

ANALYSIS OF AGRICULTURE IN THE WEST REGION OF ROMANIA

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ABSTRACT

The West Region has in its possession a valuable agricultural potential. The agriculture of Timiș and Arad Counties plays an important role in the overall economy of the Region, with crucial implications on living standard of the population and food security. West Region is characterized by an average size of farms greater than the national average which allows practicing a more competitive agriculture in the Region, particularly in Timiș and Arad Counties. The vegetal sector is better represented in the area than the livestock sector, its share being dominated in the production structure of agriculture branch, which creates a weaker ability to generate the additional added value through livestock production and especially by capitalizing of this in the food industry. Regarding the production structure of agriculture branch in the Region, the vegetal sector has a dominant share (67.3%) and reflects an inadequate structure without preconditions to increase the capacity of generating the additional added value through livestock production and especially through its capitalization in the food industry.

Keywords: agriculture, West Region, farm, crop area, production

INTRODUCTION

The West Development Region is located in the Western part of Romania, at the border with Hungary and Serbia, consisting by an administrative-territorial point of view of four counties: Arad, Caraș-Severin, Hunedoara and Timiș (Figure 1).



Figure 1. Administrative Map of the Western Region

Source: <http://por.ro/index.php?page=domain&did=48>

The West Region has a surface of 32,034 km², accounting for 13.4% of the country surface. Timiș County is, by surface, the biggest in the country (3.65%) of the national territory, while Caraș-Severin County ranks third (3.65%) of the national territory, Arad County is the sixth county in Romania (3.25%) of the national territory and Hunedoara County occupies 2.96% of the national territory.

West Region comprises 42 towns (from which 12 municipalities) and 276 communes (318 administrative territorial units) grouped in the four counties.

The West Region is part of the Euroregion Danube - Kris - Mures - Tisa (DKMT), which comprises the four counties of the Western Region, three counties from Hungary and the autonomous Region of Vojvodina in Serbia. The Euroregion was established in 1997 under a cooperation protocol signed by the representatives of local authorities of the constituent regions. (The Regional Development Agency - West Region, 2015)

The population of West Region is characterized by cultural diversity (Hungarians, Germans, Serbs, Ukrainians, Roms), the Romanian communities cohabiting with the inhabiting ones.

Since the year of 1990, the population of the Region declined constantly from 2,201,717 to 1,810,604 inhabitants at 1st January 2015 (NIS, 2015), due to a negative birth rate and foreign emigration of the population in the region. The population density at 1st January 2015 was of 56.5 people/km² in the West Region, considerably much lower than the national population density (83.3 people/km²).

The urbanization degree of the Region (61.5% urban population) is higher than the national average (53.8%) and Hunedoara County has the highest rate of urbanization in the country, after the capital, namely 74.6% urban population.

In what concerns the rural area, this is characterized demographically by a low population density, demographic decline due to migration and aging population, mortality rate being relatively high and a declining ability of demographic renewal because the natural population growth is negative (RAICOV ET AL., 2013).

MATERIAL AND METHOD

The materials that were the basis for the present work come from various sources: literature (books, articles, studies), statistic documents (Romanian Statistical Yearbook), TEMPO online database of the National Institute of Statistics.

In order to analyze the development degree of agricultural sector within the West Region, we have used the following methods of research (MILLER, 1991):

- fundamental research (basic, theoretical or academic), with the objective of acquiring new knowledge and theory development;
- applied research, oriented towards the analysis of problems and finding solutions, contributing at making decisions.

RESULTS

The agricultural potential of West Region is based on fertile agricultural lands, especially on the existence of mollisols that due to high content of humus are considered the most fertile soils for vegetal crop production. The great spread of this type of soils in the West Region and its high fertility turned Western Plain into the second largest agricultural area of the country after Bărăgan Plain. (DAVIDESCU ET AL., 2010)

The West Region has a valuable agricultural potential, comprising an agricultural area of 1,864,096 hectares by 4.9% lower than in 1990, of which 1,090,690 million hectares of arable land - 58.5%, 528,377 hectares of natural pastures – 11.3%, 210,961 hectares of natural grassland - 13.6%, 25,407 hectares of orchards and nursery trees – 1.5% and 8,661 hectares vineyards - 0.5%, which offers the possibility of practicing a complex and competitive agriculture. (NIS, 2015)

Following the evolution of land fund in the West Region for the period 1990-2014 there can be noticed that the area has decreased in all categories of use, but more pronounced decreases were found within vineyards and orchards categories (*Table 1*).

Table 1. Evolution of land fund by categories of use in West Region

Years	Total area	Agricultural area	of which, by categories of use:				
			Arable	Pasture	Meadows	Vineyards	Orchards
1990	3203317	1961074	1126721	552026	234466	11679	36182
1995	3203317	1961906	1098540	588608	232017	10562	32179
2000	3203317	1960766	1096587	590485	232406	9603	31685
2001	3203317	1960656	1097337	590065	232121	9466	31667
2002	3203317	1958610	1096745	592812	229386	8911	30756
2003	3203317	1892888	1089706	554836	211925	8715	27706
2004	3203317	1892291	1089644	554349	211978	8694	27626
2005	3203317	1891126	1088809	553383	212659	8736	27539
2006	3203317	1890124	1087784	553276	212762	8833	27469
2007	3203317	1888329	1087669	551392	213013	8831	27424
2008	3203317	1886429	1083273	554641	212537	8649	27329
2009	3203317	1886915	1090197	550236	210541	8573	27368
2010	3203317	1872375	1089780	537522	211528	8181	25364
2011	3203317	1868417	1868417	534898	211202	8400	25104
2012	3203317	1867381	1090282	532148	211235	8625	25091
2013	3203317	1866423	1091175	529864	211245	8668	25471
2014	3203317	1864096	1090690	528377	210961	8661	25407

Source: NIS, Tempo online database, B. Economic Statistics, B4. Agriculture

The agriculture of Timiș and Arad Counties plays an important role in the overall economy of the Region, with crucial implications on living standard of the population and food security.

The agricultural exploitations of Western Region using the agricultural area have an average size of 6.50 hectares per holding, compared with those at the country level that have an average area of 3.57 ha per holding. It notes the fact that the average size per farm is higher in the West Region than for the whole country.

As in all the country, within the West Region as well there is widely practiced a subsistence agriculture, nonperforming for self-consumption. The lack of association and poor technical equipment of subsistence holdings do not allow practicing an efficient and competitive agriculture. Individual farms (of subsistence) represent 98.4% of total holdings at regional level, with an average area of 2.87 ha and is working 43.8% of total agricultural area.

There can be seen a new emerging category of agricultural exploitations, arranged as self-employed person (SEP), individual enterprise (IE) or family business (FB). These account of 314 in the West Region, comprising a very small share of the total exploitations of only 0.1%, but these holdings are on average of medium size of about 50 ha, family farm generating of income to family members in the West-European meaning.

Holdings with legal personality (agricultural associations, agricultural societies, enterprises, companies etc.) that have a profound commercial character, with the main goal to obtain profit hold only 1.5% of total holdings in the West Region, but hold over 55% of the agricultural area of the Region.

By analyzing as evolving the situation of agricultural exploitations in Timiș County, there can be mentioned an improvement in this respect. Compared to the year 2007 when there was a structural survey in agriculture, the share of individual subsistence farms decreased from 99.3% in the year 2007 to 98.4% in the year 2010, the agricultural area related to these, decreasing too, from 56.5% of total agricultural area, to 43.8%. There can be noticed a trend

of lands consolidation. The family farms in the true sense of the word begin to appear as well, but for now their share is very small (HURMUZACHE ET AL., 2014; SÎRBULESCU ET AL., 2008). The commercial farms, with legal personality have increased, their share of total exploitations increasing from 0.7% as it was in 2007 to 1.5% in 2010, and the agricultural area used by these increased from 43.3% to 55.3%.

The legal status of agricultural exploitations in the West Region is shown in *Table 2*, compared with the national situation. At almost all categories of holdings there can be seen the superiority of average size at exploitations in the West side of the country than that recorded nationally (NIS, 2012, 2015).

Table 2. Agricultural exploitations from the West Region compared to Romania, by legal status

Specification	Agricultural holdings number		Used agricultural area ha		Average area ha / holding	
	West Reg.	Romania	West Reg.	Romania	West Reg.	Romania
A. Agricultural holdings without legal personality:	269727	3828345	774304	7449621	2.87	1.95
- Individual agr. holding	269413	3823130	758960	7151186	2.81	1.87
- SEP, IE, FB*	314	5215	15343	298435	48.86	57.23
B Agricultural holdings with legal personality:	4164	30698	957110	5856506	229.85	190.78
- Societies/ agr. associations	137	1381	71174	550878	519.51	398.90
- Companies	2470	16500	463319	3171130	187.57	192.18
- Public administration units	319	3313	363161	1669337	1138.43	503.87
- Cooperative units	5	68	10	8166	2.00	120.24
- Other types**	1197	9436	59444	456984	49.66	48.43
Total	273891	3859043	1731414	13306128	6.50	3.57

*SEP – self-employed person; IE – individual enterprise; FB – family business

** Autonomous administrations, institutes and research stations, school units of agricultural profile, local councils and municipalities, other public institutions

Source: NIS, Farm Structure Survey in 2010

In order to analyze agricultural production it is necessary to analyze crop production, the evolution of cultivated areas with different cultures. From the data of *Table 3* there can be noticed that during 1990-2014 the total cultivated area in the Western Region was reduced from 1,106,007 ha in 1990 to 907,783 in 2014, thus 17.9%. The biggest decrease of the cropped area is recorded at sugar beet crop from 20,996 ha in 1990 to 3,084 ha in 2014, with 85.3% and at the culture of barley from 97,013 ha in 1990 to 39,969 in 2014, with 58.8%.

Table 3. Evolution of the cultivated area in the West Region (ha)

Years	Agr. area	Total cultivated area	Cereals grains	of which:			Oil plants	Sugar beet	Potatoes	Vegetables
				Wheat and rye	Barley	Grain maize				
1990	1961074	1106007	675392	256532	97013	294018	88372	20996	31522	27730
1995	1961906	1083861	803680	333408	113087	310567	77727	15247	25563	26684
2000	1960766	879705	639042	190384	70805	336347	72345	3123	28168	29859
2002	1960656	1004088	708117	223598	86557	352268	85630	3614	31325	32331
2004	1958610	973373	795589	303847	77128	356357	85135	957	29895	28994
2005	1892888	908639	677994	264202	71580	301082	79271	2395	31594	29255
2006	1892291	851934	614103	233751	60903	282335	98615	2464	31203	32638
2007	1891126	765327	550619	226835	33112	261633	93706	461	29422	29837
2008	1890124	789867	578529	207445	43306	285506	79704	643	29173	33935
2009	1888329	779853	588357	215764	43510	288660	59835	641	31002	30582
2010	1886429	761427	555902	219902	33339	265066	82796	562	30562	29182
2011	1886915	842719	633570	204247	31668	350511	87007	790	26058	30622
2012	1872375	836810	628399	187383	21606	372183	83266	2436	25798	30416
2013	1868417	872392	646593	223314	48131	335545	112644	2291	20113	32672
2014	1867381	907783	675524	242396	39969	347521	116024	3084	20113	32672

Source: NIS, Tempo online database, B. Economic Statistics, B4. Agriculture

There must be noted, however, that the downward trend of cultivated areas was recorded until the year 2010, after that year following an increase of the cultivated area in the Western Region, both in total cultivated area and in most cultures (Figure 1) while the agricultural area is continuously decreasing. This positive trend can be explained in terms of increasing of direct payments to farmers under the provisions of the Common Agricultural Policy, which encourages cultivation of agricultural lands. The trend is similar to the one recorded at national level (Figure 2).

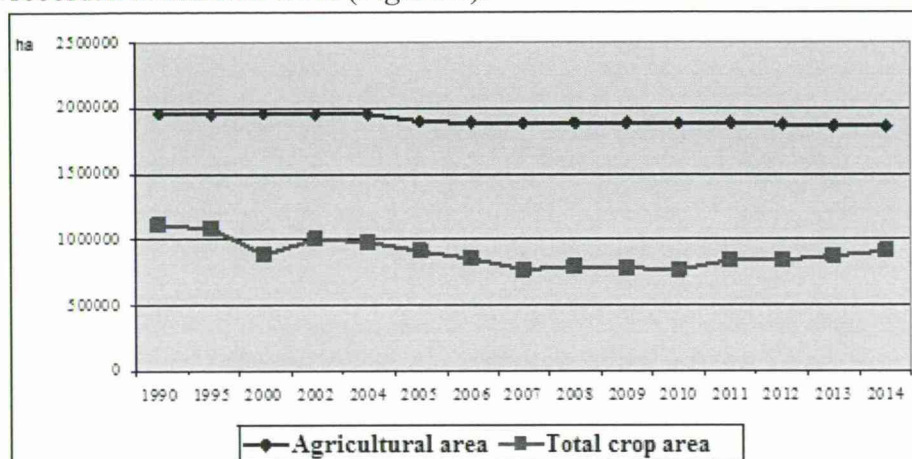


Figure 1. Evolution of agricultural and cultivated area in West Region

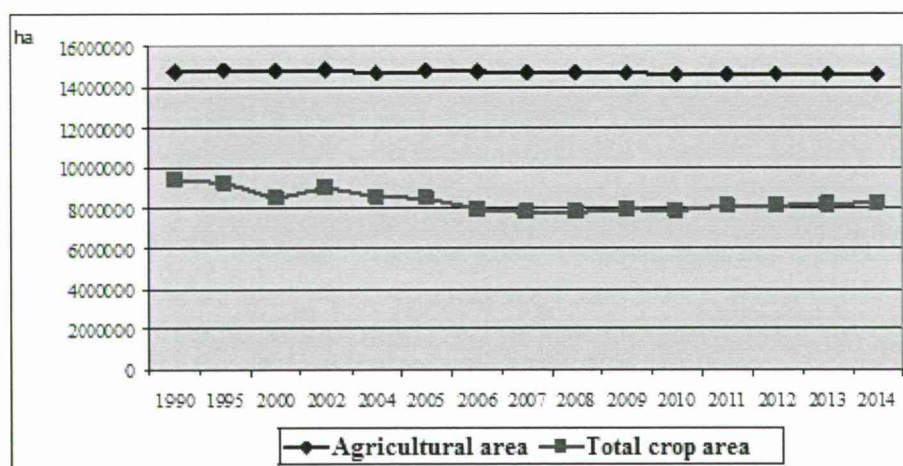


Figure 2. Evolution of agricultural and cultivated area nationally

During the analyzed period the crop production had a fluctuated evolution (Table 4), being closely linked to climatic variations and financial support policies either from the state budget before accession or public funds (Community direct payments and payments from state budget) after accession (GOŞA ET AL., 2012). The support was directed in particular towards certain structures of production (cereals, oily plants), which recorded production increases. This situation has resulted in a surplus of production, which in some periods caused major imbalances in the market, yields being unable to properly capitalize and the obtained prices from the sale of production were in most cases below the achieved production costs. With the entry into the European Union there have occurred as well the direct payments per hectare and six complementary national direct payment schemes in the vegetal sector. A culture concerned was the sugar beet too, that after the year 2010 we are witnessing an increase of cultivated area and production obtained.

Table 4. Evolution of agricultural production for the main crops in West Region (tons)

Years	Cereals grains	of which:			Sunflower	Sugar beet	Potatoes
		Wheat and rye	Barley	Grain maize			
1990	1898296	844482	324067	681585	58179	452210	250749
1995	2572460	1093402	350618	1048875	97309	280342	341427
2000	1371037	477006	164026	674565	48327	27188	323729
2002	2197962	662345	220790	1240311	116932	73843	463611
2004	3390057	1215472	295811	1761420	116583	44587	483774
2005	2409259	856398	193700	1286170	107478	80659	452367
2006	2135544	724123	160638	1181660	102297	72240	457109
2007	1432659	619738	77022	690963	65570	6104	418850
2008	1982138	713104	137825	1024627	95038	24490	406510
2009	1807342	604868	115762	1009614	83692	23381	460621
2010	2034390	657679	82121	1208001	90413	25211	378801
2011	2648659	822601	124363	1570345	114047	39365	366713
2012	1992148	726488	75193	1075699	128957	73901	309132
2013	2683449	968303	192439	1409572	214830	78088	278196
2014	2891097	970499	147547	1637253	243919	166823	272748

Source: NIS, Tempo online database, B. Economic Statistics, B4. Agriculture

The average yield for main crops (*Table 5*) in the Region is above the average at country level.

Table 5. Average yield of main crops (kg/ha)

Culture	2012	2013	2014	2012	2013	2014
	West Region			Romania		
Wheat	3878	4342	4005	2652	3468	3590
Barley	3480	3998	3692	2325	3011	3319
Oats	2109	2485	2641	1743	2051	2124
Grain maize	2890	4201	4711	2180	4488	4770
Grain peas	1099	1418	1422	1572	1719	1864
Grain beans	1036	1072	1255	848	1233	1252
Sunflower	1743	2387	2973	1310	1993	2187
Soybean	1462	1304	2352	1308	2216	2539
Sugar beet	30337	34085	54093	26363	36569	44711
Potatoes	11699	13567	14196	10777	15953	17527
Tomatoes	12022	14055	13386	13761	15488	16102
Dry onion	10702	12962	15142	10449	12152	12770

Source: NIS, Tempo online database, B. Economic Statistics, B4. Agriculture

Livestock in the West Region are below the national average and are in continuously decreasing from 1990 to 2009 in all species, then recording an increasing trend, except in the case of cattle (*Table 6*). These reductions of livestock were driven by low recovery of plant resources, particularly of pastures and meadows, but also by reducing cereals production and of secondary production, due to the large fluctuations in yields. In the same time, the sharp declines of livestock were the result of reducing the capacity of cutting and processing meat. The existence of a large number of livestock on small households, distributed in small number per household characterize the excessive pulverization of livestock destined to self consumption, the quantities for the domestic market being reduced compared to necessity.

Table 6. Evolution of livestock in the Western Region (heads)

Years	Cattle	Pigs	Sheep	Goats
1990	535900	2119500	1569900	85571
1995	314665	1233435	1166554	57849
2000	250170	638010	957579	41311
2002	239050	610676	927567	38560
2004	218478	747080	1044387	29260
2005	225275	772193	1047559	29186
2006	237912	946187	1078478	32080
2007	221939	968022	1136577	47182
2008	207235	931416	1143286	48074
2009	184915	919125	1203825	50484
2010	152492	925307	1269939	53127
2011	143747	932341	1261277	54928
2012	152965	955530	1335866	56232
2013	153660	971672	1426156	62725
2014	157409	945804	1431202	67274

Source: NIS, Tempo online database, B. Economic Statistics, B4. Agriculture

In the livestock breeding sector the diminishing of livestock resulted also in the decrease of total yields for meat, eggs and wool, decreases that could not be offset by the increased average yields. The exception is the total evolution of herds and milk production. It can be seen that (Table 7) West Region is specialized in the production of pork meat (we mention in this regard the Smithfield Complex which is present in all counties of the Region), pork meat production accounting for 26.75% of national production.

Table 7. Farm Animal Production in the Western Region (2013)

	West Reg.	Romania	% West Reg. of RO
Meat - total (tonnes live weight)	200568	1332000	15.05
Beef meat (tonnes live weight)	13675	198000	6.90
Pork meat (tonnes live weight)	148467	555000	26.75
Sheep and goats meat (tonnes live weight)	12000	107000	11.21
Poultry meat (tonnes live weight)	26382	471000	5.60
Milk - total (thousands hl)	4000	48337	8.27
Cow and buffalo milk (thousand hl)	3337	42036	7.93
Wool - total (tonnes)	2818	19713	14.29
Extracted honey (tonnes)	4018	23062	17.42
Eggs Total (million pieces)	533	6398	8.33

Source: NIS, Tempo online database

In what regards the structure of agricultural production, which in fact represents the expression of a balanced development of this economic branch, we consider the share of vegetal yield of 67.3% of the total agricultural yield in the West Region which reflects an inadequate structure, with no preconditions of increasing the capacity of generating the additional added value through livestock yield and particularly through its capitalization in food industry. In fact, the low livestock herds are influencing negatively both the level and price of vegetal yield.

West Region achieved in the year 2013 an agricultural production of agricultural goods and services accounting of 1,986,437 thsd euros, representing 11.2% of agricultural production of the country (17,756,147 thsd euros).

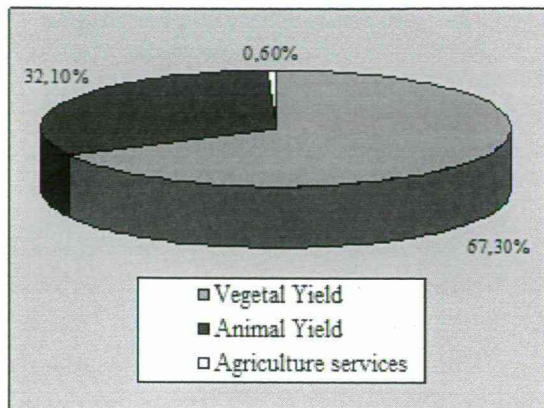


Figure 3. The structure of agricultural branch production in West Region

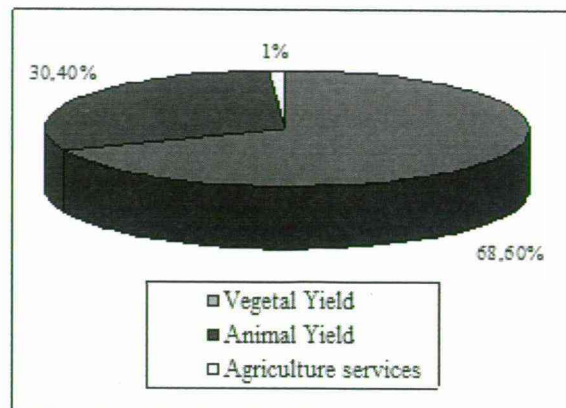


Figure 4. The structure of agricultural branch production in Romania

In the year 2013 crop production in the West Region accounted for 67.3%, while livestock production accounted for 32.1% of total agricultural production. The share of animal production is slightly higher than the national average, which is encouraging (*Figure 3*).

As structure for the analyzed years, there can be noticed small fluctuations of amending the share of the two sectors, vegetal and animal, the vegetal sector dominates much both in the Region and nationally (*Figure 4*).

CONCLUSIONS

- The agricultural potential of West Region is based on fertile agricultural lands, especially on the existence mollisols which are, due to their high content of humus, the most fertile soils for crop production.
- The agricultural area of the Western Region decreased during the study period 1990-2014 in all categories of use, but more pronounced decreases were found in categories of vineyards and orchards.
- The agriculture of Timis and Arad Counties has an important role in the overall economy of the region, with crucial implications on living standard of the population and food security.
- The average size per exploitation is higher than in the West Region than in whole country (6.50 ha/farm in West Region and 3.57 ha/farm nationally).
- Both nationally and in the West Region there is still widely practiced a subsistence agriculture, underperforming for self-consumption. The lack of association and poor technical equipment within the subsistence holdings do not allow practicing an efficient and competitive agriculture.
- Individual agricultural holdings (of subsistence) represent 98.4% of total holdings at regional level, with an average area of 2.87 ha and is working to 43.8% of total agricultural area.
- We note that after the year 2010 an increasing trend of crop area that can be explained in terms of increasing direct payments to farmers under the provisions of the Common Agricultural Policy, which encourages cultivation of agricultural lands.

- Vegetal production presents a fluctuated evolution, being closely linked to climatic variations and financial support policies either from the state budget before the accession or public funds (Community direct payments and payments from the state budget) after the accession.
- The average yield for main crops in the region is above the average at country level.
- Livestock in West Region are below the national average due to poor vegetal resources recovery, particularly of pastures and meadows, but also to reducing grain production and of secondary production, due to the large fluctuations in crop yields.

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