

## SURVEY OF BOVINE LIVESTOCK RESOURCES IN SALAJ COUNTY

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### **Abstract**

*The actual global situation related to food and cattle farming, along with all changing pressures, stands for defining suitable strategies for animal breeding, especially in the dairy cattle area of the developing countries. Progress in cattle genetics emerged the use of genomic technologies for identifying favorable genetic profiles for milk quantity and quality production. Along countries and regions, bovine livestock could be potential valuable genetic pools for important traits, including adapting, resistance and others, which should be identified and selected in livestock populations. Salaj county is an important region for dairy cattle farming in Romania, being still in focus for breeding programmes, also in buffalo. This approach aims to draw up a global overview related to dairy cattle and buffalo livestock size and dynamics in Salaj county, which is the starting point for addressing, defining and implementing a durable breeding improvement, based on smallholder sustainable and specific management strategies.*

**Key words:** dairy cattle, buffalo, milk production, performance control, breeding strategies, genetic pool.

### **INTRODUCTION**

The growth of the world’s human population and its shift along country sides or specific regions lead to an increased demand for food, including milk and dairy products, so that animal breeding had to face a continuously trend of changes directed mainly for increasing animal production, but also in terms of quality, by means of highly specialized breeds and advanced genetics used in farm animal breeding programmes (Woelders et al 2006, Tricarico et al. 2020; Rusu et al., 2021).

The North-East and the North-West regions of Romania are on top related to the cattle number, along all over the country regions (STATISTICA, 2021). Salaj county is located in the North-Western part of Romania, specifically between the Western and the Eastern Carpathians, showing a very complex geography, mainly consisting in hills and mountains and a value of the cattle and the buffalo-cattle milk yield per

animal close to the national one (ESTAT, 2021). Moreover, Salaj county is a large center for a valuable buffalo herd (Coroian et al., 2012).

Cattle populations and breeds characterization is the main step for implementing suitable livestock breeding and improvement programmes and strategies (Hoffmann et. al., 2010; Socol and Maerescu, 2020; Vanvanhossou et al., 2021). Phenotypes and genotype data of various traits in cattle stand for an adequate characterization of animal population and individuals (FAO, 2011; FAO, 2015).

The challenges related to the increasing food demand, the high food security, next to the uncertainty of livestock farming in developing countries strength out the necessity of maintaining and managing actual farm livestock populations and breeds, especially in bovine, which could be valuable genetic pools for important traits, including adapting, resistance and others (Socol et al., 2019). Salaj county is an important region for bovine farming being still in focus for breeding programmes. The dynamics of the cattle population size in this region in the last years could provide valuable data that can be used for adequate breeding strategies specifically for smallholder management and the development of this region. The present approach is carried out to draw up a global overview on bovine breeding in Salaj county, pointing out the main breeds effectives, next to the trend of cattle and buffalo number in this region and some perspectives that should be considered for bovine breeding based on the actual status.

## **MATERIAL AND METHOD**

The paper is an assessment of the present situation and the dynamics of dairy cattle and buffalo number in Salaj county. Data from reports of the National Agency for Animal Husbandry “Prof. dr. G. K. Constantinescu”, the National Institute of Statistics and of the bovine associations and organizations recognized by the official competent authorities at national level, regarding the bovine number under performance control for milk production included breeding programmes in Salaj county, reported to the Salaj County Animal Husbandry Office from the National Agency for Animal Husbandry „Prof. dr. G. K. Constantinescu” (reports of January of each year) were used. Data collected from available reports was further extracted and analyzed for dairy cattle and buffalo number under performance control and breeds in Salaj region.

## **RESULTS AND DISCUSSION**

According to the data reported in 2020, the North-East and the North-West regions of Romania show the highest number of cattle, along all

over the country regions, i.e. 467.771 and 365.037 of the total number of 1.914.602 cattle in Romania (STATISTICA, 2021).

The number of bovine under performance control for milk production in Romania showed an increasing trend during the last five years, but the increment of bovine number at country level is still targeted, the effectiveness number being not satisfactory (Table 1).

*Table 1*

Dynamics of total number of bovine in Romania under performance control for milk production during 2016-2020

Year	Total bovine no. under performance control for milk production (heads)
2016	131.050
2017	214.650
2018	288.925
2019	285.432
2020	296.655

*\*data according to the Technical bulletin report in bovine species at 31.03.2020 for the first quarter of 2016-2020, of The National Agency of Animal Husbandry (ANZ, 2020)*

Moreover, one of the goals of The Ministry of Agriculture and Rural Development, in agreement to the actual European regulations and also to national specific programmes authorized by the competent authority in animal husbandry i.e. The National Agency for Animal Husbandry „Prof. dr. G. K. Constantinescu”, consists in stimulating dairy cattle breeding and improvement in terms of implementing specific feasible strategies and programmes. Also, a special interest should be addressed to buffalo breeding sector, which shows a real potential. For stimulating bovine farming in Romania, including dairy cattle and buffalo breeding, different financial support schemes are implemented for stimulating bovine breeding, referring to breeding programmes and performance control for milk production.

The bovine breed structure under performance control for milk production in Salaj county consists in the Romanian Spotted Cattle – Simmental breed (BR-SIM), which has the largest size, followed by the Romanian Black Spotted Cattle - Holstein-Friesian (BNR-HF), only a very smaller number of Brown Cattle (B) and Montbeliard (MO), but an important number of buffaloes. The Romanian Spotted Cattle – Simmental breed is the main breed found in Salaj county (Table 2).

The informative report of 2019, Salaj indicated a total number of 8500 bovine heads included in breeding programmes and under performance control for milk production, of which 1421 buffalo heads (Table 2); all bovine animals are comprised in 939 dairy farm holders, of which 356 dairy cattle farms and 583 buffalo farms.

The total size of dairy bovine included in breeding programmes and under performance control for milk production, from Salaj county according to the informative report of the year 2020 consisted in 7960 bovine heads, including 1477 buffalo heads (Table 2), all together found in 831 dairy farm holders, of which 312 dairy cattle farms and 519 buffalo farms.

*Table 2*

Dynamics of total number of bovine under performance control for milk production in Salaj county during 2019-2020

Year	Total cattle no. (heads)			Total buffalo no. (heads)	Total bovine no. (heads)
	Total taurine no.	Breed	Total taurine no./breed		
2019	7079	BNR-HF	999	1.421	8.500
		BR-SIM	6037		
		MO	20		
		B	23		
2020	6483	BNR-HF	1030	1477	7960
		BR-SIM	5401		
		MO	20		
		B	32		
2021	6442	BNR-HF	1005	1528	7970
		BR-SIM	5411		
		MO	7		
		B	19		

*\*data reported by the bovine breeding associations to the Salaj County Animal Husbandry Office from the National Agency for Animal Husbandry „Prof. dr. G. K. Constantinescu”*

In 2021 the total size of dairy bovine in Salaj show quite the same trend related to the number of bovine heads, with a very slight increase in the buffalo number (1528 buffalo heads). According to the data reported in January of 2021 in Salaj county there are 7970 bovine heads in 797 dairy farm holders, of which 312 dairy cattle farms and 485 buffalo farms.

Furthermore, most of the farm holders accessed financial support for bovine breeding schemes, which probably contributed to the maintaining of bovine effectives in this area.

The analysis of the above numbers indicates that Salaj county shows most of the bovine livestock in smallholder farms, buffalo being specific in this region and an important part of it, which should be further addressed.

Dairy cattle breeds and buffaloes found in specific country regions, including that of Salaj, may show valuable traits, which could be revealed by means of genetics, such as potentially valuable alleles and genotypes for improving milk yield and quality, that could be further targeted and selected in breeding programmes.

The evaluation of the actual situation and the dynamics of the number of bovines from Salaj county related milk performances could be further assessed for genetic profiles in dairy cattle and buffalo from this area, which still may preserve specific adaptive traits and also related to high quality milk proteins benefic for human health. Moreover, new strategies for improving dairy cattle and buffalo livestock breeding based on such considerations and adapted to the specific region of Salaj are still needed.

Dairy cattle populations from Romania are valuable livestock, requiring a special interest for farming and animal improvement, but also for genetic assessment, which is still deficitary implemented in animal breeding in our country (Socol and Maurescu, 2020). The potential unique genetic pool of bovine of this region, which is still unraveled, could be saved from threatening by the developing adequate breeding strategies specifically for smallholder management practices, that is often neglected.

## CONCLUSIONS

Dairy production from Salaj region could encode a real potential for food security and human health, based on bovine genetics not yet ravelled from smallholders in this area. The current status of bovine livestock in this region could stand for such purposes in further studies, the Romanian Spotted Cattle – Simmental breed and the buffalo being of interest. Also, the data of the present paper stands for designing and implementing appropriate and specific breeding schemes for local production systems in this region.

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