Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 19, Issue 3, 2019
PRINT ISSN 2284-7995, E-ISSN 2285-3952

REGULATORY AND PRODUCTION METHOD OF STIMULATING LABOR IN PROCESSING ENTERPRISES OF AGROINDUSTRIAL ON THE EXAMPLE OF SARATOV REGION, RUSSIA

Marina Aleksandrovna VOLOKHOVA, Tatiana Aleksandrovna ZUDOCHKINA, Sergey Germanovich GLUKHOV

Volga Research Institute of Economics and Organization of Agro-Industrial Complex (VRIEOAIC), Saratov, Russia, Mobile 8 (987) 832-57-16

Corresponding author: glukhov.sergey87@gmail.com

Abstract

A universal algorithm of the regulatory and production method of labor incentive based on a systematic approach has been developed. Grade remuneration system has been adapted to the tariff network based on the ranking of inter-qualifying grades, prices for products have been calculated depending on the financial condition of the company, a method has been proposed for determining the regulatory and market payroll fund. The calculation of the coefficient of labor efficiency on the basis of a percentage of revenues revealed the market value of labor — its size is 4.2 times higher than the minimum wage in the Saratov region per month per employee for dairy enterprises in the region.

Key words**:** *regulatory and production method; tariff network; grade system; ranging; normative documents*

INTRODUCTION

Regulatory and production method of labor stimulation is based on the concept of human resource management, which is closely interconnected with the theory of process management [5].

The authors used Hay's method for evaluating labor in many countries as the basis for our research [4].

The model "inputs-transformation-outputs" in the Hay technique has the form: "know-how – problem solving – accountabilities". Each model element can be subdivided into 8 elements of the value of the position. All jobs are grouped around the main central position or target salary. On the other hand, extended ranges provide greater flexibility in the remuneration system and allow for a greater degree of consideration of individual merit. Often, the market value of labor is used, serving as a starting point for determining ranges. For grading, the average salary for each position is used, according to the organization's staffing table. Both approaches complement each other: if the first provides a competitive price in the labor market, then the second reduces social inequality within the organization.

In the course of research conducted by R.V. Beatty and M. Hueslide [1] found that firms with competent HR management (the so-called "high-performance operating systems") significantly affect profit indicators per employee of average wages, as well as market share in the calculation of one employee. A system for quantifying the efficiency of labor utilization in firms is proposed, the effectiveness of HR management functions and their impact on the general state of labor resources and the level of achievement of strategic goals and the development of HR services are considered. They also identified the main objectives of the HR system or indicators of ultimate performance: mindset, competence, behavior. To achieve high end results, it is necessary in HR to competently perform personnel management functions: communications, organization of workplaces, selection procedure of personnel, and personnel development, staff appraisal, reward system development. Therefore, HR-service should be studied as a personnel management system.

Russian researchers and economists in developed countries were engaged in the adaptation of the grade system to the practice of labor incentives. V.P. Chemekov [3], defined "grading" as a technology for building a personnel management system, and under the grade understood the established range of ranks within which positions are considered equivalent for an economic entity and grouped within a single payment range (tariff). S. Tsymbalyuk [11] revealed a number of advantages of the grade pay system over the tariff system. In their researches S. Slipachuk [9] and a number of other authors proposed a universal methodology for adapting the grade wage system for Russian enterprises of various industries. Sychenko V.V. [10] defined grading as a modern and progressive mechanism of motivational influence and confirmation of professional competence of workers based on the introduction of the principles of transparency and fairness and justified the importance of advanced wage formation methods in modern small and medium enterprises in ensuring the development of this sphere using state regulation mechanisms

O. V. Morshenko [7] in her research highlighted the benefits of the implementation of the grade remuneration system:

- each employee is directly interested in improving the quality of their work;
- successful solution of such anti-crisis measures as optimization of the number of personnel by reducing them;
- transparency, that is obvious why an employee receives less or more than others;

She also noted the disadvantages of the introduction of the grade system:

- requires the implementation of large-scale analytical work aimed at the study of positions and professions;
- with insufficient awareness, the introduction of a grade system may become a demotivating factor if the worker is not sure of his qualifications.

This principle of calculation is as follows:

1. Drawing up a standard questionnaire for all employees of the organization.
2. The distribution of the minimum and maximum wages for each specific position.
3.The calculation of the minimum and maximum points, taking into account the identified factors.
4.The division of the interval of points into several segments, the achievement of which will correspond to a particular class.
5.Determine the amount of payment. For the lowest class, the minimum set of factors guarantees the average market wage for work, for each subsequent level the salary is increased by a certain percentage or amount.

The research of Plenkina V.V. [8] grading is defined as a method for creating a universal hierarchy of positions (ranks) for all company personnel; an assessment system that allows to determine acceptable remuneration levels for all employees based on a comparison of the relative cost of different parts of the work (position) for the company.

In the theoretical and methodological aspect, the development of the regulatory and production method of labor stimulation used the works of Russian scientists from the city of Chelyabinsk: V. N. Belkina, N. A. Belkina [2], recommended by the Russian Academy of Sciences (RAS). They proposed a method of individual and collective labor incentives in the system of labor market evaluation. It involves the stimulation of labor for the goals, results and the formation of a wage fund based on the accounting of the main economic indicators of production and sales of dairy products for the month. The size of the payroll directly depends on the size of the products sold.

MATERIALS AND METHODS

The main objective of this research is to develop an universal algorithm of the regulatory and production method, which includes three blocks: input, process, output. The first block (input) is basic; it allows you to comply with the legislation on the timing of determining the minimum wage, according to article 421 of the Labor Code of the Russian Federation. In the second block (process), the calculation of the base wage grid based on the ranking and its grading system of

remuneration is proposed, which will allow to establish lower-level coefficients more than higher coefficients, taking into account the assessment of workers' qualifications, in three options, depending on the level of enterprise profitability: the 3.5% pitch is equal to 0.4 units, with 7% and 10% - 0.6 and 0.8 units, respectively. In the third block (output), the proposed methodology for the detailed determination of the regulatory and market wage fund will allow to: establish the share of labor costs in the cost of production; justify the criteria and the percentage of each value in the overall indicator and calculate the planned labor efficiency ratio by rating. Thus, the calculation of the coefficient of labor efficiency on the basis of a percentage of the proceeds revealed the market value of labor - its size will be 46,522 rubles per month per employee for dairy enterprises in the region.

The use of the new system, in contrast to the tariff system, has its advantages for both managers and subordinates. Bonus payments and the total wage bill depend on the work of the entire team, taking into account the level of inflation. Remuneration for work is estimated regularly every month, rather than once a year, based on the results of certification. The use of traditional tariff grids takes into account professional characteristics, the level of acquired knowledge, qualifications, but does not take into account the personal contribution of each employee and the entire team to the final result of the work of the entire enterprise and departments, in particular. In market conditions, the remuneration of labor is directly dependent on the volume of marketable products and contracts concluded in order to avoid overstocking of perishable dairy products, and it is also affected by the offer price in the labor market.

In our research, proceeded from the procedural theory of justice D. Adams [5], which is logically linked to the theory of process management, and considers the work process of each employee as a system of inputs – knowledge, skills, motivation, etc., and outputs – salary, bonus payments, social package for career advancement, etc.

General scientific research methods were used: scientific abstraction, inductive, deductive, analysis and synthesis, monographic, statistical and economic, economic and mathematical.

RESULTS AND DISCUSSIONS

As a result of the research, a regulatory and production method of stimulating labor in the processing enterprises of the agro-industrial complex of the region has been developed. It presents a universal algorithm that can be applied at dairy enterprises of the region for various types of products and categories of production personnel and includes three blocks: input, process, output (Table 1).

The first block, “the input”, is the basic unit:

1. Primary sources.
2. Regulatory documents:

– compliance with the legislation in terms of art. 421 of Labor Code of the Russian Federation on the procedure and timing for determining the minimum wage provided for in part one of Article 133 of the Labor Code from January 1, 2018 to bring its amount to the minimum subsistence level [6]. Calculation of the tariff scale for workers of processing enterprises of the agro-industrial complex with a low, medium and high level of profitability, as well as at the minimum wage in the Saratov region from 01.05.2018 – 11,163 rubles – base value for employees of organizations in the budget and extrabudgetary sectors [13].

– the application of standard instructions for the maintenance of workplaces developed by research and development institutes and the calculation of prices for products at milk processing enterprises based on the method of designing labor standards, they include two groups: 1) analytical; 2) total. Analytical are based on splitting the normalized process into elements, establishing time by elements and their subsequent synthesis. Total methods establish standards in general for the workflow without preliminary partitioning into elements.

The second block, "process", is a settlement-base unit.

Adaptation of the grade wage system to the tariff schedule [13]: Ranking of inter-qualification ratios based on grading [Table 2].

Table 1. Regulatory and production method of stimulating labor of workers of processing enterprises of the agro-industrial complex of the region based on a systematic approach

Stimulation system of regulatory and production method		
First block. Input, basis	**Second block. Process, basis calculations**	**Calculation of the regulatory market wage fund**
1. Primary sources, searching of new one	2.1. Ranking of inter-qualification ratios on the basis of grading with the value of minimum, average, maximum level of profitability (LP) = 3.5; 7; 10% optimal pitch (gap) between grades – 0.4; 0.6; 0.8, appropriatly	3.1.Calculation of prices for products through the load norms by categories of workers
1.1. Normative documents	2.2. Calculation of the base tariff rate, taking into account the ratio of each category and the level of profitability of the enterprise	3.2. The definition of coefficients of labor participation (CLP) in quantitative measure: minimum = 0.8; average = 1.0; maximum = 1.2
1.1.1.Execution of legislation on the accrual of the minimum wage in accordance with Article 421 of the Labor Code of the Russian Federation	2.3. Grading of employee qualification assessment and relationship with tariffs	3.3 The choice of criteria for the effectiveness of the organization of labor incentives; calculation of the percentage of their performance (PP): PP = Labor efficiency ratio (LER) fact / LER plan * 100%; Size determination through significance ratios (SR): SRincome per 1 worker. = 0.3; SR increase in wages = 0,25; SR capacity. = 0.25; SR capitalization ratio = 0.2
1.1.2. Typical instructions for servicing jobs: - analytical; - total	3.4. Calculation of labor efficiency ratio (LER) using the pyramid model for x = 100% y = x; at x <100%, x> 100% y = 200x-100, where y is the percentage of LER; x - the value of rating performance	
3.5. Determination of the final remuneration of the market value of labor and, on its basis, of the regulatory market wage fund (RMWF): RMWF = ∑HTR*SD.* NSM* NEI *IR*CLP*LER.*12, where: HTR – hourly rate; SD – shift duration; NSM – numbers of shifts per month; NEI – numbers of employees involved; IR – inflation rate; CLP – coefficient of labor participation; LER – Labor efficiency ratio		

Source: developed by authors.

(a)Depending on the financial condition of the enterprise, the step between the highest grade and the previous one is established at the conditional level of profitability prevailing in the dairy processing enterprises of the Saratov region for the main types of dairy products and, in particular, at dairy factory "Volsky Gormolzavod" (Saratov region, Russia): with 3.5% level of profitability equal to 0.4 units; with 7 and 10 % – 0.6 and 0.8 units, respectively.

(b)The range of the minimum and maximum value of the rank of each grade should be greater by 0.2 units than the value of the rank, which is laid in the overlap factor.

Table 2.Ranking of inter-qualification ratios based on the grading of workers of dairy processing enterprises depending on the financial condition, with a low level of profitability*

№	Indicators	Grade number					
		1	2	3	4	5	6
1	Minimum rank value	1.0	1.4	1.8	2.2	2.6	3.0
2	Average rank value. in diapason	1.3	1.7	2.1	2.5	2.9	3.3
3	Maximum rank value	1.6	2.0	2.4	2.8	3.2	3.6
4	Absolute increase	-	0.4	0.4	0.4	0.4	0.4
5	Relative increase.	-	23.5	19.0	16.0	3.8	12.6
6	Width of diapason	0.6	0.6	0.6	0.6	0.6	0.6
7	Overlape	-	0.2	0.2	0.2	0.2	0.2

* step is 0.4; the gap between the minimum, average and maximum values of the coefficients is 0.3
Source: calculated by authors

The type of determining the average values of the rank is set by the options "constant absolute and relative to the previous height" by the average value of the range.
That is, by how many percent the higher grade coefficient is greater than the previous one.
(c)The width of the ranges was calculated as the difference between the maximum and minimum value of the rank. A basic tariff grid unified under the grade wage system has been proposed, where lower-grade coefficients may be greater than higher coefficients, in 3 options, taking into account inter-qualification ratios calculated by ranking and based on the minimum, average, maximum profitability levels. The ratio between the average coefficient of the lowest and the average coefficient of the highest grades is reduced to the solution of the question: how many times should the wage rates of managers and top-level management specialists be greater than the wage rates of employees performing simple work. A small ratio, for example: 1: 2; 1:3 will not take into account in the remuneration system the complexity, working conditions, work experience, responsibility of positions that are included in various grades. In this case, all the work on evaluating the qualifications of workers and determining their value for the enterprise in the grading system, an objective differentiation of wages, will be negated. A ratio of 1:10 can lead to dissatisfaction and social inequality, leading to a decrease in interest in the results of the final work, both of top managers due to both high salaries and workers because of low wages. We consider the optimal variants, depending on the financial condition of the enterprise, the level of profitability of the product range, the ratio between tariff discharges with a minimum level of profitability of 1:4, with an average of 1:6, with a maximum of 1:8 (step 0.4; 0.6 ; 0.8 respectively) (table 3).

Table 3. Calculation of the tariff scale for workers of dairy processing enterprises with a low, medium, high level of profitability*

Ranks	The value of tariff coefficients			Monthly rate			Hourly rate		
	Pitch 0.4	Pitch 0.6	Pitch 0.8	Pitch 0.4	Pitch 0.6	Pitch 0.8	Pitch 0.4	Pitch 0.6	Pitch 0.8
1	1	1	1	11,163	11,163.0	11,163	36.91	36.91	36.91
2	1.3	1.4	1.5	14,511.9	15,628.2	16,744.5	47.99	51.68	55.37
3	1.6	1.8	2	17,860.8	20,093.4	22,326.0	59.06	66.45	73.83
4	1.4	1.6	1.8	15,628.2	17,860.8	20,093.4	51.68	59.06	66.45
5	1.7	2	2.3	18,977.1	22,326.0	25,674.9	62.75	73.83	84.90
6	2	2.4	2.8	22,326.0	26,791.2	31256.4	73.83	88.60	103.36
7	1.8	2.2	2.6	20,093.4	24,558.6	29,023.8	66.45	81.21	95.98
8	2.1	2.6	3.1	23,442.3	29,023.8	34,605.3	77.52	95.98	114.44
9	2.4	3	3.6	26,791.2	33,489.0	40,186.8	88.60	110.74	132.89
10	2.2	2.8	3.4	24,558.6	31,256.4	37,954.2	81.21	103.36	125.51
11	2.5	3.2	3.9	36,279.75	50,010.24	65,303.55	119.97	165.38	215.95
12	2,8	3,6	4.4	50,010.24	72,336.24	98,234.4	165.38	239.21	324.85
13	2.6	3.4	4.2	40,633.32	60,726.72	84,392.28	134.37	200.82	279.08
14	2.9	3.8	4.7	55,033.59	84,838.8	120,672.03	181.99	280.55	399.05
15	3.2	4.2	5.2	71,443.2	11,523.04	162,533.28	236.25	372.10	537.48
16	3	4	5	60,280.2	98,234.4	145,119.0	199.34	324.85	479.89
17	3.3	4.4	5.5	77,359.59	127,704.72	190,329.15	255.82	422.30	629.40
18	3.6	4.8	6	96,448.32	160,747.2	241,120.8	318.94	531.57	797.36

* 3.5; 7; 10 %, respectively.
Source: calculated by the authors on the basis of the State Statistics Service of the Russian Federation.

The third unit – is "output".
The modern market economy, or rather the labor market, can be viewed as a complex and self-regulating system, functioning under the influence of two balancing forces of supply and demand. From this point of view, the equilibrium of the labor market, when the supply of labor is equal to the demand for it, determines the number of employees and the calculation of the regulatory market wage fund [12]

- determination of the indicators of labor participation in the quantitative measure of the assessment of each employee individually in the overall results of work using time-keeping from 0.8 to 1.2 the value of their range;
- calculation of the regulatory market wage fund and the market value of labor, taking into account the coefficient of labor efficiency by rating using the "pyramid" method, which allows to exclude overstocking and non-compliance with the terms of the concluded contracts for the supply of raw materials and sales of finished products [13].

Determination of the final remuneration of the market value of labor and, on its basis, of a regulatory market wage fund.

$$RMWF_i = \sum_{i=1}^{n} HTR \times SD \times NSM \times NEI \times IR \times CLP \times LER \times 12 \quad (1)$$

HTR – hourly tariff rate;
SD – shift duration;
NSM – numbers of shifts per month;
NEI – numbers of employees involved;
IR – inflation rate;
CLP – coefficient of labor participation;
LER – labor efficiency ratio;
n – number of operation

Thus, the essential difference of this methodology is that it can be adapted to the value systems of other organizations using the wage system databases formed within its framework. For this purpose, a wide range of comparative appraisal tools is used to improve the accuracy of the assessment of the market value of labor, as well as its performance.

CONCLUSIONS

A regulatory and production method has been developed to stimulate labor of workers in dairy processing enterprises in the agro-industrial complex of the region, on the basis of which the grade system was adapted to the tariff grid by ranking inter-qualification ratios; in determining the regulatory market wage fund. Unlike other developed methods of remuneration (Belkina, V.N., Slipachuk, S., etc.), this method is distinguished by the joint practical use of tariff and grade systems, as well as the calculation of tariff coefficients based on ranking and charging variable parts the pyramid method. This will allow the calculation of the integral indicator – "labor efficiency ratio".

Testing of the regulatory and production method of labor incentive was conducted on the example of statistical reporting data for the Saratov region as a whole on butter: Form No. 14 of the PR "Report on production, cost and sales of food and processing products for 2016, Form No. 5 "Explanation to the balance sheet and report on financial results", on the basis of which the tariff schedule based on grading was calculated by the author.

The integral indicator of labor efficiency ratio (LER) was 1.22, which is a high estimate of the enterprise's activity for all indicators: income per employee was 5% higher, which is 2 times higher than the inflation rate, which in 2017 was 2.51%. The capital intensity has decreased dramatically, which indicates a positive trend in the development of the enterprise. The increase in labor incentives is possible by improving product quality, increasing turnover. This technique is recommended for implementation in the management practice of milk processing enterprises.

REFERENCES

[1]Beaty, R.W., Huselid, M.A., Schneier, C.E., 2003, New HR Metrics: Scoring on the business scorecard, Organizational Dynamics, 32(2): 107-121.
[2]Belkin, V.N., Belkina, N.A., Antonova, O.A., 2010, Theoretical and methodological bases for the assessment of individual and collective labor of enterprise personnel, Economic Theory, 4: 126-139
[3]Chemekov, V.P., 2007, Grading: technology to build a personnel management system, Vershina, Moscow, p. 208.
[4]Hay Job Evaluation, Foundations and Applications. Hay Group Working Paper, http://www.haygroup.com/Downloads/it/misc/wp-Job_Evaluation.pdf., Accessed on Feb. 11, 2019.
[5] John Stacey Adams, The Equity Theory, http: //152102718/John-Stacey-Adams, Accessed on Feb. 7, 2019.
[6]Labor Code of the Russian Federation, dated 30.12.2001 N 197-FZ (as amended on 11.10.2018), http://www.consultant.ru, Accessed on Sep. 12, 2018.
[7]Morshenko, O.V., Rokotyanskaya, W., Smetanko A.V., Zaikovskii B.B., MatveevaV.A., 2018, Salary of

agricultural workers: control and analytical aspect, Amazonia investiga, 7(16): 361-372.
[8]Plenkina, V.V., Osinovskaya I.V., 2018, Improving the system of labor incentives and stimulation in oil companies, Entrepreneurship and sustainability, 6(2): 912-926.
[9]Slipachuk, S., 2007, Grade system: methodology for determining salaries. HR-portal. HR community and publications. http://www.hr-portal.ru/node/760., Accessed on Feb. 8, 2019.
[10]Sychenko, V. V., Marenichenko V. V., Kozyryeva O. V., Strapchuk S. I., 2018, State regulation of formation small and medium businesses quality development based on grading, Financial and credit activity: problems of theory and practice, 1(24): 205-212.
[11]Tsymbalyuk, S., 2013, Comparative analysis of traditional pricing procedures and grading, Human and Labor, 3: 63-66.
[12]Velev, M., 2018, The influence of the seasonal factor on the employment and remunerations in the agricultural sector in Bulgaria, 2018, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, 18(4): 405-410.
[13]Volokhova, M.A., 2018, Regulatory and production method of labor stimulation, Scientific Review: theory and practice, 2: 14-27 .