

THE MAIN MORPHO-PRODUCTIVE TRAITS OF THE BUFFALOES FROM SALAJ COUNTY

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RESEARCH ARTICLE

Abstract

The global trend of food increasing requirements and animal farming, in line with all changes, drives to the necessity to set up and implement adequate strategies for animal breeding. Along the Romania regions, buffalo livestock from Salaj county is a valuable genetic pool for important traits, being still in focus for breeding and improvement programmes. This study aims to draw up an overview related to the buffalo livestock, pointing out its morpho-productive traits and the main objectives of the breeding and improvement programme carried out in this area.

Keywords: Romanian Buffalo; milk production; morpho-productive traits; breeding and improvement programme; genetic resource.

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INTRODUCTION

The North-East and the North-West regions of Romania are having the highest number of cattle all over the country (STATISTICA, 2021; ANZ, 2020). Salaj county is located in the North-West of Romania, namely between the West and the East Carpathian Mountains, showing a hilly and mountain area, buffalo milk yield per animal showing high values (ESTAT, 2021). Salaj county has a valuable buffalo herd (Velea, 1992; Velea et al., 1997).

The characterization of animal populations is very important for implementing adequate breeding and improvement programmes and strategies, including those on buffalo (Hoffmann et. al., 2010; Socol and Maerescu, 2020; Vanvanhossou et al., 2021). Phenotypes data of various traits are used for characterizing animal population and individuals (FAO, 2011; FAO, 2015).

Salaj county is an important area for buffalo farming which is still in focus for breeding and improvement programmes.

MATERIAL AND METHOD

The morpho-productive traits of the buffaloes population from Salaj county were analyzed. Milk yield, body development, body conformation, constitution, and udder

morphological characteristics were evaluated according to the measurement and evaluation methods previously described (Moufida, 2014; Angeles, 2014; Toszer, 200; Velea, 1992; Velea et al., 1996). The biological material used consisted in buffaloes of the Romanian breed, from small and medium farm holders of Salaj county. Also, data and reports from The Association of Buffalo Breeders from Transylvania were used.

RESULTS AND DISCUSSIONS

In 1998 in Salaj County there was an estimated livestock of 22925 buffalo heads, of which 15878 cattle stock inventoried, of which 676 heads in the official control of milk production.

At the present time in Salaj County we estimate a number of 2565 buffalo heads, of which 1841 cattle stock inventoried, of which 1354 heads included in the official control of milk production; these estimations were made based on the records of bovine associations and organizations recognized by the official competent authorities at national level, mainly of The Association of Buffalo Breeders from Transylvania.

Salaj county is an important area of buffalo breeding in our country, outlined based on considerations stating that buffaloes population represents over 31.8% of the cattle herd existing in the county and around 21.1%

of the buffalo livestock bred at country level. The actual buffaloes population of Salaj county can be found in villages from the hilly area to the mountain, showing difficult pedoclimatic conditions, and where the spontaneous flora composition is dominated by plants with low nutritional value. Other specific conditions of these areas consist of reduced yields of the main cereals crops. Besides, the breeding conditions and the farm management applied is a traditional one, mainly characterized by poorly developed shelters, the feeding is based on fibrous and coarse fodders and the buffaloes breeding is performed in small and medium farms (Velea et al., 1997).

In the present study the morpho-productive traits of the buffaloes population from Salaj county was analysed by evaluating milk yield, body development, body conformation and constitution, udder, etc. The results obtained indicate that the biological material studied showed a pronounced overall harmony in line with a milk production performance above the mean value of the breed and a body development obviously higher than the average values of the breed.

We would like to note also that the traits targeting milk production at the herd included

in the official control of milk production of 1365 heads, highlight a higher milk production performance with 41.8% rather than those published in the breed standard, respectively of 1538 kg, thereby asserting a higher value of the biological material studied, with 14.7% compared to those reported in previously studies performed on the same herd (*Table 1*), (Velea et al., 1993, 1996, 1997; The Association of Buffalo Breeders from Transylvania, 2020). Moreover, the overall body development exceeds 535 kg and in some cases even 560 kg.

At the same time, we note that the buffaloes herd included in our study shows a body mass with 15.8% higher than that stated by Velea et al. on various studies on the Romanian Buffalo breed and with 14.7% higher compared to that reported by the same authors for the buffaloes' population from Salaj county. Thereby, we conclude that the results of our study mark out a progress in terms of the analyzed traits (*Table 2*) and meanwhile the buffaloes from Salaj county are representing a valuable livestock pool, that could be used in improvement programmes.

Table 1

The main morpho-productive traits of the Romanian Buffalo reported by Velea and its collaborators

Traits	U.M.	Salaj county
Height at the withers	cm	132.08
Height at the croup	cm	138.05
Body length	cm	140.03
Thoracic perimeter	cm	190.96
Body weight	kg	461
Age at first calving	months	38.56
Milk yield	kg	1111.88
Lactation length	days	253.33

Table 2

The main morpho-productive traits of the Romanian Buffalo from Salaj county

Traits	U.M.	Salaj county
Height at the withers	cm	138
Height at the croup	cm	140
Body length	cm	144
Thoracic perimeter	cm	203.5
Body weight	kg	560-600
Age at first calving	months	34.6
Milk yield	kg	1752
Lactation length	days	265.8

The average level of the production values indicate that in this area there is a buffaloes population showing valuable morpho-productive traits as a consequence of applying artificial insemination, starting from 1995 at a ratio exceeding 26% of the population size, by using frozen semen material from the Research Unit of Sercaia, next to controlled natural mating by using buffalo males resulted from nominated candidate mothers and selected mothers of buffaloes, according to the hierarchy of female buffaloes based on the official control of milk production, milk yield and quality of milk and scoring values resulted after exterior traits evaluation. Last but not least, the enhancement of the conditions for breeding, farming management and feeding, in line with the milk production should be considered too.

The recognition of the morpho-productive value of the buffalo population from Salaj county was probed by the requests for biological material for populating various farms from Romania, and especially by the requests of exports addressed starting from 1998 by countries such as England, Scotland, Switzerland, Germany, Italy, etc.

In order to consolidate the traits of some buffaloes' types to meet breeders' requirements for milk and meat production, The Association of Buffalo Breeders from Transylvania has been accredited as a breeding and improvement unit for the production control starting with 2015 and starting from 2021 it has been recognized as animal improvement organization for keeping the Genealogical Register of the Romanian Buffalo breed. Therefore, the Association of Buffalo Breeders from Transylvania throughout its technical commission board has drawn up the breeding and improvement programme for the Romanian Buffalo breed, which was approved by The National Agency of Animal Husbandry at national level. The main objectives of the breeding and improvement programme consists in:

- average milk yield: >1500kg,
- average percentage of fat: 7.7%,
- average percentage of protein: 4.5%,
- normal lactation length: minimum 270 days,
- body weight: > 600 kg,
- the depth of the chest: > 55 cm,
- lengths/widths: with 6-7% higher,
- average daily weight gain: 700 g/day,
- slaughter ratio: 54%,
- maintaining the resistance and the adaptability to environmental factors,

- improving of the udder shape and volume to lend to mechanical milking.

The achievement of the genetic merit in buffaloes' populations is ensured by applying the pressure throughout males. For such purposes, in Salaj County, artificial insemination using frozen semen obtained from local buffalo males in collaboration with Semtest Targu Mures and USAMV Cluj-Napoca, next to controlled natural mating by using buffalo males resulted from mothers of males, nomination following the results obtained through the official control of milk production.

The immigration of valuable genes was driven throughout the semen collected from the Murrach breed, as well as from improved Mediterranean river buffalo from Italy, Bulgaria, etc.

The achievement of the proposed objectives comprised in the breeding and improvement programme involves a series of systematic actions that include:

- increasing the active population,
- accurate registration of genealogy,
- controlling of production performances,
- an adequate selection of reproduction animals, allowing to maintain the genetic diversity of the rusticity traits, consolidation of production and reproduction traits,
- extension and implementation of reproduction biotechnologies,
- the establishment of a valuable gene bank collection within the national gene bank of farm animals,
- the objectives of the breeding and improvement programme will be achieved by pure breeding.

CONCLUSIONS

The actual buffalo population from Salaj county is a valuable genetic resource for milk production. The results of our study emphasize a progress in terms of the analysed traits of the buffaloes from this region, which are representing a valuable livestock pool, that could be used in improvement programmes.

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