Management accounting in the practice of Bulgarian agricultural farms

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"Approximate information is several times more important today than absolutely exact one the next day."
Motto of management accounting

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Abstract

The aim of this paper is to apply management accounting as a model of management in the practice of agricultural farms in Ruse and Targovishte through a management information system to increase the efficiency of their activities. The purpose of the study is realized through the implementation of two main tasks: 1. specifics of the agricultural sector in the application of management accounting, 2. management information system in the activities of agricultural farms in accordance with the objectives of management accounting. Research methods are based on the use of general logical methods of analysis and synthesis, abstraction and generalization, deduction and induction. Management accounting both as a theory and practice in Bulgarian farms combines the techniques of financial accounting, finance, planning, analysis and control of economic activity, with the aim of long-term planning of costs, revenues and financial results. The purpose of this is a successful long-term planning of costs, revenues and last but not least the financial result. The information base provided by the accounting regarding the financial resources of the agricultural holding allows research of the expenses, calculation of the prime cost of the agricultural production, analysis, planning, budgeting and control of the occurred deviations, as well as differentiation of different centers of responsibility by applying the management accounting sector. Management accounting is an integral part of the overall process of financial management of Bulgarian agricultural farms, putting the emphasis on ensuring control over liquidity and profitability within certain limits and parameters.

Key words: management accounting; financial management; agricultural farms

Управленско счетоводство в практиката на българските земеделски стопанства

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Резюме

Целта на статията е да приложи управленското счетоводство като модел на управление в практиката на земеделски стопанства в Русе и Търговище и чрез управленска информационна система да повиши ефективността на техните дейности. Целта на изследването е осъществена посредством изпълнението на две основни задачи: 1. специфика на земеделския сектор при приложението на управленското счетоводство; 2. Управленската информационна система в дейностите на земеделските стопанства, в съответствие с целите на управленското счетоводство.

Методите на изследване се основават на използване на общи логически методи на анализ и синтез, абстракция и обобщение, дедукция и индукция. Управленското счетоводство като теория и практика в българските ферми комбинира техники на финансово счетоводство, финансиране, планиране, анализ и контрол на икономическата дейност, с цел дългосрочно планиране на разходите, приходите и финансовите резултати. Крайната цел е успешно дългосрочно планиране на разходите, приходите и, не на последно място по важност, на финансовия резултат. Информационната база, предоставена от счетоводството, свързана с финансовите ресурси на фермите, дава възможност за анализиране на разходите, изчисляване на себестойността на селскостопанската продукция, анализ, планиране, бюджетиране и контрол на настъпилите отклонения, както и диференциране на различни центрове на отговорност чрез прилагане на сектора на управленското счетоводство. Управленското счетоводство е неразделна част от цялостния процес на финансово управление на българските земеделски стопанства, като се набляга на осигуряването на контрол върху ликвидността и рентабилността в определени граници и параметри.

Ключови думи: управленско счетоводство; финансов мениджмънт; земеделски стопанства

Introduction

Effective management of agricultural farms requires not only to know their financial condition in terms of recording changes in business operations, but also justification of management financial decisions for planning, analysis and control of their implementation on the basis of reliable accounting information. Considering accounting as a specific science with a certain methodological status, characterized by independence, originality and identity, the need for management accounting becomes apparent, which emphasizes the search for the most efficient production in agriculture.

Management accounting is a relatively new field in accounting science (until the early twentieth century it was known as expense accounting or cost accounting), which aims to provide information on the internal financial management of agriculture. Management accounting in Bulgaria goes through several stages of development, starting with cost accounting (20s – 50s of the XX century), moving through cost accounting and full cost (from the 50s to the 80s of the XX century) and reaching a period of management accounting (from the 90s to nowadays). The beginning of its development is set by explaining the nature and meaning of calculation. According to the view point of D. Dobrev, "calculation is a method for calculating cost values", i.e. the accounting (financial) reflects the information for the past time. However, the calculation is focused on future financial plans of the agricultural farm.

The establishment of management accounting as a theory and application in practice is related to its intertwining with financial accounting, financial planning, financial analysis and control over the management of the particular agricultural farm. There are created conditions for optimizing the management decisions in the agricultural farms by applying the above mentioned different models of management accounting. Of course, this is done according to the conditions of the internal and external environment.

The object of the current paper is the management accounting information system of agricultural farms operating in the cities of Ruse and Targovishte, and the subject is the application of management accounting in the practice of farms to improve their liquidity and profitability.

The aim is to substantiate the role of management accounting as a concept for a financial management model in the practice of Bulgarian agricultural farms, by applying a management information system to increase the efficiency of their activities. The achievement of the goal will be achieved through the following tasks:

• Taking into account the specifics of the agricultural sector in the application of management accounting;

• The management information system in the activity of the agricultural farms according to the purposes of the management accounting.

Material and Methods

Improving the financial management of agricultural farms requires the improvement of the accounting information system through fuller use of management information, as well as the application of some management accounting models in practice, which are effective and applicable in the real conditions of the agricultural sector through the use of information system for management accounting.

Bulgarian research on management accounting in the theory and practice of Bulgarian farms is insignificant, so their coverage will open up new opportunities for fuller use of management information in their activities. Research methods are based on the use of general logical methods of analysis and synthesis, abstraction and generalization, deduction and induction.

The development is based on the results of a survey conducted in the lands of the cities of Ruse and Targovishte (in the period 2006–2007), which provides a number of opportunities to improve the accounting information system by using management information and applying some management accounting models in financial management of agricultural farms.

Exposition

The study uses the results of an empirical study focused on the analysis of financial and accounting activities of 74 agricultural farms at the territory of the city of Ruse (31 completed questionnaires) and the city of Targovishte (43 questionnaires) for the period 2006/2007 (Lyubenova, A., 2011; Lyubenova, A., 2015.) was analysed to achieve the goal. It was found that their financial and accounting activities include: annual accounting; current reporting of business operations; financial and accounting analysis; preparation of reports and operational control. The development of plans, forecasts and budgets for the acquisition and use of financial resources is much less represented. Less than 20% of the surveyed agricultural farms apply management accounting models (mainly medium and large agricultural farms), which does not allow them to maintain a stable level of liquidity and profitability.

Specifics of the agricultural sector in the terms of application of management accounting

There is an intertwining of technological and biological processes in the terms of organization of accounting at agricultural farms, as a result of which specific objects of accounting are identified: long-term biological assets, short-term biological assets, live animals and plants undergoing biological transformation (growth processes, decomposition, production and recovery, which cause qualitative and quantitative changes in the biological asset, as well as the production of wool or milk), agricultural production acquired from biological assets, settlements with the member cooperators, etc.

Accounting standard 41 Agriculture from the National Financial Reporting Standards and International accounting standard 41 Agriculture from International Financial Reporting Standards aim to determine the accounting treatment and disclosure of issues related to agricultural activities, i.e. management of the biological transformation of biological assets (plants, animals and micro-organisms to agricultural production or additional biological assets for sale), covering a different range of activities – animal husbandry and forestry, annual or perennial crops, orchards and massifs, growing flowers and aquaculture, including fishponds). The peculiarities in reporting of the sites derive from the long production cycle (sometimes more than a year) and from the

specifics of the biological assets controlled by these farms – live animals and plants.

The valuation of biological assets and agricultural production in a way different from other assets, directly affects the reporting of crop and livestock activities and thus the calculation of the actual cost of agricultural production (Averkovich, E., G. Gerganov, 2004). Particularly important in management accounting are consumable costs, which directly affect the financial result (Pergelov, K., 2005) of the farm. The aim is to reduce their volume as much as possible by identifying the critical point from which economic activity becomes inefficient, as the types of agricultural production are obtained at different points in time, which complicates cost management. It should be borne in mind that in agriculture it is possible to obtain several types of agricultural products from the same biological asset, which complicates the information about the cost, and hence the cost management. On the other hand, biological assets are vulnerable to diseases, natural disasters and pests, which lead to specific risks to the farm and can incur unforeseen losses.

The calculation of the prime cost assumes preliminary systematization of the expenses and the value expression of these expenses for a given object of calculation (each activity for which independent and separate measurement of the expenses is desirable) (Lyubenov, L., A. Naneva, 2006). The costs in crop production related to a certain type of work, which are made in different seasons of the year and often for different types of crops do not coincide with the calendar year, i.e. the expenses are made in a one reporting period, and the harvesting is carried out in another (next) period, determine specific requirements to the organization of the reporting and the calculation of the prime cost. This is confirmed by the fact that from one area can be obtained more than one type of basic, resp. and additional production.

The discrepancy of the working period with the production one leads to uneven income, i.e. expenses are done in one period and revenues are received in another. Some types of products are produced continuously for a certain period of time as the yield is at certain time intervals, as the production does not require the physical destruction of the biological asset and it continues to exist and function as a living organism; other types of agricultural production are obtained once (meat, hides, grain, timber) and after its extraction, the respective biological asset ceases to exist as a living organism. These specifics are closely related to the overall planning process of the farm.

Applying the methods of management accounting in the agricultural farms, the attention will be focused on the calculation of the prime cost of the agricultural production, resp. the services provided, taking into account the degree of integration between financial and management accounting, resulting from the use of the same database, by the same reporting measures. The relationship between financial accounting and the techniques used in management accounting provide a basis for researching the costs and calculating the cost of agricultural products so to be able for better planning, analysis, budgeting and control of deviations and optimization of available short-term resources. Both the rich theoretical foundations of management accounting and the specifics of the industry in which agriculture develops, should be outlined the guidelines for strengthening forecasting as a function of applying different management accounting models.

Management information in the activity of agricultural farms

Management accounting is able to assist in the application of scientific methods and to develop them in perspective in the financial management of agricultural farms. The analysis of the costs and the prime cost of the agricultural production are directed to the study of the regularities and assessment of the dynamics of the prime cost and the reasons for its change. The indicators which are used are: total amount of production costs, costs of one BGN of production, cost of individual types of production – BGN/unit of production (kg, liter, etc.), direct labour costs, inventories and etc.; costs by economic elements, including technological cost (production or reduced); cost by product, when indirect costs are

allocated on different bases (on the basis of direct technological costs or on the basis of work performed, maintenance and repair costs and indirect depreciation, for indirect labour and quality control costs).

Agriculture is characterized by a number of features due to the biological specificity of plants. For the correct formation of the cost of crop production it is necessary to differentiate it into individual crops, determining the acquisition of basic products (grain in cereals, sunflower seeds, castor, sesame, anise, fennel, cumin and coriander – in technical, heads and fruit of fodder beet, fodder carrots, sugar beet for fodder, etc. – in fodder crops, vegetables for field, greenhouse and greenhouse production, fruits from perennial crops) (Gyuzeleva, R., 2/2002) and additional products (straw, chaff, corn, kakalashki) in cereals, the leaf mass of sugar beet – in technical crops, the leaf mass of fodder beet, fodder carrots, sugar beet for fodder – in fodder crops, sticks of wine and dessert grapes, leaves and beans of green beans, green peas and green beans). Therefore, when accounting for costs and calculating the cost of agricultural production, several approaches to calculation are distinguished, depending on the types of harvested products, plant life cycle and harvesting (Georgiev, V., S. Stefanov, J. Tonchev, 2014):

• Calculation of the cost of agricultural products obtained from annual crops with one main product (potatoes, onions, garlic, cotton, fodder crops, wheat, etc.);

• Calculation of the cost of agricultural products obtained from annual crops with several main products (flax – for the production of seeds and stems; tobacco – for the production of seeds and leaves; corn – for the production of grain and green mass for silage, etc.) The direct method is used to calculate the actual cost per unit of output after allocation of total costs;

• Calculation of the cost of agricultural products obtained from perennial grass crops, from which several main products are obtained, repeatedly during the year (alfalfa, clover, ryegrass, etc.), from which hay is obtained for animal feed and bedding. From an accounting point of view, it is typical for these crops that the sowing of the areas is a one-time expense, from which income is received within several reporting periods;

• Calculation of the cost of agricultural products obtained from greenhouse and hothouse production. To obtain the actual cost of the 1-st production, the direct method is applied;

• Calculation of the cost of agricultural products obtained from perennial crops with a single harvest at the end of the multiannual period – applied in orchards and farms engaged in the production of landscaping and ornamental shrubs and plants – fruit trees ready for planting in orchards gardens, young rooted vines for building vines, boxwood, thuja, sabine, roses, etc.

The production of animal origin has a high controlled productivity (dairy, meat, egg-laying, reproductive)[1], based on the biological and economic abilities of the animals to transform the food intake into certain products and benefits. It could be said that main and additional production is obtained from animals. Due to this fact its calculation is carried out on the basis of distribution of costs on a certain basis (Georgiev, V., S. Stefanov, J. Tonchev, 2014). The application of different management accounting models requires the creation of a separate report for a specific type of biological asset of animal origin, because they have different economic and biological characteristics (Rupska, T., 2014).

The calculation of the prime cost of the production produced during the year is a prerequisite for correct presentation of the book value of the sold production, resp. the result of the economic activity, which can be reflected in the following way:

• Calculation of the cost of the performed activities, works and/ or services of ancillary nature (for example for workshops, freight transport, live traction, etc.);

• Adjustment of: the prime cost of the agricultural production, if during the year insurance indemnities for crops and animals affected by insurance events have been received with the amount of the respective indemnity; the cost of live weight of young animals and animals for fat-

[1] In certain species of animals, reaching a certain age and weight and after confirming their non-reproductive function, they are reported as a non-flowing biological asset.

tening; of the initially accounted costs from different productions at estimated prices up to the amount of their actual cost, etc.

When calculating the cost of agricultural production, the costs of rent are reported and reflected as inherent costs, and their distribution is made on the basis of the accounting policy adopted by the agricultural farm.

The objectives of the calculation can be reduced to determining the cost and price of the product or service, as well as analysis of the change in the individual elements of costs as a function of their determining factors. This control can be carried out by work processes, by phases of the production process and at the end of the planning period (day, week, month, quarter and year), when the reporting data are compared with the planned ones. Since the cost must be calculated within the so-called "two circles", i.e. for the purposes of financial accounting and for the purposes of management accounting, a different methodology for its reporting is applied.

Different calculation models can be used to calculate the cost of production or service depending on the objectives of the farm. Among them is the model of the structure of the cost of production costs, reflecting the main or technological costs for the production of products or performance of services, i.e. the costs of sales and management are not subject to conditional distribution, but are directly deducted from the realized income of the agricultural farms. The model itself assumes the allocation and redistribution of indirect expenses by products and/or services, which makes it suitable for the purposes of operational internal financial control. On the other hand, the calculation of the prime cost can be performed at variable costs, applying the methodology for analysis and synthesis of management accounting. Thus, the cost is used as a control indicator by agricultural holdings, including operating costs, financial costs and extraordinary costs, the cost of production and sales, excluding fixed costs of production, sales and management. The calculation of the cost of production can be determined on the basis of the reduced or technological cost per unit of output.

The cost of agricultural production is an important and generalizing indicator of production activity, but only it cannot reveal the economic efficiency of a farm, i.e. it does not directly show the achieved level of profitability, but the resultant indicator of its effectiveness, i.e. profitability. The analysis of the cost and profitability of the agricultural farms is necessary for revealing the reserves for both increasing the productivity and the efficiency of the agricultural production by applying the marginal analysis, determining the critical point from which the economic activity becomes inefficient.

In order to plan and realize maximum profit, it is necessary to apply the analysis of the dependence "cost-volume-profit", examining the relationship between changes in the amount of costs, revenues and volume of produced and sold agricultural products for a short period (not more than a year) on the final financial result of the activity of the particular agricultural farm. This analysis takes into account the production capacity of the farm and what prices can be expected in the coming periods. The production capacity of a farm engaged in crop production is related to the amount of land which is cultivate, the quality of seeds and planting material, fertilizers, pesticides, herbicides and others used in production. The production possibilities in animal husbandry are related to the building stock in which the animals are kept, the money for fodder, etc.

Regarding to price decisions, the average sales price by type of products and customers should be controlled and deviations should be analysed. It is also necessary to make comparisons with the average data for the region and the country. The control of the average terms for the cash receipts from the clients is necessary both for comparison with the average term of the payments, as well as for the formation of the policy towards the clients. One of the most important applications of the analysis is to establish a field of security (expressing the excess of the actually achieved results of the farm activity above the level of the critical volume), i.e. the amount by which income can be reduced before the farm (company) enters the loss zone.

Management accounting should be developed by reflecting the control over the costs in relation to the accounting information, on the basis of modern cost norms and technological norms, control for observance of technologies, control by cost centres, control by activities, by products and items of calculations, control for observance of limits for expenses by units, etc. It is necessary to monitor the average term for cash payments in order to control the cash balance on the farm. Therefore, budgeting is a means of control on the farm.

As a method of management accounting, budgeting is "a tool for forecasting and assessing financial needs, as well as a method for monitoring and controlling the already implemented financial policy on the basis of the developed budget" (Dobrev, D., 1941). Farms develop one-year budgets, using as a starting point the financial statements on the basis of which a sales budget is drawn up outlining the scale of production (for example, the wheat production budget reflects the production program for the planned period, taking into account the planned sales volume – revenues from sales of grain, straw and the guaranteed stock of finished products in stock). In order to provide the production process with the necessary raw materials, a budget is drawn up for the costs of materials in physical units for individual types of materials (for seeds, fertilizers, chemicals, and other costs) and a budget for the supply of materials. The production budget is supported by the budget of labour resources (for labour, insurance) and the budget of total production costs. Based on them, a budget of the cost of finished products, a budget of administrative costs and a budget of revenues and expenses are prepared, the latter including the budget of sales costs. There is also a place for a budget of trade payables and a budget for trade receivables, which is reflected in the cash flow budget.

On the one hand, there is a need for a more detailed and in-depth analysis of costs – by cost centres, primary reporting and redistribution of indirect costs by costs centres and distribution by products based on real activity to accurately determine costs by business lines and sales channels. On the other hand, it is necessary to calculate the limits of permissible and inadmissible deviations from pre-planned indicators. For example, changes in costs are analysed depending on changes in the volume of controlled activity. The reporting calculations by products allow to establish the deviation of the actual from the normative prime cost and to analyse the influence of the separate types of expenses (by articles of the calculation). Thirdly, it is necessary to assess the economic activity by centres of responsibility[2] and risk[3], depending on the organizational structure of the economy and the specifics of its activities. For example, each crop and livestock activity may be a separate centre of responsibility to provide information on the cost centre and sales revenue centre at the operational level; the profit centre at the tactical level, and the investment centre, which is related to the creation of a non-current biological asset, to be also at the operational level.

The choice of criteria for centres of responsibility for permissible and inadmissible controllable deviations depends on the activities organized by the farms, such as (Rupska, T., 2014): 1) production of crop and livestock production separately for plants or animals with short and long biological cycle; 2) implementation of agricultural and non-agricultural activities – support of agricultural activities (machine-tractor park and transport park); ensuring permanent employment of staff due to certain seasonal productions

[2] Center of responsibility – a structural unit of a farm (department, workshop, division, etc.), which head has delegated powers and is responsible for the results of the activity [Brezova, B. Classification of costs in the management accounting system, topic two. Accounting Plus, issue 9, 2005, p.15].

[3] The risk of crop production may be related to: climate (drought, floods, hail, frost of crops as a result of spring frosts, the presence of frost, lack of snow in winter, high temperatures, excessive rainfall at harvest); occurrence of pests and plant diseases; malicious acts of third parties (uprooting of crops, arson); with overproduction. The risk in livestock activities may be related to: open animal disease (without or with the necessary killing); increase in the price of fodder for feeding; force majeure circumstances; theft; low temperatures during the breeding season, which leads to mortality, etc. There is also a risk of unexpected damage to machines; from theft of fuels, lubricants, spare parts; from moral depletion of the machine-tractor park [Rupska, T. Management accounting in agricultural enterprises - problems and solutions. Publishing complex - UNWE, Sofia, 2014, pp. 100-101; 106].

(grapes, fruits); providing an opportunity to obtain higher profits (trading in markets, shops, etc.) and supporting workshops that repair agricultural and transport equipment); 3) carrying out scientific and development activities, the subject of which is related to the management of biological assets of plant or animal origin, creation of new varieties of plants and animal breeds or improvement of the quality characteristics of the already existing varieties and breeds.

The above mentioned gives grounds to turn management accounting from an information system for in-depth analysis, evaluation and regulation of the financial result of the farm into futuristic system, based on developed plans, forecasts and operating budgets for various agricultural productions in terms of biological assets.

The management accounting information system for the purposes of the financial model of management of agricultural holdings would help for the fast and adequate reporting, analysis, planning and control of the prime cost of the agricultural production, where more than one product is received from one production. The place for the management accounting information system of the agricultural holdings can be found by the models for calculating the prime cost of the agricultural production, the analysis "costs-volume-profit", the budgeting, as well as the analysis by centers of responsibility. It improves their applicability in the agricultural sector through efficiency, syntheticity, adequacy of changes in the external environment and faster decision-making.

The application of management accounting models in agricultural farms cannot be in their pure form, so the specifics of the industry must be taken into account. Among the models can be applied: models for calculating the cost of agricultural production, cost-volume-profit analysis, budgeting analysis by centres of responsibility. In order to optimize agricultural production, an in-depth management accounting analysis of costs is needed in various aspects – in terms of their systematization, when calculating the cost of production and services, and in the process of determining the volume of production at which costs are optimal and profit is the highest. The conducted analysis should focus on the future economic activity of the agricultural farms, operating with estimated values of costs and revenues (including the forecast function of management accounting) and apply the model of "critical point analysis".

Conclusion

The performed analysis of the branch peculiarities of the agricultural production, of the peculiarities and possibilities of the management accounting according to the specifics of the branch "Agriculture", allows us to make the following main conclusions:

First: Management accounting as a theory and practice in Bulgarian agricultural farms combines the techniques of financial accounting, finance, planning, analysis and control of economic activity. Management accounting develops its tools together with scientific-theoretical foundation and practical contribution, which turn it into an information system for more complete and accurate reflection of the objective reality in the activities of agricultural farms and this is in order to achieve optimal economic results.

Second: The information base provided by the accounting regarding the financial resources of the agricultural farms must allow the application of different management accounting models for calculating the cost of agricultural production, cost-volume-profit analysis, budgeting, analysis by centers of responsibility in the agricultural sector.

Third: Management accounting is an integral part of the overall process of financial management of agricultural farms, focusing on the process of planning, analysis, budgeting based on accounting, providing control over liquidity and profitability within certain limits and parameters.

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