

STUDY ON THE SITUATION OF THE BOVINES HERDS IN ROMANIA, THE PRODUCTIONS OBTAINED AND THE CONSUMPTION OF MEAT AND DAIRY IN THE PERIOD 2016-2021

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Abstract

The current work aims to analyze the existing situation in Romania compared to other EU countries, regarding bovines herds, given that this species is one of the ones that causes the highest level of greenhouse gases, with a direct effect on the environment and global warming. This is the reason why the subject has become a priority not only at the community level, but also worldwide. Through the Common Agricultural Policy, important funds have been allocated at the level of the European Union, which will continue to be allocated, not only for the reduction of climate change, but also for the adaptation of the states of the world to these existing climate changes at the global level. Given the path in which animal husbandry influences sustainable development, through the study we have followed both the effective changes, but also the obtained productions, with a direct impact on consumption. It was found that both at the community level, as well as at the national level, there was a decrease in bovines herds in the period 2016-2020, the reasons being primarily of an economic nature, but equally important being the social and environmental ones. The analysis was carried out starting from the data published by the National Institute of Statistics and Eurostat, data that were then processed and analyzed with the help of statistical methods. Based on these, the conclusions were formulated that show us that in Romania the number of bovines herds decreased by 11% in the period 2016-2021. At the European Union level, Romania ranks 10th in terms of bovines herds and 20th in terms of density/100 ha. Although there are advances in terms of applied technologies or more productive breeds, at the global level the objectives pursued by the reduction of greenhouse gas emissions have not been influenced by these advances, which makes the activity of raising bovines to be considered one with effects negative effects on the environment, but also high consumption of energy and water, which in turn have a negative impact on climate change.

Key words: bovines, production, consumption, efficiency, greenhouse gases

INTRODUCTION

In Romania, agriculture is still one of the important branches of the national economy, which contributed according to the existing data at the level of the IV quarter of 2022, together with forestry and fishing, with a weight of 8.6% in GDP formation, causing a decrease of 1.5% of it compared to the previous year [13]. However, the agricultural sector remains poorly integrated in the market economy, due to the fact that it is still a primary sector, its potential being poorly exploited due to factors such as the aging of the workforce, low labor productivity, the large number of holdings agricultural and the

increased fragmentation of agricultural lands, etc. [1, 20, 23]. Animal husbandry, as a branch of agriculture, has an important role both at the macroeconomic and microeconomic levels, contributing to the increase of incomes in the rural environment [25]. However, the decline of this sector was affected by numerous problems related to: the decrease in the number of animals, climate changes that had an impact not only on the breeds, but also on the production of fodder, as well as the European legislation regarding animal health [5, 18, 19, 22]. Even the economic and health crises that affected the population worldwide did not have favorable effects on the livestock sector due to the

decrease in the consumption of meat, milk and derived products.

Although the animal breeding sector is one that ensures the ever-increasing food needs of the population, there is an important aspect related to this activity, the one related to the emission of greenhouse gases, which has a direct effect on climate change, a current topic that concerns organizations worldwide and which risks threatening not only the well-being of future generations, but also of the present ones, which influence the ecosystems on a planetary level [16, 17].

Studies show that the low productivity of different categories of animals has the effect of increasing the intensity of these gases/animal or per unit of food produced [3, 6]. Based on the observations made, it is found that there is a directly proportional relationship between the quality of food, recorded productivity, but also greenhouse gas emissions. This is why it is important to follow the economic impact of animal breeding [2]. The increase in productivity is linked to the applied technologies, the growing conditions and the environment, the managerial skills of the farmers [21], all these measures contributing on the one hand to reduce pollution, but also to increase economic importance that has the livestock sector [4]. The use of circular models could also contribute to the improvement of all the aspects presented above and at the same time to the development of local or regional business models [15, 26].

MATERIALS AND METHODS

The purpose of the research was to present the way in which cattle herds (bulls and buffaloes) and the productions obtained from their exploitation evolved in the analyzed period 2016-2020. The indicators that reflect the changes recorded in the cattle breeding sector and which were analyzed were: cattle herds (existing at the national level and at the European Union); their density, total milk and meat productions; the number of slaughtered animals. Statistical data taken from the INSSE and Eurostat statistics were used for the realization of this work, which were processed

and analyzed so that, based on the research results, conclusions can be drawn regarding the economic importance of this livestock sector.

The indicators were followed dynamically, using the established formula:

$$I_{t/t'}^y = \frac{y_t}{y_{t'}} \times 100 \quad \dots\dots\dots(1) [24]$$

where:

y - the level of the analyzed phenomenon
t, t' - the moments of time.

To establish the ratio between a certain group and the totality of the analyzed phenomenon, the relative structure sizes are used, which can be calculated both to determine the frequency of the groups, but also to calculate the centralized values of some characteristics, according to the formula:

$$g_i = \frac{x_i}{\sum_{i=0}^n x_i} \times 100 \quad \dots\dots\dots(2) [24]$$

where:

x – indicator level.

RESULTS AND DISCUSSIONS

The analysis of the indicators that reflect both the situation of livestock and production, tracked for the 2 categories of products obtained (meat and milk) was carried out over a period of 6 years, for the interval 2016-2021.

Starting from the existing situation in the European Union in 2016, we note that Romania is in 10th place in terms of bovines herd. Their number was 2,049.70 thousand heads, which represented only 11% of the total bovines herd in France, 33% of the total herd in Spain and 35% of the total herd in Poland (Fig. 1).

In 2021, Romania occupied the same 10th position, but the number of effective bovines was decreasing by 11% compared to 2016.

The downward trend of livestock numbers is also observed in the case of Belgium (8%), France (9%), Germany (11%), and in the case of the Netherlands (14%).

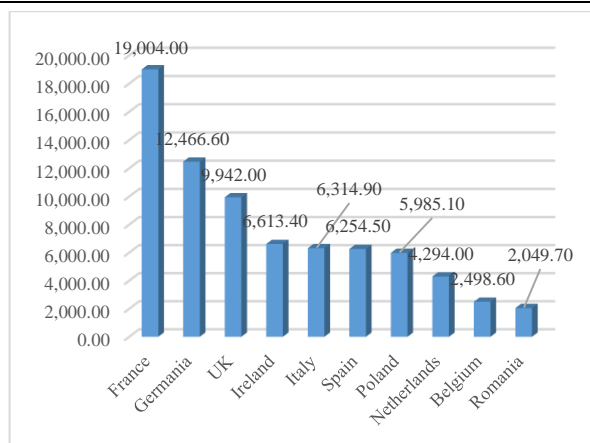


Fig. 1. Top 10 countries according to the number of bovines herds, in 2016 (mii capete)
 Source: own processing based on [6].

As a result of the fact that Great Britain left the European Union in 2019, it is not part of the study. The other 5 countries that recorded increases were Ireland and Italy (1%), Spain (5%) and Poland (7%) (Fig. 2).

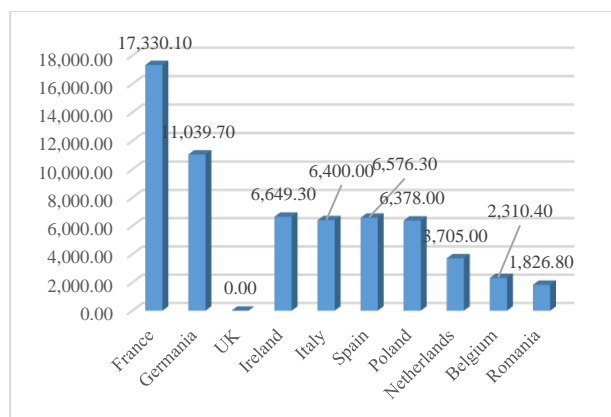


Fig. 2. The situation of the countries with the largest herd of cattle in the EU, in 2021 (thousands of heads)
 Source: own processing based on [12].

An aspect that should be noted is the one related to the decrease in density, at the level of all the analyzed countries. The biggest decreases were recorded in the Netherlands (13%), Germany (11%) and Belgium (10%). The smallest decreases in density were recorded in Ireland (1%), Belgium and Austria (2%) and Denmark (4%). In 2016, Romania occupied the 21st place among the countries of the European Union, and in 2022 it occupied the 20th position. Regarding the decrease in density, this was 6% in 2021 compared to 2016, reaching a number of 14.4 heads/100 ha (2016), compared to 15.4 heads/100 ha (2021) (Fig. 3).

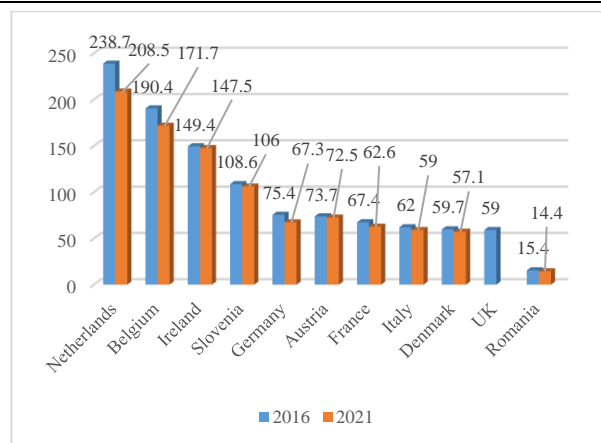


Fig. 3. Evolution of density/100 ha of land (heads)
 Source: own processing based on [6, 12]

As I have already shown, bovines herds decreased in Romania between 2016-2021, these decreases being approximately 2% from one year to another, so that in 2021 the decrease was approximately 11% compared to 2016. The same trend can be observed by age categories, the decreases being recorded both in the teurine category and in the buffalo category (Fig. 4).

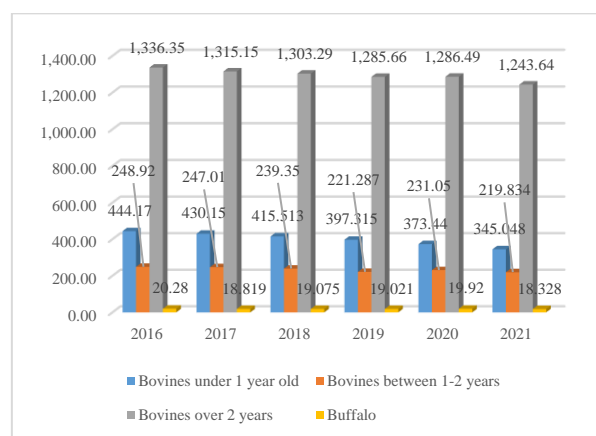


Fig. 4. The evolution of bovines herds, by age groups (thousands of heads)
 Source: own processing based on [6-12].

The analysis was carried out both for the production of beef and for the production of milk. It had to be shown that in terms of the share of beef production, it had shares of approximately 14% (2016) and 12% (2021) of the total production obtained in Romania (Fig. 5).



Fig. 5. The structure of meat production, by category in 2016 and 2017 (%)
 Source: own processing based on [6-12].

Milk production in Romania fluctuated between 2016-2021. The highest production was recorded in 2019, when it approached 4 million liters.

And in 2021, the production was 3.9 million liters. The decrease in 2017 and 2018 was 4% compared to 2016. The differences between the production obtained and the consumption of processed products was ensured on the basis of imported products (Fig. 6).

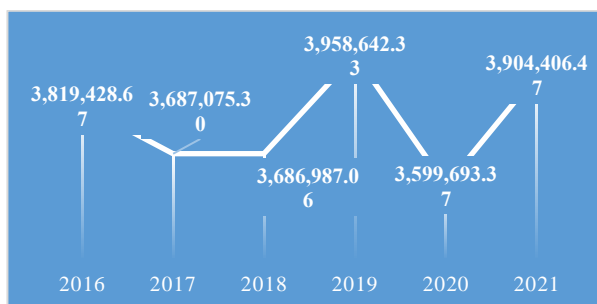


Fig. 6. The evolution of milk production in 2016-2021 (million liters)
 Source: own processing based on [6-12].

Table 1. Consumption of milk and dairy products in the period 2016-2021

Category	2016	2017	2018	2019	2020	2021
Milk consumption (thousands of liters)	1,136,102.05	1,115,591.10	1,088,198.02	1,046,593.86	1,080,887.69	1,098,060.62
Sour cream (to)	15,844.29	15,195.15	18,054.31	16,116.72	16,017.48	14,923.07
Butter (to)	541	504.18	553.71	717.87	604.37	1,173.87
Cheeses (to)	242,277.08	214,248.38	211,410.24	189,863.93	188,700.48	175,634.96
Other products (to)	29,456.68	32,065.04	28,889.40	32,501.50	32,388.69	29,639.87

Source: own processing based on [6-12].

With regard to the consumption of milk and milk products, from the data related to the period 2016-2021 it appears that in terms of drinking milk and cheeses, they also recorded a continuous decrease (milk consumption decreased by 3% in 2021 compared to 2016, and the consumption of cheeses decreased by 18% in the same period).

The consumption of a test that has doubled its value (216% in 2021 compared to 2016), and we also observe fluctuations regarding the consumption of cream (Table 1).

CONCLUSIONS

Studies show that raising bovines contributes the highest share of greenhouse gas emissions,

but these vary from one country to another or from one region to another as a result of the forage consumed, the breeding systems or the way of use of nutrients [14]. Although there is a direct link between the emissions of these gases and the climate effects, the PAC, which provides support in this direction, does not aim to reduce the number of animals, but to support farmers in finding solutions for the absorption of these gases.

Therefore, a premise of the decrease in the effective number of animals is also this environmental protection objective, which was initially proposed in Kyoto and then continued through the Paris Agreement. Although at a statistical level there have been decreases in these emissions, for example per

liter of milk obtained, these are due to the increase in production as a result of research that led to the improvement of cattle breeds or the modernization of animal husbandry technologies, which were not actually accompanied by an effective decrease in these emissions.

There are other causes that have contributed to the decrease in animal numbers (lack of labor in animal husbandry, the existence of some diseases in animals (spongiform encephalopathy, etc.), the increase in feed prices that lead to a decrease in the profitability of the activity carried out and to a decrease in income for both farmers, as well as for consumers.

These decreases in income among consumers, caused by the economic crisis, the health crisis, etc. led to a decrease in consumption. Regarding the decrease in beef consumption, it was higher due to the fact that the price is much higher than in the case of other species of animals. The new vegetarian or vegan trend, which contributes to a decrease in meat consumption, should not be eliminated either. As far as milk is concerned, there are substitutes here as well, as plant-based milk varieties (soy, almond, etc.) are increasingly sought after, which causes the consumption to decrease.

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