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STUDY ON SUSTAINABLE DEVELOPMENT TRENDS OF ROMANIA AGRICULTURE

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Abstract

The purpose of this paper is to highlight the progress of Romania on sustainable agriculture and what are the prospects for this type of development, given the possibilities and restrictions it has. For Romania, European Union member state, sustainable development represents a rational national perspective, resulting in a new paradigm of development, to establish the confluence of economic, social and environmental. To highlight the development of sustainable agriculture in Romania was taken into account a number of indicators, and calculate the indices fixed-base. The calculations were based on data provided by the Romanian Statistical Yearbooks 2008-2013, and the data provided on the website of the Ministry of Agriculture and Rural Development. To achieve sustainable development, Romania has important strengths such as: the soil that allows the practice of ecological agriculture, but there is also problems, of which the most important are: scientific research in agriculture is low, the number of researchers is declining due to financial problems.

***Key words*:** *Romania, sustainable agriculture, trends*

INTRODUCTION

Agriculture is a main branch of the national economy, through its contribution to the economy and the share of employment, a path of economic development, a key area of current research of our country and abroad. Romania's potential of the land fund, has a relative stability, which can be an essential support for achieving a competitive agriculture, in terms of economic management and organizational competitiveness. [6]

"Sustainable development is development which aims to meet the needs of the present without compromising the ability of future generations to meet their own needs", as defined in the Brundtland Report. [8]

For Romania, European Union member state, sustainable development represents a rational national perspective, resulting in a new paradigm of development, to establish the confluence of economic, social and environmental.[7]

EU Council adopted on June 9, 2006, the renewed Sustainable Development Strategy for an enlarged Europe, aimed at continuously improving the quality of life for present and future generations through the creation of sustainable communities able to manage and use resources efficiently to capitalize on the ecological and social innovation potential of the economy a view to ensuring prosperity, environmental protection and social cohesion.[7]

Sustainable agriculture constitutes a vast and highly complex problem, aimed at achieving and maintaining a balance between the need to preserve the material and moral landscape and pace of change caused by the modernization of the sector.[2] Sustainable development has the role of contribute to the improvement of the Romanian agriculture so that they can achieve economic objectives, to ensure accountability on environmental protection and promote social equity in terms. [2]

Sustainable agriculture integrates three main goals--environmental health, economic profitability, and social and economic equity.[10]

In short Sustainable Agriculture is:[12]

-Economically Viable: If it is not profitable, it is not sustainable.

-Socially Supportive: The quality of life of farmers, farm families and farm communities is important.
-Ecologically Sound. We must preserve the resource base that sustains us all.

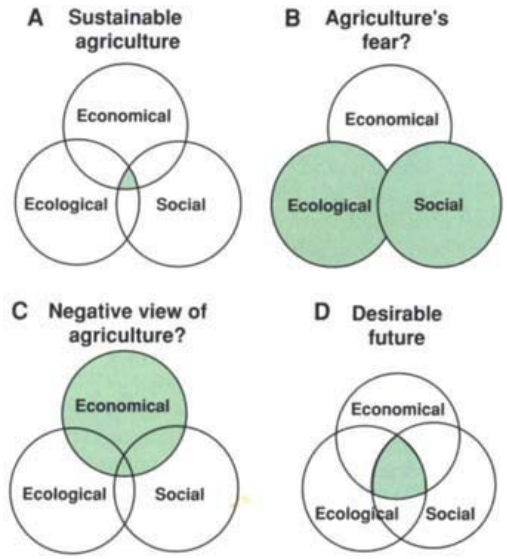

Fig. 1. Schematic diagram of various views of agriculture, represented by shaded areas. Sustainable agriculture is the intersection of economically sound, ecologically viable, and socially responsible approaches (A); some agriculturists fear that they will be forced to achieve environmental and social goals at the expense of economics (B); a negative perception of agriculture views it as achieving economic goals at the expense of environment and society (C); a desirable future would include expansion of the area that achieves all three goals through improved research and practical experience (D). [11]

The purpose of this paper is to highlight the progress of Romania on sustainable agriculture and what are the prospects for this type of development, given the possibilities and restrictions it has.

MATERIALS AND METHODS

To highlight the development of sustainable agriculture in Romania was taken into account a number of indicators (share of rural population in the total population, the share of agriculture in total rural population), and calculate the indices fixed-base to determine the evolution of cultivated areas, the evolution of number of livestock. The calculations were based on data provided by the Romanian Statistical Yearbooks 2008-2013, and the data provided on the website of the Ministry of Agriculture and Rural Development.

RESULTS AND DISCUSSIONS

Sustainable development involves a multidimensional approach, taking into account the economic dimension, socio-cultural and environmental.[1] This is possible by controlling in the time and space of the following five categories of factors and their relationships: population, natural resources and environment, agricultural production, industrial production, pollution.[3]

Table 1: The evolution of the rural population in total population

Specification	Share of rural population in total population	Fixed base indices (%)	The evolution of rural population (%)
2007	45.14		
2008	45.94	2008/2007	101.76
2009	46.11	2009/2007	102.13
2010	46.05	2010/2007	102.01
2011	46.01	2011/2007	101.91
2012	45.99	2012/2007	101.87

Source: own calculations based on data from Statistical Yearbooks of Romania 2008-2013

Analyzing the table 1 it can be seen that the rural population in the total population has a share of around 46% during 2007-2012. Analyzing the evolution of rural population in the period 2008-2012 compared with 2007 notes that the growth is 1-2%.

Table 2: Rural population and agricultural population of Romania

Specification	Rural population	Population from agriculture	The share of agriculture in the rural population
2007	9,427,486	2,462,000	26.12
2008	9,435,046	2,407,000	25.51
2009	9,390,879	2,411,000	25.67
2010	9,324,629	2,440,000	26.17
2011	9,269,558	2,442,000	26.34
2012	9,242,268	2,10,000	27.16

Source: Romanian Statistical Yearbooks 2008-2013, own calculations based on data from Statistical Yearbooks of Romania 2008-2013

So it can be concluded that in the period under review there are large differences in population trends by area of residence.

According to Table 2, the share of employment in agriculture in the rural population show a slight decrease in 2008 and 2009 compared with 2007; in the years 2010, 2011 and 2012 is an increase compared to 2007. Share of population from agriculture increased from 26.12% in 2007 to 27.16% in 2012.

Increasing the share of rural population (Table 1) and population working in agriculture may be due to direct subsidies to producers, the support mechanism of the economy and environmental protection areas. The infrastructure development programs in rural areas contributed to increased quality of life in this environment.

It can be observed according to the table No. 3 that the share of total agricultural land area is 61.7%. According to Figure 1, structure of the agricultural land in 2012 was: 64% arable land, 22% grassland area, 11% area with meadows, 2% area with vineyards and nurseries and 1% area with orchards and tree nurseries.

The surface cultivated with cereals has the largest share of the total area, 67% in 2012 and in 2008-2012 compared with 2007, recorded increases of up to 3.9% in 2011.

Table 3. The fund land by use type (thousand ha)

Specification	2007	2008	2009	2010	2011	
The total area of the land fund	23,839.1	23,839.1	23,839.1	23,839.1	23,839.1	23
The agricultural area	14,709.3	14,702.3	14,684.9	14,634.5	14,621.5	14
Arable	9,423.3	9,415.1	9,422.5	9,404.0	9,379.5	9
Pastures	3,330.0	3,333.0	3,313.8	3,288.7	3,279.3	3
Hayfields	1,531.4	1,532.4	1,528.0	1,529.6	1,554.7	1
Vineyards and vine nurseries	218.0	214.5	215.4	213.6	211.3	
Orchards and tree nurseries	206.7	207.3	205.2	198.6	196.7	

Source: Romanian Statistical Yearbooks 2008-2013[4]

The effective use from the point of view of economic agricultural land assume the existence of functional land market, respectively the ability to transfer land from less productive users on the most productive. Land reform of 1991 had a negative effect on the dimensional structure and organization of farm land.[6]

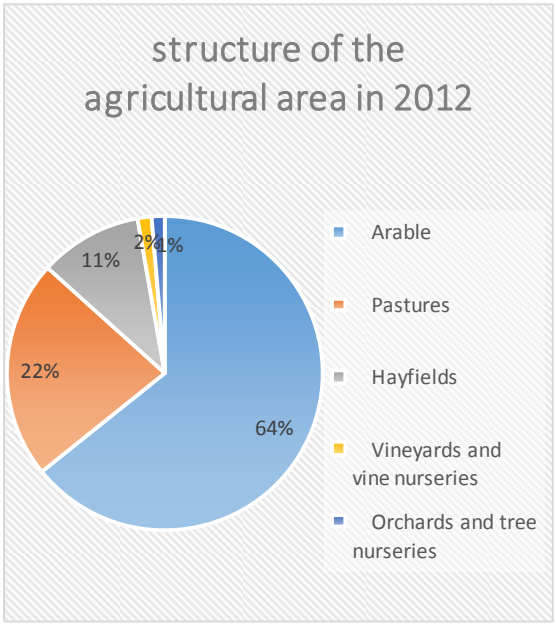

Fig 2. Structure of the agricultural area in 2012

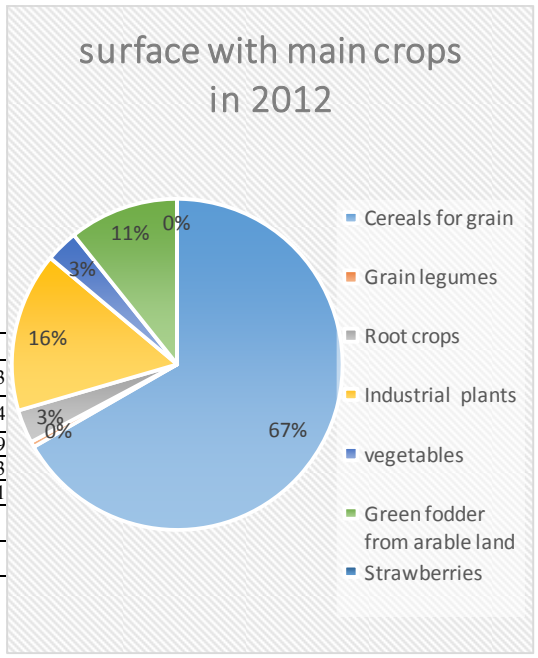

Fig.3. Surface with main crops in 2012

Surface cultivated with industrial crops represented by: flax fiber and oil, hemp, sunflower, rapeseed, soybeans, tobacco and medicinal plants represented 16% in 2012, and in 2008-2012 compared with 2007, are recorded decreases approximately 7%, with the exception of 2010 and 2011 when there are increases of 5.6% and 9.9%.

Table 4. Evolution of the cultivated area in Romania (%)

Specification	**2008/ 2007**	**2009/ 2007**	**2010/ 2007**	**2011/ 2007**	**2012/ 2007**
Total area cultivated	100.27	101.37	100.39	103.91	103.61
Cereals for grain	101.59	102.99	98.27	101.86	106.07
Grain legumes	83.98	88.10	86.04	96.57	102.29
Root crops	93.22	92.78	88.19	87.29	83.01
Industrial plants	92.36	93.68	105.64	109.99	93.93
vegetables	106,00	105,41	103,67	103,95	102,17
Green fodder	107.83	107.54	110.81	114.19	113.64
Strawberries	86.67	83.33	90.00	90.00	76.67

Source: Romanian Statistical Yearbooks 2008-2013, own calculations based on data from Statistical Yearbooks of Romania 2008-2013

Surface cultivated with grain legumes in the period 2008-2011 compared to 2007, show production decrease, but in 2012 compared to 2007 is an increase. The areas planted with root crops and strawberries do not have important weights, and decreases in the period analyzed. The areas planted with vegetables and green fodder although not significant share, in 2008-2012 compared to 2007 is increasing by 6% in 2008 at vegetables and 14% at the green fodder in 2011. (table 4 and figure3) The surface cultivated with vegetables in Romania in the period 2007-2012 increased, but consumption demand is not provided.

Table 5. Evolution of cultivated surface in ecological system (%)

Specification	**2008/ 2007**	**2009/2 007**	**2010/2 007**	**2011/2 007**	**2012/2 007**
crops on arable land	132.8	168.9	227.3	226.6	268.2
pastures and meadows	79.8	68.1	54.8	135.7	183.7
orchards and vineyards	159.1	195.9	324.2	436.7	815.6
The total area	108.3	122.2	147.7	185.9	233.1

Source: own calculations based on data from http://www.madr.ro/ro/agricultura-ecologica/dinamica-operatorilor-si-a-suprafetelor-in-agricultura-ecologica.html

As shown in Table 5 we can see that ecological cultivated surface in 2008-2012 compared to 2007 shows a gradual increase, reaching 133.1% in 2012. It can be observed that arable crops are growing constantly in 2008-2012, while the area cultivated with orchards and vineyards, recorded explosive growth, reaching 715.6% in 2012. Surface cultivated with pasture and meadow has an trending descending in the 2008, 2009 and 2010 compared with 2007, followed by an upward trend in 2011 and 2012 compared to 2007.

Table 6. Evolution of livestock (%)

Specification	2008/ 2007	2009/ 2007	2010/ 2007	2011/ 2007	2012/ 2007
Cattle	95.2	89.1	70.9	70.5	71.2
Swine	94.0	88.2	82.6	81.7	79.7
Sheep	104.8	107.9	99.3	100.7	104.3
Goats	103.8	106.1	143.4	142.8	146.3
Horses	95.1	88.6	70.8	69.1	66.7
Poultry	102.8	102.2	98.5	97.3	97.6
Bees	101.6	107.6	129.8	127.2	127.7

Source: own calculations based on data from Statistical Yearbooks of Romania 2008-2013

Although cattle farming is a traditional activity of the rural population and the potential for making productions covering domestic needs and export, the livestock in the period 2008-2012 compared to 2007 is down by up to 30% in 2010 and 2011. In the growth of pigs can be seen the same downward trend in the period 2008-2012 compared with 2007, although pork consumption in Romania is high, particularly during the holiday season. There is a tendency to reduce the number of pigs, caused by new demands on the welfare of pigs.

The growth of sheep and goats has revitalized livestock sector in the period 2008-2012 compared with 2007, given the trend of this period. Flocks had an upward trend between 2008 and 2009 compared to 2007, followed by a downward trend in 2010, 2011 and 2012 compared to 2007.

Also can see the upward trend of bee populations, given the obtainable products: honey, pollen, beeswax, bee venom, royal jelly, and positive influences on agricultural production, ensuring pollination of plants. Beekeeping is one of the oldest occupations of the local population, which has developed in our country due to favorable natural conditions: climate, topography and vegetation. [6]

CONCLUSIONS

Development of sustainable agriculture requires medium and long term investment in strengthening agricultural holdings and food processing enterprises, in advanced technologies, in appropriate equipment agricultural land through irrigation systems, drainage, erosion, protective forest field systems anti floods.[7] Development of sustainable agriculture involves ensuring internal demand products.

The analysis can draw the following conclusions:

-Share of rural population and population employed from agriculture has increased, as contrary to the objective 2013 of the National Strategy for Sustainable Development of Romania, which provides for the reduction of employment in agriculture in conjunction with the creation of viable farms.

-Increasing the ecological cultivated surface, is a positive aspect of sustainable agriculture development, given that organic farming involves the use of technologies that includes more labor, is a system that ensures quality products, controlled and certified.

-Low areas of orchards, vineyards and vegetables can not provide the necessary of domestic consumption, which hinders sustainable development.

-Decreased the livestock, may have negative consequences for sustainable development agriculture, and to provide grants to improve the situation.

To achieve sustainable development, Romania has important strengths such as: the soil that allows the practice of ecological agriculture, workforces, the existence of EU funds. But there is also problems, of which the most important are: scientific research in agriculture is low, the number of researchers is declining due to financial problems.

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