Türk Bilimsel Derlemeler Dergisi 9 (1): 86-88, 2016
ISSN: 1308-0040, E-ISSN: 2146-0132, www.nobel.gen.tr

An Economic Livestock Activity: Leather Industry

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*This study was published as an abstract at the VI. Balkan Animal Conference (October 3-5, 2013).

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Geliş Tarihi: March 10, 2016
Kabul Tarihi: April 30, 2016

Abstract

Livestock activities, which hold an important place in the production economy of Turkey, are usually considered to comprise only meat and milk production and rawhide manufacturing is overlooked. However, as a result of the developed countries' diminishing interest in the manufacturing industry resulting from various causes, leather industry in Turkey is gaining importance. Although the raw material requirement of the leather industry can be largely met by the country's own resources, the lack of organization and awareness reduces the profit of breeders in this market. As a consequence of the relatively more prevalent sheep and goat breeding in Turkey in comparison to the cattle breeding, the leather industry mostly relies on sheep and goat breeding. In this sector dominated by extensive breeding, establishing adequate organization and awareness will lead to the economic utilization of leather as well as meat and increased yields in the livestock breeding. This study aimed to present the current state of the leather trade in Turkey and increase its importance in the livestock breeding activities.

Keywords: Skin, Leather industry, Sheep and goat breeding, Cattle breeding, Turkey

INTRODUCTION

The skin consists of three layers: epidermis, dermis and hypodermis [1]. The epidermis forms the outer layer of the skin and is a keratinized, flexible and epithelial sheet [2]. Hypodermis is the bottom layer that attach the skin to the connective-tissue [3] and characterized by the fat cells observable between the loose connective-tissue network [4]. The dermis layer is between the epidermis and hypodermis layers and mostly consist of the collagen connective-tissue. Dermis is the main layer used in leather manufacturing. The collagen fibers characterized by their dense network strengthen the durability of products especially in the leather shoe manufacturing [5]. Dermis consists of two layers: stratum papillare, which, as a result of its proximity to the surface, also contains structures originating from the epidermis, and stratum reticulare, which is rich in the collagen fibers in the parts close to the hypodermis [3]. The 1-2 µ-thick area, which is at the top part of the papillary layer and has indentations specific to each animal, is called the "grain layer". The durability of this layer stems from its collagen structure and since leather takes its appearance from this layer, it is highly important in the quality of leather [6]. All the other intrinsic properties of leather stem from the reticular layer, which is the main layer that constitute the skin [7]. In the dermis layer, which constitutes almost the entire skin, the proportion of the str. reticulare layer to the dermis was 34% for the Akkaraman sheep and 41% for the Dağlıç sheep [8].

Artan [9] reported that the dermis thickness of the neck, shoulder, abdomen and back parts of the Akkaraman sheep breed were 3108µ, 2604 µ, 2080 µ and 2780 µ, respectively, and the thicknesses of the same parts of the Dağlıç sheep were 1908 µ, 2176 µ, 1964 µ and 1949 µ, respectively. Dağlıoğlu and Bayramlar [2] determined that the dermis thicknesses of the neck parts of Ivesi and Sakız were 2670 µ and 3094 µ, respectively. Özfiliz [10] reported that dermis thickness of the Karacabey Merino was 2620 µ in the neck area, 2890 µ in the shoulder area and 2100 µ in the abdomen area. Özfiliz et al. [11] reported that the dermis thicknesses for the same parts of the Kıvırcık sheep were 3150 µ, 2975 µ, 2537 µ and 3245 µ, respectively; the thicknesses were 3045.83 µ, 2625.00 µ, 2329.17 µ and 3854.16 µ, respectively, for the same parts of the Karacabey Merino sheep. In the Konya Merino, the thicknesses were determined to be 2500 µ for the neck and back area and 2450 µ for the rump area; In the Akkaraman sheep the thicknesses were 2750 µ, 2700 µ and 2650 µ for the neck, back and rump, respectively; In the Ivesi sheep the thicknesses were 3300 µ, 3250 µ and 2700 µ for the neck, back and rump, respectively; In the Hampshire sheep the thicknesses were 2250 µ, 2400 µ and 2250 µ for the neck, back and rump, respectively; In the Lincoln sheep the thicknesses were 2500 µ in the neck and back and 2250 µ in the rump [12]. Dağlıoğlu et al. [13] reported that in the study conducted by Artan et al. the dermis thickness in the neck area was 803.04 µ for the Dağlıç sheep, 1083.10 µ for the Karayaka sheep, 1690.13 µ for the Kıvırcık sheep, 1326.01 µ for the Morkaraman sheep and 2245.25 µ for the Merino sheep.

As the fleece thickness decreases and the number of folds increases, the looseness of skin tissue increases. Therefore, the skin of local sheep is firmer than that of Merinos sheep. The kid skin is preferred in high quality leather manufacturing for its connective-tissue and uniform grain structure. Among cattle hides, heifer hide is valuable due to its homogenous and fine collagen structure [7].

Skin thickness varies among the different regions of the body (back, neck, groin, etc.) and this enables using different parts of the cattle hide (cattle, water buffalo, etc.)

for different purposes. The skin thickness of sheep and goat skin can be evened out and therefore, the difference in thickness is not important [14].

In Turkey, on the contrary to the worldwide distribution, goat and sheep skins constitute the 70-80% of the production in the leather industry, whereas cattle hide constitutes the 20-30% of the production. This indicates the sheep and goat skin-based production and the leather and clothing-heavy leather trading in Turkey [15].

THE STATE of LIVESTOCK BREEDING for THE LEATHER INDUSTRY in TURKEY

The main purpose of animal slaughter is the utilization of its meat; indeed, meat, entrails and skin constitute the 70%, 20% and 10% of the economic value of a slaughtered animal, respectively [16]. This percentage that may be viewed as a small share actually constitutes the most important raw material input to the leather industry with its 65% contribution [17]. This indicates the strong relationship between the leather industry and the livestock breeding industry.

As seen in Table 1, sheep and goat breeding has significantly decreased after 1990: in 2015, the number of sheep and goat has dropped by 22.3% and 5%, respectively. Between 1990 and 2015, the sheepskin yield has decreased by 51.4% and goatskin yield has increased by 26.6%. The comparison between 1990 and 2015 showed that the cattle population has increased by 23% and during this period, cattle hide yield has increased by 23.8%, while water buffalo population and water buffalo hide significantly decreased by 64% and 99.5%, respectively.

Table 1. Livestock breeding and rawhide manufacturing in Turkey [18]

Yıllar	Sheep	Sheepskin	Goat	Goatskin	Cattle	Cattle hide	Water buffalo	Water buffalo hide
1990	40553000	10311150	10968000	1579090	11377000	3041350	371000	90980
1995	33791000	5996500	9111000	906490	11789000	1994500	255000	42140
2000	28492000	6602950	7201000	1232024	10761000	2272233	146000	25870
2001	26972000	5130979	7022000	923796	10548000	1997071	138000	13765
2002	25173706	4261562	6780094	792943	9803498	1921184	121077	11121
2003	25431539	3859092	6771675	632745	9788102	1728321	113356	10473
2004	25201155	4265536	6609937	595052	10069346	2009396	103900	10844
2005	25304325	4492625	6517464	719467	10526440	1780148	104956	9812
2006	25616912	5168738	6643294	841112	10871364	1912969	100516	10624
2007	25462293	6884829	6286358	1293280	11036753	2178805	84705	10485
2008	23974591	6051012	5593561	802208	10859942	1897350	86297	7976
2009	21749508	4319367	5128285	633456	10723958	1639905	87207	5343
2010	23089691	6873626	6293233	1219504	11369800	2602246	84726	15720
2011	25031565	5479546	7277953	1254052	12386337	2571765	97632	7255
2012	27425233	4541122	8357286	926799	13914912	2791034	107435	7426
2013	29284247	4958226	9225548	1340909	14415257	3430723	117591	2403
2014	31140244	5197289	10344936	1570239	14223109	3712281	122114	2176
2015	31507934	5008411	10416166	1999241	13994071	3765077	133766	1391
1990-2015 % Değişim	**-22.3**	**-51.4**	**-5.0**	**+26.6**	**+23.0**	**+23.8**	**-64.0**	**-99.5**

THE PLACE of LEATHER and LEATHER PRODUCTS INDUSTRY in TURKISH ECONOMY

The share of the leather industry in the total manufacturing industry is 12% and with this share, it ranks at the tenth place in the national economy [19, 20]. As seen in Table 2, according to the official figures for 2015, the leather and leather products export, which reaches almost 1.06 billion dollars, has a 0.74% share in the total export of Turkey. However, this share reaches 10% when the unofficial suitcase trading and etc. is included [21]. Turkey's leather exports are made up of footwear (46%), leather and double face apparel (24%), tanned and dressed (16%) and saddlery [22].

Tablo 2. The share of leather and leather products export in the general export of Turkey (1000$) (18)

	2014	**2015**
General Export of Turkey	156 899 652	143 823 982
Leather and related products	1 221 226	1 062 426
The share of leather and leather products export in the general export (%)	**0.77**	**0.74**

The general ranking of Turkey based on the shares of geographical regions carrying out leather and leather products export: European countries (38%), Russia and Eastern Europa (21%), Middle East (18%), South Asia and Oceania (9%), Africa (5%), Central Asia (4%) and America (3%). Among these regions, with their 77% share, Russia, Middle East and Europe are the leading exporting areas [22].

RESULTS

Nutrition and clothing are among the essential needs of the humankind ever since its existence. Adequate and balanced nutrition is required to be healthy and therefore, people should consume products of animal origin at certain amounts. This consumption-induced essentiality also necessitates the activities of livestock breeding to

also include production. To increase its importance as an economic activity, the livestock breeding industry should earn the maximum income per a unit animal. Leather, as the basic raw material input to the leather products industry, can take on the task to increase the economic return to livestock breeding.

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