

Extensive breeding of cattle in Turkey

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SUMMARY - The total cattle population of Turkey is 11,789,000. In recent years some changes have occurred in the genetic composition of Turkey bovine population because of import of cosmopolitan bovine breeds. Today cosmopolitan, domestic and crossbred breeds account for 14.0, 45.5 and 40.5% of the cattle population, respectively. Total Turkish red meat and milk production from domestic and cosmopolitan breeds is 70 and 87.5% respectively. Cosmopolitan, domestic breeds and their crosses provide 13.3, 31.0 and 56.0% of bovine meat production and 27.8, 21 and 51.2% of milk production, respectively. Generally, domestic and crossbred cattle are raised in extensive and semi-extensive systems, respectively. Farms, under both systems, are small family farms and their aim is to produce either milk or milk and meat. In both systems grazing is essential.

Key words: Extensive breeding, bovines, Turkey.

RESUME - "Elevage extensif de bovins en Turquie". Le nombre total de bovins en Turquie est de 11 789 000. La composition du patrimoine génétique bovin turc, a changé au fil des années, en raison des importations de races bovines européennes. A présent, ces dernières représentent 14% des bovins par rapport aux 45,5% de races croisées et aux 40,5% de races locales. La production de viande et de lait relative aux races importées d'Europe et à celles croisées est respectivement de 70 et 87,5%. Les trois catégories de races apportent 13,3, 31,0 et 56,0% de la viande bovine et 27,8, 21,0 et 51,2% de lait. En général, les races croisées et locales sont respectivement élevées en système extensif et semi-extensif. Les unités dans lesquelles on trouve ces systèmes sont en majorité de type familial. Leur production est essentiellement orientée vers le lait ou la viande et le lait. Dans les deux systèmes, le pâturage est fondamental.

Mots-clés : Elevage extensif, bovins, Turquie.

Introduction

Total cattle population of Turkey is 11,789,000 head. About 5,885,590 cattle are dairy animals (Anonymous, 1995a). Total 11,789,000 cattle produce yearly about 9,275,310 tons of milk and 292,450 tons of red meat. Cosmopolitan, domestic and their crosses concur for 13.0, 31.0 and 56.0% of bovine meat production and 27.8, 21.0 and 51.2% milk production (Anonymous, 1995a). Milk and red meat production rates equal to 42.3, 53.2, 58.8, 65.3% for red meat production, and 61.9, 62.5, 82.5 and 82.8% for milk production for the following years: 1976, 1980, 1985 and 1990 years respectively (Anonymous, 1995a). Three breeding systems can be classified as intensive, extensive and intermediate (semi-extensive) systems on the basis of following practices and techniques (feeding, animal husbandry, genotypes of bred, managerial technical, reproduction and other agricultural activities).

It can be said that, in Turkey, cosmopolitan, crossbred and domestic genotypes are raised in intensive, semi-intensive/semi-extensive and extensive systems respectively.

There is not a clear distinction between semi-extensive and extensive systems. Therefore, some major characteristics of extensive and semi-extensive cattle breeding system in Turkey will be presented in this paper.

Major characteristics of the extensive and semi-extensive systems

The situations of extensive and semi-extensive breeding systems

Intensity

The size of farms, genotypes raised and feeding possibilities are the major factors affecting the type of breeding system.

In Turkey, cattle are generally raised in small family farms. The structure of those farms is reported in Table 1.

According to Table 1, there is a total of 2,146,685 family units including dairy, fattening and mixed systems units of various capacities [1,100,221 dairy, 184,335 fattening 862,129 mixed (milk and meat)]. It is also clear from the same Table, that 94% (75.6 + 18.4%) of all the farms are family ones (1-10 head). About 5.3, 0.5 and 0.2% of the farms have small, middle and large capacities respectively. The rate of fattening family run units is increasing within the family farms systems because cattle fattening in Turkey has been improved in recent years. Generally, cattle fattening are implemented with more animals than in dairy sector.

Table 1. Structure of family farms rearing cattle in Turkey (Source: Anonymous, 1995b)

Characteristic of the unit	Dairy (%)	Fattening (%)	Mixed [†] (%)	Number	Total (%)
Family unit (1-4 head)	83.6	67.7	67.1	1,623,524	75.6
" (5-10 head)	13.5	19.3	24.5	395,044	18.4
Small unit (11-50 head)	2.6	10.7	7.6	113,830	5.3
Intermediate unit (51-100 head)	0.2	1.5	0.6	10,308	0.5
Large unit (>100 head)	0.1	0.8	0.1	3,979	0.2
Total				2,146,685	

[†]Milk and meat

Nowadays, 14.4, 40.5 and 45.5% of Turkey's cattle population is composed by cosmopolitan, crossed and domestic breeds (Table 2), Domestic breeds are Native Black, East Anatolian Red, South Anatolian Yellow and Grey breed. Extensive breeding systems apply only to domestic breeds (especially in mixed farming). Semi-extensive breeding systems are common with domestic breeds (especially in fattening) and crosses (in dairying and fattening). In both systems, the type of unit is the small family unit. The aim of those units is to produce either milk or milk and meat. At the same time, they are very spread out. Due to these reasons production cannot be made in a rational way.

Cattle numbers for the respective years are as follows: 13.7, 11.4, 11.9, 11.9, 11.8, 11.8 and 11.5 million in 1968, 1990, 1991, 1992, 1993, 1994 and 1995. However, it cannot be said that the number of cattle changed to a significant level from 1968 to 1995. But, as from Table 2, the rates of cosmopolitan and domestic breeds and crossbred cattle changed from 1968 to 1995. These changes have occurred because of imports of cosmopolitan cattle breeds (Black Pied, Holstein, Brown Swiss and Simmenthal). Cattle imports, which were raising from 1970 on, have increased, especially after 1987. A number of small units were established with imported cattle. Breeding animals (especially males) were used from those units to mate with domestic cattle. In addition, bulls from cosmopolitan breeds were also used in some specific projects (i.e., improvement of animals by using natural insemination, artificial insemination projects, distribution of bulls in certain months of the year etc.). At the end of all of these implementations the rate of crossbred genotypes within the population has increased all over Turkey. Furthermore, while the intensity of semi-extensive breeding system has increased, the intensity of extensive breeding system has decreased.

Table 2. Rates of cosmopolitan, domestic and cross-bred genotypes in cattle population (%)

Genotype [†]	Year ^{††}								
	1968 (1)	1976 (1)	1984 (2)	1990 (3)	1991 (3)	1992 (3)	1993 (3)	1994 (3)	1995 (3)
1	0.18	0.8	5.6	8.9	10.5	11.2	12.1	12.7	14.4
2	5.90	11.0	23.1	32.2	33.6	34.4	36.4	38.2	40.5
3	93.90	88.2	71.2	58.8	55.8	54.2	51.4	49.1	45.5

[†]1: Cosmopolitan; 2: Cross-bred; 3: Domestic

^{††}1: Anonymous, 1977; 2: Anonymous, 1985; 3: Anonymous, 1995a

One other reason for the increasing of the rates of semi-extensive breeding systems is the lowering of the natural pasture areas from year to year (Table 3). This was caused by the distribution of land to the farmers who had less land, according to "The law supporting farmers land ownership". Further distribution of land to immigrants resulted also in lowering pasture areas.

Table 3. Areas for natural pasture

Year	Area of pasture (1,000 ha)
1950	37,906
1955	31,009
1965	28,232
1971	21,745
1991	12,373

In conclusion, 40.5 to 45.0% of Turkey cattle population is raised in semi-extensive and extensive systems respectively.

Feeding

Extensive breeding systems strongly depend on natural factors, as animals graze all over the year (or for a long period of the year) on natural pastures. The structure of those family units includes 1 to 5 animals. Other than grazing, there is also available some straw, and to certain extent even wheat bran.

In semi-extensive breeding system also pasturing is essential. Feeding is mainly composed with some hay, various pulps, wheat bran and also sugar beet pulps are given additionally.

Fattening

In Turkey suitable pasture areas for fattening is very limited. For this purpose communal pastures plus rented ones are used. The highest quality pastures are in the east and northeast Anatolian Regions, at the parts of mountainous and high plateaus of the other Turkey's regions. The areas, which are not suitable for intensive cultivation, are also used as pasture. But, even in the eastern and northeast Anatolian Regions, pastures are not very adequate; straw and hay cannot be stocked in the necessary amounts for the winter. However, concentrate cannot be given in sufficient amounts to animals. So, in the autumn and the winter, calves, at the end of the stage of their weaning period,

show signs of malnutrition. This has a negative impact on their growth in this early period. Considering the above reasons, we believe that an intensive fattening system, for a short period, could take place at the end of the pasturing season at the barns. We can affirm that the aim is to provide relatively low cost meat with the present breeding systems.

In many parts of Turkey, especially in the east Anatolian Region, fattening schemes as mentioned above is applied.

Dairy

In extensive and semi-extensive systems, calving is generally occurring in the spring. Calves reach approximately 100-120 kg live weight by grazing from spring to autumn. In the winter, in the regions such as the east Anatolian, where winters are very harsh, animals are kept in the barns and only little amounts of straw can be given to them due to the fact that farmers have very limited feed stocks. Generally, the available amount of feed is enough to keep animals alive. That is why animals lose weight in the winter and when they reach spring they are very thin. For this reason the rate of death is higher than normal.

Production

The average of milk yield and carcass weight *per capita* in various genotypes is provided in Table 4. Generally, domestic animals are of small size. They are born from 2.5 years old cows and they produce milk and meat in lower quantities (Table 4). The average milking period is 200-250 days.

Table 4. Averages of milk yields and carcass weight *per capita* in various genotypes (kg)

Yield [†]	1990 ^{††}			1995 ^{††}		
	1	2	3	1	2	3
A	1,595	1,057	379	1,517	995	366
B a	146	137	123	227	181	133
b	112	103	102	198	175	115

[†]A: Milk/head (kg); B: Meat/head (kg); a: Adult; b: Calves

^{††}1: Culture; 2: Cross-bred; 3: Domestic

In Turkey semi-extensive systems are more common within the private or state dairy farms with cosmopolitan breeds. Intensive breeding systems do only apply to cosmopolitan cows raised in some private units. Furthermore, in Turkey, the average milking yield of cosmopolitan breeds is 3,000 kg. This figure is the result of researches that were generally carried out in the state farms. In general, the level of management and feeding are lower than in the private farms. In Turkey, the average milk yield, applying to cosmopolitan dairy breeds (Table 4) is 1,595 and 1,517 kg for 1990 and 1995 years respectively. From Table 4, we can see that the averages of 1990 and 1995 are not much different, this is due to milk marketing organization which are not well structured in Turkey and milk cannot be marketed to a fair price. That is why dairy farmers do not want to expand and invest in milk production.

However, in Turkey, fattening (especially intensive) has improved very speedily in recent years. Young male animals from cosmopolitan breeds and their crosses are preferred for fattening. In addition, male animals from domestic breeds (especially East Anatolian Red and Native Black) are also reared for fattening purposes. The latter can provide very significant live weights gains for fattening purpose.

In addition, at the beginning of the fattening period live from animal locals breeds can be purchased to a lower price compared to cosmopolitan and crossbred ones. Due to mentioned reasons, significant increases occurred in *per capita* carcass weight in 1995, compared to 1990 for the mentioned three genotypes (Table 4). Table 5 shows the percentage of the various livestock species compared to the total Turkish milk production.

Table 5. Percentage of the various livestock species compared to total milk production in Turkey (Source: Anonymous, 1995a)

Year	Total milk production (tons)	Animal species				
		Sheep (%)	Ordinary goat (%)	Angora goat (%)	Buffalo (%)	Cattle (%)
1976	5,005,520	20.0	11.4	1.0	5.6	61.9
1980	5,472,345	20.9	10.5	0.9	5.0	62.5
1985	9,670,123	11.1	3.5	0.2	2.5	82.7
1990	9,617,415	11.9	3.4	0.14	1.8	82.8
1995	10,601,550	8.8	2.5	0.07	1.1	87.5

Table 6 shows the percentage of slaughtered animals per species compared to the total red meat production in Turkey.

Table 6. Percentage of slaughtered animals per species compared to total red meat production in Turkey (Source: Anonymous, 1995a)

Year	Total milk production (tons)	Animal species				
		Sheep (%)	Ordinary goat (%)	Angora goat (%)	Buffalo (%)	Cattle (%)
1976	225,710	40.0	10.3	0.8	6.6	42.3
1980	203,995	32.8	8.1	0.5	5.2	53.2
1985	497,630	33.8	4.2	0.2	3.0	58.2
1990	503,665	28.5	3.6	0.3	2.3	65.3
1995	414,785	24.6	3.3	0.1	1.5	70.5

Conclusion

It can be affirmed that, the number of cattle in Turkey did not change significantly between 1968-95. According to 1995 statistics, the percentage of domestic breeds within the cattle population has decreased to half, compared to 1968 numbers. Whereas, for the same period the ratio of crossbred cattle and cosmopolitan breeds has increased 6-7 and 80 folds respectively (Table 2).

Intensive, especially semi-extensive cattle breeding systems, gained intensity at an important degree because of increased rates of cosmopolitan breeds and their crosses within local cattle population.

In Turkey consistent meat and milk production is recorded due to changes in genotypes and related breeding systems. However, coarse foodstuff resources are not sufficient. Present fodder production of Turkey is only enough for 1/2 of the Turkish bovine and ovine population. That is why it is necessary to improve natural pastures, to plan new pasturing areas and increases the production of fodder crops.

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