

Buffalo Growing in Turkey and Current Situation in Erzurum Province

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Abstract

The purpose of this study; Erzurum in Turkey and the current status of buffalo-breeding and the potential to reveal the current data. Turkey in 2015 Turkey Statistical Institute data on 133 766 head of buffalo are grown and the company made buffalo rearing 62 761 tons of milk and 326 tons of red meat has been obtained. It is produced extensively in the world and especially in our country and the presence of animals buffalo production is decreasing. Turkey buffalo existence, up to 2011 showed a rapid decrease of course, the food takes the measures for the development of manacling of Agriculture and Livestock Ministry, to support and, as the projects initiated as interest in the consumer buffalo products has led to stop the decline. This study will be presented and the overall situation of rising buffalo in Erzurum.

Keywords: Erzurum, buffalo, meat production, milk production.

1. Introduction

Buffalos in Turkey are originated from Mediterranean buffalos' which are subgroup of water buffalos and are called as Anatolian buffalo. Anatolian buffalos' color is generally black and their horns are spring-shaped and grow backward SOYSAL et al. (2005). In English "water buffalo" is defined as less close and approximately 40 buffalo, which has been domesticated 5000 years ago, today many countries are done or farming (NANDA and NAKAO 2003).

In Turkey, buffalo farming is common business in North Anatolia, Düzce, Samsun, Giresun, Sinop, in Central Anatolian, Çorum, Amasya, Yozgat, Western Anatolia, Afyonkarahisar, Balıkesir, Kütahya, İstanbul, East Anatolia; Sivas, Muş and Southeastern Anatolia; Diyarbakır, Bitlis with the purpose of dairy products such as cream, yoghurt, cheese, ice cream and meat products such as bologna, salami and pastrami (SOYSAL 2006).

Buffalo has no the most important role for agriculture in Turkey. For example, 340 gram milk per 100 kg milk in a year is derived from buffalo in 2005. There are only 9 cities which have 5000 and more than 5000 buffalos in Turkey. Cities having more buffalos are Samsun, İstanbul, Diyarbakır, Tokat, Bitlis and Muş. 50 % of buffalo milk is produced these cities which have approximately 47 % of buffalo. Erzurum is on the 23rd rank (TÜİK 2015).

Generally buffalos utilize poor quality and high cellulosic feed. They eat these poor quality feed and they provide efficiency because feed costs are high at cattle farming. Therefore, buffalo is the most suitable animal for intensive breeding. Buffalo farming is more economical in where roughage is present. Buffalo farming is used as milk, meat and draft animal (SOYSAL 2006).

Erzurum plays important role for socio-economic development of Eastern Anatolian Region, it has social, economic and cultural properties. Beside the increase of animal production and increase in efficiency, it is possible with production of favourable products.

The latitude of Erzurum is 39-55 degrees north. The longitude of it is 41-16 degrees east and it locates in East Anatolian region. It is neighbour on Artvin-Rize from north, Gümüşhane - Erzincan from west, Bingöl – Muş from south and Ağrı – Kars from east and it is 27 768 square kilometre within the boundaries of itself (TÜİK 2015).

Potential of buffalo farming in Erzurum and also increase/decrease rate in buffalo farming is revealed with this study. Besides these, information of animal production and buffalo production ratios are given.

1.1. Numbers of Buffalo

Turkey is a rich country in terms of animal and plant diversity. There have been 31.5 million sheep, 10.4 million goats, 14.0 million cattle and 133.8 thousand buffalo since 2015 in Turkey (TÜİK 2015).

While Turkey was on the 10th rank in 1970 in terms of number of buffalo, it was on the 21st rank with the 133 766 buffalos in 2015 (FAO 2015). According to TÜİK, Turkey had more than one million buffalos in 1970, but in 2010 Turkey had approximately 84 thousand buffalos after that, decrease in the number of buffalos stops and a tendency to even if a little bit increase is provided. In Erzurum, there was approximately 47 % decrease from 1991 to 2014. Moreover, the ratio of the number of

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buffalo in Erzurum to the number of buffalo in Turkey was decreased until 2014 (TUIK 2015).

Table 1. The Number of Buffalo in Turkey and Erzurum.

Years	The number of buffalo in Turkey	The number of buffalo in Erzurum	%
1970	1,117,000	-	-
1980	1,031,000	-	-
1991	366,150	4,302	1.17
2000	146,000	2,150	1.47
2010	84,726	1,032	1.22
2011	97,632	1,116	1.14
2012	107,435	1,113	1.04
2013	117,591	1,159	0.99
2014	121,826	2,268	1.86
2015	133,766	1,591	1.19

While the number of buffalo in the world increased 60.8 % between 1980 and 2011, the number of buffalo in Turkey decreased 91.9 %. However, the number increased 26.8 % in 2012 in Turkey. The highest number in buffalo farming is performed in Indian, China and Pakistan (FAO 2015).

78.51 % of cattle farming is formed from hybrid cattle, 11.39 % are cattle breeds, 9.92 % is native race cattle and 0.17 % is buffalo in Erzurum. Although there are 20 countries in Erzurum, buffalo farming is practiced in only 7 countries. The table 2 shows the number of buffalos in some countries. According to table 2, there is an increase in number of buffalo in recent years. It is shown that the support of buffalo farming has an important role for the increase in number buffalo (TUIK 2015).

Table 2. The Numbers of Buffalo in Erzurum Countries by Years.

Years	2010	2011	2012	2013	2014	2015
Aşkale	21	15	20	20	29	27
Hınıs	57	94	68	97	88	120
Aziziye	300	313	206	307	399	451
Karaçoban	270	276	287	252	256	257
Pasinler	87	91	91	117	117	180
Palandöken	189	145	184	94	94	241
Yakutiye	169	180	247	264	270	289
Total	1793	1114	1103	1151	1253	1565

1.2. Animal Production

According to TUIK, total milk production is 18,655,000 ton in Turkey, the 90.8 % of this quantity is derived from cows, the 6.3 % is from sheep, 2.6 % is from goat and 0.3 % is from buffalo. Yield of meat and milk production per unit of animal decrease with the reducing number of animal. TUIK explains that the milk production from buffalo is 62,8 thousand ton and the meat production from buffalo is 326 ton from 2015 (Table 3) (TUIK 2015).

Table 3. Milk and Meat Production from Buffalo in Turkey by Years.

Years	The Number of Milk Muffalo	Milk Production (ton)	The Yield of Milk Per Unit of Milk Buffalo (kg)	The Number of Slaughtered Buffalo	Meat Production (ton)	The Carcase Yield Per Unit of Buffalo (kg)
2010	35,726	35,487	1,004	15,720	3,387	215
2011	40,218	40,372	1,004	7,255	1,615	223
2012	38,205	46,989	1,001	7,426	1,736	234
2013	51,940	51,947	1,000	2,403	336	140
2014	54,795	54,803	995	2,176	526	242
2015	62,999	62,761	996	-	326	-

Buffalo cream and buffalo yoghurt should not be been a thing of the past and these tastes should not be lost. Due to having less cholesterol, buffalo milk and due to being suitable for diets, buffalo meats are preferred in recent years (KIRKIZ and KIRAZ 2015).

Buffalo milk, Afyon cream, Lüle Cream, buffalo yoghurt, buffalo butter, buffalo cheese and mozzarella cheese is derived from buffalo dairy products and also buffalo meat products are utilized as Bologna and pastrami (SOYSAL 2006).

Buffalo milk is preferred to make cream since it is rich in terms of fat, protein, lactose, and dry matter as shown Table 4 (OYSUN 1987; DEMİRCİ et al. 1991). The cost of buffalo milk is generally high because it provides high efficiency and aroma. The colour of buffalo dairy products is white since it does not have carotene. Internationally famous Italian Mozzarella cheese is made from buffalo milk (İLASLAN et al. 1983; USLU 1970; İZGİ et al. 1989).

Table 4. The Comparison of Buffalo Milk Contents and Other Animals' Milk Contents (%).

Kind	Water	Dry Matter	Protein	Fat	Lactose	Mineral
Buffalo	82,0	17,7	4,15	7,85	4,80	0,77
Cow	87,5	12,4	3,4	3,65	4,65	0,75
sheep	82,9	17,2	5,4	6,25	4,55	0,88
Goat	87,1	13,0	3,7	4,10	4,45	0,80

The number of milk buffalo and amount of milk per buffalo is very low. Although the number of milk buffalo increases by years, the yield is low. When table 5 is examined, the amount of milk per buffalo is 968 kg during lactation period. The role of Erzurum in buffalo milk production is 0.93 % (TUIK 2015).

Table 5. Amount of Buffalo Milk Production in Erzurum (ton).

Years	The Number of Milk Buffalo	Milk Production (ton)	The Yield of Milk Per Milk Buffalo (kg)
2010	295	286	969
2011	375	363	968
2012	404	392	970
2013	403	390	968
2014	442	428	968
2015	604	586	970

1.3. Supporting

Buffalo farming and Buffalo Milk Production Education "Project has been made for the development of the province of buffalo breeding and evaluation of the milk produced in Erzurum is supported by KUDAKA in 2013 in Erzurum Buffalo Breeding and Afyon Cream Production Training project, Erzurum Provincial Food, prepared by the Agriculture and Livestock Directorate" (KUDAKA 2015).

By Food, Agriculture and Livestock, the amount of buffalo support by years under the title of supporting of farming is given table 6 (ANONYMOUS 2015).

Table 6. The Amount of Buffalo Farming Supports Between 2010 and 2015 (TL).

Support Name	2010	2011	2012	2013	2014	2015
Rootstock Buffalo (TL/head)	250	300	350	350	400	400
Buffalo Calf (TL/Head)	-	-	-	-	70	150
Folk Crafts in Buffalo Breeding (TL/Head)	-	500	650	650	700	800
Separated Buffalo Calf Puppies Support((TL/Head)	-	-	-	100	100	150
Raw Milk (TL/lt)*	0.04	0.06	0.15	0.20	0.20	0.20

*Cow and Buffalo milk is supported between 2010 and 2011; buffalo, sheep and goat milk is supported between 2012 and 2015.

Amount of support, the number of supported animal and the number of supported farmer by years are shown below Table 7. Erzurum takes part in the Ministry project which is for the protection and development of animal genetic welfare (ANONYMOUS 2015).

Table 7. Supporting of Rootstock Buffalo in Erzurum between 2010 and 2014.

Years	Number of Farmer	Number of Buffalo	Amount of Supporting (TL)
2010	70	160	40.000
2011	158	372	111.600
2012	221	528	184.800
2013	233	586	205.100
2014	232	622	248.800

1.3. Labor and Buffalo Skin

Buffalos are used as working animals in many countries since they are strong, obedient, and also they can learn their duty easily. They have strong musculature and so they can show high attractive force. Therefore, in

different regions they are preferred as working animals instead of cattle.

Some people called buffalos as livestock tractor. Moreover, it is determined that attractive force of a couple buffalo equals to attractive force of three strong cattle.

Buffalos are generally used for rice fields in the Far East countries. Also, they are used for transportation and other attractive working areas.

Buffalo skin has important role in leather industry since it is thick and is commonly used for special designs such as bag, shoe. Buffalo skin is especially used in the manufacture of bag and shoe since it is thicker than other animal skins (STONER et al. 2002). The manufacture of buffalo skin decreased 88.89 % between 1991 and 2011 in Turkey but there was 42.28 % of increase in the world (STONER et al. 2002; TÜİK 2015; FAO 2015). Buffalo skin is different from cattle skin histologically. As compared to cattle epidermis, buffalo epidermis is 3-5 times more durable, and so it has important role in production of stout leather (İLASLAN et al. 1983).

2. Conclusions and Recommendations

Although the yield of buffalo carcass and the yield of buffalo milk is less than cattle, buffaloes can consume roughage and also they can benefit from it more effectively and so this makes buffalo feeding easy. Buffalo farming is practiced with low cost because buffaloes are resistant to bad weather conditions and diseases and also they do not need additional labour force. Besides, it has some advantages like that buffalo products are sold in high cost (KÜÇÜKKEBAĞCI and ASLAN 2002).

Moreover, buffalo meat and dairy products such as bologna, cheese, yoghurt and cream have different flavour due to chemical structures of buffalo milk and buffalo meat (less fat and cholesterol in the meat, high fat content in the milk). Buffalo leather has an important role in leather industry because of being thicker. It is used for special designs (shoe, stout leather, leash, halter, bag, etc.) need thick leather (STONER et al. 2012).

The yield of buffalo milk is low in Turkey. First of all works for improvement of buffalo farming should be increased where buffalo farming is practiced intensively in order to increase the yield of buffaloes. When pastureland and buffalo's habitat were considered, buffalo is a suitable animal for organic livestock farming. Production of buffalo meat and dairy products should be increased and buffalo farming should be made attractive in these days which organic products demand has increased. Products from buffaloes should be diversified. (Mozzarella is a good example; it is derived from buffalo milk). Plants which produce buffalo dairy products should be supported or new plants establishment should be encouraged for this purpose. Buffalo products should be advertised in order to become consumption of them popular. Buffalo farming is the means of existence for low-income families. It is practised as elementary family-

owned business (BORGHESE and MAZZİ 2005). The capacities of current plants should be increased in order to practice buffalo farming economically. Taking sperm from buffalo is more difficult than cattle. Therefore if young buffaloes become familiar to taking sperm, potential problems will be solved in older ages (ŞAHİN et al. 2013).

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