

An overview of small-scale broiler meat production in Ehlanzeni District, Mpumalanga Province of South Africa

By

Bongiwe Bridget Sikosana

201863383



[orcid.org/ 0000-0002-7440-5268](https://orcid.org/0000-0002-7440-5268)

**A dissertation submitted in fulfilment of the requirements for the Master of
Science degree**

Supervisor: Dr Zakheleni P Dube

Co-Supervisor(s): Dr Xola P Nduku



School of Agricultural Sciences

Faculty of Biology and Environmental Science and Natural Sciences

2025

Declaration

I, **Bongiwe Bridget Sikosana**, declare that this dissertation is my original work and has not been submitted to any University. This work was conducted under the supervision of Dr Zakheleni Dube and Dr Xola P Nduku. All assistance towards the production of this work and all the references contained herein have been fully acknowledged.

B.B. Sikosana

28/11/2024

Bridget Bongiwe Sikosana

Date

Approved as to style and content by:

Dr Z. P. Dube

(Supervisor)



Dr. X. Nduku

(Co-supervisor)

2025

Abstract

The largest agricultural sub-sector in South Africa is the broiler industry. Poultry industry produces one of the most consumed meat protein sources in the form of broiler meat. Small-scale broiler famers help alleviate poverty and increase food security by producing broiler meat. The objective of this study was to provide an overview of broiler meat production from small-scale poultry farmers in Ehlanzeni district, Mpumalanga province of South Africa. The overview was done by interviewing different small scale farmers in the Ehlanzeni district using a structured questionnaire after giving consent to participate. The sample was saturated with 152 participants. The participants were spread among the communities of Ehlanzeni which included Kabokweni, Hazyview, Nkomazi, Matsafeni, Kamagugu, Kanyamazane and White river. They were selected using convenience sampling method. That method allowed the selection of accessible broiler producers only. The research sought to investigate of small-scale broiler producer's perception on acceptance of broiler meat. The participants were given the opportunity to provide information pertaining totheir production strategies and management styles. During the interview, questions pertaining to their consumption preferences, knowledge about meat quality and their buying behaviour were also included. Additionally, they shared their perception on challenges facing small-scale broiler farmers. Participant's experiences were recorded after sharing them in the short structured interview. The collected data was analysed using SPSS 25.0 and descriptive analysis was used to profile households' socioeconomic characteristics. The demographic information of the participants showed that the majority (62.5%) of the participants were females. The age groups of participants went up to over 60 years with age group 31-45 years being the dominant group. Only 6.6% of the participants had tertiary education, the majority (89.5%) only went as far as Grade 12. There were11.8% producers who were new in the industry and 18.4% had been in the industry for more than 10 years. Themain source of income for Seventy five percent (75%)

of the participants is broiler production. Moreover, most famers (78.3%) outsource water from the municipality and the remaining 21.7% obtain water from the bore whole. minority (4.6%) of the respondents had only one house which could keep up to 500 broiler chickens. There majority (70.4%) of respondents had 3 houses for to keep their chickens. . Seventy point four percent (70.4%) of the respondents obtained day-old chicks from a hatchery and 3.3% obtained them from the government. It was concluded that broiler production is playing an important role in alleviating poverty in the communities of Ehlanzeni district; however, they have limited access to farmer's trainings and government support.

Keywords: communal farmers, small-scale production, broiler production, chicken meat.

TABLE OF CONTENTS

List of Tables	viii
List of figures	ix
List of Appendices	x
Acknowledgments	xi
Chapter 1: Introduction	1
<i>1.1 Background</i>	<i>1</i>
<i>1.2 Problem statement</i>	<i>1</i>
<i>1.3 Justification</i>	<i>2</i>
<i>1.4 Study Aim</i>	<i>3</i>
<i>1.5 Research Questions</i>	<i>3</i>
<i>1.6 References</i>	<i>4</i>
Chapter 2: Literature review	5
<i>2.1 Introduction</i>	<i>5</i>
<i>2.2 Broiler production in South Africa</i>	<i>5</i>
2.2.1 Commercial / Large-scale broiler production and broiler value chain in South Africa	
5	
2.2.2 Small-scale broiler production	6
2.2.3 Contribution of broiler production to the livelihoods of communal farmers	8
<i>2.3 Challenges faced by small-scale poultry farmers</i>	<i>9</i>
<i>2.4 Broiler meat quality and nutritional content</i>	<i>10</i>
<i>2.5 Marketing channels of small-scale broiler producers</i>	<i>10</i>
<i>2.6 Consumer perceptions on consumption of broiler meat</i>	<i>11</i>

2.7 Summary of review	12
2.8 References	13
Chapter 3: broiler production, marketing channels AND challenges faced by small-scale broiler farmers in Ehlanzeni District, Mpumalanga Province of South Africa	15
3.1 Introduction	15
3.2 Materials and Methods	16
3.2.1 Study area	16
3.2.2 Data collection and analysis	16
3.2.3 Ethical Considerations	17
3.3 Results and discussion	17
3.4 Conclusion	29
3.5 References	30
References	31
CHAPTER 4: Small-scale broiler farmers' knowledge on consumer buying behaviour and meat quality.	33
4.1 Introduction	33
4.2 Materials and Methods	34
4.2.1 Study area	34
4.2.2 Data collection and analysis	34
4.3 Results and discussion	34
4.4 Conclusion	36
4.5 References	37
CHAPTER 5: Summary, significance of findings, recommendation and conclusions	38

<i>General discussion</i>	38
<i>Conclusions</i>	39
<i>Recommendations</i>	40
<i>References</i>	41

LIST OF TABLES

Table	Description	Page
Table 2.1	Commercial chicken producers in South Africa	7
Table 3.1	Socio-demographic characteristics of the small-scale broiler farmers in Ehlanzeni District	18
Table 3.2	Perceptions on the challenges facing small-holder broiler farmers	26
Table 4.1	Small-scale broiler farmers' knowledge on meat quality	35

LIST OF FIGURES

Figure	Title	Page
Figure 3.1	Farm management of small-scale broiler producer in Ehlanzeni District	22
Figure 3.2	Small-scale broiler production in Ehlanzeni District	23

LIST OF APPENDICES

Appendix	Description
-----------------	--------------------

- | | |
|---|--|
| 1 | Questionnaire: An overview of small-scale broiler meat production in Ehlanzeni District, Mpumalanga Province of South Africa |
| 2 | Ethical clearance certificate: UMP/Sikosana/201863383/MSC/2023 |
| 3 | Similarity test report |

ACKNOWLEDGMENTS

I would like to express my greatest gratitude to my supervisors, Dr. X. Nduku and Dr. Z. P. Dube for always availing themselves and guiding me through this study. My sincerest appreciation to the small-scale broiler producers of Ehlanzeni communities for welcoming me into their homes and agreeing to be part of this research. Special thanks to my sisters in Christ Ms T. Mashego and Ms L. Magagula, this degree wouldn't have been possible without their consistent support. I will forever be grateful for my parents for being my present help and my grandparents Mr. and Mrs. Mabona for their healing love and support. Lastly, but most importantly, I give all the glory to my Lord and redeemer Jesus Christ who carries and provides for me.

CHAPTER 1: INTRODUCTION

1.1 Background

The broiler industry is the largest agricultural sub-sector in South Africa (DAFF, 2016). Poultry has been the fastest growing meat production (Camoglu, Serra and Gil, 2015), and one of the most consumed and cheap meat protein sources (Davids *et al.*, 2017; Wahyono and Utami, 2018). Small-scale farmers are also involved in the production of broiler meat, providing high-quality protein meat which help with alleviation of poverty and overall play a significant role in maintaining food security (Gunya, Muchenje, Gxasheka, Tyasi and Masika, 2020). Small-scale poultry farmers are mostly found in rural and resource-poor settlements. These are occupied by vulnerable groups of people that typically experience food insecurity (Wong, de Bruyn, Bagnol, Grieve, Li, Pym, Alders, 2017). Small-scale poultry farmers obtain their income from selling poultry stock while providing their community households with nutritionally rich food source. Some studies have been conducted about this rather in different provinces even though small-scale farmers have been ignored for quite some time in this sector (Louw, Davids and Scheltema, 2017). Therefore, the current study investigated broiler meat production from small-scale broiler farmers in Ehlanzeni District, Mpumalanga Province of South Africa.

1.2 Problem statement

Small-scale poultry farmers' lack of knowledge and training on broiler production, marketing, consumer preferences and buying behaviour. Despite the importance of small-scale farms, the quality of the meat produced by them tends to be questioned by community members (Gunya *et al.*, 2020). In addition, marketing channels that small-scale producers use are proving to be non-effective. Therefore, small-scale farmers continue to struggle to successfully market their products. Furthermore, consumers continue to purchase meat and meat products from the

retailers and not their neighbouring small-scale producers. Limited resources and lack of financial support from the government makes it even more challenging for small-scale farmers to keep up with production.

1.3 Justification

Broiler production is an important agricultural activity and source of livelihood for many small-scale farmers. There is still a need to gather information from small-scale farmers to investigate their production patterns and level of knowledge on the important factors of broiler production. In order to produce meat which consumers will accept; it is necessary to translate producer perceptions into product specifications. The way consumers perceive expected quality before purchase is often different from the way quality is perceived after consumption and may be related to various product characteristics. The study investigated broiler production, marketing channels and challenges faced by small-scale broiler farmers in Ehlanzeni District. Furthermore, the study aimed to investigate small-scale broiler farmers' knowledge on consumer buying behaviour and meat quality. This will assist analyse producer's understanding on broiler production, product quality, as well as consumer expectations and buying behaviour. This study will help draw conclusions and present recommendations to small-scale poultry farmers on how they can improve on broiler production.

1.4 Study Aim

The main aim of the study was to investigate broiler meat production from small-scale poultry farmers in Ehlanzeni District, Mpumalanga Province of South Africa.

The specific objectives of this study were:

- (i) To determine the demographics, broiler production and management practices, marketing channels, as well as the challenges faced by of small-scale broiler farmers in Ehlanzeni District, Mpumalanga Province of South Africa.
- (ii) To determine small-scale broiler farmers' knowledge on meat quality.

1.5 Research Questions

- (i) What are the demographics, broiler production and management practices, marketing channels, as well as the challenges faced by small-scale broiler farmers in Ehlanzeni District, Mpumalanga Province of South Africa.?
- (ii) Do small-scale broiler farmers have knowledge about meat quality?

1.6 References

- Camoglu, S. M., Serra, T. and Gil, J. M. 2015. Vertical price transmission in the Turkish poultry market: The avian influenza crisis. *Journal of Applied Economics*, 46(11): 1106-1117.
- DAFF (South African Department of Agriculture, Forestry and Fisheries). 2016. Abstract of Agricultural Statistics 2012, June 2016. South Africa. [Online]. Available at: <https://www.tandfonline.com/doi/pdf/10.1080/03031853.2017.1302349?cookieSet=1>. [Accessed 06 June 2022].
- Davids, T. and Meyer, F, H. 2017. Price formation and competitiveness of the South African broiler industry in the global context. *Journal of Economics Research, Policy and Practice in Southern Africa*, 56(2): 123-138.
- Gunya, B., Muchenje, V., Gxasheka, M., Tyasi, L. T. and Masika, P. J. 2020. Management practices and contribution of village chickens to livelihoods of communal farmers: The case of Centane and Mount frere in Eastern Cape, South Africa. *Biodiversitas Journal of Biological Diversity*, 21(4): 1345-1351.
- Louw, M., Davids, T. and Scheltema, N. 2017. Broiler production in South Africa-is there space for small-holders in the commercial chicken coup? DAEERD, University of Pretoria.
- Wong, J. T., de Bruyn, J., Bagnol, B., Grieve, H., Li, M., Pym, R., Alders, R. G. 2017. Small-scale poultry and food security in resource-poor settings: A review. *Journal of Global Food Security*, 15: 43-52.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The largest agricultural sub-sector in South Africa according to the Department of Agriculture, Forestry and Fisheries, DAFF (2016), is the poultry industry and it contributes 1.8% to global broiler production. DAFF (2016) continues to highlight that the total value of production between the years 2014-2015 was 37.2 billion in which 16.5% was of agricultural production gross value. The broiler meat industry is perceived to be better than red meat when it comes to health benefits; therefore it has more pressure to improve its methods of production (Chang, 2007). Commercial producers have access to high quality feed and infrastructure; hence they continue to thrive while small-scale farmers continue to struggle to keep stability of their businesses (Nkukwana, 2017). Their dependency on the government for feed, housing and medication is the reason they struggle to penetrate the commercial world. Despite these challenges small-scale producers play a role in improving food security in indirect ways. Those ways include enhancing nutrient utilisation, contributing to mixed farming practices while empowering woman, environment recycling and also giving access to education and healthcare (Wong *et al.*, 2017). Small-scale producers also contribute to in achieving sustainable development goals. Furthermore, they contribute to the maintenance of biodiversity genomes (Wong *et al.*, 2017).

2.2 Broiler production in South Africa

2.2.1 Commercial / Large-scale broiler production and broiler value chain in South Africa

Poultry makes a significant contribution to food security and nutrition. It provides proteins, energy and other significant nutrients to humans (Mottet and Tempio, 2017). Broilers have a short production cycle and are ready for the market after a rearing period of six weeks. According to Mottet *et al.* (2017) they also have the ability to convert agri-food by products

into eggs and meat that can be consumed by humans. According to DAFF (2016) the broiler industry is the largest South African agricultural sub-sector. It has the same hybrid production structure as the global producers. A few large, integrated firms dominate production of broilers. They account for most of the supply chain (Davids *et al.*, 2017). The entry of new producers and growth of small scale producers to this value chain is disadvantaged by capital requirements as concluded by Davids *et al.* (2017). However Louw (2011) concluded that large firms have led to high concentration levels within the industry. This is said to result in uncompetitive behaviour between high level markets (Davidset *al.*, 2017). In 2011, Rainbow chicken Ltd and Astral foods had majority production (Table 2.1). South African broiler value chain forms part of the global food system. The competitiveness of the chain is controlled by efficiency of other value chains like the soybean value chain (Davids *et al.*, 2017) and the global broiler value chain affects the Value chain system in South Africa through trade.

2.2.2 Small-scale broiler production

One of the foremost ways to identify small-scale broiler farm is by its association with sales to informal market. The communities of Ehlanzeni district are dominated by these farms. Louw *et al.* (2017) concluded that 75% of these farms place less than 1000 chicks per cycle after their analysis. The broiler producers of Ehlanzeni district have chicken houses that accommodate less than 1000 chickens, which further categorizes them as small-scale farms, as in South Africa the production of less than 40000 birds per cycle qualifies a farm to be identified as a small-scale producer (SAPA, 2016). Furthermore Louw *et al.* (2017) continued to state that 70% of the small-scale broiler farmers have chicken housing that can accommodate over 500 chicken. However this statement is not true for the Ehlanzeni district small-scale farmers.

Table 2.1 Commercial chicken producers in South Africa

Producer	Market Share
Rainbow Chicken Ltd	25.04%
Astral foods	22.45%
Country Bird Holdings	7.99%
Tydstroom Poultry (Pioneer Foods)	6.39%
Afgri Poultry	5.97%
Chubby Chicks	5.86%
Sovereign Foods	4.53%
Others	21.77%

Adapted from Davids *et al.* (2017)

Therefore in terms of capacity, small-scale farm's housing is smaller than that of commercial units that can cater for thousands of birds per cycle. This brought the conclusion that small-scale farmers produce significantly less than the benchmark set for small scale commercial production. (Louw *et al.*, 2017). Small-scale broiler farmers obtain one day old vaccinated chicks from their suppliers; these chicks are sold at a higher price than one day olds that have not been vaccinated. Hence there are some farmers that prefer to buy them unvaccinated and do the vaccinations themselves as they they can purchase them at a cheaper price that way. The farmers start their chick with starter mash, then grower and finally finisher. The chickens always need to have access to clean drinkable water. The farmer rears their broilers for five to seven weeks before slaughtering them or selling them as live chickens. These parts of production are similar for both commercial and small-scale producers. The temperature in the housings is controlled with the help of Fans and lights. The farmers constantly monitor the broilers for signs of stress and discomfort, also for signs of injuries and infections. The farmers strive to manage their production similar to large scale farms just on a much smaller scale, because broilers are very sensitive and need careful management for them to grow.

2.2.3 Contribution of broiler production to the livelihoods of communal farmers

A major factor that makes chicken meat one of the most consumed protein sources other than being affordable is that it is universally acceptable, it has the least religious and cultural restrictions. Its affordability is still the leading cause of its popularity; this factor makes it accessible to all groups of people with different income levels (Poultryworld, 2022). Broiler production has proven to be affordable for consumers and profitable for communal farmers despite the rising costs of production such as fuel and feed (DAFF, 2016). The reason being the affordability is that broiler production demands a manageable number of natural resources such as clean water and farmland (Poultryworld, 2022). With the growing population, poultry

production, broilers in particular will remain a major asset and key to poverty alleviation and key to market participation (Mottet *et al.*, 2017).

2.3 Challenges faced by small-scale poultry farmers

Poultry is the fastest growing sub-sector (Mottet *et al.*, 2017) and is expected to grow even more due to the increases in population which as a result will increase demands for meat and eggs. Although this may seem like a good opportunity for famers, it is in fact an opportunity for unprecedented challenges that will affect small holder famers in particular. Moreover the growing market is mostly benefiting large-scale farmers and closing the market for small-scale poultry famers. This will mean increased feed costs and competition. The increased costs of input will result in increased selling price, which tends to be a challenge in poor communities. It can even lead to theft of the broilers from the small-scale farms. Another challenge that small-scale farmers face is having limited access to information, which the government tries to provide through extension officers, however there is not enough officers to reach every broiler producer. Despite being a dominant agricultural sector, the broiler industry is under pressure caused by significant increase in feed costs (Davids *et al.*, 2017). Between years 2005 and 2015, Davids *et al.* (2017) concluded that nominal feed cost increased by 193% while nominal chicken price increased by only 84%. The 15% rise between 2010 and 2015 of share of imports in domestic consumption, raised a concern for the ability of the industry to operate and meet global market requirements in the long run. South African Poultry Association (SAPA) applied for increased tariff protection in 2013 as a response to the concerns (Davids *et al.*, 2017). However, Davids *et al.* (2017) recognised that increasing producer support will be at the cost of lower income consumers, the ultimate solution could not be tariffs. This lead to the conclusion that underlying factors that influence competitiveness should be identified and evaluated.

2.4 Broiler meat quality and nutritional content

Chicken meat has high contents of protein and contains critical nutrients that are important for building strong bones and maintain tissues (DAFF, 2016). All essential amino acids within 300 calories can be found in a single 300-gramme serving, all with vitamin B6, high niacin content and selenium (Poultryworld, 2022). Chicken also has the lowest contents of fat compared to all land-based meat providing animals. What broilers feed on has a significant impact on poultry meat quality and safety. Tissue fatty acids will reflect dietary fatty acid profiles. Well-fed broilers will produce meat that is juicy, tender and flavourful. It is important to handle broiler meat after slaughter in a way that will not hinder biochemical changes that will cause conversion of muscle to meat. This whole process affects meat quality. The right carcass temperature will trigger rigor mortis. Therefore it is essential to keep the right post-mortem carcass temperature. Ultimately genetic variation could affect the rate of rigor mortis, which highlights the importance of using genetic selection as a tool to improve broiler meat quality. The quantifiable properties of broiler meat such as colour, pH tenderness and water holding capacity are found to be indispensable for processors that are involved during manufacture of broiler meat products (Mir, Rafiq, Kumar, Singh and Shukla, 2017). Therefore proper management of meat production continues to be reflected mostly by juiciness, its flavour and tenderness which are consumption features. The best tool for improvements on meat quality is genetic selection (Mir *et al.*, 2017).

2.5 Marketing channels of small-scale broiler producers

Market linkage was noted as a key factor in agricultural productivity (Ayieko, Bett and Kabuage, 2014). However there is little information on the marketing efficiency of small-scale broiler producers and the marketing channels they use. The marketing channel can either be direct or indirect. Commercial farms normally sell through intermediaries (DARLLD, 2020).

This channel has products moving from producers to abattoirs and to wholesalers and retailers before reaching the consumers. This method is time-saving and requires less advertising effort from producers. Since small-scale producers don't have access to all that, it is expected from them to practice direct marketing. With these set ups producers deal directly with customers. There are fewer expenses with this method, but creating brand awareness may be a challenge. How small-scale farmers market their product is not well documented in literature, therefore there is a need for further research in that area.

2.6 Consumer perceptions on consumption of broiler meat

Consumer preference is dependent on purchase price, meat quality and some choices may be personality driven (Mantsho and Hlongwane, 2018). According to Chang, (2007), consumer preference affects the broiler market. The preference commercially is made based on tenderness and juiciness. Another essential factor that affects consumer preference is colour (Mbhele *et al.*, 2019), unusual colour on meat makes it less desirable by consumers. Nkukwana (2017) suggested that realistically, consumers will consume whatever is available and familiar to them. However, he went on to conclude that food prices are an essential tool in making decisions in low-income households and it could be the reason small-scale farmers are supported. This again raises the need for affordable inputs for poultry that will yield meat that meets consumer requirements while not increasing production costs.

2.7 Summary of review

The South African poultry industry is the largest agricultural sub-sector, contributing a significant amount to the global broiler production. The health benefits of broiler meat which include low levels of fat and cholesterol (Bordoni and Danesi, 2017) are perceived to be better than those of red meat. This puts more pressure to the industry to improve and increase production. Factors that affect the production of this industry are access to quality feed and infrastructure, hence commercial producers who have access to these continue to thrive while small-scale continues to struggle to keep stability of their businesses. In South Africa, there are a few large, integrated firms that dominate production of broilers and they account for most of the supply chain. There is a need of more producers in this industry, but the entry of new producers and the ground of small-scale producers to the value chain is hindered by capital requirements. This has led to uncompetitive behaviour high level markets. Small-scale farms are normally characterised by their association with sales to informal market. Most of these farms produce less than 1000 chickens per cycle and according to literature, a farm that produces less than 40000 birds per cycle qualifies to be identified as a small-scale producer. This brings the conclusion that small-scale farmers produce significantly less than the benchmark set for small-scale commercial production. Small-scale producers normally get vaccinated chicks from their suppliers which tend to be a little pricier than those that are not vaccinated. Farmers start their chicks with starter mash, then growers and finally finisher. They also need to have access to clean drinkable water. Farmers keep their chicken for five to seven weeks before slaughtering them. However there are some farmers that sell them at very early developing stages to their fellow small-scale farmers.

2.8 References

- Ayieko, D. M., Bett, E. K. and Kabuage, L. W. 2014. An analysis of the efficiency of indigenous chicken marketing channels in Makueni County, Kenya. *Journal of Agricultural Economics and Development*, 3(2): 26-34.
- Bordoni, A. and Danesi, F. 2017. Poultry meat nutritive value and human health. *Poultry quality evaluation*, 11: 279-290.
- Chang, H. 2007. Overview of the World Broiler Industry: Implications for the Philippines. *Asian Journal of Agriculture and Development*, 4(2):68-82.
- DAFF (South African Department of Agriculture, Forestry and Fisheries). 2016. Abstract of Agricultural Statistics 2012, June 2016. South Africa. [Online]. Available at: <https://www.tandfonline.com/doi/pdf/10.1080/03031853.2017.1302349?cookieSet=1>. [Accessed 06 June 2022].
- DALRRD (Department of Agriculture, land reform and rural development). 2020. A profile of the South African broiler market value chain, 2020. South Africa. [Online]. Available at: <https://www.dalrrd.gov.za/doaDev/sideMenu/Marketing/Annual%20Publications/Broiler%20Market%20Value%20Chain%20Profile%202019.pdf>. [Accessed 07 February 2022].
- Davids, T. and Meyer, F, H. 2017. Price formation and competitiveness of the South African broiler industry in the global context. *Journal of Economics Research, Policy and Practice in Southern Africa*, 56(2): 123-138.
- Louw, L. 2011. Poultry in motion. *Farmlink*, 1(3): 44-47.
- Louw, M., Davids, T. and Scheltema, N. 2017. Broiler production in South Africa-is there space for small-holders in the commercial chicken coup? DAEERD, University of Pretoria.

- Mantsho, S. and Hlongwane, J. 2018. Consumer Perception and preference between broiler and indigenous chicken meat in Limpopo Province, South Africa. The 56th annual conference of the agriculture economics association of South Africa. Limpopo, South Africa.
- Mbhele, F. G. T., Mnisi, C. M. and Mlambo, V. 2019. Insect meal (*Hermetia illucens*) as an alternative protein source for Jumbo quails: Physiological and meat quality traits. MSc thesis, North-West University, North-West, South Africa.
- Mir, N. A., Rafiq, A., Kumar, F., Singh, V. and Shukla, V. 2017. Determinants of broiler chicken meat quality and factors affecting them: a review. *Journal of Food Science and Technology*, 54(10): 2997-3009.
- Mottet, A. and Tempio, G. 2017. Global poultry production: current state and future outlook and challenges. *World's Poultry Science Journal*, 73(2): 245-256.
- Nkukwana, T. T. 2017. Global poultry production: Current impact and future outlook on the South African poultry industry. *South African Journal of Animal Science*, 48(5): 870-884.
- Poultry world. 2022. Broilers. Available at: <https://www.poultryworld.net/poultry/broilers/>. [Accessed 19 February 2022]
- SAPA, 2016. South African Poultry Association- Subsistence and Small commercial farmer Report Q32016. Available at: <https://www.sapoultry.co.za/pdf-statistics/small-commercial-farmer.pdf> [Accessed 07 March 2023].
- Wahyono, N. D. and Utami, M. M. D. (2018). A review of the poultry meat production industry for food safety in Indonesia, *Journal of Physics: Conference Series*, 953.
- Wong, J. T., de Bruyn, J., Bagnol, B., Grieve, H., Li, M., Pym, R., Alders, R. G. 2017. Small-scale poultry and food security in resource-poor settings: A review. *Journal of Global Food Security*, 15: 43-52.

CHAPTER 3: BROILER PRODUCTION, MARKETING CHANNELS AND CHALLENGES FACED BY SMALL-SCALE BROILER FARMERS IN EHLANZENI DISTRICT, MPUMALANGA PROVINCE OF SOUTH AFRICA

3.1 Introduction

Small-scale broiler farming is the practice of producing broiler chickens by using informally trained labourers and feed resources that are locally available (FAO, 2004). This practice's affordability has made it common in rural and semi-rural settlement. The South African Poultry Association (SAPA) highlighted that small-scale broiler producers produce less than 4000 birds per cycle (Farmers Weekly, 2022). They normally produce for both consumption and business, however not operating at a large scale. This does not lessen the benefits which are proving food security and impacting socio-cultural events (FAO, 2004). The production of broilers helps alleviate poverty (Ntuli and Oladele, 2013). Small-scale farms are enterprises that are likely to be getting their animal health services from state veterinarians than getting a private practitioner's services (Farmers Weekly, 2022). Louw *et al.*, (2017) found that small-scale broiler producers produce noteworthy less than the benchmark set for small-scale commercial production.

Broiler production is a business that demands clean water and in most cases not more than one hector of farm land (Poultry World 2022). These reasons make broiler production for small scale farmers possible as the requirements for this business are manageable natural resources. According to FAO (2010), small scale businesses use family labour. Farmers will use the available family member for labour if they can't attend to the chickens themselves. Some famers will take turns looking after the chickens. Since South Africa is unable to meet the demand for domestic market (Ntuli *et al.*, 2013), it is important to maintain and improve ways

of reducing constraints that affect small-scale broiler production. The main aim of the study was to investigate broiler meat production from small-scale poultry farmers in Ehlanzeni District, Mpumalanga Province of South Africa.

3.2 Materials and Methods

3.2.1 Study area

The study was conducted in the communities of Ehlanzeni District in Mpumalanga Province that have small-scale farmers producing broiler chickens. Some of these farmers have been in the business for more than a decade, but still do not meet commercial small-scale broiler production standards. The study area included areas such as Kabokweni, Kamagugu, Kanyamazane, White River, Hazyview, Nkomazi and Matsafeni. The district lies along latitude of 25° 26' 60.00" S and longitude of 30° 58' 58.80" E. These areas form part of the Lowveld zones in Mpumalanga. The climatic conditions in this province are characterized by subtropical condition with warm to hot summer and mild cool winter temperatures, having an average annual rainfall of 682mm and mostly occurring in summer.

3.2.2 Data collection and analysis

Quantitative research design was employed in this study with incorporation of qualitative data. The target population were the small-holder broiler farmers who are captured in the database of the local Department of Agriculture. The sample of participants from the Ehlanzeni District population was selected using convenience sampling method. That method allowed the selection of accessible respondents. Only small-scale broiler farmers were selected, chosen based on their availability and willingness to participate.

There were 152 participants and the expected limitations during this research was not reaching the targeted number of small-scale farmers as the precise number of small-scale broiler

producers in Ehlanzeni district is unknown. Therefore there was no guarantee that the targeted number of participants will be met.

A structured questionnaire was used to employ face-to-face 20-minute interviews with small-scale farmers. The questionnaire was written in English, however administered in the native language of the farmers (IsiSwati). The respondents had to sign a form prior to the interview to give their consent and willingness to participate. The questionnaire is attached as Appendix 1. The collected data was analysed using SPSS 25.0. Descriptive analysis was used to profile households' socioeconomic characteristics and participant's responses.

3.2.3 Ethical Considerations

This study adhered to ethical principles by treating the with respect and without bias. The participants signed a consent form as per university ethics policies on conduction of survey studies. There was briefing of participants about the aim and objectives of the study before they were interviewed. A certificate of ethical clearance was obtained from the University of Mpumalanga's research ethics committee (UMP/Sikosana/201863383/MSc/2023)

3.3 Results and discussion

The demographic information of small-scale farmers from Ehlanzeni District is represented in Table 3.1. Out of the 152 respondents, (62.5%) were females and (37.5%) were males. The majority (45.4%) of the respondents were in the 31-45 years age group, making it the dominant age group among the four age groups that were formed. This suggests that this kind of business is appealing to people who are over 30 years.

Table 3.1 Socio-demographic characteristics of the small-scale broiler farmers in Ehlanzeni

District

Variable	Category	Frequency	Percentage
Gender	Female	95	62.5
	Male	57	37.5
Age group (years)	<30	11	7.2
	31-45	69	45.4
	46-60	54	35.5
	>60	18	11.8
Marital status	Single	29	19.1
	Married	118	77.6
	Divorced	3	2.0
	Widowed	2	1.3
Educational level	No education	0	0.0
	Intermediate (matric)	136	89.5
	Abet	6	3.9
	Tertiary	10	6.6
Number of years in poultry farming	<1 yr	18	11.8
	2-5 yrs	16	10.5
	6-10 yrs	90	59.2
	>10 yrs	28	18.4
Position in the household	Mother	80	52.6
	Father	56	36.8
	Child	10	6.6
	Grandparent	6	3.9
Number of members currently living in your household	<3	0	0.0
	4-5	34	22.4
	6-7	96	63.1
	>7	22	14.5
How many family members are involved in broiler production	0	28	18.4
	1	17	11.2
	2	27	17.8
	>2	80	52.6
Is broiler production your main source of income	Yes	114	75
	No	38	25
Income per production cycle	<1000	0	0.0
	1001-5000	7	4.6
	5001-10000	22	14.5
	>10000	123	80.9
What is your other source of income	Salary	38	25.0
	Pension	16	10.5
	Social grant	84	55.3
	Remittances	4	2.6
	Other	10	6.6

This is in consistence with (White, 2012) who concluded that agricultural businesses tend to be more appealing to older people more than the general youth. Agricultural industry is saturated by people of a mature age than the youth (Ngadi, Zaelany, Latifa, Harfina, Deevi Asiati, Setiawan, Ibnu, Triyono and Rajagukguk, 2023). The majority of the respondents are married (77.6%), with 19.1% respondents single and 2.0% divorced. Only 1.3% of the respondents were widowed. Of the respondents, only 6.6% have obtained tertiary education.. However 89.5% managed to finish their grade 12. A total of 11.8% of respondents had a year and less experience in the poultry farming business. A minority of 10.5% had 2-5 years of experience. A majority of 59.2% had 6-10 years of experience and 18.4% had 11 years upwards of experience. There was a minor percentage of 3.9% representing grandparents owing and running the businesses. Most (63.1%) of these households has 6-7 members residing in them. There were households that had more than 7 members (14.5%), with 22.4% of the households having 4-5 members. Banerjee and Duflo (2007) reported that households from underdeveloped places tend to have high numbers of family members.

A majority (75%) of the participants interviewed used their small-scale farmings as their main source of income and the other 25% has it as a side job. There were no farmers that make less than R1000 from a production cycle. There were 4.6% famers that make R5000 and less, 14.5% making between R5001-R10000, and the rest of the famers were reported to have make more than R10 000 per production cycle. Additionally, income other than the one they get from their poultry business was from their salaries for 25.0% of the farmers. A total of 10.5% of respondents earned pension from the government. Most parents (55.3) received social grant for their children. Two point six percent (2.6%) respondents get remittances and the remaining 6.6% received their income from sources they did not want to disclose.

Figure 3.1 shows the farm management of small-scale broiler producers in Ehlanzeni District. Small-scale famers that were interviewed were in rural areas of Kabokweni, Kamagugu, Kanyamazane, White River, Hazyview, Nkomazi and Matsafeni. Most of these farmers run their farms from home, which is why most (77.6%) of them had ownership of the land they are running their businesses on. Twenty two point four percent (22.4%) of the respondents run a Co-op which meant they share land ownership. Majority (94.7%) of the farms are less than 5ha. This is because these small-scale farmers operate the broiler production business from their backyards. This was also reported by Ralivhesa, Averbek and Siebrits (2013). There were (5.3%) farms that were 6-10ha and they are the biggest farms that are producing poultry in Ehlanzeni.

The main sources of water for these small-scale farms differ. However, most farmers (78.3%) use water they get from the municipality and the remaining 21.7% obtained their water from the bore hole. Similarly, Huang, Xu, Kovacs and West (2017) reported that groundwater sources are more reliable than surface water for small-holder farmers. Since these farms are found in different areas, hence some travel longer distances than others to get to markets where they buy poultry products. There were 50.6% farmers who were reported travelling less than 5km to get to the market. Eighteen point four percent (18.4%) travel 6-30km and 30.9% travel 31-50km to get to where they buy their poultry products. None of the participants travelled more than 50km to get to the market for poultry products.

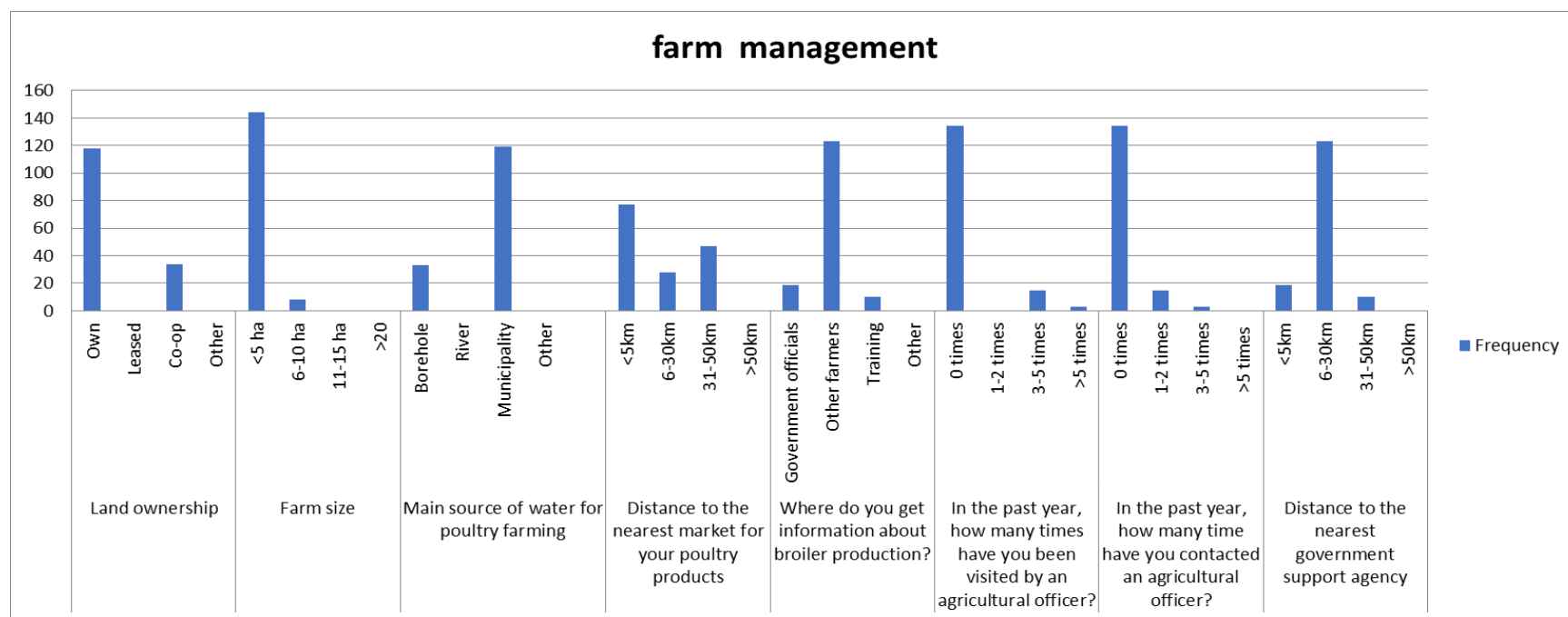


Figure 3.1 Farm management of small-scale broiler producer in Ehlanzeni District

Most of the farmers (80.9%) got their information about broiler production from other farmers. Twelve point five percent (12.5%) farmers received their information from government officials and only 6.6% got training. Eighty eight point one percent (88.1%) of the respondents had not been visited by an agricultural officer in the past year. A total of 9.9% respondents had been visited by an agricultural officer 3-5 times. Only 2% of the respondents had been visited over 5 times. Surprisingly, the closest government support agencies were with 30 km from most (123) respondents, therefore it was concerning how little they knew about having the free will to contact or visit the agencies when they needed assistance. There were 12.5% respondents who were residing less than 5km to the nearest government support agency. Majority of the respondents (80.9%) reported that they resided 6-30km from the nearest government support agency. Six point six percent (6.6%) reside 31-50km away from the nearest government support agency and no respondent lived more than 50km away from it.

Figure 3.2 presents data for small-scale broiler production in Ehlanzeni District. A minority (4.6%) of the respondents had only one house in which they kept their chickens in. Fourteen-point five percent (14.5%) of the respondents had 2 houses that they kept their chicken in. there was a majority of 70.4% of respondents that had 3 houses for their chicken. Lastly, 10.5% had more than 3 houses for their chickens. Eighty five point five percent (85.5%) of the respondents had structured chicken houses. None of the respondents was growing or keeping their chickens in a shack. Four point six percent (4.6%) of the respondents used brick and mortar to make their chicken houses. Nine point nine percent (9.9%) of the respondents had other types of structures to keep their chickens.

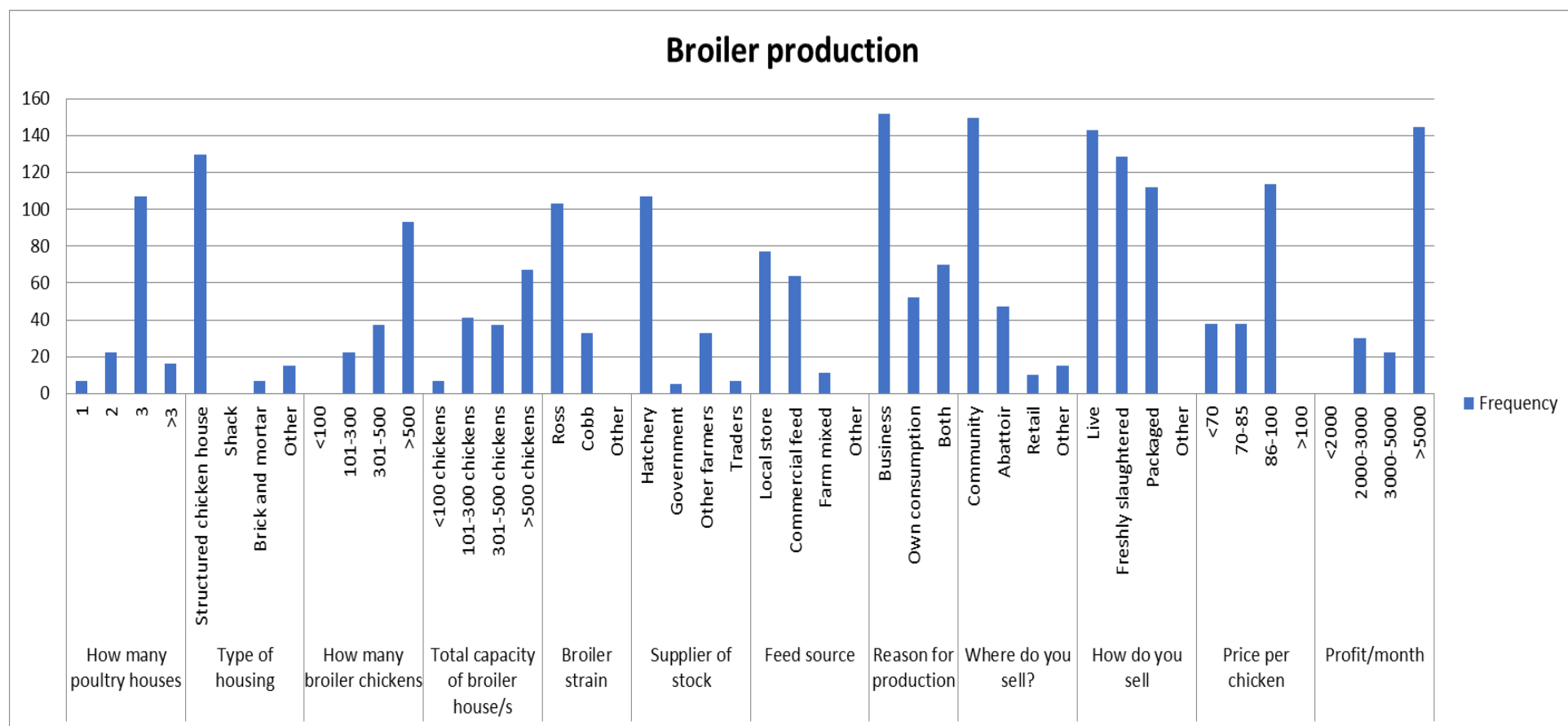


Figure 3.2 Small-scale broiler production in Ehlanzeni District

For a small-scale broiler business to be successful, there are several aspects at play, including the number of poultry houses the farmer has and the type of housing and the capacity of the houses. The majority of respondents had up to three poultry houses. The houses were mostly open-sided broiler houses this was consistent with (Ralivhesa et al., 2013). The chicken houses did not have built in feeding systems and water supply. The farmers manually put in clean water and feed in the chicken houses. Some structures were properly built and some were back rooms that were turned into chicken houses.

The number of chickens each respondent produced was different. There was no respondent that produced less than 100 chickens. There were 14.5% respondents that produced between 101-300 chicken. Twenty four point three percent (24.3%) of the respondents produced between 301-500 chickens. The majority (61.2%) of the respondents produced over 500 chickens. Those were the number of chickens that the respondents produced. There were different capacities that their structures could keep. Four point six percent (4.6%) of the respondents that has housing that had the capacity of less than 100 chickens. Twenty seven percent (27.0%) of the respondents had housing capacity of between 101-300 chickens. There were 24.3% respondents that had chicken houses that had the capacity to keep 301-500 chickens. Lastly, 44.1% respondents had housing with the capacity to keep more than 500 houses. The farmers produce mostly two types of broilers. Seventy eight point three percent (78.3%) respondents produce the Ross broilers and 21.7% respondents produced Cobb. The farmers had different sources from which they got their broilers. Seventy point four percent (70.4%) of the respondents got their chicks from Hatchery and 3.3% got them from the government. There are farmers (21.7%) that got their broilers from other farmer and lastly 4.6% respondents got their broilers from traders.

All the 152 respondents use commercial feed for their broilers. Four point six percent (4.6%) of the respondents produce broilers for business only. There were no respondents that had consumption being their only reason for production. Ninety five point four percent (95.4%) respondents produce chickens for both business and consumption. 150 respondent sell to their communities, however there were some (47) respondents also sell to abattoirs. Only 10 respondents sell to retail and 15 to others that were not represented in the questionnaire. The majority (143) of the respondents sold live chicken. 129 of the respondents sold freshly slaughtered chickens. Lastly 112 respondents sold packaged meat. Prices per chicken varied between R70 and R100 depending on size and age of chicken. 38 respondents sold their chickens for less than R70. 38 respondents sold their chickens for prices between R70-R85. 114 respondents sold their chicken for prices between R86-R100. The profit that producers make varies each cycle. There were producers that made 2000-3000 in profit. 22 respondents made 3000-5000 in profit. Lastly the majority (145) of the respondents made more than 5000 in profit.

There are several challenges that respondents (small-scale farmers) come across. Respondents were asked to share some of those challenges. Sourcing a day old chick was one of them. However, there were 8.5% of the respondents that had no challenge sourcing day-old chicks. Forty-point eight percent (40.8%) of the respondents found it slightly challenging day-old chicks. Table 3.2 show the perceptions on the challenges facing small-holder broiler farmers. Fifty-point six percent (50.6%) respondents found it challenging but none of the respondents found it very challenging. Having access to feed might also be a challenge. However, 80.3% of the respondents found it not challenging getting feed. Nineteen-point seven percent (19.7%) of the respondents found it slightly challenging.

Table 3.2 Perceptions on the challenges facing small-holder broiler farmers

Challenges	Category	Frequency
Source of Day-old chicks	Not challenging	13
	Slightly challenging	62
	Not sure	0
	Challenging	77
	Very challenges	0
Access/Source of feed	Not challenging	122
	Slightly challenging	30
	Not sure	0
	Challenging	0
	Very challenges	0
Price of feed	Not challenging	13
	Slightly challenging	0
	Not sure	0
	Challenging	139
	Very challenges	0
High mortalities	Not challenging	30
	Slightly challenging	122
	Not sure	0
	Challenging	0
	Very challenges	0
Diseases	Not challenging	23
	Slightly challenging	129
	Not sure	0
	Challenging	0
	Very challenges	0
Competition	Not challenging	130
	Slightly challenging	22
	Not sure	0
	Challenging	0
	Very challenges	0
Theft	Not challenging	110
	Slightly challenging	42
	Not sure	0
	Challenging	0
	Very challenges	0
Access to Market	Not challenging	41
	Slightly challenging	111
	Not sure	0
	Challenging	0

	Very challenges	0
	Not challenging	0
	Slightly challenging	0
Support from local government	Not sure	0
	Challenging	15
	Very challenges	137
	Not challenging	90
	Slightly challenging	44
No knowledge/training	Not sure	0
	Challenging	18
	Very challenges	0
	Not challenging	14
	Slightly challenging	20
No farming resources	Not sure	0
	Challenging	118
	Very challenges	0
	Not challenging	0
	Slightly challenging	34
Financial support	Not sure	0
	Challenging	118
	Very challenges	0

None of the respondents found it challenging or very challenging to access feed. When it came to prices of feed majority (91.4%) of the respondents found them challenging. However, there was 8.5% of the respondent that found the prices not challenging. There were respondents (19.7%) that did not have mortality being a challenge during production. There were 80.3% respondents that had mortality being a slight challenge during broiler production. Fifteen point one percent (15.1%) respondents had no disease challenges during production and 84.9% of the respondents had slight challenges with diseases during production. Majority (85.5%) of the respondents didn't have a problem with competition and only 14.5 % of the respondents found competition to be slightly challenging.

Seventy two point four percent (72.4%) of the respondents were not challenged by theft of their chickens and 27.6 of the respondents were slightly challenged by it. With all the challenges that came with running a broiler business, competition was not one of them for most respondents. This was expected as there are studies that highlight the growing demand for poultry meat in South Africa. Camoglu *et al.* (2015), mentions the growing demand for poultry meat and how the market is growing and opening for more producers to come in. Twenty seven percent (27.0%) of the respondents had no challenges accessing the market while 73% of them found it slightly challenging to access the market. The respondents had challenge when it came to getting support from the local government. Nine point nine percent (9.9%) had it just challenging and 90.1% found it very challenging to get support from the local government. When it came to knowledge and training, majority (59.2%) had no challenges and 28.9% of the respondents were slightly challenged. Eleven point eight percent (11.8%) of the respondents was not challenged. Nine point two percent (9.2%) of the respondents were not challenged when it came to getting farming resources. Thirteen point one percent (13.1%) were slightly challenged and 77.6% were challenged by not having farming resources. Financial

support is one of the challenges that respondents were faced with. Twenty two point four percent (22.4%) of the respondents were slightly challenged by this and the rest of the 77.6% respondents were simply challenged by not having financial support.

3.4 Conclusion

Small-scale broiler production in Ehlanzeni District is dominated by women, who never received any formal training on broiler production and farming. There is not much recent literature available covering the training of small-scale producers; however, it can be concluded that any individual can successfully grow broiler chickens without formal training. Nevertheless, small-scale farmers continue to struggle to keep stability of their businesses because of not having access to high quality feed and infrastructure. The other challenges faced by small-scale broiler famers include stock theft, access to market, mortalities cause by diseases, and access veterinary services.

3.5 References

- Banerjee, A. V. and Duflo, E. 2007. The economic lives of the poor. *Journal of Economic Perspectives*, 21(1): 141-167.
- FAO (Food and Agriculture Organisation of the United Nations). 2004. Small-Scale Poultry Production, 2004. Rome. [Online]. Available at: <https://www.fao.org/family-farming/detail/en/c/273616/>. [Accessed 03 November 2023]
- FAO (Food and Agriculture Organisation of the United Nations). 2010. Small scale chicken production, 2010. [Online]. Available at: LINK. [Accessed 03 November 2023].
- Goodhue, R. 2000. Broiler production contracts as a multi-agent problem: Common risk, incentive and heterogeneity. *American Journal of Agricultural Economics*, 82(3): 606-622.
- Huang, Q., Xu, Y., Kovacs, K. and West, G. 2017. Analysis of factors that influence the use of irrigation technologies and water management practice in Arkansas. *Journal of Agricultural and Applied Economics*, 49(2): 159-185.
- Louw, M., Davids, T. and Scheltema, N. 2017. Broiler production in South Africa-is there space for small-holders in the commercial chicken coup? DAEERD, University of Pretoria
- Matlakala, M. E. and Von Kallon, D. V. 2020. System analysis of partible water shortage in the Mpumalanga province of South Africa. Retrieved from <http://www.ieomsociety.org/harare2020/paperrrs/89.pdf>. [Accessed 08 November 2023].
- McCrindle, C. 2021. First-aid basics for small-scale poultry farmers, 2022. South Africa. [Online]. Available at: <https://www.farmersweekly.co.za/animals/poultry/first-aid-basics-for-small-scale-poultry-farmers/>. [Accessed 08 November 2023].

- Ngadi, N., Zaelany, A. A., Latifa, A., Harfina, D., Asiati, D., Setiawan, B., Ibnu, F., Triyono, T. and Rajagukguk, Z. 2023. Challenge of agriculture development in Indonesia: Rural youth mobility and Aging workers in agriculture sector. *Sustainability*, 15(2): 922.
- Ntuli, V. and Oladele, O. J. 2013. Analysis of constrains faced by small scale broiler farmers in Capricorn district in Limpopo province. *Life Science Journal*: 10(1).
- Ralivhesa, K., van Averbek, W. and Siebrits, F. K. 2013. Production guidelines for small-scale broiler enterprises, 2013. South Africa. [Online]. Available at: <https://www.wrc.org.za/wp-content/uploads/mdocs/TT%20568-13.pdf>. [Accessed 26 November 2023].
- SAPA (South African Poultry Association). 2021. Industry profile, 2020. South Africa. [Online]. Available at: <https://www.sapoultry.co.za/pdf-statistics/small-commercial-farmer.pdf>. [Accessed 01 November 2023]
- White, B. 2012. Agriculture and the generation problem: rural youth, employment and the future of farming. *IDS Bulletin*, 43(6): 9-19.

References

- Camoglu, S. M., Serra, T. and Gil, J. M. 2015. Vertical price transmission in the Turkish poultry market: The avian influenza crisis. *Journal of Applied Economics*, 46(11): 1106-1117.
- Cockram, M. S. and Dulal, K. J. 2018. Injury and mortality in broilers during handling and transport to slaughter. *Canadian Journal of Animal Science*, 98(3): 416-432.
- Davids, P. T. 2013. Playing chicken; The players, rules and future of South African broiler production, university of pretoria.
- Fisinin, V. I., Miftakhutdinov, A. V. and Anosov, D. E. 2016. Pharmacological prevention of stress during chicken debeaking. *Russian Agricultural Science*, 42(1): 97-100.
- Gorelik, O., Harlap, S., Derkho, M., Dolmatova, I., Eliseenkova, M., Vinogradova, N., Knysh, I., Ermolov, S., Burkov, P., Lopaeva, N., Bezharin, T., Shariati, M. A. and Rebezov,

- M. 2020. Influence of transportation stress on the adaptation potential of chickens. *Ukrainian Journal of Ecology*, 10(2): 260-263.
- Korver. 2023. Current challenges in poultry nutrition, health and welfare. *Animal (The International Journal of Animal Biosciences)*, 17: 2-4.
- Ntuli, V. and Oladele, O. J. 2013. Analysis of constraints faced by small scale broiler farmers in Capricorn district in Limpopo province. *Life Science Journal*: 10(1).
- Mallick, P., Muduli, K., Biswal, J. N. and Purnama, J. 2020. Broiler poultry feed cost optimization using linear programming technique. *Journal of Operations and Strategic Planning*, 3(1); 31-57.
- Mir, N. A., Rafiq, A., Kumar, F., Singh, V. and Shukla, V. 2017. Determinants of broiler chicken meat quality and factors affecting them: a review. *Journal of Food Science and Technology*, 54(10): 2997-3009.
- Ralivhesa, K., van Auerbeke, W. and Siebrits, F. K. 2013. Production guidelines for small-scale broiler enterprises, 2013. South Africa. [Online]. Available at: <https://www.wrc.org.za/wp-content/uploads/mdocs/TT%20568-13.pdf>. [Accessed 26 November 2023].

CHAPTER 4: SMALL-SCALE BROILER FARMERS' KNOWLEDGE ON CONSUMER BUYING BEHAVIOUR AND MEAT QUALITY.

4.1 Introduction

Chicken meat is of great importance to agricultural production as an efficient source of high-quality protein and is becoming increasingly important. Protein scarcity is a well-documented concern in Africa and poultry is by far the most abundant accounting for nearly 30% of all animal protein consumed worldwide (Permin and Pedersen, 2000). Broiler production contributes largely to the demand as broiler meat is considered a source of animal protein and higher profit gains over short periods. For the meat industry, the term "meat quality" refers to the totality of meat, including its physical, chemical, morphological, biochemical, microbial, sensory, technical, hygienic, nutritional, and culinary properties. It is a term that expresses the characteristics of meat (Bennett et al., 2018). Meat that is safe and suitable for human consumption is categorised as having been processed under adequate sanitation control without excessive chemical residues in the muscle, free of physical contaminants and not causing foodborne infection or intoxication when properly handled and prepared (Codex Alimentarius Commission, 2005).

On the other hand, consumers consider several characteristics to determine the acceptance of meat or food products such as its sensory characteristics, its nutritional value and its impact on health (Muchenje et al., 2009). Consumers expect good quality products derived from healthy animals raised in a healthy environment, to be natural, fresh tasting and nutritious (Joo et al., 2013). Understanding farmer' knowledge towards chicken meat quality and safety could provide valuable information it defines consumer preferences. Therefore, the current studies aimed at determining small-scale broiler farmers' knowledge on meat quality.

4.2 Materials and Methods

4.2.1 Study area

A detailed study area description was given in Chapter 3, Section 3.2.1.

4.2.2 Data collection and analysis

Quantitative research design was employed in this study with incorporation of qualitative data, as explained in Chapter 3, Section 3.2.2.

4.3 Results and discussion

The knowledge that small-scale farmers have on meat quality is recorded in Table 4.1. Seventeen point eight percent (17.8%) of the respondents strongly agreed that they have knowledge about meat quality. Sixty eight point four (68.4%) agreed that they have knowledge about meat quality. Some (2.6%) of the respondents were undecided about having knowledge about meat quality. There were 11.9% respondents that disagreed about having knowledge on meat quality. Majority (83.5%) of the respondents agreed when it came to understanding that meat quality influences buying behaviour and 16.4% disagreed. 85.5% of the respondents agreed that meat quality is important for consumer health. Additionally, 6.6% were undecided and 7.9% disagreed. Concerning the nutritiousness of broiler meat, 78.9% of the respondents agreed that chicken meat is highly nutritious, 9.86% were undecided and 11.2% disagreed that it is nutritious. When it comes to meat colour, 86.4% of the respondents agreed that meat colour dictates its freshness. Six point six percent (6.6%) respondents were undecided and 6.6% disagreed. Finally 96.0% respondents agreed that they produce good quality meat and 3.9% were undecided about the quality of the meat they produce.

Table 4.1 Small-scale broiler farmers' knowledge on meat quality

Variable	Category	Frequency
I have knowledge about meat quality	Strongly agree(1)	27
	Agree (2)	104
	Undecided (3)	4
	Disagree (4)	17
	Strongly disagree (5)	0
I understand that meat quality influences buying behaviour	Strongly agree(1)	0
	Agree (2)	127
	Undecided (3)	0
	Disagree (4)	25
	Strongly disagree (5)	0
Meat quality is important for consumer health	Strongly agree(1)	0
	Agree (2)	130
	Undecided (3)	10
	Disagree (4)	12
	Strongly disagree (5)	0
Chicken meat is highly nutritious	Strongly agree(1)	0
	Agree (2)	120
	Undecided (3)	15
	Disagree (4)	17
	Strongly disagree (5)	0
Meat colour dictates its freshness	Strongly agree(1)	0
	Agree (2)	132
	Undecided (3)	10
	Disagree (4)	10
	Strongly disagree (5)	0
I produce good quality meat	Strongly agree(1)	0
	Agree (2)	146
	Undecided (3)	6
	Disagree (4)	0
	Strongly disagree (5)	0

Lastly, most of the respondents agreed that they produce good quality meat. Their reasoning behind this belief stemmed from the fact that they got their one day old chicks from trusted suppliers. They further explained that they follow the proper procedure when it came to feeding their chicken. Starting with making sure that their chickens had access to clean drinkable water at all time they had starters, grower and for the final weeks they had finisher for their chicks. Feeding the chickens in that order ensures healthy growth and finally tasty meat (Ralivhesa et al., 2013).

4.4 Conclusion

This study has used qualitative methodology to gain understanding of the small-scale broiler farmer's knowledge about meat quality. It can be concluded that the knowledge and farming experience of the respondents was dominated by informal training. Although the respondents didn't have scientific terms, they understood that meat quality was important for consumer health. They agreed that the nutritional content and colour dictates the freshness and quality of meat. The information from this study suggested the lack of training for small-scale broiler farmers. Agricultural extension support is essential to provide farmer awareness programs about meat production to meet consumer expectations.

4.5 References

- Mallick, P., Muduli, K., Biswal, J. N. and Pumwa, J. 2020. Broiler poultry feed cost optimization using linear programming technique. *Journal of Operations and Strategic Planning*, 3(1); 31-57.
- Permin, A., Pedersen, G., 2000. Problems related to poultry production at village level. Presented at the Possibilities for Smallholder Poultry Projects in Eastern and Southern Africa, Morogoro (Tanzania), 22-25 May 2000, KVL.
- Petracci, M., Mudala, S., Soglia, F. and Cavani, C. 2015. Meat quality in fast-growing broiler chickens. *World's Poultry Science Journal*, 71(2); 363-374.
- Poultry world. 2022. Broilers. Available at: <https://www.poultryworld.net/poultry/broilers/>. [Accessed 19 february 2022]
- Ralivhesa, K., van Averebeke, W. and Siebrits, F. K. 2013. Production guidelines for small-scale broiler enterprises, 2013. South Africa. [Online]. Available at: <https://www.wrc.org.za/wp-content/uploads/mdocs/TT%20568-13.pdf>. [Accessed 26 November 2023].

CHAPTER 5: SUMMARY, SIGNIFICANCE OF FINDINGS, RECOMMENDATION AND CONCLUSIONS

General discussion

Small-scale broiler producers from Ehlanzeni District are doing fairly well in their communities. There is a lack of professional education and training among them. However this does not necessary hinder the success of producing at the rates that they do, although this could be one of the main factors that hinder them from entering the commercial small-scale field. Those are producers that produce more than 2000 chickens per production cycle (Ralivhesa *et al.*, 2013). They producers did not get their knowledge passed down from their elders then they got it from other farmers. Most of the producers did not lease the land they were running their farms on. This was mostly because they were running their farms from their homes, commonly in the back yard and got one of their major resources which were water from the municipality in the form of tap water. They got commercially produced feed from their local stores. Feed is the down fall for many producers as feed prices are forever increasing. The small-scale producers from Ehlanzeni produce for both business and consumption. They take some of their chickens from their farms and eat them as their protein source. Having access to these chickens is considered as another way of ensuring food security in the villages (Gunya *et al.*, 2020). Prices per chicken for their businesses vary according to size and age. The highest the producers normally sell their chickens for in 2023 is R100. Due to the varying prices for the chickens it also means the profit that the producers make will differ from time to time. Although small-scale producers in this district are doing fairly well, there are challenges that they encounter with their line of business. Major challenges included sourcing day-old chick, feed, water and medication. These resources were accessible for producer the problem was the prices that have been increasing drastically over the years. These meant prices for inputs are always going up

and it's not easy for them to keep up with them. Things that were expected to be a problem like high mortalities, competition and access to market were not problematic for producers. This is in agreement with the conclusion that DAFF (2016) made, which was that the broiler industry is a growing industry, so there is enough room for more producers. Chicken meat is the most consumed meat according to producers however it is not necessarily their favourite meat product. Producers find chicken meat to be affordable, easily accessible; hence the majority of the producers have it 3-5 times per week. The producers agreed to have knowledge about meat quality and the importance of the meat to human health. The majority of the producers buying behaviour are influenced by price, expiry date and visible fat. Most importantly taste, tenderness and juiciness.

Conclusions

The responses given by small-scale poultry producers from Ehlanzeni district in Mpumalanga firstly highlighted the lack of formal training among the producers. The business in this scale is dominated by mature females. The business is the main source of income for most of the producers and is playing an important role in alleviation of poverty. The farms are mostly run from their homes in structure chicken houses. The producers raise 500 chicks at most; however some have produced up to 2000 chicks per cycle. Producers unanimously use commercial feed the only differences were their suppliers. Most of the respondents used boards and posters as their main marketing channel, not much effort is put in this department, and they mainly count on word of mouth. There is a waiting list when ordering day-old chicks which is major challenge as it can delay a new production cycle especially if the order is not done on time. High prices of feed and medication continue to hinder the growth of broiler businesses. Solemnly relying on informal education results in stagnancy of most businesses and the yearly educational programs that the government brings to the people are not enough.

Recommendations

Looking at the findings from this overview, small-scale producers can improve production by getting the individuals who are running the business formal training. The improvements on the management could bring growth and sustainability. It is recommendable that the government puts in place more programs that will elevate small-scale producers. Lastly, the increase of extension officers could bring about positive and uplifting change to the people in area like that of Ehlanzeni district. How small-scale farmers market their product is not well documented in literature, therefore there is a need for further research in that area.

References

- DAFF (South African Department of Agriculture, Forestry and Fisheries). 2016. Abstract of Agricultural Statistics 2012, 2016. South Africa. [Online]. Available at: <https://www.tandfonline.com/doi/pdf/10.1080/03031853.2017.1302349?cookieSet=1>. [Accessed 06 February June 2022].
- Gunya, B., Muchenje, V., Gxasheka, M., Tyasi, L. T. and Masika, P. J. 2020. Management practices and contribution of village chickens to livelihoods of communal farmers: The case of Centane and Mount frere in Eastern Cape, South Africa. *Biodiversitas*, 21(4): 1345-1351.
- Ralivhesa, K., van Averbek, W. and Siebrits, F. K. 2013. Production guidelines for small-scale broiler enterprises, 2013. South Africa. [Online]. Available at: <https://www.wrc.org.za/wp-content/uploads/mdocs/TT%20568-13.pdf>. [Accessed 26 November 2023].

Appendices

Consent Form for MSc Research Survey

SMALL-SCALE BROILER MEAT PRODUCTION IN EHLANZENI DISTRICT, MPUMALANGA PROVINCE OF SOUTH AFRICA

Informed consent

This is a survey study undertaken by a Masters student from the University of Mpumalanga. The aim of the study to determine the perceptions of small-scale broiler farmers on production, their level of knowledge and the challenges they face. The information required is on the production, marketing, understanding of meat quality and social dynamics. All the information provided here will be treated as strictly exclusive. Data gathered by this questionnaire will be used only for the purpose of this intended study. Personal and socio-economic information of respondents will be kept confidential and no mention of names shall be made in the final report that shall be compiled. For purposes of report, it is hereby required that consent is given through signing below before the beginning of the interview

To qualification to participate in this study one must be a small-scale broiler producer located in Ehlanzeni district.

Should you agree to participate in this study, you will be required to share your personal information and experience with production. Participation is voluntary.

Questionnaire no. _____

Village _____

Name of Business _____

Signature _____

Date _____

Questionnaire



UNIVERSITY OF
MPUMALANGA

Creating Opportunities

QUESTIONNAIRE FOR SMALL-HOLDER POULTRY FARMERS in EHLANZENI DISTRICT, MPUMALANGA

Title: Small-scale broiler meat production in Ehlanzeni District, Mpumalanga Province of South Africa

This is a survey study undertaken by a Masters student from the University of Mpumalanga. The aim of the study to determine the perceptions of small-scale broiler farmers on production, their level of knowledge and the challenges they face. The information required is on the production, marketing, understanding of meat quality and social dynamics. All the information provided here will be treated as strictly exclusive. Data gathered by this questionnaire will be used only for the purpose of this intended study. Personal and socio-economic information of respondents will be kept confidential and no mention of names shall be made in the final report that shall be compiled. For purposes of report, it is hereby required that consent is given through signing below before the beginning of the interview.

Signed.....

Date.....

A. SMALL-SCALE FARMER'S DEMOGRAPHIC INFORMATION

Gender	Male	Female
---------------	------	--------

Age	<30	31-45	46-60	>60	
Marital status	Single	Widowed	Divorced	Married	
Highest educational qualification	No education	Primary	Secondary	Tertiary	
No of years in poultry farming	< 1 yr	2– 5 yrs	6 – 10 yrs	>10 yrs	
Position in the household	Mother	Father	Child	Grandparent	
No of member currently living in your household	<3	4-5	6-7	>7	
How many family members are involved in broiler production?	0	1	2	>2	
Is broiler production your main source of income?	YES		NO		
Monthly income from broiler production	<1000	1001-5000	5001-10000	>10000	
What is your other source of income	Salary	Pension	Social grant	Remittances	Other

B. SMALL-SCALE FARM SIZE, MANAGEMENT AND SOURCE OF INFORMATION

Land ownership	Own	Leased	Co-op	Other	
Size of the poultry farm in Ha	<10 ha	10 – 20 ha	>20 ha		
Main source of water for poultry farming	Borehole	River	Municipality	Rainwater	Other
Distance to the nearest market for your poultry products	<5km	6-3- km	31-50 km	>50 km	
Where do you get information about broiler production?	Government officials	Other farmers	Training	Other	
In the past year, how many times have you been visited by an agricultural officer?	0 times	1 - 2 times	3-5 times	>5 times	
In the past year, how many time have you contacted an agricultural officer?	0 times	1-2 times	3-5 times	>5 times	
Distance to the nearest government support agency	<5km	6- 30 km	31-50 km	>50km	

B. SMALL-SCALE BROILER PRODUCTION (BUSINESS)

How many poultry houses	1	2	>2	
Type of housing	Structured chicken house	Shack	Brick and mortar	Other
How many broiler chickens	<100	101 - 300	301-500	>500
Total capacity of broiler house/s	<100 chickens	101-300 chickens	301-500 chickens	>500 chickens
Broiler strain	Ross		Cobb	Other
Supplier of stock	Hatchery	Government	Other farmers	Traders
Feed source	Local store	Commercial feed	Farm mixed	Other
Reason for production	Business		Own consumption	Both
Where do you sell?	Community	Abattoir	Retail	Other
How do you sell	Live	Freshly slaughtered	Packaged	Other
Price per chicken	<70	70-85	86-100	>100
Profit/month	<2000	2000-3000	3000-5000	>5000

C. PERCEPTIONS ON THE CHALLENGES FACING SMALL-HOLDER

BROILER FARMERS. (How challenging are the following factors in your business).

CHALLENGES	Not challenging	Slightly challenging	Not sure	Challenging	Very challenging
Source of Day-old chicks					
Access/Source of feed					
Price of feed					
High mortalities					
Diseases					
Competition					
Theft					
Access to Market					
Support from local government					
No knowledge/training					
No farming resources					
Financial support					

**D. SMALL-SCALE FARMERS' OWN MEAT CONSUMPTION PREFERENCES,
KNOWLEDGE ABOUT QUALITY AND THEIR BUYING BEHAVIOUR**

Favourite meat product	Beef		Mutton	Chicken	Pork	Other
Why do you eat chicken?	Flavoursome/Taste		Affordable	Available/Convenient	Nutritious – protein	Good appearance
How often do you eat chicken meat per week?	1 time		2-3 times	3-5 times		>5times
Where do you buy chicken?	Own farm		Street vendor/farm	Butchery		Supermarket
What do you think about the price of chicken?	Cheap		Affordable	Expensive		Good value for money
Preferred product	Live		Freshly Slaughtered	Full Chicken		Portions
What affects your	Price	Quality	Carcass class	Packaging	Appearance	Purchase point

buying decision?						
Preferred chicken cut	Thigh		Wing	Drum	Breast	Giblets
Preferred cooking method	Boiled		Fried	Grilled	Braai	
Preferred level of fat	Lean		Moderate	Fat	Very Fat	
E. BROILER FARMERS KNOWLEDGE ON QUALITY. Please indicate how you agree or disagree with the following statements.						
	Strongly agree (1)	Agree (2)	Undecided (3)	Disagree (4)	Strongly (5) disagree	
I have knowledge about meat quality						
I understand that meat quality influences buying behaviour						

Meat quality is important for consumer health					
Chicken meat is highly nutritious					
Meat colour dictates its freshness					
I produce good quality meat					
F. BROILER FARMERS' OWN BUYING BEHAVIOUR (How important are the following factors when buying broiler meat)					
	Not important	Slightly important	Undecided	Important	Very important
Price					
Expiry date					
Packaging					

Brand name					
Purchase point (where you are buying)					
Colour					
Visible fat					
Taste					
Tenderness					
Juiciness					