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THE FORMATION OF EFFECTIVE ACCOUNTING INFORMATION FOR MANAGERIAL DECISION-MAKING IN AGRICULTURAL ENTERPRISES

Abstract. The questions of accounting and analytical support decision-making in agricultural enterprises are considered. The use of modern information technology and information company providing analytical processing credentials is analyzed. A primary document for the operational control over the implementation of decisions taken in the management of agricultural enterprises and the general formula for assessing the quality of management information's offered.

To explore the nature and quality of accounting information in accounting processes at all levels of agricultural production and to identify the factors of monitoring and reporting to ensure the effectiveness and sustainable development of the enterprise. To analyze the contemporary accounting decisions making and analytical systems automating the process of effective decision-making and to offer an algorithm for their practical use in activities of agricultural enterprises.

For making any decision, regardless the type or the classification criterion, it is necessary to possess complete and quality information, which orients the head to select the optimal solution among the alternative options proposed. Operational tasks which are in modern management of agricultural enterprises require a high level of quality management information, which is formed of accounting and analytical system of the enterprise.

The effective element for improving the quality of information on agricultural enterprises is the system of controlling. It is the information-analytical basis for decision, control, correction and analysis of effective managerial decisions and combines management accounting, systematization and processing of management information. Such a system should operate in a company structure because it provides comprehensive information about the work of the company, provides planning, based on targets, represents a real alternative problem solving for managers and oversees their implementation. The use of such a system will reduce a significant part of managerial work that will have a positive impact on the quality of managerial decisions.

***Keywords*:** management decisions, accounting and analytical information methods of decision-making, operational control of primary documents, accounting computer software algorithm of decision-making.

JEL Classification M11, M40, Q12
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ФОРМУВАННЯ ЕФЕКТИВНОГО ОБЛІКОВО-ІНФОРМАЦІЙНОГО ЗАБЕЗПЕЧЕННЯ ДЛЯ УХВАЛЕННЯ УПРАВЛІНСЬКИХ РІШЕНЬ У СІЛЬСЬКОГОСПОДАРСЬКИХ ПІДПРИЄМСТВАХ

Анотація. Розглянуто питання обліково-аналітичного забезпечення ухвалення управлінських рішень у сільськогосподарських підприємствах. Проаналізовано застосування сучасних інформаційних технологій і організацію інформаційного забезпечення аналітичної обробки облікових даних. Запропоновано первинний документ для оперативного контролю за реалізацією ухваленого управлінського рішення в аграрних підприємствах та формулу загальної оцінки якості управлінської інформації.

Основна ціль дослідження — дослідити суть і якість бухгалтерської інформації в облікових процесах усіх рівнів сільськогосподарського виробництва і виділити фактори її контролю у звітності для забезпечення ефективності та сталого розвитку підприємства; проаналізувати сучасні обліково-аналітичні системи автоматизації процесу ухвалення ефективних управлінських рішень і запропонувати алгоритм їхнього практичного застосування в діяльності сільськогосподарських підприємств.

Для ухвалення будь-якого рішення, незалежно від виду чи класифікаційної ознаки, необхідно володіти вичерпною та якісною інформацією, яка орієнтує керівника до вибору правильного оптимального рішення серед альтернативно запропонованих варіантів. Оперативні завдання, що постають у сучасних умовах управління сільськогосподарськими підприємствами, вимагають високого рівня якості управлінської інформації, яка формується обліково-аналітичною системою підприємства.

Дієвим елементом поліпшення якості інформації в сільськогосподарських підприємствах сьогодні є система контролінгу. Вона виступає інформаційно-аналітичною основа для ухвалення, контролю, коригування та аналізу ефективних управлінських рішень та поєднує управлінський облік, систематизацію та обробку управлінської інформації. Діяльність такої системи у структурі підприємства надає різносторонню інформацію про роботу підприємства, забезпечує планування на основі цільових показників, представляє реальні альтернативні рішення проблем для управлінців та здійснює контроль за їхнім виконанням. Застосування такої системи сприятиме зменшенню значної частини управлінської праці, що матиме позитивний вплив на якість і результат управлінських рішень.

***Ключові слова*:** управлінські рішення, обліково-аналітична інформація, методи ухвалення управлінських рішень, оперативний контроль первинної документації, комп'ютерне забезпечення обліку, алгоритм процесу ухвалення управлінських рішень.

Формул: 2; рис.: 1; табл.: 3; бібл.: 12.

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ФОРМИРОВАНИЕ ЭФФЕКТИВНОГО УЧЕТНО-ИНФОРМАЦИОННОГО ОБЕСПЕЧЕНИЯ ДЛЯ ПРИНЯТИЯ УПРАВЛЕНЧЕСКИХ РЕШЕНИЙ В СЕЛЬСКОХОЗЯЙСТВЕННЫХ ПРЕДПРИЯТИЯХ

Аннотация. Рассмотрены вопросы учетно-аналитического обеспечения принятия управленческих решений в сельскохозяйственных предприятиях. Проанализировано применение современных информационных технологий и организацию информационного обеспечения аналитической обработки учетных данных. Предложено первичный документ для оперативного контроля за реализацией принятого управленческого решения в аграрных предприятиях и формулу общей оценки качества управленческой информации.

***Ключевые слова*:** управленческие решения, учетно-аналитическая информация, методы принятия управленческих решений, оперативный контроль первичной документации, компьютерное обеспечение учета, алгоритм процесса принятия управленческих решений.

Формул: 2; рис.: 1; табл.: 3; библ.: 12.

Introduction. It has recently become clear that information in any process plays a major role and it should be evaluated in terms of the use for solving specific problems. This feature is of great importance in the use of information in production processes of agricultural production. The current varieties of accounting (financial, tax, managerial) that are informative for managers, are not needed in themselves, but as the ultimate quality products in the form of data on options for certain actions for managerial decision-making.

Analysis and statement of the research problem. The study of the theoretical aspects of the process of managerial decision-making and practical issues of automation of management accounting are reflected in the writings of such well-known Ukrainian and foreign scientists: A.V. Galenko, F. Kene, G.G. Kireitsev, I.V. Melnichenko, E.V. Mnich, L.V. Napadovska, M.D. Rudenko, F.I. Khmel, Ch.T. Horngren, John. Foster, V.D. Squier, J. Marschak and R. Radner etc.

However, a detailed analysis of the publications showed that the question of optimal lighting management information in the primary documents of agricultural enterprises and operational control of the quality of managerial decisions is still unresolved.

Results of the research study. The accounting implements its functions in the course of providing information service for management are on the surface of the organizational, legal and economic phenomena [3, p. 47—53]. Adaptation of agricultural enterprises of Ukraine to the market relations determines the growth of requirements of the information needed for planning, control and managerial decision-making. The specific methods of accounting are needed to be to applied as now an animal and a plant are the basis of agricultural production and biological beings.

The basic of the system of quality control of agricultural product is management accounting. Formation of an effective system of management accounting at the enterprise happens is stages. The accounting information on each of these stages must be property grouped and interpreted to from final internal reporting provided various levels of management data needed for decision-making at different levels of the management structure [8, p. 222—230].

For the first time the physiocratstried to combine biological laws with the information of economic processes of production, a vivid personification of them was the French economist François Kene. The representatives of this theory said that no stocks of precious metals and trade is the wealth of the nation, but agriculture is [2].

In his main economic work «Energy of progress: essays on physical economy». Rudenko has provided the critical vision of accounting: «... the political economy that highlights the information only accounting categories (no interaction with biological laws) it does not only help us to understand economic processes, but also generates unprecedented economic mistakes and distortions» [7].

An important direction in the study of information Economics is the study of information as a means of reducing uncertainty for economic subjects. Marshak was among the scholars who were for the origins of economic information [12]. He was one of the first who put the issue of monetary and qualitative assessment information, including the measurement of the cost of its acquisition, the cost of processing, transfer and use when making decisions. Marshak attributed these issues to a special class of problems within the framework of the general theory of managerial decision-making.

In scientific literature, there are different interpretations of the notion «management decision», but most scientists put such basic categories as a result, an act or a process in the basis of this concept.

Thus, according to L.V. Napadovska managerial decision is the result of analysis, forecasting, optimization, economic feasibility and selecting the most advantageous option from a number of alternatives to achieve specific goals in the control system [5].

In turn, F. I. Khmil suggested the interpretation of managerial decisions as an act of intervention of the subject of management in the activity of object of management as the way out of the certain production and the economic situation [9].

Foreign scholars, such as Ch. Horngren, John Foster interpret the definition of management decisions: selecting a course of an action based on the analysis of the influence of quantitative and qualitative factors, which consists of five phases: information, prediction, the choice of the alternatives, the execution of the decision, and evaluationof results of implementation [10].

In our view, including the economic specificity of agriculture, management decision corresponds to a process of change of existing orders (including natural processes) with which the entity has the ability to improve the economic condition of the enterprise.

The economic theory of «information quality» (information / data quality) is defined as a set of properties reflecting the suitability of the specific information or data about objects and their relationships, to achieve goals of the user [1]. In our view, this definition can be interpreted as its ability to please the information needs of the user (accountant) in making sound management decisions.

The quality of management information depends on the level at which its forming and processing are [4, p. 131—134].

Qualitative characteristics of accounting information are formed and changed in the process of its creation, processing, preparation, transfer and use by the user. Such properties include the

completeness, accuracy, objectivity, timeliness of collection and presentation, clarity and efficiency. The above properties are in the same time and the criteria for assessing the quality of management information which is generated and served accounting and analytical system of the enterprise.

Taking into account the above properties we believe that the quality of the information you need to determine in two stages (formula 1):

1) the formation of (primary documentation);

2) use in the management process.

$$Yai = \frac{Krz - Krv - Kn}{Krz} * 100\% \quad (1)$$

where *Yai* — quality management information;

Krs — the number considered by the solution Manager;

Krv — the number of cases rejected decisions;

Kn — the number of outstanding transactions.

This ratio shows the deviation from absolutely perfect enterprise in which each is demanded by the head is embedded, and in the future may bring him benefits.

As practical experience shows, most agricultural enterprises do not use documents that would confirm the process of implementation of adopted managerial decisions, that is, no element of control is over its performance.

Taking this into account we developed a report of management decision making that will contribute to the operational control of task execution, reduces the time of the director to ascertain the reasons and executors of why a particular item was not done.

The important point in the information support of process of acceptance of effective administrative decisions in accordance with the Order of the Ministry of Finance of Ukraine № 88 [6] is a well-established operational relationship between responsibility centers and managers of the enterprise. In our opinion, achieve this goal is possible by means of the developed accounting the primary document «Report of management decision making» (*Tabl. 1*).

Considering the use of this working document is checked for a specific agricultural enterprise «Agrofirma Kolos» Skvira district, Kyiv region and the situation on the formation of proposals to reduce production cost accounting Department of the enterprise.

This initial document is recommended: to complete a multi-step management tasks, as a result of changes in the basic factors of agricultural enterprises and, if necessary. The heads of departments are responsible for the formation of this document.

Table 1

The company «Agrofirma Kolos»
Unified State Register of enterprises and organizations of Ukraine *20537445*

Report of management decision making, *author's*

№	Date	Content management solutions	Name of the contractor	The post performers	The result of executing	
					Positive	Negative
1	*01.10.2016*	*The allocation of duties between employees to ensure management decisions*	Olen V.S.	*chief accountant*	*made*	
2	*02.10.2016*	*Analysis of calculation documents*	Yarovyy R.V.	*cashier*		*rejected*
3	*03.10.2016*	*Analysis of cost optimization in crop production*	Petruk I.E	*accountant at crop production*	*made*	

4	*03.10.2016*	*Analysis of cost optimization in animal husbandry*	Boichuk V.I.	*accountant for livestock*	*made*	
5	*03.10.2016*	*Optimizational analysis of overheads*	Shvets, A.I.	*accountant-teller*		*not executed*
6	*05.10.2016*	*The tabulation of results and preparation of proposals*	Olen V.S	*chief accountant*		*not executed*

Rationale the reasons for the failure of the adopted solutions:

2–analysis of calculation documents generated on the basis of false data (using outdated information) (responsible person — Yarovyy R.V.).

5 — missing data from the analysis of overheads (responsible person — A.I. Shvets) in connection with the impossibility of processing a large volume of accounting information on this issue in due time.

6 — the final deadline for the decision is 06.10.2016.

The head of the responsibility center _____ goal. Olen V.S

(signed)

Conducting an analysis of the quality of management information from Report of management decision making with using the proposed formula 2:

$$Ya = \frac{6-1-2}{6} * 100\% = 50\% \quad (2)$$

The criterion for efficiency of the overall management solutions is the scale of estimation of quality of management information (*Tabl. 2*).

Table 2

The scale of estimation of quality of management information, *author's*

Normative value, %	Quality of information (*Ya*)
80-100	normally
60-80	satisfactorily
< 60	unsatisfactorily

Thus, the use of this scale of estimation of quality of management information in the considered example shows that the quality made decision at the level of 50 % is unsatisfactory. The analysis of this question in such aspect allows offering ways of removal of negative factors and in future it will allow to shorten time in the acceptance of future decisions.

One of basic elements of process of acceptance of optimal administrative decisions in practical activity of agricultural enterprises are the methods that are used by a leader.

As our researches show that in most cases, managers use informal (heuristic) methods of management decision-making, based on their own experience and personal intuition. However, they are often false, so you must also take into account the views of other workers, using a method of collective discussion of managerial decision-making.

The effective element for improving the quality of information on agricultural enterprises is the system of controlling. It is the information-analytical basis for decision, control, correction and analysis of effective managerial decisions and combines management accounting, systematization and processing of management information. Such a system should operate in a company structure because it provides comprehensive information about the work of the company, provides planning, based on targets, represents a real alternative problem solving for managers and oversees their

implementation. The use of such a system will reduce a significant part of managerial work that will have a positive impact on the quality of managerial decisions.

In connection with the transition to intensive farming methods, the techno-economic processes are greatly complicated by, which leads to new problems in accounting that need to be solved quickly and efficiently. In such circumstances, traditional methods are often ineffective, therefore, for the analysis of large volumes of economic credentials, it is necessary to use modern information and computer technologies that enhance the efficiency, soundness and efficiency of management decisions.

The use of computer technology in agricultural enterprises is connected with the extension and detailed capabilities analytical programs, as most of them today use only the reporting of financial data [11]. The limitations of such an information base reduces the depth of economic analysis and analytical abilities of software products.

The use in practical activities of agricultural enterprises of diverse information for complex solution of tasks of accounting, analysis and internal control encourages managers to search for more functional and innovative products that provide reliable and timely information (*Tabl. 3*).

Table 3

Efficiency of information forming for decisions making with the use of the computer programs in agricultural enterprises, *author's*

№	Kind of software	Rating used in Ukraine	Spectrum of informative tasks	Cost Dollar per unit	Optimal of use for decisions making
1	ERP SAP/R3	4	Management of process of formation of the primary documents for the long term and short term.	150	4
2	Galaxy	3	Administrative management Operational management Production management Accounting	110	3
3	Comshare MPS	5	The Decision of tasks of budgeting of the enterprise, the analysis of the forecasting and planning of indicators, monitoring of financial indicators	220	5
4	Microsoft Excel	2	Mathematical-analytical processing of accounting data	Free (included with Windows software)	1
5	1S: Enterprise 8.2	1	automation of operational, managerial, and tax accounting at the agricultural enterprises	110	2

Source. The average cost of a software product on the market of Ukraine.

However, even the most advanced program with the biggest set of functional possibilities is an instrument for work with information and efficiency of its use depends on the competence of user. Therefore, it is necessary to define objectives as precisely as possible and to identify ways to achieve them towards making the right management decisions.

We have developed an algorithm of the process of managerial decision-making for implementation in the computer environment in order to reinforce this position in LLC «Agrofirma Kolos» (*Fig.*).

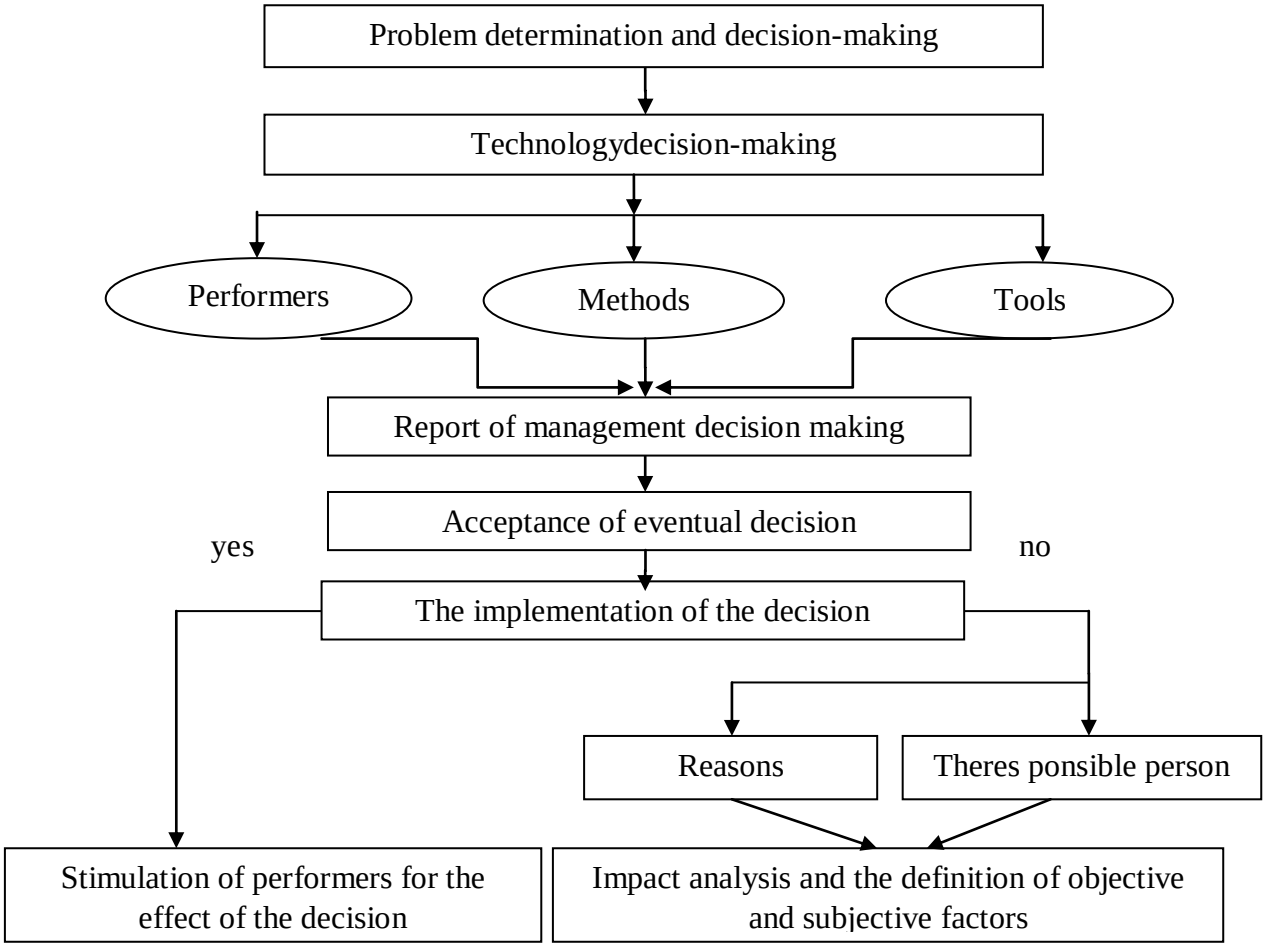

Fig. Algorithm of the process of managerial decision-making for implementation in the computer environment of the agricultural enterprises, author's

The implementation of this algorithm will enhance the improvement of information technology of making decision, use of necessary methods of their estimation and give an opportunity to prepare rational administrative decisions. But compliance with high-level organization of their implementation will contribute to the effective functioning of enterprises and their further development.

The following system information links between the centers of responsibility and management of the enterprise has been tested in «Agrofirma Kolos» with a positive assessment of its functioning. The use of such system in the activities of agricultural enterprises will enhance the timely understanding of the production processes line managers and increasing responsibility for the implementation of the tasks of the workers in the enterprise.

Conclusions and prospects for further research. Thus, on the basis of the conducted research we can draw the following conclusions.

1. Taking into account specifics of agricultural production gives the grounds to assert that the management decision is the process of changing existing orders (including natural processes) with the help of which the entity has the ability to improve the economic condition of the enterprise. This interpretation will allow to make a detailed impact on the management process of agricultural production.

2. The formula of estimation of quality of administrative information was offered, that gives an opportunity to define a level of present account data, that were used in making of administrative decisions.

3. As an operational control document the level of implementation of the decision proposed to use the primary document — a Report of management decision making. It will improve the quality of records and promote the current monitoring problems.

4. The most optimal in terms of the factor «price — functionality — the quality management» solutions for small farms is the processing of data in Microsoft Excel; for the average enterprises — program Galaxy (such as the LLC «Agrofirma Kolos») for agricultural holdings — the 1C: Accounting 8.2, ERP SAP/R3 and Comshare MPS. This will help preserve cash in the company and provide the desired level of processing of accounting information.

5. The developed algorithm of the process of managerial decision-making for implementation in a computer environment that will provide the operational management of accounting and information support of production activities of agricultural enterprises.

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