

# **IMPROVING THE SYSTEM OF LABOR PROTECTION MANAGEMENT OF AN AGRARIAN ENTERPRISE**

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**Formulation of the problem.** The main task of the measures and means of protection of labor in agriculture is to create healthy and safe working conditions for the staff, prevent occupational diseases, accidents and failures related to the production processes in agriculture, that is, to protect the staff from the influence of harmful and negative production factors.

A non-standardized working day is used in the rural areas with people working from morning till evening and the rules of labor protection being neglected. The exhaustion of labour and the equipment that does not meet the working conditions are the main causes of injury in agriculture.

The necessity for further improvement of the labor protection management system at enterprises is stipulated by changes taking place in the economy and social sphere of our country. A system of labor protection management (SLPM) of the administrative-command type in which the state acted as the owner of means of production and financial resources has collapsed. As a result, when forming and implementing comprehensive plans for improving the state of health, the management of enterprises was virtually devoid of economic incentives for the establishment and maintenance of appropriate working conditions.

In modern conditions, the management of labor protection is based on the economic interest of the owner and the staff of enterprises in creating safe and harmless working conditions, which, after all, with the correct organization of work, positively affects the material position of all personnel of the enterprise. In this regard, work on improving the system of occupational safety management at the SF Vidrodzhenia State Enterprise of Donetsk State Agricultural Research Station of NAAS of Ukraine is relevant.

**Analysis of recent research and publications** shows that the issues of the improvement of SLPM were addressed by such local scholars as Berezutsky V. V., Voynalovich O. V., Gogitashvili G. G., Gnatyuk O. A., Evtushenko O. V., Kirdan V. E. etc. [1-3]. However, individual problems require in-depth research in today's conditions. In particular, these concerns insufficiently developed methods of conditions regulation and labor protection both by the state and enterprises.

**Purpose of the article:** SLPM improvement for the SF Vidrodzhenia State Enterprise of Donetsk State Agricultural Research Station of NAAS of Ukraine.

**Presenting main material.** Compliance with labor protection requirements of the SF Vidrodzhenia State Enterprise of Donetsk State Agricultural Research Station of NAAS of Ukraine is regulated by the following normative legal documents:

1. The Law of Ukraine «On Occupational Safety» of 14.10.1992, as last amended and supplemented on January 20, 2018;
2. The Labor Code of Ukraine of 10 December 1971, as last amended and supplemented on October 11, 2018;
3. The Law of Ukraine «On Compulsory State Social Insurance» dated December 21, 2000 with the latest amendments dated 11.10.2018;
4. «Fundamentals of Ukrainian Legislation on Public Health» of 19.11.1992, as last amended and supplemented on November 4, 2018;
5. The Civil Protection Code of Ukraine of October 2, 2012, as last amended on November 4, 2018;
6. The Law of Ukraine «On Ensuring the Sanitary and Epidemiological Well-being of the Population» of 24.02.1994, as amended on October 4, 2018;
7. Normative-legal acts on labor protection, orders, directions, regulations, instructions, other documents developed by the administration of the enterprise and are mandatory for the implementation by the staff in respect of labor protection, safety and fire safety.

As we can see, today the peculiarities of labor protection in the branches of agriculture are reflected in a fairly large number of normative legal acts. However, most of them while in today's conditions they are not able to effectively resolve issues of labor protection in agricultural enterprises against the backdrop of radical changes of both organizational forms of agricultural enterprises and the technologies of production of crops and livestock [4]. In modern agricultural production, the number of technological processes, various substances, genetically modified organisms, which threaten the life and health of agricultural workers, is constantly increasing, and it is taking into account these new dangerous and harmful factors that allows to develop effective measures and means of labor protection, whereas their consolidation at the legislative level is the basis for improvement of the level of agricultural security as one of the main sectors of our country's economy.

Most of the SF Vidrodzhenia State Enterprise jobs are located in production facilities. When exploiting industrial buildings and structures, the category of premises for explosion and fire hazards is taken into account. (see Table 1).

For the analysis of occupational injuries at the SE Vidrodzhenia State Enterprise, the statistical method is applied, which involves the analysis of acts in accordance with Form H-1 and disability sheets. In this case, we will use indicators of occupational injuries and calculate the rates of frequency  $K_q$ , severity of injury  $K_T$  and the rate of general injury  $K_{3AT}$ .

Table 1 – Category of Premises for Explosion and Fire Hazards of the SF Vidrodzhenia State Enterprise of Donetsk State Agricultural Research Station of NAAS of Ukraine

Production Room	Inventory Number	Room Category, Deficiencies in Occupational Safety
Grains	18, 92, 93, 95	Б
Granary	90, 91, 97, 99	Б
Grain cleaning station	89	Б
Corn complex	128	Б
Stable TP 804-2-9	107	Г
Boylern (team)	58	Г
Composition of poison chemicals	54	Б, insufficient number of PPE
Seed Laboratory	55	Б
Cowshed TP 801-2-16	87, 117, 118	Г
Pigpen TP 802-5-39.85	88, 104, 119	Г, insufficient number of PPE
Pigpen TP 802-5-39.85	71, 78, 79, 80	Г, insufficient number of PPE
Shed Shop TP 802-6-15.86	102, 103	Б, dusty air, absence of labor safety instructions for operators
Point of slaughter of animals	57	Б
Mechanized workshop	59	Б, 9 violations of labor protection
Electrical workshop	49	Б, insufficient lighting
Car garage	28, 115	Б
Building of fuel and lubricants	35	А
Shop	39	Д

Dining room	106	Д
Calf house 801-4-102.13.86	68	Г
Office	34	Д, there is no evacuation scheme for fire and fire extinguishers
Indoor stream	112, 128	Д

The analysis of accidents at the enterprise for the period of 2015-2017 has been carried out for the purpose of determining the causes of injury and planning events (see Table 2).

Table 2 – Distribution of Accidents by Months

Years	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
2015	-	-	-	1/63	-	-	-	-	-	-	-	-
2016	-	-	-	1/20	-	-	-	-	-	-	1/19	-
2017	-	-	-	-	-	-	-	1/56	-	-	-	-

numerator – number of accidents;

denominator – the number of days of disability.

As it can be observed from Table 2, accidents most often occur during the mowing season, harvesting crops as well as during the period of repair of machinery.

Table 3 – Distribution of Injury by Working Experience

Working Experience, years	2015	2016	2017	Total for Three Years
up to 25	-	-	-	-
more than 25	1	2	1	4

Analyzing Table 3, we can say that the greatest number of injuries are accounted for workers with a work experience of more than 25 years. We see that they work in the most labor-intensive operations, and in conditions that do not meet the requirements for jobs.

Table 4 – Distribution of Injuries by Branches of Production

Production Sectors	2015	2016	2017	Total for Three Years
Mechanization of agriculture	-	2/39	1/56	3/95
Stockbreeding	1/63	-	-	1/63

numerator – number of accidents;

denominator – the number of days of disability.

The data in Table 4 indicate that the largest number of accidents occurred in the field of agricultural mechanization. Almost all injuries have occurred in the process of the repair of equipment, as the equipment to be repaired does not meet the requirements.

Table 5 – Distribution of Gender-Based Accidents

Sex	2015	2016	2017	Total for Three Years
Men	1/63	2/39	1/56	4/158
Women	-	-	-	-

numerator – number of accidents;

denominator – the number of days of disability.

According to Table 5, we can see that the level of injuries is higher among men. Within the period of three years there have been 4 accidents with men. It should be noted that the level of injuries in the SF Vidrodzhenia State Enterprise is not high.

Frequency rate of traumatism  $K_q$  characterizes the number of accidents occurring per 1000 employees for a certain period of time [Fig. 1]:

$$K_q = 1000 \cdot N/P_{CP}, \quad (1)$$

where  $N$  – shall mean the number of injuries for a certain period of time, except for serious and fatal accidents, for which they are calculated separately;

$P_{CP}$  – average number of employees (2015 – 102, 2016 – 108, 2017 – 105 people).

$$2015: K_q = 1000 \cdot 1/102 = 9,8.$$

$$2016: K_q = 1000 \cdot 2/108 = 18,5.$$

$$2017: K_q = 1000 \cdot 1/105 = 9,5.$$

Severity of traumatism  $K_T$  characterizes the average duration of incapacity per one accident [Fig. 2]:

$$K_T = \bar{D} / H, \quad (2)$$

where  $\bar{D}$  – number of days of disability due to injury.

$$2015: K_T = 63/1 = 63,0.$$

$$2016: K_T = 39/2 = 19,5.$$

$$2017: K_T = 56/1 = 56,0.$$

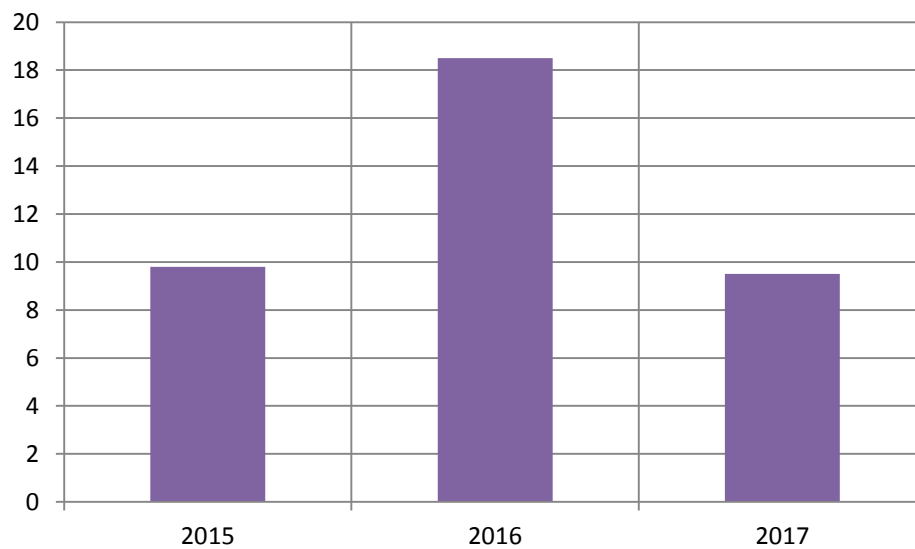


Fig. 1. The factor of the frequency of traumatism at the enterprise

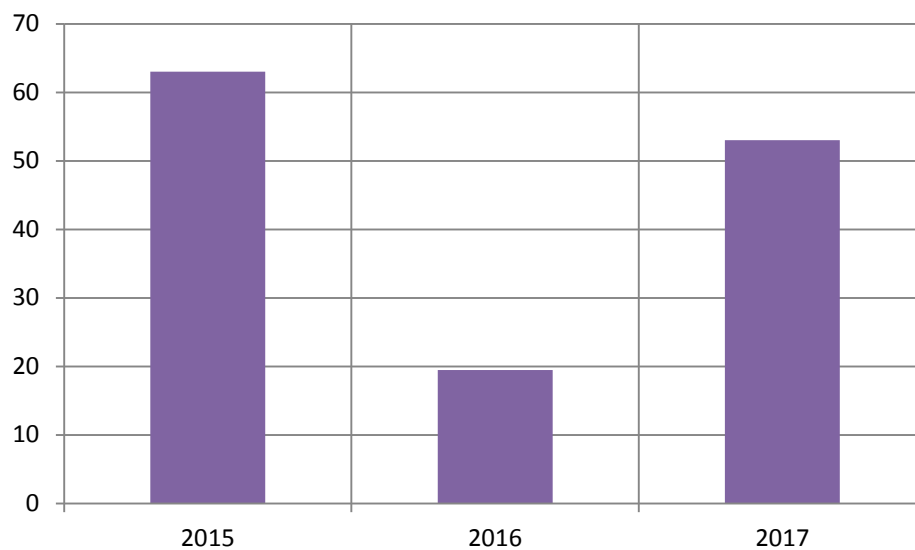


Fig. 2. The coefficient of severity of injury at the enterprise

Indicator of general injury  $K_{3A\Gamma}$  – is a synthetic indicator that takes into account the frequency and severity of accidents [Fig. 3]:

$$K_{3A\Gamma} = K_q \cdot K_T. \quad (3)$$

$$2015: K_{3A\Gamma} = 9,8 \cdot 63,0 = 617,4.$$

$$2016: K_{3A\Gamma} = 18,5 \cdot 19,5 = 360,75.$$

$$2017: K_{3A\Gamma} = 9,5 \cdot 56,0 = 532,0.$$

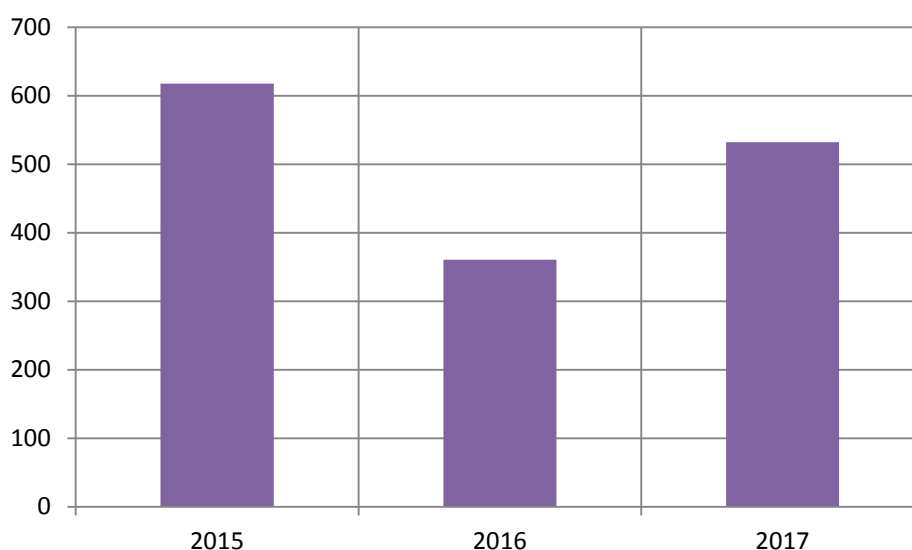


Fig. 3. Indicator of total traumatism at the enterprise

Changes in the frequency, severity and total injury rates for a number of periods (Fig. 1-3) characterize the dynamics of industrial injuries and the effectiveness of measures to prevent them. The reserve for reducing the level of traumatism is in the formation of proper labor-friendly relations among employees.

The SF Vidrodzhenia State Enterprise allocated about 30,000 hryvnia for the implementation of measures on labor protection in recent years. Thus, in 2017, an average employee would have a budget of 285,7 UAH.

In the feed preparation shop, there are technological processes with high dust content in the air in the working zones. The highest dust concentrations are in the

places of loading of processed products (grass, fish, meat and bone meal and chalk) in the grinding machines, and can reach 580-720 mg / m<sup>3</sup> at MAC 4 mg / m<sup>3</sup>.

The following measures are carried out for the employees of the feed preparation shop: workers have a special lounge; workers use overalls, protective eyeglasses, respirators; feeders are equipped with combined ventilation; food preparation machines are installed in accordance with the requirements; flooring is installed near each car to prevent overheating of the feet on the floor; wet and slippery floors are sprinkled with sawdust or other material; in places of installation of equipment, machines and mechanisms, the rules of safety of work, personal hygiene and provision of the first pre-medical aid to the victims are posted; the management bodies are located so that the sequence and frequency of their use, as well as the ease and convenience of management are taken into account; Emergency Disconnect (buttons, levers) are located on the equipment, so that they are easily visible and accessible, with appropriate inscriptions and painted in red; in the feed preparation shop there is a fire guard, with necessary tools.

At each facility there is a plan for the evacuation of people and animals. However, it was found that the operators of feeders do not have instructions on the safety of work in the workplace and do not conduct fire safety instructions.

When working on the feed preparation line, the following technological operations are carried out: preparation of the workplace, tool, checking the technical condition of machinery, equipment, preparation for operation of machines, supervision of the technological process, repair and maintenance of machines.

When performing the above-mentioned operations, the following dangerous and harmful factors are possible: non-optimum microclimatic conditions, dust, noise, non-optimum illumination of the working area, the possibility of electric shocks.

To prevent this, it is necessary to take the following steps:

- first of all, only persons who have been trained to work with this equipment and have passed the examination on labor protection should be allowed to service the equipment and machines in the feed preparation line;

- to protect the workers from electric shock, it is necessary to install on the machines and equipment a protective grounding and zeroing;

- in order to protect the workers from dust, noise and vibration, it is necessary to install ventilation in the room, air conditioners, soundproof housings, screens, walls, membranes made of dense material;

- instructions on labor protection for the operators of feeders should be developed;

- before putting into operation of feed preparation machines it is necessary to verify their serviceability, strength of fastenings of protective covers and chain gears;

- the equipment for feed preparation should be sealed, wet cleaning of premises from dust (to reduce the amount of dust);

- to prevent trapping the clothing of workers by the active parts, the workers should be neatly dressed, have no long sleeves, hair should be tied and covered with headwear; To create optimum microclimatic conditions, feeders should be equipped with air conditioners, and the holes in the walls should be closed to prevent drafts;

- to prevent the dusting of the working area, in addition to the combined one, the local ventilation should be installed and the reconstruction should be carried out;

- reconstruction and repair of the alarm system should be carried out;

- for employees of the feed preparation shop, all necessary instructions and training on occupational safety should be carried out, there should also be a briefing logbook, with the relevant notes;

**Conclusions.** On the basis of the survey of managers, specialists, engineers and technical staff of the SF Vidrodzhenia State Enterprise, for the substantive improvement of conditions and labor protection, it is proposed to introduce such measures in production:

- to provide a clear definition of the rights, responsibilities and charges of owners and employees in a collective agreement in the field of labor protection, in the conclusion of which the employees must be informed by the manager about the conditions of work in the workplace and the possible consequences of their health effects;

- to intensify the investment activity of agrarian enterprises by means of provision of preferential loans for purposeful use for the renewal of fixed assets, replacement of equipment and technologies and improvement of working conditions;

- carry out compulsory certification of workplaces by the working conditions in all agrarian enterprises, regardless of ownership and management, where there are harmful and dangerous production factors;

- to increase penalties for owners who violated current norms and rules of safety and hygiene of labor, since the existing system of financial responsibility does not encourage owners of agrarian enterprises to provide resource support for labor protection measures, etc.

In many countries with a developed market economy there is a positive experience in solving the issues of improving conditions and labor protection. Therefore, the experience of foreign countries is very important for Ukraine at the present stage, which will allow to reorient the minds of the heads of agrarian enterprises for understanding and realization of market requirements.

Therefore, taking into account the market transformations taking place in Ukraine, as well as the desire of our country to integrate into the European and world labor markets, it is first of all necessary to ensure compliance with the basic principle in the field of labor protection – the globally recognized priority of the life and health of workers in relation to the results of production activities.

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