

THE EVOLUTION OF AVERAGE PRICES FOR AGRICULTURAL PRODUCTS IN ROMANIA DURING 2007-2017

Gabriela GIMBĂȘANU, Valentina TUDOR

University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, 011464, Bucharest, Romania, Emails: gimbasanugabriela@yahoo.com, valentina_tudor@yahoo.com

Corresponding author: gimbasanugabriela@yahoo.com

Abstract

This paper analyzes the evolution of the average price for agricultural products in Romania, as compared to the evolution of cereal prices in the European Union, in order to highlight the price differences as well as the causes that generate these differences. Also, this article will highlight the most suitable moments for valorising wheat, barley, corn production. In this paper we have proposed to analyze the evolution of average prices of agricultural products in Romania during the reference period 2007-2019 in order to identify in what trends are the best prices of the year in which the cereals can be sold and what extra income farmers can get by selling grain at the right time when market pressure is low and demand is high.

Key words: average prices, grain trade, oilseed trade

INTRODUCTION

In terms of size, Romania ranks second in the European Union. The total area of 238 thousand km² of our country accounts for 6% of the total area of the European Union. Romania's agricultural potential is still insufficiently exploited. Despite the transformation of the Romanian rural area under the imminence of the two National Rural Development Programs, the population migration from the rural area to the urban area has not yet been stopped. Even if we have quite a lot of young people who have decided to settle in the countryside to start an agricultural business, there are even more young people leaving the Romanian village. [2] [5]

The success of the Romanian farms is directly dependent on the sales price that farmers receive in capitalizing on agricultural output. The price of cereals is often influenced by the quantity harvested at national level, but also by the time the farmer decides to capitalize on his production. Whether in the wheat, barley and corn market, Romania is present almost all year round with storage facilities on Romanian farms in respect of oil products: rapeseed and sunflower Romanian farmers are

present only in the seasonal harvest market, since the storage of these cereals requires the existence at the farm level of a specific storage infrastructure, incurring a series of additional costs [3] [7] [11].

The cereal market in Romania represents the total amount of grain transactions that have at its center the farm and the farmer. Both the farmer, exporters, port operators, lawyers, local and regional authorities, transporters, livestock consumers, and processing industries are meeting on this market. [4] [12] Cereals are raw materials of agricultural origin and are of particular importance in world agriculture, as they play an important role in human nutrition and are also a basic element in animal feed ration. Worldwide, grain transactions are dynamic and represent over 10% of the world trade in agri-food products [1] [8] [10]

World consumption of cereals and oilseeds has grown in recent years, driven by the evolution of the population. Wheat represents 31% of total cereal consumption globally. Among the world's largest grain consumers are: the European Union, Egypt, Iran, Mexico and Brazil. On the other hand, rice also is on a leading position in the ranking of the most

consumed cereals, accounting for 21% of the world's grain consumption. [1] [6] [9]

MATERIALS AND METHODS

This paper was developed on the basis of the statistical data generated from the European database - Eurostat, analyzing the sale price of the main cereal products (wheat, barley and corn) as well as of the main oil products (rape and sunflower).

Also, for the relevance of the analysis, absolute (fixed and chain basis) indices and relative indicators such as dynamic index, dynamic dynamics, absolute value of a percentage of the change rate were used. At the same time, quantitative and qualitative

method was used to analyze the mentioned data.

RESULTS AND DISCUSSIONS

Analyzing the price of the main wheat-producing countries in the European Union during 2007-2017, it is noted that the best price was obtained in 2013 when European Union (EU-28) wheat production was recorded a wheat production of 143.51 million tonnes of cereals. In that year, the best prices were obtained in the UK with 21.95 euro/100 kg, the Czech Republic with 20.36 euro/100 kg. The Romanian farmers were also rewarded for the production obtained with a sales price of 100 kg of 19.24 euro (Table 1).

Table 1. The evolution of the sale price of wheat in the main EU countries in the period 2007-2017 (euro/100 kg)

Country	2007	2010	2013	2014	2015	2016	2017	2017/2007	2017/2013	2017/2016
Sweden	18.74	16.99	19.53	16.32	15.10	13.54	13.88	-25.9	-28.9	2.5
Croatia	:	:	14.81	15.77	15.23	12.19	13.89	-	-6.2	13.9
Slovakia	16.34	13.61	16.92	14.8	14.63	12.29	13.98	-14.4	-17.4	13.8
United Kingdom	18.82	15.28	21.95	19.31	17.01	14.68	14.01	-25.6	-36.2	-4.6
Hungary	17.39	14.23	16.06	15.62	15.58	12.77	14.02	-19.4	-12.7	9.8
Austria	18.90	18.41	14.84	13.48	13.72	11.55	14.07	-25.6	-5.2	21.8
Belgium	17.74	15.58	19.87	16.48	15.44	13.34	14.14	-20.3	-28.8	6.0
Romania	18.30	14.01	19.24	17.10	16.65	14.03	14.23	-22.2	-26.0	1.4
Czechia	16.49	13.42	20.36	16.27	15.84	13.69	14.51	-12.0	-28.7	6.0
Latvia	18.87	16.34	18.42	15.5	14.85	13.46	14.64	-22.4	-20.5	8.8

Source: Eurostat data processing, accessed 16.03.2019.

In the period 2016-2017, the prices received by European farmers for the wheat were extremely low compared to 2013. Thus, the most significant decreases were registered in Sweden, where farmers received 28.9% less than the price received 4 years ago. The Romanian farmers received a price of 14.23 euro/100 kg in 2017, 26% less than the price received for the same quantity of wheat in 2013 (Table 1).

In contrast, analyzing the prices obtained by European farmers in 2017 as compared to 2016, it is noticed that better prices have been obtained in harvesting wheat production. In Romania, the price obtained for the recovery of 100 kg of wheat was 14.23 euro, 1.4% higher than the price received in 2016. The most significant price evolution in 2017 as compared to 2016 was recorded in Austria where farmers received 21.8% more for the

same amount (Table 1). These marked fluctuations in price, from one year to the next, are attributable to worldwide production. As demonstrated, over time, when climate conditions are favorable to agriculture and high yields of wheat, the prices received are low, instead, if the agricultural year is a difficult one and small productions are obtained, then the farmers receive good prices for the capitalization of production (Table 1). According to statistical data, in the European Union in 2017 58.9 million tons of barley were harvested, Romania recorded a production of 1.90 million tons of barley, while France had a production of 6 times bigger (12.1 million tonnes) (Table 2). Regarding the barley prices, an average price of 16.85 euros per 100 kilograms was recorded in Romania, while the best price for the same quantity in the analyzed countries.

Table2. Evolution of barley sales price in the main EU countries in the period 2007-2017 (euro / 100 kg)

Country	2007	2010	2013	2014	2015	2016	2017	2017/2007	2017/2013	2017/2016
Hungary	15.07	10.64	15.68	13.98	13.51	11.79	11.69	-22.4	-25.4	-0.8
United Kingdom	16.94	12.39	18.6	14.89	14.41	12.46	11.85	-	-36.3	-4.9
Luxembourg	17.10	12.53	14.7	13.02	14.21	11.30	12.52	-26.8	-14.8	10.8
Latvia	16.7	13.11	16.23	12.96	13.30	12.16	12.68	-24.1	-21.9	4.3
Slovenia	-	10.84	17.73	15.33	13.38	13.30	12.88	-	-27.4	-3.2
Sweden	19.45	14.36	15.95	13.80	13.22	12.43	12.94	-33.5	-18.9	4.1
Belgium	17.96	14.74	17.32	13.9	14.23	11.82	13.22	-26.4	-23.7	11.8
Croatia	-	-	16.55	16.21	15.73	13.15	13.45	-	-18.7	2.3
Estonia	15.42	12.50	16.51	16.5	14.88	12.76	13.56	-12.1	-17.9	6.3
Bulgaria	12.33	10.05	17.09	15.33	15.50	14.07	13.71	11.2	-19.8	-2.6
Lithuania	18.23	12.92	17.78	14.01	14.35	12.83	13.80	-24.3	-22.4	7.6
Poland	16.94	12.31	17.53	15.06	14.63	13.39	14.43	-14.8	-17.7	7.8
Czechia	14.17	12.33	20.82	19.39	16.61	14.91	14.51	2.4	-30.3	-2.7
Denmark	17.76	13.70	19.03	15.09	16.16	13.73	14.79	-16.7	-22.3	7.7
Slovakia	17.02	13.52	19.06	16.65	15.14	13.97	15.36	-9.8	-19.4	9.9
Greece	22.48	16.29	19.6	16.14	16.72	16.20	15.83	-29.6	-19.2	-2.3
Romania	20.10	13.77	23.53	20.25	19.35	17.82	16.85	-16.2	-28.4	-5.4

Source: Eurostat data processing, accessed 16.03.2019.

The lowest barley price was recorded in the UK, being 11.85 euro / 100 kg, 5 euros less than the value received by Romanian farmers (Table 2).

Reporting the value obtained by farmers in barley valorization in 2017 as compared to 2013, there is a significant decrease in price: if in 2013 the price obtained by the Czech

Republic in barley valorization was 20.82 euro / 100 kg, in 2017 the price a registered a decrease of 30.3%. Analyzing the same reference period, the Romanian farmers received a price of 23.53 euro / 100 kg in 2013, in 2017 the value of the barley recorded a significant decrease of 28.4% (Table 2).

Table 3. The evolution of the sale price of maize in the main EU countries in the period 2007-2017 (euro/100 kg)

Country	2007	2010	2013	2014	2015	2016	2017	2017/2007	2017/2013	2017/2016
Poland	17.42	14.82	15.99	13.02	13.56	12.18	12.80	-26.5	-19.9	5.1
Slovakia	17.14	14.89	17.27	12.87	13.96	12.83	13.50	-21.2	-21.8	5.2
Croatia	-	-	15.4	11.94	12.75	13.57	13.94	-	-9.5	2.7
Hungary	18.20	13.65	16.43	13.44	13.71	13.38	14.12	-22.4	-14.1	5.5
Austria	20.98	17.89	15.06	11.12	14.58	12.65	14.12	-32.7	-6.2	11.6
Slovenia	19.91	15.51	16.92	12.53	13.18	13.06	14.13	-29.0	-16.5	8.2
Lithuania	21.85	18.06	16.68	14.61	14.35	12.32	14.33	-34.4	-14.1	16.3
Czechia	15.07	12.98	19.48	15.43	13.86	14.43	14.36	-4.7	-26.3	-0.5
Bulgaria	14.32	14.16	15.59	14.21	13.99	14.24	14.58	1.8	-6.5	2.4
Romania	23.10	16.86	22.63	17.10	17.10	16.48	14.88	-35.6	-34.2	-9.7

Source: Eurostat data processing, accessed 16.03.2019.

In 2017, 65.1 million tons of grain corn and a mixture of corn and berries were harvested in the European Union. This year, the most important quantities of maize were harvested from France (14.53 million tonnes) and Romania (14.32 million tonnes) (Table 3).

Regarding the prices obtained at the harvesting of maize in 2017, the best price was obtained by Romania, of 14.88 euro / 100 kg, while Poland recorded the lowest price for the capitalization of maize production, only 12.80 euro/100 kg, 2 euro per 100 kg less than the value received by Romanian farmers (Table 3).

Analyzing by comparison the prices received in 2017 as compared to 2016, it is noted that for most of the analyzed countries, the prices obtained had a positive trend, with the exception of Romania where the price obtained in 2017 was about 10 percent lower than that received in 2016 (Table 3).

At the opposite end there is the comparison between the prices obtained in 2017 compared to those obtained in 2007. It can be noticed that the price of maize has a negative trend, most of the analyzed countries received a lower price in 2017 compared to 2007 The only country with an upward trend is

Bulgaria, which received a price of 14.32 euro/100 kg in 2007, while in 2017 the average price was 14.58 euro / 100 kg, increasing 1.8% (Table 3).

Table 4. The evolution of the rapeseed sale price in the main EU countries in the period 2007-2017 (euro/100 kg)

Country	2007	2010	2013	2014	2015	2016	2017	2017/2007	2017/2013	2017/2016
Slovenia	22.03	27.35	35.84	30.75	36.36	32.66	32.01	45.3	-10.7	-2.0
Croatia	-	-	34.1	30.38	34.56	31.58	32.02	-	-6.1	1.4
Netherlands	30.35	31.50	34.25	32.5	33.50	34.00	32.50	7.1	-5.1	-4.4
Austria	33.24	34.94	34.15	29.01	33.48	34.11	32.69	-1.7	-4.3	-4.2
Bulgaria	20.33	27.95	35.48	32.08	34.28	33.64	33.07	62.7	-6.8	-1.7
Sweden	33.38	39.00	36.41	30.89	33.72	35.18	33.80	1.3	-7.2	-3.9
Luxembourg	26.62	30.5	34.15	29.76	34.17	33.69	33.85	27.2	-0.9	0.5
Latvia	27.08	30.82	35.37	29.52	33.53	34.99	34.25	26.5	-3.2	-2.1
Romania	23.70	29.68	35.53	30.16	36.89	34.96	34.58	45.9	-2.7	-1.1

Source: Eurostat data processing, accessed 16.03.2019.

In the period 2003-2018 at the European Union level, the area planted with rape was increased by 66%, from 4.1 to 6.8 million hectares. EU production has reached 20 million tonnes - mainly driven by biodiesel demand (the Renewable Energy Directive). Its by-product (rape meal) is an important source of high-protein feed. The main producers of rapeseed are France, Germany and Poland.

As regards the prices of rapeseed, they have seen an upward trend, determined on the one hand by the increasing demand for this oil plant, both as a renewable energy source and as a widespread use of rapeseed in the feed ration of animals (Table 4).

In Romania, the area planted with rapeseed has grown annually, rapeseed being the crop that brings the first money to the farm every agricultural year. The prices received at the capitalization have fluctuated, determined on

the one hand by the international context, and on the other hand by the quantity harvested in the country at the end of the rape season. The best price received was recorded in 2015 when, for 100 kg of rape, farmers received 36.16 euros. At the opposite end, the lowest price was registered in 2007, when the Romanian farmer received 23.7 euros for the capitalization of 100 kg of rapeseed. By comparison, the average price recorded for rape in 2017 was 45.9% compared to 2007 (Table 4).

Looking at the average prices recorded in 2017 as compared to 2016 it is noted that for most of the analyzed European countries, the trend is a downward trend. Exceptions are made by Croatia and Luxembourg, where there is a slight increase in the average price of 1,4% (Croatia) and 0,5% (Luxembourg) (Table 4).

Table 5. The evolution of sunflower sales price in the main EU countries in the period 2007-2017 (euro/100 kg)

Country	2007	2010	2013	2014	2015	2016	2017	2017/2007	2017/2013	2017/2016
Austria	32.56	39.59	29.52	24.51	33.71	30.10	28.39	-12.8	-3.8	-5.7
Croatia	-	-	25.56	23.39	31.76	29.35	29.56	-	15.6	0.7
Romania	25.20	28.25	35.98	28.35	33.74	33.63	29.99	19.0	-16.6	-10.8
Slovakia	34.14	34.67	32.4	27.8	34.34	32.40	31.17	-8.7	-3.8	-3.8
Bulgaria	22.59	27.52	31.05	30.57	35.67	35.61	32.20	42.5	3.7	-9.6
Hungary	34.02	32.83	33.62	31.18	36.34	33.98	32.35	-4.9	-3.8	-4.8
Czechia	26.85	28.32	40.84	30.69	32.59	35.70	33.96	26.5	-16.8	-4.9
Greece	25.00	38.50	40.23	35	35.00	35.00	35.00	40.0	-13.0	0.0
Portugal	32.45	32.50	35.00	33.00	37.50	37.89	38.50	18.6	10.0	1.6

Source: Eurostat data processing, accessed 16.03.2019.

In 2017 the production of sunflower obtained in Romania was 3.167 million tonnes and the average yield per hectare reached the value of 2,725 kg/ha. According to the National Institute of Statistics, counties with a higher share of total sunflower production were Braila (9.5%), Constanta (8.9%), Dolj (8.0%),

Olt (6.1%), Teleorman (6.0%). In terms of the area planted with sunflower in 2017, Romania ranks first in the European Union (Table 5).

Regarding the average prices for harvesting sunflower production in the year 2017, the best prices were obtained in countries such as Portugal (38.5 euro/100 kg), Greece (35

euro/100 kg), Czech Republic (33.96 euro/100 kg), Hungary (32.35 euro/100 kg) and Bulgaria (32.2 euro/100 kg). In Romania, the sunflower oil price was small, compared to other countries, of only 29.99 euro/100 kg, by 8,6 euro lower than the price recorded in Portugal.

Looking at the prices recorded in 2017 with those obtained in 2007, we notice an upward trend for most of the analyzed countries, so

that the most significant price increases are recorded in Bulgaria (42.5%) and Greece (40%). At Romania level, the price increase is only 19% (Table 5). However, analyzing the prices of 2017 compared to those obtained in 2016, it is noted that the trend is predominantly descending, so the most significant decreases are recorded in the countries: Romania (10.8%), Bulgaria (9.7%) and Austria (5.7%) (Table 5).

Table 6. Dynamics of the sales price of wheat for bakery in Romania during 2012-2017 (euro/100 kg)

Year	Wheat	Dynamic index		Dynamic rhythm (%)		The absolute value of a percentage of the change rate	
		with fixed base	with chain base	with fixed base	with chain base	with fixed base	with chain base
	euro / 100 kg						
2012	20.41	0	0	0	0	0.2041	0
2013	19.24	0.9427	0.9427	-5.7325	-5.7325		-0.0117
2014	17.10	0.8378	0.8888	-16.2175	-11.1227		-0.0214
2015	16.65	0.8158	0.9737	-18.4223	-2.6316		-0.0045
2016	14.03	0.6874	0.8426	-31.2592	-15.7357		-0.0262
2017	14.23	0.6972	1.0143	-30.2793	1.4255		0.002

Source: Eurostat data processing, accessed 16.03.2019.

Absolute fixed base changes are noted in the fact that the sales price of wheat is downwards, with the exception of the year 2016, when it was 14.03 euro / 100 kg, about 31% lower than in the reference year. Reporting each year to the previous one, thus calculating the dynamics of the sales price of bread for bread, we note that the absolute values with the base chain register the highest

increase in 2017 compared to 2016 and the opposite is the price recorded in the year 2016, compared to 2015 (a decrease of about 16%). Analyzing the absolute value of a percentage change in the rate of change, we note that the 1% increase in the sale price of bread wheat in any year compared to the reference year is equivalent to an absolute increase of 0.2041 euro / 100 kg (Table 6.).

Table 7. Dynamics of the sale price of rapeseed in Romania during 2012-2017 (euro / 100 kg)

An	Rape	Dynamic index		Dynamic rhythm (%)		The absolute value of a percentage of the change rate	
		with fixed base	with chain base	with fixed base	with chain base	with fixed base	with chain base
	euro / 100 kg						
2012	41.04	0	0	0	0	0.4104	0
2013	35.53	0.8657	0.8657	-13.4259	-13.4259		-0.0551
2014	30.16	0.7349	0.8489	-26.5107	-15.1140		-0.0537
2015	36.89	0.8989	1.2231	-10.1121	22.3143		0.0673
2016	34.96	0.8519	0.9477	-14.8148	-5.2318		-0.0193
2017	34.58	0.8426	0.9891	-15.7407	-1.0870		-0.0038

Source: Eurostat data processing, accessed 16.03.2019.

Analyzing the dynamics of the rapeseed sale price in Romania, we note that absolute base-based changes show an oscillating trend, with significant variations over the reference year. With regard to the dynamics of the rapeseed sale price, by reporting each year to the previous one, we note that the absolute values

with the base chain register the most pronounced increase in 2015 compared to 2014 (increase over 22%). At the opposite is the price recorded in 2014 to 2013, representing a decrease of about 15%. Analyzing the absolute value of a percentage of the change rate, we can say that the 1%

increase in the sale price of rapeseed in any year compared to 2012 is equivalent to an absolute increase of 0.4104 euro/100 kg (Table 7).

CONCLUSIONS

More than 12 years after Romania's accession to the European Union, but also benefiting from two National Rural Development Programs (NRDP) worth 16.3 billion euros, rural space has changed and businesses in the field agriculture have developed. Part of the funding received from the European Union was used by Romanian farmers to build grain storage facilities, which helped farmers get a better price to capitalize on production. However, existing storage facilities are still insufficient to make the difference in the market. Still, the price of agricultural products is seasonal, as most agricultural producers sell their grain at the time of harvest. The high supply of agricultural products during the harvest period affects the sales price, as traders are the ones who decide on the market price.

At the same time, the subsidies, which most often make the difference between the profit and the loss for the Romanian farmers, play a very important role. This should also be taken into account in the future of the CAP (after 2020).

Without a Romanian stock market where the price of cereals and the disadvantage of the geographical location of Romania in the immediate vicinity of the most grain producers Ukraine and Russia, our country can not influence the price of cereals. Also, the absence of road infrastructure determines the differentiation of the price received by farmers, depending on the positioning of their farms towards Constanta Port, as the largest quantity of grain is exported from the country through Constanta Port. [6]

Equally, the output obtained at national level is the one that determines the farm gate sales price. When weather conditions are favorable and large grain quantities are being obtained, the price falls substantially, as the supply is significant, instead, if the weather conditions

are more difficult and the yields are small in quantity, then the sales price suffers a slight increase, as the supply of cereals in the market is limited.

REFERENCES

- [1]Bălan, E., M., 2017, World trade in cereals, World Economy Review, Vol. 9 (1), 66-74.
- [2]Dumitru, E.A., Micu, A. R., Alecu, I.N. *et al.*, 2017, Analysis of the Situation of Romanian Village - Case Study Grindu Commune, Ialomita County, Conference: 29th International-Business-Information-Management-Association Conference Location: Vienna, Austria, vol. I-VII, 740-747.
- [3]Dumitru, E. A., Tudor, V. C., Micu, A. R. *et al.*, 2017, Analysis Regarding The Direct Payments In The European Union, Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development Vol. 17 (4), 113-116.
- [4]Gevorkyan A.V., 2019, Exchange market pressure and primary commodity - exporting emerging markets, Applied Economics, Vol. 51 (22), 2390-2412.
- [5]Micu, M. M., Tudor, V., 2012, Distribution Of Farms And Utilized Agricultural Area Of Romania By The Size Classes According To Legal Personalities, Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development Vol. 12 (1), 127-132.
- [6]Micu, A. R., Tudor, V., Dumitru, E. A., 2018, Researches On The Capacity Of Marketing Agricultural Crop Production In The South-West Oltenia Region, Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development Vol. 18 (4), 187-192.
- [7]Popescu, A., 2018, Romania's Sunflower Seeds Production, Export And Import- Analysis Of The 2007-2017 Period And Forecast For 2018-2022 Horizon, Vol.18 (4), 261-269.
- [8]Popescu A., 2018, Maize And Wheat - Top Agricultural Products Produced, Exported And Imported By Romania, Vol. 18 (3), 339-352.
- [9]Roussy, C., Rider, A., Chai, K. *et al.*, 2018, Marketing contracts and risk management for cereal producers, Agribusiness, Vol. 34 (3), 616-630.
- [10]Tudor, V., Micu, M.M., Temocico, G., 2013, Mutations in Romanian Agriculture after De-Collectivization and Privatization, Conference: 20th International Economic Conference of Sibiu - Post Crisis Economy - Challenges and Opportunities (IECS) Location: Sibiu, Romania, Vol. 6, 424-429.
- [11]Wolz, A., Moellers, J., Micu, M. M., 2018, Cooperation Among Individual Farmers In Romania: Constraints And Options, Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development Vol. 18 (2), 489-492.
- [12]Zahiu, L., 2010, European Union agriculture under the impact of the Common Agricultural Policy, Publisher Ceres, 76-102.