

THE MAIN CHARACTERISTICS OF AGRICULTURE AND RURAL DEVELOPMENT IN THE CENTRAL REGION OF ROMANIA

Mirela CĂRĂTUȘ STANCIU

"Lucian Blaga" University of Sibiu, Faculty of Agricultural Sciences, Food Industry and Environmental Protection, 5-7 Dr. Ion Rațiu Street, Sibiu, Phone/Fax:0269/211338; E-mail: mirela_stanciu2008@yahoo.com

Corresponding author: mirela_stanciu2008@yahoo.com

Abstract

The paper presents the main features of agriculture and rural development in the Central Region. The Central Region consisting of 6 counties covers 14.3% of the country's territory. Mureș and Covasna counties have the largest share of rural space (over 87%). The agricultural area of the region (1,900.4 thousand ha) represents 13% of the existing area at national level. It has the following categories of use: arable 40%, pastures 34%, hayfields 25.3%, vineyards 0.5%, orchards 0.5%. In the Central Region there are approx. 394 thousand agricultural holdings. In 2018, the 56 thousand sheep farms in the region, owned 22.76% of the existing sheep farms nationwide. The 72 thousand cattle farms in the region owned 17.48% of the national cattle herd. Agriculture in the Central Region has an important and diversified natural potential. The share of the rural population in the region is 42.4%. The share of the population employed in agriculture and forestry in 2018 was 16.8% of the regional labor force. As at national level, the population employed in agriculture is aging and has a low level of education (96.4% of people in agriculture have only practical experience). Mureș County has the largest share in the value of regional agricultural production (24.2%). In 2019, four food products made in the Central Region out of the seven existing at national level were registered on the European quality schemes (PGI and PDO). The agri-food sector in the region is boosted by professional training courses for farmers, IT platforms that connect small farmers and buyers, the organization of fairs, exhibitions, culinary and agricultural festivals.

Key words: animal breeding, agriculture, rural development, sustainable development, education, certified products and traditional recipes

INTRODUCTION

The Central Region occupies an area of 34,100 km², which represents 14.3% of Romania's territory. The counties that belong to the Center Region are Alba, Brasov, Covasna, Harghita, Mures and Sibiu. According to National Institute of Statistics (NIS) data, the population of the Central Region, at the beginning of 2016, was 2.3 million inhabitants, with a density of 69 inhabitants/sq km. The Central Region ranks first place at national level in sheep farming and in the cultivation of sugar beet, potatoes, hops, green fodder, hemp and flax for textile fibers. The Central Region also ranks 3rd position at national level in cattle farming and rye cultivation [1, 2, 3].

MATERIALS AND METHODS

In order to write this work, a number of specific agricultural indicators were analysed,

such as: the share of rural space by counties; categories of use of the agricultural area; herds of animals by species; number of agricultural holdings; competitiveness of the agricultural sector; population employed in agriculture; the level of education of the population employed in agriculture; the value of agricultural production. Also, local products and traditional dishes from the region were identified. Examples were given of institutions and organizations in the Central Region involved in education, training and innovation in the agri-food field. Statistical data and information needed for the analysis of those indicators in the Central Region were taken from the National Institute of Statistics (NIS); Ministry of Agriculture and Rural Development (MARD); National Agency in Zootechny; National Commission of Statistics; Centre Development Agency. In order to realise this paper numerous specialized bibliographical references have been consulted.

RESULTS AND DISCUSSIONS

Geographical delimitation of the analyzed rural environment

The geographical delimitation of the rural environment analyzed at the level of the Central Region was based on the criterion of administrative-territorial division, which thus supports the statistical information. Thus, the counties with the largest share of the rural area are Mureş and Covasna (almost equal), followed by Harghita County (Figure 1). At the opposite pole is Braşov County, followed by Alba and Sibiu.

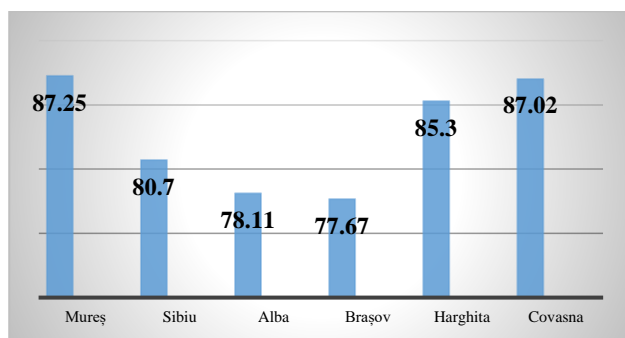


Fig. 1. The share of rural space in the counties of the Central Region (%)

Source: own design based on the statistic data from [3].

At the end of 2015, there were 357 communes in the Central Region. These represent 12.5% of the total number of communes in Romania. These communes belong to 1,788 villages,

which represent 13.8% of the total number at national level. Most communes are in the counties of Mureş (91) and Alba (67), and the fewest in the counties of Covasna (40) and Braşov (48) [3].

The agricultural area of the Central Region

The agricultural area of the Central Region is 1,900.4 thousand ha representing 55.7% of the total area of the region and 13% of the agricultural area of Romania.

According to the mode of use, the structure by categories of the agricultural area is: arable 40%, pastures 34%, hayfields 25.3%, vineyards 0.5%, orchards 0.7%.

As can be seen from Table 1, the largest shares of agricultural areas are recorded in Mureş and Harghita counties (61.2% respectively, 59.6% of the total area). Harghita County has as a share, the largest areas of pastures and hayfields (approximately 80% of the agricultural area), and the smallest area is in Covasna County (50.1% of the total area). Covasna County has the largest area covered by forests and forest vegetation (44.5% of the total area).

The cultivated area at the level of the Central Region, by crops was in 2018 the following : fodder 33%, corn 30%, wheat and rye 17%, potatoes 7%, barley and barley 6%, vegetables 3%, sunflower 2% and beets 2 % [1].

Table 1. The structure of the Agricultural Surface of Centre Region at the end of year 2015 (ha)

	Total surface	Agricol Surface	From which :				
			Arable	Pastures	Meadow	Vineyard	Orchards
Romania	23,839,071	14,684,963	9,422,529	3,313,785	1,528,046	215,382	205,221
Reg. Centre	3,409,972	1,909,376	769,004	641,985	475,174	9,080	14,133
Alba	624,157	328,164	131,608	119,562	71,585	4,493	916
Braşov	536,309	282,698	123,749	97,086	60,440	3	1,420
Covasna	370,980	186,172	83,327	60,932	40,899	-	1,014
Harghita	663,890	396,538	91,716	146,962	157,060	35	765
Mureş	671,388	410,250	221,563	109,618	72,265	1,879	4,925
Sibiu	543,248	305,554	117,041	107,825	72,925	2,670	5,093

Source: own calculation, based on the statistic data from [2, 3, 14].

Exploitation of meadows in the Central Region

The Central Region ranks 1st place at national level in terms of grassland. By sustainably capitalizing on mountain pastures, livestock could be significantly increased, while maintaining their current area. The

maintenance and exploitation of grasslands must comply with the requirement to maintain biodiversity [19].

Animal breeding in Region Centre

Animal husbandry is relatively well developed in all counties of the region. In the mountainous area, the large areas of natural

pastures and meadows are favorable for animal husbandry, constituting the main agricultural activity. Sheep farming, a traditional activity of the inhabitants of the Cindrel Mountains, the Sebeş Mountains and the Bran area, has been in slight decline in the last decade due to the difficulties regarding the capitalization of the production. Mureş and Harghita counties are famous for the quality of their cattle. Mureş County also has a strong pig breeding sector. Poultry farming has registered a strong development in recent years by building large and modern farms, located mainly in the counties of Alba and Brasov. A significant number of the approximately 394 thousand farms in the Central Region owned livestock. Thus, in 235 thousand farms were registered birds, 145 thousand farms owned pigs, about 72 thousand farms raised cattle, almost 56 thousand households had sheep and 52 thousand farms were registered horses [2, 3, 15]. The total number of animals registered in the Central Region in 2018 was: 2.31 million sheep, 141 thousand goats, 374 thousand pigs, 345 thousand cattle, 53 thousand horses, 211 thousand bee families and almost 8,5 million bird heads. It is noteworthy that in the Central Region grow 22.76% of sheep and 17.48% of existing cattle at national level [1]. At the county level, most cattle were registered in Harghita and Mureş, and the largest herd of dairy cows was registered in Braşov and Harghita counties (Table 2) [3].

Table 2. Total number of cattle at national level and in the Central Region (heads, 2016)

Specification	Total	of which:		
		State sector	Private sector	Family farms
National level	2,163,050	6,050	2,157,000	1,943,273
Centre Region	373,810	7,606	372,254	319,029
ALBA	64,203	101	64,102	54,627
BRASOV	59,425	789	58,636	47,246
COVASNA	39,710		39,710	39,710
HARGHITA	89,089		89,089	1,943,273
MURES	71,601	456	71,145	319,029
SIBIU	49,782	210	49,572	54,627

Source: own calculation, based on the statistic data from MARD [16].

The largest flock of sheep is found in Sibiu County, most pigs in Braşov County, and the counties were ranked first places for birds were Braşov, Mureş and Alba. (Table 3 and 4) [18].

Table 3. Total number of sheep at national and Central Region level as at 30 June 2017 (heads)

Counties	Total	Public	Private	Family farms
TOTAL	13,770,857	20,259	13,750,558	13,222,785
Centre Region	2,847,975	1,672	2,842,293	2,766,762
ALBA	478,072	0	478,072	476,000
BRASOV	573,225	0	573,225	516,750
COVASNA	216,900	0	216,900	216,900
HARGHITA	318,642	0	318,632	313,462
MURES	626,619	1,397	625,222	623,000
SIBIU	634,517	275	634,242	620,650

Source: own calculation, based on the statistic data from MARD, Accessed on 20th september 2020 [16].

Table 4. Total number of pigs at national and Central Region level, 2016 (heads)

Counties	Total	of which:	
		State sector	Family farms
TOTAL	3,757,212	11,518	2,014,165
Centre Region	380,757	188	226,849
ALBA	89,798	188	84,979
BRASOV	115,851	-	42,700
COVASNA	31,673	-	31,673
HARGHITA	29,207	-	28,526
MURES	71,750	-	19,940
SIBIU	42,478	-	19,031

Source: own calculation, based on the statistic data from MARD [16].

According to the existing data on the specialized website of the National Agency for Animal Husbandry, at the level of the Central Region there are several breeding companies that keep genealogical registers for purebred animals. Their number at the level of the central region and by species is: cattle: 3, buffaloes: 1, horses: 1; sheep: 1 [6].

Accredited associations for the control of their own individual performance of breeding animals (6 for cattle, 1 for sheep and 1 for goats) also operate in the region [6].

Competitiveness of the Agri-Food sector in the Central Region

The turnover of the agri-food sector is approx. 7% of the total Central Region. The highest share of the value of agricultural production in the regional total had in 2017 Mureş County (25%) [1].

Population employed in agriculture in the Central Region

In the Central Region, the share of urban population is 57.6%, which places it among the most urbanized regions of the country.

The main occupation of the rural inhabitants of the Central Region is agriculture, which benefits from an important and diversified natural potential.

The population employed in agriculture at the end of 2014 represented almost 23% of the total employed population of the region. Only a small part of them had the status of employees. In 2018, the share of the population employed in agriculture and forestry was 16.8% of the regional labor force [1, 2].

Table 5. Population employed in agriculture and forestry at the end of 2014 (thousand people)

	Totally employed population	Population employed in agriculture and forestry	No. average of employees in agriculture, and forestry
Centre Region	1,026.4	230.5	12.98
Alba	159.6	45.3	2.77
Braşov	240.5	29.3	2.98
Covasna	83	23.1	1.66
Harghita	130.5	40.7	1.77
Mureş	230.2	65.5	2.34
Sibiu	182.6	26.6	1.46

Source: own calculation, based on the statistic data from NIS [15].

Proportionally, the largest population employed in agriculture in 2018 was in the counties of Harghita (23.6%), Mureş (21.8%) and Alba (21.6%), and the lowest in the counties of Braşov (9, 11%) and Sibiu (10.6%).

Table 6. Structure of the population employed in agriculture by age in 2013 (%)

	Under 35 years old	Between 35-54 years	Over 55 years
Romania	4.7	30.8	64.4
EU28	5.9	37.7	54.9

Source: own calculation, based on the statistic data from Eurostat [11].

As shown in various specialized studies and according to the European Commission's

indicators on the age structure of the population employed in agriculture, it is observed that both at European level and especially in Romania, the population employed in agriculture is aging [17, 22].

Another feature that characterizes the population employed in agriculture is the low level of education. Most people have only practical experience. The phenomenon is observed in all European Union countries, but in Romania it is more accentuated.

Thus, at the level of the Central Region 96.4% of the population employed in agriculture have only practical experience, 3.1% have basic training and only 0.5% have complete agricultural training [1].

The value of the agricultural production of the Central Region

In 2014, the value of the agricultural production of the Central Region was 8,989 million lei, representing 12.1% of the value of Romania's agricultural production, 11% of the value of vegetable production, 14.5% of the value of animal production and 7.3% of agricultural services.

Mureş is the county with the highest share of the value of regional agricultural production (24.2%) followed by Alba county (almost 20%), and Covasna and Sibiu counties with the lowest share (12.6% and 11.7% respectively).

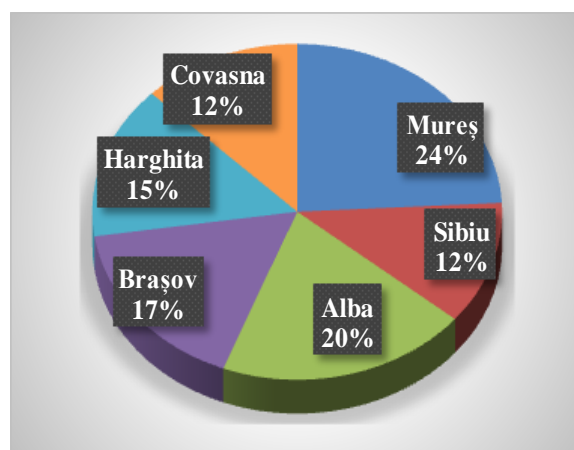


Fig. 2. The share of counties in the value of regional agricultural production achieved in 2014

Source: own design based on the statistic data from [2, 3].

Agriculture is an area of interest of foreign investment funds for the purchase of land and

farms, but also for their cultivation and operation. The land in Romania has major advantages for investors, due to the fact that there are very large areas of land that can be included in the area of organic crops, which raises the price of the final product. Another advantage is the price of agricultural land, which is quite low compared to other European countries.

Local, traditional and culinary products and recipes originating from the Central Region recognized at national and European level

For the implementation of agricultural policies, the so-called quality schemes were created at national and European level: traditional product, Romanian traditional recipe, protected designation of origin (PDO), protected geographical indication (PGI), guaranteed traditional specialty (TSG), mountain product.

At national level, 1,719 food products are certified under these quality schemes [4, 5, 19, 20, 23, 24].

In 2015, out of the total of 542 traditional products existing in the National Register of Traditional Products (RNPT), approximately 45% or 242 traditional products are from the Center Region. The largest number is meat products (104), followed by dairy products (60), bakery and pastry products (52). The county with the most registered traditional products is Brasov (158 traditional products), followed by Alba county (48 traditional products) and Covasna county (21 traditional products) [2, 3].

In 2016, at national level, there were 116 well-known Romanian recipes registered, out of which 21 by companies with headquarters in the Central Region. Most products are milk (9 products) or meat (9 products) followed by bakery products.

In 2020, 255 producers with 1,021 products certified on this quality scheme are registered in the National Register of Mountain Producers [5].

Regarding the food products recognized at European level, Romania had in 2019 seven products. Among them, the following products come from the Center Region:

Telemea de Ibănești (DOP), Telemea de Sibiu, Novac smoked from Țara Bârsei and Salam de Sibiu (IGP) [1, 2, 4, 5].

Education, training and innovation in agriculture in the Central Region

Vocational training and innovation in agriculture in the Central Region is provided by various institutions and organizations, including: Adept Foundation, Mihai Eminescu Trust Foundation, AgroEco Viscri Association, World Vision Romania Foundation (demonstration farm and agricultural training and consulting center - Agrovision Crit farm), farmers' associations, departments of the Agency for Payments and Interventions in Agriculture and of the County Directorates of Agriculture and Rural Development [12, 13, 25]. In the last 20 years they have implemented hundreds of projects with different funding for farmers' training, marketing of agricultural products, biodiversity conservation, food security and rural development.

The profile faculties in the Central Region that train specialists in the field of agriculture and food industry provide theoretical and practical training in a classic or online system [7]. Also, in collaboration with various institutions, higher education teachers have provided vocational training courses for farmers in the region.

At the level of the Central Region there are three research institutes and five research stations [1].

Innovation in agriculture can be exemplified by the creation of the “malltaranesc” IT platform of the Growing Romania Together Association. This is an interface between manufacturers and buyers, the products ordered online can be delivered by courier. On the platform are offered over 600 certified products made by approx. 1,300 farmers and craftsmen [8].

Another example of continuing consumer education on local products and gastronomy and contribution to rural development is the activity of the My Transylvania Association. Their values are sustainability, connection with nature, sustainable development, involvement and continuing education [9]. The association organizes alternative events

and implements innovative projects aimed at supporting small local producers. The online store "Eat Local" has recently been launched, through which food can be bought directly from producers.

In the sustainable management of the forest fund of the region, solutions based on information technology are proposed, which start from the identification of needs and offer viable, high quality, open source solutions [10].

The promotion of local, traditional or ecological products, the organization of events in rural areas and vocational training contribute to the sustainable development of the agri-food sector [21, 23, 24].

CONCLUSIONS

Strengths of the agricultural sector in the Central Region

The Central Region occupies top positions in the following sub-domains of agriculture:

- 1st place at national level: sheep herds, cultivation of sugar beet, potatoes, hops, green fodder and hemp and flax for textile fibers,
- 2nd place at national level: cultivation of tobacco and alfalfa,
- 3rd place at national level: herds of cattle, cows, buffaloes and heifers and rabbits and rye cultivation;
- Out of the 100 strongest Romanian brands, 14 are brands from the food industry in the Central Region;
- Presence of active clusters that support businesses in the regional agri-food sector;
- It has products and recipes originating from the Central Region recognized at European level.
- Also, of the Romanian food products recognized on different European quality schemes, four originate on the territory of the Central Region;
- The agri-food sector in the Central Region is stimulated by organizing fairs, exhibitions, culinary and agricultural festivals;
- There are opportunities for initial and continuing training in agriculture and the food industry.

Challenges for the agricultural sector in the Central Region:

- Subsistence agriculture predominates, and this results in a series of efficiency problems;
- The population working in the field of agriculture is aging and with a low level of education.

Recommendations

Research institutes and stations can be involved in the development of sub-domains within the agricultural sector of the Central Region by ensuring quality seeds, providing specific technologies and equipment, developing good practice guides (particularly for improving grasslands).

There is a need to preserve valuable local genetic material: creating a seed bank and maintaining indigenous breeds of animals (especially sheep). The Central Region has a comparative advantage over potato crops, sugar beet, medicinal plants.

To support local animal breeders, they should be encouraged to develop their own capacity to capitalize on raw materials of animal origin.

It is necessary to certify on different quality schemes the products obtained in small farms, especially those in the mountain area.

It is necessary to educate children and inform consumers about the benefits of consuming certified products. By consuming local products, especially mountain dishes, we contribute to the maintenance of traditional agricultural activities. This leads to the development of mountain households, as well as the maintenance of the population in mountain areas.

There is a need for vocational training of small farmers, including for the higher use of agricultural products and the involvement of educational institutions in this type of activity. Research topics should focus on agricultural applications of research conducted at the level of technical universities in the region.

Actions are needed to increase the safety of local agricultural products.

It is necessary to make agriculture profitable, to develop related economic activities, to create viable economic alternatives in rural areas.

In order to make better use of the products made in the Central Region, it is necessary to set up zonal centers for processing agricultural

products of animal origin under the subordination/supervision of the relevant authorities. These would be an important support for small farmers and an additional guarantee for consumers in terms of food safety.

Applied research could help to stimulate the association of small agricultural producers in order to streamline the supply and sale of their own products (eg agricultural warehouses).

Projects can be implemented to improve the marketing of local products and to educate consumers about local food and products.

Local governments must continue to be involved in organizing promotional events and farm visits. Through these local events we can strengthen consumer confidence and attachment to regional agri-food products (the concept of "open farms" for students, promoting authentic agrotourism).

Innovation in the agri-food sector needs to create applications on the phone to inform farmers about different technical solutions. Digital and automation applications are needed for farm management. They may include staff training programs or advisory services for farmers.

REFERENCES

[1]ADR Centru, 2020, Focus grup – Sectorul agroalimentar. Strategia de specializare inteligentă în Regiunea Centru 2021-2027, 18 septembrie 2020 (Agency of Rural Development Center. Focus group-Agri food sector. Smart specialization strategy in the Center Region 2021-2027, September 18, 2020).

[2]ADR Centru, 2016, Raportul evenimentului de descoperire antreprenorială de tip Focus grup pe domeniul "Sectorul Agroalimentar", 29 septembrie 2016, Alba Iulia (Agency of Rural Development Center, 2016, Report of the Focus group entrepreneurial discovery event on the "Agri-Food Sector" field, September 29, 2016, Alba Iulia).

[3]ADR Centru, 2011, Studiu privind agricultura și dezvoltarea rurală în Regiunea Centru, Alba Iulia (Agency of Rural Development Center, 2011, Study on agriculture and rural development in the Central Region, Alba Iulia).

[4]AFIR, Catalogul Produselor Alimentare Certificate, 2020 (Agency for the Financing of Rural Investments, Catalog of Certified Food Products), <https://cpac.afir.info/Conectare?r=%2FHarta-Produselor>, Accessed on 20.09.2020.

[5]Agenția Națională a Zonei Montane, 2020, Produs montan de la munte pe masa ta (National Mountain

Area Agency, 2020, Mountain product on your table, <https://produsmontan.ro/>, Accessed on 10.09.2020.

[6]Agenția Națională pentru Zootehnie "Prof.dr. G. K. Constantinescu", 2020, Liste cu societățile de ameliorare care conduc registre genealogice pentru animalele de rasă pură (The National Agency for Animal Husbandry "Prof.dr. G. K. Constantinescu", 2020, Lists of breeding societies keeping genealogical registers for pure-bred animals), <http://www.anarz.eu/informatii-de-interes-public/lista-cu-societile-de-ameliorare-recunoscute-list-of-breed-societies-recognised>, Accessed on 26.09.2020

[7]Alexandrescu, D., C., Toncea, I., Robescu, V., 2010, Romanian e-learning experience in ecological agriculture, Education'10: Proceedings of the 7th WSEAS international conference on Engineering education, p.45–47.

[8]Asociația Creștem România Împreună, 2020, Coșul săptămânal și producători locali (Growing Romania Together Association, 2020, Weekly Basket and Local Producers), <https://malltaranesc.ro/>, Accessed on 30.09.2020.

[9]Asociația My Transylvania, 2020, Educație gastronomică și dezvoltare durabilă (My Transylvania Association, 2020, Gastronomic education and sustainable development), <https://mytransylvania.ro/echipa-si-proiectele-noastre/> and <https://manancalocal.ro/de-ce-sa-mancam-local/>, Accessed on 20.09.2020.

[10]Bratu, I., 2019, Open source solutions to improve the quality of sustainable forest management, MATECWebofConferences290.

[11]European Commission, Jobs and growth in rural areas (EU 27), Romania, http://ec.europa.eu/agriculture/cap-indicators/context/2015/c23_en.pdf, Accessed on 24.09.2020.

[12]Fundatia Adept, 2020 Dezvoltarea comunității și Agricultură (Adept Foundation, 2020 Community Development and Agriculture), <https://fundatia-adept.org/ro/dezvoltarea-comunitatii/>, Accessed on 30.09.2020.

[13]Fundatia Mihai Eminescu Trust, 2020, Satul trainic (Mihai Eminescu Trust Foundation, 2020, The enduring village), <https://www.mihaieminescutrust.ro/contact/>, Accessed on 30.09.2020.

[14]INSE, 2010, Exploatații agricole și suprafața, pe categorii de folosință a suprafeței agricole utilizate, pe județe (National Institute of Statistics, 2010, Agricultural holdings and area, by categories of use of used agricultural area, by counties), <http://www.insse.ro/cms/files/RGA2010/Rezultate%20definitive%20RGA%202010/Volumul%20I/Tab2J-județe.pdf>, Accessed on 10.02.2019.

[15]INSE, 2010, Exploatații agricole cu efective de animale și efectivele de animale, pe principalele specii, pe județe (NIS, 2010, Agricultural holdings with livestock and livestock, by main species, by counties),

<http://www.insse.ro/cms/files/RGA2010/Rezultate%20definitive%20RGA%202010/Volumul%20I/Tab3J-judete.pdf>, Accessed on 02.02.2019.

[16]MADR, 2017, Creșterea animalelor (MARD, 2017, Animal Husbandry), <http://www.madr.ro/cresterea-animalelor.html>, Accessed on 03.02.2020.

[17]Popescu Agatha, 2019, Trends in labour productivity in Romania's agriculture, 34th International-Business-Information-Management-Association (IBIMA) Conference, Vision 2025: Education Excellence and Management of Innovations Through Sustainable Economic Competitive Advantage, pp. 9999-10016.

[18]Popescu Agatha, 2017, Analysis of sheep and goats livestock and milk and meat production in Romania, 2007-2016. Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 17(4), 267-280.

[19]Sava Sand, C., Antofie, M.-M., 2019, The conservation of plant genetic resources for food and agriculture: consumers' perspectives analysis in Sibiu Agri-Food markets, Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 19(3), 499-506.

[20]Sava Sand, C., Antofie, M.-M., 2019, The conservation of plant genetic resources for food and agriculture: the conservation of plant genetic resources for food and agriculture: sellers' perspectives analysis from Sibiu's agri-food markets, Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 19(3), 507-512.

[21]Simtion, D., 2015, Profitability in the context of the needs and requirements of sustainable farms development, Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 15(1), 470-475.

[22]Soare, E., Chiurciu, I. A., 2017, Main tendencies in the labor market in the Central Region of Romania, Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 17(1), 419-426.

[23]Stanciu Cărătuș, M., 2015, Aspects of sustainable rural tourism – farmers markets and farm visits”, Scientific Papers. Series "Management, Economic Engineering in Agriculture and rural development", Vol. 15(4), 15-20.

[24]Stanciu Mirela, 2013, The attitude and motivation of buyers of traditional/ local/bio products in the context of agrotourism, in Sibiu county, Romania, Scientific papers Series Management, Economic Engineering in Agriculture and Rural Development, Vol. 13(4), 273-277.

[25]World Vision România, 2020, Ferma demonstrativă și centru de formare și consultanță pentru fermieri (Demonstration farm and training and advisory center for farmers),

<https://worldvision.ro/2013/08/18/ferma-agrovision-model-pentru-invatamantul-agricol-si-opportunitatile-ue/>, Accessed on 30.09.2020.