

DYNAMICS OF VEGETABLE AGRICULTURAL PRODUCTION IN GIURGIU COUNTY, ROMANIA

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Abstract

This paper aims to present the evolution of agriculture in the Giurgiu County, during the period 2014-2018, analyzing in particular one of the two major components, namely the vegetal production. Regarding the active population in Giurgiu County, 41.69% is involved in agriculture. In order to highlight the main tendencies of the vegetal production in the Giurgiu County, the areas cultivated with: main cereals, main oilseeds plants, potatoes, melons, perennial fodder, vegetables, as well as the areas occupied by orchards in bearing, flowers and ornamental plants, vineyards in bearing were studied. Wheat occupies the largest area within this county. In 2018, the largest areas were cultivated with wheat - 85,861 ha, maize - 44,404 ha and sunflower - 27,350 ha. For the analyzed period, there were increases in the surface of oats, rapeseeds, soybeans, perennial fodder, vineyards in bearing, flowers and ornamental plants. Apart from rye, sunflower and potatoes, for the other crops analyzed, production increases are recorded.

Key words: agriculture, agricultural production, cultivated area, Giurgiu County

INTRODUCTION

Giurgiu County is one of the 7 Counties that make up the South-Muntenia Development Region, NUTS 2, according to the Annex I of the EC Regulation No. 1059/2003 [4].

It is located in the south-eastern part of Romania, in the historical province of Muntenia. It has a surface of 3,526 km² and as neighbours the County of Călărași, the County of Teleorman, the County of Ilfov, the County of Dâmbovița, the County of Argeș, and in the South, on a length of 72 km, the Danube [12]. The highlighted relief forms are the Danube Lunca and the Romanian Plain. The surface of the county is made up of forests and arable land. Due to this fact, Giurgiu County is predominantly agricultural, with almost 50% of the population involved in agriculture.

Giurgiu municipality is an important border crossing point and an important port on the Danube [1].

From an economic point of view, the South Muntenia Region is among the least developed regions. The GDP/inhabitant below 75% of the EU average. In 2015, in the South Muntenia Region, the GDP / capita reached

Lei 28,436.4 being 21.92% smaller than the average GDP / capita in Romania [11].

Labor employment in agriculture places the South-Muntenia Region on the third place [5].

MATERIALS AND METHODS

Statistical data was taken from the National Institute of Statistics (NIS) website, in order to achieve this study. For capturing the major trends in the evolution of agriculture in the Giurgiu County a number of indicators were analyzed and a wide range of specialized materials were consulted.

The main indicators analyzed in this study are: the population occupied with activities in agriculture, forestry, fishing, in this County; areas cultivated with wheat, corn, rye, barley and beer barley, oat, sunflower, rapeseed, grain, soybeans, potatoes, vegetables, melons, perennial fodder, orchards, vineyards, flowers and ornamental plants in Giurgiu County; total production of wheat, corn for grains, rye, barley and beer barley, oat, sunflower, rapeseed, soy beans, potatoes, vegetables, fruits and grapes for the Giurgiu County. The

indicators of this study were analyzed for the period 2014-2018.

RESULTS AND DISCUSSIONS

Located on the left bank of the Danube, Giurgiu county has the plain as the predominant form of relief, which has determined agriculture to have a significant share in the economy of the County.



Fig. 1. Map of Giurgiu County
 Source: [12].

From the data collected from NIS, it appears that, in the year 2018, out of the total of 79.4 thousand people engaged in activities for the national economy in the Giurgiu County, 41.69% worked in agriculture, forestry and fishing, more exactly 33.1 thousand people.

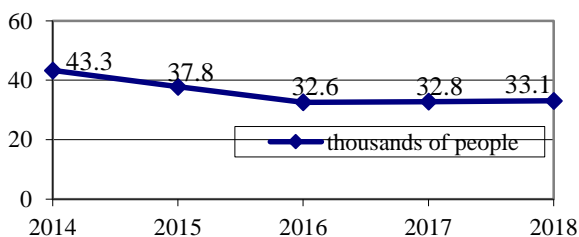


Fig. 2. Dynamics of population by their activity in agriculture, forestry, fishing (thousands of people) in the Giurgiu County, 2014-2018
 Source: NIS, 2019, [10].

Figure 2 highlights the dynamics of civilian employment in agriculture, forestry and fishing for the Giurgiu County during 2014-2018. There is a tendency to decrease the number of persons involved in specific activities in these sectors, by 23.56%, in 2018 compared to 2014, when the highest value of this indicator was registered.

As a large number of people perform agricultural activities, measures are needed to develop this sector. With the accession to the European Union agriculture is sustained by the structural funds, alongside the measures to develop the rural space [8].

According to NIS data, in 2014 the arable area of the Giurgiu County was 258,965 ha, the one occupied by orchards and fruit nurseries of 584 ha and vineyards and vine nurseries 3,664 ha. After the arable area, Giurgiu County occupies the 4th place in the South-Muntenia Development Region.

In this context, the paper will present the areas cultivated with the main agricultural and horticultural crops, as well as the production obtained.

Thereby, Table 1 shows the areas cultivated with rye, wheat, grain maize, barley and beer barley and oat in the period 2014-2018.

The wheat is the crop that occupied the largest area in Giurgiu County, 85,861 ha in 2018. If in 1990 maize was the crop with the most cultivated ha (69,720 ha, according to NIS), in 2018 the places were reversed and on the first place was wheat. Other crops that occupied important areas in 2018 are: maize - 44,404 ha; barley and beer barley - 22,598 ha.

The area cultivated with wheat in 2018, in Giurgiu County represents 14.57% of the total area cultivated with wheat in the South-Muntenia Development Region.

Table 1. The area cultivated with the main cereals (ha) in the Giurgiu County, during the period 2014-2018

Nr. crt.	Specification	2014	2015	2016	2017	2018	2018/2014 %
1.	Rye	33	21	20	47	25	75.76
2.	Wheat	88,966	92,471	83,583	82,572	85,861	96.51
3.	Maize	49,789	56,105	51,957	44,581	44,404	89.18
4.	Barley and Beer Barley	31,370	23,975	25,187	25,041	22,598	72.04
5.	Oat	720	761	668	801	789	109.58

Source: Own calculation based on NIS, Tempo On-line Database, 2019, [10].

Analyzing the data presented in the table above, we notice an increase in the surfaces cultivated with oats, of 9.58%, and for the other cultures, a decrease of the surfaces. Barley and beer barley crops recorded the largest decrease, 27.96%. For wheat and maize crops, the largest cultivated areas were registered in 2015 and for rye, barley and beer barley in 2014.

In table 2 we find data on the evolution of the areas cultivated with the main oilseeds plants in the period 2014-2018. The crop that has met the largest surface in 2018 is sunflower - 27,350 ha. Except for the sunflower crop (with a decrease of 26.49% of the surfaces), for the other crops there were increases, the highest being in rapeseed.

Table 2. Area cultivated with the main oilseeds plants (ha) in the Giurgiu County during 2014-2018

Nr. crt.	Specification	2014	2015	2016	2017	2018	2018/2014 %
1.	Sunflower	37,207	37,439	32,646	29,819	27,350	73.51
2.	Rapeseed	18,418	13,868	21,490	25,372	27,079	147.03
3.	Soy beans	2,387	5,131	3,610	6,771	5,154	215.92

Source: Own calculation based on NIS, Tempo On-line Database, 2019, [10].

As shown in the previous table, for sunflower, the largest cultivated area was registered in 2015, for rapeseed in 2018, and for soybean in 2017.

Sunflower was the crop which was cultivated most of the oilseeds plants and in 1990 - 14,082 ha, according to NIS. After 28 years, the sunflower remains in the preferences of

the cultivators from Giurgiu County, who almost doubled these areas.

The area cultivated with sunflower in 2018, in Giurgiu County represented 12.63% of the total area cultivated with sunflower in the South-Muntenia Development Region.

Table 3. Area cultivated with different crops (ha) in the Giurgiu County, 2014-2018

Nr. crt.	Specification	2014	2015	2016	2017	2018	2018/2014 %
1.	Potatoes	667	651	580	577	579	86.81
2.	Vegetables	5,070	5,005	4,377	4,345	4,553	89.80
3.	Watermelons and melons	297	278	313	270	263	88.55
4.	Perennial fodder	9,370	10,590	10,572	11,554	10,653	113.69

Source: Own calculation based on NIS, Tempo On-line Database, 2019, [10].

Table 3 presents the surfaces cultivated with different crops, in Giurgiu County, between 2014 - 2018. Perennial fodder increased by 13.69%, while potatoes, vegetables and melons decreased. The largest decrease was noted in potatoes, 13.19%.

The vegetables from Giurgiu County, which occupies the largest area of the crops presented in tables 3, represented 11.02% of the total vegetable surfaces in the South-Muntenia Development Region.

Figure 3 shows the dynamics of orchard-cultivated areas for Giurgiu County. The highest value was in 2014, of 328 ha and the lowest in 2016, of 293 ha.

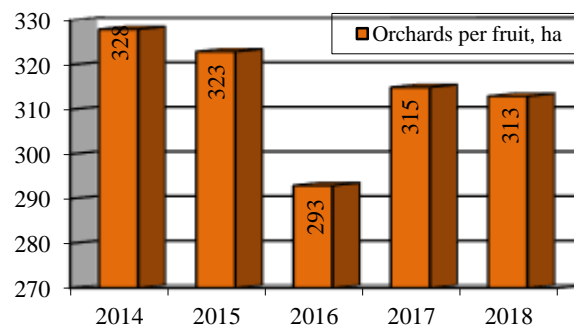


Fig. 3. Dynamics of orchards (ha) per fruit in the Giurgiu County during 2014-2018

Source: own processing based on NIS, Tempo On-line Database, 2019, [10].

Although from 2016, the areas occupied with orchards registered a slight increase in Giurgiu County, in 2018, compared to 2014, a decrease of 4.57% is noted. It should be noted that the orchards are owned by the private sector. Giurgiu County owns only 0.79% of the total area with fruit orchards in the South-Muntenia Development Region.

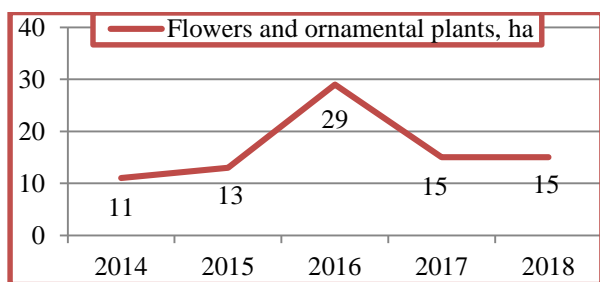


Fig. 4. Dynamics of flowers and ornamental plants (ha) in the Giurgiu County during 2014-2018
 Source: own processing based on NIS, Tempo On-line Database, 2019, [10].

Figure 4 shows the surfaces cultivated with flowers and ornamental plants in the period 2014-2018. For this period, the largest area is found in 2016, of 29 ha, and the smallest, of 11 ha, in 2014.

The areas occupied with flowers and ornamental plants registered an increase in 2018, compared to 2014, with 36.36%. These areas are owned by the private sector.

Giurgiu County owns only 26.32% of the total area cultivated with flowers and ornamental plants located in the South-Muntenia Development Region.

Figure 5 shows the dynamics of vineyards-cultivated areas for Giurgiu County. The highest value was in 2018, of 3,727 ha and the lowest in 2017, of 3,432 ha.

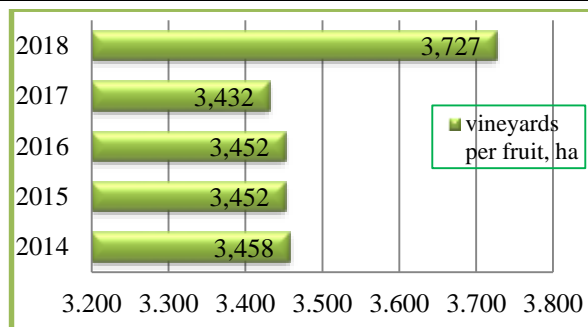


Fig. 5. Dynamics of vineyards (ha) in bearing in the Giurgiu County during 2014-2018
 Source: own processing based on NIS, Tempo On-line Database, 2019, [10].

Although the areas occupied with vineyards in bearing registered a slight decrease in 2017, compared to 2014, an increase of 7.78% is observed in 2018. Of the total vineyards registered in 2018 (3,727 ha), 3,446 ha are owned by the private sector. Giurgiu County owns only 13.78% of the total area of vineyards in bearing in the South-Muntenia Development Region.

Table 4 highlights the production in the period 2014-2018 for different cereals. Despite the fact that the cultivated areas have decreased (Table 1), there has been an increase in production for all 5 crops analyzed.

The largest increase was obtained in maize, 33.17%. At the rye, the same quantity was harvested in 2018 as in 2014, 53 tons.

For rye and oat, the year in which the highest production was obtained is 2017, of 135 tons, respectively 1,516 tons.

Analyzing the production obtained from the main oil plants (Table 5), we see a decrease for sunflower, by 5.14% and increases for the other crops analyzed, in accordance with the growth of the cultivated areas (Table 2). It is worth mentioning that the highest increase is registered in soy, of 196.89%.

Table 4. Production obtained on the main cereals (t) in the Giurgiu County during the period 2014-2018

Nr. crt.	Specification	2014	2015	2016	2017	2018	2018/2014 %
1.	Rye	53	39	38	135	53	100
2.	Wheat	330,506	344,170	289,733	386,843	410,625	124.24
3.	Maize	281,055	213,223	191,248	297,957	374,286	133.17
4.	Barley and Beer Barley	99,253	87,592	94,086	110,530	114,707	115.57
5.	Oat	1,279	1,341	1,252	1,516	1,358	106.18

Source: Own calculation based on NIS, Tempo On-line Database, 2019, [10].

Table 5. Production obtained on the main oleaginous plants (t) in the Giurgiu County during 2014-2018

Nr. crt.	Specification	2014	2015	2016	2017	2018	2018/2014 %
1.	Sunflower	85,749	71,780	55,697	85,801	81,339	94.86
2.	Rapeseed	47,911	39,468	59,534	81,688	84,443	176.30
3.	Soy beans	8,008	14,176	4,597	23,513	23,775	296.89

Source: Own calculation based on NIS, Tempo On-line Database, 2019, [10].

For vegetables, watermelons and melons, perennial fodder the production increased over the period 2014-2018 (Table 6), despite the decrease of the surfaces of vegetables and melons (Table 3). The highest increase is

recorded for perennial fodder, 39.74%. As it can be seen, the potato production decreased by 27.25% during the analyzed period, in accordance with the decrease of the surfaces.

Table 6. Production obtained in different crops (t) in the Giurgiu County during 2014-2018

Nr. crt.	Specification	2014	2015	2016	2017	2018	2018/2014 %
1.	Potatoes	7,697	6,992	7,297	6,063	5,592	72.65
2.	Vegetables	77,041	79,610	63,896	73,047	90,120	116.98
3.	Watermelons and melons	4,345	4,284	6,509	4,093	4,889	112.52
4.	Perennial fodder	163,189	173,288	65,312	112,370	228,033	139.74

Source: Own calculation based on NIS, Tempo On-line Database, 2019, [10].

The most cultivated vegetables in Giurgiu County, in 2018, were in order: tomatoes - 30,072 tonnes, white cabbage - 21,598 tonnes, peppers - 7,992 tonnes, eggplants - 7,502 tonnes, dried onions - 4,323 tonnes and dry garlic - 2,021 tonnes.

Tomato production accounted for 33.37% of the total vegetable production obtained in Giurgiu County contributed to the ranking of the Three Macroregion on the 3rd place at the country level for the production of tomatoes. This macroregion, obtained in 2015, 24.52% of the tomato production in Romania [15].

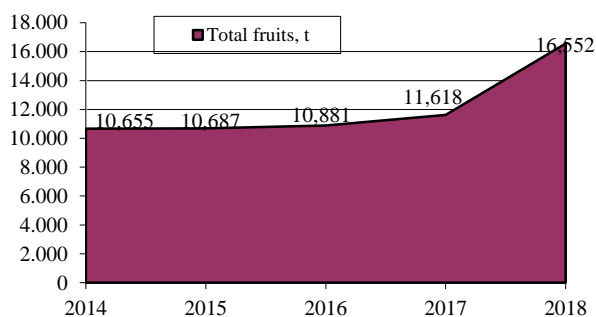


Fig. 6. The dynamics of fruit production (t) in the Giurgiu County during 2014-2018

Source: own processing based on NIS, Tempo On-line Database, 2019, [10].

In terms of fruit production (Figure 6), in 2014-2018, the highest value is recorded in 2018, of 16,552 tons, and the lowest in 2014, of 10,655 tons. Compared to 2014, in 2018 there is a 55.34% increase.

Of the fruits grown, the highest production is recorded in plums - 4,661 tonnes in 2018 (NIS). It is known that the Three Macroregion is in the second place at the country level, in terms of the number of plum trees, which explains the production obtained [7].

In Giurgiu county, apples are ranked 2nd in the production obtained (2,451 tons in 2018 according to NIS), as, at the level of development regions, South-Muntenia obtained in 2016 115,918 tons of apples, being outclassed by the Region of North West Development [13].

Macroregion Three obtained the smallest production of cherries and sour cherries in 2016 [16]. In Giurgiu County, these fruits had a production of 2,420 tons, in 2018.

Other productions obtained in 2018, in Giurgiu County: apricots - 1,619 tons, strawberries - 1,109 tons. With a production of 1,038 tonnes of pears (in 2018) in Giurgiu County, it is confirmed that Romania is not an important player in pears trade [14].

In the figure 7 it is presented the vineyards production. We observe an increase for the analyzed period of 38.52%.

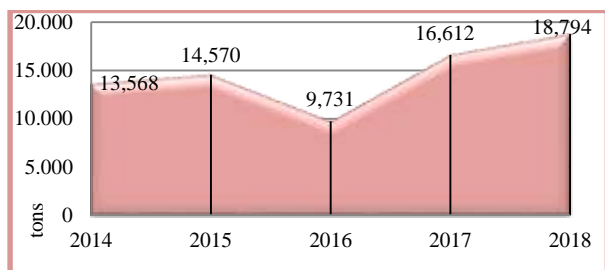


Fig. 7. The dynamics of vineyards production (t) in the Giurgiu County during 2014-2018

Source: own processing based on NIS, Tempo On-line Database, 2019, [10].

Giurgiu County enters into the wine region of the Danube Terraces, located mostly on the Danube terraces in the southeast of the Romanian Plain. This region includes: Greaca vineyard - with the localities: Greaca, Puțu Grecii, Hotarele, Izvoarele, Prundu, Puieni, Băneasa, Pietrele, Giurgiu vineyard- with the localities: Daia, Dăița, Plopșoru [17].

Different varieties are cultivated, from those that have early ripening, to the late ones. Grapes are obtained mainly for table consumption. The wine production is varied, being mainly composed of wines of current consumption, especially white wines. Some red wines may have the characteristics required for superior wines [6].

The grape varieties for wine grown in the wine region of the Danube Terraces are: "Crâmpoșie, Fetească Regală, Fetească Albă, Riesling Italian, Riesling de Rhin, Pinot Gris, Pinot Blanc, Sauvignon, Chardonnay, Băbească Gri, Aligoté, Traminer Roz, Tămâioasă Românească, Muscat Ottonel, Cabernet Sauvignon, Cabernet Franc, Merlot, Malbec, Negru de Drăgașani, Pinot Noir, Fetească Neagră, Băbească Neagră, Sangiovese, Syrah, Dornfelder, Rebo" [2].

In addition to supporting agricultural activities, the financial support provided by the U.E. makes possible the diversification of the activity in the rural area, by developing some non-agricultural activities, which exploit the local natural resources and allow the expression of the entrepreneurial spirit and the preservation of the local traditions [3], [9].

CONCLUSIONS

Giurgiu County occupies the 4th place in the South - Muntenia Development Region, in terms of arable area.

From the studies, it appears that, in the Giurgiu County, in the year 2018, out of the total of 79.4 thousand people engaged in activities for the national economy 41.69% worked in agriculture, forestry and fishing. There is a tendency to decrease the number of people involved in this sector of activity.

The largest areas cultivated in 2018 were occupied by wheat, maize, sunflower, rapeseeds, barley and beer barley.

In the period 2014-2018 there was a decrease of the cultivated areas for rye, wheat, maize, barley and beer barley, sunflower, potatoes, vegetables, melons and watermelons and orchards.

With the exception of three cultures from the ones analyzed - rye, sunflower and potatoes, for the others there are production increases.

Although the areas cultivated with vegetables have decreased, production has increased. In 2018, in Giurgiu County, the most cultivated vegetables were: tomatoes - 30,072 tons, white cabbage - 21,598 tons and peppers - 7,992 tons.

Fruit production has been increasing, although the areas occupied by orchards have decreased. At plum, the most cultivated fruit in the Three Macroregion, 4,661 tons were obtained in 2018.

The wine-growing areas and the production obtained were increasing in the period 2014-2018. Giurgiu County is part of the wine-growing region of the Danube Terraces, where the production is mainly focused on obtaining table grapes and wines of current consumption, especially white wines.

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