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AN OVERVIEW OF ROMANIAN AGRICULTURAL INDICATORS IN THE LAST YEARS

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Abstract: *The main purpose of this study is to present and analyze a number of technical and economic indicators of Romanian agriculture during 2005-2016. The main indicators monitored are the land fund development, area and crop production, livestock and livestock production, number of agricultural holdings, economic accounts and prices in agriculture and agro-environmental indicators. It was found that over time in Romanian agriculture were produced important changes both in terms of quantity and quality, both in crop farming and in livestock. Common Agricultural Policy attempts to provide a reasonable level of living of farmers and residents of countries default and especially for this reason, through the indicators analyzed, this study aims to provide a broad picture of progress or regress in Romanian agriculture in lately. The best perspective on agriculture is provided by economic accounts because they provide information about the composition and structure of agricultural production, the income received by farmers, the relationships between prices and inputs, the value of the standard output production, intermediate consumption, gross value added and subsidies practically with the help of these indicators is carried out an analysis of the economic efficiency of agriculture.*

Keywords: *economic indicators, agriculture, efficiency.*

JEL classification: *Q11, Q12, Q17, O11, O13.*

INTRODUCTION

Agriculture is a very important sector for the Romanian economy. Unlike most European Union countries, agriculture has been and continues to be a sector of prime importance in Romania, both through its contribution to the economy and the share of the employed population [1]. The agricultural land exploitation structure in Romania has not changed significantly during the last decade, maintaining the same fragmentation and extreme polarity, major impediments to the growth of the sector's competitiveness. The main means of production in agriculture, the land, is characterized by a series of specific features that distinguish it from other means of production that have a significant influence on the agrarian policy.

The agricultural system practiced in our country has the role of ensuring, on the one hand, the rational use of all categories of agricultural land use in order to obtain high-quality harvests and, on the other hand, the achievement of those conditions and measures that would contribute to the increase soil fertility. In the context, however, it is necessary to study the composition, structure and productive capacity of the lands.

At the national level, agriculture is one of the important sector of the Romanian economy. The contribution of agriculture, forestry and fish farming to the formation of the Gross Domestic Product is around 6% of GDP, and in the EU Member States it is around 1.7% [6].

The aim of this paper is to investigate the potential of Romanian agricultural sector to contribute and grow to economic development of Romania, based on indices, indicators and trends for the last years.

MATERIAL AND METHODS

In order to set up this article, the following agricultural indicators have been analyzed: Arable land; the number of agricultural holdings; livestock by species; the value of Agricultural production; the crop production; the livestock production; the Gross value added.

These agricultural indicators were analyzed in their dynamics in the period 2007-2013 using the data supplied by the National Institute of Statistics Tempo Online Data base [4,5] and

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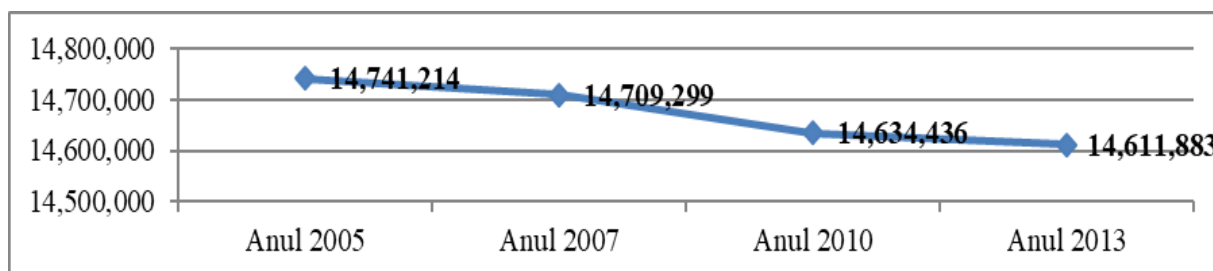
Eurostat DataBase [3]. In the study there were used different methods for processing the empirical data as follows:

- The fixed basis index, $I_{FB} = (X_n/X_0)100$, where X_n is the value of the variable X in the year n, and X_0 is the value of the variable X in the first year taken into consideration.
- The structural index, $S\% = (x_i/X_T) 100$, where X_i = the value of the variable n and X_T = the sum of the values of the variables
- The absolute differences, $\Delta X = X_1- X_2$, where X_1 = the value of the variable 1 and X_2 = the value of the variable.

RESULTS AND DISCUSSIONS

The occupation and the use of land is closely interdependent with the relief units present on the territory of the country. Romania enjoys a very varied relief (28% of mountains, 42% of hills and plateaus and 30% of plains), which leads to a diversity of land use possibilities. The geographical distribution of the relief is reflected in an uneven territorial distribution of the types of land [4]. Romania has a surface area of 23,839,071 hectares. Of this total of land, more than 61% is held by arable land.

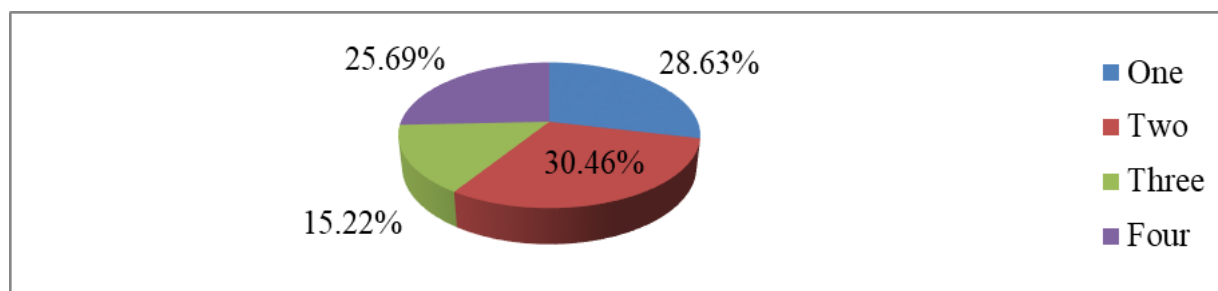
Figure 1. Evolution of arable land in Romania in 2005- 2013 period



Source: Own design based on the data provided by Farm Structure Survey and Agricultural Census Data Base, 2005-2013, NIS

At the level of Romania's four macro-regions, the distribution of the lands is the same in the all analyzed period. The largest part of the lands is occupied by the macro-region two (7,261,153 ha), followed by the macro-region one (6,826,018 ha) and four by 6,124,486 ha.

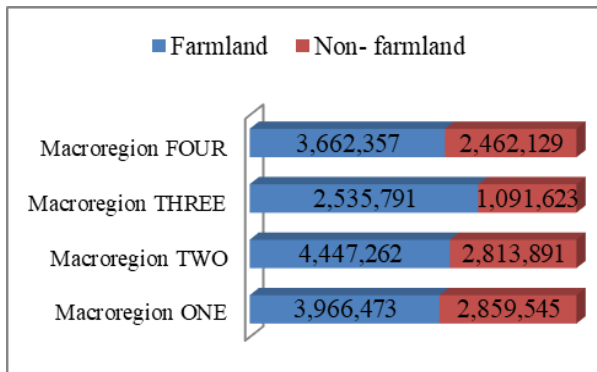
Figure 2. Distribution of lands in Romanian macro region level in 2005- 2013 period



Source: Own design based on the data provided by Farm Structure Survey and Agricultural Census Data Base, 2005-2013, NIS

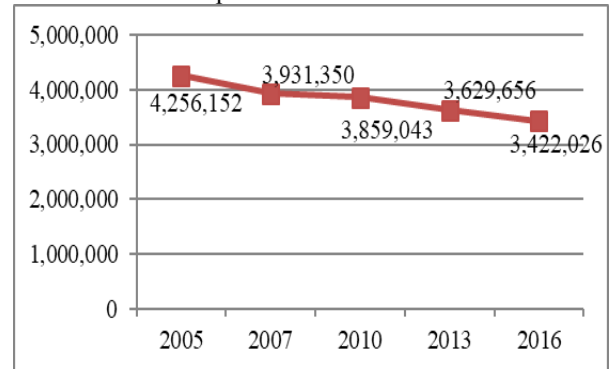
The figure below illustrates the fact that at the level of Romania's four macro-regions, arable land occupies the largest share, the macro-region three holds the highest percentage of 70% due to the high agricultural potential of this macro-region.

Figure 3. Distribution of 2013 land use in Romania



Source: Own design based on the data provided by Farm Structure Survey and Agricultural Census Data Base, 2005-2013, NIS

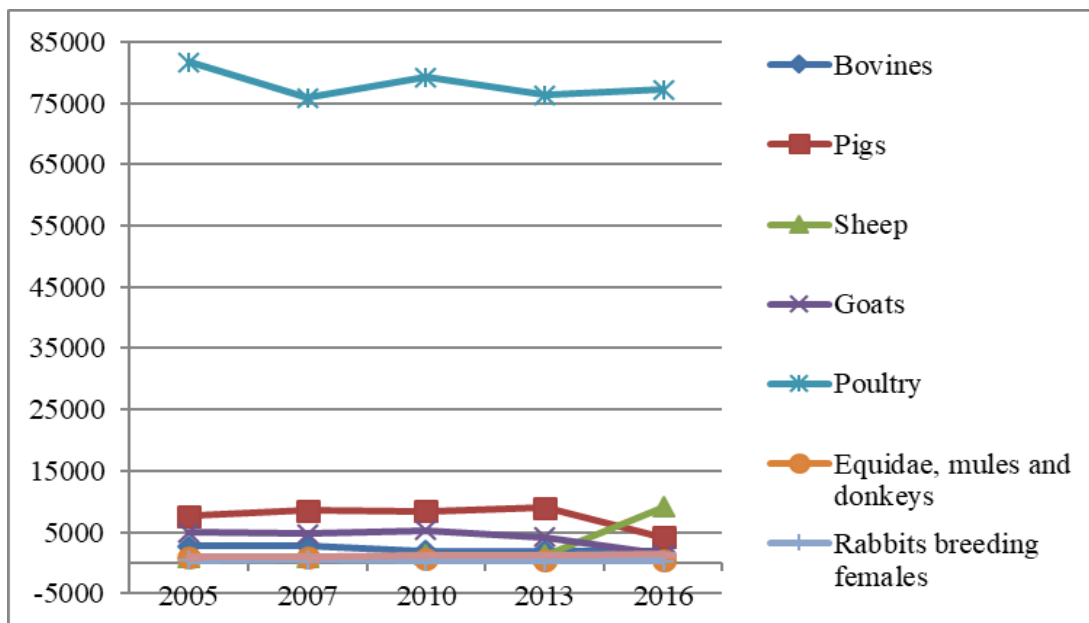
Figure 4. Evolution of Agricultural Holdings during the period 2005-2016



Source: Own design based on the data provided by Farm Structure Survey and Agricultural Census Data Base, 2005-2016, NIS

The number of agricultural holdings has continuously decreased from 4,485 million in the year 2002 to 3,422 million in the year 2016, as a result of land concentration, meaning a decrease of 24% [2].

Figure 5. The evolution of livestock numbers by species in Romania in 2005- 2016 (thousands)



Source: Own design based on the data provided by Farm Structure Survey and Agricultural Census Data Base, 2005-2013 NIS

The livestock number from 2005 to 2013 is significantly decreasing in equidae, mules and donkeys (-62%), pigs (-46%) and bovine (- 33%). The number of sheep and bee families has increased in 2016 compared to 2005.

Between 2007 and 2016 there is an increase in the value of agricultural production from 47.67 billion RON in 2007 to 69.3 billion RON in 2016. In the agricultural sector, the crop production has the biggest contribution in agricultural output, over 60% of the value of agricultural production. The value of crop production advanced by 57% in 2016 compared to 2016. At the same time, the value of livestock production increased by only 27%.

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Table 1. Value of Agricultural production in 2007-2016 period

Agricultural sectors	Years							
	2007		2010		2013		2016	
	Thousand RON	%	Thousand RON	\$	Thousand RON	%	Thousand RON	%
Total	47,699,916	100.00	64,452,571	100.00	78,464,416	100.00	69,348,614	100.00
Crop	28,723,475	60.22	43,488,480	67.47	53,843,812	68.62	45,155,180	65.11
Livestock	18,291,624	38.35	20,406,840	31.66	23,876,547	30.43	23,293,590	33.59

Source: Own calculation on the basis of data from Farm Structure Survey and Agricultural Census data base 2007-2016, NIS

The table below summarizes the value of agricultural production on the total and on the two agricultural sectors between 2007 and 2016. It is also a comparison of the value of agricultural production in 2016 as compared to 2007. It is noted that the value of the agricultural production presents a positive situation in all four macro regions, being recorded significant increases, and the most significant increase is reported at the level of the macro-region three, by doubling the value of the crop production obtained in 2016 compared to 2002.

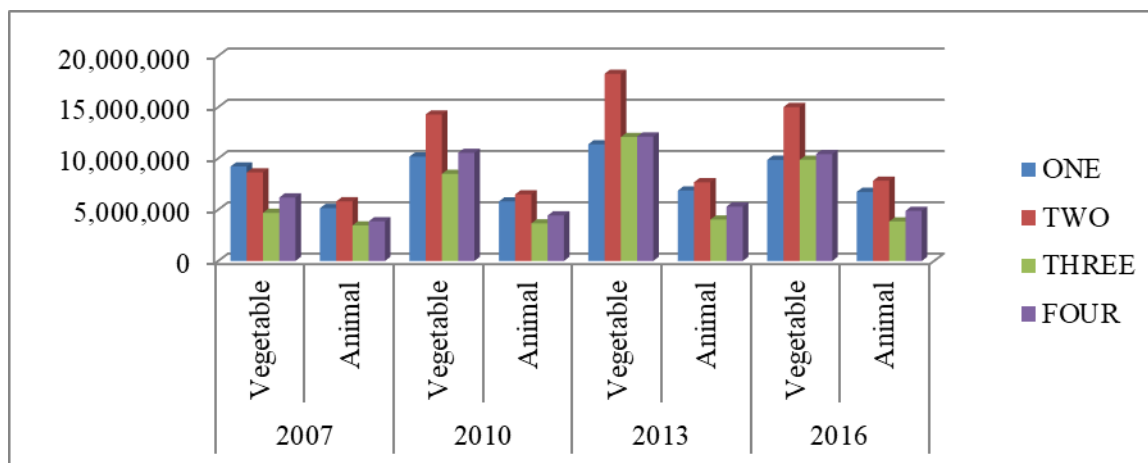
Table 2. Value of Agricultural production in Romanian Macro regions in 2007-2016 period

Macroregions		ONE	TWO	THREE	FOUR	
Years	2007	Total	14,430,045	14,773,254	8,299,820	10,196,797
		Crop	9,208,389	8,636,355	4,689,619	6,189,112
		Livestock	5,155,994	5,814,369	3,456,829	3,864,432
	2010	Total	16,068,917	21,021,229	12,288,393	15,074,032
		Crop	10,174,919	14,281,751	8,492,526	10,539,284
		Livestock	5,803,055	6,496,130	3,667,899	4,439,756
	2013	Total	18,297,104	26,279,212	16,363,789	17,524,311
		Crop	11,372,362	18,253,541	12,088,018	12,129,891
		Livestock	6,866,980	7,671,648	4,038,025	5,299,894
	2016	Total	16,647,658	23,161,016	14,105,203	15,434,737
		Crop	9,862,265	15,007,026	9,868,260	10,417,629
		Livestock	6,734,480	7,822,830	3,849,553	4,886,727
2016/2007 %	Total	115.37	156.78	169.95	151.37	
	Crop	107.10	173.77	210.43	168.32	
	Livestock	130.61	134.54	111.36	126.45	

Source: Own calculation on the basis of data from Farm Structure Survey and Agricultural Census data base 2007-2016, NIS

Analyzing the values of the vegetal and livestock production by macroregions of development, it is noticed that the TWO macroregion is the largest contribution both in the crop and animal sector in Romania.

Figure 6. Evolution of Agricultural production value in Romanian Macroregions in 2007- 2016 period



Source: Own design based on the data provided by Farm Structure Survey and Agricultural Census Data Base, 2007-2016, NIS

In the analysis of the agricultural crop production obtained by categories of products during the period 2005-2016, it is noted that there are significant increases in the majority of crops, except in the production of rye (- 49%), soybean (-16%) and potatoes (-28%).

Table 3. Evolution of Romanian Crop Production in 2005-2016 period

Main Crops	Years					Difference 2016-2005
	2005	2007	2010	2013	2016	
	Thousand Kilograms					
Cereals for grains	19,345,464	7,814,825	16,712,883	20,897,076	21,764,816	2,419,352
Ryes	48,962	20,583	34,281	23,812	25,931	-23,031
Wheat	7,340,664	3,044,465	5,811,810	7,296,373	8,431,131	1,090,467
Barley	579,564	231,918	777,074	930,515	1,267,722	688,158
Hop	194	374	232	172	208	14
Oatmeal	377,456	251,633	304,462	373,783	381,359	3,903
Grain maize	10,388,499	3,853,918	9,042,032	11,305,095	10,746,387	357,888
Pulses	80,913	36,185	61,344	74,214	99,312	18,399
Industrial Plants	1,803,080	1,046,558	2,377,651	2,966,621	3,596,831	1,793,751
Sunflower	1,340,940	546,922	1,262,926	2,142,087	2,032,340	691,400
Colza	147,566	361,500	943,033	666,097	1,292,779	1,145,213
Soia Bean	312,781	136,094	149,940	149,931	263,380	-49,401
Sugar beet	729,658	748,839	837,895	1,029,209	1,012,186	282,528
Potatoes	3,738,594	3,712,410	3,283,866	3,289,722	2,689,733	-1,048,861
Fresh Vegetables	3,624,612	3,116,801	3,863,617	3,960,990	3,358,389	-266,223

Source: Own calculation on the basis of data from Farm Structure Survey and Agricultural Census data base 2005-2016, NIS

Analyzing livestock production by the main categories of animals, it is noticed that in 2016 compared to 2005 there is a significant decrease in beef production of -46%. Significant decreases also occur in the production of cow's milk (-21%), egg production (-15%). At the opposite, the increase is in the production of chicken (+ 38%), wool production (+ 21%) and honey production (+20%).

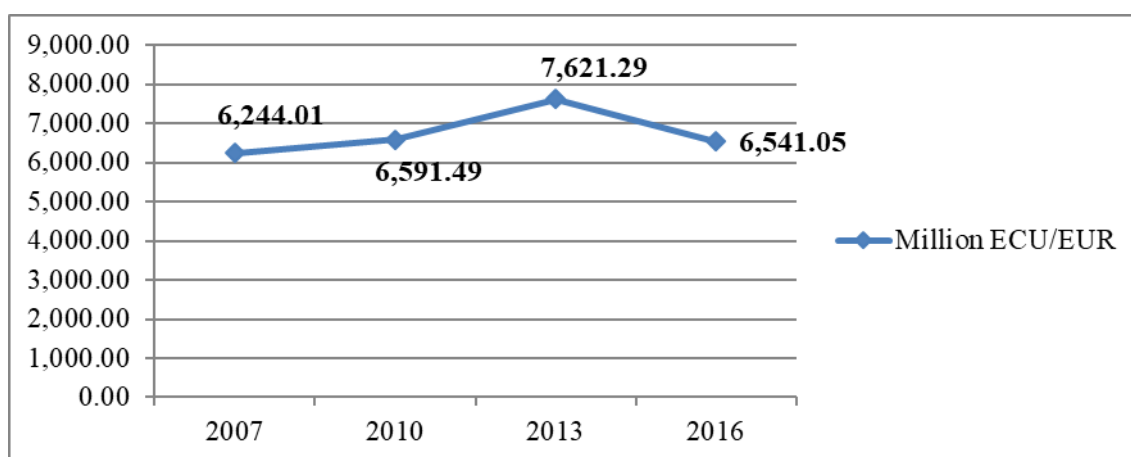
Table 4. Evolution of Livestock Production in 2005-2016 period

Livestock Production	Measure units	Years									
		2005		2007		2010		2013		2016	
		No	%	No	%	No	%	No	%	No	%
Beef production	live weight (tons)	382,764	100	333,282	87.0	205,347	53.6	192,206	50.2	205,957	53.9
Pork production	live weight (tons)	605,220	100	641,505	106.0	552,734	91.3	546,530	90.3	588,085	97.2
Sheep and goats production	live weight (tons)	113,938	100	110,188	96.7	99,524	87.4	103,619	90.9	113,850	99.9
Chickens production	live weight (tons)	401,456	100	416,193	103.7	446,387	111.2	456,632	113.7	554,922	138.2
Production of bovines milk	Thousands Hectoliters	60,614	100	61,048	100.7	49,129	81.1	48,728	80.4	48,133	79.4
Production of sheep and goats milk	Thousands Hectoliters	5,280	100	6,173	116.9	6,305	119.4	6,135	116.2	6,113	115.7
Production of wool	Tons	18,390	100	21,025	114.3	20,457	111.2	20,719	112.7	22,277	121.1
Production of eggs	Million pieces	7,310	100	6,522	89.2	6,199	84.8	6,388	87.4	6,182	84.6
Production of honey	Tons	17,703	100	16,767	94.7	22,222	125.5	26,678	150.7	21,202	119.8

Source: Own calculation on the basis of data from Farm Structure Survey and Agricultural Census data base 2005-2016, NIS

The evolution presented in the below figure it is noted that the Gross Value Added of the Romanian Agricultural Industry has increased in 2013 by about compared to 1,377 million Euro, after which there is a decreasing by -14%.

Figure 7. Evolution of Gross value added of the Romanian agricultural industry in 2007- 2016 period



Source: Own design based on the data provided by Eurostat, <https://ec.europa.eu/eurostat/data/database>.

CONCLUSIONS

In conclusion, we can say with certainty that the agricultural sector in Romania has stabilized and increased slightly in the economy of the country. The Romanian agriculture is optimally structured, but has a low profitability. It is necessary to convert a part of the largest production plant for animal products, making it a safe and economical way to increase the profitability of agricultural production in general.

After having analyzed some key indicator and factors of agricultural dynamics in Romania, we can affirm that there are still many weaknesses in the Romanian agricultural sector that prohibit its sustainable development.

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