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## Importance of Preserving Indigenous Animal Genetic Sources in Trakya Region of Turkey

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**Abstract:** The artificial insemination studies (Especially after 1980) and animal improvements projects started in 1970 were the main factors effected the rapid decreasing in the number of native pure breed cattle. Especially, in Trakya region in spite of the forage and pasture areas decreased the lands for the cereal and industrial crops was increased due to intensive agriculture. This tendency had in fluoresced very much especially sheep husbandry with based on pastures and area of forage from many point of view. The major results was the decreasing number of native animals inside of the percentage of improved breeds in total cattle population had reached in 48-50% in Türkiye; Trakya region at this value as 93-95%. Consequently, native sheep breeds (eq. Kivircik) and cattle breeds (eq. Bozstep) were drastically, decreased. So these mentioned farm animal breeds are about to extracted. The main aim of animal improvement was also obtaining. Genotypes with suited and equipped futures expected environmental conditions. It is logically impossible to predict future's exact features and choose breeds in advance. Animal improvement studies are mostly focused on present environmental conditions rather than future conditions. Consequently, there was no means to guess the future's variable breed among present genotypes even with low yielded. The importance of two regional farm animal breeds with danger of extinction and needs for conserving than were argued together with suggestions about them.

**Key words:** Animal genetics, indigenous, preserving, region, sources

### INTRODUCTION

Due to drastically reduction in number of native breeds and extinction of breeds many institutions on NGO's such as UNEP (United Nutritious Environmental Program), FAO (Food and Agricultural Organisation), EAAP (European Association of Animal Production) had shown interest on this topics, EAAP and FAO organised many workshop and tried to pull public attention<sup>[1,2]</sup>.

The basic reasons for conserving farm animal breeds were summarized in three group:

- Economical and biological reasons: This is aimed to keep breeds as a genetic sources for future demands it should be taken in to consideration that. Present native breeds thought non-valuable would gain value in future as happened.
- Scientific reasons: As a educational and scientific materials breeds must be kept. Without not being extinct.
- Cultural and historical reasons: Breeds adapted thousands years to specific environmental is also part of culture, tradition and so they must be protected some succession regarding conserving the kivircik sheep breed and bozstep cattle breeds typical to Trakya region as a genetic resources were made.

**Criteria for choosing breed for conservation:** The abundance of number of breeds and subtypes and luck of finance it is impossible to preserve all native breeds existed. In order to determine which breeds has priority for being preserving there are some criteria widely accepted as reviewed by Majjala *et al.*<sup>[3]</sup> as below:

- Risk for danger of extinction of breed
- Background and history of breed.
- Degree of purity
- Degree of genetic differences from other breeds
- Size of population and rate of diminishing
- Biological value of breed
- Distinguished features of at least one trades at performance
- The degree of adaptability in present conditions
- Resistance for disease.

The size of population and rate of diminishing and biological value of breeds were most important one's. EAP considering any breed with lower than 5000 of herd size are in danger and should be preserved<sup>[4]</sup>.

Table 1: Land in Trakya region (ha)\*

Land	Edirne	Tekirdağ	Kirklareli	Çatalca	Silivri	Gelibolu	Toplam	%
Arable field	379995	383952	261640	29640	54340	39783	1149350	51.80
Viniculture	2415	6951	883000	5000	85000	329000	10668	0.48
Vegetable	8923	5691	5216	5490	-	850000	26170	1.18
Fruit	164000	2050	572000	2392	239000	377000	5794	0.26
Pasture	64032	30000	73853	12500	2000000	1140	183525	8.27
Forest	105558	105000	239350	73102	27000	35845	585855	26.40
Non-Agric.	66508	88144	73486	23354	2700	3216	257408	11.60
Total	627595	621788	655000	146483	86364	81540	2218770	100.00

\*[10]

Table 2: Number of sheeps in Tekirdağ by years (head)\*

Years	Native	Merinos	Years	Native	Merinos
1985	272304	-	1994	155028	10892
1986	255049	-	1995	153317	10793
1987	239000	-	1996	151480	10385
1988	226695	-	1997	148918	11700
1989	210005	-	1998	138125	12975
1990	192331	13751	1999	121641	12286
1991	179349	13016	2000	115428	14265
1992	165855	12265	2001	111050	13500
1993	154091	11591			

\*The data of agricultural directorate of Tekirdağ province<sup>[11]</sup>

The crossbreeding studies started in 1960 and support for animal production improvement started in 1970 had lead to decreasing the native breeds. In 1960 it is estimated, 50.3% of total cattle population was consisted of native black cattle. The remaining 28.2 and 8.8% were Eastern in Anatolian Red and Grey cattle, respectively<sup>[5]</sup>. According to the, 1985 statistics percentage of Anatolian Black Cattle was 33.1%. The Eastern Anatolian Red, South Eastern Red percentage were 4.8 and 44%, respectively. The Native Grey Cattle and exotic western breeds percentage were 4 and 28.6%, respectively<sup>[6]</sup>. The highest reduction occurred in Grey cattle as 59.5% in last 20 years.

The number of South Eastern Anatolian red and Eastern Anatolian red were decreased as 51.6 and 47.5%, respectively.

Due to farmers preference native breeds were inseminated mostly with exotic western breeds without and limitation by artificial insemination. Unfortunately, census has not taken into consideration the name of breeds. So there are no clear-cut information on this topic. But, it is logic to say Trakya region is about to last their valuable two genetic sources of Kivircik sheep and Grey cattle breeds.

**Agricultural structure of trakya region:** Trakya region has 2.8% of total country area and part of covering Tekirdag, Edirne, Kirklareli and Istanbul and part of Çanakkale provinces. This percentage of 2.8% is stands for 2218777 ha. This area were consisted of 51.8, 26.4, 11.6, 8.27% agricultural land, forage area and non-agricultural area, respectively and pasture and forage production (Table 1). Total Trakya area was 2218777 ha

the land of Trakya region of Türkiye is partially slope and water sources are limited. Although, potentially irrigation areas is 20196 ha, only 3900 ha are irrigated.

Due to it's intensive agriculture feature the sown area for cereal and industrial crops are increased. The land for cereals and sunflower in the total arable land (1149350 ha) is 89% as (1026215 ha) and shown in Table 1. It can be seen most common agricultural crops are sunflower and cereals in Tekirdağ. Consequently, pasture area has been replaced by industrial crops. Then sheep farming is influenced from this tendency due to it's feature of dependence to the availability of pasture. The most common sheep breeds of Kivircik is also decreased (Table 2).

The drastically destruction of sheep husbandry could be seen in Table. Due to data is only classified native or non-native it is difficult to determine the name of breeds. But it is estimated as Kivircik.

The improved cattle breed percentages in Türkiye and Trakya region are 48-50 and 93-95%, respectively. The characteristic cattle breeds of region is almost to extinct (Table 3).

Due to the unconscious of farmers heavy crossbreeding are applied for remaining native cattle breed of Turkey. It is argued that many native cattle breeds of Türkiye are extinct<sup>[7-9]</sup> and remaining native cattle populations are facet danger of total extinction.

Preservation programs for the remaining native farm animal breeds are urgently needed for farm animal genetic sources. In order to sustainable agriculture and genetic diversity Grey Cattle and Kivircik sheep breed should be protected.

One of the aims farm animal improvement studies is to obtain genotypes with economic yield for features conditions.

The direction of farm animal improvement studies are determined by present conditions rather than potential feature demand of consumer. The direction of consumer demand couldn't be estimated from now consequently are existed native cattle and sheep breeds are preserved.

Due to economical point of view conservation programs are not the means of to keep all existed population.

Table 3: Number of farm animals in Tekirdağ (head)\*

Animal species	Edirne	Tekirdağ	Kirklareli	Çatalca	Silivri	Gelibolu	Total
Merinos	4562	12296	-	-	-	1550	18408
Native	200002	121641	190407	-	16000	17670	545720
Total	204564	133937	190407	21330	16000	19220	585458
Hair Goat	33022	34331	47789	2720	3200	31200	152262
Mohair	-	-	-	-	-	-	-
Total	237586	168268	238196	24050	19200	50420	737720
Cattle(Western)	33670	55425	55360	19000	-	4456	167911
Cattle(Crossbreed)	76319	39866	23893	-	11000	4525	155603
Cattle(Native)	2245	849	2252	-	-	250	5596
Water buffalo	-	592	476	2370	290	-	3728
Total	112234	96732	81981	21370	11290	9231	332838
Total	349820	265000	320177	45420	30490	59651	107058

\*The data of agricultural directorate of Tekirdağ province<sup>[1]</sup>

There are several conservation policies such as *in situ* and *ex situ* studies to keep representing amount of existed population<sup>[8]</sup>. In order to start preservation studies for farm animal genetic sources of Trakya region the need for inventory studies as a source of data base. The powerful force of obtaining high yield an genotypes is leading the disappearance of low yield an native cattle by crossbreeding without not considering they would be needed in future as a genetic sources.

As a positive movement for attracting public awareness ministry of agriculture had prepared regulations for preserving the native animal genetic sources according to the a act passed from parliament<sup>[8]</sup>.

But application and progress in this concept are needed.

#### Preserving and improving native farm animal breeds:

The lack of income of farmers leads to luck for to obtain high yielded genotypes from farmers point of views.

Consequently, only public institutes or NGO' s can capable of apply projects on this topic rather than farmers themselves. Another way is contracted farming with the owners of farm native animals as an *in situ* preservation European Union Countries are now applying to make subsidisation to the native farm animal breeder. The grey cattle and Kivircik sheep breeds are generally combined, multiple proposed breeds. There had been no intensively improvement studies applied. Trakya region of Türkiye is sufficient for mid production in general. But red meat production is insufficient in the region. This can be the starting point for preserving grey cattle as a material for improvement projects of breed as a genetic source of meat production.

In order to determine the genetic potential of breed it is necessary to carry a research program or this breed. Than exact breeding policies could be determined.

## RESULTS AND DISCUSSION

The country side and multidiscipline team work is needed. In order to preserve the grey cattle and Kivircik sheeps. The solutions for conserving this valuable genetic sources are summarized following:

**Inventory studies:** It is necessary to start and inventory studies in order to determine the existed population. When developing a breeding program the breeder must first decide what trades are most important to select for from the economic standpoint these studies can supply the data for these aims.

#### Financial and technique support for farmers and animal breeding improvement:

The success of projects are depends on willingness of farmers. Due to low yielding feature of native breeds farmers tend to abandon these native breeds. The measures such as direct income support, contracted, animal breeding, could pull the interest and willingness of farmers.

#### Natural and artificial network for production records, herd book and insemination:

After determining the real genetic capacity of these breeds the possible breeding policies including to take advantage of heterosis if exist for market animal not for breeding stock it is of course pure breed native populations are maintained. In order to avoid adverse effects accompanied in breeding. Mating of unrelated animals with him breed is necessary. Information needed to formulate effective mating and selection systems. The efficient way of obtaining data would be devised to make accurate measurement and records.

This kind of results can only be obtained a cooperative studies by universities and research institutes. It is recommended to start a plot project in

department of animal science Tekirdag agricultural faculty. This projects is aimed. Evaluating maternal and paternal trades such as incidence of dystocid. Pre and post weaning performance, acclimation and adaptation ability mid and milk quality, carcass quality. Than the genetic potential of mentioned native breeds could be clear.

**Factors relating the improving of environmental conditions:** The measures relating animal nutrition, animal health, animal welfare in barns and improve and increase the pasture and forage production are necessary and to combine these effort with studies obtaining desirable genotypes.

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