
ANALYSIS OF LIVESTOCK AT REGIONAL LEVEL IN ROMANIA

Silviu BECIU¹, Raluca Georgiana LĂDARU²

¹University of Agricultural Sciences and Veterinary Medicine, Bucharest, 59 Marasti, sector 1, 011464, Bucharest, Romania, Phone: 004 0723165907, E-mail: beciu_silviu@yahoo.com

²The Bucharest University of Economic Studies, 6 Romana Square, Bucharest, Romania, Phone: 004 0757051404, E-mail: ralucaladaru@eam.ase.ro

Corresponding author: beciu_silviu@yahoo.com

Key words: *livestock, regions of development, Romania*

Abstract

In Romania the livestock sector generates significant outputs for the agricultural and the national economy. Geographical distribution of the livestock production systems varies between regions of development, due local traditions, production conditions, and consumer choices options. This paper analysis the livestock sector at regional level for all animal species considered for production. For the research method, based on regional analysis has been considered statistical approach, based of national database for year 2011. The results indicates different concentration of livestock at regional level, even if animal density per 100 ha was calculate in order to consider the different dimension of agriculture land of each region.

INTRODUCTION

The livestock sector is economically significant due its account in agricultural gross product, its capacity to employ people, and its contribution on food market. As Samuel Jutzi said, livestock make a vital contribution as generator of cash flow and economic buffers [1]. Some authors consider that livestock have to be considered in relation with biodiversity and sustainability. In this respect Irene Hoffman [2] indicate that small scale livestock keepers are the targets of poverty alleviation and rural development programs but they also need incentives to start improved genetic resource management at an earlier stage in economic development. The development of livestock in Romania should be considered taking in consideration its impact on environment. Milne J.A. [3] consider that intensification of poultry, pig and dairy cow production systems can lead to air and water pollution associated with nitrogen and phosphorus emissions and losses from manure. The role agricultural consulting system for the husbandry breeding was underlined by Mugnier [4] who found that different sources of advice should be maintained to correspond with the various

strategies farmers use to acquire information. The level of livestock in a region is in relation with traditions of production, farmer preferences for livestock products, the available land for livestock production systems, fodder production, the number of population located in the rural areas of a specific region.

MATERIALS AND METHODS

In order to characterize the evolution of livestock, the following indicators were used: number of cattle, pigs, sheep, goats and horses stock and their density per 100 ha. The analyses have been focused at regional level and national level comparative with The European Union. The period analyzed in this study is 2006-2012. The data are provided by Eurostat, National Institute of Statistic Romania and Ministry of Agriculture and Rural Development, and have been statistically processed and interpreted.

RESULTS AND DISCUSSIONS

In Romania, the livestock is divided within eight regions of development. The major livestock production systems are specialized in meat production from poultry and eggs production, meat and milk production from

sheep and pig production. The poultry has the highest level of livestock due to good level of price for slaughtered chickens (around 150 euro/100 kg). This sector has high potential of development, related with attractive opportunities generated by consumer interest for this meat, low cost of production for integrated systems, short production cycle and export potential.

In Romania the poultry sector has achieved during last decade an improvement of technical and economical performance.

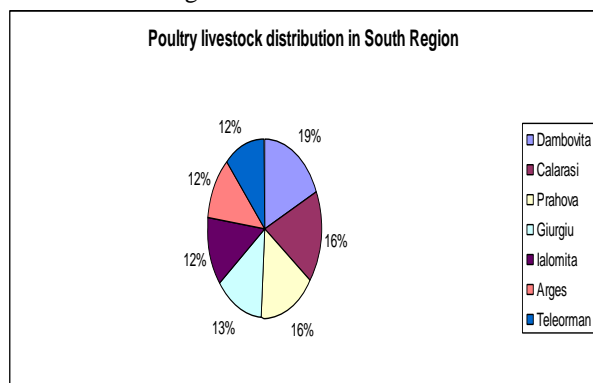
Table 1. Poultry livestock per 100 ha of land at regional level in Romania in 2011

Regions	Heads	Percent from total (%)	Poultry livestock per 100 ha at region level (heads/100 ha)
TOTAL	79841651	100	562.92
North West Region	8626527	10.80%	425.68
Centre Region	8060624	10.10%	436.44
North East Region	13906237	17.42%	670.62
South East Region	12488619	15.64%	562.97
South Region	20563160	25.75%	870.71
Bucharest Ilfov Region	586022	0.73%	571.80
South West Region Oltenia	10170919	12.74%	591.69
West Region	5439543	6.81%	296.45

Source: Own calculations based on data NIS Romania

The implementation of new welfare of poultry have increased the costs, but this sector is well developed in agriculture regions as South Region, where the feeds for poultry is not so expensive, at least in integrated production systems.

Fig.1. Poultry livestock distribution between counties of South East Region in 2011



In The South Region of Development, which had the largest livestock of poultry between regions in 2011, the Dâmbovița County had more than 18.4 % of total livestock of region with 3.78 millions heads, while Călărași was in second place with 16.5 %, corresponding to 3.39 millions heads.

The second largest livestock is recorded in the sheep production. In this sector, producers may receive €21/head or €16.8/head if the milk is sold on market. An additional premium of €7/head is granted in less-favored areas where sheep production constitutes a traditional activity. Also, some additional payments are eligible for Romania as member of EU. The amount of complementary national direct payment for sheep sector in Romania valued 40.8 lei per each sheep and the total amount allocated for sheep and goats was about 350 millions lei. Only part of it was paid to farmers in 2012 when despite efforts made by associations of sheep and goats, financial support remained the same as in the years 2010 and 2011, but at an exchange rate Lei/Euro significantly lower.

The sheep livestock in 2012 was 17 % higher than in 2006, but the highest number of sheep, about 9.14 million, was recorded in 2009.

Table 2. Sheep livestock per 100 ha of land at regional level in Romania in 2011

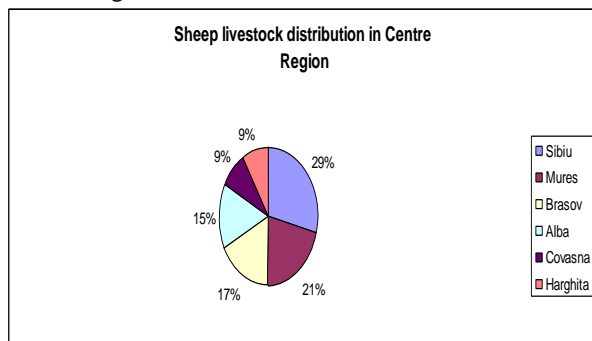
Regions	Heads	Percent from total (%)	Sheep livestock per 100 ha at region level (heads/100ha)
TOTAL	8533434	100	60.16
North West Region	1330825	15.60%	65.67
Centre Region	1931589	22.64%	104.59
North East Region	1258352	14.75%	60.68
South East Region	1302978	15.27%	58.74
South Region	812676	9.52%	34.41
Bucharest Ilfov Region	25352	0.30%	24.74
South West Region Oltenia	610385	7.15%	35.51
West Region	1261277	14.78%	68.74

Own calculations based on data NIS Romania

In The Centre Region of Development, which had the largest livestock of sheep between regions in 2011, the Sibiu County had almost 29 % of total livestock of region with more

than 558 thousand heads, while Mureş was in second place with more than 21%, corresponding to 409 thousand heads.

Fig.2. Sheep livestock distribution between counties of Centre Region in 2011



The third sector in range considering livestock dimension is pig production. This sector is supported by traditional consumer’s options for this kind of meat. If we consider the livestock trend we should consider the year before Romanian integration in EU (2006), the year 2007, and recent evolution. It is also necessary to consider some transition periods that were offered for Romanian farmers or producers, and the deadlines of these periods (2009 in many cases) which generate decrease of livestock due high criteria and standards that couldn’t be adopted in time.

In Romania, the number of pigs recorded also the highest value before 2007. From 2006 to 2011 the pigs’ livestock decrease by 22 %, from 6.81 million to 5.36 million. In terms of livestock of pigs, Romania was in 2011, with 5.3 millions heads, the ninth in the European Union after Germany (27.4 millions heads), Spain (25.6 millions), France (13.9 millions), Poland (13 millions), Denmark (12.3 millions), the Netherlands (12.1 millions), Italy (9.3 millions) and Belgium (6.3 millions), but before the neighbors from EU: Hungary (3 millions) and Bulgaria (0,6 millions). In terms of density per 100 ha of land, Romania (60 heads/100 ha) was followed by countries such as Greece (58 heads/100 ha), Czech Republic (58 heads/100 ha), Finland (57 heads/100 ha), Slovakia (43 heads/100 ha), Lithuania (37.1 heads/100 ha) or Bulgaria (19 heads/100 ha), the highest density of pigs per 100 ha being recorded in Netherland (1195 heads/100 ha), Belgium

(758 heads/100ha) and Denmark (504 heads/100 ha)

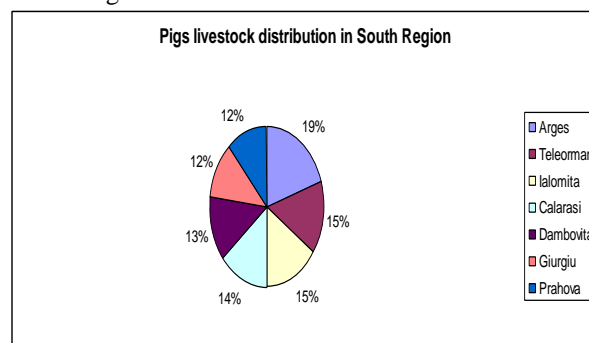
Table 3. Pigs livestock per 100 ha of land at regional level in Romania in 2011

Regions	Heads	Percent from total (%)	Pigs livestock per 100 ha at region level (heads/100 ha)
TOTAL	5363797	100	37.82
North West Region	681074	12.70%	33.61
Centre Region	534442	9.96%	28.94
North East Region	580468	10.82%	27.99
South East Region	869479	16.21%	39.19
South Region	948429	17.68%	40.16
Bucharest Ilfov Region	126677	2.36%	123.60
South West Region Oltenia	690887	12.88%	40.19
West Region	932341	17.38%	50.81

Own calculations based on data NIS Romania

In 2012 was recorded a slight increase of livestock, from 5.36 millions to 5.37 millions of pigs. In The South Region of Development, which had the largest livestock of pigs between regions in 2011, the Argeş County has almost 20 % of total livestock of region with more than 189 thousand heads, while Ialomiţa and Călăraşi took second and third place with around 14 % for each, corresponding to more than 141 thousand heads.

Fig.3 Pigs livestock distribution between counties of South Region



In terms of cattle livestock, Romania was in 2011, with almost 2 millions heads, the tenth in the European Union after France (19 millions heads), Germany (12.5 millions heads), UK (9.6 millions), Ireland (5.9

millions), Spain (5.9 millions), Italy (5.8 millions), Poland (5.5 millions) the Netherlands (3.9 millions) and Belgium (2.4 millions). In terms of density per 100 ha of land, our country (14.8 heads/100 ha) was in the same year among the last, followed by Hungary (13.8 heads/100 ha) and Bulgaria (11.7 heads/100 ha), the highest density being recorded in Netherland (214 heads/100 ha), Belgium (185 heads/100 ha) and Ireland (141 heads/100 ha).

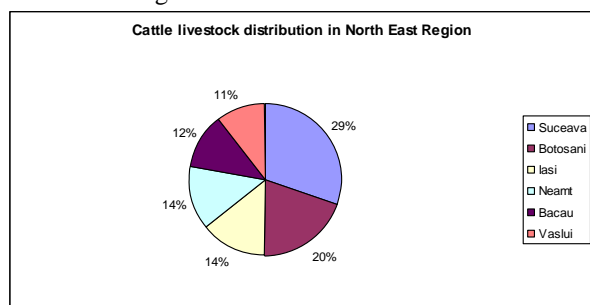
Table 4. Cattle livestock per 100 ha of land at regional level in Romania in 2011

Regions	Heads	Percent from total (%)	Cattle livestock per 100 ha at region level (heads/100 ha)
TOTAL	1988939	100	14.02
North West Region	347662	17.48%	17.16
Centre Region	313255	15.75%	15.46
North East Region	510817	25.68%	25.21
South East Region	231879	11.66%	11.44
South Region	237696	11.95%	11.73
Bucharest Ilfov Region	7171	0.36%	0.35
South West Region Oltenia	196712	9.89%	9.71
West Region	143747	7.23%	7.09

Own calculations based on data NIS Romania

At national level the number of cattle decreased between 2006 and 2011 by 33 %, from 2.93 million to 1.98 million. In 2012 was recorded the first increase of livestock up to 2.02 million.

Fig.4. Cattle livestock distribution between counties of North East Region



In The North East Region of Development, which had the largest livestock of cattle between regions in 2011, the Suceava County has 29 % of total livestock of region with

more than 155 thousand heads, while Botosani was in second place with 20 %, corresponding to more than 102 thousand heads.

In terms of sheep and the goat livestock, in 2011, Romania, with 9.7 millions heads ranked fourth among EU Member States, after the United Kingdom (21.9 millions heads), Spain (19.6 millions heads) and Greece (13.7 millions heads), before countries as France (millions heads) and Italy (8.9 millions heads). In terms of density of goats' livestock per 100 ha of land, Romania, with 72.5 heads/100 ha was situated after Greece (668 heads/100 ha), United Kingdom (124 heads/100 ha), Spain (103 heads/100 ha), Portugal (88 heads/100 ha), Italy (84 heads/100 ha) and the Netherlands (82 heads/100 ha) but before EU neighbour countries Hungary (23 heads/100 ha) and Bulgaria (36 heads/100 ha).

The goats husbandry is the only livestock sector which recorded an obvious increase between 2006 and 2012, from 0.72 million to 1.35 million, which means 85 % livestock increase. In Romania the goats rearing can be considered a new business comparative with national tradition in sheep and cattle breeding.

Table 5. Goat livestock per 100 ha of land at regional level in Romania in 2011

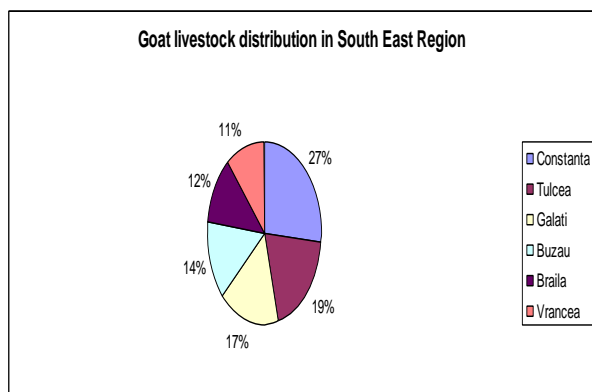
Regions	Heads	Percent from total (%)	Goat livestock per 100 ha at region level (heads/100ha)
TOTAL	1236143	100	8.72
North West Region	90643	7.33%	4.47
Centre Region	105768	8.56%	5.73
North East Region	198332	16.04%	9.56
South East Region	317218	25.66%	14.30
South Region	224370	18.15%	9.50
Bucharest Ilfov Region	8935	0.72%	8.72
South West Region Oltenia	235949	19.09%	13.73
West Region	54928	4.44%	2.99

Own calculations based on data NIS Romania

The goat products have the advantage of an emergent market, based on new consumer choice and buying option. In The South East Region of Development, which had the largest

livestock of goats between regions in 2011, the Constanța County had 26 % of total livestock of region with more than 84 thousand heads, while Tulcea was in second place with 19 %, corresponding to more than 60 thousand heads.

Fig.5. Goats livestock distribution between counties of South East Region



The horses livestock has suffered changes considering the role of horses in the past as work factor to its increasing nowadays role of entertainment. In The North East Region horses still have their primordial role in agriculture and are also used for transport. The highest density of horses per 100 ha is recorded in the South East Region of Development where the horses are also important for local transport in rural areas and other activities related with agriculture.

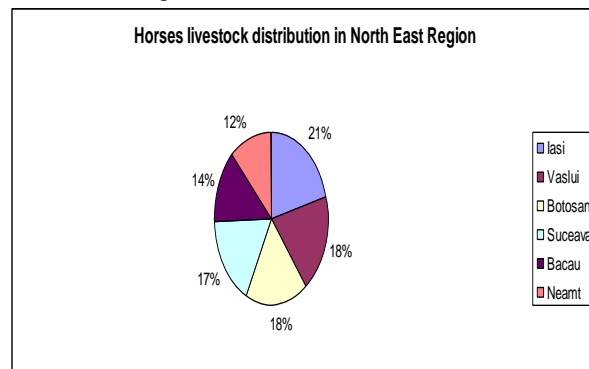
Table 6. Horses livestock per 100 ha of land at regional level in Romania in 2011

Regions	Heads	Percent from total (%)	Horses livestock per 100 ha at region level (heads/100 ha)
TOTAL	1236143	100	8.72
North West Region	90643	11.88%	4.47
Centre Region	105768	12.22%	5.73
North East Region	198332	26.21%	9.56
South East Region	317218	16.25%	14.30
South Region	224370	13.89%	9.50
Bucharest Ilfov Region	8935	0.61%	8.72
South West Region Oltenia	235949	13.60%	13.73
West Region	54928	5.35%	2.99

Own calculations based on data NIS Romania

In The North East Region of Development, which had the largest livestock of horses between regions in 2011, the Iași County has almost 21 % of total livestock of region with more than 32 thousand heads, while Vaslui County was in second place with 18 %, corresponding to more than 28 thousand heads.

Fig.6. Horses livestock distribution between counties of South East Region



The livestock level is in relation with the feed resources at regional level.

Table 7. The land fond by use at regional level in Romania in 2011 (ha)

Regions	Arable	Hayfields	Pastures	Total
TOTAL	9352252	1553543	3277656	14183451
North West Region	1023457	387444	615641	2026542
Centre Region	721990	486383	638520	1846893
North East Region	1380705	200638	492293	2073636
South East Region	1826987	62575	328790	2218352
South Region	1965228	108419	288019	2361666
Buch. - Ilfov Region	100101	58	2328	102487
South West Region Oltenia	1244971	96824	377167	1718962
West Region	1088813	211202	534898	1834913

Source: NIS Romania

The South Region and South East have the largest areas of arable land, while Centre Region and North West Region of Development have the largest areas covered by hayfields. In the North West Region and

Centre Region can be also find the largest areas covered with pastures, favourable to sheep breeding.

CONCLUSIONS

The level of incomes and trends in population food preferences besides other aspects as the level of subsidies, livestock diseases that can pass to humans and the increase of input prices for animal sector are factors that affect the national livestock for different species. In Romania, the livestock of cattle and pigs has continuously decreased during the period 2006-2011 and slightly increased in 2012.

The livestock of goat has the most significant growth, followed by sheep. The horses' livestock is suffering a continuous decline since 2007 while the poultry livestock change each year, usually depending on market conditions and productions restrictions. At region level The North East Region of Development has the highest livestock for cattle and horses due its conserved production traditions and its richness in pastures and meadows. The South Region of Development has the highest livestock of poultry and pigs due its modern livestock production systems for poultry and large floodplain area dedicated to pig production along Danube River. The Centre Region concentrated the highest livestock of sheep while the South East region developed the largest effective of goats.

AKNOWLEDGEMENTS

The results are part of the Project "Research On Actual Size Evaluation And The Perspective Of Sustainable Rural Development Through The Elaboration Of SWOT Analysis, As Method Of Strategic Planning For The North-East Region Of Romania", under a financial scheme supported by Romanian National Council for Scientific Research in Higher Education: CNCSIS-UEFISCSU (Grant no 114 /28.07.2010), Project manager: Silviu BECIU

REFERENCES

- [1]FAO, World livestock, livestock in food security 2011
- [2]Hoffman, Irene, 2011, Livestock biodiversity and sustainability, Livestock Science, 139: 69-79
- [3]Milne, J. A., 2005, Social expectation of livestock farming in relation to environmental effect in Europe, Livestock Production Science, 96(1):3-9
- [4]Mugnier, S., Magne, M.A., Pailleux, J.Y., Poupart, S., Ingrand, S., 2012, Management priorities of livestock farmers: A ranking system to support advice, Livestock Science, 144(1-2):181-189