THE CURRENT STATE OF OCCUPATIONAL TRAUMATISM IN THE CONDITIONS OF THE UKRAINIAN AGRO-INDUSTRIAL: PROBLEMS AND PERSPECTIVES

I. Kamenska, PhD of Agricultural Sciences, Associate Professor
O. Bokshyts, PhD of Historical Sciences, Associate Professor
SHEI «Hryhorii Skovoroda Pereiaslav-Khmelnitskyi State Pedagogical University», Pereiaslav-Khmelnyntskyi, Ukraine

To investigate the state of industrial injuries (including fatalities) in Ukraine in general and in the agro-industrial complex for the period from 2011 to 2017, and to identify ways to increase the level of occupational safety.

Investigation of the condition of occupational injuries in the conditions of the agro-industrial complex of Ukraine was carried out using the probabilistic-statistical method of analysis. In the study, we used the statistical method of analysis of occupational injuries in Ukraine from 2011 till – 2017, which is based on the study of injuries according to the report of the State Labor Service of Ukraine.

For the first time the analysis of occupational injuries in Ukraine from 2011 till-2017 was carried out according to the report of the State Labor Service of Ukraine. The ways of raising the level of labor protection in agriculture are proposed.

On the basis of analysis of the data of the State Labor Service of Ukraine for the period of 2011-2017, it has been established that the state of occupational injuries is declining, both in Ukraine as a whole and in the agro-industrial complex. Despite the fact that the level of injuries in the aforementioned years decreased, it should be noted that the industry of the
agro-industrial complex in the period 2011-2014 took the third place in Ukraine by the level of injury and the second place – by the level of injuries with fatalities, and in the period 2015-2017 – third and first place respectively.

In 2011, in the agro-industrial sector, 10.0% of the total number of traumatized people was injured at enterprises of Ukraine, and 17.9% of the total number of deaths were injured, in 2012, respectively, 9.9 and 18.6 in 2013 – 9.9 and 16.4, in 2014 – 10.9 and 17.3, in 2015 – 14.1 and 22.4, in 2016 – 13.1 and 20.8, and in 2017 – 12.5 and 20.5%.

An analysis of the state of occupational injuries in the areas of supervision was conducted. The obtained results may be used as to prevent and eliminate potential hazards.

In order to improve the work of the service on labor protection, it is continuously necessary to analyze the state of occupational injuries in the areas of supervision. This will enable you to prevent and eliminate potential hazards. Therefore, in order to create safe and harmless working conditions, it is constantly necessary to improve the legal regulation of labor protection in agriculture, to update the rules, norms, standards, instructions, regulations in accordance with the development of NTP and modern technical support of the agro-industrial complex and apply the experience of the world.

To reduce occupational injuries, it is necessary to develop and implement a sectoral system of labor protection management; to increase the efficiency of labor protection work at agricultural enterprises of all types of property; to provide employees with regulatory and labor protection laws, which take into account modern labor safety requirements; to intensify control over compliance with safety standards and working conditions in the workplace, paying particular attention to the technical aspects of occupational safety.
The analysis of the condition of occupational injuries in the field of supervision provides an opportunity to assess the dynamics of occupational injuries (including fatalities), to anticipate, eliminate potential hazards in production and to propose perspective ways to increase the level of labor protection in Ukraine.

Keywords: occupational safety, innovations, legal regulation, the raised danger, an industrial traumatism, the dynamics of fatal injuries, agro-industrial complex, sectoral regulations on labor protection.

стать здійснено аналіз виробничого травматизму в Україні за 2011-2017 рр. за даними звіту Державної служби України з питань праці. Запропоновано перспективні шляхи підвищення рівня охорони праці в сільському господарстві.

На основі аналізу даних Державної служби України з питань праці за період 2011-2017 роки встановлено, що стан виробничого травматизму йде на спад, як в Україні в цілому, так і в АПК. Не зважаючи на те, що рівень травматизму у вищезгадані роки зменшувався, слід відзначити, що галузь агропромислового комплексу в період 2011-2014 роки займала третє місце в Україні за рівнем травматизму та друге місце – за рівнем травматизму зі смертельними випадками, а в період 2015-2017 рр. – третє та перше місце, відповідно.

За 2011 рік у галузі агропромислового комплексу травмовано 10,0 % від загальної кількості травмованих осіб на підприємствах
України, та загинуло – 17,9 % від загальної кількості смертних випадків, за 2012 рік відповідно – 9,9 та 18,6, за 2013 рік – 9,9 та 16,4, за 2014 рік – 10,9 та 17,3, за 2015 рік – 14,1 та 22,4, за 2016 рік – 13,1 та 20,8 й за 2017 рік – 12,5 та 20,5 %

Для вдосконалення роботи служби з питань охорони праці, слід постійно проводити аналіз стану виробничого травматизму в галузях нагляду. Це дасть можливість достроково запобігти та вилучити можливі небезпеки. Отже, для створення безпечних та нешкідливих умов праці, необхідно постійно вдосконалювати правове регулювання охорони праці в сільському господарстві, оновлювати правила, норми, стандарти, інструкції, нормативно-правові акти відповідно до розвитку НТП та сучасного технічного забезпечення агропромислового комплексу та застосовувати досвід країн світу.

Для зменшення виробничого травматизму необхідно розробити і впровадити галузеву систему управління охороною праці; підвищити ефективність працеохоронної роботи на сільськогосподарських підприємствах усіх видів власності; забезпечити працівників нормативно-правовими актами з охорони праці, де враховано сучасні вимоги безпеки праці; активізувати контроль за додержанням нормативів безпеки та умов праці на робочих місцях, звернувши особливу увагу на технічні аспекти охорони праці.

Аналіз стану виробничого травматизму в галузях нагляду дає можливість оцінити динаміку виробничого травматизму (в тому числі смертельні випадки), завчасно передбачити, вилучити можливі небезпеки на виробництві та запропонувати перспективні шляхи підвищення рівня охорони праці в Україні.

Ключові слова: охорона праці, інновації, правове регулювання, підвищена небезпека, виробничий травматизм, динаміка
Introduction. The agro-industrial complex is one of the largest and most important sectors of the national economy of Ukraine and the most widespread type of employment in the world. From the level of its development, the stability of functioning, the state of the economy and food security of the state, the development of the internal and external market and the standard of living of the population depends [13].

- Modernization of agrarian and industrial complex is constantly, in the process of introduction of new equipment and means of production, and approaches to ensuring labor protection have changed, new systems of standards of safety of work, technical regulations, professional training for production, science and education have been introduced [21].

- The Ministry of Agrarian Policy notes that, despite measures applied in the field of agro-industrial production, to create healthy and safe working conditions, the level of organizational work for the prevention of accidents, fires and injuries remains unsatisfactory [15].

- Occupational injury in Ukraine and in the world every year leads to large human, financial, economic, material and moral losses [1, 2, 3, 4, 5, 7, 9, 10, 16, 20]. In this regard, safety of production and occupational safety are one of the main problems in the world.

Analysis of recent research and publications. The condition of occupational injuries in the agro-industrial complex of Ukraine and the world is the subject of study of many national and foreign scientists [3, 4, 5, 6, 8, 10, 12-13, 15-16, 18, 21-22].
Historically, agriculture is one of the most dangerous sectors and ranks second in terms of mortality [6, 8].

Every year as a result of accidents the industry loses up to 700 thousand UAH, out of which about 67% are paid to victims, their families and dependents of the deceased, carried out at the expense of enterprises, and 33% – for payment of the first five days of temporary disability of victims. Almost 5 thousand UAH. enterprises pay in the form of fines for violating the requirements of the legislation on labor protection, about 22 thousand UAH. they annually spent as a result of equipment and tool damage [22-23].

According to V. Savchenko (2016) and others the main causes of accidents in the industry, the main topics of which are the issues of repair and operation of the machine-tractor park at the enterprises of technical service of agricultural machines are:

- imperfection of technological processes – 57%;
- high equipment wear – 12%;
- non-compliance with sanitary-hygienic factors – 10%;
- unsatisfactory organization of work execution – 7%;
- poor quality training of safe working methods or its lack – 6%;
- low labor and industrial discipline – 5%;
- reduction of the rates of reconstruction and modernization of operating enterprises – 3% [21].

According to statistics, in the general structure of the causes of accidents with severe consequences in the field of technical service of the agro-industrial complex, almost 62% occupy organizational reasons: the shortcomings in the training of workers of occupational safety, safe techniques and methods of work; unsatisfactory organization of work execution. Along with the organizational causes a variety of types of work in various weather and climatic conditions, poor working conditions, wear and
tack of engineering equipment, imperfection of techniques, methods and means of preventing injuries and occupational diseases, insufficient attention to the training of graduates in occupational safety, lack of funds for labor protection, contribute high injury and morbidity etc. [17]. T. Novak (2012) emphasizes that the maximum (more than 50%) of the percentage of injuries, occupational and cold diseases is received by the AIC technical service workers during the repair and maintenance of agricultural machines, due to unsatisfactory state of workplaces and insufficient knowledge of workers, concerning the necessary requirements for safety and working conditions in the course of various technological operations, including work with foreign machinery [17].

Unsolved questions of the general problem. There are many national and foreign scientific works devoted to the problem of occupational injuries in the agro-industrial complex of Ukraine and the world. There are a lot of modern developments in the labor protection industry, in relation to the prevention of injuries and occupational diseases. However, the problem remains unresolved and is becoming very urgent in our time.

The purpose of the article. To investigate the current state of occupational injuries (including fatalities) in Ukraine as a whole and in the agro-industrial complex for the period from 2011 to 2017, and to identify ways to increase the level of occupational safety.

The main material. The analysis of occupational injuries in Ukraine, in general and in the agro-industrial complex, was carried out using probabilistic-statistical method of analysis. In the study, we used the statistical method of analysis of occupational injuries in Ukraine for 2011-2017, according to the report of the State Labor Service of Ukraine (State Labor Organization) [14]. According to the results of the research, we have an opportunity to assess the dynamics of occupational injuries (including fatalities) in Ukraine as a whole and in the field of agro-industrial complex,
to propose perspective ways to increase the level of labor protection in agriculture.

Comprehensive solution of problems in the field of labor protection, the formation of a modern safe and healthy working environment, minimization of risks of industrial injuries, occupational diseases and industrial accidents, which will promote sustainable economic development and social orientation, preservation and development of Ukraine's labor potential is the main objective of the National a social program for improving the safety, health and work environment for 2014-2018 [19].

The main tasks of the State Labor Service of Ukraine:

1) the implementation of state policy in the areas of industrial safety, occupational safety, occupational health, handling of explosives, the implementation of state mining supervision, as well as supervision and control over compliance labor legislation, employment, mandatory state social insurance in part appointment, accrual and payment of assistance, compensation, provision of social services and other types of material support in order to respect the rights and guarantees of insured persons;

2) implementation of integrated management of labor protection and industrial safety at the state level;

3) implementation of state regulation and control in the field of activities related to objects of high danger;

4) the organization and implementation of state supervision (control) in the field of functioning of the natural gas market in terms of maintenance of the proper technical state of systems, units and devices for recording natural gas at its facilities and ensuring the safe and reliable operation of the facilities of the Unified Gas Transport System [14].

In its activity, the State Labor Law is guided by a number of normative legal acts. In order to improve the state of the economy, reduce the level of occupational injuries, occupational diseases and accidents in the agro-

Along with the laws, the source of labor protection in agriculture is the regulations and orders of the Cabinet of Ministers of Ukraine, regulations of ministries and departments, norms of international law. For example, the Decree of the Cabinet of Ministers of Ukraine «On Measures for the Implementation of the Law of Ukraine» On Occupational Safety» of January 27, 1993, No. 64, order of the Ministry of Agrarian Policy of Ukraine «On Approval of Fire Safety Rules in the Agro-Industrial Complex of Ukraine» of December 4, 2006, No. 730/770, the order of the State Inspection Committee «On the Approval of the Model Provision on the Procedure for the Training and Testing of Knowledge on Occupational Safety and the List of Work with High Danger» of January 26, 2005 No. 15, ILO Convention No. 184, 2001 «On Safety and hygiene p races in agriculture», ratified by the Law of Ukraine of April 1, 2009, etc. The main array of sources of legal regulation of labor protection in agriculture consists of rules, norms,
standards, instructions, incorporated into the State Register of normative legal acts on labor protection [15].

For the labor protection in agriculture there are important tasks: to develop and implement a sectoral system of labor protection management; to increase the efficiency of labor protection work at agricultural enterprises of all types of property; to provide employees with regulatory and labor protection laws, which take into account modern labor safety requirements; to intensify control over compliance with safety standards and working conditions in the workplace, paying particular attention to the technical aspects of occupational safety, etc. [12].

Analyzing the statistics of the State Labor Service of Ukraine for the period of 2011-2017, we have established that the state of occupational injuries is declining, both in Ukraine as a whole and in the field of agro-industrial complex (Fig. 1., Fig. 2.). The results of our studies are consistent with the data of Yu. Konovalov [16], Yu. Rogachev, A. Komar [20], R. Pakhomov, G. Gasy, I. Bilous, T. Lavrut [18].

In the period of 2011-2017, the state of occupational injuries has decreased (Table 1) by 59.5% in all industries, including deaths by 46.6%, and by 81.7 and 85.7 respectively in the coal industry, in the energy sector – by 22.9 and 23.8, in the construction industry – by 54.6 and 29.9, in the field of boiler inspection, lifting facilities – by 56.8 and 18.2, in the mechanical engineering sector – by 65.3 and 29.6, in the metallurgy – held by 50.0 and 38.1, in the chemical industry – by 41.6 and 64.3, in the field of transport – by 32.2 and 18.8, in the branch of science in the gas industry – by 47.8 and 60.0, in the agro-industrial sector – by 49.6 and 39.0 in the field of social sphere and trade – by 34.4% and 52.1%. The higher percentage of injuries with fatalities in the above-mentioned period, we can observe in the branches of mining and non-metallurgy, oil and gas exploration, geological
exploration, wood processing industry and housing and communal enterprises, respectively – by 30,4, 60,0, 40,0 and 35,3%.

![Figure 1. Dynamics of occupational injuries at enterprises of Ukraine for the period of 2011-2017 years](image1)

The state of occupational injuries in the agro-industrial complex, including fatalities for the period 2011-2017

![Figure 2. Dynamics of occupational injuries for the period 2011-2017 years in the agro-industrial complex of Ukraine](image2)

Reducing the level of traumatism is the result of fruitful work of labor protection bodies working on improving and introducing measures to improve the state of safety, occupational health and working environment, in accordance with the «National Social Program for Improving the Safety,
Occupational Health and Work Environment for 2014-2018» [19] and a decrease in the number of economically active people of working age by 10.1% (Table 2.) (according to the State Statistics Service of Ukraine) [11].

Table 1

The state of occupational injuries for the period 2011-2017 on branches of supervision (persons)

<table>
<thead>
<tr>
<th>Field of surveillance</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>including deaths</td>
<td>Total</td>
<td>including deaths</td>
<td>Total</td>
<td>including deaths</td>
<td>Total</td>
</tr>
<tr>
<td>Coal</td>
<td>4255</td>
<td>161</td>
<td>3650</td>
<td>121</td>
<td>3147</td>
<td>100</td>
<td>2034</td>
</tr>
<tr>
<td>Mining and non-metallic</td>
<td>276</td>
<td>16</td>
<td>303</td>
<td>22</td>
<td>286</td>
<td>22</td>
<td>220</td>
</tr>
<tr>
<td>Oil and gas exploration and geology exploration</td>
<td>31</td>
<td>2</td>
<td>30</td>
<td>3</td>
<td>25</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Energy</td>
<td>157</td>
<td>21</td>
<td>154</td>
<td>23</td>
<td>171</td>
<td>20</td>
<td>135</td>
</tr>
<tr>
<td>Construction</td>
<td>493</td>
<td>77</td>
<td>446</td>
<td>58</td>
<td>346</td>
<td>58</td>
<td>263</td>
</tr>
<tr>
<td>Boiler control, lifting structures</td>
<td>37</td>
<td>11</td>
<td>35</td>
<td>11</td>
<td>34</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Engineering</td>
<td>969</td>
<td>27</td>
<td>881</td>
<td>27</td>
<td>688</td>
<td>29</td>
<td>507</td>
</tr>
<tr>
<td>Metallurgical</td>
<td>520</td>
<td>21</td>
<td>508</td>
<td>31</td>
<td>427</td>
<td>21</td>
<td>340</td>
</tr>
<tr>
<td>Chemical</td>
<td>219</td>
<td>14</td>
<td>231</td>
<td>8</td>
<td>198</td>
<td>19</td>
<td>132</td>
</tr>
<tr>
<td>Transport</td>
<td>580</td>
<td>80</td>
<td>566</td>
<td>74</td>
<td>496</td>
<td>70</td>
<td>423</td>
</tr>
<tr>
<td>Communication</td>
<td>92</td>
<td>3</td>
<td>67</td>
<td>2</td>
<td>90</td>
<td>5</td>
<td>74</td>
</tr>
<tr>
<td>Gas industry</td>
<td>67</td>
<td>5</td>
<td>58</td>
<td>9</td>
<td>51</td>
<td>4</td>
<td>51</td>
</tr>
<tr>
<td>Housing and communal services</td>
<td>279</td>
<td>22</td>
<td>250</td>
<td>31</td>
<td>248</td>
<td>27</td>
<td>171</td>
</tr>
<tr>
<td>Agro-industrial complex</td>
<td>1066</td>
<td>123</td>
<td>979</td>
<td>116</td>
<td>846</td>
<td>88</td>
<td>691</td>
</tr>
<tr>
<td>Woodworking industry</td>
<td>126</td>
<td>5</td>
<td>119</td>
<td>8</td>
<td>104</td>
<td>5</td>
<td>76</td>
</tr>
<tr>
<td>Light and textile industry</td>
<td>40</td>
<td>1</td>
<td>62</td>
<td>3</td>
<td>38</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Social-cultural sphere and trade</td>
<td>1450</td>
<td>96</td>
<td>1477</td>
<td>76</td>
<td>1373</td>
<td>60</td>
<td>1137</td>
</tr>
<tr>
<td>Total</td>
<td>10657</td>
<td>685</td>
<td>9816</td>
<td>623</td>
<td>8568</td>
<td>538</td>
<td>6318</td>
</tr>
</tbody>
</table>

Despite the fact that the level of injuries in the above-mentioned years was declining, it should be noted that the agro-industrial complex in the
period 2011-2014 ranked third in Ukraine by the level of injury and second in terms of injuries in fatal cases, and in the period 2015-2017 years – third and first, respectively.

In 2011, in the agro-industrial sector, 10.0% of the total number of traumatized persons was injured at Ukrainian enterprises, and 17.9% of the total number of deaths were injured in 2012, respectively, 9.9% and 18.6% in 2013, respectively year – 9.9 and 16.4, for 2014 – 10.9 and 17.3, for 2015 – 14.1 and 22.4, for 2016 – 13.1 and 20.8 for 2017 – 12.5 and 20.5%.

The analysis of the data we have received shows that the level of industrial accidents with fatal consequences of agro-industrial complex of Ukraine ranks first in 2015-2017.

The «Concept on the organization of labor protection in the agrarian sector of the economy in the new economic conditions» states that the situation with injuries in the agrarian sector of the economy is due to a number of reasons, among which: violations of safety standards and the absence of effective mechanisms for bringing officials to account for non-compliance requirements of safety and safety of industrial products; reduction of the responsibility and exactingness of officials to monitor the observance of norms and rules of safety and the admission to work of workers in a drunken state; lack of funds, including funds for financing national, state, sectoral and regional programs on occupational safety, fire safety and road safety [15].

Table 2

<table>
<thead>
<tr>
<th>Year</th>
<th>Economically active population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>at the age of 15-70 years</td>
</tr>
<tr>
<td></td>
<td>on average, thousand people</td>
</tr>
<tr>
<td>2011-2014</td>
<td></td>
</tr>
<tr>
<td>2015-2017</td>
<td></td>
</tr>
</tbody>
</table>
The State Labor Administration together with the Ministry of Agrarian Policy and Food of Ukraine, the Ministry of Ecology and Natural Resources of Ukraine, the Ministry of Health of Ukraine, the Social Insurance Fund for Industrial Accidents and Occupational Diseases should not only implement measures to improve the state of the economy, reduce the risk of production injuries, occupational diseases and accidents at work, but also monitor their implementation by employers.

The employer must, in accordance with current legislation, take effective measures in order to ensure safe working conditions in the conditions of production, since human health and life are the most important priority of universal values [15].

The effectiveness of the labor protection policy in the field of agro-industrial complex of Ukraine depends on the proper implementation of the National Social Program for improving the state of safety, occupational health and working environment for 2014-2018, namely: bringing normative legal acts on labor protection in line with the requirements of international and European legislation; improvement of the system of state supervision and public control over observance of the requirements of the legislation on labor protection and industrial safety; improvement of the system of state supervision and public control over observance of the requirements of the legislation on labor protection and industrial safety; increase of efficiency of
the systems of management of labor protection; prevention of occupational injuries, occupational diseases and accidents; raising the level of safety culture; introduction of economic incentives for improving the state of occupational safety; application of innovative technologies in the field of labor protection and industrial safety; development of new types of remedies; improvement of conditions and hygiene of labor; use of best practices on occupational safety issues [19].

Accordingly, state policy in the field of labor protection in the agrarian sector of the economy should be aimed at: creating conditions for safe living of the population of the country engaged in agro-industrial production, prevention of industrial accidents, elimination of their causes and social protection of victims; creation of a monitoring system for safe working life of the working population; creation and development of an appropriate production infrastructure and its management to ensure the safe living of the working population; strengthening of responsibility of officials, whose actions or inactivity which have become the main or concomitant cause of an accident [12].

**Conclusions and directions of further research.** On the basis of analysis of the data of the State Labor Service of Ukraine for the period of 2011-2017, it has been established that the state of occupational injuries is declining, both in Ukraine as a whole, and in the field of agro-industrial complex. Despite the fact that the level of injuries in the aforementioned years decreased, it should be noted that the industry of the agro-industrial complex in the period 2011-2014 took the third place in Ukraine by the level of injury and the second place – by the level of injury with fatalities, and in the period 2015-2017 years – the third and first place respectively.

In order to improve the work of the service on labor protection issues, it is continuously necessary to analyze the state of occupational injuries in the field of supervision. This will enable to prevent and eliminate potential
hazards. Therefore, in order to create safe and harmless working conditions, it is constantly necessary to improve the legal regulation of labor protection in agriculture, to update the rules, norms, standards, instructions, regulations in accordance with the development of STP and modern technical support of the agro-industrial complex.

To reduce occupational injuries, it is necessary to develop and implement a sectoral system of labor protection management; to increase the efficiency of labor protection work at agricultural enterprises of all types of property; to provide employees with regulatory and labor protection laws, which take into account modern labor safety requirements; to intensify control over compliance with safety standards and working conditions in the workplace, paying particular attention to the technical aspects of occupational safety; to apply the experience of the countries of the world.

**Literature:**


18. Пахомов, Р.І., Гасій, Г.М., Білоус, І.О., Лаврут, Т.В. (2015). Аналіз прогнозування та профілактика травматизму з важкими наслідками. Збірник наукових праць Харківського університету Повітряних Сил. Харків, 2 (43), 139-144.


References:


