

ORGANIC AGRICULTURE IN ROMANIA, TRENDS AND PERSPECTIVES

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Abstract. *Organic farming in Romania is considered a dynamic sector which recently has seen an upward trend. This paper through a three-dimensional shape that the production, distribution and marketing, pursued three levels based on the potentialities and performance levels of production perspective showing the organic sector nationally. The dimensional structure of the work was focused on the development and production areas in the dynamics of the last period. The indicators presented in physical and highlights current trends percentage of organic farming in Romania based on the evolutionary trends of the number of operators, the surface structure of the main crops, areas with potential for harvesting of spontaneous flora, the number of animals and the yields achieved. The form of interpretation is the result of an analysis of data from the annual level of indicators which showed a quantitative growth of production capacities (areas of crops and animal number), but also a qualitative side for on the one hand the possibilities of amplification production levels, and on the other manifestation of accelerated growth areas that can be harvested from the spontaneous flora. By dynamics values upward annual trend it may be seen a certain amplification of the organic farming activities at national level.*

Keywords: annual rate, ertified operators (in the agro-food sector), certified organic product, coefficient of variation, conversion, logo, ooganic agriculture, organic product, standard deviation

1. Introduction

Organic production issues in the current stage requires a special knowledge due to multiple interactions of the current socio-economic stage.

In this paper it is put into question the origin of products from organic farming which seeks a tridimensional knowledge of problems regarding the number and structure of the business operators, production capacity and yields obtained in organic farming.

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All of these issues analyzed nationally in the dynamics of the 2010-2014 pointed out the achievements, and, on this basis, specific indicators were calculated and analyzed.

The values of the indicators were expressed within differential forms in which, on one hand, it was played the amount expressed in physical units and also in percentage, and, on the other hand, the varying levels of probability given by the statistics.

The levels of these indicators highlights the trends and prospects of organic farming in Romania in an optimistic view.

2. Materials and methods

The national database was represented by the annual levels of 2010-2014 period [3] [4], which according to the used methodology were viewed in a different manner, but correlative. This is because the trends and prospects arising from this work are related to methods of solving, which are differentiated by the intensity of application in the territorial structure of organic farming.

The methodology was based on measurements commonly used in economics (indicators being expressed in concrete units of measurement and percentages) but also the interpretations drawn from the statistical indicators (average, standard deviation, coefficient of variation and annual rates). To interpret the indicators, there were followed specific structures at which the differences have been made on the forms regarding the certified organic / conventional systems. By these indicators, it was aimed to assess the competitiveness, making comparisons on the levels of studied temporal dynamics, and also the variation of the phenomena manifested in organic farming[2].

The methodology used in the paper aimed to highlight the elements of differentiation of the offer in the organic products market (pursuing the structural number of operators, surfaces and productions), played by appropriate indicators that can show / substantiate clearly the need and superiority effects of organic agriculture.

3. Results and discussions

The structure of this paper was gradually staged to respond to the current knowledge on the related issues, but also to the perspective development of organic farming in Romania. In this context, it was covered by a tridimensional sequential analysis including: recognizing the operators who can act in the organic food system; the potential and the actual capacities of organic production; the achievements of the ecological productions in the dynamic of these productions. All of these are shown both in the overall and in the production structure of animal and vegetal sectors whose interpretations are given by tables and graphs that substantiates particularly the organic farming trends and prospects nationwide.

3.1. Operators in the organic farming system in Romania

Preoccupations on organic farming and their results are focused primarily on the human factor which, in organic farming, is represented by the operators of this sector. Its structure is represented by producers, processors and traders, importers and

exporters, which have the role of intervention throughout the agri-food supply chain of organic products[1].

Mentioning particularly the growing number of processors, whereas the area under organic farming grows from year to year[6]. For the period 2010-2014, Table 1 presents the dynamics of the certified operators and organically farmed area in Romania, from which we can say the following:

- the number of certified operators has increased in an accelerated manner so that in 2012 it reaches a total of 14,470, being 4.58 times higher than in 2010. Still we can discuss the situation of 2012 and further where the number of registered operators is much higher (number being of 26,736 according to the situation shown in Fig. 1), but after completing the inspections carried out by inspection bodies and certification and granting certificates, their number is shrinking. At an average of 11,613 operators in the analyzed period it was found a standard deviation that measures the scattering elements examined of 4,147 and a coefficient of variation of 35.7 %, which reflects that the data series is not homogeneous, and in addition, the annual growth rate was 46.34 %;

- the increases regarding the operators number are much higher than the increase in the green area which causes the organic area / farmer to fall in differentiated rhythms. Thereby, the values provided by the standard deviation for the surfaces are much higher than the surfaces reported / operator (41.5 and 12.0 respectively), a situation that causes sharp variations for annual rates (by comparison the same indicators values are 12.7% and -23.3% respectively). To be noted that the coefficient of variation is inferior in the annual comparative analyzes of the overall organic surfaces (only 16.1%) compared to the surface per operator (which is 42.8%).

Table 1. Dynamics of the certified operators and organic farmed area in Romania for the period 2010-2014

Indicator	MU	2010	2011	2012	2013	2014	Mean	Standard deviation	Coefficient of variation (%)	Annual rate (%)
Number of certified operators in organic farm	No.	3.155	9.703	15.544	15.194	14.470	11.613	4.147	35.7	46.34
	%	100.	307.5	492.7	481.6	458.6	X	X	X	X
The total area in the organic farming	Th. ha	182.7	229.9	288.3	301.1	289.3	258.3	41.5	16.1	12.17
	%	100.0	125.9	157.8	164.8	158.3	X	X	X	X
Eco-area /operator	ha/operator	57.9	23.7	18.5	19.8	20.0	28.0	12	42.8	-23.3
	%	100.0	40.9	32.0	34.2	34.5	X	X	X	X

Source: Communications inspection and certification agency, Eurostat classification [3]

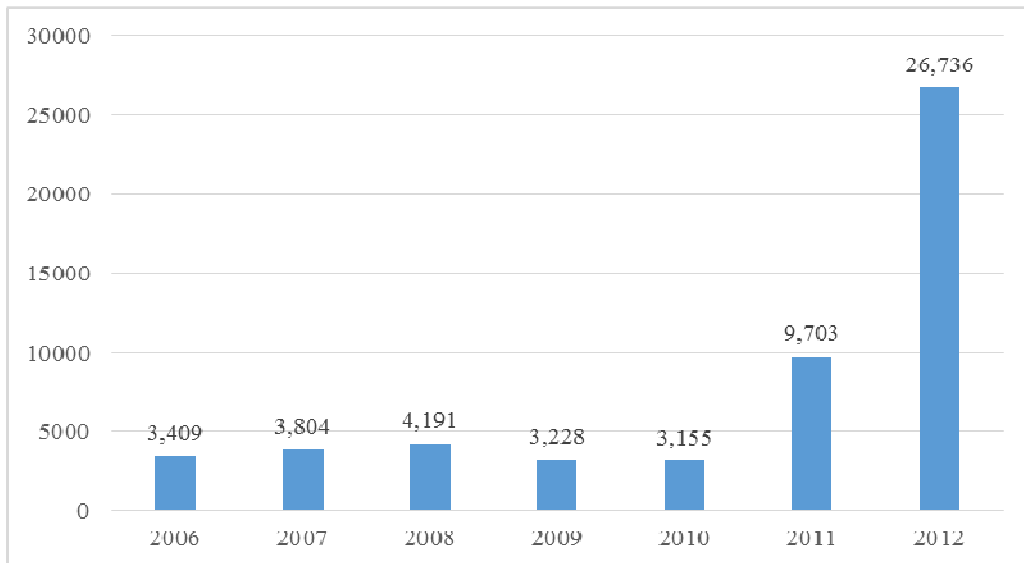


Fig.1. The number of registered operators in organic farming in Romania

Overall, it can be noted the yearly variational flow, which is due in particular to the existing support measures for the conversion period granted under Article. 68 of Regulation EC No. 73/2009 which establishes common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers.

Also it can be indicated that after the checks carried out by the certification and inspection agencies, only the operators who have complied with the rules of production will receive a certificate of organic product and will be able to label products with the words „green” by national sign "ae". It may be said that the label affixed to an organic product is required following the indications: reference to the organic production, logos, the name and code of inspection and certification agency which carried out the inspection and released the certificate of ecological product [1].



Next, referring to the organization of processing and marketing of the goods, it can be said that, in the current stage, this activity is an important element in the sector of organic farming. In the processing system it was created a structure specific to organic products. Exemplifying the situation of year 2012 (shown in Fig. 2), it appears that the most processing units are in the grain storage system (40.80%), honey and bee products (18.44%), pasta, flour and bakery products (7.76%), eggs packing (6.79%), spices and berries (5.82%).

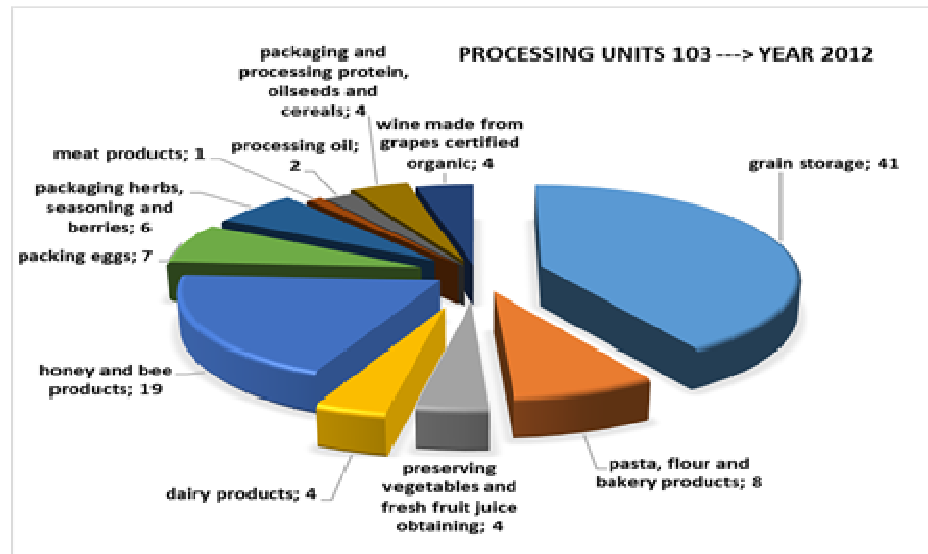


Fig. 2. The structure of agri-food processing units in Romania
(Source: Ministry of Agriculture and Rural Development).

Here it appears that the competitiveness of organic products is mainly determined by the number and structure of registered operators in this sector. At the current stage is carried out a continuously increase of the number of processors especially since the production potential of organic farm register increases from year to year. Regarding the marketing of organic products we can say that this is done only by registered traders to MADR, through various market channels: sales from the farm's gate, sales through wholesale stores, sales in specialized stores, sales in international market for green products (www.agricultura-ecologica.ro), seasonal sales in the markets [5, 8]

From all this, one can deduce that operators throughout the chain of production and distribution of an organic product must comply with applicable rules laid down in EU and national legislation. They must submit their work of visits conducted by inspection and certification agencies in order to compliance with the legal requirements for organic production.

3.2. Organic production capacities

Knowledge of organic production capacities (with reference to surface and livestock) is the key element, and incipient in the study of organic farming system. Of course, existing potentialities are certainly influenced by the socio-economic factors of each national territorial area. Referring to organically cultivated areas in Romania, it can be shown that they are still lower than the existing possibilities. By comparison with major European countries cultivators, the situation shown in Fig. 2 we can see that Romania is far below possibilities.

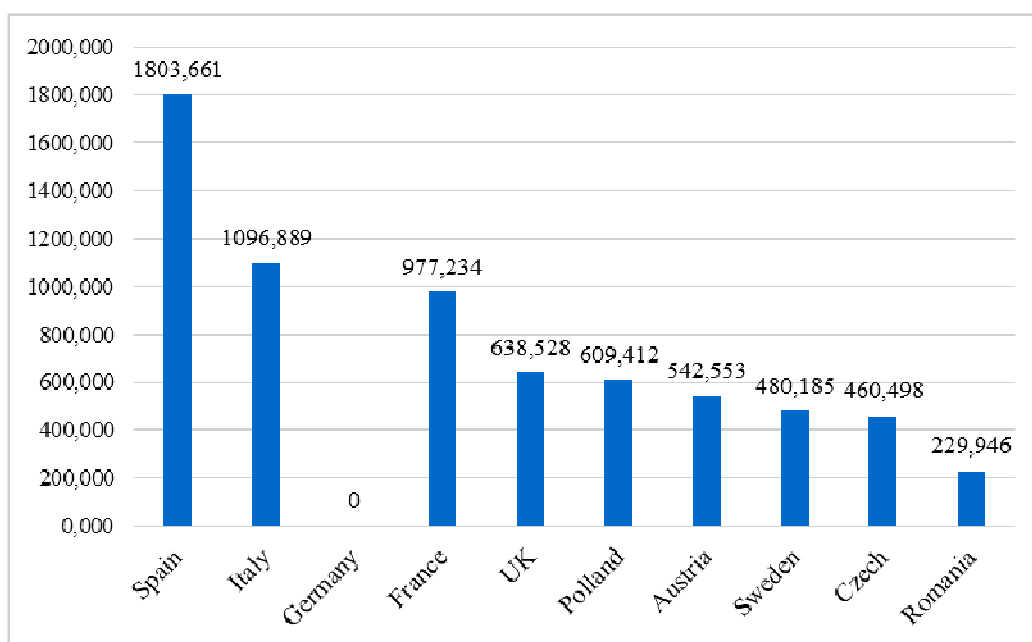


Fig. 3. Surface in organic farming in Europe, year 2011, MU: Ha
(Source: Ministry of Agriculture and Rural Development).

This causes that further, in the dynamics of the years 2010-2014, to be analyzed the areas (in the structure of main crops) and livestock (for main species).

The structure of organic crops from Romania is illustrated in Table 2, where it follows a differentiated level of cultures, but also an increase in the total area under cultivation. It is worth mentioning that grain, which is prevalent, records a significant annual growth rate. With significant areas can be mentioned pastures and hayfields crops but in the latter part of the period considered are registered declines.

Table 2. Structure of organic crops in Romania for the period 2010-2014*

Crops	2010		2011		2012		2013		2014	
	Th.ha	%	Th.ha	%	Th. ha	%	Th.ha	%	Th. ha	%
I. The total area under organic crops	182.7	100.0	229.9	100.0	288.3	100.0	301.1	100.0	289.3	100.0
Gains	72.3	39.6	79.2	34.4	105.1	36.5	109.1	36.2	102.5	35.4
Dried pulses and protein crops	5.6	3.0	3.1	1.4	2.8	1.0	2.4	0.8	2.3	0.8
Tuberculifere plants and roots	0.5	0.3	1.1	0.5	1.1	0.4	0.7	0.2	0.6	0.2
Industrial crops	10.3	5.7	4.8	2.1	11.1	3.8	13.2	4.4	13.5	4.7
Plants harvested green	10.3	5.7	4.8	2.1	11.1	3.8	13.2	4.4	13.5	4.7
Other crops on arable land	0.6	0.3	0.9	0.4	0.0	0.0	0.3	0.1	0.0	0.0
Vegetables	0.7	0.4	0.9	0.4	0.9	0.3	1.1	0.4	1.9	0.7
Permanent crops (orchards and vineyards)	3.1	1.7	4.2	1.8	7.8	2.7	9.4	3.1	9.4	3.3
Permanent crops (pastures and meadows)	31.6	17.3	78.2	34.0	105.8	36.7	103.7	34.4	95.7	33.1
Fallow land	10.2	5.6	9.8	4.2	8.8	3.1	9.5	3.2	9.1	3.1
II. Collection from spontaneous flora	77.3	X	338.1	X	1082.1	X	944.5	X	1787.5	X

Source: Communication of inspection and certification bodies; * Eurostat Classification

Figure 4 summarizes the evolution of those areas, the adjusted trend line is represented/contoured by the linear function ($y = 28.44x - 56.963$), being based on the growth trend and the level of correlation ($r = 0.89$).

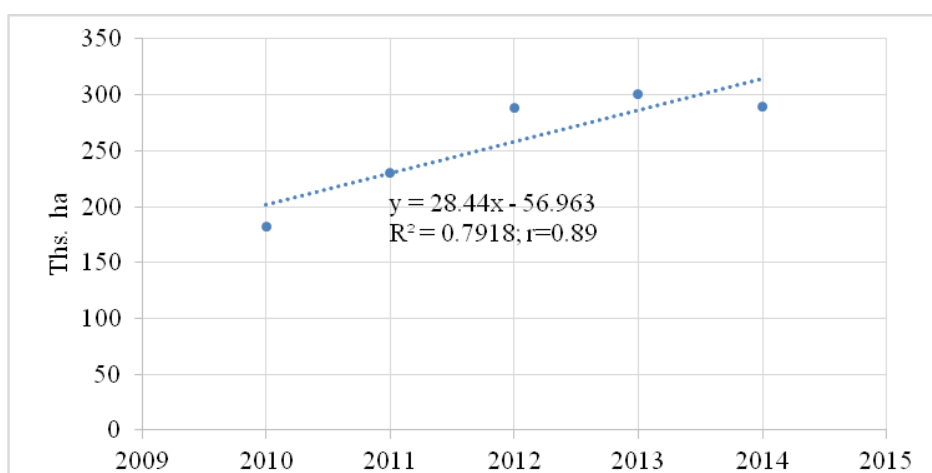


Fig. 4. Evolution of the total surfaces placed in organic crops from Romania, period 2010-2014

The analysis is further illustrated by the evolution of the areas that are exemplified in the dynamics of the period 2010-2014. By using appropriate statistical indicators it is given the possibility of an analysis amplification of the existing structure, are characterized the level and the evolution of these surfaces. From those mentioned, it can be highlighted the following:

Table 3. Evolution of crop areas in Romania *

Crops	MU	2010	2011	2012	2013	2014	Mean	Standard deviation	Coef. of variation (%)	Annual rate (%)
I. The total area under organic crops	Th.ha	182.7	229.9	288.3	301.1	289.3	258.3	41.5	16.09	12.17
	%	100.0	125.9	157.8	164.8	158.3	x	x	x	x
Grains	Th.ha	72.3	79.2	105.1	109.1	102.5	93.6	14.3	15.31	9.13
	%	100.0	109.5	145.4	150.9	141.8	x	x	x	x
Dried pulses and protein crops	Th.ha	5.6	3.1	2.8	2.4	2.3	3.2	0.9	28.72	-19.68
	%	100.0	56.6	49.7	43.1	41.6	x	x	x	x
Tuberculifere plants and roots	Th.ha	0.5	1.1	1.1	0.7	0.6	0.8	0.2	28.05	5.59
	%	100.0	213.1	223.0	146.9	124.3	x	x	x	x
Industrial crops	Th.ha	10.3	4.8	11.1	13.2	13.5	10.6	2.4	22.83	6.92
	%	100.0	46.4	107.3	127.7	130.7	x	x	x	x
Plants harvested green	Th.ha	10.3	4.8	11.1	13.2	13.5	10.6	2.4	22.83	6.92
	%	100.0	46.4	107.3	127.7	130.7	x	x	x	x
Other crops on arable land	Th.ha	0.6	0.9	0.0	0.3	0.0	0.4	0.3	83.30	-52.35
	%	100.0	146.9	4.8	45.5	5.2	x	x	x	x
Vegetables	Th.ha	0.7	0.9	0.9	1.1	1.9	1.1	0.3	29.61	27.30
	%	100.0	124.5	122.1	145.4	262.6	x	x	x	x
Permanent crops (orchards and vineyards)	Th.ha	3.1	4.2	7.8	9.4	9.4	6.8	2.5	37.14	32.17
	%	100.0	134.7	251.6	303.9	305.2	x	x	x	x
Permanent crops (pastures and meadows)	Th.ha	31.6	78.2	105.8	103.7	95.7	83.0	22.5	27.10	31.94
	%	100.0	247.6	335.1	328.4	303.0	x	x	x	x
Fallow land	Th.ha	10.2	9.8	8.8	9.5	9.1	9.5	0.4	4.54	-2.96
	%	100.0	95.5	86.2	93.1	88.7	x	x	x	x
II. Collection from spontaneous flora	Th.ha	77.3	338.1	1082.1	944.5	1787.5	845.9	510.6	60.36	119.29
	%	100.0	437.4	1400.0	1222.0	2312.6	x	x	x	x

Source: Communications inspection and certification agency; * Classification from Eurostat

-the total area occupied by the organic crops for the period under review is in constant growth, the annual average being 258.3 thousand hectares, and the comparison of last year 2014 compared to 2010 showed an increase of + 58.3%. Standard deviation (as difference compared to the average) is by 41.5, and

coefficient of variation through 16.09% level characterizes a homogenous series, and the annual growth rate in the period under review which is of 12.17%;

-levels of crop area size can be structured as follows: cereals, industrial crops, plants harvested green and permanent crops, which in 2010 recorded the largest areas (between 10.3 and 72.3 thousand hectares), these crops recording also the most significant growth rates; with relatively low areas crops such as vegetables, dried and protein crops, other crops on arable land whose surface is also small, but also decreasing, so that annual rate is negative; vegetable culture which can be said that occupies reduced areas but registering continues annual growth with an annual growth rhythm of 27.30%;

-collection from spontaneous flora valued at surface harvested records the largest surfaces, but also the highest growth rate (119.29%). Annual oscillations, though rising, are very high which is why the standard deviation and coefficient of variation recorded the highest values (510.6 and 60.36% respectively).

The livestock sector, part of the organic farm, is considered a continuation of production capacity, which in this paper covers the main livestock species. The livestock on which was done the production possibilities analysis referred to the following categories: dairy cattle, sheep and goats, hens, pigs, beehives. For the period 2000-2014, the livestock structure is shown in Table 4, and on this basis, the interpretations are concentrated on the values of the calculated indicators from which it can deduct the following:

- The existence of differences in annual herd structures, namely: dairy cows, sheep and goats and chickens hens are registered in all the analyzed years (excluding 2000 for laying hens); for swine herds and beehives are only records from 2014;

- The actual records for the 2000-2014 period are obvious: additional herd trends, so in 2014 compared to 2000 the increase is 16.0 times for dairy cows and 71.3 times for sheep and goats, and for hens in comparison to 2003, the growth is 20.8 times;

- For the same categories of livestock (dairy cows, sheep and goats, laying hens) interpretations of statistical indicators are presented in the following form: the standard deviation and coefficient of variation are given by values with a degree of scattering high in which case they are considered non-homogeneous series; annual growth rate in percent is very significant (if the dairy cows is only 48.7%, in laying hens level reaches 131.9%).

Table 4. Evolution of the number of animals reared in organic farming in Romania (p. 16)*

Product	UM	2000	2003	2007	2014	Mean	Standard deviation	Coef. of variation (%)	Annual rate (%)
Dairy cows	nr.	2100	7200	6265	33782	9780.8	6030	61.7	48.7
	%	100.0	342.9	298.3	1608.7	X	X	X	X
Seep and goat	nr.	1700	3200	78076	121283	37542.3	43228	115.1	84.0
	%	100.0	188.2	4592.7	7134.3	X	X	X	X
Chickens hens	nr.	-	2000	4720	57797	14303.4	17397	121.6	131.9
	%		100.0	236.0	2889.9	X	X	X	X
Swine	nr.	-	-	-	126	X	X	X	X
Beehives	nr.	81.58	X	X	X	X

Source: Preliminary research ... (conf. www.maap.ro, accessed on 12.12.2008); Report stage - Stage I Period: October 1 2008-15 January 2009 CONSUMECO no. 92-075 / 1.10.2008

Regarding the image of the organic production capacity in Romania, we can observe a certain annual increase, along with a differentiation in the structure of crop / animal categories, situation supplemented by annual fluctuations that determine rates of annual variation differentiated.

3.3. Productions obtained in organic farming in Romania

Productions made in organic farming represents a qualitative element that complements the knowledge of the situation at national level. The analysis was carried out for the total production achieved, but on the average levels of the main organic crops.

The evolution of total productions made in organic system, presented in Table 5, are played by the quantitative structure of plant products, livestock and processed.

The dynamic levels presented for the period 2000-2007 in absolute and relative terms, are supplemented with statistical indicators by which performance can be highlighted the following aspects:

Table 5. Evolution of the yields obtained in organic farming in Romania

Specification	UM	2000	2003	2005	2007	Mean	Standard deviation	Coef of variation (%)	Annual rate (%)
1.- Crop production									
The total amount of vegetable. from which:	t	13,502	30,400	131,898	169,312	81,948	56,798	69.3	43.5
	%	100	225.15	976.87	1253.97				
Grains	t	7,200	14,400	55,000	65,127	32,459	19,934	61.4	37.0
	%	100	200	763.88	904.54				
Oilseed and protein	t	5,500	12,480	45,600	52,982	30,606	21,561	70.4	38.2
	%	100	226.90	829.09	963.30				
Vegetables	t	600	2,000	7,200	3,410	4,115	1,919	46.6	28.2
	%	100	333.33	1,200	568.33				
Fruits	t	-	300	1,000	1,255	599	352	58.8	44.4
	%	-	100	333.33	418.33				
Gathering wild flora	t	200	320	16,748	35,236	10,333	11,487	111.2	109.3
	%	100	160	8,374	17,618				
Other cultures	t	2	900	6,350	11,302	3,987	4,183	104.9	243.6
	%	100	45,000	317,500	565,100				
2.- Livestock production									
Cow milk	hl	58,367	92,485	100,000	85,031	88,423	14,496	16.4	5.5
	%	100	158.45	171.32	145.68				
Sheep milk	hl	701	1470	13,500	13,273	6,168	5,942	96.3	52.2
	%	100	209.70	1,925.82	1,893.43				
Eggs	Th. pcs	-	500	1820	1321	1,073	399	37.1	27.5
			100	364	264.2				
3.- Main products processed									
Sheep cheese	t	18	45	480	510	213	218	102.3	61.2
	%	100	250	2,666.66	2,833.33				
Schweitzer	t	23	110	268	580	225	188	83.6	58.6
	%	100	478.26	1,165.21	2,521.73				
Pressed cheese	t	-	220	330	640	351	166	47.3	32.0
	%		100	150	290.90				
Canned vegetables and fruits	t	-	-	50	40	42	4	83.8	4.6
	%	-	-	100	80				
Honey	t	10	110	610	1950	543	543	100.1	112.4
	%	100	1,100	6,100	19,500				

Source: Organic farming component of the green economy, www.economia-verde.ro/;
Ministry of Agriculture and Rural Development

- Crop production is distinguished by a relevant annual increase (for total crop in 2007 compared to 2000 registered an increase of 1,253.27% and in cropping patterns can be highlighted quantities obtained from wild flora and group of other cultures). Standard deviation levels signifies the highest degree of scattering of the total quantities, followed by cereals, oilseeds and vegetables. Referring to the coefficient of variation as an indicator of data scattering and of the growth rate dynamics may nominate quantities harvested and the products of spontaneous group of other cultures (values are 112.2 and the standard deviation of 14.9% and

for the annual rate of 109.3 and 234.6% respectively);

- animal production frames the same annual growth oscillations, situation which is embossed on all products by comparing the years 2007/2000, with special reference to sheep milk as an increase in 2007 of 18.9 times. Simultaneously the cow milk product has the highest standard deviation value (14,496). Further comparison of variability based on the coefficient of variation and the annual rate analysis, at the production of sheep milk is found the existence of the highest rates (96.3% and 52.2% respectively) which meant a high level of dependence towards the terms of past years;

- The evolution analysis of annual quantities of main products processed for the period 2000-2007 is represented by significant annual increases for most of these products. The level and variation in terms of all the products concerned we can notice the sheep cheese and honey. For these products are registered maximum values for the standard deviation (218 and respectively 543), the coefficient of variation (102.3% respectively 100.1%) and average rate (61.2% and 112.4%) for these products taking into consideration the definite perspective trend of quantitative growth and annual rhythms.

Plotted the evolution of total vegetal production t shown in Fig. 5 is shown by an upward line resulting from the linear regression function ($y = 25.129x - 50.258$), along with a growth correlation report very significant ($r = 0.95$).

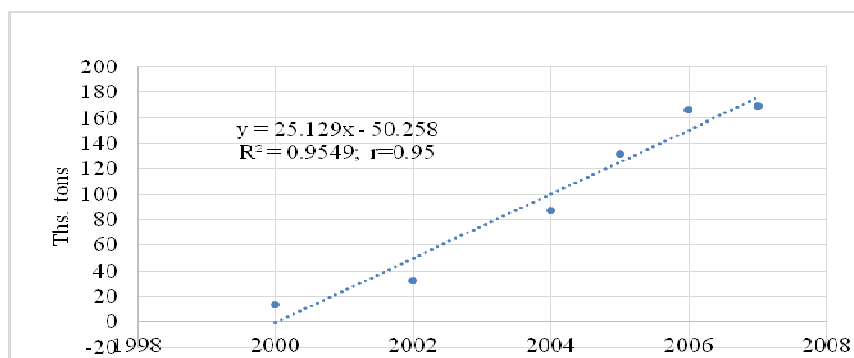


Fig. 5. The total vegetal production evolution in organic system in Romania, 2000-2007

The evolution of average productions in organic farming in Romania is an interpretive indicator whose importance is given not only by the development level of these yields, but also by the results in comparison to other systems commonly practiced in agriculture (non-organic). For the period 2007-2011 these productions were analyzed in comparison quantitatively / percentage, but also in terms of significance represented by the statistics relating to variations in annual rates. The data presented in Table 6 representative accumulate all these problems

of average productions for wheat, cabbage, tomatoes and wine grapes, it can be highlighted the following:

Table 6. The average production evolution achieved in the organic agriculture in Romania, 2007-2011

Specification	UM	2007	2008	2009	2010	2011	Mean	Standard deviation	Variation coef. (%)	Annual rhythm (%)
Wheat	kg/ha	1,541	3,403	2,421	2,688	3,663	2,743	632	23.0	24.1
	%	100.0	220.8	157.1	174.4	237.7	X	X	X	X
Cabbage	kg/ha	19,364	19,680	20,724	20,858	21,807	20,487	772	3.8	3.01
	%	100.0	101.6	107.0	107.7	112.6	X	X	X	X
Tomatoes	kg/ha	12,916	15,814	15,395	15,443	17,602	15,434	1,023	6.6	8.05
	%	100.0	122.4	119.2	119.6	136.3	X	X	X	X
Wine grapes	kg/ha	5,537	6,275	6,255	5,155	5,649	5,774	393	6.8	0.50
	%	100.0	113.3	112.9	93.1	102.0	X	X	X	X

Source: Organic farming component of the green economy, www.economia-verde.ro/; Ministry of Agriculture and Rural Development

- At all crops we can see annual levels amplified in years, considering significant increases in wheat and tomatoes (resulting from the comparison report 2011/2007 amplifications of the average production level of 37.7% and 36.3%);

- Annual variations in average yields expressed by statistical indicators still reveal a high level of standard deviation at wheat and tomatoes (these values were 632 and 1.023). The coefficient of variation analysis and the annual rate is significant for the wheat crop yields obtained (these values being 23.0% and 24.1%), means by comparison a variability (with homogeneous character), but also an increase from a unit interval to another. Crops of cabbage and grapes for wine the coefficient of variation and the annual rate have values close to the lower limit, so both a low amplitude, and an insignificant increase.

The graphics of the evolutionary level of average production for grains shown in Fig. 6 resulting from the linear function ($y = 345.67x + 692.135$) falls in the form of a linear growth. The correlation report ($r = 0.83$) signifies a strong correlation in the dynamic of years.

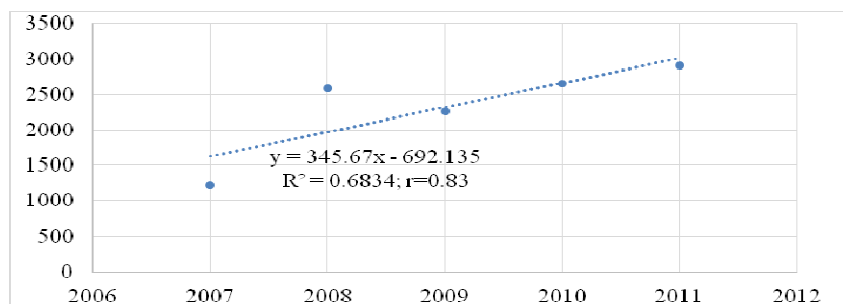


Fig. 6. The average productions /ha evolution for cereals grains organic cultivated in Romania, 2006-2012

One of the main problems especially in organic products marketing is the system of certification that producers must possess. The production system through organic certification is subject to the inspection and certification according to current standards[7]. But transformation costs from an usual farm to an organic farm are linked to certification of products, the market reorientation of products and retraining: retrofitting vehicles and machinery, converting land to meet the exclusion of herbicides and phytosanitary treatments[9].

Connected to this concern of total organic production is limited the organic certified production. In the records structure of organic products quantities from Romania, certified organic yields are at a lower level than at the general organic level. Analyzing the data presented in Table 7 on the evolution of average crops certified organic, can be highlighted the following:

Table 7. The average productions evolution for the certified crops in organic agriculture from Romania

Specification	UM	2007	2008	2009	2010	2011	Mean	Standard deviation	Variation coef. (%)	Annual rhythm (%)
Cereals grains	kg/ha	1,218	2,583	2,252	2,652	2,911	2,324	471	20.3	24.34
	%	100.0	212.0	184.8	217.7	239.0	X	X	X	X
Cabbage	t/ha	13.5	15.7	14.5	14.6	15.2	14.7	0.616	4.2	3.01
	%	100.0	116.2	107.0	107.7	112.6	X	X	X	X
Tomatoes	t/ha	9.7	11.1	10.8	10.8	12.3	10.9	0.615	5.6	6.17
	%	100.0	113.6	110.6	111.0	127.1	X	X	X	X
Grapes for wine	kg/ha	3,258	3,752	3,758	2,927	3,486	3,436	275	8.0	1.71
	%	100.0	115.2	115.4	89.9	107.0	X	X	X	X
Apple	kg/ha	4,296	4,212	5,044	5,249	4,999	4,760	405	8.5	3.86
	%	100.0	98.0	117.4	122.2	116.4	X	X	X	X
Pear	kg/ha	2,067	2,605	2,338	3,895	3,595	2,900	676	23.3	14.83
	%	100.0	126.0	113.1	188.4	173.9	X	X	X	X

Source: Organic farming component of the green economy, www.economia-verde.ro/; Ministry of Agriculture and Rural Development

- The productions yields obtained in years are increasing. By comparing the level of 2013 with 2007 there were increases of the analyzed crops between 7.0% and 139.0%;
- Annual variations are reported for these productions, so high levels for the standard deviation for most crops, a phenomenon that is effectively connected with the existence of annual growth of production;
- Coefficient of variation means annual increases productions considered homogeneous for all cultures;
- The annual growth rate is differentiated, so for the crops analyzed: high growth rates for grains and pear (24.34% and 14.83%), medium for cabbage, tomato and apple (3.01%, 6.17% and 3.68% respectively) and small increases in wine grapes (1.71%).

All questions arising from the analysis of organic production growth emerges a trend but subjected to manifested annual variations. This phenomenon is related on the one hand to the organizational aspect, and secondly the possibility of applying the most appropriate technologies.

Conclusions

From the pursued and achieved study through the indicators system for the 2000-2011 period can be summarized several issues relating to trends and prospects of organic farming in Romania.

(Conclusion 1) Increased number of organic operators (producers, processors and traders, importers and exporters) is justified at national level by the effective implementation aspect in all activities / works existing in the entire agro food chain of organic products. Today it is put the question of the necessity to respect the Community and national law on organic production and indications arising from inspection visits conducted by inspection bodies and certification.

(Conclusion 2) Organic production capacities increase in the vegetal sector (referring to crop areas) projecting growth rates standing alongside the existence of variations in levels of production capacity. The levels structure of these capacity, with reference to the area occupied by organic farming can be identified: cereal crops, industrial crops, plants harvested green and permanent crops that occupy the largest areas, but also the most significant growth rates; crops with relatively low surfaces such as dried legumes and protein crops, other crops on arable land whose surface is already low and decreasing, so that the annual rate is negative; vegetables grow on small areas but has a significant annual increase; collections of spontaneous flora evaluated at harvested area for which is registered the largest areas, but also the highest growth rate.

(Conclusion 3) Livestock sector (focused on the following categories: dairy cattle, sheep and goats, hens, swine, bees) indicates the existence of differences namely: dairy cows, sheep and goats and laying hens, are registered effectives in all years of the analyzed period (with the exception of 2000 for laying hens); for swine herds and beehives registers are only in 2014, having also increasing trends. For these animals the standard deviation and coefficient of variation values are represented by a very high degree of scattering, at which can be added a very significant annual growth.

(Conclusion 4) Vegetal production quantitatively analyzed registers growths, but which manifests differences in annual growth and crop structure (with significant increases in total crop production quantities obtained of spontaneous flora and group of other crops). For livestock it may be mentioned amounts related to milk sheep product who experienced the most significant growth (of 18.9 times in 2007 compared to 2000), together with the existence of the highest values of the

coefficient of variation and the annual rate . For the main products processed the levels evolution of annual quantities plays significant annual increases for most of these products (sheep cheese and honey, are recorded maximums and a definite trend growth).

(Conclusion 5) The average yields (falling within the general organic level) has growths in years (can be considered significant increases in wheat and tomatoes and the statistical indicators that reveal a high level). At crops of cabbage and white grapes for wine the coefficient of variation and the annual rate have values close to the lower limit, indicating both a low amplitude, and an insignificant increase.

(Conclusion 6) The certified organic average production situation indicates a lower level than the productions from the general organic level . Their production efficiency the in succession of years is increasing. Are reported annual changes with respect to the standard deviation that has high levels for most crops, but a differential annual growth rate (for the analyzed crops, can be identified: growth rates higher for grains and pear, medium for cabbage, tomato and apple and small increases in wine grapes).

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