

Standard Configuration Adaptation in Relation to Wages Calculation in Agro-Industrial Complex Companies

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Abstract — An agricultural company cannot do without the use of the automated systems and innovations in the field of information technology. These systems automate accounting or maintenance of various processes, thereby increasing productivity growth and reducing the number of errors. Currently, the market offers software products for the preparation of industry reporting agribusiness. The agro-industrial complex is a special segment in the Russian Federation economy. After analyzing various sources, we propose the measures to increase the efficiency of the staff using the method of labor rationing and labor input ratio. Features of accounting and management automation in agriculture are described. The analysis of the software product «Norm setter» is carried out, as well as measures to supplement the standard configuration with reports, showing the labor input ratio, is considered. To determine the share of net profit intended for bonuses, it is proposed to add the following report forms to the configuration: “Consolidated results for the labor input ratio step-up criterion”, “Consolidated results for the labor input ratio step-down criterion” and “Actual consolidated labor input ratio results”. When using reports reflecting the labor input ratio, it will be possible to improve the labor organization, as well as increase working capacity and labor productivity.

Keywords — wages; remuneration of labor; labor rationing; labor rate; labor input ratio; accounting automation.

I. INTRODUCTION

At present, technological development of agriculture in the Russian Federation is noticeably behind the leading agricultural states. However, it should be noted that state policy is aimed to supporting agricultural companies and their subsidizing [1]. “The Digital Agriculture” program has been developed with an implementation period of 2019–2021. This program is being introduced with the aim of providing the agro-industrial complex (AIC) with digital developments through the use of information technologies and software

solutions for technological breakthroughs and halving labor costs at agricultural companies by 2021.

In modern society, no industry can do without computers and specialized programs that allow establishing a complete production system [2–5]. Like any organization, an agricultural company cannot do without the automated systems and innovations use in the field of information technology. Currently, the market presents software products for the industry reporting agribusiness preparation [6, 7].

II. INFORMAL STATEMENT OF THE PROBLEM

It should be noted that the agro-industrial complex is a special segment of the Russian Federation economy. It is not possible to use only standard solutions in agriculture. Agricultural companies often have several types of activities, such as the poultry production, processing and sale, livestock, crop production, the provision of services to outside companies and other areas [8]. For example, certain rules exist in organization the operational accounting of animals and birds. Also, agriculture has its own characteristics in the procedure of forming the actual cost of production. In addition, agricultural companies have complex wages calculations associated with the distribution of work on various accounting objects [9]. Companies can use different tax regimes. Therefore, from the accounting and management automation point of view, agriculture is considered one of the most complex industries.

The volume and quality of modern technologies application, including data collection, storage and processing systems, are growing in the agro-industrial complex. For a long time, agriculture was not attractive for investors due to the long production cycle, exposure to natural risks and large crop losses during cultivation, collection and storage, the inability to automate biological processes, and the lack of progress in improving productivity and innovation. Not so long ago, the use of information technology in agriculture was

limited to the use of computers and software mainly for financial management and tracking commercial transactions.

Currently, it is possible to automate the maximum number of agricultural processes by creating a virtual (digital) model of the entire production cycle and interconnected links in the value chain. It is also possible to plan the work schedule, to take emergency measures to prevent losses in the event of a fixed threat, to calculate the possible yield, cost of production and profit with mathematical accuracy.

There are several areas of technologies development and the innovations use in modern agriculture: technologies of soil cultivation; technologies of the production of agricultural machinery and equipment; technologies of growing and maintaining livestock; technologies of draining and irrigation of soil; technologies of collecting and preserving products; technologies of transporting and selling products.

Agriculture operates in a constantly changing environment, so agricultural companies need to process large amounts of information to reduce external risks and adapt to external conditions.

Different configurations and industry solutions for the processes of activity in the agro-industrial complex automating are developed on the basis of the 1C platform [10], for example: “1C: Accounting of the agricultural enterprise”, “1C: ERP agro-industrial complex 2”, “1C:ERP poultry enterprise management”, etc.

“AdeptIS” Company, the official partner of 1C Company (“Franchisee” status) and the official representative of “KAMIN” Company in the Voronezh region, has developed complex software products, such as “Agricultural complex”, “Consolidated planning in agriculture” and “Norm setter”, which take into account the specifics of the production processes at the agro-industrial complex companies. These products automate the above processes, thereby increasing productivity growth and reducing errors.

These software products can be effectively used in various types of companies: direct producers of agricultural products of crop production and animal husbandry, poultry farms, firms engaged in not only production, but also processing of products. Software solutions provide opportunities for automation of accounting both in individual agricultural firms and in agricultural holdings that have a complex settlement structure or branch structure.

Labor rationing and calculation of labor intensity are performed using the “Norm setter” configuration. This software product is the object of our research.

III. ANALYSIS OF THE “NORM SETTER” SOFTWARE PRODUCT

Labor rationing is the amount of working time definition that is necessary to perform a separate labor function under certain organizational and technological conditions. Labor rationing is necessary to determine the time spent on a specific type of work performed per unit of time. The amount of wages, surcharges and allowances is determined on the basis of this information [11].

The labor function represents the goals and tasks that the employee faces. They are defined in the employment contract or contained in local regulations of the employer [12].

The main types of labor standards are:

- time standards – the necessary time spent on a unit of work by one or more employees of the company;
- output norm – the number of units of work that must be performed per unit of time by one or more employees;
- service standards – the number of facilities that should be serviced per unit of time by one or more employees;
- norms of service time – time spent on maintenance of one object;
- norms of the number of employees – this is the necessary number of employees to perform the stipulated amount of work per unit of time.

Labor rationing systems are set independently by a commercial organization. Various methodological recommendations, standard norms, etc. can be the basis for the development and approval of these systems. Labor rationing systems are defined by specialists with the necessary knowledge in this field [13]. A separate structural unit that deals with this work can be organized in the company. At the same time, the employer is responsible for the state of labor rationing in the economic entity [14].

Labor standards can be revised as new techniques and technologies are introduced and measures are taken to increase labor productivity. If the company uses physically and morally outdated equipment, this can also serve as a signal for revising existing standards [15].

The definition of labor standards includes:

- analysis of the labor process based on the standard of the work performed (services provided), its division into parts;
- selection of the best option for technology and labor organization, effective methods and techniques of work;
- design of equipment operating modes, techniques and methods of work, workplace maintenance systems, work and rest modes;
- determination of labor standards in accordance with the specifics of technological and labor processes, their implementation and subsequent adjustment as organizational and technical conditions change.

To determine labor norms, we can use special industry reference books or conduct timekeeping of working hours [16].

Effective organization of wages calculation is required for resources optimal use and production costs reduction [17]. At the present stage it is desirable to automate it [4, 18].

Settlements with staff for remuneration of labor are very responsible, time-consuming and complex area of accounting. This section requires high correctness and accuracy, utmost

attention and timely execution of all settlement operations [19]. It is necessary to take into account and process large amounts of data for each employee. This is due to the introduction of a large number of primary documents into the program, as well as the importance of calculating and grouping data according to various analytical attributes: surname, name, patronymic; in the workshop and in the whole company. At the same time, hundreds or thousands of people can act as accounting objects in the company [20, 21].

Accrual and payment of wages to employees are among the most time-consuming processes, but they are favorable for accounting sections automation [22]. Thus, configurations for automating payroll for agricultural company are the most demanded in the information technology market.

The software package "Norm setter" provides automatic accounting of time standards, as well as automation of the production costs calculation in almost all branches of agriculture, while the reports show the calculation of products labor intensity by type of work and divisions, taking into account special working conditions [10].

This software product is based on the "1C: Enterprise" platform. The configuration has separate functionality that keeps track accounting for production time standards, as well as calculates labor costs in the context of the types of work.

It is possible to take into account the time standards for performing technological operations of production in almost all segments of the agro-industrial complex using the "Norm setter" configuration. This allows calculating the labor costs of production in the context of types of work and divisions, taking into account special working conditions.

When working the program uses underlying data: time standards for technological operations and the company's tariff scale, which fix prices for operations (types of work) depending on the qualification class.

Report forms are located in the "Reports" list on the "Rationing" tab. All generated reports can be saved in various formats. The saved files are control documents; various reconciliations and automatic information selections can be made on their basis depending on the company's requests. It should be borne in mind that the data in the program can be changed, but this will not affect the saved report files.

The sheet of rates and prices (printed form of the report) is a list of units and parts that make up the product, and technological operations for their processing. Rates of time and prices per unit (part) and product as a whole are indicated for each operation.

The report "Labor intensity by type of work" in printed form is a list of types of work (technological operations) used in the manufacture of the product and the aggregated time and prices rates.

The "Chessboard" report (the sheet by types of work) in printed form is a list of parts and units that are the part of the product and production processes for their processing. For each operation, rates are specified, as well as rates of time and prices for one unit (part) and the product as a whole.

The consolidated report on the labor intensity of units in printed form is a list of the types of work (technological operations) used in the manufacture of the units and the aggregated time and prices rates.

The consolidated report on the labor intensity of products in printed form is a list of the types of work (technological operations) used in the manufacture of the product and the aggregated time and prices rates.

To work with the proposed software product, we must have the "1C: Enterprise" platform. Using the "Norm setter" software product will allow the agricultural company to raise the financial accounting, management accounting, planning and budgeting system, internal control, tax control, reporting system to a higher level [23].

IV. PROPOSED MEASURES TO SUPPLEMENT THE STANDARD CONFIGURATION "NORM SETTER"

To increase the employees' wages, the labor input ratio (hereinafter – LIR) is used. The labor input ratio method is a coefficient that reflects the quantitative assessment of the measure of an individual employee labor participation in the overall labor results of an employees' group [24-26]. The indicators values are in the range from 0 to 2 in the labor input ratio calculation in the company. In this case, the good employee normative value is equal to one (LIR=1).

So that the company head can determine what share of net profit he should allocate for bonus payments based on the results of the quarter, we propose to supplement the configuration with the following report forms: "Consolidated results for the LIR step-up criterion", "Consolidated results for the LIR step-down criterion" and "Actual consolidated LIR results" (Tables 1, 2 and 3, respectively).

The department head records all cases of labor discipline violation and all employees' achievements to generate reports each month together with the personnel service. In this case, the criteria for the increasing LIR and the criteria for the decreasing LIR are used.

Each company develops criteria for evaluating it's employees individually.

TABLE I. CONSOLIDATED RESULTS FOR THE LIR STEP-UP CRITERION^a

Full Name	Base LIR	The step-up criterion										Subtotal
		1	2	3	4	5	6	7	8	9	10	
Kratt S.V.	1	0.7					0.1	0.6			0.4	1.8
Kuzmin I.I.	1	0.7			0.9		0.1			0.7		2.4
Minin M.N.	1	0.7		0.8			0.1	0.6			0.4	2.6
Minin Yu.M.	1	0.7	0.3				0.1	0.6				1.7
Subtotal												8.5

^aThe data in the Table are conditional

The official wage and remuneration are paid to the employee for the functions conscientiously performing specified in the job description, and the bonus is paid for individual contribution to the final results. According to the results of the quarter, the head determines what share of net profit he directs to bonus payments.

TABLE II. CONSOLIDATED RESULTS FOR THE LIR STEP-DOWN CRITERION^a

Full Name	Base LIR	The step-up criterion										Subtotal
		1	2	3	4	5	6	7	8	9	10	
Kratt S.V.	1									0.4		0.4
Kuzmin I.I.	1							0.8				0.8
Minin M.N.	1										0.6	0.6
Minin Yu.M.	1										0.6	0.6
Subtotal												2.4

^aThe data in the Table are conditional

Then the accounting department will be able to distribute the LIR bonus among the labor collective members by multiplying the size of the bonus by the LIR of specific employees. The results of the labor input ratio will be displayed in the report "Actual consolidated LIR results".

TABLE III. ACTUAL CONSOLIDATED LIR RESULTS^a

Full Name	Total labor input ratio	Bonus, rubles
Kratt S. V.	1.4	4697.99
Kuzmin I. I.	1.6	5369.13
Minin M. N.	2	6711.41
Minin Yu. M.	1.1	3691.28
Subtotal	4.12	20469.81

^aThe data in the Table are conditional

V. CONCLUSIONS

Thus, taking into account the complexity and laboriousness of technological processes in the agro-industrial complex, it is possible to provide with the help of modern software products developed specifically for the agro-industrial complex:

- automation of all basic business processes in the company's management apparatus;
- solving the tasks facing the company accounting service (including the preparation of regulated and specialized reporting);
- improving the labor organization, as well as increasing the working ability and labor productivity by using reports reflecting the labor input ratio.

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