

## TRENDS AND CORRELATIONS IN ROMANIA'S AGRO-FOOD FOREIGN TRADE IN THE PERIOD 2007-2016

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### Abstract

*The purpose of the paper was to analyze the trends and correlations in Romania's agro-food trade in the period 2007-2016 based on the data supplied by the National Institute of Statistics. The statistical parameters of mean, standard deviation, coefficient of variation, growth rate, trend line, regression model, Pearson correlation coefficient have been used in this study. The export value of agro-food products reached Euro 6.06 billion, while the import value of agro-food products accounted for Euro 6.78 billion in the year 2016. Despite that both export and import value increased, Romania is still a net exporting country. The year 2013 and 2014 registered a positive trade balance. The economic efficiency in Romania's agro-food foreign trade has increased. This was proved by the growth of the share of the agro-food products export in Romania's export value, and by the share of export value in the GDP carried out in agriculture as well as in terms of export/import coverage rate. Romanian producers must continue to pay a special attention to the factors stimulating the growth of the agricultural production and improve the quality of agro-food products in order to cover better the requirements of the domestic and also of the international market, leading to a positive trade balance.*

**Key words:** agro-food products, correlations, international trade, trends, Romania

### INTRODUCTION

The globalization process has an important impact of the economies and foreign trade whose development has become a very dynamic one.

The liberalization trade has been favored by the EU enlargement and the creation of the unique market [8].

Romania's entry into the EU had a positive impact of the development of agricultural production and Romania's trade with agro-food products.

The exports and imports have been intensified. Grains, fruit, and vegetables have become the top export items, while food and beverages and the vegetal products are the top items in the country imports [6, 13].

However, the economic crisis had a deep impact on the structure of Romania's foreign trade [5].

Romania's agro-food trade has a positive evolution of the export and import, but the trade balance is still a negative one [3].

But after a short period of diminishing the gap between export and import of agro-food products, in the years 2013 and 2014, when the trade balance has positive values, in 2015 and 2016, the imports registered historical records [11].

The same increasing trend was mentioned in case of Romania's export and import on the international market and mainly of the EU market [1].

However, the processed products represent about 46 % of Romania's exports and about 63 % of the imports reflecting a low-competitive structure of the agro-food trade [4].

Besides the benefic effect of the common market, some negative aspects have been noticed in Romania's agro-food trade as follows: the lack of competitiveness of the Romanian products in the increased external competition, the reduction of the production performance affected by the climate factors which involved a growth of the imported processed products which affected the local producers, the reduced revenues from exports and increased expenditures for imports [12].

In this context, the present paper had the goal to analyze the trends in Romania's foreign trade with agro-food products the period 2007-2016. In this respect, the dynamics of export, import and trade balance value, the share of export and import value of agro-food products in Romania's export and import value, the ratio between the export value and import value of agro-food products, the share of export value in the agricultural production value, the dynamics of the export, import and trade value by each group of agro-food products have been studied. Also, the regression model of export value depending on the agricultural production value and of GDP created in agriculture have been established to identify the intensity and direction of the relationship between these indicators reflecting the economic efficiency of Romania's agro-food international trade.

## MATERIALS AND METHODS

The paper is based on the empirical data supplied by the National Institute of Statistics, Tempo online Data base for the period 2007-2016.

The main indicators analyzed in this study were the following ones: the dynamics of GDP achieved in agriculture, forestry and fishing, the dynamics of the agricultural production value, the value of export with agro-food products and its share in Romania's export value, the value of import with agro-food products and its share in Romania's import value, the weight of agro-food products export in GDP carried out in agriculture and in the value of agricultural production value, the regression model of export value depending of GDP created in agriculture and also, the regression model of export value depending of the value of agricultural production, the ratio between the value of export and the value of import, the dynamics of the export value, import value and trade balance by each group of agro-food products classified according to the Combined Nomenclature, the share of each group of agro-food products in total agro-food export value, and respectively in the total agro-food import value, the value of export, import and trade balance for cereals as a special

category of products in Romania's agro-food international trade.

The analysis was based on various well known modern methods such as:

-*The statistical parameters* of mean, standard deviation and coefficient of variation which were calculated according to the well known methods.

-*The fixed index method*, used to assess the growth or decline of the variables from each year compared to the 2007 level considered as term of reference, according to the formula:  $I_{FB} = (X_n/X_0) * 100$ .

-*The linear regression model*,  $Y = bx + a$ , where Y is the dependent variable and X is the independent variable was used to analyze the relationship of determination between export value and GDP achieved in agriculture and the value of agricultural production.

-*The Pearson correlation coefficient* and *the determination coefficient* were utilized to evaluate the direction and intensity of the relationship between these indicators.

The results were tabled and graphically illustrated and then correspondingly interpreted.

## RESULTS AND DISCUSSIONS

**The evolution of GDP achieved in agriculture, forestry and fishing.** The economic development of Romania has been influenced by agriculture, forestry and fishery as one of the most important branch in the economy, besides industry, trade, buildings, IT sectors etc.

The GDP created in agriculture increased by 5.81 % in the analyzed period from Euro 7.05 billion in 2007 to Euro 7.46 billion in the year 2016 (Fig.1.).

Despite this positive dynamics, the share of GDP achieved in agriculture declined in Romania's GDP from 5.7 % in the year 2007 to 4.4 % in the year 2016.

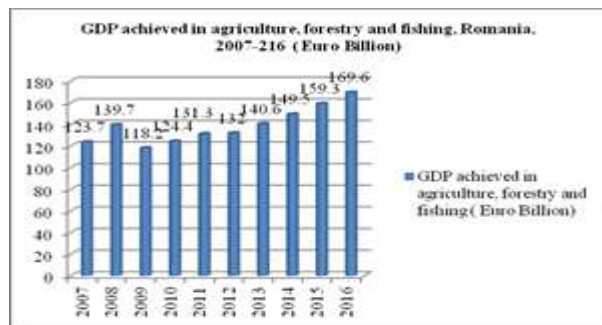


Fig.1. The dynamics of GDP carried out in agriculture, forestry and fishing, Romania, 2007-2016 (Euro billion) Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

**The agricultural production value** registered an ascending trend, increasing by 9.64 % from Euro 14.31 billion in 2007 to Euro 15.69 billion in 2016 (Fig.2.). This is a positive aspect which could sustain the supply for export of agro-food products. Important growths were recorded both in the vegetal production and also in the animal production.

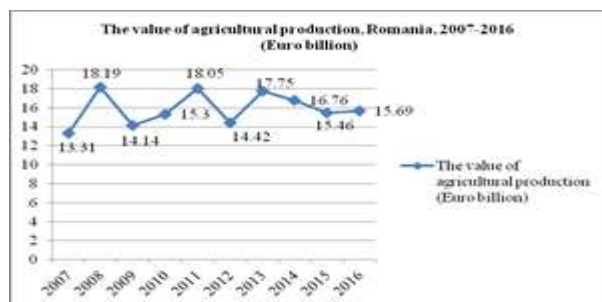


Fig.2. The dynamics of the agricultural production value, Romania, 2007-2016 (Euro billion) Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

**The agro-food foreign trade of Romania** registered a positive evolution regarding both export and import values.

*The export value* of agro-food products increased by 440.90 % from Euro 1.1. billion in 2007 to Euro 6.06 billion in 2016.

At the same time, *the import value* of agro-food products increased by 103.31 % from Euro 3.33 billion in 2007 to Euro 6.78 billion in 2016.

As a result, *the trade balance* of agro-food products was a negative one, - Euro 2.2 billion in 2007 and - Euro 0.71 billion in 2016.

Therefore, in 2016, the deficit was by 67.67 % lower than in 2007, which reflects a slight

improvement of the economic efficiency of the agro-food foreign trade of Romania (Fig.3).

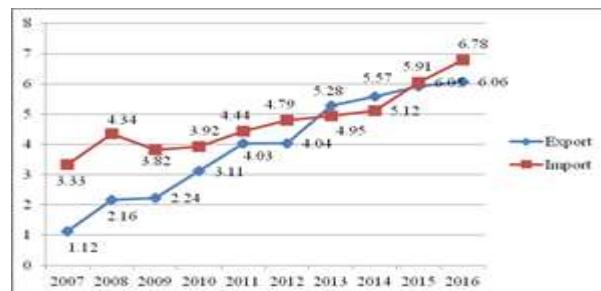


Fig.3. The dynamics of the value of export and import of agro-food products, Romania, 2007-2016 (Euro billion) Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

However, in the evolution of the export and the import value in the analyzed period, the years 2013 and 2014 recorded a positive trade balance, as export value exceeded the import value, reflecting the improvement in Romania's agro-food foreign trade in the last 20 years. Therefore, the country in this two years became again a net exporter of agro-food products.

But, in 2015 and 2016, the import value restarted to exceed again the export value and the agro-food trade balance became a negative one with a tendency to grow ( Fig.4).

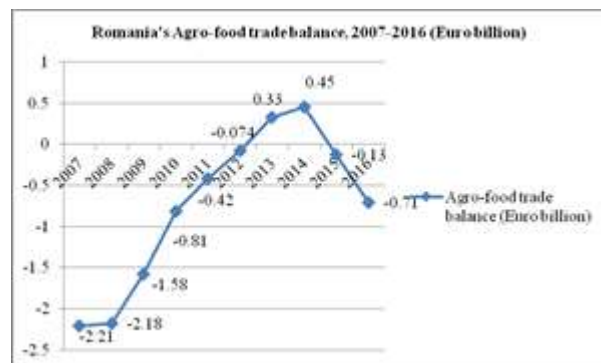


Fig.4. The dynamics of Romania's agro-food foreign trade balance, 2007-2016 (Euro billion) Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

**The share of agro-food export in Romania's export value** increased from 3.7 % in 2007 to 10.5 % in 2016, meaning that agro-food products are required in the international market, mainly in the EU-28 market whose weight in Romania's export of agro-food products is about 76 % (Table 1).

Table 1. The share of agro-food export value in Romania's export value (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Agro-food export Euro billion	1.12	2.16	2.24	3.11	4.03	4.04	5.28	5.57	5.91	6.06
Romania's export Euro billion	29.54	33.72	29.08	37.36	45.27	45.06	49.56	52.45	54.59	57.38
Share of agro-food export (%)	3.7	6.4	7.7	8.3	8.9	9.0	10.6	10.6	10.8	10.5

Source: Own calculations based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

**The share of the agro-food import value in Romania's import value** increased from 6.49 % in the year 2007 to 9.95 % in 2016 and the imports are coming mainly from the EU-28

countries in the highest proportion, around 80 % (Table 2).

Table 2. The share of agro-food import value in Romania's import value (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Agro-food import Euro billion	3.33	4.34	3.82	3.92	4.44	4.79	4.95	5.12	6.05	6.70
Romania's import Euro billion	51.32	57.24	38.95	46.90	54.94	54.07	55.26	58.50	62.96	67.34
Share of agro-food import (%)	6.49	7.58	9.80	8.35	8.08	8.85	8.95	8.75	9.61	9.95

Source: Own calculations based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

**The share of agro-food export in GDP achieved in agriculture** increased from 15.91 % in 2007 to 81.23 % in 2016. This was due to the fast growth of export value compared to the lowest growth in the agriculture GDP (Fig.5).

**The share of agro-food export value in the value of agricultural production** increased from 7.83 % in 2007 to 38.62 % in 2016.

This was due to the higher requirements of Romanian agro-food products for export, and due to the faster growth of export compared to the increase of GDP coming from agriculture. By means of its increasing values, this indicator reflects the growth of the economic efficiency of Romania's agro-food foreign trade (Fig.6).

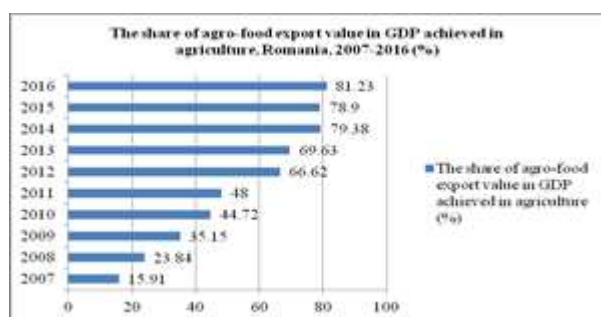


Fig.5. The share of the agro-food export value in GDP from agriculture, Romania, 2007-2016 (%)

Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

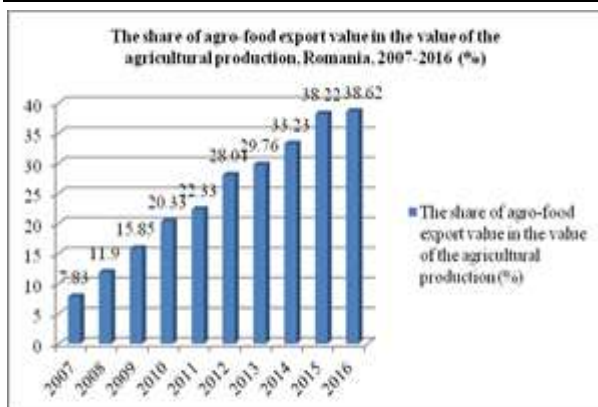


Fig.6. The share of the agro-food export value in the value of agricultural production, Romania, 2007-2016 (%)

Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

**The regression model reflecting the agro-food export value (Y) depending on the value of GDP created in agriculture** was  $Y = 0.0866 X - 8.07$ . It reflects that an increase by Euro 1 billion of GDP in agriculture will determine an increase by Euro 0.0866 billion in the agro-food export value.

Also, the determination coefficient shows that 66.69 % of the variation of the exports value with agro-food products is determined by the variation of the GDP created in agriculture.

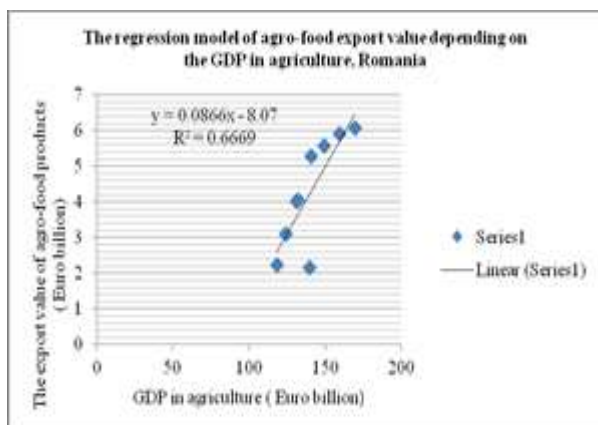


Fig.7. The regression model between the agro-food export value and GDP in agriculture, Romania, 2007-2016

Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

The coefficient of correlation,  $r = 0.816$  reflects that between the agro-food export value and the GDP coming from agriculture is a strong and positive relationship. Therefore, the

availability of the estimated regression model is confirmed (Fig.7).

The regression model estimated for the agro-food export value depending on the GDP coming from agriculture is presented in Table 3.

**The regression model reflecting the agro-food export value (Y) depending on the value of agricultural production** was  $Y = 0.3505 X - 1.6234$ . It reflects that an increase by Euro 1 billion of the value of agricultural production will determine an increase by Euro 0.3505 billion in the agro-food export value.

Also, the determination coefficient shows that only a small percentage, more exactly, 11.87 % of the variation of the exports value with agro-food products is determined by the variation of the agricultural production value.

The coefficient of correlation,  $r = 0.344$  reflects that between the agro-food export value and the value of agricultural production is a weak but positive relationship. Therefore, the availability of the estimated regression model is confirmed, but the variation of the agro-food export value is determined by other factors, not only by the value of agricultural production value (Fig.8).

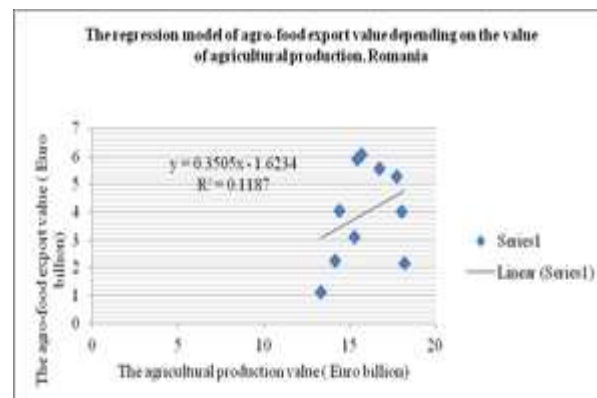


Fig.8. The regression model between the agro-food export value and the value of agricultural production, Romania, 2007-2016

Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

The regression model estimated for the agro-food export value depending on the value of agricultural production is presented in Table.

Table 3. The estimated regression model for the agro-food export value depending on the GDP created in agriculture, Romania, 2007-2016

Regression statistics						
Multiple R	0.8166					
R Square	0.6669					
Adjusted R Square	0.6252					
Standard Error	1.0709					
Observations						
ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	18.3692	18.3692	16.0169	0.0039	
Residual	8	9.1749	1.1468			
Total	9	27.5441				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-8.0700	3.0229	-2.6695	0.0283	-15.041	-1.0990
X Variable 1	0.0865	0.0216	4.0021	0.0039	0.0366	1.1364

Source: Own computation based on National Institute of Statistics, Tempo on line Data Base, 2017, [9]

Table 4. The estimated regression model for the agro-food export value depending on the value of agricultural production, Romania, 2007-2016

Regression statistics						
Multiple R	0.3445					
R Square	0.1187					
Adjusted R Square	0.0085					
Standard Error	1.7418					
Observations						
ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	3.2705	3.2705	1.0778	0.3295	
Residual	8	24.2736	3.0342			
Total	9	27.5441				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-1.6234	5.3983	-0.3007	0.7712	-14.0721	10.8252
X Variable 1	0.3505	0.3375	1.0382	0.3295	-0.428	1.1290

Source: Own computation based on National Institute of Statistics, Tempo on line Data Base, 2017, [9]

**The ratio between export value and import value of agro-food products** varied between 0.83 in the year 2007 and 0.89 in 2016, with two exceptions in 2013 and 2014 when this ratio was 1.06 and, respectively, 1.08 in favor of export.

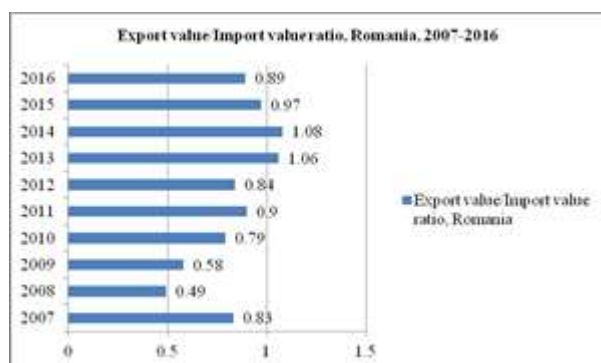


Fig.9. The evolution of the ratio between the export value and import value of agro-food products, Romania, 2007-2016

Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

In general, the ratio had an increasing trend in the period 2008-2011, but then it was followed by a lower value, 0.84 in 2012, when due to the drought in the country the imports were higher than exports of agro-food products. In the years 2015 and 2016, again it has appeared a decline of this ratio to 0.97 and, respectively 0.89 (Fig.9).

Other authors affirmed that in the year 2014, besides of the trade with Dacia and Ford cars, the agro-food foreign trade of Romania had the highest coverage rate (export/import ratio) [10].

**The statistical parameters for the main indicators** used in this study characterizing Romania's agro-food foreign trade in the period 2007-2016 are presented in Table 5. The values of the coefficient of variation are in general below 10 % in case of the value of agricultural production, reflecting that the values are uniformly distributed around the mean. In case of GDP coming from agriculture the value of this coefficient is a little over 10 %

reflecting a slight variation of the values. The coefficient values ranging between 10 and 20 % in case of the import value of agro-food products and export value/Import value ratio show that it is a moderate variation of the variables around the average. But in case of the

export value of agro-food products and the value of agro-food foreign trade balance, the coefficient of variation has recorded values higher than 40 % and also ranging between 30-40 % reflecting a very large variation of the data.

Table 5. The statistical parameters of the main indicators characterizing Romania's agro-food foreign trade in the period 2007-2016

	MU	Mean	Standard deviation	Coefficient of variation (%)
GDP from agriculture	Euro billion	138.83	16.49	11.87
The value of agricultural production	Euro billion	15.90	1.71	10.75
The export value of agro-food products	Euro billion	3.95	1.74	44.05
The import value of agro-food products	Euro billion	4.75	1.04	21.89
The value of agro-food foreign trade balance	Euro billion	-0.73	0.96	31.50
Export value/Import value ratio	-	0.84	0.18	21.42

Source: Own calculations.

### The evolution of the agro-food export value by categories of products according to the Combined Nomenclature.

The export value of the Live animals and products of animal origin was 3.22 times higher in 2016, accounting for Euro 0.81 billion, compared to 2007. Romania imports especially pigs, cattle and poultry, and exports mainly live cattle [14].

The export value of the Vegetal products was 7.58 times higher in 2016, accounting for Euro 3.33 billion in comparison with the level of 2007.

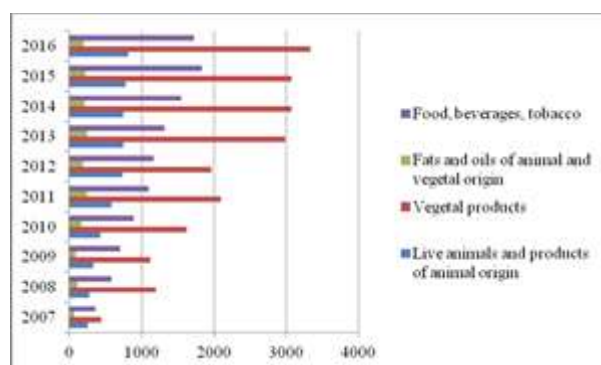


Fig.10. The evolution of the export value by group of agro-food products according to the Combined Nomenclature, Romania, 2007-2016 (Euro billion)

Source: Own design based on National Institute of Statistics, Tempo Online Data base, 2017 [9].

The export value of the Fats and oils of vegetal and animal origin was 2.85 times higher in 2016, representing Euro 0.19 billion compared to 2007.

The export value of the Food, beverages and tobacco was 4.76 times higher than in 2007, accounting for Euro 1.71 billion in 2016 (Fig.10).

**The share of various groups of agro-food products in the export value of agro-food products.** Despite that the descending order in the hierarchy of agro-food products groups remained the same: Group II Vegetal Products, Group IV Food, beverages and tobacco, Group I Live animals and products of animal origin, and Group III Fats and oils of vegetal and animal origin, the share of each group in the value of export with agro-food products has changed.

While the share of the vegetal products export value increased from 39.21 % in 2007 to 54.99 % in 2016, the share of all the other groups of products declined as follows: Group IV from 32.28 % in 2007 to 28.68 % in 2016; Group I from 22.45 % in 2007 to 13.14 % in 2016; Group III from 6.06 % in 2007 to 3.19 % in 2016 (Table 6).

Fats and oils are important items of Romania's agro-food trade. In order to stimulate the exports of oleaginous seeds and oils, the producers have received subsidies. In this way, the production growth had a positive impact both on the exported amounts and export value as increase of soybean [7].

Table 6. The share of agro-food groups of products in the value of export of agro-food products and, respectively in the value of import of agro-food products, Romania, 2007-2016 (%)

Group of agro-food products based on the Combined Nomenclature	Export value of the agro-food products groups		Import value of the agro-food products groups	
	2007 = Euro 1.1 billion	2016= Euro 6,069 billion	2007 = Euro 3.33 billion	2016= Euro 6,78 billion
I- Live animals and products of animal origin	22.45	13.14	26.05	21.22
II- Vegetal products	39.21	54.99	31.05	34.31
III- Fats and Oils of vegetal and animal origin	6.06	3.19	4.31	2.78
IV-Food, beverages, tobacco	32.28	28.68	38.59	41.69

Source: Own computation based on National Institute of Statistics, Tempo on line Data Base, 2017, [9]

**The share of various groups of agro-food products in the import value of agro-food products.** The decreasing order in the hierarchy has not changed and remained the same as follows: Group IV Food, beverages and tobacco, Group II Vegetal Products, Group I Live animals and products of animal origin, and Group III Fats and oils of vegetal and animal origin.

But, the share of each group of agro-food products has changed as follows: Group IV Food, beverages and tobacco increased its share from 38.59 % in 2007 to 41.69 % in 2016; Group II Vegetal Products increased its share from 31.05 % in 2007 to 34.31 % in 2016; in case of Group I Live animals and

products of animal origin, the share in the import value of agro-food products declined from 26.05 % in 2007 to 21.22 % in 2016; the share of Group III Fats and oils of vegetal and animal origin also declined from 4.31 % in 2007 to 2.78 % in 2016 ( Table 6).

Therefore, in 2016, Romania exported more vegetal products and less food, beverages and tobacco, mainly as raw materials, and it imported more food, beverages and tobacco and also vegetal products, mainly processed products, including high value added favoring the trade of the supplying countries.

**The balance of Romania's agro-food foreign trade by category of products** is presented in Table 7.

Table 7. The agro-food foreign trade balance of Romania, 2007-2016 ( Euro million)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Balance of agro-food trade	-2,217	-2,181	-1,580	-813	-423	-746	+334	+452.7	-135.9	-719.8
I- Live animals and products of animal origin	-518	-913	-790	-550	-381	-304	-369	-479.9	-472.3	-626.8
II- Vegetal products	-597	-61	+122	+484	+773	+554	+1,530	+1,554.1	+1,007.3	+1,008.1
III- Fats and Oils of vegetal and animal origin	-76	-121	-72	-53	-3	-56	+35	+48.5	+39.6	+4.7
IV-Food, beverages, tobacco	-926	-1,086	-840	-694	-812	-940	-862	-670	-740.6	-1,105.8

Source: Own computation based on National Institute of Statistics, Tempo on line Data Base, 2017, [9]



The trade balance by category reflects the following aspects:

-Group I had a negative balance in all the analyzed years, meaning that Romania imported more live animals and products of animal origin than it exported.

-Group II had a negative balance in 2007 and 2008, but then it recorded positive values in the period 2009-2016, reflecting that Romania exported more vegetal products than it imported.

-Group III had a negative trade balance between 2007 and 2012 and from 2013 till 2016, it became a positive one, reflecting that Romania exported more fats than it imported.

-Group IV registered a negative trade balance in the whole analyzed period, reflecting that Romania is a net importing country of Food, beverages and tobacco.

**The value of export, import and trade balance for cereals.** Cereals occupy a special

place in Romania's agro-food export value, being an important producer of cereal grains. But also, Romania imported small amounts of cereals when it was needed to cover the internal market needs.

The export value of cereals was 13.89 times higher in 2016, accounting for Euro 2.09 billion compared to 2007 (Euro 0.15 billion).

The import value of cereals was 2.18 times higher in 2016, accounting for Euro 0.59 billion compared to 2007 (Euro 0.27 billion).

As a result, the trade balance was a negative one only in 2007 and then it registered only positive values along of a relatively continuous increasing trend.

In 2016, the trade balance of cereals accounted for Euro 1.5 billion. However, the highest value of cereals export was recorded in 2014 and accounted for Euro 1.69 billion (Table 8).

Table 8. The value of export, import and trade balance for cereals, Romania, 2007-2016 ( Euro million)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Export	151	638	631	893	1,095	1,336	1,981	1,988	2,003.5	2,097.1
Import	271	308	250	248	333	373	327	256	539.3	592
Trade balance	-120	330	381	645	762	963	1,654	1,692	1,464.2	1,505.1

Source: Own computation based on National Institute of Statistics, Tempo on line Data Base, 2017, [9]

As a result, the share of cereals in the export value of agro-food trade increased from 13.43 % in 2007 to 34.56 % in 2016.

The share of cereals in the import value of agro-food trade increased from 8.10 % in 2007 to 8.72 % in 2016, the maximum weight being 8.90 % recorded in the year 2015.

Grains of cereals are among the most important items in Romania's export and even from the period 2002-2011 both their exported quantity and export value had recorded growths. Wheat, maize and barley are successfully exported and the export has constantly covered their imports [2].

## CONCLUSIONS

The development of agro-food foreign trade of Romania is deeply conditioned by the volume and structure of the agricultural production, the quality of agro-food products, the

demand/offer ratio on the internal and external market.

The growth of the agricultural production, both in the vegetal and animal sector, has influenced the export of agro-food products.

In the period 2007-2016, the export value of the agro-food products increased 5.4 times, while the import value raised 2.03 times.

In 2016, the export of agro-food products accounted for Euro 6.06 billion while the import value for Euro 6.78 billion, leading to a negative trade balance of - Euro 0.71 billion.

In the years 2013 and 2014, the trade balance of agro-food products had a positive value, reflecting that Romania has a good potential to become a net exporting country.

The export value of agro-food products has recorded an increasing share in Romania's export value, from 29.5 % in 2007 to 57.38 % in 2016. At the same time, the import value of agro-food products registered a slight growth

in Romania's import value from 6.4 % in 2007 to 9.95 % in 2016.

Also, the export of agro-food products has registered a continuous growth in the GDP produced in agriculture from 15.9 % in 2007 to 81.2 % in 2016.

In 2016, 38.6 % of the agricultural production value was represented by the export value of agro-food products.

The regression models estimated in this study pointed out that it is a strong relationship between the export value of agro-food products and the GDP created in agriculture, as long as the coefficient of correlation was  $r = 0.816$  and R squared showed that 66.69 % of the variation of the export value is due to the variation of the agricultural GDP.

Between the export value of agro-food products and the agricultural production value it is a weak correlation,  $r = 0.344$  and R squared reflected that only 11.87 % of the variation of the export value is determined by the variation of this factors. The remaining variation of 88.13 % is due to other factors.

As a result of the export and import dynamics, export/import ratio varied from 0.49 in the year 2008 to 1.06 in 2013 and 1.08 in the year 2014, the last figures reflecting the highest economic efficiency in Romania's agro-food trade. But, in the years 2015 and 2016, this ratio became lower than 1, reflecting that Romania is again a net importing country.

The export value of agro-food products was positively influenced by all the four groups of agro-food products included in the Combined Nomenclature.

The vegetal products contributed by 54.9 %, while Food, beverages and tobacco by 28.68 % to the export value of agro-food trade.

In the import value of agro-food products, the main share belongs to Food, beverages and tobacco, (41.69%), vegetal products (34.31 %) and live animals and products of animal origin ( 21.22 %).

The general negative value of the agro-food trade balance was mainly influenced by the negative values recorded by Food, beverages and tobacco, and by Live animals and products of animal origin.

The positive influence on the trade balance came from Vegetal products which had a positive balance and continuously increasing since 2009 till 2016, and from Fats and oils whose balance was positive in the last five years of the analysis.

Being an important cereal producer, Romania exports cereals. In 2016, the export value of cereals recorded Euro 2.09 billion, being 13.89 times higher than in 2007. In the same, year, Romania imported cereals whose value accounted for Euro 0.59 billion, almost double compared to the 2007 level.

The cereals contributed by 34.5 % to the export value of agro-food products.

As a final conclusion, Romania is still a net importing country of agro-food products, despite that it has a good potential to become a net exporter. But in the analyzed period, it was noticed an increase of the economic efficiency of the agro-food foreign trade in terms of the share of the export value with agro-food products in the GDP achieved in agriculture, export value in the value of agricultural production, and export/import ratio.

Romanian producers must intensify their efforts to produce more and increase the quality of the agro-food products to be more competitive on the external market. In this way, the agro-food trade balance could become positive and Romania a net exporting country.

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