

GENERAL VIEW OF RUMINANT PRODUCTION IN AYDIN – TURKEY

Hüsnü Erbay Bardakçioğlu¹, Murat Yılmaz², Turgay Taşkın³, Orhan Karaca²

¹Adnan Menderes University, Faculty of Veterinary Medicine, Department of Animal Sciences, Aydin, Turkey

²Adnan Menderes University, Faculty of Agriculture, Department of Animal Sciences, Aydin, Turkey

³Ege University, Faculty of Agriculture, Department of Animal Sciences, Izmir, Turkey
ebardakcioglu@adu.edu.tr

This study was conducted to determine the situation of sheep, goats and cattle production in the Aydin province. Sheep and goat management systems in Turkey evolved through thousands of years of adaptation and adjustment to the natural resources, climate, topography and the ever-changing production environments. There are three general systems, the sedentary, transhumant and nomadic. Turkey is one of the leading sheep raising countries of the world. Sheep and goats are traditionally raised on smallholder farms in Turkey. The hair goats, sheep and cattle population of Turkey had been decreased by 35.4%, 35.4% and 7.6% between in last 15 years respectively in Turkey. The small ruminant production in Aydin is carried out by the farmers having the flocks including sheep and goats of which the number is between 50 and 150. When comparing the average head number of the flocks in the Aydin province is bigger than Turkey average of 20 to 50 head. Intensive dairy cattle production is also widely performing in the Aydin province. The numbers of hair goat and sheep in the Aydin province are 58,109 head and 118,953 head respectively, while cattle number is 278,163 head in 2007. The decrease has been 49.8% and 40.6% for hair goat and sheep population respectively, while a 21.5% increasing has been observed on the cattle population in the Aydin province in the last 15 years. The total milk production of the Aydin province is 350 925 tons in 2007 that consist of 1.137% sheep milk, 0.783% hair goat milk, 98.071% cattle milk and 0.007% buffalo milk. The meat production is 2,327 tons in the Aydin province, which consists of sheep, goat, cattle and camel percentages of 15.267%, 4.234%, 80.408% and 0.089% respectively. The total hide number of the Aydin province is 191.512, and 61.111%, 15.594%, 23.275%, and 0.018% of the hide production consists of sheep, goat, cattle and camel respectively. All the camel meat and camel hide production of Turkey are provided from the Aydin province. The number of sheep and especially goats in the Aydin province has decreased year after year in Turkey in general, but the cattle number is raised for the last 15 years. The reasons for reduction in the number of sheep and goats in the Aydin are due to the lack of importance to small ruminant production as a result of agricultural policies, the individual production without organization and decrease of available pasture areas over the time.

Key words: Aydin province; cattle; sheep; goat; ruminant production

ПРЕГЛЕД НА ПРЕЖИВНОТО СТОЧАРСКО ПРОИЗВОДСТВО ВО АЈДИН – ТУРЦИЈА

Истражувањето беше извршено за да се одреди состојбата во овчарството, козарството и говедарството во провинцијата Ајдин. Организационите системи во овчарството и козарството во Турција се развивале во текот на илјадници години адаптирајќи и приспособувајќи се на природните ресурси, климата, топографијата и континуирано променливите производствени околности. Постојат три основни системи: стационарен, преселнички и номадски. Турција е една од водечките држави во светот во одгледување на овци. Овците и козите традиционално се одгледуваат на мали фарми. Во изминативе 15 години популацијата на влакнести кози, овци и говеда во Турција е намалена за 35,4%, 35,4% и 7,6%, соодветно. Одгледувањето на ситни преживари во Ајдин се врши на фарми со просечен број овци и кози помеѓу 50 и 150. При споредба, бројот на грлата во стадата во провинцијата Ајдин е над турскиот просек, кој изнесува од 20 до 50 грла. Во провинцијата Ајдин исто така постои и интензивно млечно говедарство. Бројот на влакнести кози и овци во провинцијата Ајдин изнесува 58.109 и 118.953 грла, соодветно, додека бројот на говеда во 2007 година е 278.163 грла. Намалувањето изнесува 49,8% и 40,6% на популацијата на влакнести кози и овци, соодветно, додека зголемување од 21,5% е забележано кај популацијата на говеда во изминатите 15 години. Вкупното производство на млеко во

провинцијата Ајдин во 2007 година изнесувало 350.925 тони, од кои 1,137% овчо млеко, 0,783% козјо млеко, 98,071% кравјо млеко и 0,007% биволско млеко. Производството на месо во оваа провинција изнесува 2.327 тони, добиено од овци, кози, говеда и камили со проценти на застапеност од 15,267%, 4,234%, 80,408% и 0,089%, соодветно. Вкупниот број на произведени кожи во оваа провинција изнесува 191.512, добиени од овци, кози, говеда и камили со процентуална застапеност од 61,111%, 15,594%, 23,275% и 0,018%, соодветно. Целокупното производство на месо и кожи од камили во Турција е од провинцијата Ајдин. Бројот на овци и посебно кози во провинцијата Ајдин се намалува од година во година, како и во Турција воопшто, но бројот на говеда е зголемен во последните 15 години. Причините за намалувањето на бројот на овци и кози во Ајдин се недоволно посветување внимание на ситното преживно сточарство во земјоделската политика, неорганизирано индивидуално сточарско производство и намалување на пасишните површини со текот на времето.

Клучни зборови: провинција Ајдин; говеда; овци; кози; преживно сточарство

1. INTRODUCTION

There are about 850 million goats, 1.1 billion sheep and 1.3 billion cattle in the world in 2007. Although sheep and goats are very important livestock in the developing world, they are less important in the industrialized world. The world goat population in 1997 and 2007 are about 679 million heads and 850.2 million heads and the sheep population is about 1.04 billion heads and 1.112 billion heads, respectively (FAO, 2009). The goat population has been stable during the last 20 years in the industrialized countries, dairy goats predominate and goat milk production has increased due to the high performance in European countries like Bulgaria, Cyprus, France and Spain (Boyazoglu et al., 2005). In the Mediterranean countries, goat products are associated with agro tourism in mountainous regions (Dubeuf et al., 2004). The world cattle population in 1997 and 2007 is about 1.309 billion heads and 1.389 billion heads, respectively. The number of goats increased about 25%, while sheep and cattle increased nearly 6% in last ten years all over the world (FAO, 2009).

The increase in productivity per animal in Turkey is not able to answer the population growth rate and the reduced production caused by loss in animal number.

Even current situation of many species, especially sheep and goats could not protect during the last 20 years in Turkey. The causes of decreasing number of animals could be sorted as country agricultural policies not determined, country resources not recognized enough, the changes in agricultural and social structure not detected correctly and short-term political concerns (Akman, 2006).

Sheep and goat management systems in Turkey evolved through thousands of years of adaptation and adjustment to the natural resources, climate, topography and the ever-changing production environments. There are three general systems,

the sedentary, transhumant and nomadic (Yalçın, 1986; Kaymakçı and Sönmez, 1996). Turkey is one of the leading sheep raising countries of the world. Sheep and goats are traditionally raised on small-holder farms in Turkey. Although most of the local breeds are low productive, they are well adapted to the poor feeding and management conditions. There are no breed societies, flock books or field recording systems. The majority of the Turkish native sheep consists of the fat tailed breeds. Thin-tailed sheep breeds are generally raised on the sea-coast of the western Anatolia (Sönmez, 1994). Researches for defining sheep breeds in Turkey, determining and increasing their yields were done in the state farms. However, studies for determining performance of breeds reared in the extensive farm conditions were limited. Any breeding strategies applied without knowing production designs of farmers and yields of sheep breeds in the extensive conditions would not be successful (Karaca et al., 1998; Karaca et al., 2003). Hair goats make up almost 97% of the total 6.09 million goats of Turkey in 2007 (Anonymous, 2008). Hair goats are well known for their hardiness and for their subsistence on very poor ranges and shrub browsing (Gürsoy, 2006).

The hair goats, sheep and cattle population of Turkey had been decreased from 9.440 million to 6.095 million heads, 39.416 million to 25.462 million heads, and 11.951 million to 11.036 million heads, respectively, between 1992–2007 (Anonymous, 2008), which means the number of goats, sheep and cattle decreased by 35.4%, 35.4% and 7.6% in the last 15 years respectively in Turkey. The total annual milk, meat, wool and hair production of Turkey is about 12,329,789 tons, 575,622 tons, 46,751 tons, and 2,536 tons and the number of hide is 10,367,435 in 2007 (Anonymous, 2008).

The proportional ratio of the Aydin province is the 3.5% of Turkey's agricultural production. The 55% of the population has their income from

the agriculture sector. The main subsectors are plant production, animal production and fishery in the agricultural sector in Aydin. 90% of the industrial production depends directly or indirectly on agriculture in the province (Anonymous, 2009).

This study was conducted to determine the situation of sheep, goats and cattle production in the Aydin province.

2. SMALL RUMINANT PRODUCTION IN THE AYDIN PROVINCE

The small ruminant production in Aydin is carried out by the farmers having the flocks including sheep and goats of which the number is between 50 and 150. When comparing the average head number of the flocks in the Aydin province is bigger than the Turkey average of 20 to 50 heads. Small ruminant producing is generally held without a herd management, extensively in mountains and forestry areas that are not favorable for agri-

culture (Karaca et al., 2003; Yilmaz and Altin, 2004).

a) Sheep production. Chios, Kıvırcık and Chios × Kıvırcık (Carian) crossbreeds are the common sheep breeds of the region Kıvırcık breed is common in the mountainous parts of the Aydin province, while the Carian breeds is the common on the other parts (Yilmaz et al., 2009). The total numbers of sheep is 118,953 heads in the Aydin province 2007 (Anonymous, 2007).

Economical conditions of sheep breeders affected the yearly sheep production plan. Also, it is observed that milk yields from sheep were affected by the lamb sale, which is a main income source in sheep production in the Aydin province. When the milk price is high in the market, the income in sheep production can be improved by increasing the milk yield in the extended milking period (Yilmaz and Altin, 2004).

The reduction percentage in the numbers of the sheep from 1992 to 2007 in Aydin is 59.39% (Table 1).

Table 1

Proportional changes and index (1992=100.00) of sheep numbers and products in the Aydin province

Year	Sheep (heads)	Index	Milk (tons)	Index	Meat (tons)	Index	Hide production (number)	Index	Wool (tons)	Index
1992	200290	100	2375	100	1320	100	117960	100	170	100
1996	209380	104,53	2435	102.52	995	75.37	79220	67.15	238	140
2000	159390	79,57	1941	81.72	1486	112.57	102707	87.06	180	105.88
2004	120473	60,14	4583	192.96	906	68.63	57633	48.85	241	141.76
2007	118953	59,39	3992	168.08	1882	142.57	117036	99.21	240	141.17

Anonymous (1992–2007)

Average carcass weight is 14 kg, and the number of slaughtered lambs and sheep is 39,781 heads in 2008 (Anonymous 2009).

b) Goat production. Goat population of Aydin has decreased during recent decades, goat breeding has finished in some areas. Goat breeding in these villages was known to be widespread 30–40 years ago and there were approximately 5000–6000 goats in the Bozdoğan district which is the goat hair weaving doing traditionally. However, due to restriction of pasture fields and afforestation of available land, goat breeding has decreased (Yilmaz et al., 2007).

Hair goat production is done in areas which have maquis and forestry and also small amount of Saanen breeding is started. The number of goats in the Aydin province is decreased year after year as

in general of Turkey. The reduction percentages in the numbers of the goats from 1992 to 2007 is 50.12% and the number of goats in Aydin is 58,109 heads in 2007 (Table 2).

The main reasons of reduction in the number of sheep and goats in Aydin are the following: there is not proper importance to small ruminant production as a result of agricultural policies, the individual production without organization and decrease of available pasture areas in time. The sheep and goat breeding carried out extensively under the natural conditions is thought to be a sector having competition strength in the field of stock-breeding as thought in terms of ecological breeding. The small ruminant breeding in Aydin should be supported because of its contribution to economy of this region.

Table 2

Proportional changes and index (1992=100.00) of goat number and products in the Aydın Province

Year	Goat (heads)	Index	Milk (tons)	Index	Meat (tons)	Index	Hide production (number)	Index	Hair (tons)	Index
1992	115930	100	2855	100	180	100	12980	100	45	100
1996	108560	93.62	2540	88.96	140	77.77	9120	70.26	38	84.44
2000	72940	62.91	1661	58.17	268	148.88	16208	124.86	25	55.55
2004	57741	49.8	3159	110.64	192	106.66	12613	97.17	21	46.66
2007	58109	50.12	2750	96.32	522	290	29865	230.08	19	42.22

Anonymous (1992–2007)

3. CATTLE PRODUCTION IN AYDIN

Intensive cattle production has been rising in Aydın similar with the general production of Turkey during recent years. A small number of the Anatolian Black local breed is being produced especially in the mountain villages in the Aydın province. The intensive production of Holstein and Holstein crossbreds is common, and there is also some production of Montbeliarde, Brown Swiss and Simental in the province.

The total number of cattle is 278,163 heads, culture and Culture crossbred cattle's ratio is 84.05% in Aydın, while the same ratio is 70.31% in Turkey in 2007. Cow milk proportion in the total milk production of Aydın is 98.07%.

Some researchers determined 305 days milk production averages of Holstein and Brown Swiss dairy cows reared in Aydın between 5059.2 kg and 8224.9 (Koç, 2006; Bardakcioglu et al., 2004).

Cattle production has been doing mostly as family enterprises thus, most of the farms have got 5 to 20 heads cattle in Aydın (Table 3).

The Aydın province Breeding Cattle Producers Association is the major organization with 1429 member enterprises about dairy cattle production in Aydın. According to a study conducted

about the herd size of 100 member enterprises of this association 60 enterprises have 2–10 heads milking cows, 23 enterprises have 11–20 heads milking cows, 17 enterprises have 21 – + heads milking cows, and the productivity increases with the proportional enterprise scale (Nizam and Armağan, 2006). The number of native, culture and crossbred cattle shown in Table 4. while milk (tons), meat (tons) and hide (number) productions are shown in Table 5.

Table 3

Number of farms according to the number of cattle in Aydın in 2005

Animal number	Number of farms
05–20 heads	1219
11–20 heads	393
21–30 heads	78
31–40 heads	25
41–50 heads	6
51–60 heads	10
61–100 heads	6
≥101 heads	3
Total	1740

Anonymous (2005)

Table 4

Proportional changes and index (1992=100.00) of cattle numbers (heads) in the Aydın province

Year	Cattle (native)	Index	Cattle (crossbred)	Index	Cattle (culture)	Index	Cattle (total)	Index
1992	71090	100	107310	100	39840	100	218240	100
1996	67180	94.49	128220	119.48	59100	148.34	254500	116.61
2000	53500	75.25	99100	92.34	61950	155.49	214550	98.3
2004	69727	98.08	95965	89.42	74751	187.62	240443	110.17
2007	44340	62.37	48942	45.6	184881	464.05	278163	127.45

Anonymous (1992–2007)

Table 5

Proportional changes and index (1992=100.00) of cattle products (tons) in the Aydin Province

Year	Milk (tons)	Index	Meat (tons)	Index	Hide product-ion (number)	Index
1992	155715	100	6445	100	46470	100
1996	182635	117.28	6785	105.27	39630	85.28
2000	189559	121.73	4860	75.4	32032	68.93
2004	230704	148.15	6671	103.5	38272	82.35
2007	344156	221.01	9912	153.79	44575	95.92

Anonymous (1992–2007)

4. CAMEL AND BUFFALO PRODUCTION IN AYDIN

Traditional camel wrestling is organized annually, so the villagers hold few amounts of camels for wrestling. There is a little amount of camel meat marketing as sausages. The camel number of Aydin is 328 heads, (31.03% of Turkey), while the number of slaughtered camel is 11 heads (100% of Turkey) in 2007. Buffalo breeding is local and the number of buffalo has 58 heads in the Aydin province in 2007 (Anonymous, 2007)

5. CONCLUSION AND RECOMMENDATION

The number of sheep and especially goats in the Aydin province has decreased year after year as has in Turkey in general. The small ruminant production in Aydin is carried out by farmers having sheep and goat herds of which the heads of herds are between 20 and 150 without the herd management, extensively in mountain villages and forestry areas that are not available for agriculture.

The reasons for reduction in the number of sheep and goats in Aydin are due to the lack of importance to small ruminant production as a result of agricultural policies, the individual production without organization and decrease of available pasture areas over the time. The sheep and goat breeding carried out extensively under natural conditions, is thought to be competitive strength in terms of ecological breeding within the field of stock-breeding. The small ruminant breeding in Aydin should therefore be supported because of its contribution to the economy of this region. It could

be said that dairy cattle production is considerably better than the other ruminant production systems in Aydin.

REFERENCES

- Akman N., Cumhuriyetimiz'in 100. Yılında Türkiye'nin Hayvansal Üretimi. *Türkiye Damızlık Sığır Yetiştiricileri Merkez Birliği Yayınları*, N° 4 (2006).
- Anonymous, TurkStat, Agriculture Structure-Production, Price, Value 1992, pp. 357–365. TUIK, Ankara (1992).
- Anonymous, <http://www.adsyb.org.tr> (2005).
- Anonymous, TurkStat, Agriculture Structure-Production, Price, Value 1996, pp. 376–397. TUIK, Ankara (1996).
- Anonymous, TurkStat, Agriculture Structure-Production, Price, Value 2000, pp. 388–409. TUIK, Ankara (2000).
- Anonymous, TurkStat, Agriculture Structure-Production, Price, Value 2004, pp. 340–357. TUIK, Ankara (2004).
- Anonymous, TurkStat, Agriculture Structure-Production, Price, Value 2007, pp. 336–353. TUIK, Ankara (2007).
- Anonymous, Aydin İl Tarım ve Köyişleri Müdürlüğü Kayıtları, 2006 (in Turkish) (2009).
- Anonymous, Turkish Statistical Institute, the Summary of Agricultural Statistics 1988–2007, pp 34. TUIK, Ankara (2008).
- Bardakçioğlu H. E., Türkyılmaz M. K., Nazligül A., The relationship between milk production and some udder and body measurements in Holstein cows. *The Indian Vet. J.*, 81, 67–71 (2004).
- Boyazoglu J., Hatziminaoglou Y., Morand-Fehr P., The role of the goat in society: past present and perspectives for the future. *Small Rum Res*, 60, 13–23 (2005).
- Dubeuf J.-P., Rubino R., Morand-Fehr P., Situation, changes and future of goat industry around the world. *Small Rum. Res*, 51, 165–173. 15 (2004).
- FAO, <http://faostat.fao.org> (2009).
- Gürsoy O., Economics and Profitability of Sheep and Goat Production in Turkey under New Support Regimes and Market Conditions. *Small Ruminant Research*, Volume 62, Issue 3, April, Pages 181–191 (2006).
- Karaca O., Akyüz N., Andiç S., Altın T., Karakaş koyunlarının süt verim Özellikleri. *Turk. J. Vet. Anim. Sci.*, 27, 589–594 (2003).
- Karaca O., Cemal İ., Atay O., Adnan Menderes Üniversitesi Grup Koyun Yetiştirme Programı (ADÜ-GKYP). *Ege bölgesi I. Tarım Kongresi*, 7–11 Eylül 1998, Aydin (1998).
- Kaymakçı M., Elçin A., Işin F., Taşkin T., Karaca O., Tuncel E., Ertuğrul M., Özder M., Güney O., Gürsoy O., Torun O., Altın T., Emsen H., Seymen S., Geren H., Odabaşı A., Sönmez R., Türkiye Küçükbaş Hayvan Yetiştiricileri Üzerine Teknik ve Ekonomik Yaklaşımlar (2005). *Türkiye Ziraat Mühendisliği VI. Kongresi*, 3–7 Ocak 2005.
- Kaymakçı M., Sönmez R., İleri Koyun Yetiştiriciliği (Advanced Sheep Production). Ege Üniversitesi Basımevi, Bornova – Izmir, p. 365 (1996).

- Koç A., Lactation Milk Yields and Somatic Cell Counts of Holstein Friesian and Brown-Swiss Cattle Reared in Aydın Province. *Hayvansal Üretim*, **47** (2), 1–8 (2006).
- Nizam S., Armağan G., Aydın İlinde Pazara Yönelik Süt Sığırcılığı İşletmelerinin Verimliliklerinin Belirlenmesi. *ADÜ Ziraat Fakültesi Dergisi*, **3** (2), 53–60 (2006).
- Sönmez R., A Brief Survey of the History of Awassi Sheep Raising and Breeding in Turkey. In: *Strategies for the Development of Fat-Tail Sheep in Near East*. Galal E. S. E., O. Gürsoy (eds.), EAAP Pub. N^o. 68, Roma, pp 37–48 (1994).
- Yalçın B. C., *Sheep and Goats in Turkey 1986*. Food and Agriculture Organization of the United Nations. FAO – Rome (1986).
- Yılmaz M., Ve Altın T., Yetistirici Kosullarında Kivircik Koyunların Sut Verim Yetenekleri 4. Ulusal Zootekni Bilim Kongresi (01–03 Eylül) İsparta, Turkey, (2004).
- Yılmaz M., Bardakçiođlu H. E., Taşkin T., Toplu H. D. O., Altın T., A Study On Technique and Economic Traits of Hair Weaving Aydın – Bozdoğan District Case Study, *III. Symposium of Livestock Production with International Participation*, 12–14/09/2007. Ohrid, Macedonia (2007).
- Yılmaz M., Altın T., Yılmaz O., Cemal I., H. Erbay Bardakçiođlu, H. E., Taskin T., Karaca O., The Effect of Body Condition Score at Mating on the Reproductive Performances of Kivircik Sheep under Extensive Production System. *IV. International Conference Balnimalcon*, 14–16/05/2009, Stara Zagora, Bulgaria (2009).