OLT COUNTY – SUNFLOWER PRODUCER AT NATIONAL AND REGIONAL LEVEL

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Abstract

Sunflower is the main oilseed crop in Romania. The species justifies its interest in practicing it through its multiple uses: food, industrial, fodder, technological, export and profit-making. Analyzing the situation of this crop, in the case of Olt County, is justified by the agricultural potential of the respective county, which has a total area of 549,828 ha, an agricultural area of 436,515 ha and an arable area of 390,336 ha. Under these conditions, sunflower occupied 69,661.71 ha, which represents 15.96% of the agricultural area and 17.85% of the cultivated arable area. At the national level, Olt County held, on average (for the period 2017-2023), 6.31% of the cultivated area (1,103,719.86 ha), and at the regional level 38.14% (182,661.86 ha).

Olt County obtained 174,459 t of sunflower, which determines a share of 6.55% at national level (2,661,881.86 t) and 38.07% at regional level (458,195.14 t) – the second producer after Dolj County. The average production per hectare was 2,557 kg, at county level, which makes Olt exceed the national level (2,418 kg) by 5.75% and the regional level (2,539 kg) by 0.71%.

Based on the specificity of Olt County, it can be considered an important sunflower producer at the regional level under conditions of a convenient level of capitalization, especially for medium and large-sized producers, but the negative influence of the climatic factor must be reduced.

Key words: sunflower, cultivated area, total production, average production

INTRODUCTION

The usefulness of the activity carried out to obtain sunflower production arises from the aspects related to its use in manufacturing processes specific to the industry, as a result of the possibilities of use in animal feed, due to the agrotechnical-technological aspects, the possibilities of capitalization on the foreign market as well as the opportunities to obtain profit.

Its importance for the industrial sector is due to its seeds, which provide the raw material in the process of manufacturing edible oil. The oil can be used directly in human food, but it can also be an ingredient in the manufacture of various types of canned goods, as well as in the production of soap and for impregnating certain textile products. The shells resulting from the processing of sunflower seeds can be used to obtain ethyl alcohol, furfural, and even for the manufacture of linoleum.

The importance in animal feeding is highlighted by the use of meal - a waste product from the production of edible oil. It has a significant content of proteins and sugars, which makes it recommended for the composition of feed rations for numerous species and categories of animals. The remains of inflorescences are mainly used in the feeding of sheep and goats. Sunflower can also be used to obtain silage, cultivated alone or with other species, in a mixture. Sunflower cultivation constitutes an additional source for honey production, complementing natural sources and contributing to the development of pastoral activity. At the same time, we also discuss the beneficial influence of bees in increasing sunflower production (for additional pollination, it is recommended to use at least two bee colonies per production unit - hectare).

The agrotechnical technological importance is manifested in the conditions in which the sunflower meets adequate

growing conditions, especially in the south of the country, where there are also irrigated areas, adequately exploiting the pedoclimatic conditions. In terms of climate, a level of 400-600 mm of precipitation, temperature and adequate light are positive factors influencing the average yield per production unit. We are discussing favorable precursor plants such as winter cereals and grain corn, which provide a somewhat convenient water reserve in the soil. Crops that have common diseases with sunflowers - such as soybeans, beans, rapeseed - are contraindicated as precursor plants. It is advisable to include the crop in rotations of at least 4-6 years, an aspect that is difficult to achieve under current conditions, when "technological rotation" is threatened by "commercial rotation". This can reduce disease and pest attacks as well as the degree of weeding, aspects that can reduce expenses for producers by reducing the quantities of pesticides used in crop care work. Annual legume species, rapeseed, and other crops that are affected by the same diseases and pests are not included in the crop rotation. Sunflower is a good precursor for autumn crops (especially wheat and barley), as after harvest the land has a low degree of weeding.

Importance of export activity It lies in the possibilities of exploiting the oil and seeds. First of all, we are discussing sunflower oil, which is superior compared to similar products, and can be sold even in states and regions where olive oil consumption predominates. As an export item, even margarine, as such, or in various forms of presentation, can be used in certain situations. An important source of hard currency was hybrid sunflower seed, provided it was of adequate quality and suitable for the growing conditions of the targeted areas. Conducting a convenient export can only be achieved under the conditions of compliance with adequate quality standards, which can strengthen the competitiveness of producers. As a result, there is a need for adequate knowledge of foreign markets for sunflower (both as such and for processed products obtained from it).

The importance for profit can be seen in the application of appropriate technologies, through appropriate management of expenses and, last but not least, through convenient marketing. Compared to cereals, sunflower can provide a gross product 1.5-2 times higher, provided that a high degree of crop intensity is ensured. As a result, we can appreciate that profitability indicators (profit per hectare, profit per unit of product, etc.) can also exceed the level of those found in autumn cereals.

METHOD AND MATERIAL

For the preparation of the work, established indicators were used: cultivated area (ha - represents the area sown or planted in one's own field, in the reference agricultural year or in previous years for multiannual crops, with a main crop occupying the land for the largest period of year *i*); total production (t - represents the physical-gross production obtained in a determined period of time expressed in appropriate units of measurement depending on the nature of the product or group of products); average production (kg/ha - represents the quantity of gross products obtained per unit of cultivated area).

The indicator level is presented for: Romania (national level), South West Oltenia Development Region (regional level), Olt County (county level). Under these conditions, it was possible to compare (using relative sizes - %) the three levels: regional versus national, county versus regional. The period under observation consists of seven years (terms), starting with 2017 and ending with 2023.

as a study method. Through it, the results of a manufacturer are assessed, using various reference bases (reporting or comparison). The variants of using comparison are: comparison in time; comparison in space; mixed comparison (all three used in this paper).

Fixed-base indices allowed the operationalization of the comparison method.

RESULTS AND DISCUSSIONS

Table 1 presents the specific data on the cultivated area during the analyzed period (2017-2023). In addition to the temporal evolution of the area, it also highlights the classification of the region and the county compared to the reporting bases.

At the national level, the indicator ranged between 998,415 ha in 2017 and 1,282,697 ha for 2019. For the other terms analyzed, there are exceedances of the level of 1,000,000 ha, as follows: 1,006,994 ha in 2018, 1,093,265 ha for 2022, 1,077,867 ha for 2023, 1,123,960 ha for 2021 and 1,142,841 ha for 2020. The indicator has evolved upward-fluctuating, presenting variable exceedances of the reference term as follows: 0.86% in 2018, 28.47% for 2019, 14.47% in the case of 2020, 12.57% in 2021, 9.50% in 2022 and 7.96% for the last year analyzed (2023). Thus, after 2019 (maximum), we are talking about a successive decrease in the area until 2023.

Table 1. Cultivated area (ha)

Year	National level		South West Oltenia Region			Olt County		
	Eph. *	Dynamics Ibf **	Eph. *	Dynamics Ibf **	share at national level (%)	Eph. *	Dynamics Ibf **	weight at regional level (%)
2017	998415	100	147811	100	14.80	55143	100	37.31
2018	1006994	100.86	142723	96.56	14.17	53223	96.52	37.29
2019	1282697	128.47	208307	140.93	16.24	75357	136.66	36.18
2020	1142841	114.47	179386	121.36	15.70	70245	127.39	39.16
2021	1123960	112.57	216703	146.61	19.28	99124	179.76	45.74
2022	1093265	109.50	192442	130.19	17.60	66736	121.02	34.68
2023	1077867	107.96	191261	129.39	17.74	67804	122.96	35.45

* http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table , AGR108A – Area cultivated with the main crops, by ownership forms, macroregions, development regions and counties (11.01.2025);
** own calculations;

For the South-West Oltenia Region, the area experienced extreme levels of 142723 and 216703 ha, in the case of 2018 and 2021 respectively. The indicator also exceeded 200000 ha in 2019 (208307 ha), for the rest of the terms of the dynamic series it was between 100000 and 200000 ha as follows: 147811 ha in 2017, 179386 ha in 2020, 191261 ha for 2023 and 192442 ha in 2022. The indicator decreased in 2018 by 3.44% compared to the reporting base (2017), after which it was systematically exceeded, at variable rates as follows: 1.21 times in 2020, 1.29 times for 2023, 1.30 times the level of 2022, 1.40 times in 2019 and 1.46 times for 2021.

Olt County is characterized by variations in area starting from 53,223 ha in 2018 to 99,124 ha for 2021. In 2017, 55,143 ha were cultivated, for 2022 and 2023 the area was between 60,000 and 70,000 ha (66,736 and 67,804 ha), while in the case of 2020 and 2019 the indicator was between 70,000 and 80,000 ha (70,245 and 75,357 ha, respectively). Based on the previous information, we can say that the evolution of the indicator is fluctuating, characterized by decreases compared to 2017 of 3.48% in 2018 and increases for the years 2022 (+21.02%), 2023 (+22.96%), 2020 (+27.39%), 2019 (+36.66%) and 2021 (+79.76%).

The region contributed to the achievement of the national level of the indicator with variable weights from 14.17 to 19.28% (in the case of 2018 and 2021 respectively). Otherwise, we are talking about weights below 15% in 2017 (14.80%) and contributions between 15 and 18% (15.70, 16.24, 17.60 and 17.74% for 2020, 2019, 2022 and 2023 respectively – Figure 1). At the regional level, Olt County presents variable shares, ranging between 34.68 and 45.74% for the years 2022 and 2021 respectively. The rest of the terms of the

dynamic series recorded variable contributions (all below 40%) as follows: 39.16, 37.31, 37.29, 36.18 and 35.45% respectively for the years 2020, 2017, 2018, 2019 and 2023 (Figure 1).

Table 2 presents the data related to total production.

In Romania, there is a total production that varied between 2015621 t in 2023 and 3569150 t for 2019. Among the other terms analyzed, 2018 stands out, which exceeds the threshold of 300000 t (3062690 t), the rest being below the previously mentioned level (2912743 t - 2017, 2843531 t - 2021, 2122865 t - 2020, 2106573 t - 2022). The dynamics of the indicator highlights the advancement of the reporting base only in the case of 2018 and 2019 (1.05 and 1.22 times), for the rest of the components of the dynamic series, decreases were recorded (compared to this) as follows: 2.38% in 2021, 27.12% for 2020, 27.68% in 2022 and 30.80% in 2023.

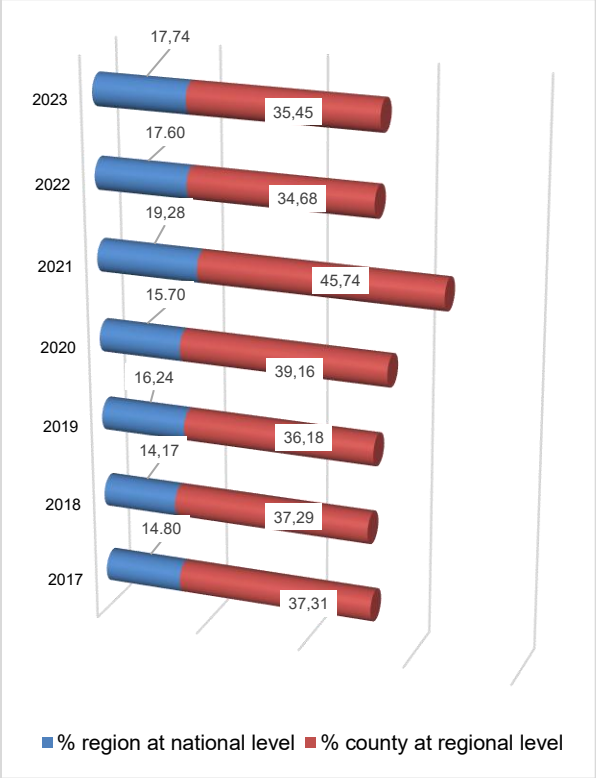

Fig. 1. South-West Oltenia region, Olt county - shares within the national and regional area (% - processed after: www.inse.ro)

Table 2. Total production (t)

Year	National level		South West Oltenia Region			Olt County		
	Eph. *	Dynamics Ibf **	Eph. *	Dynamics Ibf **	share at national level (%)	Eph. *	Dynamics Ibf **	weight at regional level (%)
2017	2912743	100	466272	100	16.01	176729	100	37.90
2018	3062690	105.15	434747	93.24	14.19	174276	98.61	40.09
2019	3569150	122.54	629879	135.09	17.65	230908	130.66	36.66
2020	2122865	72.88	366882	78.68	17.28	137922	78.04	37.59
2021	2843531	97.62	536720	115.11	18.88	222337	125.81	41.43
2022	2106573	72.32	393375	84.37	18.67	141985	80.34	36.09
2023	2015621	69.20	379491	81.39	18.83	137056	77.55	36.12

* http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table , AGR109A – Agricultural plant production for the main crops, by ownership forms, macroregions, development regions and counties (11.01.2025);
** own calculations;

For the South-West Oltenia region, there are total productions, varying within quite wide limits, from 366882 t in 2020 to 629879 t in 2019. The other terms of the dynamic series have variable positions, as follows: over 450,000 t in 2021 and 2017 (536,720 and 466,272 t respectively); below 450,000 t in 2018, 2022 and 2023 respectively (434,747, 393,375 and 379,491 t). Regarding the dynamics of the indicator, a fluctuating evolution is observed, with advances compared to the reference term in 2019 and 2021 (1.35 and 1.15 times respectively) and with decreases for 2018, 2022, 2023 and 2020 respectively (-6.76, -15.63. -18.61 and -21.38%).

At the level of Olt County, a total, fluctuating production was obtained, with limits ranging between 137056 t in 2023 and 230908 t in 2019. The rest of the components of the analyzed period are presented as follows: below 150,000 t – 2022 and 2020 (141,985 and 137,922 t

respectively); between 150001 and 200000 t – 2018 and 2017 (174276 and 176729 t respectively); over 200,000 t - year 2021 (222,337 t). The county indicator has a variable dynamics, characterized by increases and decreases in the indicator as follows: -1.39% in 2018, +30.66% for 2019, -21.96% for 2020, +25.81% for 2021, -19.66% in 2022 and -22.45% for 2023.

When we analyze regional and county contributions to achieving the national and regional level for total production (Figure 2) the following aspects are noted: the region recorded, at national level, variable contributions: 16.01, 14.19, 17.65, 17.28, 18.88, 18.67 and 18.83% in 2017, 2018, 2019, 2020, 2021, 2022 and 2023 respectively; The county contributed, at the zonal-regional level, with the following shares: 37.90% in 2017, 40.09% in 2018, 36.66% for 2019, 37.59% in 2020, 41.43% in 2021, 36.09% in 2022, 36.12% for 2023.

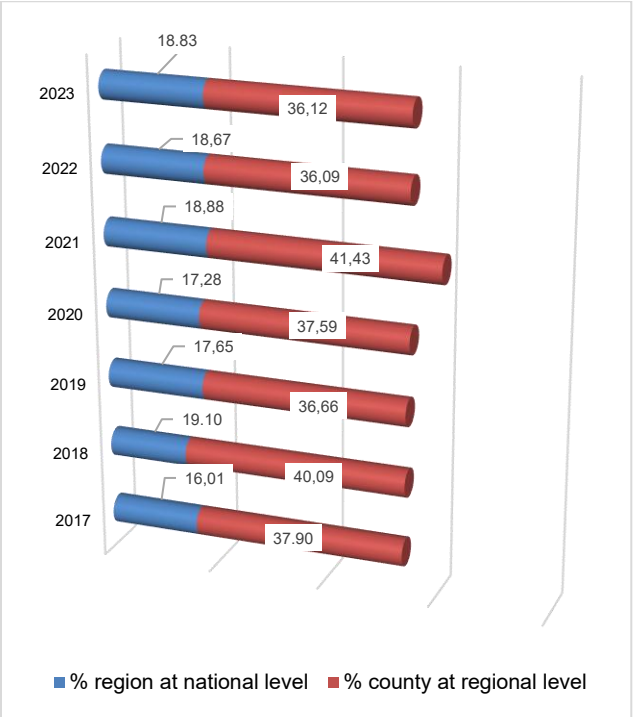

Fig. 2. South-West Oltenia region, Olt county - shares within the total national and regional production (% - processed after: www.inse.ro)

Table 3 contains data on average production per hectare.

Table 3. Average production (kg/ha)

Year	National level		South West Oltenia Region			Olt County		
	Eph. *	Dynamics Ibf **	Eph. *	Dynamics Ibf **	% compared to the national level	Eph. *	Dynamics Ibf **	% compared to the regional level
2017	2917	100	3155	100	108.16	3205	100	101.58
2018	3041	104.25	3046	96.55	100.16	3274	102.15	107.49
2019	2783	95.41	3024	95.85	108.66	3064	95.60	101.32
2020	1858	63.70	2045	64.82	110.06	1963	61.25	95.99
2021	2530	86.73	2477	78.51	97.91	2243	69.98	90.55
2022	1927	66.06	2044	64.79	106.07	2128	66.40	104.11
2023	1870	64.11	1984	62.88	106.10	2021	63.06	101.86

* http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table , AGR110A – Average production per hectare, for the main crops, by ownership forms, macroregions, development regions and counties (11.01.2025);
** own calculations;

In Romania, average production was recorded from 1858 kg/ha (2020) to 3041 kg/ha (2018). For the rest of the terms of the dynamic series, positions below and above the threshold of 2000 kg/ha are noted, as follows: below 2000 kg/ha – years 2022 and 2023 (1927 and 1870 kg/ha respectively); above 2000 kg/ha – years 2017, 2109 and 2021 (2917, 2783 and 2530 kg/ha respectively). Regarding the dynamics of the indicator, decreases were recorded compared to the comparison term in all the years analyzed except for 2018 (+4.25%). The decreases recorded were 4.59, 36.30, 13.27, 33.94 and 35.89% for 2019, 2020, 2021, 2022 and 2023 respectively.

In the case of the South-West Oltenia Region, average productions were found to be between 1984 kg/ha in 2023 and

3155 kg/ha in 2017. Within this interval, the components of the analyzed dynamic series were placed as follows: over 3000 kg/ha in 2019 and 2018 (3024 and 3046 kg/ha respectively); between 2000 and 3000 kg/ha in 2021, 2020 and 2022 (2477, 2045 and 2044 kg/ha respectively). The dynamics of the indicator, for the period 2017-2023, contains only decreases compared to the first analyzed term (2017) as follows: 3.45% for 2018, 4.15% for 2019, 21.49% in 2021, 35.18% for 2020, 35.21% for 2022 and 37.12% in 2023.

In Olt County, the variation limits of the indicator were 3274 and 1963 kg/ha in 2018 and 2020 respectively. The only years that exceeded the level of 3000 kg/ha were 2017 and 2019 (3205 and 3064 kg/ha respectively), the rest of the years being characterized by levels between 2000 and 3000 kg/ha, as follows: 2243 kg/ha in 2021, 2128 kg/ha in 2022 and 2021 kg/ha for 2023. The dynamics of the indicator shows fluctuating-decreasing trends, the increases of 2.15% in 2018 (compared to the specific situation of 2017) being followed by decreases: 3.40% in 2019, 38.75% in 2020, 30.02% for 2021, 33.60% for 2022 and 36.94% for 2023.

Through the specific levels, for average production, the region positioned itself compared to the national state of affairs, mostly above it (108.16, 100.16. 108.66, 110.06, 106.07 and 106.10% for the years 2018, 2019, 2020, 2022 and 2023 respectively), with the exception of 2021 (decrease by 2.09% compared to the reference term - Figure 3). At the level of Olt County, advances of the reporting base (regional situation) are noted, in particular, during the dynamic series, with the exception of the years 2020 and 2021 (-4.01 and -9.45% respectively). The recorded exceedances were as follows: 1.32% in 2019, 1.58% in 2017, 1.86% for 2023, 4.11% in 2022 and 7.49% in 2018 (Figure 3).

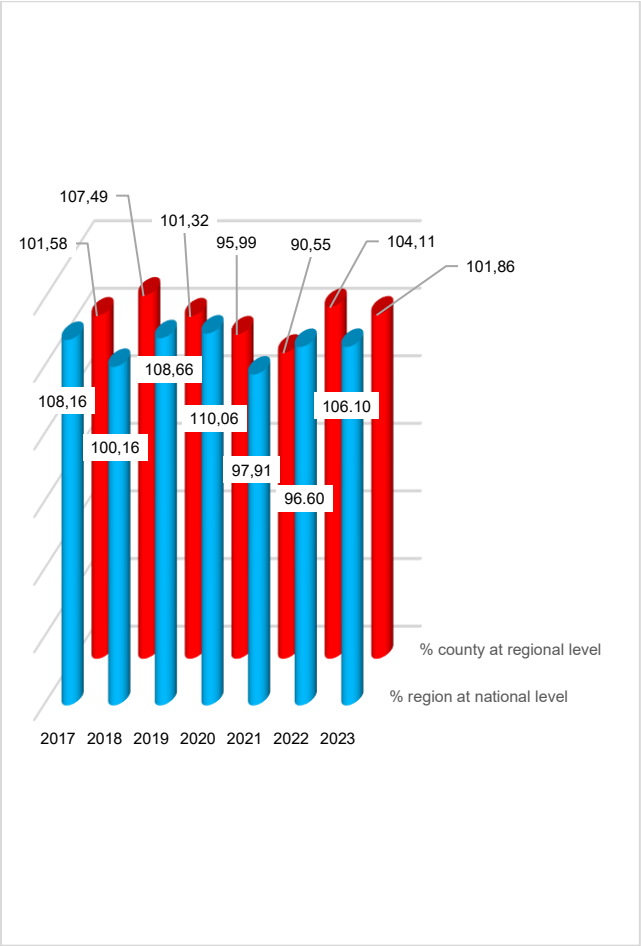

Fig. 3. South West Oltenia region, Olt county - positioning compared to the national and regional average production (% - processed after: www.inse.ro)

CONCLUSIONS

Regarding the cultivated area, it is noteworthy at the national level, the amplitude of variation of the indicator was 284282 ha (22.16% compared to the maximum level of the indicator and 28.47% of the minimum level of the indicator); the indicator evolved upward-unevenly, with growth trends until 2019, after which decreases appear until the end of the dynamic series. For the South-West Oltenia Region: the amplitude of variation of the area was 73980 ha, respectively 34.14% compared to the maximum level (2021) and 51.83% of the minimum level (2018); the dynamics of the area were fluctuating. In the case of Olt County: 45901 ha amplitude of variation of the indicator, a level that meant 46.31% of the maximum level (2021) and 86.24% of the minimum level (2018); *t*he evolution of the

indicator was upward from 2018 to 2021, after which downward trends were recorded in 2022 and 2023. In this context, its fluctuating nature can be appreciated.

Regarding the total sunflower production, it is observed at national level: the variation amplitude of 1553529 t, which represented 43.53% of the maximum level (2019) and 77.07% of the minimum level (2023); the indicator evolved unevenly, with increasing and decreasing trends succeeding each other. For the South-West Oltenia Region: *an* amplitude of 262997 t, a level that meant 41.75% compared to the maximum term (2019) and 71.68% compared to the minimum level (2020); the dynamics of the indicator were fluctuating. At the level of the county analyzed: the recorded amplitude was 93852 t, which represented 40.64% of the maximum term (2019) and 68.48% of the minimum term (2023); the evolution of the indicator was uneven, with increases and decreases alternating during the analyzed period.

Regarding the average production per productive unit (kg/ha), the following can be observed: at national level: a amplitude of variation at the level of 1183 kg/ha, which represented 38.90% of the maximum term level (2018) and 63.67% compared to the minimum term (2020); the indicator has fluctuated. For the South-West Oltenia Region: the indicator shows a variation amplitude of 1171 kg/ha, which represented 37.12% of the maximum term (2017) and 59.02% compared to the minimum term (2023); the evolution of the indicator was decreasing with uneven trends. In the case of the analyzed county: the amplitude of variation of the indicator was 1311 kg/ha, a level that represented 40.04% compared to the maximum term (2018) and 66.79% compared to the minimum term (2020); the dynamics of the indicator was upward with uneven trends.

Starting from the specificity of Olt County, it can be considered an important sunflower producer at the regional level, as it holds 38.13% of the cultivated area and 38.07% of the total production (levels corresponding to the average of the period under analysis). We can say that sunflower is a crop that is undergoing a stabilization process regarding the components of the primary supply, which is under the almost overwhelming influence of the climatic factor, in conditions in which we can discuss a convenient level of capitalization, especially for medium and large-sized producers, from Olt County.

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