

# HIDE AND SKIN QUALITY FACTORS AND MARKETING SYSTEMS IN GONDAR TOWN, ETHIOPIA

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✉Supporting Information

**ABSTRACT:** The study was conducted with the objective of assessing the type of defect affecting quality and marketing systems of hide and skin in Gondar town. Four kebeles were selected purposively based on intensity of fattening, degree of slaughtering frequency and number of hide and skin collection and traditional processing center and 15 household from each kebeles (a total of 60) were interviewed. Data were collected by developing semi structured questionnaires and direct observation. Collected data was organized, summarized and analyzed using SPSS version 20. The result indicated that all (100%) of examined hide and skin had one or more types of pre and post slaughter defects. The major types of pre slaughter defects responsible for the decline in quality of hide and skin were by ecto parasite (28.3), yolk mark (15 %), bloat surgery (31.7%), horn rake (6.7%), rope mark (8.3), branding (5%) and the rest 5% were thorn scratches. The finding also revealed that post slaughter defects were flaying cut (51.7%), poor pattern (13.3), putrefaction (16.7%) and improper fleshing (18.3%). Most of the respondents (95%) absence of defect, freshness and size were used as criteria for assessing the quality of hide and skin. It was observed that marketing was accomplished at four levels: producer, middlemen, collection center and tannery. Majority (75%) of respondents reported to sold hide and skin to the formal market for their cash income. Producers were price takers and buyers had power on price determination. It can be concluded that the both pre and post-slaughter defects have the potential to reduce quality of hide and skin. So, training should be given for livestock holders and market actors since most of the defect can be avoided through careful management of the animal, hide and skin.

**Keywords:** Defects, Gondar, Hide and skin, Marketing, Quality factors

## INTRODUCTION

The agricultural sector in Ethiopia, engaging 85% of the population, contributes 52% to the gross domestic product (GDP) and 90% to the foreign exchange earnings (CSA, 2008). Ethiopia is believed to have the largest livestock population in Africa (CSA, 2017). The varied and extensive agro-ecological zones and the importance of livestock in livelihood strategies make Ethiopia home to large numbers of livestock. Indeed, Ethiopia has the largest livestock inventory in Africa, 59,486,667 cattle, 30,697,942 sheep and 30,200, 226 goats, 8,439, 220 donkeys, 409, 877 mules, 2,158, 176 horses and 59,495, 026 chickens (CSA, 2017).

In Ethiopia hides and skins contribute much to the export earnings from the livestock sector. In addition, it has a large contribution to the leather industry in the country. Livestock hide and skin contribute significant proportion of domestic leather. Girma (2003) reported that, Ethiopia has been exporting hides and skins in the past 100 years. The country has big potential to develop the sub-sector. In 2002, hides and skins represented major source of foreign exchange earnings for the country accounting for 14-16% of the total export revenue. Hides and skins are the basic raw materials for the leather industry. Currently there are about 27 tanneries in the country and have an average capacity of 4,000 pieces of hides and 30,000 pieces of skins per day (EEA, 2007/08). Based on the off-take rate of 7%, 33% and 35% for cattle, sheep and goat respectively, it is expected to produce 3.1 million hides, 7.8 million sheep skins and 8.2 million goat skins (CSA, 2004; 2007).

The quality of hide and skin is to large extent related to the amount of damage to the grain (or outside) surface. The damage may be due to skin parasite that affects the live animal. Husbandry practice on the farm or in transport of live animal (scratches, bruising or dry contamination, horn rake); it may be due to damage during slaughter or it may be caused by in appropriate handling or in adequate preservation techniques (Adugna, 2004).

In Gondar Ethiopia, most people do not preserve hide and skin before selling, this make putrefaction and this has a significant negative effect on the quality of the hides and skin. An in-depth study of the hide and skin quality management and marketing was necessary in order to gain an insight into marketing chain, the key factors involved and constraints attached to various stages of actors. Since the above factors have not been studied in the study area, there was a need to assess quality management and marketing of hide and skin to fill the existing problem in the study area.

## MATERIAL AND METHODS

### Description of the Study Area

The study was conducted in Gondar town, Amhara Regional State, Ethiopia. The area is located at a distance of 738 km away from Addis Ababa in North West of Amhara region. The area lies between latitude and longitude of 12°36'N 37°28'E with an elevation of 1966 meters above sea level. Gondar has a varied landscape, dominantly covered with ragged hills and plateau of land formations. The annual average temperature and rain fall were 19.7 °C and 1772 mm, respectively which could be categorized under mid highland climatic zone. The area is also classified mainly in to two seasons, the wet season, ranging from June to September and the dry season extended from October to May (CSA, 2017).

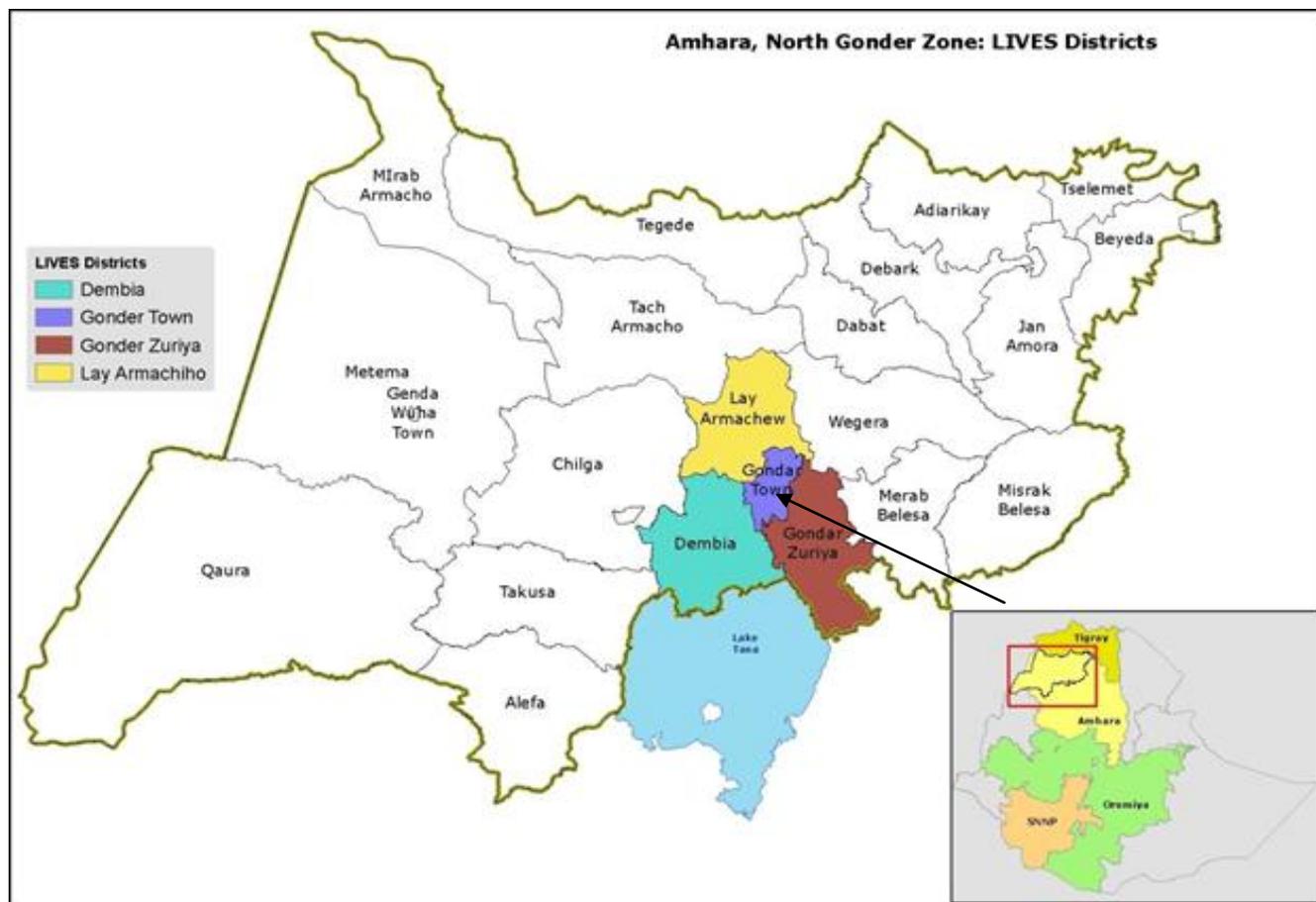


Figure 1 - Map of the study area. Source: (Kahsay, 2005)

### Sampling Techniques and Methods

At the beginning of the study pilot survey were undertaken to understand and update the existing information about hide and skin management and marketing systems. During the survey, producers (farmers and butchers), middlemen, local processors and collection centers were identified. Four representative kebeles were purposively selected based on intensity of fattening, degree of slaughtering frequency and number of hide and skin collection centers. From each selected kebeles, fifty households were selected randomly for interviews. From each respondent 50 of them were producers (farmers and butchers) and rest 3 middle mens, 2 collection centers and 5 were local processors those were located in the study area.

The study was conducted by using both primary and secondary source of data collection on various aspects of hides and skins quality management practices and marketing system. The primary sources of data were collected by developing semi structured questionnaires. The questionnaire includes data on perception of major criteria for quality of hides and skins, pre and post slaughter hides and skins management practices and marketing of hide and skins.

### Data Analyses

Data was done by using Microsoft excel spread sheet and analyzed using SPSS software version 20.0 and descriptive statistics was used to quantify and summarized the data.

## RESULTS AND DISCUSSTIONS

### Characteristics of Household

The current finding revealed that 75 % of respondents were male and 25% were female. About 58.3% respondents were found in age group 19-40, 38.3% of the respondents were between 41-65 years and 3.3% were above 65 years old. Most of respondents 50% were illiterate and the rest 33.3% completed primary school and 16.7% of respondents had joined secondary school and above. In terms of their occupation 83% were farmers or producers, 5% middlemen, 3.3% collection center and 8.3% of respondents were local processor (Table 1). In this regard, producer (farmer), middlemen, collection center and local processors were identified as major actors in the hide and skin quality management and marketing for this study.

Description		N(HH)	%(HH)
Age	Below 18	0	0
	19-40	35	58.3
	41-65	23	38.3
	Above 65	2	3.3
	Total	60	100.0
Sex	Male	45	75.0
	Female	15	25.0
	Total	60	100.0
Occupation	Farmer	50	83.3
	Middlemen	3	5.0
	Collection center	2	3.3
	Local processor	5	8.3
	Total	60	100.0
Education	Illiterate	30	50.0
	Primary school	20	33.3
	Secondary school and above	10	16.7
	Total	60	100.0

### Home Base Utilizations of Hides and Skins

This study also established that some of the hides and skins remain at the production site for local use without entering the formal market (Table 2). The major raw material that was left for local use was from rejected hide and skin due to defect factors from market. Hide and skin used by respondents for domestic purposes from which majority of them (31.7%) uses hide and skin for seat cover. Whereas the rest respondents 26.7%, 23.3% and 18.3% were used for making rope, kurbet making for bed and milk container, respectively.

### Judge Criteria and Quality of Hide and Skin

Based on the survey result there were different criteria used by respondents to judge the quality of hide and skin. The finding indicates that 63.3%, 30%, 6.7% of hide and skin owners were judge by size of skin and hide, absence of defect and freshness of hide and skin, respectively. As per annual hide and skin production the average quality judgment of hide and skin 61.7%, 31.6% and 6.7% of the respondents were agreed good, fair and poor, respectively.

### Defects of Hide and Skin

**Pre Slaughter Management Defect:** Respondents raised number of problems related to livestock production and quality of hides and skins. Production Problems that constrained of respondents summarized in Table 2 indicated that 28.3% of hide and skin were affected by ecto parasite, 15% yolk mark, 31.7% bloat surgery and 6.7% horn rake, 8.3 rope mark, 5% branding and 5% affected thorn scratches. This indicates that the main problem that affects hide and skin quality before slaughtering in the study area were bloat surgery and ecto parasite. This finding agreed with Zenaw and Mekonen (2012) report that ecto parasite has the major tendency to damage skin directly.

Items	N(HH)	%(HH)
Making rope	16	26.7
Kurbet for bed	14	23.3
Seat cover	19	31.7
Milk container	11	18.3
Total	60	100.0

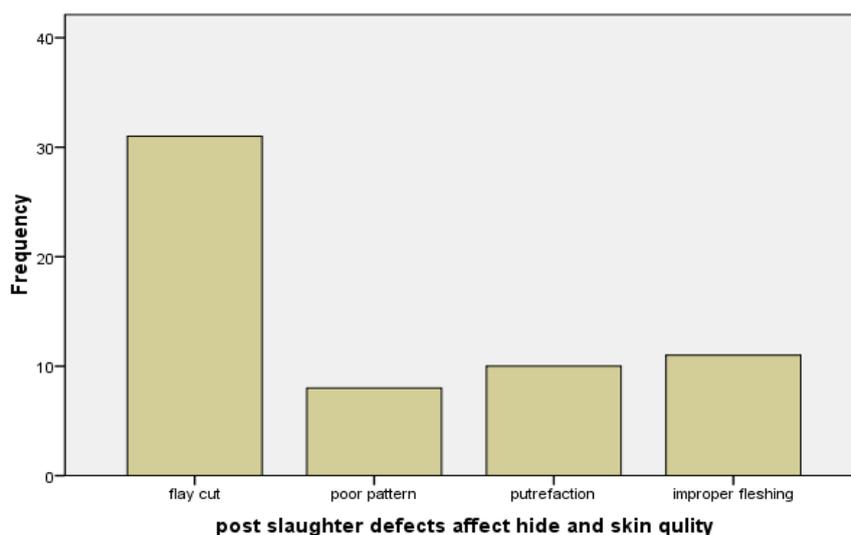
**Table 3 - Pre Slaughter Factors affecting hide and skin quality**

Factors		N(HH)	%(HH)
Defects	Ecto parasite	17	28.3
	Yolk mark	9	15.0
	Bloat surgery	19	31.7
	Horn rake	4	6.7
	Rope mark	5	8.3
	Branding	3	5
	Thorn scratches	3	5
	Total	60	100.0

### Post Slaughter Defect

In the study area hide and skin of an animal can be affected by different types of defects such as flay cut (31.7), poor pattern (13.3), putrefaction (16.7) and improper fleshing (18.3). This is similar with the report of CSA (2004) which stated that poor pattern (34.79%) and knife cut (20.04%) were the major post slaughter defects of hide and skin in different parts of Ethiopia. The current finding consistent with in Ethiopian tanneries, 35% of sheep and 56% of goat skins were reported to be downgraded and rejected due to pre and post slaughter defects (Berhe, 2009; Berhanu et al., 2011).

**post slaughter defects affect hide and skin quality**



**Figure 3 - Post slaughter defects affect hides and skins**

### Marketing systems of hide and skin

**Price Determinants and price variation of Hides and Skins:** Based on key informant discussion selling price of hides and skins increase as it goes from farmers to tannery (Table 3). Producer earn better price when they sold hide and skin to collection center than when they sold them to middlemen. In the study area prices of hides and skins have been reported to be determined mainly by the buyer and the seller did not determine the selling price. In fact, all producers, middlemen and collection center also respond that buyers have power on price determination. All respondents (100%) said that there was the price variation from time to time. Collector centers mentioned that it was due to the price variation of tannery and export demand of the hid and skin; market price of the hide and skin is high when the demand of the export of the product is high. And the price of hides and skins reaches high on holiday rather than other days. Because of at the time of holiday there is competition between collector of hides and skins.

**Table 3 - Selling price of hide and skin to different market actors from September-April 2017**

Products	Market actors and average price in birr		
	Producer to middlemen	Producer and middlemen to collection center	Collection center to tannery
Sheep skin	45	55	80
Goat skin	20	27.5	35
Cattle hide	25	30	40

### **Market Chain of Hide and Skin**

Majority of producer sold their raw hides and skins to middlemen followed by collection centers and also some sold to local processor. On the other hand, middlemen sold their raw hides and skins to collection center and also the collection center sold their raw materials to tannery. Producer mostly sold hides and skins to middlemen (70%), local processors (20%) and collection centers (10%) that are near to collection center. All middlemen sold their raw hide and skin to collection center and the collection center sold to other collection center and Addis Ababa and Bahir-Dar tanneries.

### **CONCLUSION AND RECOMMENDATIONS**

From the result of this study it was concluded that there were a number of pre- and post-slaughter defects that affecting the quality of the raw hide and skin. However, they have clearly ascertained that they were still causing one or more of those defects both before and after slaughtering. From pre slaughter defects the prevalent factors that can be affect hide and skin quality are skin disease and mechanical damage. Among skin disease ecto parasite was a serious problem mentioned by respondents. From mechanical damage: bloat surgery, thorn scratches, horn rake, rope mark and yolk mark were common factors of hides and skin defect in the study area. From post slaughter defect flay cut, poor pattern, improper fleshing and putrefaction defects are mentioned by respondents can reduce quality of hide and skin. The major actor of hide and skin in the study area were producers (farmer, butchers and abattoir), middle men and collection centers. Buyers played the major role in price determination during selling and buying of hide and skin. Respondents used various criteria to identify the quality of the hide and skin such as absence of defect, size, and freshness.

Based on the above conclusion the following recommendation should be undertaken to improve hide and skin quality and marketing in the study area:

- ❖ Training should be given for livestock holders and market actors since most of the defect can be avoided through careful management of the animal
- ❖ To reduce the impact of ecto parasite the appropriate and strategic control measure should be applied by animal health service.
- ❖ Bloat surgery is the dominant one from mechanical hide and skin defects in the study area. So, awareness of people for other bloat treatment and feeding strategy option should be given
- ❖ There should be forwarding adequate information for farmers to sell hide and skin to collection center in order to sell their hide and skins with better price.
- ❖ The government should create national price standards to minimize the price variation

### **DECLARATIONS**

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#### **Author's contribution**

All authors contributed equally to this work from starting proposal writing up to preparation of manuscript.

#### **Acknowledgements**

The authors would like to Acknowledged University of Gondar, college of veterinary medicine and animal sciences, department of animal production and extension for their fulfilling the facilities and materials. The authors also would like to thank Beuro of agriculture for providing the required information without hesitation.

#### **Competing Interests**

The authors declare that they have no conflict of interest with respect to the research, authorship or publications of this manuscript.

### **REFERENCES**

- Adujna A (2004). Guide line document for hide and skin quality and marketing improvement survey of sheba Tannery in Tigray, unpublished Addis Ababa.
- Berhanu W, Negussie H, Alemu S and Mazengia H (2011). Assessment on major factors that cause skin rejection at Modjo export tannery, Ethiopia. *Tropical Animal Health Production*. 43: Pp. 989-993.
- Berhe A (2009). Assessment of hides and skins market in Tigray Region: The case of AtsbiWemberta woreda, Eastern Tigray, Institutes of Regional and Local Development Studies, Addis Abeba University, Addis Ababa, Ethiopia.

- CSA (2004). Report on livestock and livestock characteristics (private peasant holdings), statistical bulletin, Addis Ababa, Ethiopia. Volume II: Pp.142.
- CSA (2008). Agricultural Sample Survey 2007/08. Volume II. Report on Livestock and livestock characteristics. Statistical Bulletin 417. Addis Ababa: FDRE.
- CSA (2017). Report On Livestock and Livestock Characteristics (Private Peasant Holdings). Agricultural Sample Survey 2016/17 volume ii. Statistical Bulletin 578, II (March 2016). Addis Ababa, Ethiopia.
- EEA (2007/08). Report on the Ethiopian Economy: Volume VII 2007/08. Addis Ababa Ethiopian economic association.
- Girma M (2003). Opportunities and Challenges of Hides and skins Trade in Ethiopia. In Opportunities and Challenges of Livestock Marketing in Ethiopia. Yilma Jobre and Getachew Gebru .Proc. of the 10<sup>th</sup> Annual conference of the Ethiopian Society of Animal Production (ESAP) held in Addis Ababa, Ethiopia, August 22-24, 2002. ESAP, Addis Ababa, Pp. 407.
- Kahsay B (2005). Diagnosis and intervention plan for north Gondar zone, Amhara region.
- MEDC (1999). Survey of Ethiopian economy Review of post reform development Ministry of Economic Development and cooperation (MEDc).
- Zenaw Z and Mekonen A (2012). Assessment of major factors that cause skin defect at Bahr-Dar tannery, Ethiopia, microbiology and veterinary public health team, school of veterinary medicine, collage of agriculture and veterinary medicine, Jimma University.