

Importance of native animal genetic resources.

Hasan Meydan*

Department of Agricultural Biotechnology, Animal Biotechnology Division, Akdeniz University, Antalya, Turkey

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Editorial

While population growth rate and economic pressure force the changes in traditional agricultural systems, biodiversity has been reducing rapidly. Animal genetic resources, one of the main components of biodiversity, meet the increasing demand on food and agriculture [1]. As open space disappears, it becomes increasingly necessary to look at our own landscapes as a refuge for biodiversity. A native animal has always been a part of a particular environment. Such animals play a role in the chain of events for feeding (food web) or habitat and have evolved with the environment and adapted to it. Native animals create an intricate web of life. The loss of them can quickly escalate to affect an entire ecosystem. Native animals are important for many reasons including playing roles in healthy ecosystems, contributing to the quality of life we have, giving economic benefits, and being good adaptation to difficult local environmental conditions. For that reason, the efforts should be made to prevent the loss of native animals and to protect them. Also, the genetic resources of native animals should be conserved and managed by the countries.

In the UN Convention on Biological Diversity, genetic resources are defined as "genetic material of actual or potential value". In order to meet the basic needs of people, only about thousands of species have been domesticated. A global total of 8054 breeds have been reported; and 1710 breeds of them are classified as being at risk. Considering the speed of the extinction rate, the world agriculture is estimated to be adversely affected in the near future. For this reason, a significant increase in effort for the conservation of animal genetic resources has been observed in the world in recent years. The characterization and monitoring of animal genetic resources are the part of Interlaken Declaration confirmed by the countries to be aware of the erosion in their animal genetic resources in 2007 [1].

Although the productivity of Turkish native animal breeds is low, they are adapted to especially difficult local environmental conditions such as rough climatic conditions and insufficient food availability. Turkish native animal breeds are potentially endangered because of crossbreeding. Therefore, Turkey has undertaken a national project (TAGEM-95K120250) titled "In situ Conservation Program of Livestock Genetic Resources" to conserve the Turkish native livestock breeds. The earliest evidence of animal domestication was found in certain parts of the Near East, with Turkey as an area of major importance. Within the Near East and because of its geographical location at the intersection of Asia and Europe, Anatolia has been a cradle for civilizations since prehistoric times. Data from the numerous Neolithic human settlements found throughout this region strongly point to it as a major domestication centre for livestock

species, mainly cattle, pig, goats and sheep [2]. Thus, it is likely that some of the Turkish native breeds of today are some of the oldest living descendants of their first domesticated ancestors, and Anatolian (Turkish) native breeds may be the special ones in maintaining very valuable genetic diversity. Therefore, they must be explored with regard to genetic markers.

Our research group have carried out many studies on characterization and identification of Turkish native animal breeds and published many research articles. We showed the genetic diversity of Turkish honey bees with regard to nDNA loci and mtDNA CoxI-CoxII intergenic region [3,4]. We also characterized and identified the genetic disorders such as bovine leukocyte adhesion deficiency, deficiency of uridine monophosphate synthase, complex vertebral malformation, bovine citrullinaemia, and factor XI deficiency in Turkish native cattle breeds [3-6]. Our research group carried out the studies on prion protein gene (PRNP) polymorphism and the genetic risk evaluation for scrapie and atypical scrapie in Turkish sheep and goat breeds [5,7-10]. As a result of these studies about PRNP, we found many novel polymorphisms in ovine and caprine prion protein genes. In addition to these studies, we characterized Turkish native chicken breeds with regard to mtDNA D-loop region [6].

The conservation of native genetic resources is so important because many native breed populations are declining due to many reasons including degraded habitat and hybridization studies. Without conservation, some declining breeds never recover and eventually may become extinct- or no longer in existence. Since the existing conditions of climate, shelter, feed and health-related situations can be change in the future, conservation or even enhancement of existing variation will provide ability to adapt to the possible situations. Today, it is difficult to predict which of the production characteristics or genotypes that neglected so far become economically important in the future. For that reason, each country should continue the conservation policies for future generations.

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***Correspondence to:**

Hasan Meydan, PhD
Department of Agricultural Biotechnology
Animal Biotechnology Division
Akdeniz University
Antalya 07058
Turkey
Tel: 0 (242) 227 44 00 (extension 3739)
E-mail: meydan@akdeniz.edu.tr