

POTENTIALS AND PRESENCE OF GOAT BREEDING AND PRODUCTS IN TURKEY

Halit Deniz Şireli¹, Seyrani Koncagül², Muhittin Tutkun¹

¹*Department of Animal Science, Faculty of Agriculture, University of Dicle, Diyarbaki, 21100, Turkey*

²*Department of Animal Science, Faculty of Agriculture, University of Harran, Sanliurfa, 63200, Turkey*
hdsireli@gmail.com

The aim of this study was to give general information about the products status, breeding systems and to propose recommendation to improve the potentials about goat breeding in Turkey. For these purposes, FAO agricultural statistics is presented by evaluating data obtained. Turkey has significant potential in terms of small ruminant breeding, the number of animals and the production value. According to 2010 figures, 0.5% of the world goats' population is bred in Turkey with the presence of 5.1 million goats. As a result, over the years, based on the continuous decrease of goats in Turkey, there is a decrease of 9% of goats in comparison to the previous year. In 2010, there is a 30% increase in goat milk production and 9.2% decrease in goat and sheep meat comparing to the previous year.

Key words: Turkey; goat product; goat breeding

ПОТЕНЦИЈАЛИ И ЗАСТАПЕНОСТ НА КОЗАРСТВОТО И КОЗЈИТЕ ПРОИЗВОДИ ВО ТУРЦИЈА

Целта на студијата беше да се дадат општи информации за статусот на производите, за системите на одгледување и да се предложат препораки за подобрување на можностите за одгледување кози во Турција. За оваа цел се презентирани земјоделските статистики на ФАО, со оценување на презентираните податоци. Турција има голем потенцијал за одгледување на малите преживари, во однос на бројот на животните и вредноста на производството. Според податоците од 2010 година, 0,5% од светската популација кози се одгледуваат во Турција, односно 5,1 милиони кози. Во текот на годините, врз основа на континуираното намалување, бројот на кози во Турција во 2010 е намален за 9% во споредба со претходната година. Во 2010 година, постои зголемување од 30% во производството на козјо млеко и намалување од 9,2% во производството на козјо и овчо месо, во споредба со претходната година.

Клучни зборови: Турција; козји производ; козарство

INTRODUCTION

Small ruminant farming has played taken very important role in the Turkish economy. This importance is caused by the fact they can process fallow and stubble fields and poor pastures. In the last 20 years, the number of small ruminant animals in Turkey decreased an ongoing basis and this decrease has resulted in decline in the production of total meat, milk, fleece, hair, mohair and leather production due to the reason that amount of production per animal could not be increased. Considering the role of the existence of small ruminant animals in employment share in Turkey, this situation caused people to deal with raising

animals in the countryside and getting poor. To increase the income of small ruminants animal planters in Turkey technical and economic measures are needed to improve rapidly (Kaymakçı et al., 2009).

Turkey has about 4 million agricultural operations available, among those only 3.5% of businesses is in the livestock production. In addition, the farms conducting the combination of crop and livestock production are 73% of them (Dellal et al., 2002).

The size of the business according to the number of small ruminant animals (head), enterprises with small ruminant animals and proportional values whose business and small ruminant

animals have been reported in Table 1. In terms of small ruminant animal businesses in Turkey according to the largest value, while the enterprises with 20 to 49 small ruminant animals are 25.30%, the businesses with more than 300 small ruminant animals take only 1.5%. Accordingly, the majority of businesses with small ruminants in Turkey are formed by small and medium-sized small ruminant farms.

Table 1

Holding size (by head) in terms of small ruminant number, number of holdings with sheep and goats and small ruminants ratio (Anonymus, 2006)

| Holding size according to number of sheep and goats (head) | Holdings having sheep and goats | Sheep and goats |
|--|---------------------------------|-----------------|
| Toplam – Total | 100,0 | 100,0 |
| 1 – 4 | 18,6 | 1,0 |
| 5 – 9 | 10,8 | 1,6 |
| 10 – 19 | 17,2 | 4,9 |
| 20 – 49 | 25,3 | 16,8 |
| 50 – 149 | 21,1 | 36,1 |
| 150 – 299 | 5,6 | 24,1 |
| 300 + | 1,5 | 15,6 |

Current status of small ruminant animal growing

In Turkey, there are many goat breeds and different goat production systems depending on the existence of feed sources and socio-economic characteristics in terms of natural regions and people's consumption patterns (Kaymakçı, 2006). Turkey's small ruminant animals nutrition is largely based on the fallow and stubble fields. For this reason, a balanced dietary life is not in question, consequently it is also not enough for the kids for nurturing.

Selection is based on subjective criteria in the farmer's flocks, but based on records only in the State or special breeding flocks. Organized small ruminant breeding is not in question in nationwide. As a result of these structural features, the number of kids weaned, produced meat and milk are inadequate per goat. Because of the lack of organizations in favor of goat breeding, the revenues of goat producers is also not high.

In Turkey, there are a lot of goat breeds based on regional differences: the native goat breeds (Mohair, Honamli, Kilis and Norduz) and some ot-

her breeds developed as a result of breeding studies in Turkey (White, Taurus, Çukurova and Kilis) available (Ertugrul, 1997; Kaymakçı, 2006; Anonymous, 2009). Majority of them shows seasonal estrous and gives birth once a year. Male goats are introduced into the flock free in the farmers flock; hand mating is applied in only breeding flocks. Although the time of introduction of male goats varies from regions to regions, it occurs generally in autumn.

Almost all the goats are milked in Turkey and it usually begins after weaning. Depending on the regions and breeds of goats, lactation lengths range from 5 to eight months. The goats raised in Western Anatolia and Thrace are milked for a longer period of time than those raised in Central and Eastern Anatolia. During the season of nurturing the goats in Turkey, the goats are grazed on fallow fields, pasture and stubble areas. Grazing period starts in February and lasts till October in higher areas of the Central, Eastern and Southern Anatolia. In the Central and Southern Anatolia, the quality of pasture is low and very few enterprises provide additional feed for the goats following the grazing on pasture.

Breeding and nurturing systems of the kids are different according to the region. In general, the kids are kept with their mothers in barns for the first month, in the second month they move to pasture for grazing. While the weaning age changes from 1.5 to 4 months, the average weaning age is 2.5 months. This period is longer in the Central and Eastern Anatolia than in the Western Anatolia. The kids are usually hosted in the barns built using a simple and often locally sourced materials and stables. In regions where the nomadic breeding system is performed, closed shelters are not used and the kids are taken care in open shelters. Fattening systems of the kids are in the form of intensive care or on the basis of pasture. In the Central and Eastern Anatolia, pasture based fattening is more common. Capricorns are slaughtered at about 20 – 25 kg in the pasture based system and at about 25 – 35 kg live weight in the intensive care system (Taşkın et al., 2010).

Goat and goat products in the world and Turkey

The presence of goats in the continents between 2006 and 2010 is presented in Table 2. While the goat population size was increased by 9.96% in Africa, 9.40% in Asia and 16.55% in Australia, it was decreased by 8.16% in Europe

and 2.10% in America. In 2010, the highest number of goats was in Asia with 551 874 871 head and the smallest number of goats was in Australia with 4 922 391 head.

Table 2

Trends in number of goats (head) in the continents (Anonymous, 2010-b)

| Continent | 2006 | 2010 | Change (%) |
|-----------|-------------|-------------|------------|
| Europe | 17 999 779 | 16 529 821 | -8.16 |
| America | 38 013 119 | 37 211 489 | -2.10 |
| Asia | 504 423 015 | 551 874 871 | +9.40 |
| Africa | 282 717 812 | 310 893 293 | +9.96 |
| Australia | 4 223 236 | 4 922 391 | +16.55 |
| World | 847 376 961 | 921 431 865 | +8.73 |

The first five countries in the world and Turkey in terms of the presence of goats between the years 2006 and 2010 are given in Table 3. The largest increase in the presence of goat population was in Bangladesh by 32.92% while the smallest increase was in China by 2.61%. Turkey has 0.55% of the World's goat population in 2010.

Table 3

Trends in number of goats (head) in the world (Anonymous, 2010-b)

| Country | 2006 | 2010 | Change (%) |
|------------|-------------|-------------|------------|
| India | 136 286 000 | 154 000 000 | +12,99 |
| China | 146 858 033 | 150 705 554 | +2,61 |
| Bangladesh | 48 900 000 | 65 000 000 | +32,92 |
| Pakistan | 53 789 000 | 59 900 000 | +11,36 |
| Nigeria | 51 223 600 | 56 524 100 | +10,34 |
| Turkey | 6 517 460 | 5 128 290 | -21,31 |
| World | 847 376 961 | 921 431 865 | |

The first six countries in Europe in terms of the presence of goats between 2006 and 2010 are given in Table 4. The largest increase in the presence of goat population was in France by 9.44% while the largest decrease was in Greece by 22.54%. Turkey was the first country in terms of goat presence in Europe and has 31.02% of the goat population in Europe in 2010.

Table 4

Trends in number of goats (head) in Europe (Anonymous, 2010-b)

| Countries | 2006 | 2010 | Change (%) |
|--------------|------------|------------|------------|
| Turkey | 6 517 460 | 5 128 290 | -21.31 |
| Greece | 5 422 240 | 4 200 000 | -22.54 |
| Spain | 2 956 730 | 2 933 800 | -0.77 |
| France | 1 232 640 | 1 349 030 | +9.44 |
| Italy | 945 000 | 961 000 | +1.69 |
| Europe Total | 17 999 779 | 16 529 821 | |

The first five countries in the world and Turkey in terms of goat meat production between 2006 and 2010 are given in Table 5. It is seen that there was an increase in goat meat production in all top five countries while there was a decrease in Turkey by 19.65%. The largest increase in the production of goat meat was in Bangladesh by 32.96% and the smallest increase was in China by 9.90%. Turkey had 0.70% of goat meat production in 2010.

Table 5

Trends in production of goat meat (ton) in the World (Anonymous, 2010-b)

| Country | 2006 | 2010 | Change (%) |
|---------------|-----------|-----------|------------|
| China | 1 704 056 | 1 872 823 | +9.90 |
| India | 517 800 | 586 500 | +13.26 |
| Nigeria | 264 310 | 291 300 | +10.21 |
| Pakistan | 250 000 | 275 000 | +10.00 |
| Bangladesh | 182 000 | 242 000 | +32.96 |
| Turkey | 45 555 | 36 600 | -19.65 |
| World (Total) | 4 628 534 | 5 168 151 | +11.65 |

The first five countries in Europe in terms of goat meat production between 2006 and 2010 are given in Table 6. The largest production was in Germany with 68 000 tons and 13.33% increased from 2006 to 2010. On the other hand, the smallest amount of production was in Turkey with 36 600 tons and decreased by 19.65% from 2006 to 2010. Turkey had 29.12% of goat meat production in Europe in 2010.

The first five countries in the world and Turkey in terms of the goat milk production between 2006 and 2010 are given in Table 7. It is seen that there was an increase in goat milk production in all top five countries except Greece. The largest production of goat milk was in India by 12.62% increase from 2006 to 2010 and the smallest production was in Greece by 6.83% decrease from 2006 to 2010. Turkey produced 1.68% of goat milk produced in the World in 2010 with 272 811 tons and the increase was 7.50% from 2006 to 2010.

Table 6

Trends in production of goat meat (ton) in Europe (Anonymous, 2010-b)

| Country | 2006 | 2010 | Change (%) |
|----------------|---------|---------|------------|
| Germany | 60 000 | 68 000 | +13.33 |
| Turkey | 45 555 | 36 600 | -19.65 |
| Sweden | 16 200 | 16 500 | +1.85 |
| Poland | 11 000 | 10 900 | -0.90 |
| Spain | 7 000 | 7 200 | +2.85 |
| Europe (Total) | 129 154 | 125 656 | -2.70 |

Table 7

Trends in production of goat milk (ton) in the World (Anonymous, 2010-b)

| Country | 2006 | 2010 | Change (%) |
|---------------|------------|------------|------------|
| India | 3 818 000 | 4 300 000 | +12.62 |
| Bangladesh | 1 880 000 | 2 496 000 | +32.76 |
| Sudan | 1 437 000 | 1 601 900 | +11.47 |
| Pakistan | 675 000 | 739 000 | +9.48 |
| Greece | 504 495 | 470 000 | -6.83 |
| Turkey | 253 759 | 272 811 | +7.50 |
| World (Total) | 14 727 403 | 16 690 395 | 13.32 |

The first five countries in Europe in terms of goat milk production between 2006 and 2010 are given in Table 8. The largest production was in France with 645 176 tons and 11.72% increase from 2006 to 2010. On the other hand, the smallest amount of production was in Russia with 240 000 tons and decrease by 3.67% from 2006 to 2010.

Turkey produced 10.47% of goat milk produced in Europe in 2010 with 272 811 tons and the increase was 7.58% from 2006 to 2010..

Table 8

Trends in production of goat milk (ton) in Europe (Anonymous, 2010-b)

| Country | 2006 | 2010 | Change (%) |
|----------------|---------|---------|------------|
| France | 577450 | 645176 | 11.72 |
| Spain | 602000 | 491700 | -18.32 |
| Greece | 503495 | 470000 | -6.65 |
| Turkey | 253579 | 272811 | 7.50 |
| Russia | 249148 | 240000 | -3.67 |
| Europe (Total) | 2546931 | 2603507 | 2.22 |

Basic problems of goat breeding in Turkey

The basic problems in goat breeding can be sorted as:

- The majority of flocks are in the form of small and family owned enterprises;
- Having an inadequate level of breeding and genetic studies in goats;
- The lack of capacity in the goat enterprises to meet the level of need and breeding stocks;
- Breeding system is in extensive condition;
- Additional feed may be provided only in winter;
- Pasture fields are inadequate and continue to decrease;
- Extreme grazing of already weak pastures;
- Lack of affordable housing in the regions;
- Unstable price policy;
- Increased migration from the rural areas to big cities;
- Having difficulties in finding breeders and shepherd;
- Ongoing animal entries in illegal ways;
- Negative propaganda about goat meat;
- Non-scientific and exaggerated approaches against goat-breeding;
- Illegal slaughtering of female animals;
- Lack of sufficient goat organizations.

RESULT AND RECOMMENDATION

In general, the most important factors limiting the development in goat breeding in Turkey are insufficient studies in animal breeding and genetics, struggling with animal diseases, inadequate organization and marketing, education, problems in reaching governmental funds. In order to overcome these problems and to accelerate the time to reach the level of developed countries in terms of goat breeding, following strategies should be applied:

- Existing goat enterprises should be supported and encouraged for production;
- Flocks with high producing pure and/or crossbred goats should be established;
- Countermeasures should be taken against animal diseases;
- Goat enterprises should be encouraged to use quality roughage and to produce silage feed;
- Alternative feed production should be promoted to close in shortage of roughage;
- Breeders' knowledge and skills about goat breeding should be improved by educational seminars;
- Problems and challenges in establishing cooperative or producer associations and reaching the governmental funds should be lessened;
- Businessmen should be encouraged to establish enterprises for processing goat products.

In conclusion, it is clear that the great potentials in goat breeding and products in Turkey have not been fully valued. In order to value these potentials, all the agricultural institutions and organizations should develop common strategies and projections for the future development of goat breeding and genetics.

REFERENCES

- [1] Anonymous (2006): *Türkiye İstatistik Kurumu Hayvan İstatistikleri*, <http://www.TUIK.gov.tr>.
- [2] Anonymous (2010-a): *Türkiye İstatistik Kurumu Hayvan İstatistikleri*, <http://www.TUIK.gov.tr>.
- [3] Anonymous (2010-b): Food and Agriculture Organization of the United Nations. Live Animal Stat. <http://faostat.fao.org>.
- [4] Dellal, G., Eliçin, A., Tekel, N., Dellal, I. (2002): GAP Bölgesinde Küçükbaş Hayvan Yetiştiriciliğinin Yapısal Özellikleri. Proje Raporu 2002–1 Temmuz Ankara.
- [5] Ertuğrul, M., Cengiz F. (1997): Hayvan Yetiştirme Ders Kitabı 2. Baskı.. Koyun Yetiştiriciliği, Keçi Yetiştiriciliği Bölümü. Ankara.
- [6] Kaymakçı, M. (2006): *İleri Koyun Yetiştiriciliği*. Ders Kitabı. Bornova, İzmir.
- [7] Kaymakçı, M., Özder, M., Karaca, O., Torun, O., Baş, Sinan, Koşum, N. (2009): Türkiye Koyun Islah Stratejisi, U. Ü. Ziraat Fakültesi Dergisi, 2009, Cilt 23, Sayı 2, 67–77 (*Journal of Agricultural Faculty of Uludag University*).
- [8] Taşkın, T., Özdoğan, M., Önenç, S. (2010): *Keçi Yetiştirme ve Besleme Kitabı*. HASAD.
- [9] Hasad Yayıncılık, *Keçi yetiştirme ve besleme* www.hasad.com.tr. ISBN: 978-975-8377-76-3. İstanbul.