

Alecu, Ioan-Niculae; Szabo, Gyorgy; Nagy, Caroly; Angelescu, Irina

Conference Paper

Context of mutations within the Romanian agricultural sector

Provided in Cooperation with:

The Research Institute for Agriculture Economy and Rural Development (ICEADR), Bucharest

Suggested Citation: Alecu, Ioan-Niculae; Szabo, Gyorgy; Nagy, Caroly; Angelescu, Irina (2016) : Context of mutations within the Romanian agricultural sector, In: Agrarian Economy and Rural Development - Realities and Perspectives for Romania. 7th Edition of the International Symposium, November 2016, Bucharest, The Research Institute for Agricultural Economy and Rural Development (ICEADR), Bucharest, pp. 174-181

This Version is available at:

<https://hdl.handle.net/10419/163370>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

POTATO IN THE AGRICULTURE OF COVASNA COUNTY, IN THE CONTEXT OF MUTATIONS WITHIN THE ROMANIAN AGRICULTURAL SECTOR

ALECU IOAN-NICULAE¹, GYORGY SZABO², NAGY CAROLY³, ANGELESCU IRINA⁴

Abstract

This paper represents an analysis of the way in which the potato-growing areas and yields obtained in Covasna County have evolved, compared to the situation existent at national level. In the introduction and in the first part of the paper, the global and European situation is also mentioned, taking into account the special importance of potato in the human diet in different areas of the world. The period between 2006 and 2014 is analysed, with a special focus on the situation existent in 2014 and with references to the national situation, as it was mentioned before. The evolution of potato-growing areas and yields is also analysed, in comparison with other crops in the production structure of the county, with the aim to explain the meaning of this evolution and taking into account the special importance this crop has always had in the economy of the county. Although the potato-growing areas in the Covasna County have registered, similar to the national situation, a sharp decline, potato continues to have a special significance in the agricultural economy of the county, as well as in the agricultural economy of the entire country, that continues to be ranked the third place among the potato-growing countries at the European level.

Key words: potato, cropped areas, yields, area diminishing, climatic conditions

INTRODUCTION

Due to the particular importance potato has in human diet, globally, it has a large spreading area. In the last years, the trend has been to diminish the potato-growing areas, in the context of a spectacular growth of the yield per ha, and of the development of a food industry that offers a different value to the processed potato. The data from FAO indicate that, globally, the potato-growing areas have stabilized around the level of 18-19 million ha, and in 2014, the global production was of 385 million tons. One third of this production is obtained in Europe (122.6 million tons), and as regards this quantity, half is obtained in the European Union countries, meaning 58.6 million tons.

As at the global level, at the European Union level, a decrease of potato-growing areas has been registered, at the same time with an increase of the yield/ha, especially in countries with a technology-based agriculture, but also in countries such as Poland, where the agriculture was supported post-accession.

MATERIAL AND METHOD

In the European developed countries, that use a high degree of technology in agriculture, the potato-growing areas have decreased considerably in the last years, but, in exchange, the yields per hectare have increased. Romania has also indicated a decrease of the potato-growing areas, but the increase of the yield per hectare has had much lower values than in the European states with a developed agriculture. In the analysis of the general situation of Romania, focused mainly on Covasna County, statistical data from the Romanian National Statistics Institute, Ministry of Agriculture and Rural Development and FAO have been compared and interpreted. The conclusions at the end of this article are also based on the interpretation of the statistical data provided by these sources.

¹ Prof. Alecu Ioan-Niculae, Ph.D., U.S.A.M.V. Bucharest, alecuioannicolae@yahoo.com

² Gyorgy Szabo, engineer, Ph.D. student. U.S.A.M.V. Bucharest, szabogyorgy68@yahoo.com

³ Nagy Caroly, engineer, Ph.D. student. U.S.A.M.V. Bucharest, nagycaroly@yahoo.com

⁴ Angelescu Irina, engineer, Ph.D. student, USAMV Bucharest, anda_irina@yahoo.com

RESULTS AND DISCUSSIONS

According to FAO, in 2014, Romania was the third potato grower in Europe, according to the area, preceded by Poland and Germany, and the seventh, according to the production, preceded by Germany, France, Poland, the Netherlands, Belgium and the United Kingdom.

Table 1. Potato-growing areas and total yields in the European Union, in 2014

No.	Country	Cropped area (ha)	Total yield (tons)
1	Austria	21,400	750,600
2	Bulgaria	10,205	132,651
3	Cyprus	4,741	126,080
4	Denmark	40,200	1,733,400
5	Estonia	6,400	117,300
6	Finland	22,000	600,300
7	France	168,000	8,054,500
8	Germany	244,800	11,607,300
9	Greece	23,700	642,200
10	Hungary	20,980	567,430
11	Croatia	10,310	160,847
12	Ireland	9,500	383,000
13	Italy	52,349	1,365,440
14	Latvia	11,100	209,900
15	Lithuania	27,300	468,500
16	Malta	700	12,559
17	the Netherlands	155,502	7,100,258
18	Czech Republic	23,993	697,539
19	Poland	276,927	7,689,180
20	Portugal	27,200	534,200
21	Romania	202,657	3,519,329
22	Slovenia	3,600	96,844
23	Slovakia	9,105	178,817
24	Spain	75,800	2,467,600
25	Sweden	23,800	822,100
26	United Kingdom	140,000	4,213,000
27	Belgium	81,121	4,380,556
28	Luxembourg	607	18,979

Potato yield in Romania amounts yearly between three and four million tons, a quantity sufficient for ensuring the domestic consumption - of approximately two million tons per year - and also for seeds (approximately one million tons), processing and fodder (almost 40,000 tons).

The Romanians eat annually in average 92.2 kg of potatoes/inhabitant, ranking fourth in EU. On the first places were ranked Portugal, with 126.9 kg/inhabitant/year, Ireland - 118.7 kg/inhabitant/year and Great Britain with 112.4 kg/inhabitant/year.

The most suitable areas for potato-growing are Braşov, Covasna, Harghita, Neamţ, Suceava, Botoşani Counties, closed area for seed potatoes, and for the early potatoes, some areas in Dâmboviţa Counties (Lunguleţu, Brezoaiele), Teleorman (Peretu), Olt and Constanţa Counties.

Covasna County has always been known as the "Potato County", and the Covasna people, traditionally, are important potato-growers.

In general, agriculture has played - traditionally - an important part not only in Romanian economy, but also in the economy of Covasna County.

46% of the Romanian population lives in the rural area, and 60% of the civilian employed population of the rural area works in the agricultural sector as independent farmers. In Covasna County, in 2014, the weight of rural population is of 50.7%, higher than the national average (Table 2). Consequently, the rural specific is more pronounced in Covasna County than in the rest of the country, in general.

Table 2. Evolution of Covasna County population, in average, in the period 2010-2014

Years	Total (number of persons)	Urban		Rural	
		Number of persons	%	Number of persons	%
2010	231,887	114,330	49.3	117,557	50.7
2011	231,186	113,963	49.2	117,223	50.8
2012	230,600	113,637	49.2	116,963	50.8
2013	230,226	113,556	49.3	116,670	50.7
2014	229,563	113,262	49.3	116,301	50.7

The number of persons employed in agriculture, pisciculture, and forestry was of 3 million in Romania, representing 32.8% of the total employed population. In Covasna County, in 2014, the weight of persons employed in agriculture was of 27.8%, decreasing compared to 2011, when the highest weight of the analysed period was registered, meaning 29%. It also has to be noticed that, since 2012, the weight of population employed in agriculture has started to be slightly lower than the population employed in industry, agriculture and industry being the branches with the highest weight in the economy of Covasna County.

Table 3. Employed population, by activities of the national economy

Covasna County	2009		2010		2011		2012		2013		2014	
	Thou sand persons	%	Thou sand perso ns	%	Thou sand perso ns	%	Thou sand perso ns	%	Thou sand perso ns	%	Thou sand perso ns	%
TOTAL economy	83.1	100	80.7	100	81.9	100	84.4	100	83.2	100	83.0	100
Agriculture, forestry and fishing	23.7	28.5	23.2	28.7	23.8	29.0	24.4	28.9	23.2	27.8	23.1	27.8
Industry	23.1	27.8	22.9	28.3	22.9	27.9	23.6	27.9	23.5	28.4	24.6	29.6
Wholesale and retail trade; repair of motor vehicles	12.1	14.5	11.8	14.6	12.1	14.7	12.7	15.0	13.2	15.8	11.8	14.2
Other branches of the economy, cumulated	24.2	29.2	22.8	28.2	23.1	28.2	23.7	28.0	23.3	28.0	23.5	28.3

If in Romania, in 2013, the total agricultural area was of 14.6 million ha, representing 61.29% of the total land resources of 23.8 million hectares, in Covasna County, the weight of the agricultural area was below the national average. The analysis of the mutational indexes of the weight of the agricultural area indicates a decrease both in the EU pre-accession, and post-accession periods, in case of Romania and of Covasna County.

The ratio between the arable land area of Romania and the number of inhabitants indicates that there are approximately 0.41 ha of arable land per each inhabitant in Romania. This value is higher than in many countries in the European Union and almost double compared to the EU-27 average, of 0.21 ha/inhabitant (MARD, 2014).

Table 4. Comparative situation regarding the evolution of the agricultural area in the period 2000-2013

		Romania		Covasna County	
		ha	%	ha	%
Agricultural area	2000	14,856,845	62.32%	186,416	50.25%
	2007	14,709,299	61.70%	186,269	50.21%
	2013	14,611,883	61.29%	185,939	50.12%
Mutational index I (2007/2000)		99.01		99.92	
Mutational index II (2013/2007)		99.34		99.82	
Total area of the land resources	2000	23,839,071		370,980	
	2007	23,839,071		370,980	
	2013	23,839,071		370,980	

Source: Júlia Bíró Boróka, Locul și rolul fermelor mici în ruralul românesc și evoluția acestora sub impactul politicii agricole comune, Editura ASE, București, 2015

It can be said with certainty that the agriculture of Covasna County has a significant potential, with arable lands of more than 83 thousand ha, grazing lands of approximately 61 thousand ha, grassland of approximately 41 thousand ha, and orchards of approximately 592 ha. The arable lands are located mainly in the central part of the county, meaning in the vast Brașov depression and in the river meadows.

Table 5. Land resources, by their use, in Covasna County (hectare)

Covasna County	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total area	370980	370980	370980	370980	370980	370980	370980	370980	370980
Agricultural area - total	186289	186269	186289	186172	186139	186114	186067	185939	185939
out of which, by use category:									
Arable land	83428	86308	83428	83327	83305	83290	83251	83151	83151
Grazing land	60941	58863	60941	60932	60931	60930	60928	60915	60915
Grassland	40906	40092	40906	40899	41311	41302	41296	41281	41281
Orchards	1014	1006	1014	1014	592	592	592	592	592

Source: INSSE Covasna

The largest part of the soils is included in the average fertility class and, a smaller part, in the high fertility class, and the climate conditions allow the majority of cereals, fodder, vegetables and industrial crops to be grown. Traditionally, Covasna County is one of the most important potato and sugar beet growers at the national level, here, the pedo-climatic conditions being ideal for the development of these plants. The orchard grown area has diminished significantly in the last 15 years, currently, it is of approximately 600 hectares.

As regards the weight of agricultural area in the total land resources of Covasna County, it is below the national average of 61.29%, being of 50.12%.

As regards the use of the agricultural land in Covasna County, the arable lands are predominant, being of 45% and having a descending trend during the analysed period.

The weight of grazing lands is between 32 and 35%, having also a descending trend in the entire county. The weight of grasslands varies between 18 and 22%, having an ascending trend between 2000 and 2013. As regards the orchard weight, they occupy less than 1% within OR in Covasna County, while at the national level, it varies between 1.5 and 1.7%. The climatic conditions of

Covasna County result in orchards and vineyards having an extremely low weight in the agricultural economy of the county. Besides, the orchard areas have decreased considerably, from 2006 and until now, being halved.

As regards the structure of the areas cultivated with the main crops, the situation is shown in the next table:

Table 6. Cropped area, with the main crops (hectare)

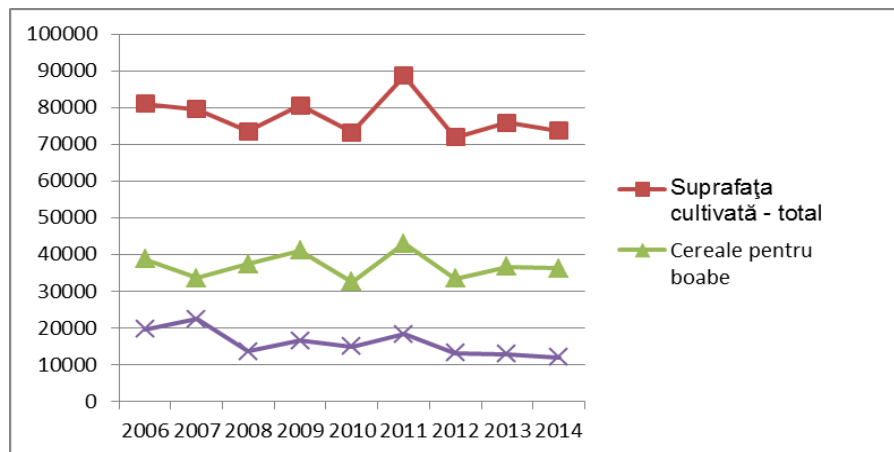
Covasna County	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cropped area - total	81051	79492	73571	80501	73180	88635	71959	75901	73709
Out of which:									
Cereals for the production of grain	38699	33501	37317	40984	32595	42943	33429	36633	36269
▪Wheat and rye	18572	18855	20364	22741	17695	23828	17757	20692	19805
▪Barley and row-barley	11661	8234	10201	11319	8143	9066	7420	5580	5667
▪Grain maize	5893	3908	4403	4564	3858	6644	5577	7276	7039
Oilseed rape	69	97	107	41	294	1142	145	1282	1701
Sugar beet	2688	1943	3050	2585	2952	4204	3036	4169	4157
Potatoes	19631	22388	13550	16497	14904	18299	13153	12889	11937
Vegetables	1845	1939	1522	1426	1055	1497	1403	1280	1238

It can be seen that the largest cropped area was registered in 2011, meaning 88,635 ha. Afterwards, the weight of the cropped areas has started to decline, in 2014 being of 73,709 ha.

From the total of the cropped area, the highest weight is of the cereal crops, with 49.2% of the total cropped area, in 2014. This weight was relatively constant over time.

The cereals are followed, with a significant weight, by the potato-growing areas. However, the weight of this areas has decreased over time, thus, if in 2006 there were 19,631 ha (24.22%), and in the next year 22,388 ha (28.16%), in 2014 their weight has decreased to 16.19% (11,937 ha).

Figure 1. Evolution of the areas under cultivation with the main crops (hectare)



Other important areas are cultivated with sugar beet and vegetables, sugar beet being the only crop the area of which has almost doubled in the analysed period, from 2688 ha in 2006, to 4157 ha in 2014.

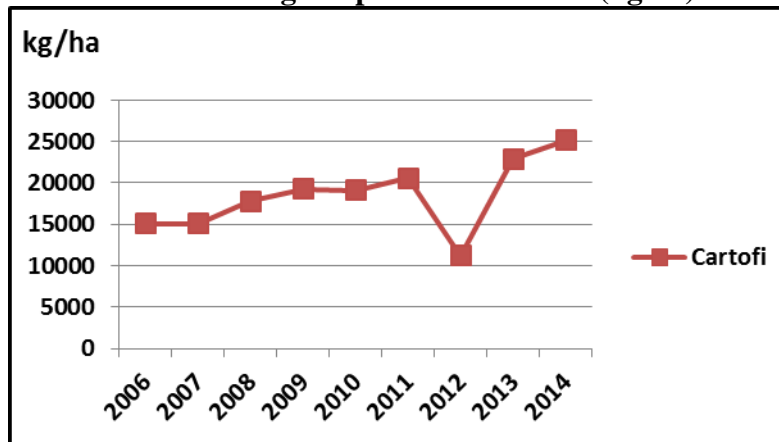
Having yields per hectare above the national average for most of the crops, the crop production has registered important variations year by year, being dependent on the climatic factors.

Table 7. Average yield per ha by the main crops and unit categories

(kg/ha)

Covasna County	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cereals for the production of grain	3146	2453	3655	3073	2741	3608	2489	3314	3510
Wheat and rye	3232	2776	4094	3272	2644	3858	2563	2990	3266
Barley and row-barley	2567	1890	2648	2306	2197	2482	2340	2623	2240
Grain maize	4077	2384	4520	4566	4680	4775	2839	5020	5497
Sugar beet	34173	29396	34701	46771	32160	29923	27834	41357	47025
Oilseed rape	1957	1206	1981	2512	1670	2317	2317	2289	2771
Potatoes	15058	15099	17790	19233	19071	20592	11213	22914	25147
Tomatoes	10145	20169	18517	11849	14056	17455	16133	14326	14023
Onions, dried	12172	11324	12099	12093	10182	11510	9673	11137	11832
Garlic, dried	3024	4450	3674	5250	5250	9000	9000	10000	7700
White cabbage	32259	24156	26233	31674	30327	27000	23541	20887	25132
Peppers	8438	7900	8333	8000	14000	11000	12333	6222	7667

Figure 2. Evolution of yields per hectare, for potato crop, during the period 2006-2014 (kg/ha)



The analysis indicates that the yields are varying year by year, the climatic factor being decisive. For potato, the lowest year was 2012, which was the most unfavourable year for agriculture in general, as regards the climate. However, the main feature of this crop was the increase of yields per hectare. Thus, if in 2006 was of 15,058 kg/ha, in 2014 it was of 25,147 kg/ha.

As regards the agricultural economy of the county and potato crop, the following have to be noticed:

- Until recently, in Covasna County, the potato-growing areas were vast, but in the last years, they have reduced drastically; for Covasna people, potatoes represent more than a plain food, because the welfare of their family depends to a large extent on potatoes.
- The structural post-accession mutations in agriculture have impacted the evolution of the potato-growing areas in Covasna County and elsewhere.
- The problems resulted from the fact that potato growing is very demanding, with high investments and uncertain profits, have determined the farmers in the county to diminish the potato-growing areas or to abandon for good its growing, in favour of more profitable crops.
- The level of yields is also influenced by the efficient technologies, high quality seeds and, to a great extent, by the climatic factors. The dry summers, more frequent in the last years, and also the lack of an irrigation system have resulted in loss of productivity as regards potato, a large water consumer.
- In the last years, the Potato Research and Development Station, Târgu Secuiesc has created more productive and disease- and climate change-resistant varieties that have been patented and awarded at the international exhibitions, but the problem is that "In Romania, the potato seeds are grown only on extremely small areas. As a result, the majority of the farmers are currently forced to buy imported seeds, at a three times higher price than the seeds produced in Romania" (Mike Luiza-Director S.C.D.C. Tg. Secuiesc).
- Many of the seed potato growers could not benefit from the payment of coupled support of EUR 950/ha, because they did not manage to reach the minimum cap of 20,200 kg/ha. Officials of the Ministry of Agriculture consider that the condition imposed to the seed potato growers in order to benefit from the coupled support, meaning the minimum cap of 20,200 tons/ha, is a mistake. It has been assured that the wrong decision will be eliminated in 2017, and the maximum production level will be lowered to approximately 12 tons of seed potatoes per hectare.
- In the last years, the main producers in the county have invested in machineries, have built modern storage areas and have managed to set-up sales channels for potatoes. Thus, they manage to sell their production for supermarkets or processing plants. However, the problem is with the small farmers that are less organized and use less technologies and who struggle to collect their money to be used for the next crop. They are not included in a sale and distribution system, they sell their products by intermediaries in markets or directly in front of their houses. Before the year 1989, the entire yield that was not used for consumption was sold to the Ozun and Tg. Secuiesc starch plants, that were decommissioned after their privatisation.
- The potatoes imported from Germany, Poland, France and other countries in which this crop is subsidised have a lower price than that of the domestic potato.

CONCLUSIONS

The analysis indicated that, although it has a long tradition in Covasna area, in the last years, the potato growing has declined, as regards the cropped areas, the causes being specified above. All these problems have determined the farmers to abandon the potato growing, that is considered unprofitable, and to focus on other more profitable crops.

In order to prevent the problems caused by the lack of water in the vegetation period, determined by the dry summers and the lack of irrigation, the experts suggest the farmers to focus on

early varieties, with a smaller vegetation period and that need less water. Thus, the production costs are diminished and the large losses of production are avoided.

Also, with the aim of streamlining this crop and a profitable valorisation, especially for the small producers, the authorities declare that their own solution is to create associations in view of potato growing and yield valorisation.

To support the seed potato growers and to help diminishing the costs of seeds in order to be used on a large scale by the Romanian farmers, the competent authorities will request the diminishing of the minimum production cap to 12,000 kg/ha in view of obtaining the coupled support.

REFERENCES

1. Bîlteanu Gh., *Fitotehnie*, Editura Ceres, 2001, pag. 215-218
2. Bârnaure V., 1991, *Cartoful în Fitotehnie*, Editura Didactică și Pedagogică, București
3. L. S. Muntean, *Mic tratat de fitotehnie*, Editura Ceres, 1997, pag. 159-165
4. Júlia Bíró Boróka, *Locul și rolul fermelor mici în ruralul românesc și evoluția acestora sub impactul politicii agricole comune*, Editura ASE, București, 2015
5. Eurostat, *Statistical books - Agriculture, forestry and fishery statistics*, 2014 edition
6. FAO Report 2010, part. 3 - *Feeding the world*
7. Anuarele statistice ale României, 2000-2014
8. <http://faostat.fao.org/site/567/DesktopDefault.aspx?PageID=567#ancor>
9. <http://www.fao.org/potato-2008/en/world/index.html>
10. <http://www.agerpres.ro/social/2014/04/08/destinatia-romania-cartoful-principala-moneda-de-schimb-a-covasnenilor-13-14-31>
11. http://www.realitatea.net/suprafe-ele-cultivate-cu-cartofi-in-romania-au-scazut-alarmant-dispare-in-ca-iva-ani_1416655.html#ixzz4MZKIIIUB
12. http://www.romaniatv.net/record-in-agricultura-romaneasca-subventie-de-1-5-milioane-de-euro-pentru-60-de-hectare-de-cartofi_311770.html#ixzz4MZMRnAL2
13. <http://www.revista-ferma.ro/articole-horticultura/gheorghe-botoman-cultivatorii-de-cartof-din-romania-simt-ca-li-se-misca-nisipul-de-sub-picioare.html>
14. <http://www.agroinfo.ro/vegetal/fructe-si-legume/exclusiv-irimescu-recunoaste-ca-plafonul-de-productie-impus-pentru-cartof-e-o-greseala>
15. INSSE Covasna – statistici regionale