

EVOLUTION OF CULTIVATED AREAS AND YIELD IN THE MAIN CROPS IN ROMANIA

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Abstract: This paper presents a study regarding the evolution of cultivated areas, of yield in the main crops and of the trends in this field of activity. The main methods used in this study are analysis, synthesis, and data processing and interpretation. The conclusions of the study are that agricultural production varies from one year to another; however, in 2016, according to statistics, Romania ranked among the greatest EU producers of sunflower, maize, wheat and potato (cultivated areas and yields). This is largely due to favourable weather conditions in 2016.

Key words: *evolution, cultivated areas, grain cereals;*

INTRODUCTION

Agriculture is one of the basic branches of Romanian economy. The land fund of Romania is 23.8 million ha, of which about 62% is agricultural land, i.e. 8% of the agricultural area of the European Union; this ranks Romania 6th, after France (16.0%), Spain (13.6%), Great Britain (9.7%), Germany (9.6%), and Poland (8.3%) [5].

Traditionally, Romania is a great producer of grains and oil crops that cover most (60% and 17%, respectively) of the over 8 million ha of its cultivable lands. The main grain cereal crops cultivated in Romania are maize and wheat and, among oil crops, sunflower.

The total cultivated area after 1990 has generally had an ascending trend; there have been decreasing values in areas cultivated with grain cereals and slight increasing values in oil crops and vegetables [1].

MATERIALS AND METHODS

The main methods used in this study are analysis, synthesis, data processing and data interpretation.

RESEARCH RESULTS

Grains predominate cultivated areas; though decreasing, it had no wide fluctuations in time. Agriculturists prefer cultivating grains mainly because there is a market for grains and also because they have the necessary knowledge about cultivating grains.

Table 1.

Evolution of areas cultivated with the main grain species (ha)

Year	Total cultivated area	Grain cereals	Of which:			Sunflower	Sugar beet	Potatoes	Vegetables
			Wheat and rye	Barley and two-row barley	Maize				
1990	9402113	5704019	2297658	749011	2466735	394741	162675	289614	216009
1995	9224616	6444844	2501429	581724	3109236	714490	133209	244314	213819
2000	8499830	5655182	1954269	411861	3049356	876807	48371	282682	234019
2002	8467892	5865671	2496627	484583	2628471	970950	25220	284906	266735
2005	7883954	5114415	2029808	331645	2520098	991363	39810	278055	280115
2006	7777174	5129183	1987114	363806	2524706	835923	28730	268091	253359
2007	7798075	5210710	2123281	394029	2441461	813891	20445	255282	268622
2008	7884101	5282445	2164347	517513	2338766	766080	21329	255244	267130
2009	7807379	5040646	2176945	515820	2098394	790814	22029	241349	262692
2010	8081613	5224729	1959362	419508	2589667	994984	18816	242636	263359
2011	8058329	5440281	2006306	424244	2730157	1067045	27303	223517	258910
2012	8166824	5421181	2114724	495685	2518268	1074583	28144	203424	259029
2013	8234437	5443213	2123034	515996	2512809	1001020	31280	198540	239474
2014	8244351	5463570	2116170	468453	2604475	1011523	26591	185878	235731
2015	9402113	5464000	2107000	468000	2604000	1012000	27000	186000	236000
2016	-	5381000	2112000	487000	2497000	1016000	24000	185000	228000

Source: INS, Tempo online database [7]

As seen in Table 1, the areas cultivated with sunflower has a definite increasing trend compared to 1990.

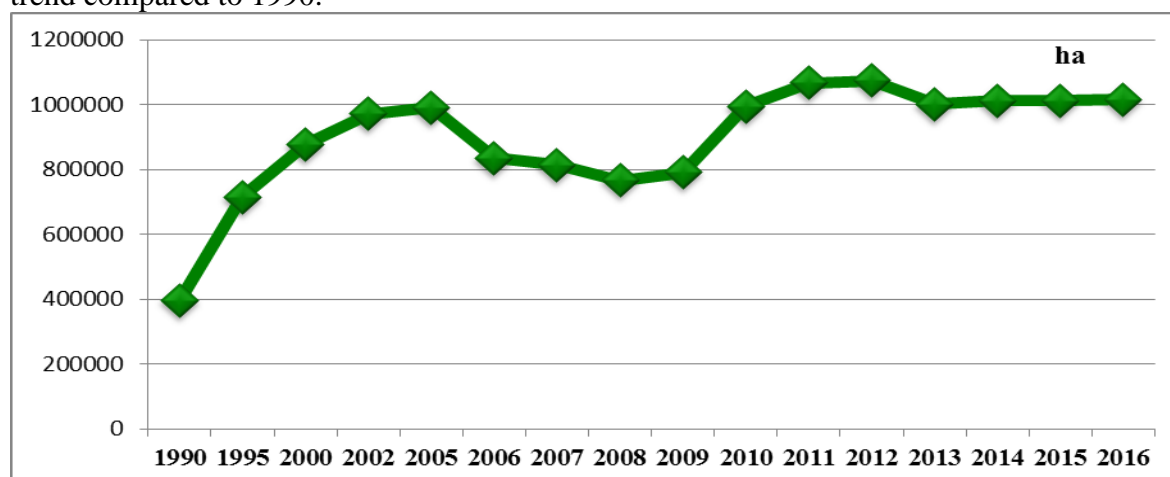


Figure 1. Evolution of areas cultivated with sunflower in Romania

Potato is traditional in certain areas of Romania. Areas cultivated with potato decreased systematically after 1990 resulting in import increase. Thus, the area cultivated with potato in 2015 represents only 65% of the area cultivated with potato in 1990. Total potato production is not proportional with cultivated areas but rather with yield per ha: though areas cultivated with potato decreased dramatically (2002, 2010, 2014), total production was above the one of 1990 due to mean productions per ha.

The study shows that production in the vegetable sector are rather fluctuant from one year to another, which speaks of the vulnerability of this sector face to weather factors. For instance, the year 2015 was affected by drought, with the highest yield loss in maize, sunflower and rape. The year 2016 was, from a weather perspective, favourable to grain cereals, oil crops and potato.

Table 2.

Evolution of agricultural production in the main crops (t)

Year	Grain cereals	Of which:			Sunflower	Sugar beet	Potatoes	Vegetables
		Wheat and rye	Barley and two-row barley	Maize				
1990	17173539	7379022	2679558	6809604	556242	3277705	3185624	2357461
1995	19882827	7709266	1816267	9923132	932932	2654610	3019921	2870565
2000	10477506	4456240	867018	4897603	720871	666870	3469805	2527776
2002	19345464	7389626	1079148	10388499	1340940	729658	3738594	3624612
2005	15759324	5561910	772929	8984729	1526232	1152200	4015899	4138862
2006	17814825	3065048	531420	3853918	546922	748839	3712410	3116801
2007	16826441	7212430	1209411	7849083	1169936	706660	3649020	3819890
2008	14872952	5235485	1182062	7973258	1098047	816814	4003980	3901862
2009	16712883	5846091	1311035	9042032	1262926	837895	3283866	3863617
2010	20842160	7162972	1329692	11717591	1789326	660497	4076570	4176298
2011	12824138	5315984	986361	5953352	1398203	719788	2465150	3535316
2012	20897076	7320185	1542247	11305095	2142087	1029209	3289722	3960990
2013	22070736	7609176	1712509	11988553	2189309	1398570	3519329	3802494
2014	19286236	7986679	1623163	8984743	1785763	1040645	2625017	3629613
2015	19286000	7962000	1623000	8985000	1786000	1041000	2625000	3630000
2016	20886000	8281000	1815000	10024000	1954000	966000	2687000	3337000

Source: INS, Tempo online database [7]

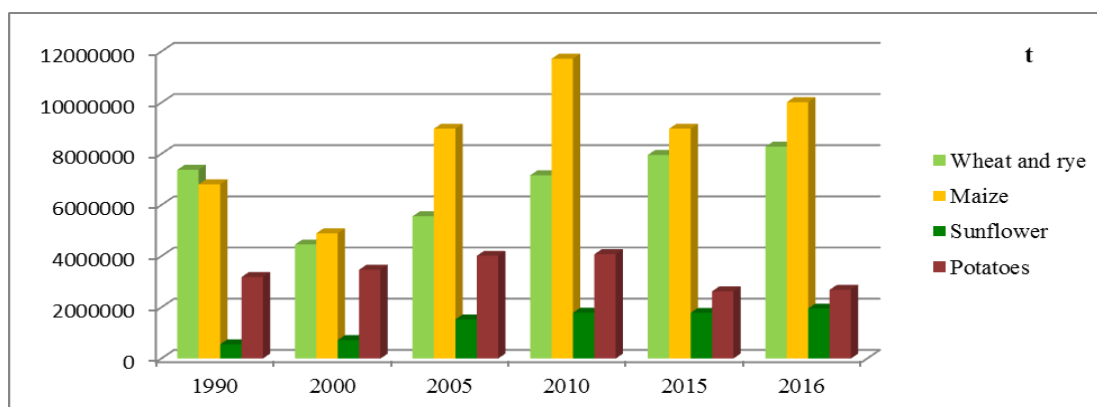


Figure 2. Evolution of agricultural production in the main crops

Table 3 below shows cultivated areas and yields in the main crops in European Union member States in 2016.

Table 3.

Areas cultivated with main crops in European Union member States in 2016 (ha)

Specification	Wheat	Grain maize	Sunflower	Potatoes
Romania	2112000	2497000	1016000	185000
Bulgaria	1106000	422000	820000	10000
Czech Republic	840000	79000	16000	23000
Denmark	583000	6000	-	46000
France	5560000	1489000	585000	166000
Germany	3216000	416000	17000	236000
Great Britain	1823000	5000	-	138000
Greece	489000	153000	108000	20000
Holland	127000	12000	-	158000
Hungary	1040000	1054000	631000	16000
Italy	1912000	661000	108000	49000
Lithuania	871000	12000	-	21000
Poland	2433000	582000	1000	320000
Spain	2249000	357000	708000	73000
Sweden	448000	2000	-	24000

Source: After Eurostat [8]

Romania ranks 1st in **sunflower** (with 1,016,000 ha) and **grain maize** (2,497,000 ha) and 5th in **wheat** (2,112,000 ha), after France, Germany, Poland and Spain (Fig. 3).

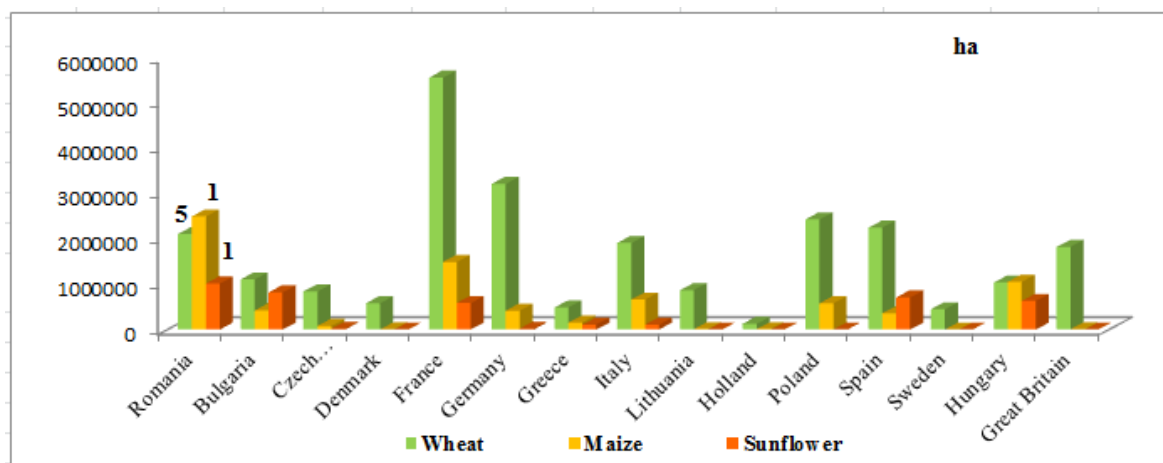


Figure 3. Areas cultivated with wheat, grain maize and sunflower in European Union member States in 2016

In **potato**, Romania ranks 3rd with 185,000 ha, after Poland and Germany (Fig. 4).

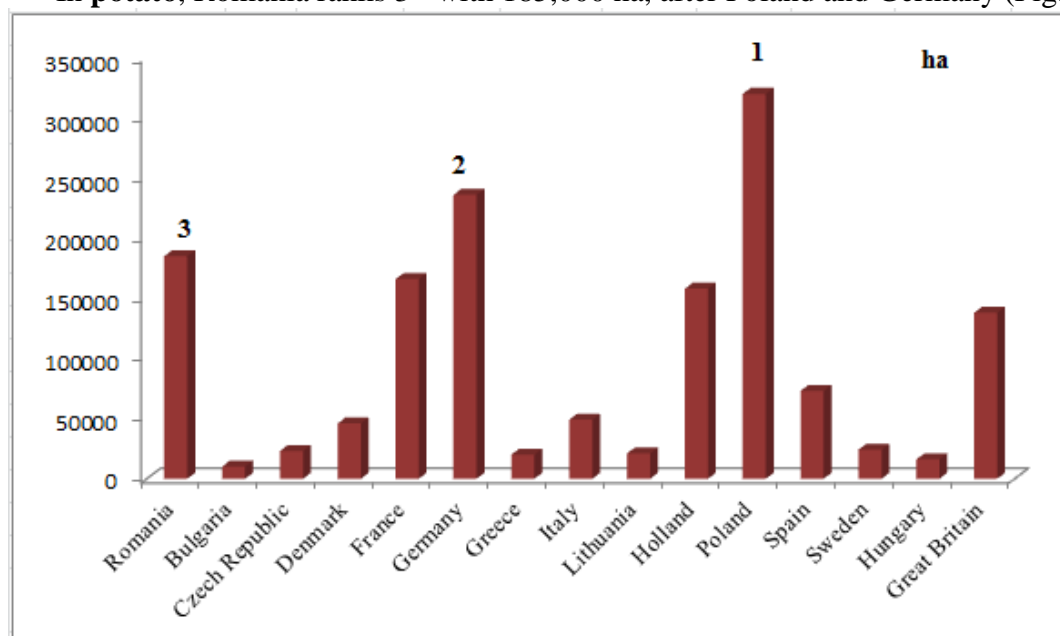


Figure 4. Areas cultivated with potato in European Union member States in 2016

Table 4 below compares wheat, grain maize, sunflower and potato productions in European Union member States in 2016.

Table 4.

Production in main crops in European Union member States in 2016 (t)

Specification	Wheat	Grain maize	Sunflower	Potato
Romania	8281000	10024000	1954000	2687000
Bulgaria	5140000	2280000	1800000	150000
Czech Republic	5479000	642000	41000	689000
Denmark	4195000	36000	-	1748000
France	29479000	12192000	1240000	6876000
Germany	24595000	3659000	37000	10177000
Great Britain	14383000	19000	-	5713000
Greece	1149000	1552000	227000	552000
Holland	1019000	96000	-	6618000
Hungary	5592000	9110000	1879000	417000
Italy	8038000	6840000	262000	333000
Lithuania	3798000	85000	-	339000
Poland	11047000	4170000	2000	8280000
Spain	7943000	3982000	701000	2200000
Sweden	2835000	11000	-	863000

Source: After Eurostat [8]

In 2016, Romania ranked 1st in **sunflower** (1,950,000 t), followed by Bulgaria, Hungary, France and Spain, and 2nd in **grain maize** (10,024,000 t), after France.

In **wheat**, Romania ranked 5th (8,280,000 t) after France, Germany, Great Britain and Poland.

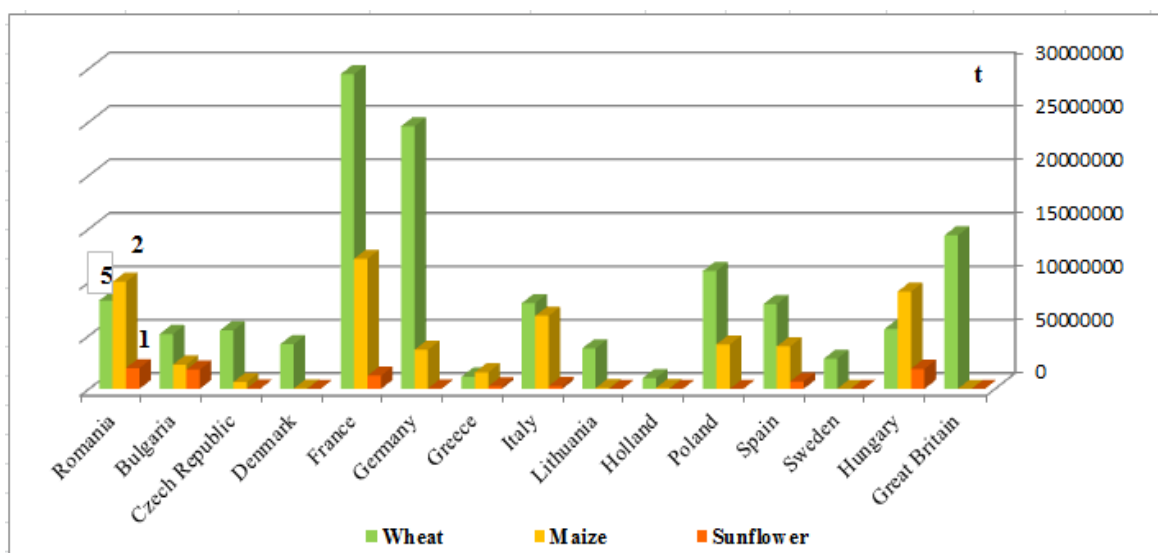


Figure 5. Production in wheat, grain maize and sunflower in European Union member States in 2016

In **potato**, Romania ranked 6th (2,680,000 t) after Germany, Poland, France, Holland and Great Britain.

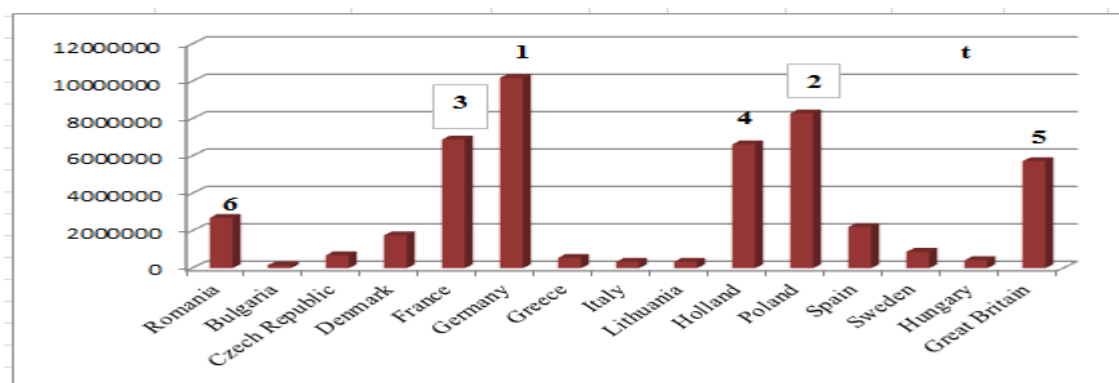


Figure 6. Production in potato in European Union member States in 2016

CONCLUSIONS

- Crop situation is as follows:
 - In **sunflower**, Romania ranks 1st in both cultivated area and yield with 1,950,000 t harvested from 1,010,000 ha, followed by Bulgaria, Hungary, France and Spain;
 - In **grain maize**, Romania ranks 1st in cultivated areas and 2nd in production, after France;
 - In **wheat**, Romania ranks 5th in cultivated area (2,110,000 ha), after France, Germany, Poland, and Spain, and in production (8,280,000 t) after France, Germania, Great Britain and Poland;
 - In **potato**, Romania ranks 3rd in cultivated area (185,000 ha), after Poland and Germany, and 6th in production (2,680,000 t), after Germany, Poland, France, Holland and Great Britain.
- Agricultural production varied considerably from one year to another, but in 2016 Romania ranked among first European Union member States in cultivated area and production in sunflower, maize, wheat and potato, due mainly to favourable weather conditions. Though ranking among first in cultivated areas and total productions, yields per ha in Romania are below those of developed nations of the European Union.

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