

The Importance of Association for Smart, Sustainable and Inclusive Development of Rural Area

Daniela Trifan¹, Daniela Ecaterina Zeca²

Abstract: The paper presents a case study on economic growth and improved results by association of small agrifarms. The study subject was *BRAICOOP* Agricultural Cooperative, founded in 2009, which bunching up farmers with less 6,000 ha surface area and now increased to 17 000 ha and more than 46 members. The paper emphasis advantages of association for practicing modern and scientific agriculture, and shows the benefits of applying technology on large, but optimal surfaces. Following the study, results that a maximum efficiency of production increased profits by over 40%. Adapting to the farmers' needs, an agrochemical analysis laboratory was founded under cooperative, in 2014. The present study reveals that so gathered farmers aware the importance of scientific approach based on technologies and analysis.

Keywords: cooperatives; economic efficiency; agricultural economics

JEL Classification: D02

1. Introduction

Romania "Agricultural Cooperatives Law" defines agricultural cooperatives as "an autonomous association representing individuals and / or legal, as appropriate, legal entity of private law, constituted on based freely expressed consent of the parties, in order to promote the interests of cooperative members in accordance with cooperative principles, which are organized and operate under this law "(Law 566/2004). Advantages associations of farmers in cooperatives are numerous, the most important being:

- timely delivery of raw materials needed for production at prices as low as possible;

¹Research scientist, PhD, Braicoop Agricultural Cooperative, Braila, Romania, Tel./Fax: +40239/626362, Corresponding author: dana.trifan@yahoo.com.

²Lecturer, PhD, "Dunarea de Jos" University of Galati, Engineering and Agriculture Faculty of Braila, Romania, Address: 47 Domnească Str., Galati 800008, Romania, Tel./fax no 0374.652.572, E-mail: Daniela.Zeca@ugal.ro.

- reducing the number of intermediaries in the supply chain and reducing the risk of not having the disposal of products;
- opening prospective helping streamline production (agricultural consulting, analyzes agrochemicals, marketing services and so on).

Agriculture is one of the major branches of the Romanian economy. The Romanian contribution of agriculture, forestry, fisheries in gross domestic product stands around 4.5% of GDP, while for EU Member States is approximately 1.7% (MARD, 2015). The paper presents a BRAICOOP Agricultural Cooperative case study, the economic analysis and the possibilities for further development.

2. Benefits of Small Farms Association in Cooperatives

Role and importance of cooperatives are obviously increasing in the global financial and economic crisis. In many countries, cooperatives have more effective crisis response than investor-owned firms. The resilience of cooperatives is increasingly recognized, and makers and opinion-makers are keen to understand how cooperatives can play a role in addressing the dramatic consequences of the global crisis and the reform that contributed to its generation (<http://www.euricse.eu>).

One-third¹ of European agricultural holdings are in Romania, with an average area of 3.6 hectares, according to recent Eurostat data, provided by the agricultural census conducted in 2013-2014 in all Member States. Thus, in 2013, in the European Union there were about 10.8 million agricultural properties, of which more than a third (33.5%) is in Romania. Applying two criteria farms are divided into 7 categories, depending on the size surfaces exploited and evolution of the number of farms in 2013 compared to 2005 (Figure 1).

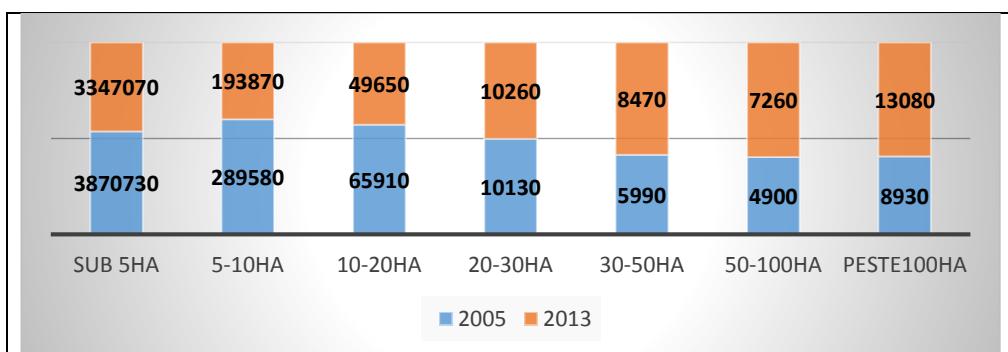


Figure 1. Evolution of the number of farms in Romania, depending on the size of cultivated land in 2013 compared to 2005

¹ 3.34 million - in 2013.

Common Agricultural Policy (CAP) imposed and developed by the European Union is integrated and powerful, consisting of two pillars of support for agriculture: Pillar I - direct payments and Pillar II - rural development. Targeted on these objectives of the CAP is outlined a long-term food security; supporting agricultural holdings so that they can provide quality agricultural products and diversified closely with consumer demand; achieving viable rural communities where farming to occupy an important role in terms of providing jobs and ensuring economic, environmental and social balanced territorial development (Glogovetan, 2014). By applying the common agricultural policy, are taken into account both smart growth, increasing intensive agricultural production by technical progress, innovation, training the workforce and protecting the environment and sustainable growth, by keeping the balance between economic growth and protection environment, which can be achieved by practicing sustainable management of natural resources, preservation rural landscapes and mitigation of climate change and increase vitality of rural areas, developing local markets, shortening the chain commercial outlets for agricultural products, restructuring the agricultural sector and maintaining farmers' incomes according the sub-measure 9.1. of the RDP.

Why farmers should be organized as cooperatives ?

- Production members can be planned according to the contract with customers;
- Group of producers can invest more easily in modern technology;
- Armed with the necessary facilities for grading, packing and storage of products, cooperative members benefit from them, without own investment, leading to increased profits;
- Cooperatives can apply for funds for revamp and research, to restart the issues facing members;
- Farmers can get financial aid and preferential loans, with the EU legislation;
- Easier procurement of pesticides and seed material at more favorable, negotiated prices for higher amounts tendered possibility.

3. BRAICOOP Agricultural Cooperative – Case Study

3.1. Short description of BRAICOOP Agricultural Cooperative

BRAICOOP Agricultural Cooperative was founded in 2009 as an independent association with the aim of integrating economic activity carried out by members. Agricultural Cooperative is under Law 566/2004 enforce, as amended by Law 134/2006 and Law 32/2007. BRAICOOP is a cooperative at European level, active in the production and marketing of cereals.

Joining the BRAICOOP is voluntary. BRAICOOP members retain ownership and choose their leader from among themselves. Decisions regarding association issues are taken democratically. Internal regulations not imposed from outside, but at BRAICOOP are determined by vote of the members in the General Assembly. The Association provides better exploitation of resources, land, better procurement of inputs to its members, and better use of agricultural products - all these services are consistent with the objectives of the association and all are oriented in the interest of its members. Since 2014 the BRAICOOP started agrochemical laboratory analysis of soil, plant, fertilizer and water, and all members can benefit from.

In 2015, BRAICOOP Agricultural Cooperative purchased a basic building, mechanical workshop, warehouse and land at Baldovineşti, Braila County.

It is intended to store agricultural products and fertilizers, to establish laboratory for quality seeds, silo dryer and here BRAICOOP will implement the new great project. Current BRAICOOP Agricultural Cooperative activity is to provide marketing services, productions and the acquisition of pesticides necessary for members by organizing auctions. It also provides expert advice in agriculture and agrochemical informative mappings carried both members and third parties by own chemical and phytopathology analysis laboratory.

The time evolution of the company has been one upward both by increasing from year to year the number of cooperative members, the services provided for them, and by setting up the laboratory and purchasing base in Baldovineşti in to make major investments, conditioning and storage of agricultural products, but also for further research and development, and land holding which may be set up experimental plots. So, graphs bellow summarizes the results of production and financial developments for the main crops in the BRAICOOP.

In 2015, total agricultural output amounted to 32.955 million tons. Corn occupy - 30% in the structure of culture, wheat - 28% sunflower - 18%, barley - 16% Soybean - 6%, the rest consists of rape, pea, sorghum and triticale.

Evolution of corn production was rising, but the chart shows that the differences between the production and the quantity of production increased in recent years, which mean that the price of corn was decreasingly compared to 2012 year (Figure 2).

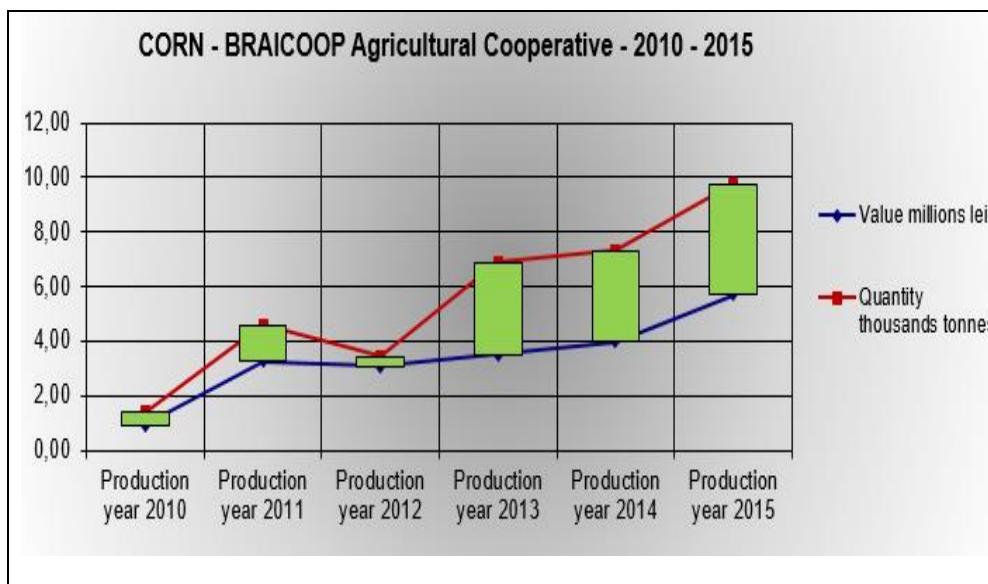


Figure 2. Evolution of value and quantity production for corn, in BRAICOOP

Evolution of wheat production was also increasing, and the differences between the volume sold and the price received from the sale was still increasing, the price is still lower, corroborated with rising productions (Figure 3). Thus, from 2010 to 2012, the price of wheat has been increasing at the national level from 0.59 lei/kg to 0.91 lei/kg, then the trend has been downward, to 0.73 lei/kg.

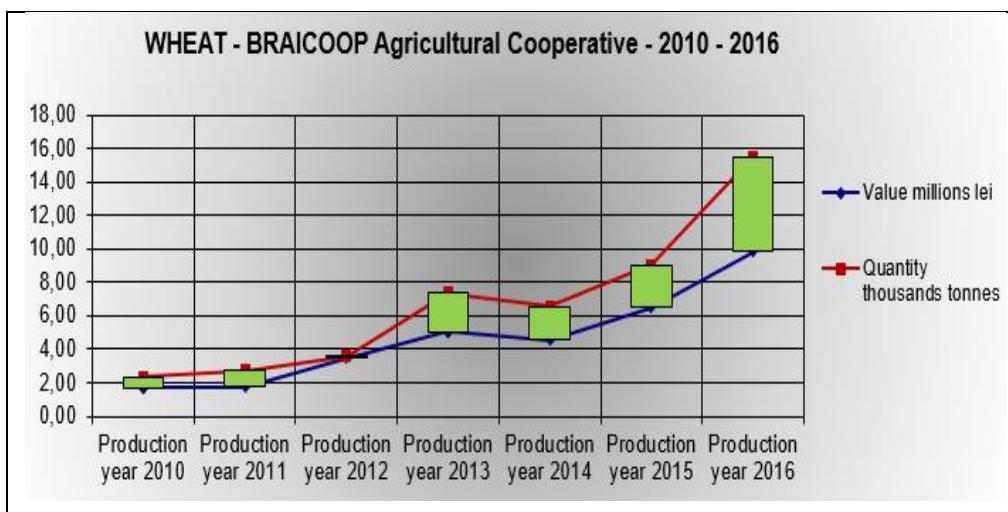


Figure 3. Evolution of value and quantity production for wheat in BRAICOOP

However, BRAICOOP Agricultural Cooperative managed to get a price level increased compared to the national average of 0.72 lei/kg in 2010, to 0.97 lei/kg in 2012 and in 2016 obtained a price of 0.71 lei/kg.

Evolution of production and the amount collected by BRAICOOP Agricultural Cooperative for sunflower crop in the period 2010 - 2015, is outlined that 2014 was unfavorable in terms of climate for sunflower (Figure 4).

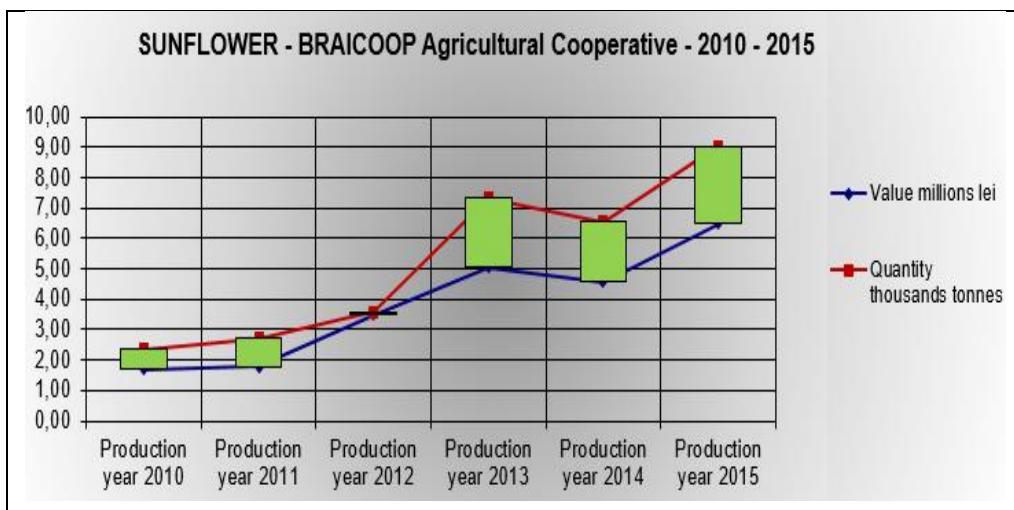


Figure 4. Evolution of production for sunflower in BRAICOOP

Barley production was growing at BRAICOOP, although the price has declined over the past 3 years (Figure 5), from 0, 86 lei/kg in 2013 to 0, 58 lei/kg in 2016.

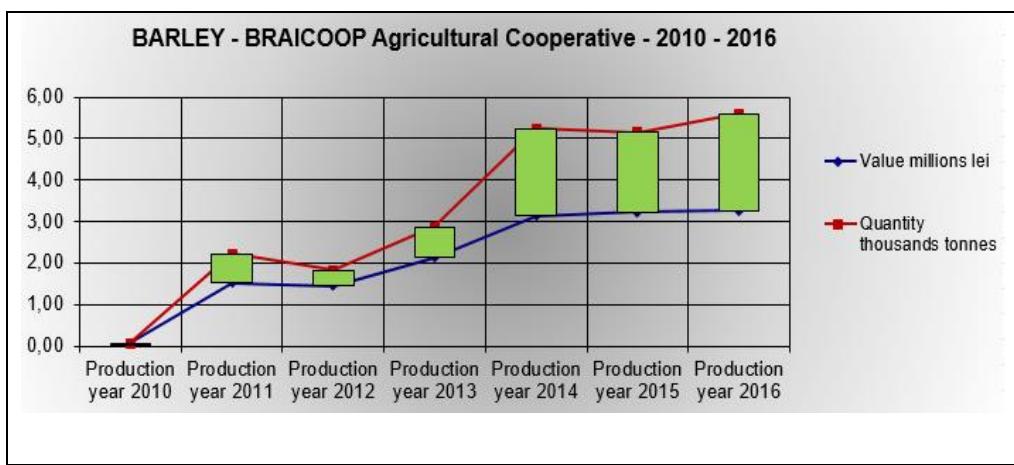


Figure 5. Evolution of production for barley in BRAICOOP

The same upward curve was recorded for soybean production in BRAICOOP Agricultural Cooperative, also (Figure 6).

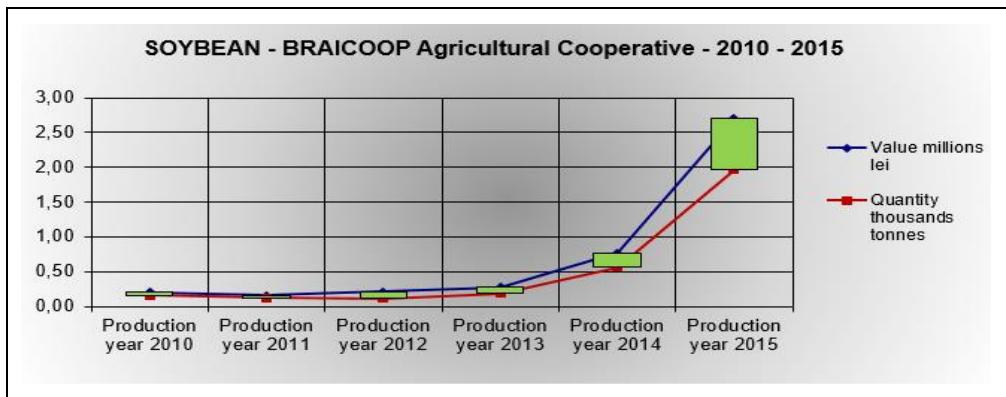


Figure 6. Evolution of production for soybean in BRAICOOP

3.2. Economic Analysis of BRAICOOP Agricultural Cooperative

Studies indicate that less than 50 years will require more food than currently at a rate of 70%. It is very clear that the system will have improved food manufacturers starting with producers and ending with consumers.

These imperatives must not remain an expression of willpower or just statistics, but realistic solutions must be found at:

- climate change;
- water scarcity;
- consumer preferences;
- materials production and market volatility;
- Poverty rural population.

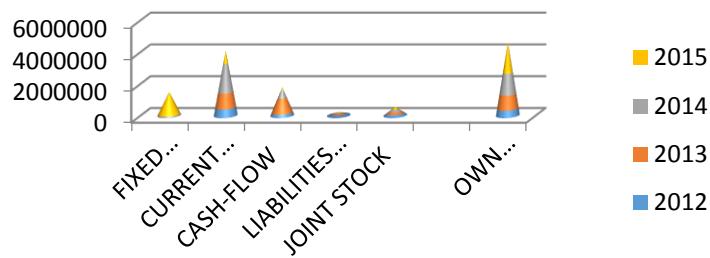
The private sector is trying to find solutions to these issues manage risks and cope with situations above. These issues require innovative ways or remodeled older solutions, but focused on a strategic approach.

In the case study, that we present, we have taken into account the financial and accounting data on a period of four years to substantiate the idea of cooperatives in the efficient use both of material and human resources and assets.

Table 1. BRAICOOP, Excerpt of balance, 2012-2015

	FIXED ASSETS	CURRENT ASSETS	CASH-FLOW	LIABILITIES > 1 Y	JOINT STOCK	OWN CAPITAL
2012	7521	518196	185743	79645	133000	444072
2013	4719	951200	929590	53840	121900	915279
2014	77007	1768529	451224	41261	129600	1323031
2015	1384550	831460	203737	30162	149100	1929093

It is noteworthy, both in below Figure 7 and above Table 1 that BRAICOOP cooperatives has led an increase in own capital and fixed assets, that leading to the idea that small entities coagulated into cooperatives are best capitalized and become competitive on the market.

**Figure 7. Small entities coagulated into cooperatives are best capitalized**

As we can see, Figure 8, the trend has been growing both net profit and expenses.

Spending has doubled since 2015 compared to 2012 was made a major investment in fixed assets over which all members agreed BRAICOOP.

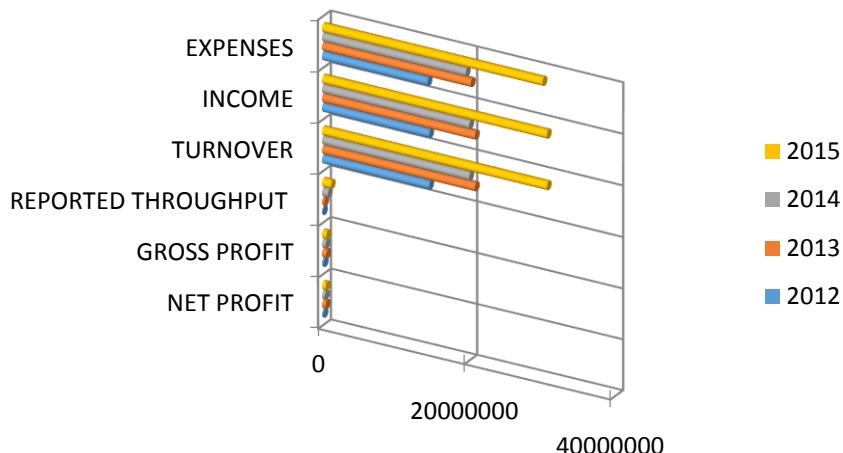
It is a fact that such an investment would not have been possible if members of the cooperative evolved as individual on the market.

Investing ensure a normal flow on the value chain and empowers each member individually, making it more competitive.

Table 2. BRAICOOP results, 2012-2015

	NET PROFIT	GROSS PROFIT	REPORTED THROUGHPUT	TURNOVER	INCOME	EXPENSES
2012	187125	221549		116510	14639728	14419535
2013	482407	573303		303635	20886997	20314757
2014	400052	474571		786042	20116430	19646167
2015	499449	593127		1198957	30719899	30127924

ROA measures the performance of the company's net asset after calculating the tax- analyzes multiannual.

**Figure 8. Evolution of income and expenditure trends to BRAICOOP**

$$\text{ROA} = (\text{NP} / \text{OC}) \times 100$$

It is indicated that a multi-annual analysis to find uptrend. This is not happened in 2014, 2015 because the new acquisition, but will be in the next years.

The yield for obtaining operating revenue expenditure, for the period under review 2012-2015, is the highest level in financial year 2013 and lowest in 2015 (Table 4).

Table 3. ROA BRAICOOP

	ROA
2012	41.94951
2013	52.59109
2014	26.38171
2015	25.49178

Table 4. rRe, BRAICOOP

rRe	
2012	0.015270603
2013	0.028168685
2014	0.024010641
2015	0.019728864

“Leverage Ratio on short, medium and long term with a value greater than one means high leverage ratios. A value exceeding 2.33 express a very high degree of indebtedness, the company being able to be even in the state of imminent bankruptcy, if the result exceeds several times the 2.33 threshold.

If BRAICOOP “leverage ratio” is less in 2012- 2015 (Table 5) express that the total indebtedness of the company in relation to equity is one under, loans made no constitute a threat.

Table 5. Ra, BRAICOOP

Ra	
2012	0.179352
2013	0.058824
2014	0.031187
2015	0.015635

Analyzing (Table 6) in which is expressed BRAICOOP efficient use of assets, namely their contribution to getting results, according to the formula:

$$Ra = \frac{Pb}{At} \cdot 100 = \frac{Pe + Pf + Pex}{Ai + Ac} \cdot 100.$$

it results that in 2013 was implemented the most effective use of the BRAICOOP assets and 2015 the least efficient.

The explanation derives from the fact that the years 2014 and 2015 were years with major investments were made in infrastructure, as follows:

- In 2014 was established Laboratory for agrochemical mapping, which is tooled with the latest generation of equipment;
- In 2015 was acquired based on Baldovinesti, which will be processed and stored agricultural products harvested by cooperative members.

Table 6. Ra BRAICOOP

Year	Ra
2012	0.496666
2013	0.625004
2014	0.312959
2015	0.302731

Economic rate of profitability of assets can be expressed as a ratio between the total result for the year or total gross profit (Pr) and total assets (At), consisting of assets (Ai) and current assets (Ac) values as year-end trial balance:

$$\begin{aligned} Ra &= \frac{Pr}{At} \cdot 100 = \frac{\sum qp - \sum qc}{Ai + AC} \cdot 100 \\ Ra &= \frac{\sum qp}{At} \left(1 - \frac{\sum qc}{\sum qp} \right) \cdot 100 = E_{At} (1 - C/1leuCA) \end{aligned}$$

The analysis model proposed above indicates that the economic rate of return of the asset is influenced by two direct factors: total assets and cost effective for 1 leu turnover, whose influences maybe determined by the method *chain substitutions*.

To increase the rate, BRAICOOP can act to increase efficiency using total assets and reduce costs to 1 leu turnover.

4. Conclusion

- Agricultural Cooperative is a European model and optimal functional and entering such an associative structure increases the profitability of any farmer.
- By calculating the difference in cost per hectare of wheat, between farmer cooperatives and other non-integrated in the form of associative value are smaller by at least 50 euro, only the tax exemption. Adding the price differences in inputs negotiated if the cooperative and much higher sale prices of products, leading to a much higher gain in the end.
- In addition to much lower production costs, where cooperative members, plus advisory services provided by agrochemical analysis laboratory, with which members can practice a scientific and sustainable agriculture.
- Another advantage of integration of farmers in cooperatives is the possibility of accessing European funds by the cooperative, through which they can diversify and develop infrastructure more easily and efficiently than a simple farm.
- Creating partnerships beneficial to members (partnerships with educational institutes for the transfer of innovation), and creating of permanent and seasonal jobs.

5. References

- Glogovetan Oana Eleonora (2014). *Evolution farms in Romania – fundamental element of the rural economy*. PhD Thesis, Cluj Napoca.
- ***2007-2012 Statistical Yearbook of Romania 2012, 2013, 2014 tab. 11.1.
- ***Eurostat, Farm Structure Survey 2013. Updated: January 2016.
- ***General data about agriculture in Romania – www.madr.ro.
- ***Guide prepared by the National Agency for Agricultural Consultancy.
- ***<http://www.euricse.eu>.
- ***<http://www.madr.ro>.
- ***<http://circa.europa.eu/Public/irc/dsis/Home/main>.
- ***<https://www.stiriagricole.ro/beneficiile-asocierii-o-cooperativa-cu-200-de-membri-poate-scoate-de-pe-piata-orice-producator-22141.html>.