
**COMPARISON OF DEFECTS ON HIDES AND SKINS DURING SLAUGHTER,
PRESERVATION AND STORAGE AT LUGAZI MUNICIPAL SLAUGHTER SLAB,
BUIKWE DISTRICT AND TORORO MUNICIPAL ABATTOIR, TORORO DISTRICT**

BY

OCHAMA JERMENA

BU/UP/2013/1703

Email:ojermena@gmail.com




**A DISSERTATION SUBMITTED TO THE FACULTY OF AGRICULTURE
AND ANIMAL SCIENCES IN PARTIAL FULFILMENT OF REQUIREMENT FOR
THE AWARD OF DEGREE OF BACHELOR OF ANIMAL PRODUCTION
AND MANAGEMENT OF BUSITEMA UNIVERSITY**

AUGUST, 2016.

DECLARATION

I **OCHAMA JERMENA** hereby declare that this dissertation is my own work and has not been submitted to any other institution of higher education.

Signature.......... Date..... 14/08/2016.....

APPROVAL

This dissertation has been submitted for marking with the approval of my supervisor;

Mr. KATENYA GEORGE BAPTM-(MUK)


Teaching Assistant

Department of animal Production and Management

Faculty of Agriculture and Animal sciences

Busitema University

P.O Box 203, Soroti

Signature.......... Date..... 17/06/2016.....



Copyright © 2016: **OCHAMA JERMENA**

Busitema University, Uganda

All rights reserved

DEDICATION

I dedicate this dissertation to my beloved family; the family of the late Mr. Ochama Benedict. You have made me into who I am. Thank you very much and I love you very much. God bless you always!

ACKNOWLEDGEMENT

There are a number of people that I wish to acknowledge for this great achievement that I have attained.

Foremost, I wish to express my sincere gratitude to my supervisor, Mr. Katenya George for guiding me and helping me complete my dissertation. Thank you very much.

Secondly, I thank the members of staff of the Department of Animal Production and Management, more also the course coordinator Mr. Mbogua Joseph and madam Akullo Jolly for the knowledge and guidance they shared with me. God bless you all.

I also thank the office of the District Veterinary Office of Buikwe district and Tororo district respectively, for permitting me to carry out my research in their respective domains. The field assistants, the workers in the respective study areas; Lugazi municipal slaughter slab and Tororo municipal abattoir, thank you very much for your time and effort. God bless you all abundantly.

I thank my family and friends in a special way for the love they have shown me all my life. I have reached this far because of your untiring advice, patience, care and love. God bless you all.

Lastly, I thank my God for watching over me all throughout my life and for bringing me this far. May he continue to watch over us all.

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	li
ACKNOWLEDGEMENT	iii
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT.....	ix
CHAPTER ONE	1
1.1 INTRODUCTION.....	1
1.1.1 Background to the study.....	1
1.1.2 Statement of the problem	2
1.1.3 Objectives of the study	3
1.1.4 Research questions.....	3
1.1.5 Significance of the study.....	3
1.1.6 Justification of the study	3
1.1.7 Scope of the study	4
CHAPTER TWO	5
2.1 Literature review	5
2.1.1 Overview of the hide and skin recovery process from animals in an abattoir and slaughter slab.	5
2.1.2 Defects during slaughter, preservation and storage.....	6
2.1.3 Causes of defects during slaughter, preservation and storage.....	7
CHAPTER THREE.....	9
3.1 MATERIALS AND METHODOLOGY	9
3.1.1 Research approach	9
3.1.2 Sampling design	9
3.1.3 Operational design	10
3.1.4 Observational design.....	10
3.1.5 Data analysis and presentation	10
3.1.6 Ethical consideration.....	10
3.1.7 Environmental consideration.....	10

CHAPTER FOUR.....	11
4.1 RESULTS	11
4.1.1 Prevalence of defects on hides and skins in both study areas; slaughter slab and abattoir	11
CHAPTER FIVE.....	16
DISCUSSION OF RESULTS	16
CHAPTER SIX	20
6.1 CONCLUSION	20
6.2 RECOMMENDATIONS	21
References.....	22
APPENDICES	25

LIST OF TABLES

Table 1: showing comparison between causes of defects on hides and skins at slaughter slab and abattoir during the recovery process.....14

Table 2: showing a data collection sheet.....25

LIST OF FIGURES

Figure 1: pie-chart showing prevalence of defects on skins at abattoir.....	11
Figure 2: pie-chart showing prevalence of defects on hides at abattoir.....	12
Figure 3: pie-chart showing prevalence of defects on skins at slaughter slab.....	12
Figure 4: pie-chart showing prevalence of defects on hides at slaughter slab.....	13
Figure 5: showing recommended flaying and ripping knives.....	25
Figure 6: diagrams of some of the different defects encountered during the study.....	26
Figure 7: showing student carrying out flaying.....	27
Figure 8: showing map of Tororo district, Osukuru sub-county.....	28
Figure 9: showing map of Lugazi.....	28

LIST OF ABBREVIATIONS

UBOS	Uganda Bureau Of Standards
GDP	Gross Domestic Product
UNIDO	United Nations Industrial Development Organization
US	United Nations
UGA	Uganda
USD	United States Dollar
UK	United Kingdom
LIU	Leather Industries Uganda
ULAIA	Uganda Leather and Allied Industries Association
UMA	Uganda Manufacturers Association
MTTI	Ministry of Tourism, Trade and Industry
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
FAO	Food and Agriculture Organization
TDS	Total dissolved Salts
WHO	World Health Organization
ESGPIP	Ethiopia Sheep and Goat Productivity Improvement Program
CSA	Central Statistical Authority

ABSTRACT

The study was conducted from Lugazi municipal slaughter slab, Buikwe district and Tororo municipal abattoir, Tororo district for a period of one month, between the months of March and April. The objective of the study was to assess and compare the different defects incurred on hides and skins during slaughter, preservation and storage and their causes in both the study areas. It was done through a close observation of the animals in the Lairage prior slaughter, during slaughter, flaying, preservation and storage of recovered hides and skins. A total of 200 hides and 60 skins were sampled; 100 hides each from slaughter slab and abattoir and 30 skins each from both the study areas. Data collected was entered in excel and analyzed using Statistical Package for Social Scientists (SPSS). The defects identified in the study included; flay cuts (14% on skins, 17% on hides at abattoir and 32% on skins, 22% on hides at slaughter slab), knife cuts (11% on skins, 12% on hides at abattoir and 20% on skins, 16% on hides at slaughter slab), Veininess (34% on skins, 34% on hides at abattoir and 19% on skins, 33% on hides at slaughter slab), irregularities (16% on skins, 16% on hides and 24%, 19% on hides at slaughter slab) and putrefaction (25% on skins, 21% on hides at abattoir and 5% on skins, 11% on hides at slaughter slab). Their causes were; carelessness by the flayers, inappropriate equipment, dirty environment, no stunning, no hoisting of carcass, lack of skills by flayers and insufficient bleeding. Veininess was the most significant defect observed in both study areas. Most defects occurred during slaughter therefore, more attention should be taken during slaughter; the animals should be stunned, the flayers should be trained, they should use the right knives for making ripping lines and flaying, the carcasses should be hoisted for sufficient bleeding and hygiene should be kept during the activities.

CHAPTER ONE

1.1 INTRODUCTION

1.1.1 Background to the study

Among the developing countries Uganda inclusive, there is a total contribution of 232,600 (57%) of the world sheep skins and 95% of the world goat skins. Uganda alone has a livestock population of 11.4million cattle, 3.4million sheep, 12.5millions goats, 3.2million pigs and 37.5million poultry (UBOS, 2009). Livestock currently contributes 25-30% of Agricultural GDP of developing countries. This contribution is projected to rise to close to 50% over the next 20years.

Despite its significance as a livestock producer, Africa accounts for only 8% of world production of cattle hides and about 14% of goat and sheep skins. Further, even though African countries often rank leather high in importance as export commodity, leather and leather products generally account for less than 4% of total exports (Jobbar et al., 2002)

The relatively low quality of the skins from Africa amount to less than one percent of the total international trade of this commodity group (Dasanayaka and Sardana, 2009). Most traders complained that they got their products rejected one or another time and or price lowered. In Ethiopian tanneries, 35% of sheep and 56% of goat skins have been downgraded and rejected due to pre, slaughter and post slaughter defects. (Ahmed, 2000)

The major defects at slaughter were; knife cuts, foul odor of the products, small size and discoloration of hides and skins due to improper preservation (flay cuts or scores (11.1%), holes (6.7%) and poor pattern (0.5%)). Therefore, producers should get training on factors causing low quality products on the live animal and also at and after slaughter and traders should be trained about proper preservation methods and grading products (MEDac, 1999)

These defects are caused due to of lack of village level slaughter slabs and drying sheds with water and hygienic conditions which have a major effect on the quality of the African raw hides. Putrefaction is a particularly serious problem. Hides and skins that have started to putrefy are not suitable even for poor quality leather.

References

- Ahmed, A. H. (2016). Critical strategic factors affecting value addition of raw hides and skins in Kenya. *International Journal of Social Sciences and Project Planning Management*, 1(5), 1-16.
- Berhanu, W., Negussie, H., Alemu, S., & Mazengia, H. (2011). Assessment on major factors that cause skin rejection at Modjo export tannery, Ethiopia. *Tropical animal health and production*, 43(5), 989-993.
- CSA (Central Statistics Authority), 2004: Report on livestock and livestock characteristics (private peasant holdings), statistical Bulletin No 331, Vol II, Addis Ababa, Ethiopia. P.14)
- ESGPIP (the Ethiopia Sheep and Goat Productivity Improvement Program) SHEEP, C. D. O. (2009). TECHNICAL BULLETIN No. 19 COMMON DEFECTS OF SHEEP/GOAT SKINS IN ETHIOPIA AND THEIR.
- FAO (Food and Agriculture Organisation), 2010: study of hides and skins collection and processing. Food and Agriculture Organisation of the United Nations, *UN Complex Pulchowk, Nepal*
- Gupta, S., Gupta, R., & Tamra, R. (2007). Challenges faced by leather industry in Kanpur. *Indian Institute of Technology Kanpur, India*.
- Jabbar, M. A., Kiruthu, S., Gebremedhin, B., & Ehui, S. (2002). *Essential actions to meet quality requirements of hides, skins and semi-processed leather from Africa* (No. 182887).
- John, G. (1996). *Possible Defects in Leather Production: Definitions Causes, Consequences, Remedies and Types of Leather*. Gerhard John.
- Kagunyu, A., Wayua, F., Ngari, E., & Lengarite, M. (2011). Factors affecting marketing of hides and skins in pastoral communities of northern Kenya. *KARI-Marsabit Technical Report*.
- Kagunyu, A., Mohammed, S., Okoti, M., Wayua, F., Mesele, S., Haile, G., ... & Kero, U. (2007). Pastoral conflict and use of key resources along the Ethiopia-Kenya border: Implications for policy and development. *Research Brief*, 07-04.
- Kanagaraj, J., Sastry, T. P., & Rose, C. (2005). Effective preservation of raw goat skins for the reduction of total dissolved solids. *Journal of Cleaner Production*, 13(9), 959-964.
- Leach, I. (1995). *Hides and skins for the tanning industry* (No. 123). Food & Agriculture Org.
- Leach, I., & Wilson, R. T. (2009). Higher value addition through hides and skins. *FAO Diversification Booklet*, (8).

Mahmud, A. (2000, November). Development potential and constraints of hides and skins marketing in Ethiopia. In *The opportunities and challenges of enhancing goat production in East Africa. Proceeding of a conference*. Markel, RC, Abebe, G. and Goetsch, AL (eds.) (pp. 113-117).

MA, J. Z., ZHANG, Z. J., & CHU, Y. (2004). PREVIEW OF ADVANCED TECHNOLOGIES IN THE FUTURE LEATHER-MAKING INDUSTRY [J]. *Journal of Shaanxi University of Science & Technology*, 3, 011.

Mbogo, E., & Malala, E. (2007). Hides and skins manual for the arid and semi arid lands of Kenya. *Nairobi: ALLPRO*.

Ministry of Education, 2007: Uganda Secondary Education and Training Curriculum, Assessment and Examination road map for reform
Muthee, A. (2008). MSME Competitiveness Project Ministry of Trade and Industry Integrated Value Chain Analysis of the Leather Sector in Kenya. *Nairobi, Kenya*.

Muthee, A. M. (2008). Integrated value chain analysis of the leather sector in Kenya. *Ministry of Trade and Industry/World Bank, Nairobi, Kenya*.

Mwinyihija, M. (2011). Preview on hides, skins and leather sub-sector in Kenya. *Ministry of Livestock Development, Nairobi, Kenya*.

Mwinyihija, M. (2010). Hides, skins and leather value addition initiatives: the Kenyan Scenario. *Leather and Leather Products Development Division, Ministry of Livestock Development, Kenya*.

Mwinyihija, M. (2014). Analysis of the trading regime of the leather value chain strata in Kenya. *Business Management and Strategy*, 5(2), 12-32.

Mwinyihija, M. (2014). Evaluation of Productivity Responses from the Leather Value Chain Strata in Kenya. *Business Management and Strategy*, 5(2), 104-124.

Mwinyihija, M. (2014). Evaluation of Competitiveness Responses From the Leather Value Chain Strata in Kenya. *Research in Business and Management*, 2(1), 1-24.

Okuni J, Bwangamoi O, and Ojok L, 2011: factors leading to low grading of goat skins in selected abattoirs, stores and a tannery in Uganda; *Animal and Bio medicine*

Omiti, J. (2004). *Production and marketing problems in the hides, skins, and leather sector in Kenya*. Institute of Policy Analysis and Research.

Smith, G. C., Pendell, D. L., Tatum, J. D., Belk, K. E., & Sofos, J. N. (2008). Post-slaughter traceability. *Meat Science*, 80(1), 66-74

Koloka, O., & Moreki, J. C. (2010). Performance of hides and skins subsector in Botswana: A critical review. *Livestock Research for Rural Development*, 22(5).

Tesfaye, J., Dubie, T., & Terefe, G. (2015). Evaluation of hide and skin market chains in and around shashemene town. *Scientia*, 10(3), 119-126.

Tolossa, Y. H. (2013). Skin Defects in Small Ruminates and Their Nature and Economic Importance: The Case of Ethiopia. *Global Veterinaria*, 11(5), 552-559.

UNIDO (*United Nations Industrial Development Organisation*) Temsch and Marchich 2002, programs funded by Austria to strengthen the Leather sector in Uganda

USAID (United States Agency for International Development) Behailu, A. (2015). *ASSESSMENT OF PRE-AND POST SLAUGHTER HIDE AND SKIN DEFECTS AND THEIR ASSOCIATION WITH CARCASS CONDEMNATION IN TWO WOREDAS OF EAST ARSI ZONE, ETHIOPIA* (Doctoral dissertation)

Wayua, F. O., & Kagunyu, A. (2008, May). Empowering pastoralists through local options for livelihood diversification: hides and skins value addition and marketing in Northern Kenya. In *Animal Production Society of Kenya (APSK). 2008 Annual Symposium, "Empowering Livestock keepers through Growth in Agribusiness"*, KARI-Katumani.

Wayua, F. O., & Kagunyu, A. (2012). Constraints and opportunities in the hides and skins value chain in pastoral areas of northern Kenya. *Livestock Research for Rural Development*, 24(8).