

ANALYSIS OF THE SITUATION OF THE WHEAT CROP ON MACROREGIONS IN ROMANIA

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Abstract

In Romania's agriculture, wheat occupies an important place both in terms of cultivated area and production. The purpose of this paper is to analyze the evolution of the wheat sector at national level in the period 2013-2017. In order to accomplish this study, a series of indicators reflecting the current situation in this species were analyzed: total area cultivated on macroregions and development regions, total production, average production per hectare, average purchase price on the domestic market, value of import and export and the trade balance. From the data analysis it can be appreciated that the area cultivated with wheat at the national level is relatively constant, with small variations recorded at macroregions level. Regarding the total production, it had an upward trend over the whole period, from 7,296,373 t in 2013 to 10,034,955 t in 2017, the second and third macroregions having the biggest shares. Regarding the trade balance, it registered surplus over the whole interval but with a downward trend, the average of the period recorded values of 781,504.4 thousand euros.

Keywords: *wheat, import, export, production, trade balance*

Introduction

Cereals are part of the agricultural raw materials category and are of particular importance for world agriculture as they are the essential element of human food and animal feed. In this context, trade with cereals between the world's states is dynamic. Wheat is part of the group of grain cereals and represents an important culture for Romania's agriculture. The interest in this culture is given by the high content of protein and carbohydrates in the grains and high environmental plasticity. Production is a quantitative character with high variability, and conditioned by several factors: precipitation, applied technology, harmful organisms, variety choice, etc. Referring to the price of wheat production, it can be determined by several factors, mainly because of the interaction of demand and supply, the level of the obtained production and the situation of the national wheat stocks.

The objective of the paper is to analyze the evolution of the cultivated areas, of the wheat production on macroregions and development regions in Romania in the last years, as well as the general presentation of the trade trends of this species.

1. Literature review

In Romania, agriculture is one of the main branches of the economy, its contribution to GDP formation (together with forestry and fishing) varied around 4.4% at the end of 2014 (Cristea et al., 2015). Of the total agricultural land used, about 60% (8.2 million ha) represents cultivated arable land, of which about 66% (5.4 million ha) is cultivated with cereals, mainly wheat and corn (PwC, 2017).

Wheat is part of the cereal range and is a product of great importance in ensuring national food security. This species is an important source of income for farms in the countryside and for the country's economy due to domestic and international trade (Roman et al., 2013).

Also, wheat is an important crop for Romania, with favorable economic influences for local producers, and it is necessary to apply appropriate measures to protect growers to exploit the existing national potential (Medelete et al., 2018). In Romania, producer groups can play an important role in agricultural production planning in order to adapt it to the requirements of the quantitative and qualitative market (Boboc et al., 2017). The wheat market provides the necessary production to meet human needs, but also offers significant quantities of exports (Soare and Chiurciu, 2016).

Romania is trying to strengthen its position of grain producer as the main exporter in the EU. Starting with 2007, Romania recorded a trade surplus in foreign trade in wheat. However, the productivity per hectare is below the European average, indicating an insufficiently exploited agricultural potential and a high degree of dependence of crops on weather conditions (Bacanu et. al., 2017).

The year 2017 was favorable for grain production due to good weather conditions during the development period. According to a report by World's Top Export, Romania ranks 9th among the top countries in the world that exported the highest wheat worth \$ 1.1 billion (2.9%) in 2017. Romania also imported \$ 229.2 million, or 0.6% of the world's total (Workman, 2018).

2. Material and method

In this paper, data on the analysis of the wheat market in Romania were processed during 2013-2017. Data were collected from national and international statistical bases, such as the National Institute of Statistics (NIS) and the Ministry of Agriculture and Rural Development (MADR) website, World's Top Exports, on macroregions and development regions and statistically interpreted. It was analyzed the evolution of the cultivated area and the total production of wheat on macroregions and development regions, as well as average yield per hectare, average purchase price in the domestic market, export and import value and trade balance for this species. Thus, a dynamic analysis of these indicators was carried out to give an overview of the wheat crop situation in Romania.

3. Results and discussions

The agricultural sector is an important one for the national economy. Among the crops of importance in this field is wheat, as the total cultivated area is quite extended in Romania. The evolution of the areas cultivated during the period 2013-2017 with wheat is presented in Table 1.

Table 1. Area cultivated with wheat (Ha) in Romania during the period 2013-2017

Macroregions And Development Regions	Year 2013		Year 2014		Year 2015		Year 2016		Year 2017	
	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%
	Macroregion One	209,560	9.96	214,230	10.14	236,133	11.21	235,339	11.01	231,427
North-West Region	119,514	5.68	122,922	5.82	146,614	6.96	144,662	6.77	142,875	6.96
Central Region	90,046	4.28	91,308	4.32	89,519	4.25	90,677	4.24	88,552	4.31
Macroregion Two	667,756	31.74	665,414	31.49	667,922	31.71	647,598	30.29	602,029	29.33
North-East Region	152,736	7.26	158,401	7.50	168,028	7.98	167,812	7.85	149,284	7.27
South-East Region	515,020	24.48	507,013	24.00	499,894	23.73	479,786	22.44	452,745	22.05
Macroregion Three	616,988	29.32	608,942	28.82	603,965	28.67	606,413	28.37	600,581	29.26
South-Muntenia Region	597,630	28.40	590,583	27.95	585,434	27.79	588,039	27.51	582,361	28.37
Bucuresti Ilfov Region	19,358	0.92	18,359	0.87	18,531	0.88	18,374	0.86	18,220	0.89
Macroregion Four	609,681	28.98	624,280	29.55	598,571	28.41	648,381	30.33	618,880	30.15
South-West Oltenia Region	387,170	18.40	382,036	18.08	363,815	17.27	399,710	18.70	404,784	19.72
West Region	222,511	10.58	242,244	11.47	234,756	11.14	248,671	11.63	214,096	10.43
TOTAL	2,103,985	100	2,112,866	100	2,106,591	100	2,137,731	100	2,052,917	100

Source: INS, Own calculation.

Thus, the largest area of wheat at the national level in the studied period was cultivated in 2016, of 2,137,731 ha. Of the total area cultivated this year, the largest shares were owned by the Macroregion 4 by 30.33% and the Macroregion 2 by 30.29%, while the Macroregion 1 holds the lowest share of 11.01%.

In 2017, it is noted the smallest total cultivated area of 2,052,917 ha. This situation comes from Macroregion 2, where the area has decreased significantly by 65,727 ha (-9.85%). Regarding the regions, compared to the first year of the studied period (2013), the areas have also decreased in 2017 in the North-East (149,284 ha) and the South-East (452,745 ha). Concerning the share of the areas, the Macroregion 1 had the smallest area (11.27%), and the Macroregion 4 had the largest share (30.15%), followed closely by the other two (Table 1).

The area cultivated with wheat at national level is an important factor that directly influences the production of farmers (Soare and Chiurciu, 2016).

In the normal harvest years, Romania owns about 5% of total EU-27 wheat production, this share is due to the benefits of pedoclimatic factors (large cultivated areas, favorable climate) (Constantin, 2013). Also, other authors (Băcanu et al., 2017) affirm that the lack of rainfall or their insufficiency leads to the fluctuation of crops in Romanian agriculture, which does not have an irrigation system developed at national level.

The evolution of wheat production in the period 2013-2017 is presented in Table 2.

Table 2. Evolution of wheat production (tons) in Romania during the period 2013-2017

Macroregions And Development Regions	Year 2013		Year 2014		Year 2015		Year 2016		Year 2017	
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
Macroregion One	753,717	10.33	810,198	10.68	904,947	11.37	833,039	9.88	985,471	9.82
North-West Region	455,524	6.24	472,422	6.23	570,476	7.16	488,888	5.80	607,996	6.06
Central Region	298,193	4.09	337,776	4.45	334,471	4.20	344,151	4.08	377,475	3.76
Macroregion Two	2,145,089	29.40	2,296,563	30.28	2,359,482	29.63	2,621,451	31.09	2,934,706	29.24
North-East Region	484,599	6.64	529,045	6.98	509,032	6.39	605,596	7.18	643,904	6.42
South-East Region	1,660,490	22.76	1,767,518	23.30	1,850,450	23.24	2,015,855	23.91	2,290,802	22.83
Macroregion Three	2,335,210	32.01	2,286,473	30.15	2,443,208	30.68	2,493,160	29.57	3,068,971	30.58
South-Muntenia Region	2,254,405	30.90	2,212,388	29.17	2,364,796	29.70	2,416,773	28.66	2,985,541	29.75
Bucuresti - Ilfov Region	80,805	1.11	74,085	0.98	78,412	0.98	76,387	0.91	83,430	0.83
Macroregion Four	2,062,357	28.27	2,191,580	28.89	2,254,784	28.32	2,483,481	29.46	3,045,807	30.35
South-West Oltenia Region	1,096,190	15.02	1,221,507	16.10	1,209,997	15.20	1,325,051	15.72	1,916,770	19.10
West Region	966,167	13.24	970,073	13.30	1,044,787	14.32	1,158,430	15.88	1,129,037	15.47
TOTAL	7,296,373	100	7,584,814	100	7,962,421	100	8,431,131	100	10,034,955	100

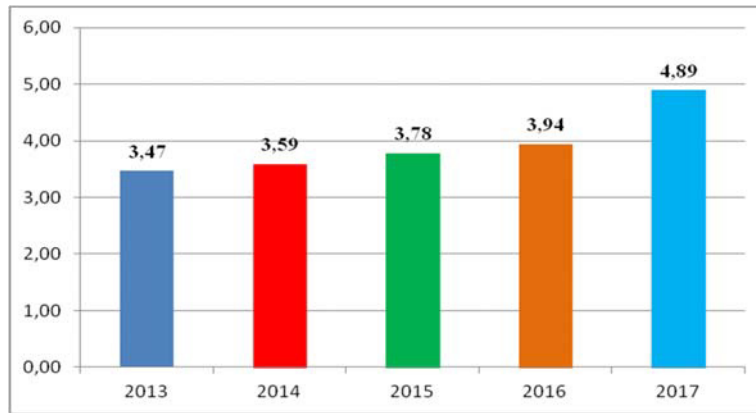
Source: INS, Own calculation.

National wheat production in the period 2013-2017 had a strictly upward trend, from 7,296,373 t in 2013 to 10,034,955 t in 2017, which means an increase of 37.5%. The increase in the level of production does not come from the expansion of the cultivated areas, this being an oscillating one in the analyzed period, but from the increase in wheat yields. Also, significant increases are recorded in all macroregions, in 2017 being in competition Macroregions 3 and 4, with 30.58 and 30.35% shares. The region with the highest production at national level was South-Muntenia with 2,985,541 t (Table 2).

Romania has made significant advances in wheat production, managing, after 2007, a trade surplus in foreign wheat trade (Voicilas, 2014). However, the yields per hectare are well below the European average, due to the dependence of crops on weather conditions.

Average national production per hectare had an upward trend over the period studied (Fig. 1). Thus, in 2013, the average yield was 3.47 t/ha and gradually increased, reaching 4.89 t/ha in 2017. This increase can be explained by the continuous improvement of crop technologies by farmers.

Figure 1. Average production per hectare at national level (t/ha)



Source: INS, 2018.

As regards the purchase price of wheat on the domestic market, the situation is presented in Table 3 (madr.ro). During the period 2013-2016, the value of the price decreased considerably from 0.85 lei/kg to 0.63 lei/kg, a decrease of -25.84%, compared to the first year of the dynamic series (Table 3). This is due to the fact that a higher quantity of wheat is obtained on the domestic and foreign markets, but also to the decrease of the international purchase price.

Table 3. The average purchase price variation for wheat in Romania during the period 2013-2016

Year	Average price (lei/kg)	Variation (%)
2013	0.85	100
2014	0.75	-11.76
2015	0.74	-12.94
2016	0.63	-25.84

Source: MADR, Own calculation.

In order to have an overview of wheat trade, import and export value was also analyzed during 2013-2017.

Some authors sustain that the ability of a country to face challenges in the international market depends upon the export competitiveness of the country (Kedar and Inder, 2003). In Romania's external cereal trade, the main items are wheat and maize, with over 40% share for both exports and imports (Panzaru et al., 2018).

Regarding the value of wheat exports, it was recorded an average of 964,964.4 euro (-4.51% in dynamics), which has values between 165.68% in dynamics for 2016 and 72.73% for 2015. In the year 2017, it is observed that the value of exports was lower by 12.94% in dynamics (Table 4).

Wheat exports nationwide have been growing since 2013, according to a report on the analysis of the agricultural sector situation in Romania. In 2015, Romania ranks 9th among

global wheat exporters (PwC, 2017). In 2016, almost 80 percent of this volume consisted of exports outside the European Union (Dobrescu, 2017).

Table 4. Value of Export and Import (FOB, CIF) in Romania during the period 2013-2017

Year	Specification	Export	Import	Trade Balance (±)
2013	Thousands of euros*	989,699	127,699	862,000
2014	Thousands of euros*	963,274	120,020	843,254
	2014/2013** (%)	97.33	93.99	-
2015	Thousands of euros*	700,571	120,701	579,870
	2015/2014** (%)	72.73	100.57	-
2016	Thousands of euros*	1,160,732	337,362	823,370
	2016/2015** (%)	165.68	279.50	-
2017	Thousands of euros*	1,010,546	211,518	229,041.6
	2017/2016** (%)	87.06	62.70	-
Average**	Thousands of euros	964,964.4	183,460	781,504.4
	Average/2017 (%)	95.49	86.73	-

Source: INS, Own calculation.

In terms of wheat imports, indicator dynamics records sub-unit values for the years 2014 and 2017, but also for the average of the period. Surplus values were recorded for the years 2015 and 2016. In the year 2016 there was the most significant increase for both imports of 179.50% and exports of 65.68% (Table 4). Wheat exports amounted of 1,160,732 thousand euro and imports of 337,362 thousand euro, these being the highest values in the analyzed period. In 2017 there was a significant decrease of -37.3% and the average was 183,460 € (-13.27% in dynamics). This situation is determined by the fluctuation of annual, positive or negative values. Arghiroiu et al. (2015) argues that although it is massively imported in many areas, the situation seems to be improving in recent years as regards the total balance of trade balance due to the major influence of cereals and oilseeds.

The level of competitiveness of the Romanian wheat sector can be measured by the commercial balance. The trade balance situation for wheat is shown in Table 4.

It can be noticed that from the total area cultivated with wheat, the commercial balance is a positive one in all years studied. In 2013 there was a budget surplus of 862,000 thousand euros, the year in which it was registered the highest value. In the following years, the trend was uneven and slightly declining compared to the first year of the dynamic series. In 2015 the lowest value of the budget surplus was recorded, namely 579,870 thousand euros.

In the EU, the cereals market is mainly supported by the intervention mechanism, high import tariffs and export subsidies. Since 2008, arable crops including cereals have been integrated into the Single Common Market Organization and EU policy is limited to two main areas: market intervention measures and trade measures (Constantin, 2013).

Conclusions

During the studied period, Macroregions 2, 3 and 4 are in close competition, each having a better and a less represented region. In other words, the regions with the largest cultivated areas are South-Muntenia, South-East and South-West Oltenia, due to the appropriate land and soil suitable for grain cultivation compared to other areas. The total area at national level was slightly oscillating, maintaining an average of 2,102,818 ha over the studied period. Among the regions, South-Muntenia has the largest area cultivated with wheat and the highest production at national level.

National production has recorded significant increases in all macroregions and regions. Wheat production at national level in the period 2013-2017 had a strictly upward trend, which means an increase of 37.5%. This increase is not due to the expansion of the cultivated areas but to the increase of the production obtained on the surface, mainly due to the improvement of the culture technology and favorable weather conditions in some years.

Trade balance is a positive one in all years of study. The trend of trade was uneven, with a slight downward trend compared to the first year of the dynamic series. In 2015, the lowest value of the budget surplus was registered, and the year 2016 was marked by high values both on import and export. Also, the average of the period recorded surplus values of 781,504.4 thousand euros.

Wheat production in Romania is important both for domestic and export demand, but it depends on the weather conditions in a particular region and on the technology applied by farmers. On the basis of the analysis carried out, it can be appreciated that the measures to support the farmers through the various programs carried out in the agricultural sector had a positive effect on the increase of the production per unit area and the total production of wheat. In order for Romania to strengthen its position as a major wheat producer in the region, it is necessary to continue the measures to support the producers and to improve the quality of the obtained products.

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