



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.2677605>

Available online at: <http://www.iajps.com>

Research Article

IMPROVING THE METHODOLOGY FOR ASSESSING THE EFFICIENCY OF LABOR IN ORGANIZATIONS OF THE AGRO- INDUSTRIAL COMPLEX: STRATEGIC ACCOUNTING AND ANALYSIS

¹Gamlet Y. Ostaev, ²Boris N. Khosiev, ³Elena V. Nekrasova, ⁴Olga Yu. Frantsisko,
⁵Ekaterina V. Markovina, ⁶Lana M. Kubatieva

¹Candidate of Economic Sciences, Associate Professor of Accounting, Finance and Audit, Izhevsk State Agricultural Academy, 426069, Izhevsk, Studencheskaya Street, 11., ²Candidate of Economic Sciences, Professor, Head of the Department of Economic Security, Accounting, Finance and Audit, Gorsky State Agrarian University, 362040, RNO-Alania, Vladikavkaz, Kirov Street, 37., ³Candidate of Economic Sciences, Associate Professor of Management and Law, Izhevsk State Agricultural Academy, 426069, Izhevsk, Studencheskaya Street, 11., ⁴Candidate of Economic Sciences, Associate Professor of the Department of Economic Cybernetics, Kuban State Agrarian University, named after I.T. Trubilin, 350004, Krasnodar, Kalinina Street, 11., ⁵Candidate of Economic Sciences, Associate Professor of the Department of Economics of the Agro-Industrial Complex, Izhevsk State Agricultural Academy, 426069, Izhevsk, Studencheskaya Street, 11., ⁶Candidate of Economic Sciences, Associate Professor of Taxes. Accounting, Financial University under the Government of the Russian Federation (Vladikavkaz branch) RSO-Alania, 362021 Vladikavkaz, Molodyozhnaya Street, 7.

Article Received: March 2019

Accepted: April 2019

Published: May 2019

Abstract:

In the existing market realities in the country, it is necessary to search for suitable and effective functional measures for managing business entities, which will lead to a revision of certain accounting concepts and methods. Separate phenomena often lead to a decrease in the income of an organization, an increase in debt, with a simultaneous decline in production. Labor efficiency is an important financial and economic indicator of agricultural production. If agricultural products are produced in large quantities, spending a unit of working time, then there is an increase in labor efficiency; in the case of reducing the time spent on the production of a unit of production, this figure is higher. There is a need to correctly calculate the efficiency of labor for the planned functioning of the agricultural organization. Research and substantiation of the methodological aspects of accounting and analysis of labor efficiency in agriculture is of great theoretical and practical importance.

The aim of the study is to develop a model of accounting and analysis of labor efficiency in agriculture. The paper presents elements of accounting and analysis of labor efficiency in agriculture. To achieve the goal, it is proposed to calculate the efficiency of labor by replacing the costing of living labor in man-hours for strategic accounting in norm-days. This paper analyzes various aspects of strategic accounting and analysis of labor efficiency. The proposed activities can be applied not only by organizations of the AIC (Agro-Industrial Complex), but also by other economic entities. It was concluded that the proposed system of strategic accounting and analysis of labor efficiency in agriculture can serve as a starting point for scientific research and improvement of accounting, by introducing such an indicator as the norm-day.

Key words: agriculture, labor efficiency, accounting, analysis, norm-day.

Corresponding author:**Gamlet Y. Ostaev,**

Candidate of Economic Sciences, Associate Professor of Accounting, Finance and Audit, Izhevsk State Agricultural Academy, 426069, Izhevsk, Studencheskaya Street, 11.



*Please cite this article in press Gamlet Y. Ostaev et al., **Improving The Methodology For Assessing The Efficiency Of Labor In Organizations Of The Agro-Industrial Complex: Strategic Accounting And Analysis.**, Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

The economic situation of the current state of agricultural enterprises and organizations requires certain steps in the field of strategic accounting and analysis of individual economic performance indicators. Such indicators, in our opinion, are the indicators of labor efficiency. These indicators are the objects of analysis, strategic, operational and management accounting.

Labor efficiency expresses both quantitative and qualitative results of labor. The issues of determining the efficiency of production and labor are reflected in the following works [2, 3, 4, 6, 14-23].

Every agricultural organization should strive to reduce costs and improve labor efficiency. Improving the efficiency of labor per unit of agricultural production with a favorable increase in production leads to a reduction in costs and, as a consequence, to a decrease in the production cost. In turn, this allows increasing the competitiveness of agricultural products [1].

Domestic scientists consider work as "... the process of using one's own intellectual and labor capital in order to carry out expedient activities on appropriating life-goods ready for production and on performing other types of socially useful work, using different types of natural energy and productive assets" [5].

Foreign authors define labor as "... a production factor contributing to the creation of goods and services through the use of a person's physical and mental efforts" [8, 12].

Alfred Marshall, an English economist, a professor at the University of Cambridge, the founder of the Cambridge school in economic theory, wrote: "... work is any mental and physical effort made partially or entirely to achieve any result, not counting the satisfaction received directly from the work done" [25].

This factor in agriculture is combined with other key indicators that affect the economic process - investment and land. Any paid or unpaid work is work. Labor finds application in various types of employment; it can be physical and mental, it varies in terms of skill, performance and cost. The division of labor lies at the heart of the modern economy, especially the process of industrialization.

METHODOLOGY:

Labor relations in the agro-industrial complex are caused by biological characteristics, since the land and living organisms of plant growing and animal husbandry are used as the main objects and means of labor [7].

Currently, there is a problem in the timely payment of wages not only in agriculture, but also in the entire sphere of the economy. Arrears of wage calculations are actually accrued wages to employees of economic entities that were not paid within the prescribed period.

Today, there are also certain problems and tasks in the formation and use of labor resources in the agro-industrial complex.

Despite investment injections and subsidies from the state in recent years, agriculture has poor working conditions, low wages, lack of career prospects, poorly qualified staff, and an inefficient wage system.

One of the ways to improve the efficiency of labor of workers employed in agriculture is an effective system of stimulation and motivation of labor [8, 24].

To do this, it is proposed to calculate the efficiency of labor by replacing the accounting of living labor costs in man-hours for strategic accounting in norm-days.

The norm-day is a unit for accounting for labor input and income distribution according to work. The norm-

day is a certain amount of work, the norm: mow a certain area, weed or plow. Accordingly, an employee may work several days in one working day if he is interested in this.

Norm - days are expressed in monetary (cost) assessment for the accrual and issuance of wages by an agricultural production worker.

In order to avoid problems, when calculating the norm-days of one employee, it is necessary to take into account such indicators as the complexity of work, laboriousness of work, intensity of work, degree of danger and harmfulness of work, performance of work norms. All this is due to the fact that the norm-days for different types of work will differ due to different conditions for the completion of these works and the use of different means of labor.

The calculation of the norm-day of one employee should be carried out using the following formula:

$$N_d = t \times St_k \times Tr_k \times It_k \times Svo_k \times Vno_k, \quad (1)$$

where N_d – the norm-day of employee;
 t – the duration of the working day (8 hours - 100%, or translated into a coefficient - 1), hour;
 k – coefficient;
 St_k – complexity of labor in the coefficients;
 Tr_k – labor intensity in coefficients;
 It_k – labor intensity in ratios;
 Svo_k – degree of harmfulness and danger of work in the coefficients;
 Vno_k – fulfillment of norms and volumes of work in coefficients.

Each coefficient is determined by taking into account the degree that corresponds to a certain number of points.

St_k is characterized by the complexity of the means used in the production process. It has five degrees, each of which corresponds to the number of points from 0.01 to 0.05.

Tr_k is determined by the severity of work, the load on the body: the musculoskeletal system, respiratory and cardiovascular systems and other systems associated with the performance of a particular type of work.

The severity of work is a static load, which characterizes the work of moving the load horizontally and vertically, the working position, the degree of inclination of the body, movements in space [9].

It is also characterized by five degrees, each of which corresponds to the number of points from 0.01 to 0.05.

It_k is characterized by the responsibility of the employee for compliance with various technological requirements in the intensification of production processes, compliance with the established value: tools, raw materials and materials, finished products, feed, seeds, etc. It has four degrees, each of which corresponds to the number of points from 0.01 to 0.04.

Svo_k is determined by special working conditions that have a negative impact on employee health (dust, noise, vibration, level of concentration of microorganisms, etc.). As a previous coefficient, it has four degrees, each of which corresponds to the number of points from 0.01 to 0.04.

If the duration of the working day is different from the norm, that is, it is more or less than 8 hours, then it is calculated by the formula:

$$t = 1 \pm \left(\frac{1}{8} \times t_2 \right), \quad (2)$$

where t_2 – the number of hours worked (not worked) in excess of (less) standards, hours.

If the worker is involved in horse-drawn work (simple work, not in the field), then it is expedient to recognize the coefficients of St_k , Tr_k , It_k , Svo_k equal to one.

When performing mechanized work (combiners, tractor drivers, machine operators, milking, etc.), the indicated coefficients will exceed one. The coefficients should be established on the basis of carrying out photochronometry surveying studies on the performance of relevant work in agriculture [10].

The chronometry method explores the cost of working time to perform successive manual and machine-manual elements of labor operations by measuring their duration and analyzing the conditions for their implementation [11,13].

RESULTS:

The coefficient Vno_k is determined for each category of workers depending on the fulfillment, overfulfilment or non-fulfillment of the norm of the work volume (production volume, etc.) in one norm-day.

Table 1 presents the signs of grouping factors of the labor process and their estimated coefficients.

Table 1 - Classification characteristics of the distribution of factors of the labor process by degrees and the corresponding coefficients

No	The factors of the labor process by classification criteria and degrees									
1	By complexity									
	Simple		Above simple		Average		Complex		Super complex	
	Stable / Surplus									
	1	0,01	1	0,02	1	0,03	1	0,04	1	0,05
2	By factors of the labor process									
	Not labor-intensive		Low-labor-intensive		Medium-labor-intensive		Labor-intensive		Super labor-intensive	
	Stable / Surplus									
	1	0,01	1	0,02	1	0,03	1	0,04	1	0,05
3	By intensity									
	Not responsible		Limited responsibility		Medium responsible		Responsible		-	
	Stable / Surplus									
	1	0,01	1	0,02	1	0,03	1	0,04	-	-
4	According to the degree of harm and danger									
	Normal		Valid		Harmful		Dangerous		-	
	Stable / Surplus									
	1	0,01	1	0,02	1	0,03	1	0,04	-	-

Accounting for the norm-days of agricultural workers made using the matrix register, presented in Table 2.

Table 2 - The accounting matrix of labor costs of workers of the agricultural organization, using coefficients.

Employee name	Type of work	Coefficients						
		t	St_k	Tr_k	It_k	Svo_k	Vno_k	N_d
Ivanov I.M.	Crop production (horse-drawn)	1	1,01	1,01	1,01	1,01	0,95	0,99
Petrov S.V.	Livestock (horse-drawn)	1,13	1	1	1	1	0,90	1,02
Fedorov A.A.	Dairy farm (mechanized work)	1	1,02	1,02	1,02	1,02	0,85	0,92
Novikov V.V.	Mechanized plant production (not in the field)	1	1,03	1,03	1,03	1,03	1	1,13
Rebrov V.A.	Mechanized work of tractor drivers, machinists, combiners in the field	1	1,04	1,04	1,04	1,04	1	1,17
Naumov M.T.	Particularly difficult and harmful working conditions	1	1,05	1,05	1,04	1,04	1	1,19

- Note: St_k, Tr_k, It_k, Svo_k – variables for specific types of work; Vno_k – variable for each employee.

Wages for one norm-day (the cost of one norm-day) can be calculated by dividing the normative (planned) payroll by the number of norm-days worked by employees of organizations (if the planned production volume coincides with the actual volume). The cost of one working day is determined by the formula:

$$T = \frac{FOT_N}{\sum T}, \quad (3)$$

where FOT_N – regulatory (planned) wage fund, rubles;
 $\sum T$ – the amount of the norm-days worked by employees.

At the same time, FOT_N must be adjusted to the actual amount, taking into account the fulfillment of the actual amount of work, production in relation to the corresponding regulatory (planned) indicators according to the formula:

$$FOT_f = \frac{FOT_N}{\sum T_N} \times \sum T, \quad (4)$$

where FOT_f – actual payroll, rubles;
 $\sum T_N$ – the number of normative (planned) norm-days.

Hence, the actual cost of one day-norm is determined as follows.:

$$T = \frac{FOT_f}{\Sigma T} \quad (5)$$

For example, the farm has worked out 34,000 man – days (or a norm – days). The salary fund for 2016 amounted to 18,229,000 rubles. That means the cost of 1 norm – day = 18229000: 34000 = 536 rubles.

DISCUSSION:

Based on the calculation of the cost of one norm-day and of the norm-days worked by each employee, by multiplying these indicators, wages are calculated for each employee. This approach to organizing the accounting of labor costs and their payment in organizations of the AIC system can be considered objective and fair. Thanks to this approach, the actual labor contribution of each agricultural worker can be objectively calculated and, on the basis of it, the salary corresponding to the completed workload is calculated.

With regards to the calculation of such an indicator as the efficiency of living labor (ie, labor of workers), then there are conditions for a more objective definition of this indicator both in the household and for specific types of activities and production of goods (works, services). This allows to evaluate the effectiveness of the use of labor resources in agricultural organizations.

When organizing the planning and accounting of norm-days, unreasonable methods of calculating wages and calculating its effectiveness will disappear, since the entire necessary system of motivation and incentives for employees is incorporated in the algorithm for determining one norm-day and calculating its monetary value.

Thus, the efficiency of labor can be calculated by the following algorithm (table 3).

Table 3 - Algorithm for calculating the efficiency of labor

No	Labor efficiency	Formula	Decryption
1	Labor efficiency for a specific type of production of goods (works, services) in physical units or monetary measures (calculation - one day-norm)	$ET_1 = \frac{VP_1}{\Sigma T}$	where ET_1 – Labor efficiency 1; VP_1 – gross production of certain agricultural products (works, services) in physical units or at intra-economic transfer prices, or at fair value, rubles; ΣT – the number of norm-days worked in a certain type of production of goods (works, services)
2	Labor efficiency for a specific type of production per employee	$ET_2 = ET_1 \times \frac{\Sigma T}{ChR_1}$	where ET_2 – Labor efficiency 2; ChR_1 – the average number of employees for the analyzed period, in a certain type of production (works, services), people;
3	The efficiency of labor in production (or in the whole organization) per one worked up standard-day	$ET_3 = \frac{VP_2}{\Sigma T}$	where ET_3 – Labor efficiency 3; VP_2 – gross production (or in the organization as a whole) assessed at intra-economic transfer prices or at fair value, rubles.
4	Labor efficiency in the industry and in the organization as a whole per employee	$ET_4 = ET_3 \times \frac{\Sigma T}{ChR_2}$	where ET_4 – Labor efficiency 4; ChR_2 – average number of employees in the industry or in the organization as a whole, people.

It is necessary to evaluate gross agricultural products at acceptable (fair) prices for the efficiency and objectivity of calculating labor efficiency indicators, as well as their comparability.

The following series of formulas (algorithm) for calculating prices per unit of production (Table 4) can be used for this.

Table 4- Algorithm for estimating gross agricultural output at acceptable (fair) prices

No	Products	Formula	Decryption
1	Finished products	$S_c = \left(\frac{R_{S_1} + R_{S_2} + \dots + R_{S_n}}{n} \right) - TR - SR$	Where S_c – comparable (fair) price of products; $\left(\frac{R_{S_1} + R_{S_2} + \dots + R_{S_n}}{n} \right)$ – average annual market price per centner of products; TR – transportation costs per one centner of products on average; SR – sales costs per one centner of products on average;
2	Self-produced feed	$S_c = K_{ed} \times S_{co}$	where K_{ed} – the content of feed units in one centner of this type of feed; S_{co} – fair value of one centner of this type of feed, rubles;
3	Weight gain	$S_c = R_S - TR - SR$	where R_S – average annual market value of one centner of live weight of livestock
4	One offspring	$S_c = (R_S - TR - SR) \times M$	where M – average weight of one head of offspring

CONCLUSION:

The described method of strategic accounting of labor and the calculation of its effectiveness is a definite solution to stimulating wages and employee interest in the indices of their labor. Maintaining such an indicator as the norm-day in agriculture can serve as a starting point for scientific research in this area; it also contributes to the fact that the indicator of labor efficiency will be one of the effective indicators of agricultural production.

REFERENCES:

- Alborov R.A., Kontsevaya S.M., Ostaev G.Ya., Zakharova E.V. Managerial aspects of accounting for biological assets. *Ekonomika sel'skohozyajstvennyh i pererabatyvayushchih predpriyatij* [Economics of agricultural and processing enterprises]. 2012. No. 5. P. 49-52.
- Bol'shaya sovetskaya enciklopediya* [Great Soviet Encyclopedia]. Moscow, Soviet Encyclopedia, 1969-1978.
- Gogaev O.K., Ostaev G.Ya., Khosiev B.N. Optimization of the evaluation of beef cattle production. *ZHivotnovodstvo YUga Rossii* [Livestock Southern Russia]. 2018. No. 1 (27). Pp. 31-33.
- Gogaev O.K., Ostaev G.Ya., Khosiev B.N. Some features of the use of management and zootechnical methods in beef cattle. *Nauchnoe obozrenie: teoriya i praktika* [Scientific Review: Theory and Practice]. 2018. No. 1. P. 79-89.
- Kamenetsky V.A., Patrikeev V.P. *Trud* [Work]. Moscow, Economy, 2004. 590 p.
- Kislitsky M.M., Gogolev I.M., Ostaev G.Ya. Management and modeling of wage processes for agricultural workers. *Ekonomika, trud, upravlenie v sel'skom hozyajstve* [Economy, labor, management in agriculture]. 2018. No. 10 (43). Pp. 81-86.
- Konygin A.A. *Fermerskoe hozyajstvo SSHA* [US Farm]. Moscow, Agropromizdat, 1989. 25 p.
- Hoggart R. *Oksfordskaya illyustrirovannaya enciklopediya: V 9 tt: T. 7: Narody i kul'tury* [The Oxford Illustrated Encyclopedia: In 9 vols: Vol. 7: Peoples and Cultures]. Infra-M, 2002.
- Ostaev G.Ya. *Razvitie metodiki upravlencheskogo ucheta i kontrolya finansovyh rezul'tatov v otrasli pticevodstva* [Development of management accounting and financial performance monitoring in the poultry industry]. Izhevsk, IzhGSA, 2016. 158 p.
- Ostaev G.Ya., Klychova G.S., Nekrasova E.V. Management decisions: mechanisms and financial instruments. *Vestnik Kazanskogo gosudarstvennogo agrarnogo universiteta* [Bulletin of the Kazan State Agrarian University]. 2018. Vol. 13. No. 4 (51). Pp. 146-152.
- Ostaev G.Ya., Khosiev B.N., Klychova A.S. Management accounting: Management of financial flows of agricultural enterprises. *Vestnik Kazanskogo gosudarstvennogo agrarnogo universiteta* [Bulletin of the Kazan State Agrarian University]. 2018. Vol. 13. No. 3 (50). Pp. 134-139.

12. Ostaev G.Ya., Klychova G.S., Sokolova A.V. Management accounting in the agricultural sector: external and internal environment. *Vestnik Kazanskogo gosudarstvennogo agrarnogo universiteta* [Bulletin of the Kazan State Agrarian University]. 2018. Vol. 13. No. 4 (51). Pp. 153-159.
13. Horngren C.T., Foster J. *Buhgalterskij uchet: upravlencheskij aspekt* [Accounting: management aspect]. Moscow, Finance and Statistics, 2000. 110 p.
14. Khokhryakov V.N., Ostaev G.Ya. On the transition to a new chart of accounts. *Ekonomika sel'skohozyajstvennyh i pererabatyvayushchih predpriyatij* [Economics of agricultural and processing enterprises]. 2001. No. 12. P. 27-29
15. Gogaev O.K., Ostaev G.Ya., Tihonova A. V., Khosiev B.N., Ryzhkova O. I., Turieva E. P., Nekrasova E.V. Poultry meat processing: economic efficiency, management and decision making. *Indo American Journal of Pharmaceutical Sciences* 2019. No 06 (04). Pp. 8173-8179
16. Gogaev O.K., Ostaev G.Ya., Khosiev B.N., Kravchenko N.A., Kondratev D.V., Nekrasova E.V. Zootechnical And Management Accounting Factors Of Beef Cattle: Cost Optimization. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2019. Vol. 10. No 2. Pp. 221-231.
17. Kokonov S. I., Khosiev B.N., Valiullina R.D., Ostaev G.Ya., Ryabova T.N., Gogaev O.K., Production Process And Economic Justification For The Cultivation Of Corn Hybrids. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2019. Vol. 10. No 2. Pp. 538-544.
18. Kokonov S. I., Ostaev G.Ya., Valiullina R.D., Ryabova T.N., Mukhina I.A., Latysheva A. I., Nikitin A. A. Agroecological and economic assessment of corn hybrids in the udmurt republic. *Indo American Journal Of Pharmaceutical Sciences* 2019. 06 (04). Pp. 8198-8204
19. Ostaev G.Ya., Gogolev I.M., Kondratev D.V., Markovina E.V., Mironova M.V., Kravchenko N.A., Alexandrova E.V. Strategic budgeting in the accounting and management system of agricultural enterprises. *Indo American Journal Of Pharmaceutical Sciences* 2019. 06 (04). Pp. 8180-8186
20. Ostaev G.Ya., Khosiev B.N., Gogaev O.K., Mukhina I.A., Kondratev D.V., Markovina E.V. Beef cattle: methods of management and livestock. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2018. Vol. 9. No 6. Pp. 1678-1686.
21. Ostaev G.Ya., Khosiev B.N., Gogolev I.M., Gogaev O.K., Alexandrova E.V., Mironova M.V. Biological fixed assets: Accounting and management problems of commissioning in horticultural enterprises. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2019. Vol. 10. No 1. Pp. 1258-1266.
22. Ostaev G.Ya., Khosiev B.N., Dzodziewa F. N., Donskaya N.P., Gogaev O.K., Istomina L.A. Biological Features of Hydroponic Production: Costs, Planning, Investment And Management. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2019. Vol. 10. No 2. Pp. 830-837.
23. Rokotyanskaya V.V., Moshchenko O.V., Valuisikov N.V., Ostaev G.Y., Taranova N.S. Control and analytical management aspects of debtor and credit deposit of enterprises. *Journal of Applied Economic Sciences*. 2018. T. 13. № 2 (56). C. 446-453.
24. Khosiev B.N., Ostaev G.Ya., Gogaev O.K., Markovina E.V., Latysheva A. I., Konina E. A. Strategic management and zootechnical control in pig-breeding enterprises: development of its information base. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2019. Vol. 10. No 1. Pp. 1267-1279.
25. Khosiev B.N., Ostaev G.Ya., Kotlyachkov O.V., Suetin A. N., Suetin S.N., A.R. Demurova. Milk Processing In Production: Management And Planning. . *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 2019. Vol. 10. No 2. Pp. 938-943.
26. www.ek-lit.agava.ru.