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Full length Research paper

Study on Marketing and Constraints of Hide and Skin in three Selected Districts of Gambella Region, South West Ethiopia.

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Livestock also plays an important role in providing export commodities, such as live animals, hides and skins to earn foreign exchanges to the country. Therefore, this study was conducted in three selected districts of Gambella regional state with the objective to assess the marketing and constraints of hide and skin in three selected districts of Gambella regional state. The sample size of the study was estimated to be 384 (128 from Gambellazuria, 128 from Godare and 128 from Lare) using the formula stated in Thrust field. The quantitative data was organized, summarized and encoded on excel sheet and analyzed with the help of Statistical Analysis System (SAS) 9.2 version 2008.Most farmers (75%) interviewed sell their hide and skin to Woreda's level hide and skins collectors in their closest proximity. Moreover, 54.17% of the farmers' sell their hide and skin to village level hide and skin collectors. Almost all the respondents reported that they use rejection methods of hide and skins about 87.24%, 38.94% and 33.85% throwing on the ground, burying and giving for dog, respectively. Generally, the average selling price of hide and skin in Godare, Lare and Gambellazuria were significantly ($p<0.05$) different.

Key words: Farmers, Hide and Skin, Livestock, Marketing, Slaughtering.

INTRODUCTION

The livestock subsector has an enormous contribution to Ethiopia's national economy and livelihoods of many Ethiopians, and still promising to all round economic development of the country. Hides and skins contribute much to the export earnings from the livestock sector to African countries specially Ethiopia (Juhar, 2015).The livestock products meat, milk, eggs, wool, hides and skins on average account for 28% of agricultural GDP of Sub-Saharan African countries (CSA, 2011).The opportunities of hides and skins sector in Ethiopia are raw material availability due to the large livestock base in pastoral areas, ready market, there is a growing national and international market for hides(Mohammed,2019). Hides and skins are the byproducts after animals are slaughtered for meat consumption or killed. They have wide importance specially used as a source foreign currency of the leather industry to Ethiopia. On the other hand, these products are not utilized efficiently due to production of low-quality products and problem of the market (Juhar, 2015).The hides and skin from the sources (usually the household across the country) are normally collected by village-level collectors, intermediary traders/collectors, and large traders/wholesale suppliers (Behailu,2017). Hide and Skins are important economic products contributing to the largest share of the total and agricultural export commodities followed by live animals in Ethiopia (Alemnesh, 2018).

Most of the producers sell their hides and skins after slaughtering their cattle and small ruminants respectively producers sell their products to local collectors/middlemen. When hides and skins are not sold in the formal market, majority reported that they either discard it in case of putrefaction or sell them for local craftsmen to prepare different materials such as mat, stool covers, harnessing materials, bed mat etc. Better price was not the cause of keeping hides and skin for domestic use since respondents confirmed that they did

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not earn better revenue by selling or using it locally (Juhar,2015).

Asegede (2015) reported that only 31 and 44.14%, respectively of household respondents sell skin to formal market. There were also several respondents' who ascertained that they use especially cattle hide for making household utensils. Factors adversely affecting the production and utilization of hides and skins as reported by the interviewed households were insufficient slaughtering houses and facilities, poor slaughtering system, poor animal husbandry practices, and lack of training on production and marketing of hides and skins as extension service with their decreasing index values of 0.208, 0.171, 0.153, and 0.136, respectively (Feleke, 2016). Gambella is one of the potential regions which consists of the population number of 253,389 cattle, 39,564 sheep and 83, 897 goats (CSA, 2013). Despite high livestock population and existing favorable environmental conditions, the current livestock output of the region is little. Hence, the objective of this study was to assess the marketing and constraints of hide and skin in three selected districts of Gambella regional state.

MATERIAL AND METHODS

Description of the study area.

Gambella People's National Regional State (GPNRS) is located South West part of Ethiopia between the geographical coordinates 6^0 28'38" to 8^0 34' North Latitude and 33^0 to $35^0$11'11" East Longitude, which covers an area of about 34,063 km^2 which is about 3% of the nation.

The Region is bounded to the North, North East and East by Oromia National Regional State, to the South and South East by the Southern Nations and Nationalities People's Regional State and to the Southwest, West and Northwest by the Republic of South Sudan. The mean annual temperature of the Region varies from 17.3^0C to 28.3^0C and annual monthly temperature varies throughout the year from 27^0C to 35^0C. The absolute maximum temperature occurs in mid-March and is about 45^0C. The annual rainfall of the Region in the lower altitudes varies from 900-1500mm. At higher altitudes it ranges from 1,900-2,100mm. The annual evapo-transpiration in the region reaches about 1,612mm and the maximum value occurs in March and is about 212mm (CSA, 2013). Livestock population of the region is about 253,389 cattle, 39,564 sheep and 83, 897 goats (CSA, 2013).

Study Design and Population

The study was involved field visits and observation, focus group discussions and key informant interviews. The study population was the producers of cattle hide and skin of sheep and goats.

Sampling Procedures and Determination of Sample Size

The three districts of the region called Gambella Zuria, Godare and Lare districts were purposively selected based on the ecology and potential of hide and skin production in the region. These districts were chosen as they are the major livestock producing and meat product user areas of the districts and slaughtering slabs and traders are found in these towns and the rural PA were selected randomly based on the accessibility and security. The sample size of the study was estimated to be 384 (128 from Gambellazuria, 128 from Godare and 128 from Lare) using the formula stated in Thrust field (2007).

$$N = \frac{Z^2 \propto 2\,P\,(1-P)}{d^2} = \frac{1.96^2 * 0.5\,(1-0.5)}{0.05^2} = 384$$

Where **P=** Proportion of people who knows about hide and skin preservation; since the preservation of hide and skin in the study area is not known, the researchers took 0.5 as a standard.

Z= 1.96 at 95% confidence interval

d= expected margin of errors, i.e. 0.05

N= required sample size

Method of Data Collection

Different data collecting techniques were applied to collect primary and secondary data which include individual interviews with the help of semi structured questionnaires and direct observation. The researchers also visited the slaughter houses, and stores where hides and skins were stored. In addition, informal discussions were held with a group of households in each of the town and with hide and skin traders.

Methods of Data Analysis

The quantitative data was organized, summarized and encoded on excel sheet and analyzed with the help of Statistical Analysis System (SAS) 9.2 version 2008.Qualitative data derived from direct observations and key informants was examined and presented in form of discussions. Descriptive statistics was used to run to give frequencies. Tables were used to present different variables. Chi-square was used to evaluate the statistical significance of the difference between towns and stakeholders where P value <0.05 was considered significant.

The effects of class were expressed as Least Square Means (LSM) ± SE and means were separated using Least Significance Difference (LSD).

The statistical model used for the study was:

$Yijk = m + k + ejk$

Where: Yjk = the observed (weight of hide and skin in the

j^{th} and k^{th} district
m = overall mean
k = the effect of districts (k=1, 2, 3)
ejk = random residual error

RESULTS AND DISCUSSION.

Market places of hide and skin in the study area.

Majority of farmers (75%) interviewed sell their hide and skin to Woreda's level hide and skins collectors in their closest proximity and moreover, 54.17% of the farmers' sell their hide and skin to village level hide and skin collectors (Table 1) which is comparable with the data reported by (Alemnesh, 2015).

Despite the presence of village level collectors, there is no extension agent working on selling of hides and skin quality management as a focus area exists. So, farmers do not get any advice/orientation about selling their hide and skin to proper persons and general management system of selling hide and skin rather than their own indigenous knowledge. Contrary to this opinion of farmers, key informants interviewed in the Woreda Agricultural offices argue that farmers are getting advices or consultations on selling of hide and skin and including its quality management.

Table. 1. Hide and Skin sold by farmers to the village and woreda level collectors

Buyers of hide and skin from farmers in percentage	District			Overall mean
	Godare	Lare	GambellaZuria	
To Village level collector	89(69.53)	77(60.16)	42 (32.81)	54.17%
To Woreda level collectors	65 (50.78)	119(92.97)	104 (81.25)	75%

The rejection methods of unsold hide and skin at farmers' level.

Assessment of knowledge on the rejection methods of unsold hide and skins revealed that 56% of the respondents knew the impact of improper preservation on the quality of raw hide and skin, therefore, if the hide and skin were not sold they use different methods of rejection such as throw on the ground, bury and giving/provide for dog (Table 2). According to the respondents, reasons for rejecting hide and skin are market inaccessibility, absence of government support in providing preservation salt, absence of giving priority and poor-quality, so that waiting the next market day is a common practice and unattractive market price.

Almost all of the respondents reported that they use rejection methods of hide and skins about 87.24%, 38.94% and 33.85% throwing on the ground, burying and giving for dog (Table 2) respectively, which is comparable with the result reported by Behailu (2015) 87.23% and 29.25%ofthe respondents throw on the ground and bury unsold hide and skins in the Dodota and Hetosa Woreda's, respectively. Observation on hide and skin rejected by the reasons of un-acceptances by buyers or hide and skin collectors in Lare, Godare and Gambella Zuria Woreda indicates there was also seen that immediate salting after buying was not a common practice (Figure 1).

Table 2. The rejection methods of unsold hide and skin at farmer's level

Rejection methods (%)	District			Over all mean
	Godare	Lare	GambellaZuria	
Throwing on the ground	98(76.56)	114 (89.06)	123 (96.09)	87.24%
Burying	46(35.94)	54 (42.19)	22 (17.19)	38.04%
Giving for dog	34(26.56)	49 (38.28)	47 (36.72)	33.85%

Figure 1. The rejection method of hide by throwing on the ground.

Hide and skin weight estimation by farmers.

The average weight of hide and skins was significantly ($p<0.05$) different between the study Woredas (Table 3). The hide and skin in Godare was significantly heavier when compared to their counterparts in Lare and Gambellazuria districts. The weight for hides was 18.48 kg, 13.07 kg and 13.37 kg in Godare, Lare and Gambellazuria district, respectively. Similarly the weight of sheep skin was 5.49kg, 4.47kg and 4.71kg and the weight for goat skins was 4.34kg, 3.59kg and 3.41kg in Godare, Lare and Gambellazuria district, respectively which is in agreement with 14.57kg for hide and 3.37kg for skins (Alemnesh, 2015).The weight of hide and skin also varied significantly among the districts due to various reasons (Figure 2).

Significant variations were observed in the study areas which are important traits that allow better in the market for price judgment especially when the hide and skins sold at Woreda level collectors centers.

Table 3: The weight of hide and skin measured during selling

Weight in kg (mean ± SE)	**District**			**Significance Level**
	Godare	Lare	GambellaZuria	
Cattle hide	18.48±0.36[a]	13.07 ± 0.15[b]	13.37±0.26[b]	*
sheep skin	5.49±0.18[a]	4.47 ± 0.17[b]	4.71±0.11[b]	*
Goat skin	4.34±0.19[a]	3.59 ± 0.15[b]	3.41±0.13[b]	*

Figure 2: Cattle hide weight measurement in Godare Woreda.

[a,b,]Means in a row with different superscript letters denote significant differences between populations or sampling woreda ($p < 0.05$) and asterisks (*) within a column indicate significant differences between hide and skins for the weight parameter at the 5% level of probability and (ns) = non-significance. Generally, a wide range of weight variations of hide and skin was observed in this study which might be attributed to many factors, mainly due to variations in management practices between households, climate condition, and the availability of feed resources and feed supplements. Thus, the presence of variations in weight among the hide and skins indicates an opportunity for hide and skins quality improvement through selection of the source of hide and skins.

Selling price of hide and skin in the study area.

Majority of farmers sell their raw hide and skin to collection centers followed by middlemen and on the other hand, most middlemen sell their raw hide and skin to collection centers. Selling price increases as it goes from producers to collection centers. Producers earn better price when they sell hide and skins to collection centers than when they sell them to middle-men.The average selling price of hide and skin in Godare, Lare and Gambellazuria were significantly ($p<0.05$) different (Table 4). The average selling price of hide and skin found in this study is comparable with the reported average value of 10.5 birr, and 32 birr for the cattle hide and sheep skin in Adami Tulu –Jido-kombolcha and Bora but lower than goat skin value 7.5 birr reported, by (Alemnesh, 2015).

Table 4: The price of hide and skin in the study area

Price in Birr	District			Significance level
	Godare	Lare	GambellaZuria	
Cattle hide	16.27±0.39[a]	10.69±0.19[c]	12.39±0.29[b]	*
sheep skin	33.65±0.43[a]	16.94±0.43[c]	25.13±0.43[b]	*
Goat skin	4.29 ±0.04[a]	3.28±0.01[b]	3.30±0.03[b]	*

[a, b,c]means in a row with different superscript letters denote significant differences between populations or sampling woreda ($p < 0.05$) and asterisks (*) within a column indicate significant differences between hide and skins for the selling price parameter at the 5% level of probability.

Generally, a wide range of selling price variations of hide and skin were observed in this study which might be attributed to many factors, mainly to the variations in management practices of hide and skin between market availability, middlemen, collector centers, and the availability of market price information sources and awareness of the farmers. Thus, the presence of variations in selling price among the hide and skin indicates an opportunity for hide and skin market chain structure improvement through government strategies and policies on importance of the hide and skin value.

Types of hide and skin sold by farmers.

All of farmers interviewed ascertained that they sell hide and skin in fresh state/type which was not preserved by using different preservation methods to their closest proximity. So, some of them take hide and skin to middlemen, but majority of farmers in study area sell their hide and skin to collector centers while some of them use traditional type of mechanisms like for bedding which was not sold. Assessment of knowledge on the impact of improper type of hide and skin selling to collectors revealed that all (100 %) of the respondents use fresh type of hide and skin to sell (Table5).

According to the respondents, reasons for selling fresh type of hide and skins is lack of awareness on preservation methods, absence of giving priority value to hide and skin, so that this leads to unattractive market price.

However, almost all the respondents reported they do not use sun and salt drying method of hide and skin preservations for market or collection centers.

An investigation on major type of hides and skin sold by farmers indicated that none (0.00%) of the respondents from Godare, Lare and GambellaZuria Woreda's, respectively replied that, there was no extension service regarding post-slaughter management of hide and skins (Table5).

The types of knife used by farmers during slaughtering the animals.

Identification on the major types of knife used for slaughtering animals indicated that 32.81% and 100% of the respondents from Godare, Lare and Gambella Zuriaworeda, respectively replied that, they use flying and bleeding knife during slaughter management of hide and

Table 5: Types of hide and skin sold by farmers

Types of hide and skin (%)	District Godare	Lare	GambellaZuria
Fresh	128 (100.00)	128 (100.00)	128 (100.00)
Sun dried	0 (0.00)	0 (0.00)	0 (0.00)
Salt dried	0 (0.00)	0 (0.00)	0 (0.00)

Table 6: The types of knife used by farmers during slaughtering.

Types of knife (%)	District			Overall Mean
	Godare	Lare	GambellaZuria	
Flying knife	43(33.59)	34 (26.56)	49 (38.28)	32.81%
Bleeding knife	128(100.00)	128 (100.00)	128 (100.00)	100 %
Cutting knife	0(0.00)	0 (0.00)	0 (0.00)	0.00%

Table 7: Types of slaughtering house/abattoirs /in the study areas.

Slaughtering house /abattoirs	District		
	Godare	Lare	GambellaZuria
Abattoirs	**No**	**No**	**No**
Slaughtering house/slab	**Yes**	**No**	**Yes**
Mini Private slaughtering place	**Yes**	**Yes**	**Yes**

Figure 3: Mini-slaughter place in Lareworeda.

Skins (Table 6). Flying knife shortage and inadequate awareness was also mentioned as major constraint that could ultimately contribute to lower hide and skin quality. During this assessment hide and skin defect assessment was made through visual inspection at collection centers in the study Woreda's.

Consequently, the most common defects observed were flaying defect. Berhe (2009) in Tigray also reported that disease and fly cut were the main defects of the hide.

The types of slaughtering house/abattoirs in the study areas.

Figure 4: slaughter slab in GambellazuriaWoreda.

Figure 5: Improper storage of hide storage.

Figure 6: Improper storage of sheep skin.

Figure 7: Improper storage of sheep and goat skin.

The current study on the assessment of slaughtering' practices in relation to hide and skin management showed that none (0.00%) of the study Woreda's have abattoir, however Godare and Gambellazuria have the slaughtering slab/house, where as there is no slaughtering house/abattoir in Lareworeda. All these study areas have also mini-private slaughtering place(Table1 to 7). The survey results also indicated that the respondents use slaughtering place at home closet proximity during slaughter the animals.An assessment observation shows that there were no slaughtering house/abattoir in Lareworeda and slaughtering is done in an open space reserved for this purpose(Figure 3).On the other hand, there was a small slaughter slab in Godare and Gambella Zuriaworeda that has cattle hide preservation and storage facility(Figure 4). The hide and skin collected in study areas by main collection centers stay for long period of time before being supplied to tanneries. According to the respondents the major reason was delay in back payments from tanneries.

Personal observation and discussion with responsible experts as well as hide and skin traders in all the study areas showed that the hide and skin storage areas were improper (exposed to direct sunlight) and muddy or full of dust. Moreover, the purchased hide and skin on specific market day remain for long hours under direct sunlight on market days. Furthermore, the stores of hide and skin in all the study Woreda's are not constructed in standardized way and they are not well ventilated, having not enough space, the floors are not cemented and inclined for drainage (Figure 5).Observation on hide and skin collection centers witnessed that the rooms lack cleanness with of flesh which is in line with the data reported in Hitosaworeda by (Behailu 2017).

It was also seen that immediate salting after buying was not a common practice except in Godareworeda. Hence, the hide and skins found in the hands of collectors are often seen putrefied and produced bad smell (Figure 6 and 7). This is exacerbated by the already poor-quality raw materials supplied being packed by producers for selling.

CONCLUSION

The livestock products meat, milk, eggs, wool, hides and skins on average account for 28% of agricultural GDP of Sub-Saharan African countries (CSA, 2011). Livestock also plays an important role in providing export commodities, such as live animals, hides and skins to earn foreign exchanges to the country (CSA, 2011).

Despite the presence of village level collectors, there is no extension agent working on selling of hides and skin quality management as a focus area exists. So, farmers do not get any advice/orientation about selling their hide and skin to proper persons and general management system of selling hide and skin rather than their own indigenous knowledge.

All of farmers interviewed ascertained that they sell hide and skin in fresh state/type which was not preserved by using different preservation methods to their closest proximity. So, some of them take hide and skin to middlemen, but majority of farmers in study area sell their hide and skin to collector centers while some of them use

traditional type of mechanisms like for bedding which was not sold. The present study was therefore conducted in three selected districts of Gambella region, South West Ethiopia to assess the production potentials and preservation methods of hide and skin. The three districts of the region called Gambellazuria, Godare andLare were purposively selected based on the ecology and potential of hide and skin production in the region. Gambella is one of the potential regions which consists of the population number of 253,389 cattle, 39,564 sheep and 83, 897 goats (CSA, 2013). Despite high livestock population and existing favorable environmental conditions, the current livestock output of the region is little.

AUTHORS' CONTRIBUTIONS

This research was done in collaboration among all authors. Author ***GBF*** prepared the study design, performed statistical data analysis and wrote the first draft of the manuscript. Authors ***ML, GB*** and ***AB*** edited the analysis of the whole study. All authors read and approved the final manuscript.

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