

TRENDS IN ROMANIA'S ANIMAL PRODUCTION

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Abstract

The paper aimed to analyze the trends in animal production in Romania and identify its position among the EU countries and make a few recommendations to improve the statement of the sector. Animal production declined both at the EU level and in Romania. The livestock decline in cattle and pigs resulted in meat and milk production as well as consumption declined. Poultry meat and mutton and goat meat as well as honey production increased. Food consumption and self sufficiency rate are still lower compared to the EU average and their level in the most important producing countries of products of animal origin. The achievements in animal production in Romania are below its potential to produce meat and milk and food security could not be assured to the population. A clear strategy and important measures are needed to increase milk and meat production: a higher forage production, a balanced feeding to animals, the use of high breeding value animals, the implementation of modern technologies, a high training level to farmers and units managers, a higher productivity and product quality, as well as farm competitiveness, creation of associative forms. A sustainable agriculture and mainly animal production could be developed only in intensive farm systems, but also in the mountain and hilly areas by small farms which could use the pastures and meadows. As a final conclusion, the future strategy must pay more attention to animal production and create a balance with crop production. Otherwise, Romania's agro-food market will always depend on imports, affecting local producers.

Key words: animal production, livestock, holding size, trends, Romania, EU selected countries

INTRODUCTION

The market economy is an economy of competition, price liberalization, profit and bankruptcy, risk and uncertainty, of recession and growth, prosperity and poverty, aspects that always are linked of money and efficiency (Mayer *et al.*, 1993)[20].

Romania has passed to the market economy after 1990, and this determined continuous changes of the juridical, economical, financial and social factors in the whole economy in order to the new challenges.

Agriculture is an important branch of Romania's economy. It assures food for population, raw materials for processing industry and agro-food products for export (Grigoras, 2016) [15].

Agriculture contribution to GDP accounts for 5.6 % (Cristea *et al.*, 2015) [7]. It is also an important source of jobs for the population living in the rural areas. About 45 % of Romania's population lives in the rural space, of which 30 % is employed in agriculture.

However, the key problems related to work force in agriculture are populating aging, the low training level, the reduced number of young farmers, as the young people leave the villages and the communes going to cities looking for better paid jobs. (Balan, 2015) [4].

Agriculture is characterized by the land fragmentation, and the huge number of holdings, most of them being subsistence and semi-subsistence farms with a low technical endowment and productivity. Between Romania and other EU countries there is a technological gap, a weak access to the EU funds, the shortage of human resources and the market disfunction. Since 1990, Romanian agriculture has passed from a few thousands of agricultural large state units and cooperatives to millions of small private holdings lacked of endowment, capital, labor and efficiency (Sterghiu *et al.*, 2014, Manescu *et al.*, 2016) [54, 19].

Important changes appeared in the contribution of crop and animal production to

the value of agricultural production. From 62 % animal production in the agricultural production value before 1990, at present animal production contributes by only 32.6 % to agricultural production output.

Animal production is an important branch of agriculture as it transform the raw materials from crop production into high value added products like meat and meat products, milk and dairy products, which are required to assure the needs of protein and essential amino-acids, fats, vitamins and minerals in human diet.

Animal production have been has been developed in Europe during the last five centuries contributing to the modern civilization. From here, it was extended in the world and at present it is facing a huge competition among the main "actors" playing in animal production and international trade with animals and products of animal origin. For this reason, animal production could be considered "the backbone" of agriculture in the developed countries (Draganescu, 2013a, 2013b, 2014) [9,10, 11].

Animal growing is a traditional activity in Romania' rural areas assuring the population consumption needs, sustainable farming and stability. Animals are a source of essential food for human diet like milk and meat, but also of skins, natural fertilizer and biogas (Luca, 2015) [17].

Animal Sector of Romania's agriculture has been facing deep changes regarding the number of farms, farm size in terms of number of animals per holding, livestock evolution, milk yield, milk production, average weight of animals at slaughter, carcass weight, meat production, egg per hen, egg production, bee families, honey yield and production, animal products quality, producer's price and contribution of animal sector to Romania's trade with products of animal origin, farm management, economic efficiency in terms of gross margin, farmer's income and profit, marketing of agricultural products,

The major problems animal sector is facing in Romania are: the land fragmentation into small plots, the small farm size, the old technical endowment, low productivity, the

lack of competitiveness and high self-consumption (Sandu, 2015, Sandu et al., 2015, Simtion, 2015) [48, 49, 50].

Important changes appeared in the ratio between production and consumption, due to the demographic evolution of Romania's population, crop and animal production dynamics, participation to international trade. Also, consumer behavior has changed being more oriented to a healthier food.

Despite that important EU fund were allotted to Romania they haven't been entirely used losing the opportunity to help the farmers (Stanciu, 2014) [47].

In this context, the objective of the paper was to identify the main trends in animal production in Romania in the period 2007-2015 and establish Romania's position among the EU countries which are important producers of products of animal origin.

MATERIALS AND METHODS

The paper is based on a large information collected from various source mainly the important publication regarding livestock and animal production in the EU and Romania. the author structured the information and create a logical scheme of the paper approaching the following aspects: agriculture contribution to GDP, agricultural production value and its structure by crop and animal production, the evolution of livestock (cattle, dairy cows, pigs, sheep and goats, poultry, bee families), number of farms, animal production (milk, beef and veal, pork, mutton and goat meat, poultry meat, eggs, honey), consumption of products of animal origin and self-sufficiency.

The comparison regarding the situation in Romania was done with the EU average almost for each indicator and also with the most important EU producing countries: France, Germany, Italy, Spain, Netherlands, Poland, United Kingdom.

The data are presented in comparison especially for the year 2007 and 2014 or 2015, and for the EU with the data displayed by EU Commission for Agriculture in its Report 2015 for the year 2012.

RESULTS AND DISCUSSIONS

Romania is an important EU country coming on the 6th position with a population of 20.096 million inhabitants (4%) after Germany (81 Mil., 16 %), France (65 Mil., 13 %), Italy (60 Mil., 12 %), Spain (46 Mil., 9 %), and Poland (38 Mil., 7.5 %).

Regarding GDP per inhabitant, Romania comes on the 25th position with 12,600 Euro/capita, much less than the EU average (25,200 Euro/capita) [1].

The contribution of agriculture to GDP.

The development of agriculture, forestry and fishing in the last decades is obviously important for Romania, a country with a favorable geographical position, good soil and climate conditions for achieving agricultural products.

In the analyzed period, the GDP produced in agriculture, forestry and fishing increased by 64.85 % from 23.9 Lei Billion, current prices in 2007 to 39.40 Lei Billion, current prices in 2015. Taking into account that Romania's GDP increased by 69.47 % from 416 Lei Billion in 2007 to 705 Lei Billion in 2015, the contribution of agriculture, forestry and fishing to Romania's GDP remained relatively constant from 5.8 % in 2007 to 5.6 % in 2015, reflecting just a slight decrease (Table 1).

Table 1. Agriculture, forestry and fishing contribution to Romania's GDP in 2007 and 2015 (Lei Billion current prices)

	2007	2015	2015/2007 %
GDP produced in agriculture, forestry and fishing	23.9	39.4	164.85
Romania's GDP	416	705	169.47
Share of agriculture, forestry and fishing in Romania's GDP (%)	5.8	5.6	-

Source: Own calculation based on NIS Database, 2016 [22].

GDP produced in agriculture is influenced by a series of factors such as: local geographical conditions, technical endowment, fixed assets

and investment, labor force and productivity, employment and unemployment (Popescu, 2015c, Popescu *et al.*, 2015) [40, 45].

In the EU, the contribution of agriculture to the EU GDP is just 1.2 % in average. Romania comes on the 1st position with 4.7 % being followed, in the decreasing order by Bulgaria with 4.2 %. In the EU countries, where services and industry are well developed, there is a lower share of agriculture in GDP. For instance: Germany 0.6 %, France 1.6 %, Netherlands 1.4 %, Italy 1.6 %, Spain 2.1 %, Poland 2.4 % [1].

The contribution of agriculture to GDP is deeply determined by fixed assets in agriculture and also it is closely linked to employment in agriculture.(Popescu, 2015c, Popescu *et al.*, 2015) [40, 45].

The value of agricultural production

increased by 56.2 % from 47,699.9 Lei Million current prices in 2014 (Table 2).

From this point of view with 14.4 Euro Billion in 2012, Romania came on the 7th position in the EU after France (77 Euro Bil.), Germany (54 Euro Bil.), Italy (48 Euro Bil.), Spain (42 Euro Bil.), Netherlands (26 Euro Bil.) and Poland (23 Euro Bil.) [1].

Table 2. Agricultural production value in Romania in 2007 and 2014 (Lei Million current prices)

	2007		2014		2014/ 2007 %
	Lei Million	%	Lei Million	%	
Agric. prod. value	47,699.9	100.0	74,524	100.0	156.2
Crop prod. value	28,723.4	60.2	49,058	65.8	170.7
Animal prod. value	18,291.6	38.3	24,481	32.8	133.8
Service value	684.8	1.5	984	1.4	143.6

Source: Own calculation based on NIS Database, 2016 [22].

The value of crop and animal production.

While crop production increased by 70.7 % from 18.2 Lei Billion in 2007 to 49 Lei Billion in 2014, animal production value increased by 33.8 % from 18.2 Lei Billion in

2007 to 24.4 Lei Billion current prices in 2014 (Table 2).

The key "actors" growing animals and with the highest share in animal production in the EU are France, Spain, Germany, United Kingdom, Italy, Netherlands, Poland and Denmark (Bazbanela, 2015, Luca, 2015a) [5, 17].

Romania comes on the 8th position for the output of crop production after France, Germany, Italy, Spain, Netherlands and Poland, and also on the 8th position for the output of animal production after Germany, France, Italy, Spain, Netherlands and Poland (Table 3).

Table 3. Agricultural production value in the EU and selected EU countries in 2012 (Mio. Eur.)

	EU-27	Romania	Germany	Italy	France	Spain	Netherlands	Poland	United Kingdom
Agricultural production	390,500	13,348	55,579	46,678	73,025	41,423	25,967	22,518	28,220
Crop production	208,015	9,100	27,682	24,987	43,900	24,907	12,723	11,700	10,900
Livestock production	163,610	4,112	26,060	16,666	25,475	16,090	10,381	10,341	16,006

Source: [1]

However, the EU Report on agriculture 2013 mentioned that compared to 2005=100, in 2012, Romania registered an output of agriculture industry of 85.9 %, meaning 14.1 % less than in 2005. And this is among the highest declines, Romania being followed only by Cyprus with 73.1 % and Malta with 70 %. In the EU selected countries, the declines were smaller, except the growth recorded in Spain (+12.3 %), Netherlands (+8.3%), Poland (+9.7%) and United Kingdom (+1.9%) (Fig.1.)

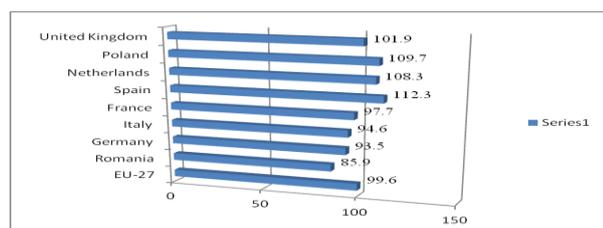


Fig.1. Output of agricultural industry in the selected EU countries in 2012 (2005=100)

Source: Own design based on [1]

The share of animal production in the value of agricultural production. The highest contribution to agricultural production is given by crop production. The weight of crop production in agricultural production in Romania increased from 60.2 % in 2007 to 65.8 % in 2014. The share of animal production declined from 38.3 % in 2007 to 32.8 % in 2014 (Table 2).

The share of products of animal origin in the EU agricultural production and in the selected EU countries is presented in Table 4. At the EU level, in 2012, the products of animal origin contributed by 40.3 % to animal production value. In Romania, this contribution was 28.2 % compared to 46.5 % in Germany, 39.9 % in Poland, 37.4 % in Spain, 34.2 % in France and 33.3 % in Italy (Table 4).

Table 4. The share of products in agricultural production in the EU-27 and the EU selected countries (%)

	EU-27	Romania	Germany	Italy	France	Spain	Netherlands
Milk	13.1	8.9	18.2	10.4	11.1	6.1	16.1
Cattle	8.5	2.2	7.7	7.6	11.0	6.0	6.2
Pigs	9.6	6.6	14.1	6.3	4.5	14.2	11.5
Sheep and goats	1.4	1.5	0.4	0.4	1.1	2.2	0.6
Eggs	2.5	6.1	1.5	3.0	1.7	2.9	2.4
Poultry	5.2	2.9	4.6	5.6	4.8	6.0	3.1
Total	40.3	28.2	46.5	33.3	34.2	37.4	39.9

Source: [1]

Milk, cattle and pigs represent about 75 % of the EU animal production value in the EU. The main producers of animal products are France, Germany, Italy and Spain [2].

The comparative advantage or disadvantage in the production and trade of a country for a particular good is reflected in the economic and social profitability (Gorton et al., 2015) [14].

The output of animal industry in Romania and some selected EU countries is presented in Table 5. The figures reflect that the output of animal industry in Romania is smaller than

in the selected EU countries with a high development of animal sector.

About 75 % of the EU animal production value is represented by milk, cattle and pigs (Luca, 2015a) [17].

In 2012, Romania came on the 15th position for cattle output accounting for 263 Mio Euro, on the 10th position for milk output for 1,208 Mio Euro, on the 10th position for pig output for 904 Mio Euro, and on the 9th position for eggs and poultry output for 1,249 Mio Euro (Table 5).

Table 5. The output of animal industry in the EU-27 and the selected EU countries in 2012 (Mio Euro)

	EU-27	Romania	Germany	Italy	France	Spain	Netherlands	Poland	United Kingdom
Cattle	31,800	263	4,093	3,543	7,393	2,244	1,561	1,237	4,480
Milk	51,465	1,208	9,721	4,950	8,589	2,572	4,174	3,319	4,520
Pigs	37,768	904	8,010	2,983	3,339	6,063	2,934	2,633	1,395
Eggs and poultry	30,731	1,249	3,555	4,038	4,801	3,823	1,315	3,041	3,385

Source: [1]

On the first positions, in the decreasing order, are situated **for cattle**: France, United Kingdom, Germany, Italy, Spain, Netherlands, Poland, **for milk**: Germany, France, Italy, United Kingdom, Netherlands, Poland and Spain, Denmark and Ireland, **for pigs**: Germany, Spain, France, Italy, Netherlands, Poland, United Kingdom, Denmark and Belgium, and **for eggs and poultry**: France, Italy, Spain, Germany, United Kingdom, Poland, Netherlands and Austria.

Agricultural holdings raising animals in Romania. Romania has the highest number of holdings growing animals in the EU. However, their number decreases year by year, having a general descending trend which is a positive aspect in relation to the average farm size in terms of number of animals/holding.

In 2010, in Romania, there were 728,020 cattle holdings, by 31.82 % less than in 2007, 1,655,578 pig holdings by 2.48 % less than in 2007 and 272,775 sheep holdings by 30.16 % less than in 2007 (Table 6).

Table 6. Number of agricultural holdings in Romania in 2007 and 2010

	2007	2010	2010/2007 %
Cattle	1,067,726	728,020	68.18
Pigs	1,697,575	1,655,578	97.52
Sheep	390,562	272,775	69.84

Source: NIS Data base, 2016

The average size of stocks/holding and the number of holdings in Romania compared to the selected EU countries is presented in Table 7.

The figures from this table reflect that Romania has the smallest farm size in terms of 2.7 cattle/holding, 1.8 dairy cow/holding and 1.9 pigs/holding and also the highest number of holdings in the EU: 728 thousands cattle holdings, 625 thousands dairy farms and 1,656 thousands pig holdings.

The dynamics of livestock in Romania. The general trend of livestock is a decreasing one for cattle, dairy cows, buffaloes and heifers, for pigs and poultry. Exception is made by sheep, goats and bee families whose number has a continuous increasing trend in the period 2007-2015.

In 2015, cattle livestock accounted for 2,092

thousand heads by 25.79 % less than in 2007, the dairy cows, buffaloes and heifers numbered 1,311 thousand heads by 24.31 % less than in 2007, the pigs accounted for 4,926 thousand heads by 24.97 % less than in 2007 (Draghici *et al.*, 2014) [12].

But, in 2015, the sheep and goats number reached 11,250 thousand heads by 32.83 % more than in 2007 and the number of bee families accounted for 2,800 thousands, by 195 % more than in 2007 (Table 8).

Table 7. Average size of stocks/holdings and the number of holdings by species in Romania, the EU and the selected EU countries in 2010

	Cattle		Dairy cows		Pigs	
	Average size of stocks per farm	No. of holdings x 1,000	Average size of stocks per farm	No. of holdings x 1,000	Average size of stocks per farm	No. of holdings x 1,000
EU-27	34.2	2,574	13.7	1,701	22.6	2,755
Romania	2.7	728	1.8	625	1.9	1,656
Germany	86.5	145	46.4	90	127.6	60
Italy	47.3	126	35.2	52	42.9	26
France	97.7	200	45.0	83	45	24
Spain	38.8	112	30.9	29	100.8	70
Netherlands	121.1	33	74.6	20	243	7
Poland	28.6	514	5.9	426	16.6	388
United Kingdom	117.3	86	78.3	24	32	10
Denmark					506.1	5
Belgium					202.1	6

Source: [1]

Table 8. Livestock in Romania in 2007 and 2015 (Thousand heads)

	2007	2015	2015/2007 %
Cattle	2,819	2,092	74.21
Dairy cows, buffaloes and heifers	1,732	1,311	75.69
Pigs	6,565	4,926	75.03
Sheep and goats	9,334	11,250	120.52
Poultry	82,036	78,648	95.87
Bee families	982	2,800	285.13

Source: Own calculation based on NIS Data base, 2016

The dynamics of animal production in Romania. As a result of the decline in the livestock, animal production carried out a general decreasing trend in meat production in equivalent live weight (-4.8 %) and milk production (-19.5 %) and a general increasing trend in poultry meat production (+34.1 %) and honey production (+66.3 %), while in mutton and goat meat production and eggs production the situation remained stabled in 2015 compared to 2007 (Table 9).

Table 9. Animal production in Romania in 2007 and 2015

	MU	2007	2015	2015/2007 %
Total meat	Thousand tons live weight	1,503	1,431	95.2
Beef	Thousand tons live weight	333	200	60.0
Pork	Thousand tons live weight	642	562	87.5
Mutton and goat	Thousand tons live weight	110	110	100.0
Poultry	Thousand tons live weight	416	558	134.1
Milk	Thousand hl	61,048	49,156	80.5
Eggs	Million pieces	6,522	6,555	100.5
Honey	Tons	16,767	27,892	166.3

Source: Own calculation based on NIS Data base, 2016

Meat production declined because of the reduction in cattle but also in pig number. But, it was positively sustained by the increased number of sheep and goats and poultry (Dincu, 2014, Stanciu, 2015, Sterghiu

et al., 2014, Niculae *et al.*, 2015) [8, 53, 55, 21].

The main problems the meat production is facing are the following ones: the uncorresponding breed structure and the lack of specialized breeds for meat especially in cattle, the unbalanced feeding during the fattening period, the low live weight at slaughter and low carcass weight and high production and processing costs, the lack of farmers' associative forms and financial resources (Soare, 2015) [51].

Milk production went down due to the decline in cattle and mainly in dairy cows, buffaloes and heifers, the low yield and the invasion of imported dairy products on the domestic market which has deeply affected the local producers (Popescu, 2011, Stanciu, 2014, Popescu, 2015a, Grigoras, 2016) [32, 52, 38, 15].

Also, in milk quality is still a problems in some farms, and milk collection as well (Popescu *et al.*, 2009) [44].

Also, the dairy farms have a small size of about 1.8 cow/farm in average, but also there are a few farms with over 50 heads/farm. The technical endowment and labor resources determine the efficiency in terms of variable costs and gross margin. The higher the number of dairy cows, and the higher the yield/cow, the higher gross margin (Popescu, 2006, 2010a) [28, 30].

An increased milk yield and milk production in a dairy farm result in a lower production cost/ kg milk and higher marketed milk (Popescu, 2014) [37].

Pork production is facing the decline in pigs, because of the lack of piglets for fattening in the market and the small price per live weight at slaughter. However, pork dominate the meat market in Romania as pork is a traditional food for centuries (Popescu, 2009) [29].

Pork is also important in many EU countries like Denmark, Spain, Poland etc (Popescu, 2015d) [41].

Poultry production in terms of meat and eggs had a positive evolution grace to the flexibility of producers to adapt to the EU market requirements and long tradition in this high efficient sector of agriculture (Pirvutoiu

et al., 2012a, 2012b) [24, 25].

Sheep and goat is another traditional occupation of the rural population living mainly in the mountains and hilly areas, reflecting its existence for thousands of years, its stability and cohesion in the Carpathian, Danube and Pontic region (Dreve *et al.*, 2016) [13].

Sheep and goats contribute to milk production with high quality milk and also are an important source of tasty and high digestible meat compared to beef and pork.

Sheep and goats growing is favored by the existence of pastures and meadows where meat hybrids could be used to produce more meat for the domestic market and also for the Arabian countries where the supply is insufficient (Pirvutoiu *et al.*, 2013a, Dreve *et al.*, 2016 [26, 13].

Poultry farming is well developed in industrialized units but also in small farms and is bale to cover the domestic market and assure exports. Poultry farming mainly broilers fattening is convenient for farmers for its short period, high production gain, low production cost and good price (Sabau *et al.*, 2009) [46].

Many of the companies are integrated holdings from the first day chickens till the final products: chicken carcass and carcass parts. Consumer's preference is more and more oriented to chicken and also to meat which have a high content of protein, low cholesterol, and a convenient price on the retail shelves (Pirvutoiu *et al.*, 2013b) [27].

Honey production has recorded an ascendant trend due to the growth in the number of bee families and bee hives, the average honey yield/bee family and apiary. More and more apiarist keep more bee families being aware that profitability of an apiary is assured by over 50 and mainly over 100 bee families (Popescu, 2011, 2012b, 2012a) [32, 33, 34].

The high quality of the Romanian honey makes it required for export mainly in the Western European countries. Romania's honey trade is an efficient part of its external trade, assuring a positive honey balance, because Romania is a net exporter of honey (Popescu, 2010b, 2013a, Pirvutoiu *et al.*, 2011) [31, 35, 23].

Honey consumption is low in Romania, just about 0.5 kg/inhabitant per year, smaller compared to the Western countries.

Honey is consumed by Romanians for its medical benefits, dietary quality, ethical character and suitability with food consumption pattern (Arvanitoyanis *et al.*, 2006) [3].

In Romania it is also another branch of animal production "silk worm rearing", which has remained in small family farms as an activity for additional income and for producing handicrafts.

Romania was among the main producers of silk cocoons and silk in Europe besides Italy, Spain, and Bulgaria. (Popescu, 2013b, Popescu *et al.*, 2008a, 2008b) [36, 42,.43].

Research experiments pointed out that integrated sericultural family farms are viable and profitable in Romania for producing silk worm eggs, silk and handicrafts.

Beef, veal, pork poultry meat and sheep and goat meat contribute by about 25 % to the EU agricultural production value, because about 50 % of the EU holdings raise animals. However, meat production as well as meat consumption in the EU registered a slight decline because of the lower beef and pork offer (Tluczak, 2015) [56].

Animal production per inhabitant in Romania. As a result of the evolution of animal production and population in the period 2007-2015, the animal production per inhabitant declined from 72 kg meat in 2007 to 67 kg in 2015 (-7%), from 292.3 l milk/inhabitant in 2007 to 248 l in 2015 (-15.16%), only in case of eggs the production increased from 312 pieces/capita in 2007 to 320 pieces in 2015 (+2.56 %) (Table 10).

Table 10. Animal production per inhabitant in Romania in 2007 and 2015

	MU	2007	2015	2015/2007 %
Meat	Kg/capita	72	67	93.05
Milk	Liters/capita	292.3	248	84.84
Eggs	Pieces/capita	312	320	102.56

Source: Own calculation based on NIS Data base, 2016 [22].

Consumption of meat, milk and eggs in Romania compared to the selected EU

countries. Meat, milk, and egg consumption per inhabitant declined from 2007 to 2014, explained by a new orientation of consumers to vegetables and fruits, and mainly due to the high market price and low purchasing power.(Table 11).

The consumption growth depends on consumers' preferences, consumption pattern, product quality and price, offer availability and the purchasing power of the population (Grodea, 2002) [16], (Constandache *et al.*, 2014) [6].

Beef consumption declined by 22.6 % from 8.3 kg/capita in 2007 to 5.6 kg/capita in 2014. While beef declined in the Romanians' consumption due to the high price, pork is still on the highest position, despite its share recorded a slight decline as people became aware of its content in cholesterol (Constandache *et al.*, 2014) [6].

Pork consumption is on the top, followed by chicken meat, beef, mutton, lamb and goat meat.

Pork consumption registered a decline from 32.4 kg in 2007 to 29 kg in 2014 and self - sufficiency in pork accounts for about 71 % (Luca, 2015b) [18].

Poultry meat consumption increased and reached about 20.7 kg/capita in 2007, and remained relatively at a constant level of about 20 kg (Pirvutoiu *et al.*, 2013b) [27].

Milk and dairy products consumption in milk equivalent 1.5 % declined by 6.4 % from 268.6 kg/capita in 2007 to 251.5 kg/capita in 2014. But it is still important for various categories like children, young and old people, but also for adults (Popescu, 2015b) [39].

Eggs consumption decreased by 10.9 % from 276 pieces in 2007 to 246 pieces in 2014 (Table 11).

The consumption of meat, milk and eggs per inhabitant in Romania is lower compared to other EU average: 39.7 kg/capita pork, 14.8 kg/capita beef and veal, 24 kg poultry meat, but a little higher for mutton and goat meat 2.1 (Table 12).

Table 11. Consumption of products of animal origin per inhabitant in Romania in 1990, 2007 and 2014 (kg)

	1990	2007	2014	2014/ 2007 %
Meat and meat preparation in fresh meat equivalent	56.9	64.7	57.8	89.3
Beef	10.9	8.3	5.6	67.4
Pork	25.1	32.4	29	89.5
Sheep and goat meat	3.1	2.6	2.3	88.4
Poultry meat	17.3	20.7	20.1	97.1
Other sorts of meat	0.5	0.7	0.8	114.2
Milk and dairy products in milk equivalent 1.5%	180.5	268.6	251.5	93.6
Eggs	246	276	246	89.1
Fish and fish preparations	5.1	3.9	4.9	125.6

Source: Own calculations based on NIS Data base, 2016 [22].

Table 12. Gross internal meat production, meat consumption and self-sufficiency in the EU in 2012

	Gross internal meat production		Meat consumption		Self-sufficiency (%)
	%	1,000 tons	%	kg/capita	
Pig meat	49.4	22,400	47.0	39.7	111.1
Beef and veal	16.3	7,387	17.5	14.8	101.4
Poultry meat	27.8	12,614	28.4	24	104.1
Sheep and goat meat	2.0	918	2.5	2.1	87.3
Total	95.6	43,319	95.4	80.6	-
Edible offals	4.4	2,008	4.6	3.9	-
Total	100.0	45,326	100.0	84.5	-

Source: [1]

Meat self-sufficiency is lower in Romania compared to the EU average and with the self-sufficiency in the selected EU countries

(Table 13).

Table 13. Meat Self-sufficiency in Romania compared to other EU selected countries, 2010 (%)

	Total meat	Beef and veal	Pork	Poultry meat	Sheep and goat meat
EU	-	101.4	111.1	104.1	87.3
Romania	77	111	60	89	143
Germany	113	119	110	101	55
Italy	76	59	67	109	45
France	105	105	106	114	46

Source: [1]

CONCLUSIONS

Animal production is an important sub branch of the agricultural production in the EU and Romania. However, animal production registered a decline both at the EU level and in Romania.

The cattle and pig number decreased, while poultry, sheep and goat livestock and bee families increased in Romania. As a result both meat and milk production declined, while poultry meat and mutton and goat meat as well as honey production increased.

The purchasing power and retail price of meat and milk determined consumers to reduce consumption. Food consumption is still lower compared to meat and milk consumption in the EU.

The self-sufficiency rate is also lower than the EU average and in the most important EU countries producing products of animal origin. Therefore, the achievements in animal production in Romania are below its potential to produce meat and milk. The demand/offer ratio is not balanced, so that imports of milk and dairy products as well as of meat and meat products are justified.

With a contribution of 32.8 % of animal production to agricultural product value, Romania's agriculture characterizes a country with a high risk for assuring food security of the population.

Food security of a population is assured by the availability and stability of food supply. In order to diminish or eliminate the vulnerability of Romania in terms of food security, animal production must grow and

become the key sector in agriculture. To increase milk and meat production it is needed to develop forage production, to assure a balanced feeding to animals, to create a balance breed structure and hybrids for meat production using high breeding value animals. Modern technologies and trained labor are required to increase productivity and product quality, as well as farm competitiveness.

Beef could be a niche for Romania to cover the EU market needs. For this purpose, farmers must join their forces into associations for fattening using crossbreds with high meat production potential. The EU funds are an opportunity which must not be ignored. The Programme Horizon 2014-2010 is of a high importance for the Romanian agriculture and especially for animal production to assure the financial support for creating new farms or modernizing the existent ones, and for the acquisition of high genetic value biological material.

The associative forms could allow lower input prices for equipment, the use of modern technologies, a better marketing of the products of animal origin, a more flexible management to meet the market fluctuations.

A sustainable agriculture and mainly animal production could be developed only in intensive farm systems, but also in the mountain and hilly areas by small farms which could use the pastures and meadows.

As a final conclusion, the future strategy must pay more attention to animal production and create a balance with crop production. Otherwise, Romania's agro-food market will always depend on imports, affecting local producers.

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