of married sheep and goat farmers in India (69.76%) but contrary to that of Agholor and Ogujiuba (2022) who reported that most of the smallholder goat farmers were single in Bushbuckridge, in Mpumalanga Province of South Africa. The Vhembe district had the most number of married (88%) IVG farmers in all the 5 districts, and was followed by the Capricorn district (63%). Figure 4.2 shows the marital status of interviewed IVG farmers per district.

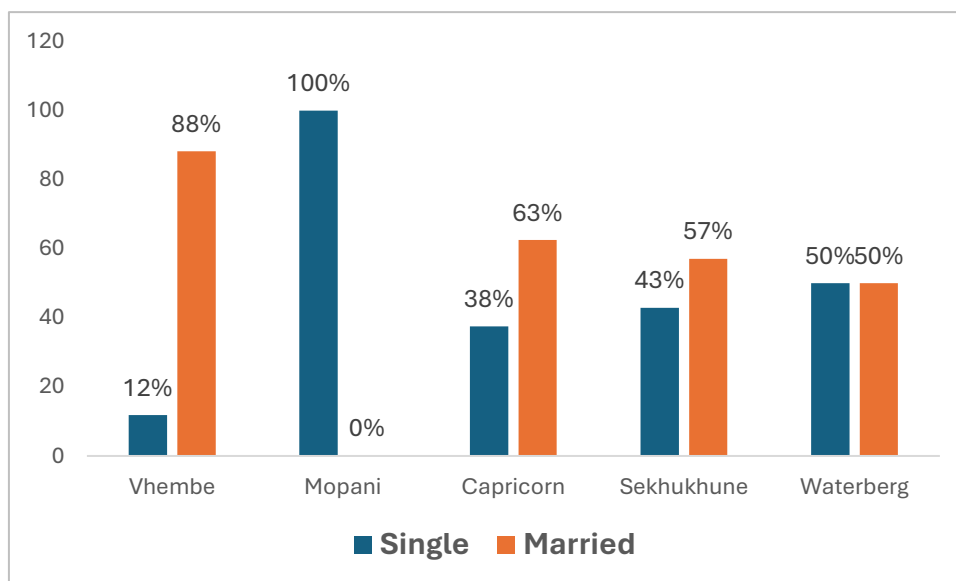


Figure 4.2 Marital status of interviewed IVG farmers per district.

4.4.2.3 Age of respondents

The results on age of IVG farmers indicated that the majority of them were >61 years (28.6%) and the smallest number of goats farmers were those aged between 31-40 years (11.4%). This result differs from those reported by Agholor and Ogujiuba (2022) where the biggest age group of small-scale goat farmers were those aged 41-50 years (31.8%) and the smallest number of goat farmers were those aged <30 years (11.8%). Dhara *et al.* (2019) found that the most active goat farmers were those aged between 30-60 years, followed by those aged <30 years (30.6%) and the least active were those older than 60 years (16.6%) in West Bengal, India.

4.4.2.4 Educational status

Most of the farmers had tertiary education (65.7%), then followed by those with secondary educational level (17.1) and the lowest were those with non-formal and primary education both at 8.5%. This observation disagrees with findings by Dhara *et al.* (2019) who reported that graduates who kept goats were the lowest in India (0.1%). This was supported by Agholor and Ogujiuba (2022) who

reported that goat farmers with tertiary education in Mpumalanga were very few (4.8%). The results on educational status of IVG farmers are shown in figure 4.3.

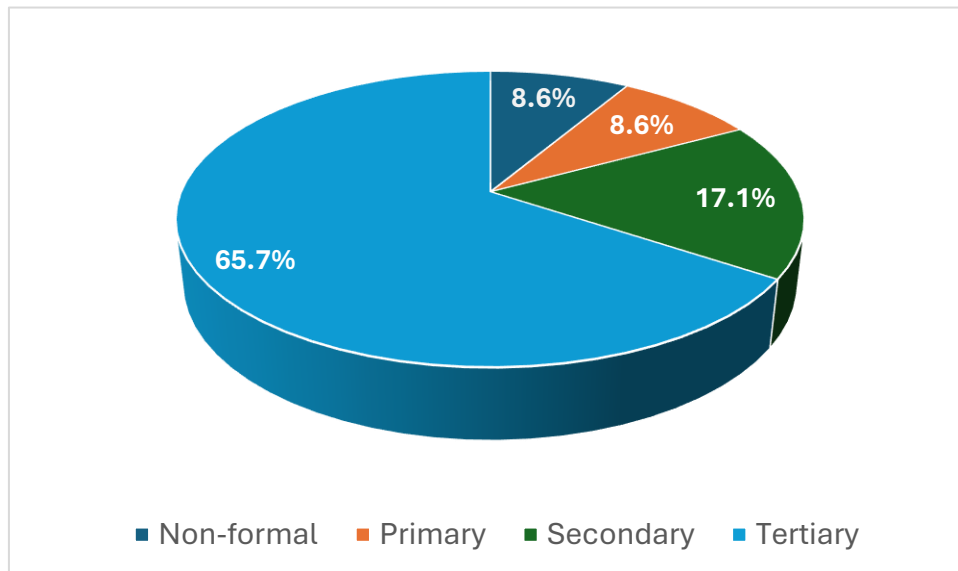


Figure 4.3 Educational status of interviewed IVG goat farmers.

4.4.2.5 Training received

The results on training indicated that most of the IVG farmers had not formal training on goat farming (74.3%), and only a few farmers received goat farming related trainings (25.7%). This result agrees with those of Dhara *et al.* (2019) who reported the highest number of sheep and goat farmers with no formal training (84%).

4.4.2.6 Experience in goat farming

The farming experience of IVG farmers was investigated and the result show that those with 16-20 years were 14.2%, those with <5 years and 11-15 years were each accounting 20%, while those with 5-10 years and >20 years were each accounting for 22.9%. This result were comparable with those reported by Dhara *et al.* (2019) who reported sheep and goat farmers with <5 years, 11- 15 years and >16 years farming experience were 25.8%, 18.8% and 40%, respectively.

4.4.3 Socio-economic characteristics of responds

4.4.3.1 Source of income

The source of income for interviewed IVG farmers were state grant (22.9%), remittance (2.9%) and others (74.2%). Other sources of income mentioned were salaries, pension, retrenchment package, sales from animals and odd jobs represented by 61.5%, 15.4%, 3.8%, 15.4% and 3.8%, respectively. This result is different from those reported by Maswana *et al.* (2022) who found that pensioners accounted for 46.15% in a study conducted at Madiga village of the Capricorn District in Limpopo Province. Abd-Allah *et al.* (2019) reported that pension and work as a source of income accounted for 14% and 30%, respectively, in Nile Delta in Egypt. Figure 4.3 below shows sources of income of IVG farmers mentioned during data collection.

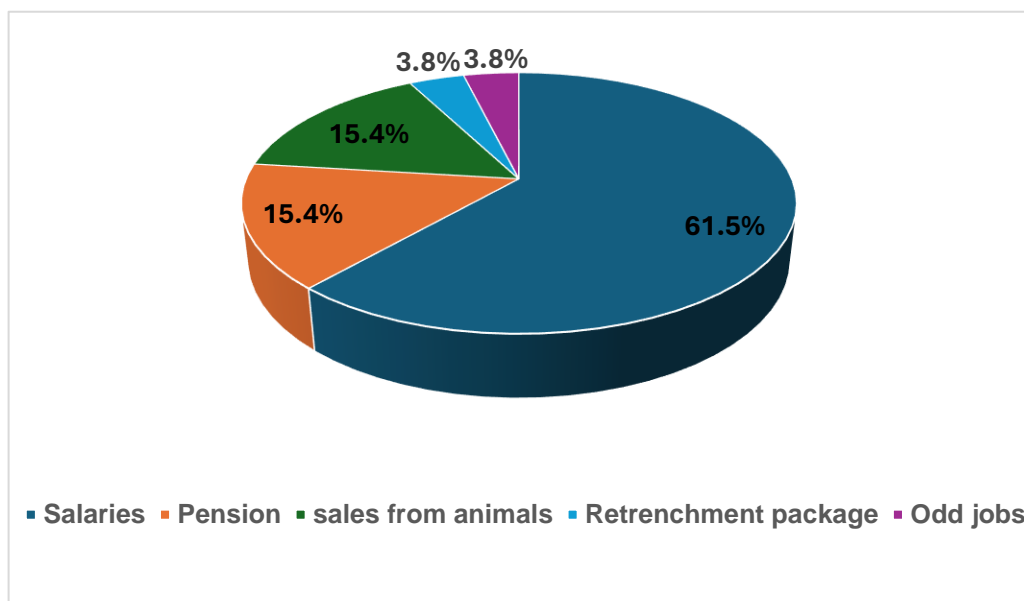


Figure 4.3 Sources of income mentioned by IVG farmers during data collection.

4.4.3.2 Goat acquisition and source of capital

The goat acquisition by IVG farmers in Limpopo Province is largely through purchase (85.7%), as a gift (8.6%) and others are through intergenerational (5.7%). The source of capital used to acquire indigenous veld goats was mainly through savings (85.7%) and other means (14.3%). Table 4.2 presents the socio-economic characteristics of IVG farmers who participated in the study.

Table 4.2 Socio-economic characteristics of IVG farmers per district.

Variable	District Municipalities					Total	%
	Vhembe	Mopani	Capricorn	Sekhukhune	Waterberg		
Goat acquisition							
Purchase	15	1	7	6	1	30	85.7
Caretaking	0	0	0	0	0	0	0
Gift	1	0	1	0	1	3	8.6
Others	1	0	0	1	0	2	5.7
Source of capital							
Own saving	15	1	7	6	1	30	85.7
Bank loan	0	0	0	0	0	0	0
Family loan	0	0	0	0	0	0	0
State aid	0	0	0	0	0	0	0
Others	2	0	1	1	1	5	14.3
Need for expansion							
Yes	15	1	3	7	2	28	80
No	1	0	4	0	0	5	14.3
Not sure	1	0	1	0	0	2	5.7
Land ownership							
Private	7	0	3	2	1	13	37.1
Lease	0	0	0	0	0	0	0
Communal	10	1	5	5	1	22	62.9
Employment status							
Employed	10	0	1	4	1	16	45.7
Unemployed	2	1	3	1	0	7	20
Self-reliance	2	0	0	0	1	3	8.6
Retired	3	0	4	2	0	9	25.7
Farming status							
Full-time	5	1	6	3	1	16	45.7
Part-time	12	0	2	4	1	19	54.3
Number of goats per farmer							
≤ 20	3	0	5	1	0	9	25.7
21-49	5	1	2	3	1	12	34.2
50-99	5	0	1	1	1	8	22.9
101-149	3	0	0	2	0	5	14.3
≥ 150	1	0	0	0	0	1	2.9
Source of income							
State grant	0	1	6	1	0	8	22.9
Remittance	1	0	0	0	0	1	2.9
Others	16	0	2	6	2	26	74.2

Source: Survey data (2024)

The results are different from those reported by Abraham *et al.* (2017) who found that only 33.33% of goats were acquired through purchase in Ethiopia, but the results on gift and inheritance were almost similar at 6.67% and 5.33%, respectively.

4.4.3.3 Land ownership and need for expansion

The result of the study revealed that IVG farmers were either farming on private land (37.1%) or on communal land (62.7%). Most of IVG farmers indicated that they would like to expand their operation (80%), others did not want to expand (14.3%) while some were undecided (5.7%). The results on ownership were similar to those reported by Abd-Allah *et al.* (2019) who found that 32% of traditional goat farmers owned the land on which they were farming on in Nile Delta in Egypt.

4.4.3.4 Employment and farming status

The study observation on employment status revealed that IVG farmers were either employed, unemployed, self-employed or retired represented by 45.7%, 20%, 8.6% and 25.7%, respectively. The study results showed that IVG farmers interviewed were either farming full-time or part time represented by 45.7% and 54.3%, respectively.

4.4.3.5 Number of goats per farmer

The number of goats kept by interviewed IVG farmers classed into those that owns ≤ 20 , 21-49, 50-199, 100-149, and ≥ 150 represented by 25.7%, 34.2%, 22.9%, 14.3% and 2.9%, respectively. This finding is different from that reported by Lehloenya *et al.* (2007) who reported the mean average herd size was 9.00 ± 2.00 in peri-urban areas of Bloemfontein in South Africa, and the 9.7 goats per household reported in Mozambique (Van Niekerk and Pimentel, 2004).

4.5 INFERENCE ANALYSIS

4.5.1 Evaluation of the model's assumption

Before interpreting the inferential results of the study, four assumptions were examined, namely: normality test, homoscedasticity, multiple outliers and goodness of fit, these in order to determine their suitability for these models.

4.5.1.1 Normality test

Normality is one of the presumptions of linear regression analysis (Muranga, 2020). To ascertain whether the sample data was taken from a regularly distributed population within a certain tolerance, a normality test is utilised. There are two main methods of analysing for normality, namely, graphical and numerical (including statistical tests). One of the benefits of using statistical tests is that it can determine normality objectively. However, they can have the drawback of being either unduly sensitive to big sample numbers or insufficiently sensitive at low sample sizes. Graphical interpretation has the advantage of allowing good judgment to assess normality in situations when numerical tests might be over or under-sensitive. It must be stated that normality assessment using graphical methods needs a great deal of experience to avoid the wrong interpretations (Mishra, Pandey, Singh, Gupta, Sahu and Keshri, 2019). Figure 5.1 shows the normality test conducted, and the results revealed that all variables were normally distributed.

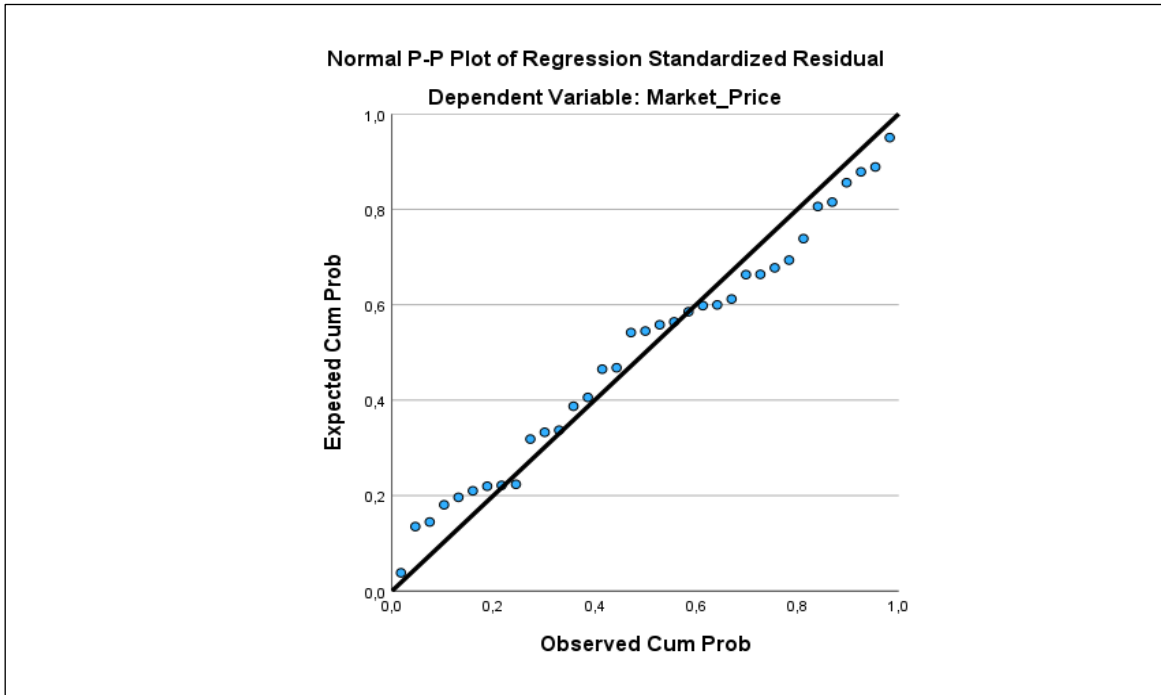


Figure 5.1 Test for normality using a standardised residual plot.

4.5.1.2 Homoscedasticity

Homoskedasticity implies that the variance of random error is constant and equal for all observations. The random errors of the classical linear regression model are heteroskedastic when they are not homoscedastic (Đalić and Terzić, 2021). In regression models, homoscedasticity is a key assumption and holds that the model's predictions are reliable the entire across range of data. According to Ishak and Ahmad (2018) homoscedasticity helps in (i) conducting tests of hypothesis and construct confidence intervals using the formula of the coefficient variance, (ii) making unbiased estimate in small and large samples, (iii) predicting the variable of interest (dependent) for given values of the exploratory (independent) variables, and (iv) simplifying the standard estimation techniques. The homoscedasticity of market price is shown in Figure 5.2, and the data shows no systematic pattern when plotted against predicted price or any other of the independent variables.

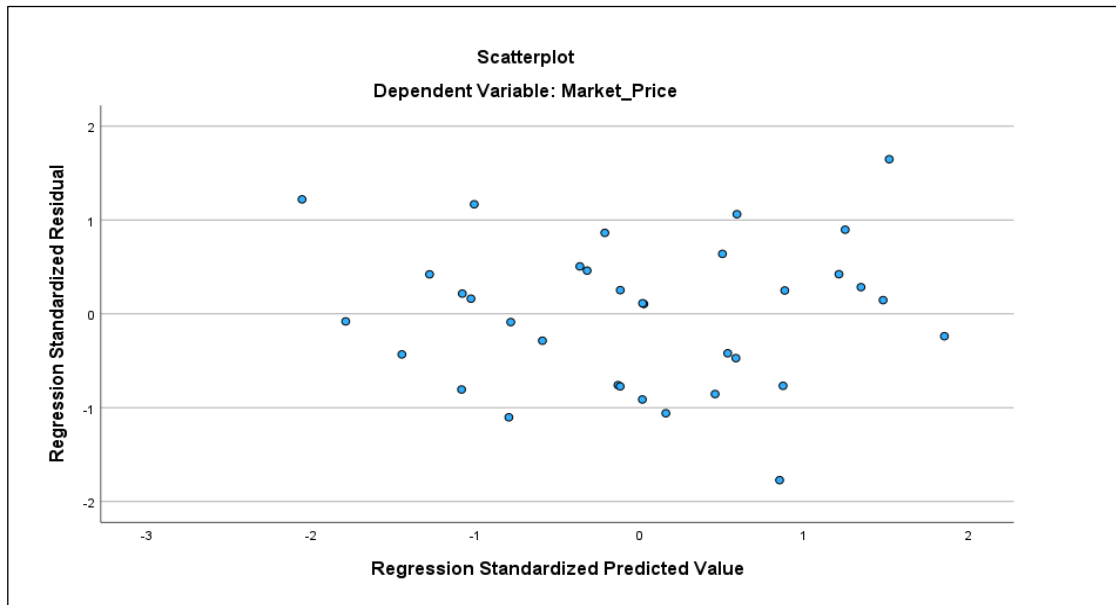


Figure 5.2 Homoscedasticity of the status of the market price.

4.5.1.3 Multiple outliers

The measure of the multivariate outliers is Mahalanobis Distance. The Mahalanobis Distance values in this dataset range from 5.446 to 23.608, with a mean of 13.600 and a standard deviation of 4.230. Mahalanobis Distance is useful for detecting multiple outliers in multivariate data because it accounts for the correlation between variables, providing a more holistic measure of how unusual a data set point is in the context of the whole dataset (Ghorbani, 2019). The test results of the multivariate outliers, using residual statistics, are depicted in Table 5.1. These results suggest that there are no multivariate outlier concerns.

Table 5.1 Test for multivariate outliers using residual statistics (N=35).

Residual statistics	Minimum	Maximum	Mean	Std. Deviation
Predicted Value	1762,378	2546,471	2174,285	200,594
Std. Predicted Value	-2,053	1,855	0,000	1,000
Std. Error of Predicted Value	84,624	165,608	126,189	18,584
Adjusted Predicted Value	1652,702	2588,233	2173,883	231,175
Residual	-345,288	320,925	0,000	149,387
Std. Residual	-1,773	1,648	0,000	0,767
Stud. Residual	-2,308	2,487	0,000	1,049
Deleted Residual	-585,225	731,174	0,402	287,254
Stud. Deleted Residual	-2,626	2,917	0,004	1,115
Mahal. Distance	5,446	23,608	13,600	4,230
Cook's Distance	0,000	0,527	0,070	0,114
Centred Leverage Value	0,160	0,694	0,400	0,124

Dependent Variable: Market Price

4.5.1.4 Goodness of fit

Goodness of fit is a statistical measure used to evaluate how well a model's predicted values match the actual observed data (Bryne, 2010). It aids in determining whether the model effectively captures the data's underlying pattern. Based on the normality test, homoscedasticity and multiple outlier tests, it is concluded that the model is good enough to provide unbiased and reliable results that are statistically valid.

4.5.2 Analysis of factors determining market price in IVG

The dependent variable in this study is the market price while a total of thirteen (13) independent variables were drawn from animal factors, market factors and production systems. A multiple linear regression analysis was used to analyse the determinants of market price of indigenous goats in Limpopo Province. The

overall goodness of fit of the regression model is measured by the co-efficient of determination (R^2). The value of adjusted R-square shows that 54% of the variation in the price per head of goat is explained by the explanatory variables included in the model. The study hypothesized that:

H0: There are no determinants of market price of indigenous veld goats in Limpopo Province, South Africa

H1: There are determinants of market price of indigenous veld goats in Limpopo Province, South Africa.

The coefficients can be interpreted as percent changes in the price per kilogram that will be brought by a unit change in the respective independent variable. Table 5.2 shows the estimated results of factors affecting market price in indigenous veld goats.

Table 5.2 Estimated parameters of factors affecting price in IVG

Variables	Coefficient	Std. Error	t-value	P-value	Beta
Gender	-10.285	107.131	-0.096	0.924	-0.015
Age	26.976	28.498	0.947	0.355	0.157
Body_size	77.834	53.241	1.462	0.159	0.255
Body_Condition_Score	143.443	67.771	2.117	0.047	0.388
MalePS	26.804	66.505	0.403	0.691	0.068
FemalePS	-181.078	64.050	-2.827	0.010	-0.507
Breed_type	-42.174	57.567	-0.733	0.472	-0.123
Coat_colour	26.875	53.642	0.501	0.622	0.096
Herd_size	109.025	42.713	2.552	0.019	0.484
Festive_Period	89.860	47.203	1.904	0.071	0.335
Type_seller	-76.287	91.925	-0.830	0.416	-0.138
Purpose_of_buyer	117.518	72.320	1.625	0.120	0.297
Distance_to_market	100.514	42.868	2.345	0.029	0.391
Farming_system	93.750	41.322	2.269	0.035	0.410
Constant	1061.893	472.968	2.245	0.036	

Notes: N=35, Dependent Variable: Market_Price

Age = age of the animal, MalePS = male physiological state, FemalePS = female physiological state, Adjusted R-squared = 0.539, F-Statistics (14, 20) = 2.576, P-value= 0.026.

The multiple regression analysis revealed that five independent variables were found to influence the market price of indigenous veld goats, namely; herd size, distance to the market, farming systems, body condition score and female physiological state. The constant term was also significant which means that even when all other predictors are zero, there is still a baseline effect on market price. The null hypothesis (**H0**) is therefore rejected in favour of the alternative hypothesis (**H1**).

4.5.2.1 Herd size

The size of the herd has a significant effect on the market price of goats ($t=2.552$, $\beta= 0.484$, $p=0.019$). These results are in line with those reported by Montshwe (2006) who found that the herd size positively influenced the participation of farmers in the mainstream markets. When a goat producer maintains a larger herd, economies of scale often come into play, impacting both the cost of production and market dynamics. A larger herd size might also reflect the producer's expertise and capacity for maintaining healthier animals. Buyers often associate larger herds with high-quality livestock management practices which translate into a higher willingness to pay. So, the confidence that buyers place in larger herds can positively affect the price at which goats are sold. Most herd sizes are very small in rural areas (Lehloenya *et al.*, 2007), and this will affect their market participation as they will not have much to sell. This study found that only 17% of IVG farmers owns more than 100 animals in their herd.

4.5.2.2 Distance to the market

The distance to the market has a significant effect on the market price of goats ($t=2.345$, $\beta= 0.391$, $p= 0.029$) due to several economic and logistical factors. The farther a farmer is from the market, the higher the transportation costs for delivering goats to the market, and this could include fuel, labour and vehicle

maintenance. IVG farmers may pass these costs to buyers by charging higher prices to buyers for their goats. According to Sehar (2018), transportation cost will significantly affect the market price for live goats. Smallholder farmers often do not have the means to transport their animals to the market and relies on rentals to access the market which comes at a cost to them.

4.5.2.3 Farming system in use

The type of farming system practiced by goat farmers has a significant effect on the market price ($t=2.269$, $\beta=0.410$, $p=0.035$) due to its direct influence on production cost. Under extensive farming system, the costs of production are lower since animals rely on natural pasture for their survival and growth with little if any supplementation. However, under intensive farming system the costs of production are high as animals will have to be offered feed, and the cost of feed account for the highest cost in livestock production. Despite the higher cost, intensive feeding lead to faster growth as animal will be offered feed at or closer to their daily nutritional requirements. The faster the growth rate the quicker animals are sold to the market. As such, the high production costs lead to higher prices as farmers will seek to recoup their investment (Shivakumara and Kiran, 2019).

4.5.2.4 Body condition score

The body condition score has a significant effect on variation in the market price of indigenous veld goats ($t=2.117$, $\beta=0.388$, $p=0.047$). Other things equal, the price of goats increases with the improvement of body condition score, and this is in line with the prior expectation of the researcher. Higher market prices are expected from goats with better body condition than the skinny ones. The body condition score took a positive and significant coefficient (143.443) suggesting that goats tend to assume higher prices in relation to their body. This result agrees with the findings by Andargachew and Brokken (1993), Teklewold, Legese, Alemu and Negasa (2009) and Doelamo and Assefa (2017).

4.5.2.5 Female physiological state

The female physiological state has a significant negative effect on market price of indigenous veld goats ($t=-2.827$, $\beta=-0.507$, $p=-0.010$). When female goats are pregnant or lactating, they are less attractive to buyers who want them for slaughter purposes (meat production). Ideally, sound economic management demands that animals sold for slaughter should be mainly males and reproductively inactive females. Indigenous veld goat farmers will not sell pregnant and lactating animals for meat consumption. Adeyemi, Adamu, Dawuda and Oyedipe (2016) and Okorie-Kanu, Ezenduka, Okorie-Kanu, Anyaoha, Attah, Ejiofor and Onwumere-Idoloh (2018) studied and reported about the slaughter of pregnant goats in Makurdi abattoir and Nsukka slaughterhouse in Nigeria, respectively. The authors concluded that such practice is a major cruel occurrence in that part of the world producing unwholesome low-quality meat with tremendous economic loss.

4.5.3 Conditions for high market price in IVG

The description for conditions that will lead to high market price for indigenous veld goats addresses objective number three. As shown in 5.3 above, high market prices are influenced positively or negatively by various factor that farmers must consider as they farm with IVG. The study hypothesized that:

H0: There are no conditions that will lead to high market price for indigenous veld goats in Limpopo Province.

H1: There are conditions that will lead to high market price for indigenous veld goats in Limpopo Province.

The output of the regression analysis recorded four factors that significantly promote market price and only one factor that negatively significantly affect the market price of IVG in Limpopo Province, and we reject the null hypothesis (**H0**) in favour of the alternative hypothesis (**H1**). Table 5.3 below shows factors that promote market price in IVG while Table 5.4 also below shows factors that hinders their market price.

Table 5.3 Factors that promote market price in IVG.

Variables	t-value	P-value	Beta
Herd_size	2.552	0.019	0.484
Distance_to_market	2.345	0.029	0.391
Farming_system	2.269	0.035	0.410
Body_Condition_Score	2.117	0.047	0.388

Table 5.4 Factors that hinder market price in IVG.

Variables	t-value	P-value	Beta
FemalePS	-2.827	-0.010	-0.507

FemalePS = female physiological state of the animal

However, all other factors that were either positive or negative but insignificant cannot be ignored if farmers want to optimise the market price of their goats. For this study, only the significant factors were considered when describing conditions that will lead to high market price in IVG. So, the results of the regression analysis suggest that:

Market price = 1061.893 + 143.44 (body condition score) + 109.025 (herd size) + 100.514 (distance to market) + 93.750 (farming system) – 181.078 (female physiological state).

The model estimates the market price by adding or subtracting values based on the animal's body condition, herd size, distance to the market, farming system practiced and the physiological state of the animal.

4.5 OVERVIEW OF RESEARCH FINDINGS

4.5.1 Descriptive analysis

Results of the descriptive statistical analysis provided the following:

- Male farmers dominate the goat farming sector, with females being a minority. This insight suggests potential gender disparities in agricultural practices and opportunities.

- Most of the IVG farmers (71.4%) in Limpopo Province are married which reflect on their age. Being married often means having family obligations, and goat farming is practiced to provide food security and income for their households.
- The majority (28.6%) of IVG farmers are retirees as they are aged 61 years and older. This suggests that IVG farming is a popular activity among retirees, providing them with a productive way to spend their time.
- While most IVG farmers (65.7%) have tertiary education, there is a notable lack of formal training in goat farming among them. This points to a need for targeted educational programs to enhance farming practices and productivity.
- Most of the IVG farmers (74.3%) do not have formal training on goat farming practices. Introducing formal training programs could significantly enhance the farmers' ability to implement better practices, improve goat health, increase productivity, and potentially expand into commercial goat farming.
- Land ownership is predominantly communal (62.9%), with private ownership being less common (37.1%). Communal land ownership is common in rural areas of South Africa, particularly in regions where traditional authorities, such as chiefs or village leaders, oversee land allocation and management.
- The farming experience varies among IVG farmers, with the majority having more than 16 years of experience. This experience could be a valuable asset for knowledge sharing and mentorship within the farming community.
- The primary source of capital for acquiring goats is savings (85.7%) indicating a need for financial planning and access to capital for aspiring farmers.
- The majority of IVG farmers (34.2%) farmers in Limpopo province owns on average between 21-49 goats in their herd. The smaller herd size will reduce the number of goats available for sale at any given time.

- The chapter reveals that IVG farmers have different employment statuses, with a significant portion being either employed or retired. This diversity in employment status shows that goat farming can be both a primary and supplementary source of income.

These lessons provide a comprehensive overview of the socio-economic landscape of IVG farmers in Limpopo Province and offer insights into the broader goat farming sector in South Africa.

4.5.2 Inferential analysis

The results of the inferential statistical analysis provided the following:

- The use of multiple regression analysis provided a robust framework for understanding the relationship between various factors and market price in indigenous veld goat.
- The study identified five (5) key independent variables that significantly influence the market price of indigenous veld goats, namely: body condition score, female physiological state, herd size, distance to the market and the type of farming system in use.
- A higher body condition score correlates with increased market prices. Farmers should focus on improving the health and conditions of their animals to enhance their market value.
- Large herd sizes can positively affect market price due to economies of scale and buyer perception of quality. Farmers with larger herds may have a competitive advantage in the market.
- The distance from the farm to the market significantly affects pricing, as greater distances can lead to higher transportation costs. Farmers should consider their location and the associated costs when setting prices.
- The type of farming system employed can also influence market price. Framers should evaluate their practices and consider adjustments that may lead to better pricing outcomes.

By applying these lessons, farmers can enhance their strategies for pricing and marketing indigenous veld goats effectively.

4.6 CONCLUSION

This chapter outlined the results of the descriptive and inferential statistical analysis of indigenous veld goat farmers in Limpopo Province. Key observations from the descriptive analysis are that:

- There is a lack of formal training in goat farming among the IVG farmers.
- There is a strong desire for expansion among the farmers, with 80% expressing a need to expand their operations.
- Land ownership is predominantly communal in rural areas with private ownership being less common.

Inferential analysis used multiple regression analysis to assess the influence of various independent variables on the market price. The regression analysis revealed that five independent variables significantly influence the market price of indigenous veld goats. Factors that have a positive significant effect on the market price are body condition score, herd size, distance to the market and type of farming system, while the female physiological state was the only factor that has a negative significant effect on the market price of indigenous veld goats. However, under farming conditions, it might be important to consider all factors in the model that has an effect on the market price of indigenous goats even though the effect is insignificant for optimal yield.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The current chapter, Chapter 5, summarises the main findings and observations from the literature, and descriptive and inferential analysis, as well as giving some recommendations that will potentially help improve the pricing and the profitability of the goat business enterprise.

5.2 RESEARCH DESIGN AND METHODOLOGY

The study followed a quantitative research approach while a cross-sectional study design was used for data collection with IVG farmers in Limpopo Province. The cross-sectional design allowed for the collection and analysis of data at a single point in time, providing a snapshot of market dynamics while also being cost-effective and straight forward to conduct. Purposive sampling technique was used to select participants. The purposive allowed for meaningful and relevant responses from this strategically chosen participants. Because of the small population size, all active IVG farmers in Limpopo Province were sampled. According to Mudau (2023), there were 86 active IVG 1farmers in Limpopo Province with varying goat populations across the five districts.

5.3 INTERPRETATION OF THE RESEARCH FINDINGS

Indigenous goat farming is gender biased as the practice is dominated by male farmers. This observation might have been influenced by the fact that a large number of respondents in the study were married (71.4%). Traditionally, men are the providers of their household, and all means of income generation including livestock will belong to them. The goat farming seems to be an afterthought practice as many people who are farming with goats are adults of 60 years and above and have undertaken the practice on a part-time basis. This is supported by a high number of farmers (74.3%) who are farming with goats but had no formal training on goat production despite a sizeable number of them having tertiary education (65.7%). The high literacy level can be a plus when it comes to

training and knowledge distribution on goat farming as information packs and flyers can be prepared for self-reading by farmers whenever they find time. The IVG Limpopo Club seems new as the majority of farmers have recently joined the club and owns a small herd (21-49 goats) considering that goats can give birth twice in a year, and that twinning is a common feature.

The consumption of goat meat is on the rise in South Africa despite the fact that goat meat is not available in many formal retailers in Limpopo Province. The biggest market for goats in Limpopo Province is those slaughtered for cultural activities. This observation presents a good business opportunity that can also help alleviate poverty and create the much needed jobs in rural areas. Goat farming business compared to other enterprises like beef and poultry seems to have been neglected by the government. There seems to be no notable projects by the government that are aimed at improving goat production in the province except under the breeders' association and clubs including the Limpopo Indigenous Veld Goat Club. The goat animal can be advantageous in many ways, they hardly succumb to drought like cattle, and can source and survive and reproduce on a low plane of nutrition.

A total of five independent variables were found to affect the market price in goats, namely; body condition score, female physiological state, herd size, distance to the market and the type of farming system. Among these independent variables, it is the female physiological state that have a significant negative effect on the market price. The body condition of an animal is a function its nutrition. Animals that are fed well will grow faster and will have a good body condition score. This emphasizes the need for feeding or supplementation so that feeding animals do not loose condition as this will affect their selling price. Indigenous veld goat farmers with a small herd size are less likely to sell their animals. However, farmers with larger herds are more likely to get more sales, and their herd size drives a quality perception in the mind of buyers thus positively influencing the market price.

Many smallholder farmers have means to transport their animals to the auction and often rely on the rental services. The common market for goat farmers is the local market. Distanced markets can affect their profit negatively despite the possibility of passing the incurred costs to consumers. Animals that are kept under intensive farming system where feed and water provision is a must reach their marketable weight earlier than those raised under extensive farming. Faster growth rate and quicker sales can be a plus since more animals will be sold within a short period, and the cost of production is usually passed to consumers; the more the sales the likelihood for profit is high.

The findings of this study create the basis for further research that could examine closely pricing of goats for different uses, number sold per farmer and total sales generated since members of the Limpopo Indigenous Veld Goat Club are a small, organised group of farmers that are easily accessible.

5.4 RECOMMENDATIONS

The following recommendations are made considering findings from this study:

- Training programmes should be established tailored to goat farmers to enhance their understanding of best practices in goat management and production. This could include workshops on animal health, nutrition, breeding techniques and market information. The market information training can empower IVG farmers to make informed decisions about pricing and marketing strategies.
- Efforts should be made to improve market access for goats. This could involve establishing cooperative marketing systems that allow farmers to pool resources together and negotiate better prices for their livestock.
- Policymakers should consider implementing supportive policies that provide financial assistance or other incentives for goat farmers. This could include subsidies for feed, veterinary services, access to credit facilities, etc.
- Introduce the application of technologies including assisted reproductive technologies that can help improve fertility and kidding rate in rural areas.

This could prove valuable as low and nonproductive animals can be identified and culled.

- Initiate a goat abattoir or start slaughtering goats in the existing sheep abattoirs so that chevon can be formally introduced in formal retail stores in the province. These efforts can help raise the price of goat meat due to the demand and supply paradigms.
- There is a need for a weighing scale to help animals per live weight as opposed to the current eyeball observation practices. This can improve the price as animals will be sold according to their weight.
- Farmers should focus on improving the body condition of their animals as high body conditions score is positively correlated with increased market price. This can be achieved through better or improved nutrition.
- Expand the herd size as this can provide economies of scale and enhance buyer perception of quality. Farmers with larger herds may have competitive advantage in the market as buyers associate larger herds with better livestock management practices.
- Keep detailed records of breeding practices and performance record to help select good performing animals. This can ensure the use of high-quality breeding animals that can enhance the growth performance of animals.

Through these strategies, indigenous veld goat farmers can improve their pricing strategies and enhance the overall profitability of their goat business project.

5.5 CONTRIBUTION OF THE STUDY

The study identified key factors that influence the market price of IVG in Limpopo Province. By quantifying the impact of these variables, the findings provide a clear picture of the attributes that make goats more valuable in the marketplace. This knowledge can guide farmers, policymakers, livestock developers and other key stakeholders in improving the breeding and management practices to produce high-value goats that will boost their income and economic sustainability.

5.6 LIMITATIONS OF THE STUDY

Several limitations were encountered due to the methodological and contextual nature of the study. Acknowledging these limitations helps provide a balanced interpretation of the findings and identifies areas to address in future undertakings. The study interviewed 35 out of 86 IVG farmers in Limpopo Province. While this represents approximately 41% of the population, the sample size may still be too small to capture the full diversity of experiences, farming practices, and price determinants across all IVG farmers in the province. This limitation affects the generalizability of the findings to the broader population. Using a purposive sampling technique allows the researcher to target respondents who were keeping IVGs and these may introduce biasness. Purposive sampling may not fully represent the broader range of IVG farmers, particularly if factors such as farm size, goat breed variations, or marketing practices vary significantly among those not included in the sample. Since the study was conducted in Limpopo Province, the findings may not apply to other regions with different market conditions, demand patterns, or socio-economic environments. The study used cross-sectional data, which provides a snapshot of market price determinants at a single point in time. However, IVG prices and determinants may fluctuate due to seasonal trends, market conditions, and economic factors. The data collection process relied on self-reported information from IVG farmers, which can introduce response bias. Farmers may unintentionally or intentionally overestimate or underestimate certain variables, such as the weight, age or quality of their goats, to portray their farming practices more favourably. The study may have excluded certain external factors, such as broader economic conditions, regional policy changes, or international trade influences, that could impact IVG prices indirectly. Depending on the respondents' educational and literacy levels, there is a risk of misinterpretation of questions, which can lead to inconsistent responses.

These limitations underscore the importance of cautious interpretation and generalization of the study's findings. Future research could address these limitations by using a larger, more geographically diverse sample, and adopting

a mixed methods approach to capture a wider array of factors influencing IVG prices.

5.6 CONCLUSION

The findings of this study highlighted significant trends in their demographics of IVG farmers; showing that it is primarily managed by older man often on a part-time basis, with limited formal training in goat production. This indicates that goat farming, despite its economic potential remains largely underdeveloped with limited support especially compared to other livestock enterprises. The lack of formal market channels for goat meat in Limpopo Province limits the economic potential of IVG farming.

CHAPTER 6

SUMMARY AND CONCLUSIONS

Chapter one serves as the introductory section of the study, outlining the background and rationale for researching indigenous veld goat production in Limpopo Province, South Africa. The chapter further highlighted the aim and objectives of the study and provide definitions of key concepts including market price and indigenous veld goats. The significance of undertaking the study is discussed, and the ethical considerations that will be adhered to in order to ensure the fairness of the data collection process. The chapter set the stage for subsequent sections of the study that build a comprehensive knowledge on the importance of goat farming in Limpopo Province and factors influencing their market price.

Chapter two presents a review of existing literature on goat production and management in rural areas. The chapter discusses the various native or local indigenous breed of goats in Southern Africa, the breeding objectives, and key benefits of farming with indigenous goats. The goat marketing channels in South Africa is also reviewed including various factors that influences the market price of goats. This chapter serves to contextualise the research study by examining pervious findings and theories related to goat farming, thereby establishing a foundation for understanding the importance of the current research.

Chapter three outlines the research methodology employed in the study. It provides a detailed explanation of the research design and method including study population, sampling process, data collection techniques and data analysis methods. The developed structured questionnaire that was divided into four sections: socio-economic characteristics, animal factors, market factors and production systems. Purposive sampling technique was used targeting only IVG farmers in Limpopo Province. The collected data was captured in excess and analysed using Statistical Package for Social Sciences (IBM SPSS, 2020) version 28.0.0 employing both descriptive and inferential statistical methods. The

descriptive statistics were used to summarise the socio-economic characteristics of the farmers, while multiple linear regression analysis was applied to identify the determinants of the market price of indigenous goats.

Chapter four outlined the results of descriptive and inferential statistical analysis. There is lack of formal training in goat farming in Limpopo Province. There is a strong desire for expansion among the farmers, with 80% expressing a need to expand their operations. Land ownership is predominantly communal in rural areas with private ownership being less common. The regression analysis revealed that five independent variables significantly influence the market price of indigenous veld goats. Factors that have a positive significant effect on the market price are body condition score, herd size, distance to the market and type of farming system, while the female physiological state was the only factor that has a negative significant effect on the market price of indigenous veld goats.

Chapter five presented the recommendations and conclusion drawn from the study. A number of recommendations are presented taking into account findings from the study. Among key recommendations are the need to introduce training programmes, improve market access, development of supportive policies that support goat production, technology applications, etc. This study can be used as the basis for further studies aimed at improving indigenous veld goat production in Limpopo Province and elsewhere where goat farming is prevalent.

In conclusion, the study hypothesized that (1) there are no determinants if market price of indigenous veld goats in Limpopo Province, (2) there are no conditions that will lead to high market price for indigenous veld goats in Limpopo Province. Both these hypotheses (H₀) were rejected as factors that significantly affect market price in IVGs were identified. Additionally, conditions that lead to high market price were revealed.

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APPENDIX A: QUESTIONNAIRE

A SURVEY ON DETERMINANTS OF MARKET PRICE OF INDIGENOUS VELD GOATS IN LIMPOPO PROVINCE, SOUTH AFRICA

Please understand the following statement carefully before completing the questionnaire. This questionnaire is designed to collect data that is meant to address the project study objectives. It is meant to generate information on socio-economic characteristics, animal factors, market factors and production systems in use by indigenous veld goat farmers in Limpopo Province. The information provided will be used only for the purpose of this research and will be treated to confidentiality, with no mention of names in the analysis. Please sign this questionnaire as a confirmation that you are willing to participate in this research.

I agree to complete the questionnaire and to do so in a completely voluntary manner. I understand that my responses will be kept confidential.

Signature: _____, **Date:** _____

Enumerator: _____, **Name of respondent:** _____

Local Municipality: _____, **District Municipality:** _____

Village name: _____, **Contact number:** _____

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS

(Please put a cross (x) in the appropriate spaces provided in response to the question asked).

1.0 What is your gender?

1 = Male

Other = 3

2 = Female

2.0 What is your marital status?

1 = Single

2 = Married

3 = Widow/widower

4 = Divorced/separated

3.0 What is your age?

1 = <30

2 = 31-40

3 = 41-50

4 = 51-60

5 = >60

4.0 What is your highest education status?

1 = No formal education

2 = Primary education

3 = Secondary education

4 = Tertiary education

5.0 Did you ever received any formal training on goat farming?

1 = Yes

2 = No

6.0 How many goat farming experience do you have?

- 1 = <5 years
- 2 = 5 – 10 years
- 3 = 11-15 years
- 4 = 16 – 20 years
- 5 = > 20 years

7. 0 What are your reasons for rearing goats? (Rank them, 1 being the most and 4 being the least).

- 1 = Consumption
- 2 = Cash/sales
- 3 = Emergencies/Saving
- 4 = Family tradition
- 5 = Others (specify) _____

8.0 How did you acquire your stock?

- 1 = Purchase
- 2 = Caretaking
- 3 = Gift
- 4 = Others (specify) _____

9.0 If purchase, what was your source of capital to invest in goat farming?

- 1 = Own savings
- 2 = Borrowed from bank
- 3 = Borrowed from family
- 4 = State aid
- 5 = Others (specify) _____

10.0 Are you willing to expand?

1 = Yes 3 = May be

2 = No

11.0 What is your land ownership?

1 = Private

2 = Leased

3 = Communal

12.0 What is your employment status?

1 = Employed

2 = Unemployed

3 = Self employed

4 = Retired

13.0 Are you farming with goats full-time?

1 = Yes

2 = No

14.0 What is the main source of your income?

1 = Government grant

2 = Remittance from family member

3 = Other Specify _____

SECTION B: THE ANIMAL FACTOR

15. What is the current average selling price of your goats? Answer:

Which of the following animal factor will attract high market price in indigenous veld goats in Limpopo Province?

16.0 Live weight/body size (Rank them, 1 being the most and 3 being the least).

1 = Small body frame

2 = Medium body frame

3 = Large body frame

17.0 Body condition score (Rank them, 1 being the most and 3 being the least).

1 = Thin

2 = Fat

3 = Very fat

18.0 Age of the animal (Rank them, 1 being the most and 3 being the least).

1 = Young animal (6 – 8 months)

2 = Adult animal (1 – 2 years)

3 = Old animal (3 years and older)

19.0 The sex of the animal

1 = Male 3 = Neither 1 nor 2

2 = Female

20.0 Female (does) physiological state (Rank them, 1 being the most and 3 being the least).

1 = Breeding animals

2 = Lactating animals

3 = Dry animals

21.0 Male (bucks) physiological state (Rank them, 1 being the most and 3 being the least).

1 = Breeding animals 3 = Culled animals

2 = Castrated animals

22.0 Breed type (Rank them, 1 being the most and 3 being the least).

1 = Pure indigenous

2 = Composite

3 = Crosses

23.0 Coat colour

1 = Solid uniform colour 3 = Neither 1 nor 2

2 = Variegated

24.0 Flock size

1 = Over capacity

2 = Under capacity

3 = Neither 1 nor 2

25. How big is your herd?

1 = ≤ 20

2 = 21 - 49

3 = 50 - 99

4 101 - 149

5 ≥ 150

SECTION C: MARKET FACTOR

Which of the following market factor will attract high market price in indigenous veld goats in Limpopo Province?

26.0 Type of seller

1 = Farmers

2 = Trader

27.0 Time of the year

1 = Festive period 3 = Neither 1 nor 2

2 = Non-festive period

28.0 Purpose of the buyer (Rank them, 1 being the most and 3 being the least).

1 = Breeding

2 = Cultural rituals

3 = Consumption

29.0 Distance to the market (Rank them, 1 being the most and 3 being the least).

1 = Short (within municipality)

2 = Medium (Neighbouring municipalities)

3 = Long (Outside of the province)

SECTION D: PRODUCTION SYSTEMS

Rank the following production system in order of attracting high market price in indigenous veld goats in Limpopo Province? (1 being the most and 4 being the least).

30.0 Farming type

1 = Intensive farming system

2 = Semi-intensive farming system

3 = Semi-extensive farming system

4 = Extensive farming system

(Thank you very much for taking your time off to complete this questionnaire. We sincerely appreciate that, thank you)

APPENDIX B: CONSENT FORM

I,(participant)
hereby voluntarily consent to participate in the following project titled,
**“Determinants of market price of indigenous veld goats in Limpopo
Province, South Africa”** I realise that:

1. The purpose of the study is to analyse determinants of market price of indigenous veld goats in Limpopo Province, South Africa.
2. The researcher is a Master of Business Administration (MBA) student in the Faculty of Management and Law at the University of Limpopo.
3. The researcher will make efforts to safeguard and adhere to the confidentiality of the information provided by the respondents and anonymity is guaranteed.
4. I may withdraw from the study at any time.
5. I am aware that it is anticipated that my participation in this study will enhance my understanding of the factors that determine the market price in indigenous veld goats in Limpopo Province.
6. If I have any question or problems regarding the study I will contact the University Research Office (University of Limpopo, Private Bag X1106, Sovenga, 0727, Tel: 015 268 2401)
7. My signature below indicates that I have given my informed consent to participate in the abovementioned study.

Signature of respondent:.....,Date:.....

Signature of the researcher:.....,Date.....

APPENDIX C: PERMISSION LETTER

Mathuba Logistics and Farming projects

P.O. Box 463

Tshilwavhusiku

0938

28 June 2023

Department of Agric. Economics and Animal Production

University of Limpopo

P/Bag x 1106

Sovenga

0727

Dear Mugwabana TJ

Permission to undertake the research study

I am familiar with the MBA research project. I understand the general purposes and methods of the research.

Therefore as the president of the Limpopo IVG regional club, I agree to participate in this research study.

Regards

Mudau E

A handwritten signature in black ink, appearing to be 'Mudau E', written over a horizontal line.

0792775823

APPENDIX D: FACULTY APPROVAL LETTER



UNIVERSITY OF LIMPOPO
Office of the Faculty Research Professor Prof TS Setati
05 March 2024
PRIVATE BAG X1106, SOVENGA, 0727
FACULTY OF MANAGEMENT AND LAW

University of Limpopo
Faculty of Management and Law
OFFICE OF THE EXECUTIVE DEAN
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3947, Email: fml.postgradoffice@ul.ac.za

05 March 2024

MUGWABANA TJ (9201422)
TURFLOOP GRADUATE SCHOOL OF LEADERSHIP
MASTER OF BUSINESS ADMINISTRATION

Dear TJ Mugwabana

FACULTY RATIFICATION OF SCHOOL APPROVED PROPOSAL

I have pleasure in informing you that the Faculty of Management and Law has ratified the approval of Masters Research proposal. The research proposal has served at the School Higher Degrees Committee meeting on 09 November 2023 and was approved as follows:

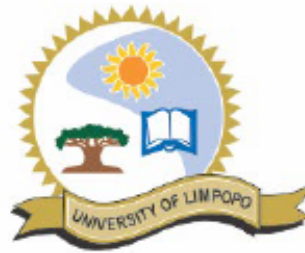
Title: "Determinants of Market Price of the Indigenous Veld Goats in Limpopo Province, South Africa."

Ethical Clearance The study.	Tick One
Requires no ethical clearance. Proceed with the study	
Requires ethical clearance (Human) (TREC) (apply online) Proceed with the study only after receipt of ethical clearance certificate	√
Requires ethical clearance (Animal) (AREC) Proceed with the study only after receipt of ethical clearance certificate	

Yours faithfully,

Prof TS Setati
Research Professor: Faculty Research Higher Degrees Committee
CC: Prof TJ Musandiwa; Programme Manager, Director of School, Prof SK Mokoena

APPENDIX E: ETHICAL APPROVAL LETTER



University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306, Email: tukiso.sewapa@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE
ETHICS CLEARANCE CERTIFICATE

DATE: 20 May 2024

PROJECT NUMBER: TREC/136/2024: PG

PROJECT:

Title: Determinants of the market price of indigenous veld goats in Limpopo Province, South Africa
Researcher: TJ Mugwabana
Supervisor: Prof H Mathebula
Co-Supervisor/s: N/A
School: Turfloop Graduate School of Leadership
Degree: Master of Business Administration

PROF D MAPOSA
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

Note:

- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
- ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
- iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

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