

## STUDIES ON BEEF CATTLE FOR PROCESSING IN ROMANIA

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### Abstract

*In our country in recent years we can see a decrease in cattle from 2330 thousand heads in 2018, to 1914 thousand heads in 2020, a decrease due to, among others, the faulty organization of breeders in order to capitalize on the production obtained and a structure low size of cattle farms. In 2020, the number of cattle slaughtered in industrial units (slaughterhouses) decreased compared to the previous year by 15.6%, beef production decreased from 196,000 tons in 2018 to 170,000 tons in 2020, even if the yield at slaughter has increased. Thus, there is an increase in the average body weight of cattle from 433 kg/head to 450 kg/head, this is due to advanced, cost-effective breeding technologies and optimal animal nutrition. All this influences, of course, the quality of the meat, which will be superior and will have a high yield for processing. Meat consumption in Romania is 7 kg per capita per year, the demand for beef increases significantly in Romania, being a large deficit of high quality animal protein, the Romanian unfortunately preferring pork and chicken.*

**Key words:** beef cattle, cattle breeding, meat consumption, slaughter yield.

### INTRODUCTION

Beef is a major source of meat for most peoples. The total world demand for animal products is covered by approximately 42% of developed countries, 12% of developing countries in group I and over 46% of those in group II (Nistor-Anton & Maciuc, 2020; Ripoll et al., 2018; www.Fao-org.com).

The most suitable meat production technologies are sought in all countries by minimizing costs, maximizing increase and weight at slaughter.

In the U.E. there is a diversification of fattening technologies: milk veal or white meat, beef and beef. White meat is in demand in France, Italy, Switzerland, Spain (Holtcamp et al., 2019).

There are two types of beef in Romania: imported, which comes frozen from Argentina, Brazil, New Zealand and another produced in Romania, on a smaller scale. The differences are significant both quantitatively and qualitatively. Frozen meat loses its physico-chemical and organoleptic qualities, which a fresh beef has.

In Romania, in this species, meat production is ensured from the reformed adult and semi-adult cattle, but especially from the fattened male youth and a small share from crossbreeds of meat and meat breeds (Maciuc et al., 2016; Liciu, 1999; www.insse.ro).

Beef consumption in Romania amounts to 7 kg/inhabitant, according to reports from processors and slaughterhouses. Worldwide, the average consumption of beef is 12 kg/inhabitant. Therefore, in Romania there is a real need to raise beef cattle. Romania provided 42% of the beef and sheep meat needs for the Middle East before 1990. Today, unfortunately, we import to ensure the needs.

Even if there were imports of specialized breeds of cattle for meat production: Aberdeen Angus, Charolaise, Limousine; Blonde of Aquitaine, Heroford, Galloway; Highland; Aubrac; Bălțată Românească - SIM, etc., the total number of cattle is still small, and Romania from the exporting country has come to import beef (Pesonen et al., 2012; Holtcamp et al., 2019; Jiu et al., 2020).

In the future, beef production will also belong to family farms, but the base will be large production units of industrial type. Regarding the capitalization of meat production, it will be done in the form of preparations, semi-prepared, in an integrated system.

Representing an important source for food with high biological value, but also appreciated as a means of labor, increasing and improving of the cattle subfamily is for mankind a surplus food, providing about 55-57% of the animal protein consumed daily. The set of technical

and organizational measures in cattle exploit operation involves several processes of feeding, growth, reproduction, breeding, which helps to increase the productive potential (Gociman et al., 2019).

Given the above, the sharp decline in livestock and meat production, the malfunctioning of the breeding system, the lack of a strong meat-producing sector - goods and of course the lack of assorted varieties of such beef products, we have proposed to do this research.

## MATERIALS AND METHODS

This research is essentially a study on studies aimed at achieving an integrated result on the number of cattle and meat production obtained. Over a period of three years, 2018-2020, we analyzed the number of cattle, size of farms, number of heads slaughtered, live weight, average weight, carcass weight, but also the evolution of beef for processing.

The research method included, documentation, observation, analysis, statistics and analysis in the field of data description.

Once systematized, the data were processed and interpreted by methods specific to such research - arithmetic mean ( $\bar{X}$ ), arithmetic mean error ( $\pm s$ ) standard deviation ( $s$ ), coefficient of variability ( $V\%$ ) and significance test  $p$ , using the program of statistics, analysis of variance and covariance (S.A.V.C.).

The complexity of the pursued aspects required the use of a diversified working methodology depending on the pursued aspects, using and respecting the investigation methodology recommended by the specialized literature.

## RESULTS AND DISCUSSIONS

The research aimed to achieve an updated situation regarding the total number of cattle in Romania in parallel with the total number of cattle for meat.

This is one of the important aspects, especially for farmers who want to orient their zootechnical specificity towards a subsequent meat processing.

Romanian area is 237,500 km<sup>2</sup> wide, consisting of a symmetrical landforms, concentric and varied, with the main features of landforms proportioned as follows: 31% mountains, 36%

hills and plateaus, and 33% plains. Large pasture lands, climate, precipitation variation, soil, quality feed are some of the great strengths of Romania to grow such an extensive cattle breed (Gociman et al., 2020).

Romania is the second country from European Union with surface of pasture, the sixth country from European Union as agricultural area and the ninth country from European Union as number of cattle (Gociman et al., 2019).

Table 1. Dynamics of meat and meat production in the period 2018-2020

SPECIFICATION	UM	2018	2019	2020
Total number of cattle	thousand heads	2330	1985	1914
Total live beef production	thousands kg	196	188	170

Analyzing the data collected from the period 2018-2020, we can see how the total number of cattle registered in our country are in a sharp decline, the approximately 3.5 million cattle missing, about 18% of cattle, in an interval of only 3 years, this aspect reveals a decrease due among others to the faulty organization of the breeders in order to capitalize on the obtained production and a low dimensional structure of the cattle farms ([www.fao.org.com](http://www.fao.org.com); Banu et al., 1999; [www.insse.ro](http://www.insse.ro)).

The sharp decline in livestock and meat production, the malfunctioning of the breeding system, the lack of a strong meat-producing sector - goods and of course the lack of assorted varieties of such beef products, are negative aspects that place our country among the last from Europe in this regard.

However, the number of cattle used for meat is of particular interest, as they are increasingly being raised by small farmers, which create a complex technological flow from raising live animals to using beef products sold in stores.

In conclusion, 51,000 head of cattle were slaughtered in November 2020, an increase of 8.5% compared to October 2020, but a decrease of 7.3% compared to November 2019. Meat production obtained in November 2020 from animals slaughtered reached 8,330 tons, compared to 7,583 tons in October 2020 and 9,274 tons in November of the previous year.

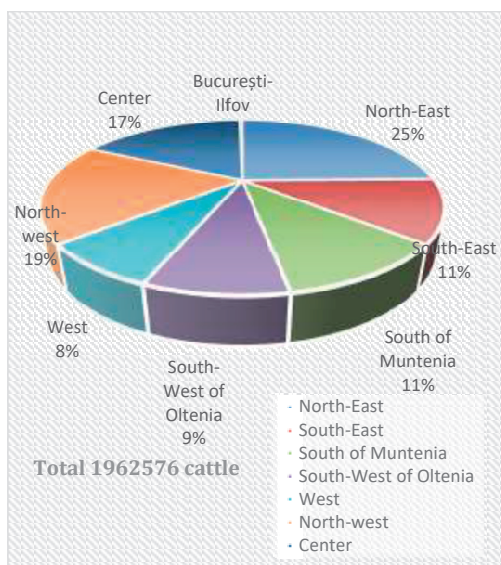


Figure 1. Distribution of cattle in 2019, by development regions according to the National Institute of Statistics

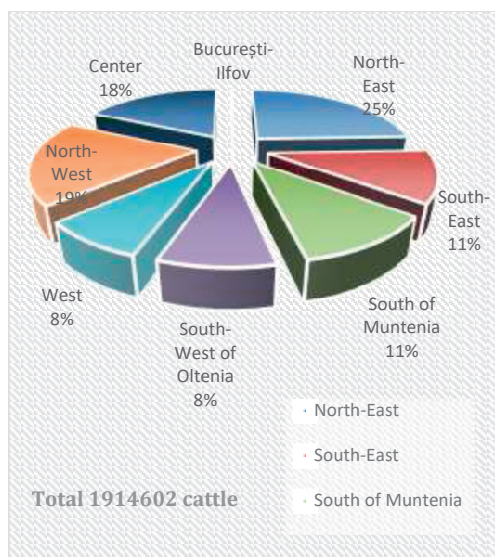


Figure 2. Distribution of cattle in 2020, by development regions according to the National Institute of Statistics

It can be seen that the distribution of cattle in our country has a relatively uniform weight, but nevertheless the Northeast region of Romania is one in which the total number of cattle is higher, a herd of 478,651 cattle. This is largely due to the establishment of a large number of family farms with small livestock.

From the figures presented in parallel on the distribution of cattle by development regions of

our country during 2 years, 2019-2020, it can be seen that in the northeastern part of Romania is the largest number of cattle, because climate factors and the forms of relief (hill, plain, mountain) are the most varied in this part of the country. However, the decrease in the total number of cattle can be noticed especially in the southern part of our country, where it seems that the interest in raising animals and practicing these occupations of animal husbandry have been replaced by other activities specific to those warm areas of the plain.

Another trend that is observed in some areas of our country is to raise a relatively small number of cattle for meat 10-50 heads, through cost-effective, economical and beneficial breeding methods for both farmers and consumers.

The table below shows the number of cattle on livestock farms, with the actual number of cattle for each breed, where it can be seen that the number of cattle in the Aberdeen Angus breed is constantly growing in our country.

Table 3. Total number of beef cows included in the 2019 breeding programs

Breed	Number	Holdings
AN	30773	906
CH	4177	206
LIM	2965	136
AU	636	23
SS	391	19
GA	190	7
HI	186	11
<b>TOTAL</b>	<b>39318</b>	<b>1308</b>

According to the data from various information sources, summarized in the tables above, you can see the distribution of cattle breeds according to the size of our farms in the country and beef cattle are the most exploited, their number being in a continuous ascent especially in small farms with 11-50 heads.

Beef obtained from cattle is considered a complete food, with a high protein content and special organoleptic characteristics, it contains 34.6% dry matter, of which 18.6% protein, 15.2% fat and 0.8 mineral salts, with an energy content of 2268 kcal/kg. (Maciuc, 2017; Terevinto et al., 2019; Pesonen et al., 2012).

The total number of heads slaughtered in 2019, according to the FAO was 196037, and the carcass weight was 43536 tons.

Table 4. Size of farms participating in the development of approved breeding programs – cattle

Size of farms (heads)	ABERDEEN ANGUS		CHAROLAISE		LIMOUSINE		AU, HI, GA, HG	
	Number	%	Number	%	Number	%	Number	%
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>	

Table 5. Slaughter of cattle in industrial units (slaughterhouses)

Species name	Number of slaughter of cattle		Live weight		Average weight		Carcass weight (tons)	
			(tons)		(kg)			
	2018	2019	2018	2019	2018	2019	2018	2019
<b>Cattle</b>	233142	196037	101041	87373	433,4	445,7	49922	43536

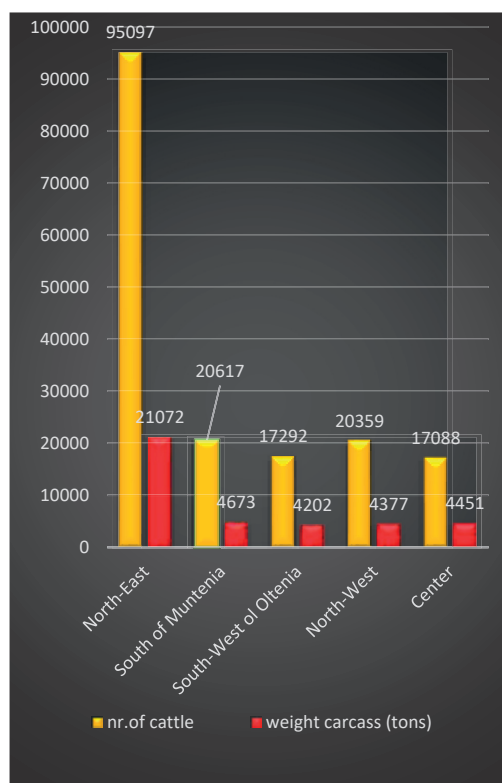


Figure 3. Slaughter of cattle in industrial slaughterhouses

According to INS data, in March 2019, 5,904 tons of meat were obtained from cattle, this production being down by 18.6% compared to

March of the previous year (7,265 tons) and by 20.8% compared to February (7,464 tons), the number of animals slaughtered in March 2019 being 37,013 heads. ([www.insse.ro](http://www.insse.ro)).

According to Figure 3, it can be seen that in the northeastern part of the country the slaughter yield and the total number of animals slaughtered for meat has an upward trend, their number is 95097 head of cattle for meat and the carcass weight is 21072 tons, according to data obtained from the Ministry of Agriculture and Rural Development in our country.

This can be an optimistic one, which means that the interest for animal husbandry is growing in this part of Romania, where the breeding farms are developing, and the meat obtained from cattle is capitalized in specific processed products.

In order to increase beef production, the following objectives must be pursued at national level: increasing slaughter weight, which will automatically lead to increased slaughter yields; the adoption of breeding programs to increase meat production, ensuring all the necessary conditions for the animal to externalize its productive potential; boosting the growth of cattle in mountain areas; financial support of breeders ([www.madr.ro](http://www.madr.ro)).

The average carcass weight recorded in November last year was 163.3 kilograms in cattle, INS states that the monthly data on total

animal slaughter are obtained by summing the data from the monthly statistical survey for specialized industrial units (slaughterhouses), which provides data on meat production (number of heads slaughtered, live weight and carcass weight).

## CONCLUSIONS

Following the study conducted for the period 2018-2020, the following conclusions emerged: The total number of cattle is declining due to poor funding programs and insufficiently developed in this species. By increasing the level of production, but also the number of cattle, we can reach the status of exporting country from the group of countries importing meat and meat products.

It was found that farms with between 11 and 50 heads are in continuous development, especially in the North-East of Romania, where the establishment of a number of farms with small numbers is increasing in recent years.

Even though the number of cattle is declining by about 18%, the number of cattle specializing in beef production is increasing. The explanation lies in the fact that the demand for beef is growing and the investments in such a farm are much lower compared to a farm for milk production.

The specialization of the farms determined the increase of the animal's weight at slaughter, implicitly of the slaughter yield, but also of the weight of the quality meat destined for processing.

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