

FADN AS AN INDICATOR OF THE SUCCESS OF AGRICULTURAL PRODUCTION

Ljubica Ranogajec^{1*}, Jadranka Deže¹, Snježana Tolić¹

¹Faculty of Agriculture in Osijek, Josip Juraj Strossmayer University of Osijek, Kralja Petra Svačića 1d, 31000 Osijek, Croatia

*e-mail: Iranogaj@pfos.hr

Abstract

Farm Accountancy Data Network (FADN) is based on the annual bookkeeping collecting production, economic and financial data from a sample of farms, classified into groups according to the criteria of economic farm size, type, or the type of agricultural production and regional affiliation. The aim of this paper is to point out the latent possibilities for use of bookkeeping information in agricultural production, as well as a reliable tool in the hands of managers in planning production, performance of many business activities and decision-making.

Data obtained from the FADN system are submitted to the relevant institutions for the creation of the Croatian and the European Union agricultural policy, as well as feedback to holders of farms. Return information about the operations of the farm can point to weaknesses and inefficiencies, and to point out the possibilities of improving the technological and economic factors of production. Total FADN sample includes about 85,000 farms of the European Union. The 28 member states representing approximately 6,000,000 farms, which comprise 90% of the total cultivated land, 90% of livestock cattle and so the total value of agricultural production. In Croatia in year 2013 evidenced 233,276 farms. FADN area of research relating to the economies that have a production value of above € 4,000, and their number is 92,249 of which a representative sample of 1,251 FADN economy.

Agricultural producers that regularly record accurate data on their own activities are able to control and improve their business results by means of feedback reporting, and are also more successful in reaching right business decisions.

Key words: Farm Accountancy Data Network, Success indicator, Bookkeeping, Farms.

1. Introduction

In modern conditions of business, information's are one of the most important prerequisites for successful business management. The importance of information for business decision making in today's conditions is much higher than before, and this importance grows steadily. Accounting information's are the most important source of information for farms. In the business, family farm accounting information are kept to the necessary minimum to meet the legal obligations [1].

A large number of family farms, namely 72%, have serviceable accounting and, accounting information's are not used in the organization and planning of production. Therefore, many producers do not have the ability to compare current and planned results with past results, so they do not know where they lose money or make profit.

In developed countries practice, the need for monitoring of business of the family farms was identified, so different countries introduced systems of technological and accounting records. These records had mutually certain similarities, but also differences. With the creation of the European Union there was a need for equalization of the methodology for keeping business records in a family farms, and therefore a unique system of bookkeeping was formed for all member states, Farm Accountancy Data Network (FADN).

2. Implementation of FADN in Croatia

Farm Accountancy Data Network (FADN) was founded in 1965 to help agricultural producers to analyze and determine the financial performance of production and business. FADN sample includes the majority of family farms in the EU-28 as well as the most of used agricultural land and livestock, and the values of agricultural production [2].

Statistical data obtained on the basis of information's from this system are being made public by the European Commission and they serve for creating of the EU Common Agricultural Policy. The fact is that in agricultural production biological, technical and technological knowledge is being largely used, while less known are organizational and economic principles and possibilities of improving the results of production and business operations using accounting systems and methods of farms management.

Implementation of the Farm Accountancy Data Network - FADN on commercial farms aims at monitoring and evaluating production, economic and financial results for internal and external users. External users are the Republic of Croatia and the European Union which on the basis of FADN data measure the impact of the Common Agricultural Policy on agriculture in the Member States of the European Union. Internal users of FADN information's are the owners of farms that are included in the FADN system

The European Union in 1965 published minimum required records of financial data in agriculture called Farm Accountancy Data Network - FADN, necessary for the calculation of the profit of farmers and determining of the financial effects [3]. The Republic of Croatia joining the European Union on 1st July 2013 is bound to apply the Farm Accountancy Data, according to the Law on Agriculture (NN 66/01, 83/02) and according to the Regulation on the establishment and implementation of the Farm Accountancy Data Network (NN 46/08) also according to the Regulation on the Farm Accountancy Data Network (NN 70/13). Establishment of the Farm Accountancy Data Network is being conducted by the Ministry of Agriculture, Agricultural Extension Service, Faculty of Agriculture in Zagreb and Faculty of Agriculture in Osijek in cooperation with family farms whose participation is voluntary.

The choice of family farms is based on economic size of the farm, type of production and on geographic location. Based on the conditions set for entry into the Farm Accountancy Data, in advance, and within agreement with the holders of family farms samples are being chosen. Within the implementation of system, research is carried out from April to September of the current year, and collected data is related to the accounting period from 1 January to 31 December of the previous year. Family farm holders commit to provide accurate information related to the common, production and economic results of production and business that are monitored during one calendar year [1].

During the seven-year period the number of family farms in the FADN system is significantly increased, (Figure1, [8]).

Figure 1 presents data on the number of farms included in the FADN research since 2007 when Croatia started

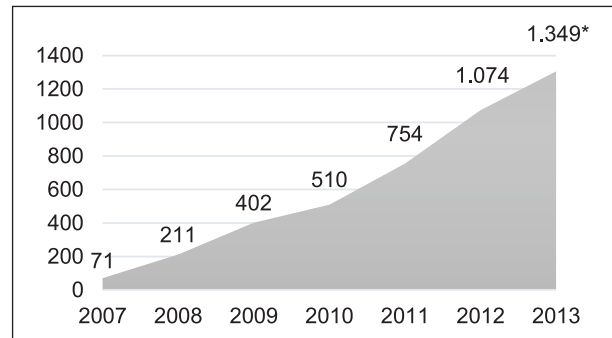


Figure 1. FADN sample from 2007 to 2013

* - Number of participating family farms in FADN research for 2013

a pilot project to introduce an accounting system in agriculture. Number of participating family farms grew and in 2013 totaled 1,349, which exceeds the minimum number of farms in the sample. The choice of family farms for FADN system is based on the selection plan, which must ensure the representativeness of the family farms in sample. Present statistical substrate determines representative FADN sample at a level of 1,251 family farms. According to the Central Bureau of Statistics, in 2013, Croatia has registered 233,276 family farms. FADN field of study is related to the family farms that have a production value of over 4,000 €, and there are 92,249 which meet these requirements of which a 1,251 family farms make representative sample for FADN.

Process of data collection in the FADN sample needs to ensure the diversity of production in certain fields.

Selection criteria for family farms are:

- Economic size,
- Type of agricultural production and
- Regional affiliation

The economic size of family farms is determined on the basis of the total value of production of the family farm and it is consisted of the outputs of each production represented on the family farm. In plant production, standard output refers to one hectare or 100 m², while in livestock production is related to the conditional head of cattle, 100 beaks of poultry or bee community [4].

According to the type of production, family farms differs to those that are specialized for different industries and lines of agricultural production.

Regional affiliation is determined by Nomenclature of territorial units for statistics - NUTS groups, respectively continental or coastal region.

Inclusion of family farm in the FADN system is voluntary. In fact, agricultural extension services worker signs a contract with the manager / owner of family farm about participation in FADN research, which is committing family farm manager/owner to provide accurate

data and to comply with deadlines for delivery of data. Data about family farms collected from FADN research and results cannot be used for tax purposes.

First goal of the FADN system was designed as a source of statistical data for creators of agricultural policy, not as a tool to be used by agricultural producers and complementary institutions [5]. Today, data from FADN database can be used as the basis of business decision making on the family farms, for the purpose of creating an agrarian policy at the national level and in the function of the Common Agricultural Policy of EU.

2.1 Structure of assets of different types of farms

Assets of the company is the basis of its existence and economic activity in order to achieve economic benefits. The assumption of a successful asset management is knowledge about its structure. In FADN system assets represent the market or replacement of value of the total assets held by the holder of the family farm. Includes fixed and current assets, and its structure is shown in Figure 2.

Family farms involved in crop production have greater value of fixed assets, over 90%. Fixed assets includes the value of land, agricultural machinery, irrigation systems and specialized production facilities. Livestock production requires a higher share of current assets because they have a greater need for animal feed as well as for work resources throughout the accounting year.

With the analysis of fixed assets it is possible to determine its shape according to different types of agricultural production (Figure 3).

In the structure of fixed assets, according to Figure 3, land, permanent crops and machinery are accounted for the largest share of all family farms analyzed in this paper. Value of machinery includes an average market value of tractors, combines, and all associated equipment also includes irrigation systems. Family farms that have high proportions of fixed assets, in periods of crisis have higher costs, interests and amortization, which burdens production, increases the cost price and thus reduces the price competitiveness. When managing the business, current assets have an important role and, its forms are shown in Figure 4.

In the structure of current assets there are: value of non-breeding livestock, stocks of finished goods, raw materials, work in progress and prepayments, receivables, and cash in cash register and in bank. Current assets are important for business liquidity. The large quantity and value of inventory is often burdening production since they contain money that could be used as working capital.

Structure of sources of the assets is an indicator of the financial stability of the family farm. It is possible to analyze the relationship of their own and others' funds (Figure 5).

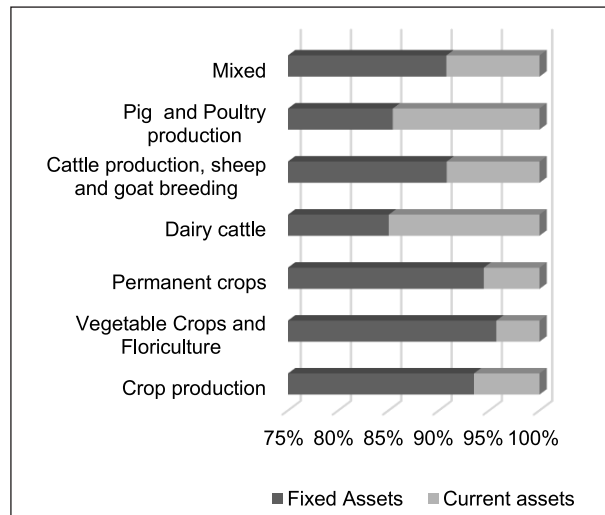


Figure 2. Structure of Assets according production types

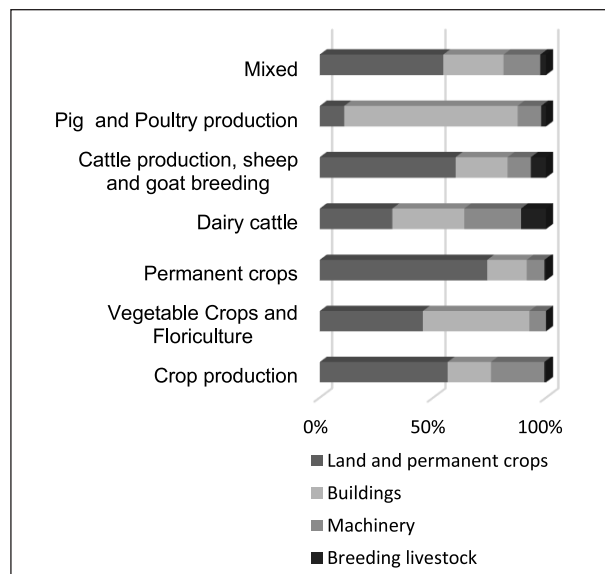


Figure 3. The structure of fixed assets

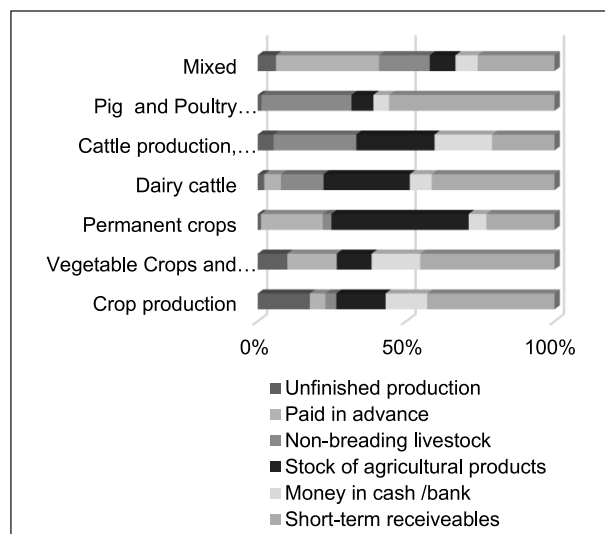


Figure 4. Total current assets

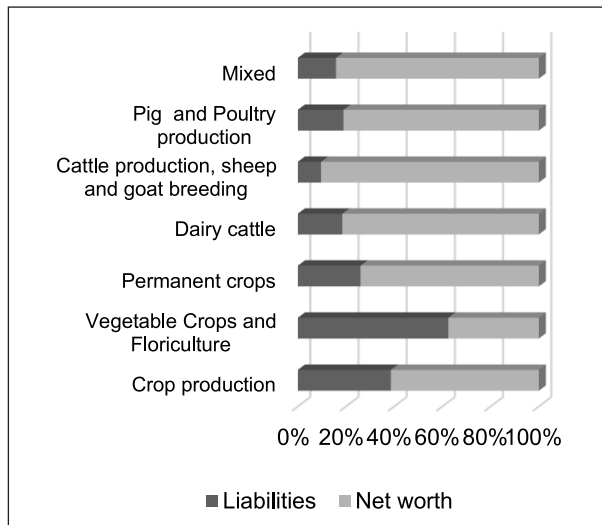


Figure 5. Structure of sources assets

Financial risk increases in situations where higher proportion of someone else's property increases. In Figure 5, highest risk is determined in the production of vegetables and flowers, then in crop production, and in perennial crops production.

2.2 Indicators of success of family farms

Keeping records of expenses and income as well as their calculation along the lines of production, requires a good knowledge of accounting in order to register spent labor of the employed and the materials in the production process [6]. Based on FADN data, it is possible to express financial indicators for each production, the family farm, the type of production as well as regional indicators. The Table 1 shows the performance indicators by types of family farms. Checking the efficiency of resource use of the family farm is one of the basic tasks of managers. Using resources is price traceable through costs incurred in production which is essential to be managed with high quality [7].

Table 1. Financial indicators

Production type	Economy coefficient	Liquidity	Level of debt, %
Crop production	1,01	0,55	52.12
Vegetable Crops and Floriculture	2,45	0,35	69.91
Permanent crops	0,90	3,48	30.24
Dairy cattle	0,73	2,41	26.19
Cattle production, sheep and goat breeding	0,74	1,83	15.63
Pig and Poultry production	0,86	8,96	22.54
Mixed	0,76	1,43	23.55

Economy coefficient is the ratio between total revenues and costs expressed by the coefficient threshold 1. According to FADN data production of vegetables and flowers is a highly cost-effective while other production are "at" or "below" the cost-effectiveness threshold.

Liquidity ratio expresses the ratio of current assets to current liabilities, and it is desirable that its value is greater than 1, which means that the family farm has the ability to settle the obligations. According to Table 1 liquidity is present in pig and poultry production, permanent crops, dairy cattle, cattle production, sheep and goat breeding and mixed production.

Level of debt represents the ratio of total liabilities to total assets. With increasing obligations, financial risk also increases. Debt value should be less than 50%. According to the analyzed data, the highest level of indebtedness have family farms engaged in producing vegetable crops and floriculture and crop production.

3. Conclusions

- FADN system is intended for commercial family farms with the aim of monitoring and evaluation of production, economic and financial results. External users are the Republic of Croatia and the European Union. They measure the impact of the CAP (Common Agriculture Policy) on agriculture in Member States on the basis of FADN data. Internal users of FADN information are the owners of farms included in the FADN system. Joining the system is voluntary.

- According to data from the FADN, assets and financial indicator have been analyzed. In the structure of fixed assets, land and permanent crops along with machinery account for the largest share of all family farms analyzed.

- The family farms involved in crop production have higher value of fixed assets over 90%.

- The highest financial risk was found in the production of vegetables and flowers, then in crop production and in perennial crops. Production of vegetables and flowers is highly cost-effective while other production are "at" or "below" the cost-effectiveness.

- Liquidity exists in pig and poultry production, permanent crops, dairy cattle, cattle production, sheep and goat breeding and mixed production.

4. References

- [1] Crnčan A., Ranogajec, Lj. (2012). *Perception of farmers on the bookkeeping system* (in Croatian). *Agronomski glasnik*, 5-6/2012. Zagreb, Croatia, pp. 307-316.

- [2] Ministarstvo poljoprivrede (2013): *Annual report on the state of agriculture in 2012* (in Croatian). Zagreb, Croatia.
- [3] Mrša, J. (2008). *Croatian Standards of Financial reporting HSFI 17 - Agriculture*. Third conference - International Financial Reporting Standards and Croatian Financial Reporting Standards, RIF, Opatija, pp. 1.
- [4] Advisory Service. (2012). *Standard results* (in Croatian). <URL:<http://www.savjetodavna.hr/?page=projects,15,18>. Accessed 31. March 2014.
- [5] Csajbok I. (2005). *Specific evaluation methods in FADN*. Centre of Agricultural Sciences, University of Debrecen, Hungary, pp. 646-652.
- [6] Ranogajec Lj. (2009). *Accounting in Agriculture* (in Croatian). Poljoprivredni fakultet u Osijeku, Osijek, Croatia.
- [7] Deže J., Ranogajec Lj., Mijić P., Mehić D. (2012). *Importance of model Brake Even Point (BEA) in milk production*. Proceedings of 47th Croatian & 7th International Symposium of Agriculture, Opatija, Croatia, pp. 160-164.
- [8] Croatian Advisory Service. *Farm Accountancy Data Network*. http://www.savjetodavna.hr/adminmax/File/FADN/slike/kronologija_2013.gif, Accessed 31 March 2014.