

# STUDY REGARDING THE EVOLUTION OF CATTLE HERD IN EUROPEAN UNION

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## Abstract

The cattle breeding, in Romania is a traditional activity in the rural area and especially in the mountain one. In recent years, there has been an increased interest in cattle specialised in meat production (mainly, Aberdeen Angus, Charolaise, Limousine). This is due to the fact that it requires a low investment, have a high growth rate and a higher slaughter yield. In our country, in the last two years may be noticed a declining in the total number of cattle from 1,914,602 heads in 2020, to 1,864,577 in 2021. At the same time, the herd from oficial control also decreased from 1,241. 059 heads in 2020, to 1,231,868 heads in 2021. This decrease is due, among other things, to the farmers lack of information regarding the productive performance improvement and to the climate changes observed in recent years. The downward trend in herds is also noticed in the European Union, cattle herds being with 1% lower in 2019 compared to 2010. This decrease is attributed to the fact that with the after the end of the milk quota system, many small farms abandoned dairy production.

**Key words:** cattle herds, beef breeds, Aberdeen Angus, Charolaise, Limousin

## INTRODUCTION

Beef cattle breeds represent a frequent alternative for Romanian farmers who want to raise animals and make profit from it.

For a long time, cattle had a socio-economic, sanitary, biological and ecological significance in many countries' economy. In today's society, the customs and especially, the demands of consumers are conditioned by quality. Obtaining quality products is under the influence of several factors that refer both to the slaughtering, processing and preservation technologies of meat and meat products, as well as to those involving the live animal, especially regarding its welfare.

Determining the physiological status of cattle through haematological and blood biochemistry analyses provides information about the animal, its breeding and maintenance technologies used, their consequences are directly reflected on the meat quality. Knowing beef quality is important both from the consumption point of view and also, the impact on human health;

meat representing one of the consumers and producers' preferences.

Meat is an important product for human consumption, due to the fact that: proteins have a high biological value, a high B vitamins content, easy-to-use source of iron, anti-secretory activity for gastric juice, participating in the formation of haemoglobin, but the level high cholesterol, low amount of calcium and its acidifying action (Banu et. al. 2002) represent negative aspects. Meat proteins are class I proteins (complete proteins), because they contain all the essential amino acids so necessary for humans.

In Romania, for this species, meat production is ensured from reformed adult and semi-adult bulls, but especially from the fattened male youth and a small share from meat crossbreds, respectively, meat breeds (Maciuc et al. 2019; Liciu 1999; [www.insse.ro](http://www.insse.ro)).

## MATERIAL AND METHOD

For this study, the bibliographic documentation of the beef cattle herds was

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carried out from worldwide, European and national point of view, for the period 2017-2021.

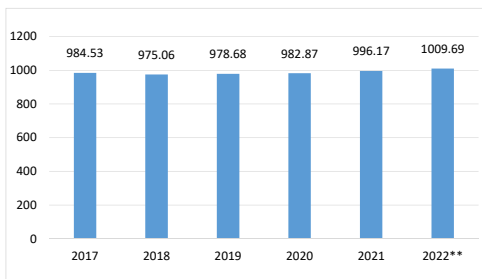
The data thus obtained were systematized, processed and interpreted through the methods specific to such research. The statistics, respectively the parameters, which characterize a normal distribution, are on the one hand the mean or median, and on the other hand the dispersion indices represented by the variance and the standard deviation of the observed character. For this purpose, the computer program S.A.V.C. was used. (Statistics Analysis of Variance and Covariance 2003) to determine the arithmetic mean ( $\bar{X}$ ), the error of the arithmetic mean ( $\pm s$ ) the standard deviation (s), the coefficient of variation (V%), and for the ANOVA significance tests respectively p, we used the computer program SPSS16.

**RESULTS AND DISCUSSIONS**

The aim of this paper paper was to obtain data regarding the cattle herd evolution in the European Union, respectively, Romania.

From the data collected in the last years, namely the period between 2017-2021, it can be seen that the total of beef cattle herd was increasing in the last three years, but it is lower than in 2017 (fig. 1).

According to the data presented in fig. 1, may be noticed an evolution of beef cattle compared to 2018 (975.06 million heads), by 0.41% in 2019, by 0.82% in 2020, by 2.15% in 2021 and with around 3.48% (provisional data) in 2022 (www.statistica.com).



\*\* provisional data

Fig. 1 Beef cattle herd worldwide between 2017 and 2022 (in millions of heads)

Due to the temperate climate, the heterogeneity of its territories and the wealth of soil suitable for agriculture, the European Union represents a diversified area in terms of agricultural production.

Thus, animal production represents, on average, 40% of the final agricultural production. However, the last decade has seen an increasing concentration of livestock production in the most competitive areas and on larger farms (Roguet et al. 2015).

In 2016, the European Union held the fifth place in the world in cattle population, with 89 million heads; over 60% being grown in 5 countries (France, Germany, United Kingdom, Ireland and Italy). In the EU, the cattle herd has decreased by 6% since 2000 due to the dairy herd decapitalization. Thus, in 2016, the EU had 23.5 million dairy cows and 12.3 million beef cows (Eurostat, 2017; INRA, 2021).

During 2010-2019, the cattle population reached a peak of almost 80 million in 2016 (an increase of 3% compared to 2010), after which it decreased again in the following three years (fig. 2).

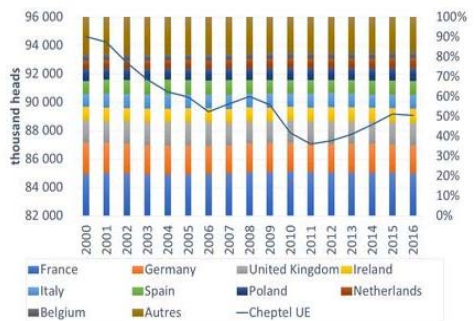


Fig. 2 The evolution of cattle herds in Europe from 2000 (\*1000 heads) (source: Sustainbeef, 2021)

In 2019, it was about 0.9% lower than in 2010, reaching about 77 million heads (Eurostat, 2021). (fig. 3)



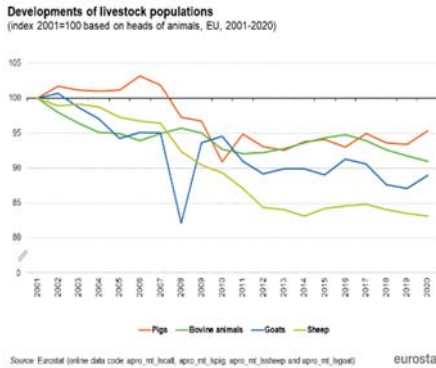


Fig. 3 Developments of livestock populations (index 2001=100 based on heads of animals, EU, 2001-2020)

In 2016, the E.U. ranked third in beef production after the US and Brazil, producing 11.5% of global beef production. Thus, meat production was 7.8 million tons CWE (carcass weight equivalent).

In 2020, production was 6.8 million tons of beef meat (adult and veal carcasses), down 1.2% compared to 2019. This may be due to the fact that following the abandonment of the milk quota in year 2015, the number of cows slaughtered has steadily increased, with many small farms that abandoned the dairy production.

Half of EU beef production (fig. 4) was produced in three Member States: France (21.2%), Germany (17.8%) and Italy (11.1%). Regarding EU veal production, around 70% was produced in three Member States: the Netherlands (26.5%), Spain (24.0%) and France (20.1%).

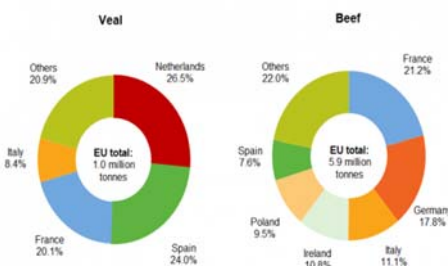


Fig. 4 The share of beef and veal meat quantity (Eurostat, 2021)

In the E.U. beef was mainly obtained from slaughtered cows and young bulls, with

differences being observed between countries specialised to milk production and the ones for beef production (fig. 5). From dairy farms, the meat comes mainly from reformed cows and fattened calves (mainly in Spain, France or the Netherlands) and young bulls (Ireland, Great Britain) (fig. 6).

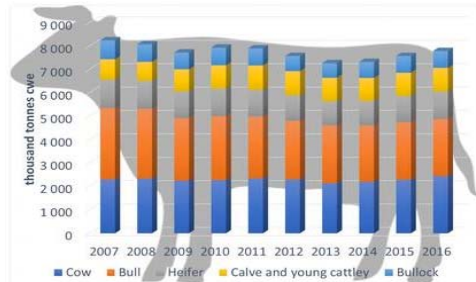


Fig. 5 The evolution of meat production and type of animal produced in Europe (INRA; Eurostat, 2019)

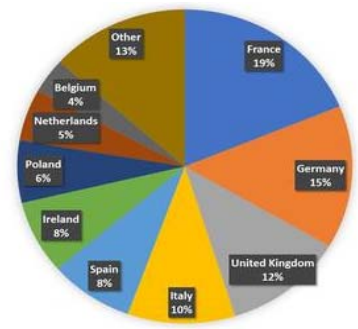


Fig. 6 Repartition of beef production in Europe (sursa: INRA, Eurostat, 2019)

**Cattle herds in Romania**

Over the years, the cattle herd has undergone to positive and negative changes. From table no. 1 may be seen that from 2015 to 2018, the number of the cattle herd has remained at approximately 2,000,000 heads, but since 2021, an obvious decrease has been noted, reaching 1,864,577.

If it is taken into account the cattle herds, Romania is placed 9<sup>th</sup> among the EU member states, after countries such as: France, Germany, Spain, Ireland, Italy, Poland, Holland and Belgium. But if it is considered the cattle density per 100 ha of land, Romania is placed in 20<sup>th</sup> place, out of the 22 European countries, followed by Greece and Bulgaria.

Table 1. Dynamics of the cattle herd during the period 2015- 2022

2015	2016	2017	2018	2019	2020	2021
2.077.577	2.081.233	2.012.284	2.00.2019	1.962.573	1.914.602	1.864.577

Source: INSSE, 2021

It is also observed that the existing cattle herds in Romania on June 1, 2021 decreased by 2.6% in the total herd and by 0.7% in the female herd from the official control, compared to June 1, 2020 (tab. 2).

Table 2. Cattle herds and female herd from the official control present on the 1st of June 2021 compared with 1st of June 2020 (-heads)

	2020	2021*	2021*) compared with 2020 (±)
Cattle-total	1.914.602	1.864.577	-50025
From wich: female from oficial control	1.241.059	1.231.868	-9191

Considering what has been presented, the abrupt decrease in livestock numbers is also due to the malfunctioning of the reproduction system, the lack of information to animal breeders regarding the improvement of productive performance, in order to make farms more profitable. It is also due to the reduced dimensional structure of holdings, the low price of milk and meat, the lack of labor on farms, and the lack of support programs from the state ([www.fao.org.com](http://www.fao.org.com); Banu et al., 1999; [www.insse.ro](http://www.insse.ro)).

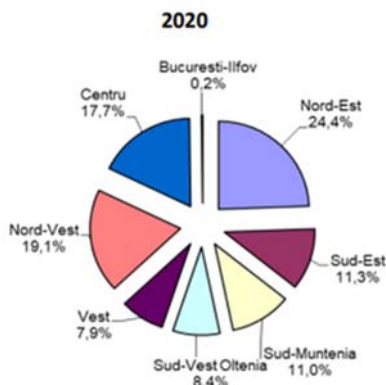


Fig. 7 The cattle herd distribution in 2020, on development regions (I.N.S.S.E, 2021)

From the presented graph (fig. 7), it can be seen that the distribution of cattle herds in our country is relatively uniform, only in the North-Eastern region of Romania the total number of cattle is higher. This is largely due to the fact that there are a large number of family farms with small herds (1-3 cows).

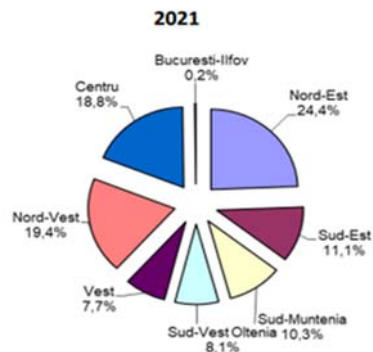


Fig. 8 The cattle herd distribution in 2021 on development regions (INSSE, 2022)

Analyzing the two graphs (fig. 7 and 8) regarding the distribution by development regions, may be seen that the share of existing cattle herds on June 1, 2021, compared to the same date of 2020, increased in the Center regions (+1.1 percentage points) and North-West (+0.3 pp.), decreased in the regions of South Muntenia (-0.7 pp.), South-West Oltenia (-0.3 pp.), South-East (-0.2 pp.) and West (-0.2 pp.), and in the North-East and Bucharest-Ilfov regions it remained constant.

From the total cattle number, in the following tables are presented the main beef breeds herds that are raised in Romania and are included in the breeding program. Also, their distribution on different types of holdings is presented.

Table 3. Total beef cattle herds that are in the official control in 2019 Dabija (Roibu) M., 2021)

Breed	Herd	Farmholdings
AN	30.773	906
CH	4.177	206
LIM	2.965	136
AU	636	23
SS	391	19
GA	190	7
HI	186	11
<b>TOTAL</b>	<b>39.318</b>	<b>1308</b>

Table 4. The size of the farms participating in the approved breeding programs - head of cattle (Mihaela Roibu, 2021)

Farms dimension (heads)	Aberdeen Angus		Charolaise		Limousine		AU, HI, GA, HG	
	No	%	No	%	No	%	No	%
1-10	267	29,5	102	50	53	39	18	31
11-50	482	53,3	87	42	70	51	37	63
51-200	140	15,4	15	7	12	9	3	5
201-500	15	1,6	2	1	-	-	1	2
Peste 500	2	0,2	-	-	1	1	-	-
<b>TOTAL</b>	<b>906</b>		<b>206</b>		<b>136</b>		<b>59</b>	

Thus, from the presented tables (tab. 3 and 4) it can be seen that the largest number of the main beef raised in our country are found in small farms of 1-10 cows, respectively, 11-50 cows.

## CONCLUSIONS

As a result of the study, the following conclusions were drawn:

The total number of cattle in the European Union has a downward trend, registering a decrease of 1% in 2019 compared to 2010.

In Romania, the cattle herds decreased by 2.6% in 2021 compared to 2020, and decreases were also recorded to the herd from the official control of productive performances.

The number of cattle from beef breeds in Romania is 39,318 heads and they are raised in small farms of 1-10, respectively, 11-50 heads.

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