

RESEARCH ON THE SAFETY AND RESILIENCE OF THE MEAT AND MEAT PRODUCTS SECTOR IN ROMANIA

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Abstract

The FAO defines food security as "the direct access of all people to the food they need to fulfill their vital functions and to lead a healthy and active life". In order to ensure the security and resilience of the meat and meat products sector in Romania, in the current geopolitical context, this sector must contribute substantially to providing food for the internal population, for refugees and for those who cross the country. Through resilience, Romania aims, through the meat and meat products sector, to prepare for what it means to think, plan and exercise in order to absorb, return and then adapt existing productive capacities to adverse and disruptive events. The aim of the paper is to analyze the security and organizational resilience of the meat and meat products sector in Romania.

Key words: authorized production capacity, food security, livestock, resilience.

INTRODUCTION

Food security and resilience are closely linked to the emergence of a new world, dominated by risks and threats. In the face of various risks: natural disasters, pandemics, zoonoses, damaged infrastructure, war, etc., leading factors recognize that risks and threats cannot be avoided, so food security can never be fully ensured.

As a result, increasing the resilience of the meat and meat products sector requires measures to prevent, deter and protect humans and animals from these threats, through thinking, planning and exercise, to absorb, return and then adapt their sources and resources for adverse and disruptive events.

The purpose of this paper is to show whether the meat and meat products sector in Romania can ensure food security and resilience for the internal population, for refugees and for those who cross the country.

MATERIALS AND METHODS

The research was conducted based on data taken from the *National Agency for Veterinary Sanitary and Food Safety (ANSVSA)*, the *County Agricultural Directorates (DAJ)* and data from the *National Institute of Statistics (INS)* for the period 2020-2021.

The data taken from the DAJ provided information on the number of animals destined for the meat sector (number of heads of animals / year and estimated meat production provided by them tons / year) on each county, economic development regions and at national level.

The data from ANSVSA were processed regarding the authorized slaughtering and processing capacities per animal / year and tons of meat / year, on each county, economic development regions and at national level.

With the help of data published by the NIS, the proportion and capacity of farms to ensure the need for meat production by raising animals and the capacity of authorized economic operators in the animal slaughtering and meat processing sector to ensure the need for meat and meat products on head of population, county, economic development regions and at national level. The data obtained from the statistical processing were then compared with similar statistical data published at Community level.

RESULTS AND DISCUSSIONS

From the data contained in *Table 1*, an uneven distribution of the number of animals raised in the development regions can be observed. The highest number of cattle recorded is found in the northern region of Romania in both the eastern

part (over 155 thousand heads) and the western part (over 135 thousand heads), followed by the central region (about 99 thousand heads), the

southern region (about 79 thousand heads), the other regions having a number of animals under 50 thousand heads (DAJ).

Table 1. Number of animals for meat production by geographical region and at national level for the period 2020-2021 (heads / year)

Specification	N-E	S-E	S	Bucharest Ilfov	S-V	V	Center	N-V	TOTAL
Cattle	155,812	47,959	78,640	490	25,426	48,184	98,503	135,181	590,198
Pigs	628,763	384,408	725,284	4,739	260,788	1,749,486	427,653	793,052	4,974,173
Sheep	805,284	1,486,158	972,005	25,404	452,207	1,268,961	1,187,405	1,492,649	7,690,073
Goats	141,192	212,306	207,026	8,510	297,374	54,703	85,987	100,861	1,107,959

At the national level, a number of 4,974 thousand pig heads are increased, the highest number being registered in the Western region (1,749,486 heads) followed by the North-West region (793,052 heads), the Southern region (725,284) heads) and the Northeast region (628,763 heads).

The number of sheep and goats registered at national level was 8,798,032 heads, except for the Bucharest Ilfov regions and the South-West region, all other regions approaching or exceeding the figure of 1 million heads exploited.

Making an overall analysis we can see that animal species are grown in specific areas, with tradition and in which natural and economic conditions help them in the efficient use of food resources.

Thus, beef cattle are raised predominantly in hilly and mountainous areas where natural pasture predominates in their food. Pigs are maintained in cereal areas, and sheep and goats are spread, quite evenly, throughout Romania, they efficiently capitalize on forage resources inaccessible to other species.

Table 2. Meat production estimated on the basis of the number of animals slaughtered in the direction of meat production for the period 2020 – 2021 (tonnes / year)

Specification	N-E	S-E	S	Bucharest Ilfov	S-V	V	Center	N-V	TOTAL
Cattle	24929.92	7673.44	12582.88	78.4	4068.16	7709.44	15760.48	21628.96	94431.68
Pigs	34896.35	21334.64	40253.26	263.01	14473.73	97096.47	23734.74	44014.39	276066.6
Sheep	10871.33	20063.13	13122.07	342.95	6104.79	17130.97	16029.97	20150.76	103815.99
Goats	1764.9	2653.83	2587.83	106.38	3717.18	683.79	1074.84	1260.76	13849.49
Total	72462.5	51725.04	68546.03	790.74	28363.86	122620.67	56600.03	87054.87	488163.75

Meat production estimated on the basis of the number of animals farmed in the direction of meat production is shown in Table 2.

It is directly correlated with the number of animals presented in Table 1 and is unevenly distributed at national level.

From the study carried out on the statistically processed data on authorized slaughtering

capacities by regions and at national level we can say that all regions of economic development have an authorized slaughtering capacity over the number of animals raised and exploited in the direction of meat production except Bucharest-Ilfov economic development region, where only pig slaughterhouses are authorized (ANSVSA).

Table 3. Authorized capacity of slaughterhouses (no animals / year)

Specification	N-E	S-E	S	Bucharest-Ilfov	S-V	V	Center	N-V	TOTAL
Cattle	449462	92061	250920	0	86359	48580	110562	194431	1232375
Pigs	996596	900658	1801680	98900	307969	2201940	871622	974575	8153940
Sheep	735244	764600	1331595	0	136410	609600	617253	558430	4753132
Goats	582860	405200	982120	0	84970	90000	525200	403673	3074023
Solipeds	154320	18500	50260	0	7680	26000	248000	34940	539700

For sheep and goat species, the authorized slaughter capacity is reduced by half compared to the number of animals raised and exploited

for meat production, except for the economic development region Bucharest-IIfov where these units are missing (ANSVSA).

Table 4. Authorized slaughterhouse capacity (tons of meat / year)

Specification	N-E	S-E	S	Bucharest-IIfov	S-V	V	Center	N-V	TOTAL
Cattle	71914	14730	40147	0	13817	7773	17690	31109	197180
Pigs	159455	144105	288269	15824	49275	352310	139460	155932	1304630
Sheep	117639	122336	213055	0	21826	97536	98760	89349	760501
Goats	93258	64832	157139	0	13595	14400	84032	64588	491844
Solipeds	24691	2960	8042	0	1229	4160	39680	5590	86352

The authorized slaughtering capacity expressed in tonnes of meat / year corresponds as a characterization to the data presented above in terms of

slaughterhouse authorization expressed in number of head of animals / year (ANSVSA) (Table 4).

Table 5. The estimated amount of meat resulted, according to the capitalization of production animals (kg / inhabitant / year)

Specification	N-E	S-E	S	Bucharest-IIfov	S-V	V	Center	N-V	TOTAL
Cattle	7.55	3.01	4.01	0.03	1.96	4.22	6.68	8.32	4.69
Pigs	10.57	8.38	12.83	0.12	6.97	53.11	10.05	16.93	13.72
Sheep	3.29	7.88	4.18	0.15	2.94	9.37	6.79	7.75	5.16
Goats	0.53	1.04	0.83	0.05	1.79	0.37	0.46	0.48	0.69

From the data presented in Table 5 it can be seen that the species that contributes the most meat in the diet of the population based on the capitalization of animal production is the pig species, followed by cattle, sheep and goats.

The pig species by geographical regions, the largest amount of meat provided per capita is the West region, with 53.11 kg, followed by the North-West region with 16.93 kg, the South region with 12.83 kg, the North-West region. East, with 10.57 kg, the Center region with 10.05 kg, the rest of the regions contributing with values recorded below 10 kg, at national level the pigs provide 13.72 kg of meat per inhabitant.

Sheep and goat species contribute less than 10 kg of meat per capita in all development regions. The regions that provide the largest amount of meat are: the West region with 9.74 kg / inhabitant, the South-East region with 8.92 kg / inhabitant, the North-West Region with 8.23 kg / inhabitant and the Center region with 7.25 kg / inhabitant. The other regions contribute with values below approx. 5 kg / inhabitant.

The goat species contributes less than 2 kg of meat per inhabitant. At the national level, the two sheep and goat species contribute a contribution of 5.84 kg of meat per inhabitant.

Table 6. Estimated quantity of meat, including bird and soliped species, based on authorized slaughter capacity (kg / inhabitant / year)

Specification	N-E	S-E	S	Bucharest-IIfov	S-V	V	Center	N-V	TOTAL
Cattle	21.78	5.79	12.80	0.00	6.66	4.25	7.49	11.96	9.80
Pigs	16.75	19.63	31.88	2.42	8.23	66.84	20.49	20.80	22.49
Sheep	3.01	4.05	5.73	0.00	0.89	4.50	3.53	2.90	3.19
Goats	2.21	1.99	3.91	0.00	0.51	0.62	2.78	1.94	1.91
Solipeds	7.48	1.16	2.56	0.00	0.59	2.28	16.81	2.15	4.29
Birds	45.62	59.93	77.18	0.00	22.14	20.62	47.25	28.80	40.52
Total	96.84	92.56	134.07	2.42	39.03	99.11	98.35	68.56	82.20

The bovine species, in 2021, provided at national level 4.69 kg of meat per capita, the regions with the sector more oriented towards the direction of meat exploitation are found in the northern, central and western areas (the North-West region provides 8.32 kg of meat per capita, the North-West region contributes 7.55 kg of meat / inhabitant, the Central region with 6.68 kg of meat / inhabitant and the West region with 4.22 kg / inhabitant). The rest of the regions contribute with quantities below the threshold of 4.00 kg / inhabitant.

Table 6 shows the estimated values for meat quantities, including bird and soliped species, resulting from the authorized slaughter capacities in kg / inhabitant.

With the help of the data taken from the INS, regarding the number of inhabitants per counties (2011), the capacity to ensure the quantity of meat was established according to the designed, authorized capacity of the economic agents.

From the statistically processed data we obtained the following results:

- for the bovine species, the quantity of meat estimated on the basis of the authorized slaughtering capacity per capita, at national level, is **9.8 kg meat / inhabitant/year**. The highest values are recorded in the northern part of Romania, respectively the economic development regions North-West (21.78 kg), South (12.80 kg) and North-West (11.96 kg) and the București-Ilfov region has no contribution (0 kg);
- in the case of pigs, the estimated amount of meat based on the authorized slaughter capacity per capita is **22.49 kg / inhabitant / year** at national level. By geographical regions, the highest value, of 66.84 kg, is found in the western economic region, followed by the southern region (31.88 kg), the northwestern region (20.80 kg), the central region (20,49 Kg), and the smallest is only 2.42 Kg in the Bucharest-Ilfov region;
- for sheep and goats, the estimated amount of meat at national level is **5.10 kg / inhabitant / year**, the highest estimated amount of meat per capita / year being registered in the South economic region. The lowest values are recorded in the Bucharest-Ilfov (0 kg) and South-West (1.40 kg) regions.

- However, in addition to the need for meat, there is also the sector of breeding and exploitation of birds and solipeds.
- From the breeding and exploitation of birds, the quantity of meat obtained as a result of the authorization of the breeding and slaughtering units ensures **40.52 kg / inhabitant / year**. The highest quantities were recorded in the economic regions of the South (77.18 kg), South-East (59.93 kg), North-East (45.62 kg) and the Central region (47.25 kg). The rest of the regions provide less than 30 kg of poultry / head of meat / year.
- Meat from solipeds, the estimated quantity according to the authorized slaughter capacity is 5.36 kg / capita / year at national level.

CONCLUSIONS

From the statistically processed data, it can be seen that the number of animals with economic value raised and exploited at national level in the direction of meat production is insufficient to ensure the meat needs of the inhabitants of Romania.

Food security and resilience at national level is not achievable on the basis of national production (animal husbandry and exploitation) because the estimated and achieved quantities are smaller than necessary.

At the national level there are economic regions where animals are raised in very small numbers, which makes the estimated amount of meat insufficient to be taken into account.

It should be noted, however, that the data studied were represented only by the number of animals raised and farmed within the profile units, respectively by the capacity of the authorized slaughtering and cutting units. It was not possible to estimate the number of animals raised and capitalized at the level of households.

The population of Romania to which the level of meat production was reported is the one established at the 2011 census. The current socio-demographic situation was not taken into account, in which a very large number of people (of the order of several million) arrived in Romania or which are in transit.

Analyzing the situation at national level, by development regions, the resilience program cannot be applied because no geographical area of development can support the neighboring areas, therefore it is necessary to apply prevention, deterrence and protection measures.

Increasing the production of the meat and meat products sector can only be achieved by creating and implementing sustainable agricultural policies.

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