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Grading of Kordofan Hides and Skins by Quality

M.A. Ebrahiem[1], M.A. Ali[1,*], I.Y. Turki[2], H.E. Haroun[3], I. Bushara[1]and D.M. Mekki[1]

[1]Department of Animal Production, Faculty of Natural Resources and Environmental Studies, University of Kordofan, Sudan
[2]Faculty of Animal Production, Sudan University of Science and Technology, Khartoum, Sudan
[3]Faculty of Leather Engineering, Sudan University of Science and Technology, Khartoum, Sudan

ARTICLE INFO

Corresponding Author:
M.A. Ali
Mahaali5656@gmail.com

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ABSTRACT

This study was carried out at Elobeid, Elnohud and Babanosa locations of Kordofan Region. 75 pieces from each of cattle hides and goat skins and 100 pieces of sheep skins were randomly selected for field grading in each location. Grading results indicated that the most common defects to Kordofan hides and skins was flaying defects, followed by branding on cattle hides, putrefactive taints, mechanical damages, inadequate salting defects, and lastly skin diseases defects.

Keywords: Grading, Hides, Skins, Quality.

INTRODUCTION

The overall uses of leather are the value of hides and skins as national economical commodity. Also it is accepted as a fact that hides and skins are not primary animal commodities, but are secondary products of meat industry. They are nonetheless, a major natural resource of particular importance to the Sudan, which contribute with 2.99 million Sudanese Dinars in the year 2002 and 18.649 million in 2003 (MAWF, 2004).

It can really be seen that leathers, renewable huge natural resources, constitute an enormous potential. At the same time, leathers are recognized by many defects, both ante-mortem and post-mortem, to which they are subjected. In many parts of the Sudan the most important defect is brand marks. The extensive use of hot iron for trade branding cattle is perhaps the greatest cause of damage. Followed by tick's damages, diseases, slaughter houses defects, stores and transporting damages. These were the main background hypothesis when this study was applied. The overall objective of this study is to draw attention to the defects

of hides and skins in Kordofan states which detract from the potential value of these natural resources.

MATERIALS AND METHODS

Hides and Skins were collected from Kordofan region in the western part of the Sudan (latitudes 9◦:30' and 16◦: 30' North and longitudes 24˚and 32˚: 25' East. The rainfall ranges between 600 mm/year in the southeast to less than 100 mm/year in the northwest. The annual mean temperature ranges from 32˚ C during the day to 16˚ C at night in January (winter) and from 46◦ C during the day to 27˚ C at night in May-June (summer). Two vegetation zones are existing in the area, namely semi-desert Acacia shrub and short grasslands of the North Central Sudan and secondly, the low woodland savannah of central Sudan. The natural vegetation consisted mainly of the grass species Panicum tugidum, Arisdia spp, Cympopogons spp., Ctenium elegan, Dactylocteniun aegyptium and Eragrostis tremula (Ebrahiem *et al*., 2015a and b).

Tannery Grading

For this purpose, 75 cattle hides were taken as a sample for grading represented as 25 wet salted slaughter house collections, 25 wet salted market collections and 25 dry salted market collections, in each of the three locations. Of sheep and goats skins,100 pieces were graded represented as 25 pieces wet salted slaughter house collections, 25 wet salted market collections, 25 dry salted market collections and 25 air dried market collections, in each of the three locations. The grading was done depending on defects according to ESALIA (1988) and Robinet and Alfaerd (1992).

Analysis Methods

The results were analyzed with respect to the main factors affecting skins and hides production both during ante-mortem and post-mortem defects. Field grading data were analyzed using frequencies and percentages.

RESULTS AND DISCUSSIONS

Field grading revealed that flaying defects were the most common on raw material hides and skins in Kordofan Region. In slaughterhouses and wet-salted collections of hides, Elobied location scored the highest values while in dry-salted collections Alnohoud location was the pilot of poor flaying (Table1). While in sheep skins most of slaughterhouses and air-dried collection flaying defects were in the Alnohoud location. While wet-salted and dry-salted collections defects, were in Elobied location and Babanosa location respectively (Table 2). In goat skins flaying defects on wet-salted, dry-salted and air-dried were absolutely present in the Elobied location. Therefore, this could be due to less attention and controlling in producing hides and skins in Elobied location both in slaughterhouses and collections (Table 3).

Branding damages were clearly observed on hides especially in the Babanosa location in comparison to the other locations, where most of meat consumption tack-off in this location was from Baggara cattle. Branding, another important source of damage, is generally used as means of proving ownership, as treatment for some diseases or for superstitious and religious reasons. Hot iron branding is usually applied on cattle hides in the valuable regions as it is observed in cattle of Baggara tribes (Table 4). External parasites damages were spreading on hides especially in Elobied and Alnohoud locations, where the dispersal of both *Amblyomma spp* and *Hylomma spp* is expanded. Fouled taints were higher in Babanosa location in comparison to the other locations. This may be due to the remaining of blood, dung and dirt in the earth floor of the slaughterhouse.

Table 1: Cattle hides grading based on defects results in Kordofan region.

Location	Collection		Defects																	
			Dis		Pa		Branding		Fly		Fou		Put		dry		stor		Salt	
		p.m	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Elobeid	Slaughter	w.s	5	20	7	28	8	32	10	40	1	4	3	12	-	-	-	-	0	0
	Collection	w.s	3	12	8	32	4	16	13	52	1	4	6	24	-	-	-	-	0	0
	Collection	d.s	0	0	-	-	3	12	4	16	-	-	-	-	0	0	9	36	0	0
	Wastage	w.s	1	4	0	0	2	8	2	8	0	0	2	0	-	-	-	-	0	0
	Wastage	w.s	2	8	0	0	3	12	4	16	0	0	4	16	-	-	-	-	0	0
	Wastage	d.s	0	0	-	-	2	8	2	8	-	-	-	-	0	0	0	0	0	0
Alnohud	Slaughter	w.s	0	0	6	24	2	8	6	24	2	8	3	12	-	-	-	-	0	0
	Collection	w.s	0	0	2	8	4	16	9	36	2	8	7	28	-	-	-	-	6	24
	Collection	d.s	0	0	-	-	2	8	10	40	-	-	-	-	4	16	4	16	3	12
	Wastage	w.s	0	0	0	0	1	4	3	12	0	0	2	8	-	-	-	-	0	0
	Wastage	w.s	0	0	0	0	0	0	5	20	0	0	1	4	-	-	-	-	4	16
	Wastage	d.s	0	0	-	-	0	0	6	24	-	-	-	-	4	16	1	4	2	8
Babanosa	Slaughter	w.s	0	0	8	32	6	24	4	12	1	4	2	8	-	-	-	-	0	0
	Collection	w.s	0	0	8	32	8	32	6	24	3	12	0	0	-	-	-	-	2	8
	Collection	d.s	0	0	-	-	8	32	6	24	-	-	-	-	3	12	11	44	2	8
	Wastage	w.s	0	0	0	0	5	20	0	0	0	0	2	8	-	-	-	-	0	0
	Wastage	w.s	0	0	0	0	2	8	2	8	0	0	0	0	-	-	-	-	2	8
	Wastage	d.s	0	0	-	-	4	16	3	12	-	-	-	-	3	12	0	0	2	8

w.s: wet-salted. d.s: dry-salted.
Dis: Diseases defect Pa: parasite defect Fly: flaying defect Put: putrefying defect Fou: fouled with urine or blood Stor: storing defect Sal: salting defect Dry: drying defect

Table 2: Sheep skins grading based on defects results in Kordofan region

Location	Colle. m		Defects																			
			Dis		Pa		Fly		Mech		Put		Fou		stor		Salt		dry		Abscess	
		p.m	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Elobeid	Slaughter	w.s	0	0	0	0	6	24	5	20	3	12	1	4	-	-	-	-	-	-	0	0
	Collection	w.s	1	4	0	0	10	40	0	0	13	52	0	0		-	-	-	-	-	0	0
	Collection	d.s	2	8	-	-	7	28	6	24	6	24	-	-	5	20	4	16	0	0	0	0
	Collection	a.d	0	0	-	-	7	28	0	0	-	-	-	-	9	36	-	-	5	20	0	0
	Wastage	w.s	0	0	0	0	4	16	3	12	1	4	0	0	-	-	-	-	-	-	0	0
	Wastage	w.s	1	4	0	0	6	24	0	0	7	28	0	0		-	-	-	-	-	0	0
	Wastage	d.s	2	8	-	-	5	20	1	4	4	16	-	-	0	0	0	0	0	0	0	0
	Wastage	a.d	0	0	-	-	2	8	0	0	-	-	-	-	4	16	-	-	1	4	0	0
Alnohud	Slaughter	w.s	0	0	0	0	7	28	1	4	1	4	1	4	-	-	-	-	-	-	3	12
	Collection	w.s	0	0	0	0	9	36	0	0	6	24	0	0		-	3	12	-	-	1	4
	Collection	d.s	0	0	-	-	5	20	3	12	3	12	-	-	0	0	5	20	1	4	0	0
	Collection	a.d	0	0	-	-	8	32	1	4	-	-	-	-	5	20	-	-	5	20	0	0
	Wastage	w.s	0	0	0	0	2	8	0	0	1	4	0	0	-	-	-	-	-	-	1	4
	Wastage	w.s	0	0	0	0	3	12	0	0	4	16	0	0		-	3	9	-	-	0	0
	Wastage	d.s	0	0	-	-	2	8	0	0	2	8	-	-	0	0	3	9	1	4	0	0
	Wastage	a.d	0	0	-	-	5	20	0	0	-	-	-	-	1	4	-	-	5	20	0	0
Babanosa	Slaughter	w.s	0	0	0	0	7	28	1	4	1	4	1	4	-	-	-	-	-	-	3	12
	Collection	w.s	0	0	0	0	9	36	0	0	6	24	0	0		-	3	12	-	-	1	4
	Collection	d.s	0	0	-	-	5	20	3	12	3	12	-	-	0	0	5	20	1	4	0	0
	Collection	a.d	0	0	-	-	8	32	1	4	-	-	-	-	5	20	-	-	5	20	0	0
	Wastage	w.s	0	0	0	0	2	8	0	0	1	4	0	0	-	-	-	-	-	-	1	4
	Wastage	w.s	0	0	0	0	3	12	0	0	4	16	0	0		-	3	9	-	-	0	0
	Wastage	d.s	0	0	-	-	2	8	0	0	2	8	-	-	0	0	3	9	1	4	0	0
	Wastage	a.d	0	0	-	-	5	20	0	0	-	-	-	-	1	4	-	-	5	20	0	0

w.s: wet-salted. d.s: dry-salted. a.d: aire-dried.
Dis: Diseases defect Pa: parasite defect Fly: flayingdefect Mech: mechanical defect Put: putrefying defect Fou: fouled with urine or blood Stor: storing defect Sal: salting defect Dry: drying defect

Table 3: Goats skins grading based on defects results in Kordofan region

Location	Colle. m		Defects																	
			Dis		Pa		Fly		Mech		Put		Fou		stor		Salt		dry	
		p.m	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Elobeid	Collection	w.s	0	0	0	0	9	36	2	4	4	12	0	0	-	-	2	8	-	-
	Collection	d.s	0	0	-	-	8	32	0	0	-	-	-	-	4	16	0	0	3	12
	Collection	a.d	0	0	0	0	11	44	0	0	-	-	-	-	6	24	-	-	9	36
	Wastage	w.s	0	0	0	0	8	32	2	8	4	16	0	0	-	-	2	8	-	-
	Wastage	d.s	0	0	-	-	5	20	0	0	-	-	-	-	0	0	0	0	3	12
	Wastage	a.d	0	0	0	0	4	16	0	0	-	-	-	-	2	8	-	-	9	36
Alnohud	Collection	w.s	0	0	0	0	6	24	2	8	2	8	2	8	-	-	0	0	-	-
	Collection	d.s	0	0	0	0	6	24	0	0	4	16	0	0	-	-	4	16	-	-
	Collection	a.d	0	0	0	0	6	24	0	0	-	-	-	-	7	28	-	-	4	16
	Wastage	w.s	0	0	0	0	2	8	0	0	1	4	0	0	-	-	0	0	-	-
	Wastage	d.s	0	0	0	0	0	0	0	0	1	4	0	0	-	-	4	16	-	-
	Wastage	a.d	0	0	0	0	2	8	0	0	-	-	-	-	0	0	-	-	4	16
Babanosa	Collection	w.s	0	0	0	0	3	12	2	8	0	0	0	0	-	-	1	4	-	-
	Collection	d.s	0	0	0	0	7	28	0	0	3	12	0	0	-	-	2	8	-	-
	Collection	a.d	0	0	0	0	8	32	0	0	0	0	-	-	10	40	-	-	5	20
	Wastage	w.s	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	-	-
	Wastage	d.s	0	0	0	0	1	4	0	0	2	8	0	0	-	-	2	8	-	-
	Wastage	a.d	0	0	0	0	3	12	0	0	-	0	-	-	1	4	-	-	5	20

w.s: wet-salted. d.s: dry-salted. a.d: aire-dried.
Dis:Diseases defect Pa: parasite defect Fly: flayingdefect Mech: mechanical defect Put: putrefying defect Fou: fouled with urine or blood Stor: storing defect Sal: salting defect Dry: drying defect

Table 4: Baggara (Darfur and Kordofan tribes) cattle common tribe's branding on hides

Baggara tribe	Brand shape	Local name	Brand location	Brand size (cm)	Hide Grading degree
Hawazma					
1-Targum	□	Nuggara	Butt	25/35	3-4
	/	Mutrag	Butt	30-35	
		Regel gurab	Thigh	20-25	
2-Awlad Albari	ɣ	Lamaliff	Shoulder	40-50	3-4
	/	Gulada	Neck	30-35	
	y	Shiba	Butt	60-75	
3-Awlad Almoemin	///	Mattareg	Butt	60-75	4
	y	Shiba	Butt	60-75	
4-Alsalmanea	/	Damee	Cheek	15-20	2
	/	Muttawegaldara	Thigh	60-75	
	/	Gulada	Neck	30-35	
5-Awlad Gabbosh	/	Albaeg	Belly	50-60	1-2
6-Sarary	T	Hashasha	Butt	20/30	2
7-Algumea	/	Gulada	Neck	30-35	1
	=	Oggal	Legs	10-15	
8-Algemeat	≥	--	Butt	90- 100	3-4
9-Dar Neala	ɣ	Lamaliff	Thigh	50-60	1-2
10-Dar Batti	/	-	rump	20-30	1-2
Messarya Zurag					
1-Awlad Saleem	U	Alneeal	Butt	20-25	1-2
2-Awlad Saeed	T	Kadanka	Neck	20-25	3
3-Darngoat	V	--	Butt	20-2	
4-Durryhemat	ɣ	lamaliff	Shoulder	40-50	1-2
5-Oyenat	/	algaba	Thigh	15-25	1
6-Awlad gamin	O	Aldalo	Thigh	10-15	1
	/	Anggareeb	thigh	15-20	
7-Awlad Suleman	O	Nuggara	Butt	10-15	3
	/	Mutrag	butt	20-30	
8-Ummredan	=	Mattareg	Butt	40-50	2-3
Messarya Humor					
1-Awlad Omran	/	--	Thigh	20-25	1
2-Aggira	S	Alshlga	Thigh	60-70	1-2
	//	Tamrayat	Neck	30-35	
3-Alzud	C	Alshalga	Thigh	60-70	1-2
	///	Domaa	Cheek	10-15	

In comparison to the two other locations, inadequate salting damages were higher in the Alnohoud location, where local salts (Mongor mongur and Elgaa salts) were used in preservation of hides.

Generally these damages and defects were resultant on less than 30% of the total damages. This is agreeing with Said *et al.*, (1999) who determined damages during slaughtering and skinning with 20-30% of the total damages.

In skins putrefaction, taints were higher in the first location in comparison to the other locations. Delay in preservation may be the main cause to this observable fact. Taints resulting from improper salting were most clear in Alnohoud location, where not enough uses of salt and lack of preservation skills may be present as the chief reasons. Diseases and drying taints were observed with high rates in the Elobied location than in the two other locations, this may be returned to the spreading of drying under direct sun.

CONCLUSION

As it is in meat production hides and skins must be inspected in both ante and post-mortem with referencing to common defects. Flaying defects could be avoided, if the recommended equipments were used and flaying procedures were kept under control in the acceptable slaughterhouses. Branding of native cattle for tribal customs is more difficult to be

avoided, but smaller marks on less valuable parts of the hide would be equally satisfactory for the breeders.

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