Developing agricultural businesses: management accounting and the FADN System

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SUMMARY FINDINGS, CONCLUSIONS, RECOMMENDATIONS

In the current economic situation, the demand for creating and maintaining a competitive edge puts increasing pressure on business leaders. They should better manage their costs, plan more accurately and finance projects in a manner which best supports organizational efficiency and development of a good long-term strategy.

All this makes it necessary to turn data into valuable information, to improve accountability within the company, to make costs more transparent, and to better support plans and decisions about the future of the company. Consistent use of management accounting can help entrepreneurs reach these goals, and is especially valuable to agricultural businesses due to the special characteristics of the sector.

The study looks at the methods, fields and the level of sophistication in using management accounting in Hungarian agricultural businesses, as well as the attitude of business leaders. Second, it looks at experiences, observations and possibilities concerning the FADN system. Third, it explores the connections and correlation between the two systems. The research described in the paper confirmed that using the analyses generated from management accounting and FADN data in business management can make farms more profitable and more effective than their competitors.

It was also confirmed that the information generated can effectively support decision-making and management processes. Regarding the application of management accounting in the agricultural sector it is important to mention its ties to the FADN. Research findings indicated that the pieces of information generated by operating and supporting the two systems are interrelated, and that the two systems have a synergistic effect on each other.

Experience so far suggests that there are additional fields where using both systems together will be beneficial. These include the development of profitability indicators for farms holdings based on uniform principles, which, among others, could play an important role in allocating subsidies or granting bank loans.

INTRODUCTION

Nowadays, in the practice of agricultural businesses it is becoming more and more apparent that in order to adapt to the rapidly changing environment, and maintaining development and competitiveness with other companies, future-oriented management thinking and the ability to make well prepared, fast decisions are essential. Collecting and processing data and turning them into information is of primary importance in all fields, as a range of decisions are dependent on them (*Sajtos – Mitev, 2007*). This has a special im-

portance in the agricultural sector, where, after 1989, often the producer farmers themselves became the leaders and managers of businesses. This layer mainly has knowledge about doing agricultural work, which does not necessarily meet the requirements of today's modern market economy about leading, managing and controlling businesses. Apart from that, agriculture as a sector of the national economy has numerous characteristics, because of which the sector is highly risky. These risks are extremely difficult to handle without appropriate long and short term planning, continuous economic and financial control and analyses.

I describe the concept of management accounting with my own definition as follows. Management accounting is an information system that provides the management of a company with useful information fro their decisions where

- information is generated by the accounting system taking into account its principles;
- the information system is able to generate useful information for the management by collecting , processing, analysing, interpreting and communicating input data;
- the management of the company make their short and long term decisions concerning strategy, planning, operative functioning, corporate controlling, most advantageous source allocation, preparing reports, improving performance, protecting assets and increasing values using the generated information.

The basis of management accounting can be considered to include the current, planned, estimated and predicted information it uses. The basic criteria for such information are to be relevant and comparable in time. The used information can practically come from two sources: from internal or external sources. Internal information sources include according to the meaning the departments of the company, for example finance and accounting, production or purchasing department, warehousing, marketing, etc. and the raw data set out by the executives of the company. One has to count as coming from external sources the information and statistics provided by statistical databases (*for example the Hungarian Central Statistical Office, OECD, FAO*), newspapers, professional journals, stock exchange forecasts, as well as the information systems and networks related to special sectors (*for example CAPRI – Common Agricultural Policy Regional Impact Analysis – models*), with special regard to the *Farm Accountancy Data Network* (FADN) of the European Union in agricultural accounting. The basis of data entry from Hungary to this system is the Hungarian FADN farms, which is of outstanding significance regarding the application of management accounting in agriculture as a close connection can be observed between the data to be provided for the networks and the data that can be obtained from it which can also be used in management accounting practice. The FADN was established by the European Union in 1965 in order to gain insight into the profitability and financial situation of agricultural businesses in its member states and to provide an appropriate basis for efficiency analyses and for other calculations that are used for agricultural policy decisions by European management. (For example these data form the basis of pricing of agricultural produce at community level (*Council regulation 79, 1965*)). The data in the FADN system are quite detailed; they contain natural, accounting and financial data. The reports contain yield and expenditure positions, income proportions as well as the distribution of property, equity, loan capital and investments differentiated according to production weight, size of factory, legal status and regions (*Kapronczai,*

2003). All the above show and support the overlapping sets of management accounting and FADN information.

SUBJECT AND AIM OF INVESTIGATION, HYPOTHESES

The fundamental subject of my research is the development possibilities of Hungarian agricultural businesses by using management information systems. I have surveyed the application of management accounting, its incidence, development level and quality. In addition, I have examined, in connection with the above, the experiences, opinions, and development possibilities related to the FADN system in order to explore the connections between the two systems. Accordingly, in the questionnaire used in the research, four issues were looked at: general characteristics of companies, general and detailed questions about using management accounting and questions exploring the connection between management accounting and the FADN system.

The aim of my investigation is, on the one hand, to review and survey the application of management accounting, to examine its incidence and to present the situation in Hungary in this respect in order to identify the shortcomings related to application and the areas of possible development. On the other hand, I consider it important to analyse, evaluate and present the connection between management accounting and the FADN system, their shared information need and their mutually supporting nature pointing out the advantages of applying the two systems together and the capacity unexploited at present.

During my research, I have formulated the following hypotheses:

- Businesses applying management accounting or using such information in management operate more productively than their competitors.
- Correlation can be observed between the information basis and utilisation fields of the FADN system and management accounting. The companies that apply any kind of modern management accounting processes have a more positive attitude to the FADN system as well.
- The active utilisation of management accounting and FADN data play a role in decision and management support, by using such data businesses can operate more competitively in the agricultural sector.
- The attitude of the majority of companies to modern accounting methods and their image of the practical application of the information provided by the two systems can be termed expressly positive and not dismissive.

METHODS OF INVESTIGATION

I started my research with secondary type data collection and qualitative research in order to be able to outline more exactly the research problem, the research activities to be carried out and the target group. Secondary type information serves as a proper basis at the beginning of research, the data collection procedure is relatively fast and it does not entail significant expenditure (*Eszes, 2000*). After summing up the obtained information, experience and the conclusions drawn from them I arrived at the primary data collection phase i.e. at the application of primary research methods, out of which I opted for the questionnaire survey because this served the most the research purpose.

The target group included medium-sized businesses (collective and private farm holdings) that are members of the Hungarian FADN system. The selection of medium-sized businesses was based, on the one hand, on the experience gained in my preliminary data collection, and on the other hand, nowadays an increase can be observed in the number of medium-sized fac-

tories (*Magda et al., 2008*), which makes this corporate layer more and more significant. The secondary and qualitative data collection have pointed out that none of the small-sized businesses implemented any kind of management accounting application or conscious FADN utilization. In most cases, neither the technical background, nor the management expertise, nor the number of employees made these applications possible; on the contrary, even their necessity was questioned in many cases. Also, in the case of large companies, such high specialisation was found that the company departments or people dealing with management accounting, FADN tasks and general management were totally separated from each other; thus, the connections among them, their correlations could not or just hardly be detected in the survey. To establish the size categories, I relied on the methodology of the European Union, which determines the size of farm holdings on the basis of the total average Standard Gross Margin (hereinafter SGM) of the farm holding, its unit of measurement is the European size unit (ESU) (*Commission decision 377, 1985*). The SPC is practically the value of the gross margin in a given region reflecting the average situation. Out of these approximately 800 businesses at present (*Keszthelyi, 2007*) a total of 60 have been selected taking into account the roughly uniform distribution of geographical coverage. The interviews were carried out by an interviewer, due to which the willingness to reply was 100 per cent and the whole of the research became much more efficient, productive and professional. To analyse the results of the questionnaire survey I used the statistical program package SPSS (Statistical Package for the Social Sciences) which is recognised worldwide and the most frequently used program for scientific level analyses.

RESULTS

The features of the investigated companies

In my research I concentrated on middle-sized companies exclusively (40 ESU/ 12 000 thousand HUF > SGM value of farm holding > 8 ESU/ 2 400 thousand HUF). Regarding the number of employees, the large majority of respondents (78.3 per cent) employs only 1 or 2 people, a further nine companies employ three people, two companies had four, while one company employs five, and one had nine. Concerning annual net income, the calculated average value is 14 122 thousand HUF. In the sample divided into categories with an equal number of companies the dispersion of the distribution towards higher values can be recognised as the size of the category intervals is constantly increasing. The income per employee shows normal distribution (Fig. 1).

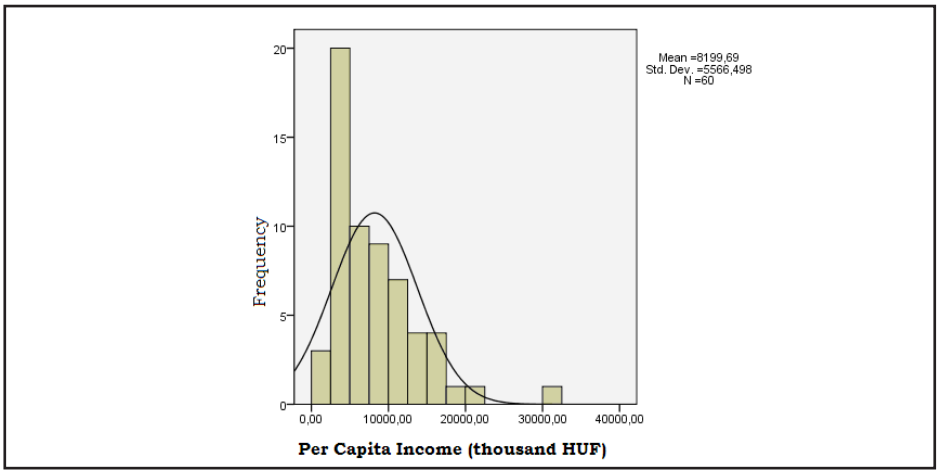
Looking at the activities of farm holdings, it can be stated that the majority of them deal with cultivation. The proportion of farm holdings dealing with cultivation exclusively was 55 per cent, the proportion of farm holdings pursuing solely animal husbandry was only 8.4 per cent, and one-third of the respondents constituted of mixed farm holdings (dealing with both cultivation and animal husbandry). Regarding the geographical areas of activities, the farm holdings were roughly evenly distributed among the western, eastern and central regions of Hungary.

The results of general investigations concerning management accounting and its application

First, I requested an answer from the farm holdings to what they mean by the concept of management accounting (Table 1). With the help of this open question it was possible to assess how much knowledge they have of the subject and of how this tool

Figure 1

Distribution of income per capita at the investigated businesses



Source: drawn by the author based on SPSS

can aid their work at all. The obtained results can be termed surprisingly good as, in spite of the fact that among the respondents there were many small-sized companies, a lot of them marked criteria that are really true of management accounting.

Table 1

The description of the concept of management accounting by the investigated farm holdings

criteria marked	frequency of incidence (times)
aids decision making	13
aids the operation of the farm holding	5
provides information	2
tool for cost reduction – income enhancement	7
balance sheet, profit and loss account, ledger statement, other accounting document	14
does not know/no answer	19

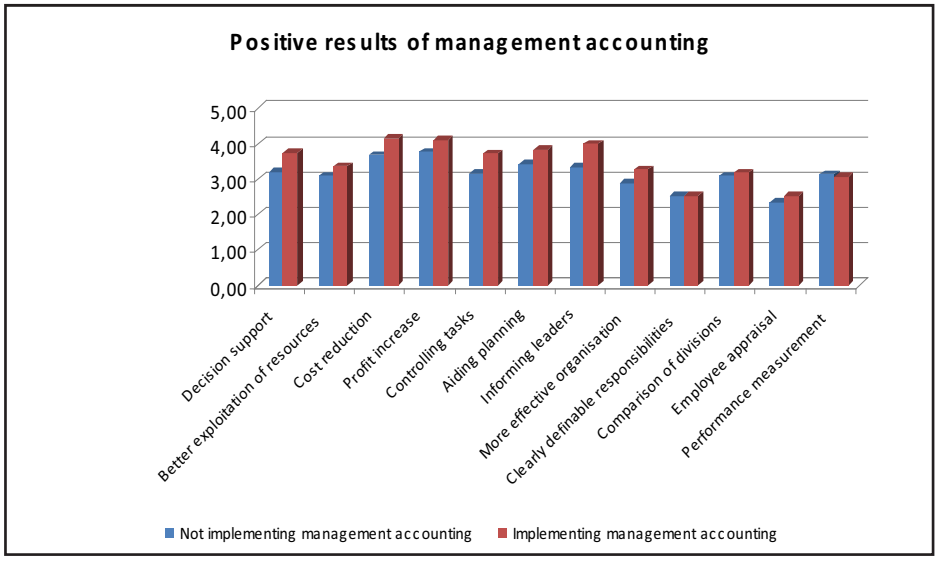
Source: compiled by the author

Those who mentioned the first three criteria can be said to be looking in the right direction in connection with management accounting. Actually, though it can be said to be a wider interpretation, the fourth answer cannot be termed incorrect either. Only 14 companies considered management accounting identical with solely the elements of the annual report or a ledger statement, and only 19 companies were not able to provide any definition or characteristic. In my opinion, the fact that nearly half of the farm holdings knew what purpose management accounting serves or what tools it operates with presents a fairly favourable picture of the economics knowledge of the managers at Hungarian agricultural companies.

Next, I attempted to find out what positive results management accounting could yield (Fig. 2). The respondents evaluated outstandingly high points to two criteria, the reduction of costs (3.84 on average), and the enhancement of profit (3.88). Apart from these two criteria, high points were awarded to aiding planning and making the managers more well-informed. In other words, farm holdings think that management accounting fundamentally increases profitability, which is the main objective of all companies, it aids the management in planning and obtaining the necessary information. They did not see much correlation with areas far from accounting in the classical sense for example motivation or appropriate forming of areas of responsibility. I was also interested to find out opinions on the positive side of management accounting with regard to whether the given farm holding applies management accounting as well; and this way I found close correlation based on the evaluation of the software. To carry out the test, I divided the sample into two with the 'split file' function of SPSS and determined the average points again. The blue column presents how positive the given effect of management accounting is according to the opinion of companies not using management accounting; while the red one shows how farm holdings that started the application of management accounting earlier evaluate the system.

Figure 2

Opinions of farm holdings implementing and not implementing management accounting about its positive aspects



Source: drawn by the author based on SPSS

This can be interpreted as an evaluation of expectations (blue column) and of experiences (red column) in connection with management accounting. In other words, if the latter is higher, it means that experience shows that the results of management accounting are better than what was expected. This is realised in full as it can be overtly seen that the evaluation of those who already implement the system is al-

most always the same as or better than of those who do not implement the system. This clearly reinforces the successfulness of the system since all of those who implement it gave a favourable opinion of it. The largest positive differences between the two groups can be found in the fields of informing leaders (0.66), controlling (0.56), decision support (0.53) and cost reduction (0.47). On the basis of the above, it can be stated that the mentioned fields are the ones where management accounting is the most effective according to practical experiences in the life of businesses.

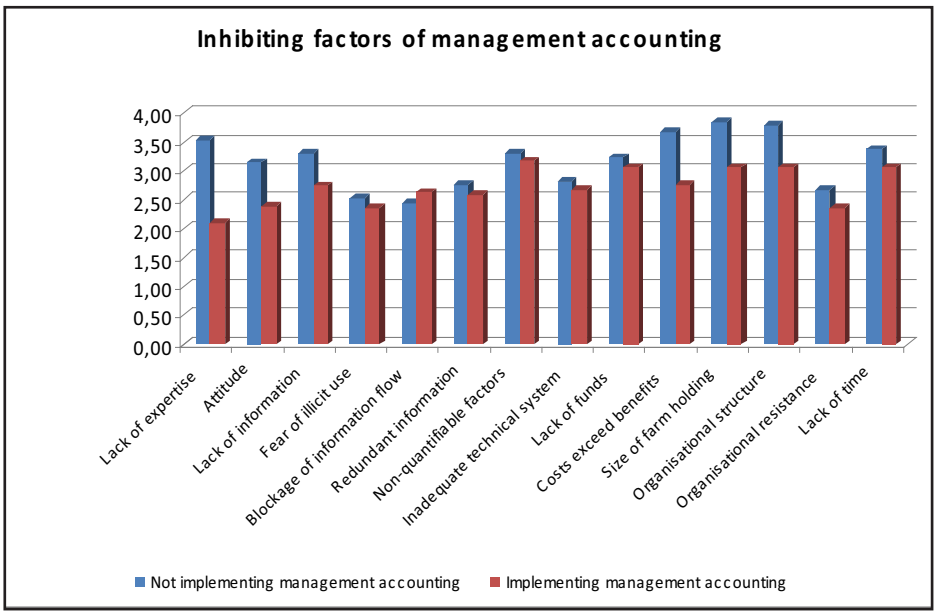
Based on the opinions, the method was evaluated the lowest in the fields of performance measurement (-0.07) and clearly definable responsibilities (0.00); which shows that it is in the field of human resource management where farm holdings can exploit the possibilities of management accounting the least. One of the possible reasons for this could be that in more than three fourth of the surveyed farm holdings the number of employees was 2 or lower. With such low numbers of employees, subjects of human resources are not attached as high significance as at larger companies employing more people.

After that, using similar methods as above I intended to find out what inhibiting or limiting factors could play a role in applying or introducing management accounting at the respondent farm holdings (Fig. 3). I investigated the relationship with the implementation of management accounting at this question, too.

It can be stated again that there is only one factor which is considered as a more serious obstacle by the ones who have already implemented the system than by those who have not.

Figure 3

Opinions of farm holdings implementing and not implementing management accounting about the inhibiting factors of application



Source: drawn by the author based on SPSS

This fact repeatedly shows that those who have already implemented it gave positive feedback related to the introduction of the method. Opinions on the method have improved considerably in several fields, and mainly those businesses are afraid of introducing management accounting that consider it unattainable due to their sizes and resources. Nonetheless, there are significant differences among the size of the farm holding (-0.78), attitude (-0.76) and the structure (-0.73); which gives firm evidence of the positive experience, namely that the businesses recognised it is a feasible and profitable method for even their size. Additionally, one of the most important differences – and the second biggest – is the -0.91 figure for "costs exceed the advantages". Based on this fact, those who introduced the management accounting system realised that the positive effects are more considerable than the costs involved, in other words, it proved to be a profitable and successful investment.

Furthermore, I examined the relation between the implication of management accounting and its efficiency (which was measured by per capita income). Initially, I decided on the application of management accounting based on the answers of the companies: I considered them as implementing companies if they stated they implemented such methods. In this examination the SPSS did not find a significant connection between efficiency and implication. This fact could possibly be considered as a result of the small number of elements and the large dispersion as there is an overt connection between these two factors based on the following data. 43 per cent of the companies performing about average stated that they use management accounting tools, whereas this figure was only 26 per cent in the case of companies performing below average. Moreover, the average of per capita income of companies not using management accounting tools was 7.6 million HUF. In case of the companies implementing management accounting the same efficiency index was 9.2 million HUF. Subsequently, I examined the same question from another point of view. I categorised the implementation of management accounting by the fact whether the company checked the development of its costs or compared it to certain target figures or norms. The SPSS showed a significant correlation in this examination. The significance level of the mixed connection is 1.5 per cent while the eta showing the strength of the connection is 0.445, thus the connection is of medium level.

As a summary, we can establish that the businesses using the tools of management accounting for managing the business are more efficient and profitable, e.g. they check the development of their cost by comparing them to target figures or norms.

Results of detailed examinations of the implementation of management accounting

In the third group of questions I intended to assess the existing accounting culture of the companies. In the present study – with regard to the length of the paper- I can give details of a certain number of examinations.

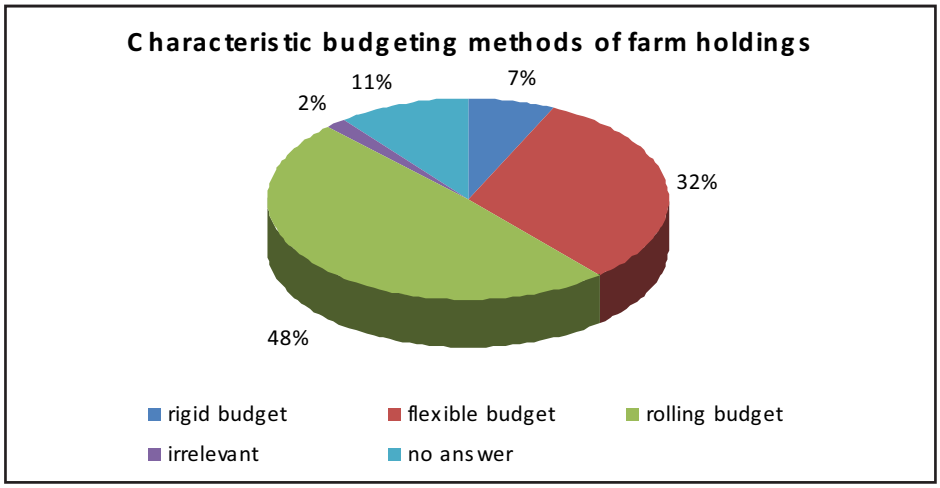
First I examined how developed the planning and forecasting systems of the businesses were, whether they prepared short or long term plans and if yes with what regularity. The majority of the companies (68.3 per cent) answered that they prepared plans at least once a year while 15 per cent do not prepare plans at all. This fact can be considered favourable as they were mostly micro businesses. Almost 75 per cent of the companies prepare some kind of plans for costs which is not much smaller than the total number of the companies who plan. The conclusion can be drawn: costs have a significant role during

planning. It is not surprising as the area of costs is the most manageable and controllable for a company. Furthermore, it is a basic task for every business to plan the income with the costs as these factors of activity have the most important role in defining its success. Formalised budgeting processes are implemented by a small minority of the companies; it is possibly a result of their relatively small size. In case of those ten businesses that implemented some kind of method, 80 per cent used mostly activity based budgets. Regarding the non-formalised cost planning the survey shows a much more positive picture as more modern methods were implemented more frequently (Fig. 4). 32 per cent implemented flexible budgeting and rolling budgeting was implemented by 49 per cent. In this respect businesses can adapt to the changes in the internal or external environment relatively well and quickly.

Subsequently I examined the cost related controlling, remittance, clearing and

Figure 4

Budgeting methods implemented by the businesses taking part in the survey



Source: drawn by the author based on SPSS

cost accounting methods. Unfortunately, my findings show that in these areas the company leaders know very little about these questions in their company, although these are essential for the introduction and existence of management accounting. Therefore, there are significant shortcomings in these areas. 78 per cent of the companies do not have formalised methods for remittance or authorization of costs. It is relatively understandable in case of businesses employing fewer than two people but from the 13 companies employing more than two people only 6 has such order of process, moreover they do not implement it in practice. This fact undoubtedly limits the precise cost tracking and the possibility for cost control. In connection with entering costs in the ledger 41.7 per cent of the respondents did not know whether they primarily used invoice classification code 5, 6 or 7.

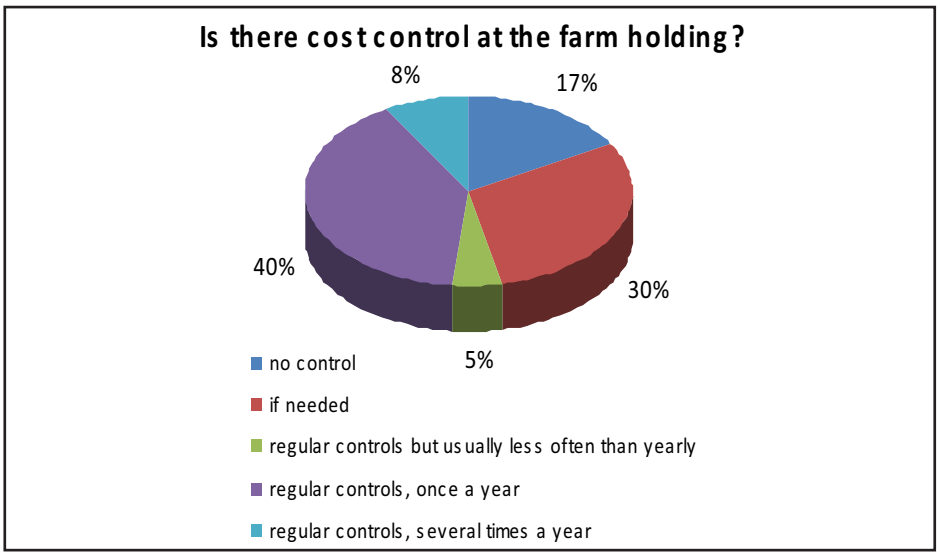
The respondents were divided nearly evenly, 15 used settlement methods based on the type of the costs while 20 used settlement based on the cost centre or the cost

bearer. The situation was similar in case of the profit and loss account. 40 per cent could not indicate what type of profit and loss account they used, the others –except the person who did not answer – marked the total cost method. The percentage of those who did not know what costing method they used was also very high (55 per cent). From those who indicated what method they used very few (altogether 3 companies) were able to give any reasons for the selection. For the question enquiring about who implements the abovementioned costing methods in the company and for what purpose, more than two thirds of the companies (68.3 per cent) replied that the accounting department used it for preparing the annual report. This fact justifies validity of the conclusion drown based on the answers for the initial questions. Not more than 20 per cent indicated the possibility that they used the results of these calculations for other calculations than the preparation of the annual report. This considerable uncertainty explicitly shows that the majority of executives do not use the statements containing mostly accounting data for acquiring information or management purposes. These statements are prepared mostly because they are compulsory.

This situation is much more favourable in monitoring costs and comparing them to target figures and norms, which is possibly due to their more direct effect on profitability and the fact that they are more tangible (Fig. 5). Most businesses check costs once a year while 8.3 per cent regularly check them several times a year. Interestingly enough, no connection can be found between the size of the business and the frequency of checking; several small farm holdings have controls regularly while numerous big companies rarely execute checks.

Figure 5

Practice of cost control in businesses



Source: drawn by the author based on SPSS

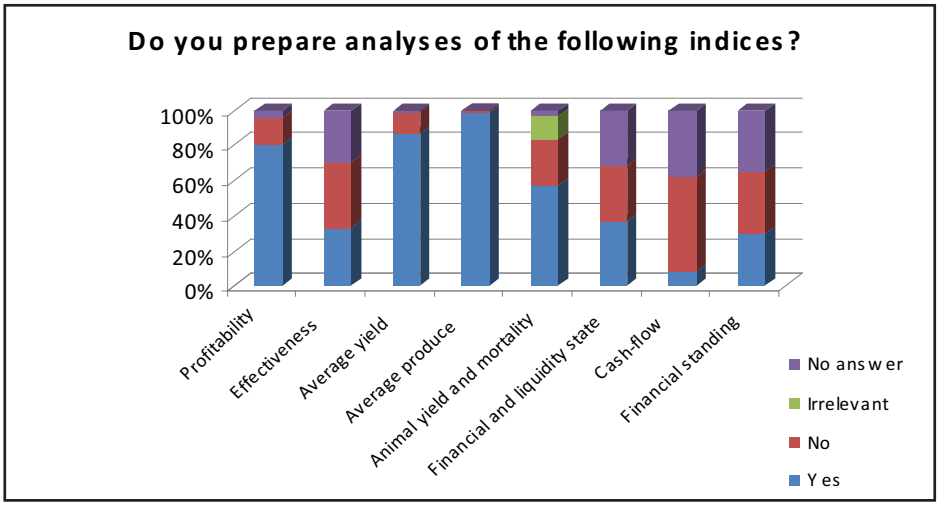
I found relatively good results in connection with the use, checking and analysis of indices. Indices are used by several of the respondents (Fig. 6). The most

frequently used indices are the ones related to the profitability of production such as the average produce (98.3 per cent), average yield (86.7 per cent) closely followed by preparing calculation to analyse profitability (80 per cent). The analyses of the financial situation, liquidity, efficiency indices or financial standing are performed a little less frequently while cash-flow statements are prepared by only 8.3 per cent of the businesses. On the whole, the results can be regarded ideal since by the use of these indices businesses can make their activity more efficient, they can select those areas more easily where higher profit can be reached.

I also examined how the businesses keep track of their suppliers, customers, outstanding credits and liabilities. The quality of tracking could be considered satisfactory in both areas as there is only one company where there is no customer or supplier tracking. Most companies (91.7 per cent) check both groups at least once a year. This significantly helps successful financial activities and assists decision making in sales and procurement. Finally, I intended to uncover whether the responding businesses used some kind of calculations to support investment decisions. The majority of businesses (93.3 per cent) implement certain forms of economic efficiency calculations preceding their investment. There are only four businesses that conduct their investment without any support. This result can be rated as absolutely appropriate.

Figure 6

Practice of index analysis in the examined businesses



Source: drawn by the author based on SPSS

Results of examination of the connection between management accounting and the FADN system

First I examined whether the respondents opined that the FADN system could be used as a data source of management accounting; whether they saw any connections between management accounting and the information in the FADN system. More than twice as many respondents sta-

ted that they could see the connection between the two data sets which indicates the benefits and the unexploited possibilities of the FADN system. I also examined whether it correlates with their answers for other questions. On the basis of this we can see that those who use the majority of the accountancy data not only for the preparation of the compulsory annual report but also for other economic and financial calculations, can more probably see the connection between the FADN and the data of management accounting. It means that those who have actual practical experience in implementing management accounting know and use its methods, and they obviously see a connection between the data sets of the two systems. Furthermore, even more respondents stated they could utilise the data from the FADN system which is a positive result.

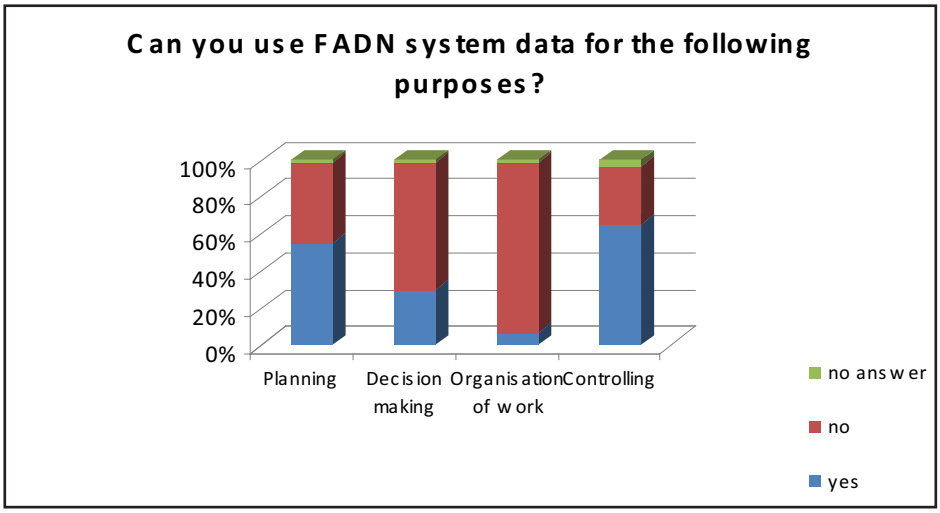
Subsequently, I conducted my research into areas which can provide basis for developing the FADN system and motivating businesses to take a more and more important part. First I enquired about which data and indices from the FADN system they used mostly for their own financial-economic analyses.

Businesses can most effectively use the comparative data that refer to different regions about production, yield and profitability. Average prices and production costs calculations can be used the least effectively. It can possibly be explained by the fact - as it could be seen earlier – that the majority of the executives do not even use the production costs calculations of their own companies for any purpose at all. Then, I examined that from planning, decision making, organisation of work and controlling (the classical functions of management accounting) which activity is supported most effectively by the use of FADN data (Fig. 7). Controlling (65 per cent) and planning (55 per cent) turned out to be far the most important fields of use.

I also intended to survey whether the businesses would utilise certain free services and programs which aim the implementa-

Figure 7

How FADN supports management accounting functions



Source: drawn by the author based on SPSS

tion of management accounting tools and the use of FADN data for making economic decisions. Here I found definitely favourable reactions; almost everyone showed some kind of interest in various ways. The majority of respondents (95 per cent) would welcome leaflets containing information and other publications, visits to model farms with the possibility of trying certain practical applications (66.7 per cent), management information leaflets about all FADN farms and exchange programs with foreign farm holdings were also popular. Query average data from FADN by applying filter conditions would also be welcomed by 43 per cent of managers. It explicitly reveals the considerable willingness of the businesses to develop, and to update their knowledge and methods; which undoubtedly justifies the development of this area in the future.

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