Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 19, Issue 2, 2019
PRINT ISSN 2284-7995, E-ISSN 2285-3952

THE NECESSARY OF LABOR FORCE IN THE TWO CONVENTIONAL AND ECOLOGICAL AGRICULTURAL SYSTEMS

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Abstract

In this paper, it is desired to establish the differences regarding the agricultural labor force needs for two different systems, namely the conventional and the ecological system. In the first part of the paper, in quantitative and qualitative terms, we will analyze data on labor force evolution in Romanian agriculture, using the data provided by the National Institute of Statistics. This first analysis supports the determination of the existing labor force in agriculture in order to determine whether this can be sufficient for both conventional and organic farming systems. In the second part of the paper, the specific labor force needs will be determined for some cereal crops analyzed in parallel in both conventional and ecological systems. With the help of the indicators in the technological sheets, it will be possible to achieve an average of labor force between crops in order to determine the specific differences between the labor needs between the two agricultural systems.

Key words**:** *evolution, Romania, labor force, conventional and ecological*

INTRODUCTION

Agriculture has become an area of interest not only for specialists involved in research activities, but also for the general public, mainly representing consumers / agricultural producers. Being an interdisciplinary field, based on mutual influences in the field of agriculture and environmental protection, the terminology used has new meanings, resulting in the emergence of a specific language [2].
Of the population employed by economic activity, it is confirmed that the balance of the labor force includes persons through whom incomes are generated in the economic or social activities carried out, on the basis of legal contract.
In Europe, agriculture is the most important sector, because it is a food producer that is essential for life. Farmers producing both processed and unprocessed agricultural commodities and raw materials for the food, feed and textile industry [3].
The European Union places a special emphasis on obtaining products of plant and animal origin through organic farming methods and encourages those who practice such agriculture. Organic farming offers many advantages: a higher percentage of employment, although the labor force needs in organic farming are higher compared to the conventional system; in economic terms, organic farming ensures profit, even if the harvest records losses [4]. Financial and economic crisis effects have come forward by a reduction of workplaces and unassailably, releasing labour into unemployment, by restricting and slowing down the processes of creating new workplaces, having direct consequences locking young people's access at the labour market and labour market egress of people with assailable position [6].

MATERIALS AND METHODS

The present paper is subject to the analysis with data regarding the labor force evolution in the Romanian agriculture, but also the labor force specific needs for some grain crops analyzed in parallel in both conventional and

ecological system with the data provided by the National Institute of Statistics (INS) and the Ministry of Agriculture and Rural Development (MADR), using the quantitative and qualitative comparative analysis of data from the analyzed period 2010-2017. From the technological charts, data will be extrapolated to achieve the average labor force between crops in order to observe the distinctive differences between the need for labor and the two agricultural systems.
The specialty literature comprises a series of scientific papers which present the results obtained after the economic research carried on in the ecologic agriculture sector [5].

RESULTS AND DISCUSSIONS

In the first part of the analysis we want to evaluate both the current stage and the evolution of the labor force level in agriculture in Romania. Labor force in agriculture was analyzed through the statistical data provided, referring to the employed population in different sectors of the economy.
The figure below analyzes the labor force in agriculture, comparing it with other sectors of the national economy to find out the position of the former.

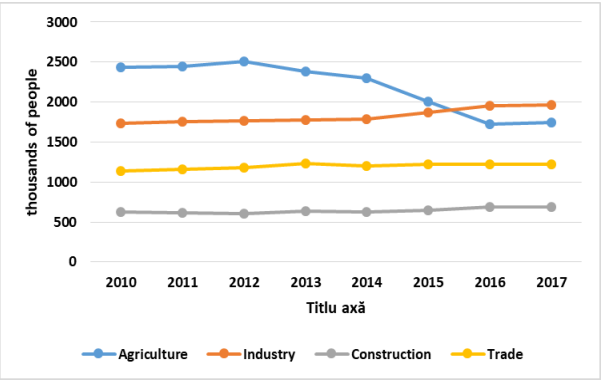

Fig. 1. Evolution of the employed population in different national economic activities.
Source: processing based on INS data

As can be seen from Figure 1, the number of persons working in agriculture was the highest among all the other activities of the national economy in the period analyzed 2010-2015, showing a decreasing trend, cumulated with the fact that the number of working persons in the industry registered increases , the latter has surpassed the branch of agriculture, so in the last two years you have analyzed the branch that registered the largest number of workers was the industry, a positive fact for the economic development of the country, considering the average structure of the European Union.
The other two branches were construction and trade, they registered a slight trend of growth, but well below the level of the first two branches of the national economy.

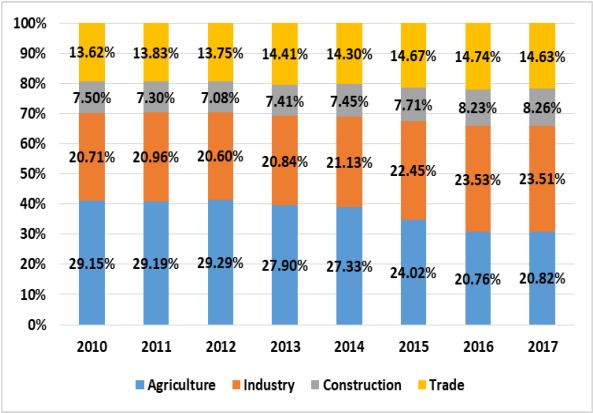

Fig. 2. Determining the labor force weight for the main economic branches Source: processing based on INS data

Of the employed population in agriculture, it can be noticed that its share in the total labor force decreases in the analyzed period 2010-2017, from 29% to 21%, due to the fact that the number of people working in this field recorded an average annual negative rate , of -4.7%, and the average of the agricultural labor force was 26%. In industry, on average, about 21.7% of the employed population is employed, but in the last two years the share has increased significantly, becoming the branch with the largest number of jobs, namely 23.5% of the total, annual growth rate of 1.8%.
Trade accounts for about 14% of all jobs on average, a slight upward trend, with an average growth rate of 1%.
Regarding the construction sector, it is observed that it offers the fewest jobs among the 4 branches analyzed, but it holds a fairly significant weight, on average, of 7.6%, with annual increases of 1.44%.

The following aspects can be observed regarding the number of persons working in agriculture and their status by analyzing at once the structure of the labor force as well as of the employed population in this field.

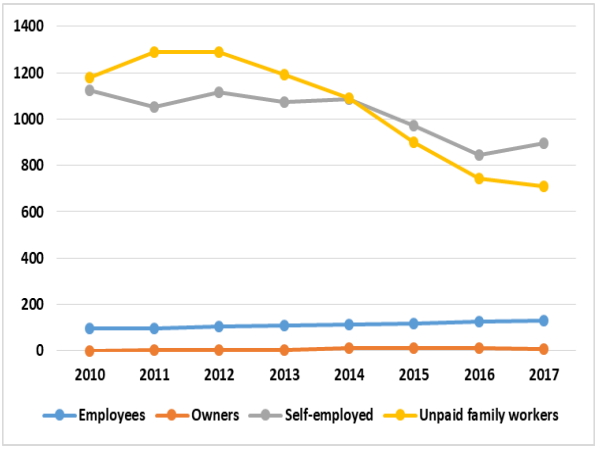

Fig. 3. Determining the structure of the labor force in agriculture, and its evolution
Source: processing based on INS data.

As can be seen from Figure 3, most of those working in agriculture are self-employed or unpaid family workers. There is a relatively small number of employees, compared to the other categories, and a smaller number of employers. In 2010-2014, of the four categories, the workforce for the family was the most numerous, but they declined in the following period, with an average annual rate of -7%. In the second part, in the first part of the analyzed period, the workers were registered on their own, but they became the most in the last period (about 900 thousand persons). Of the other two categories, we can recall that on average there were 114 thousand employees and 7 thousand employers, both of which registered increasing trends, with an average annual rate of 4% and 33%, respectively. Analyzing the share of each professional status in the agricultural sector, between 2010 and 2017, two categories can be seen in the Figure 4.

Figure 4 shows that people working in agriculture are divided into non-family workers, with an average share of 47.85% over the entire analyzed period, and the other main category being self-employed, with an average share of 46.51%.

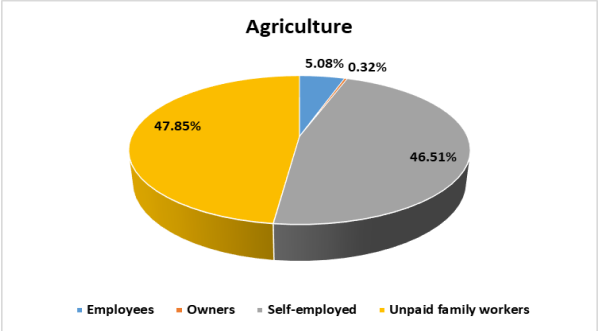

Fig. 4. Structure of employed population in agriculture during 2010-2017
Source: processing based on INS data.

Of the total number of people working in agriculture, only 5.08% were employed during the reference period, and only 0.32% were employers. Analyzing in comparison the persons working in agriculture according to the professional status with the professional status at national level, for all economic branches can be seen the differences in Figure 5.

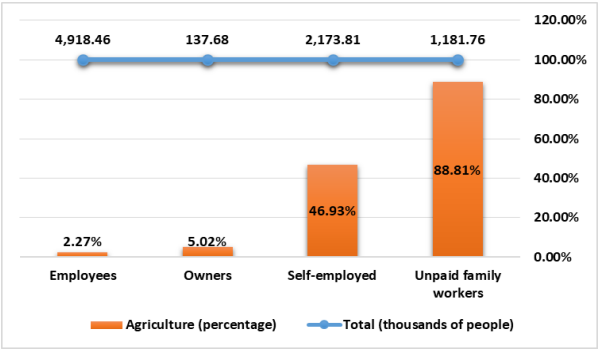

Fig. 5. Share of the employed population in agriculture from the total in the period 2010-2017 according to the professional status
Source: processing based on INS data [8].

Figure 5 proposes the comparative analysis of the number of persons working in agriculture, in relation to the total number, according to the professional status, of the 1.18 million people working for the family, not remunerated, about half and 89% are found in agriculture. Self-employed in the agricultural field account for 47%, out of a total of 2.17 million, and in the category of those holding agricultural activities, respectively employers occupy 5%, while in the same field of activity, only 2.3% represent the employees of the total labor force available on the market.

Analyzing the differences in labor force between conventional and organic agriculture,

it was proposed to analyze the labor consumption indicator for the first three crops in the crop production structure (field crops) in terms of production value, namely maize, wheat and sunflower. Achieving an average of time consumption for both production systems, we notice the following difference.

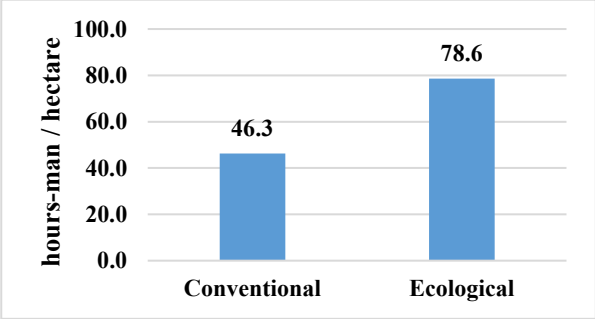

Fig. 6. Average skill gap between conventional and organic farming
Source: data processing based on Ursu et al. (2017), [12].

CONCLUSIONS

Agriculture is one of the basic branches of the economy in our country, able to bring a substantial contribution to the revival of the economic growth [1].As a result of the statistical analysis of the Romanian households, it is noted that the largest part of the expenses of households is assigned to consumption. "The size and structure of these expenses are directly influenced by the level of incomes. There are other factors that differentiate the level and structure of consumption expenses, the effects of which are cumulated at the level of households according to different features "[7].
If the reduction of the labor force was not a social problem, from an economic point of view, the shift from conventional farming to organic farming would not negatively influence the activity of the farm with regard to labor costs [10]. The necessity of training and improving the labor force in agriculture derives from the fact that the practice of some professions in the agricultural field (vegetable, animal breeding, etc.) presupposes the scientific knowledge of the physical, chemical, biological processes, etc, on which plant and animal production depends [9].

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