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## Occupational safety when working with pesticides: The state of legal security

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The article is devoted to the analysis of current state of the legal security of labor protection when working with pesticides, as well as the formulation of conclusions and proposals based on it, aimed at improving the current legislation in this area. It has been established that currently in Ukraine, there is a process of updating legislation in the area under study. In particular, through the adoption of regulatory acts governing the rules of labor protection when working with certain types of chemicals (for example, ammonium nitrate). As a result of a study of the current legislation in the field of labor protection when working with pesticides, it has been concluded that the basic documents (SSR 8.8.1.2.001-98 "Transportation, storage and use of pesticides in the national economy" and DSanPiN 8.8.1.2.3.4-000- 2001 "Permissible doses, concentrations, quantities and levels of pesticides in agricultural raw materials, food products, air of the working area, atmospheric air, water of water ponds, soil") are not able to properly regulate the relevant relationships due to their outdated provisions. The main shortcomings of SSR 8.8.1.2.001-98 are identified: reference in its content to already inactive regulations

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on labor protection, non-compliance with modern developments in the field of hygiene and toxicology of pesticides; unreasonably detailed regulation, which entails an excessive burden on business entities and leads to formalism in the implementation of provisions of this document by employers; incorrectly “rigid” regulation of the choice of means of personal protection for work with pesticides. It has been determined the directions of improvement of legislation in the field of labor protection when working with pesticides. Among them: the introduction of a risk-based approach to the organization of labor protection, including in the field of agriculture; borrowing positive international experience in the field of awareness of interested parties about the hygienic regulation of the use of pesticides, the necessary safety measures for working with the use of such substances

**Keywords:** occupational safety, dangerous occupational factor, normative act on labor protection, labor protection, pesticides, legal support, agriculture

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## **Introduction**

Modern agricultural creation is characterized by the high level of chemicalization. It is generally proven that pests (insects, rodents, nematodes), diseases of viral, fungal and bacterial etiology, weeds, etc. are capable of causing significant harm to both animal husbandry and crop production, even to the complete destruction of crops or farm animals. According to available information, the average annual crop losses in Ukraine from pests, diseases and weeds are 20-30%, including wheat – 27%, corn – 29%, sugar beet – 27%, potatoes – 32%, fruit – 48% [1]. The impossibility of abandoning the use of pesticides is primarily due to the need to prevent a decrease in the gross production of agricultural products and its quality, as well as the need to promote productivity in the crop industry. However, this causes another problem – these substances pose a threat to the health of workers, and in the case of uncontrolled use, they are dangerous for the life

and health of people and the environment. Agriculture is traditionally one of the most dangerous industries in terms of industrial injuries and occupational diseases. According to statistics in 2020, the total number of people injured as a result of accidents related to production reached the mark of 6646 people, and 243 of them – employees of the agro-industrial complex. This is the fifth place after such healthcare sectors (in which this indicator of industrial injuries increased by 13 times compared to 2019 due to the COVID-19 pandemic, and it amounted to 3238 people in 2020) and the coal industry. As for the cases of fatal occupational injuries, the agriculture is “in the top three” – out of 393 fatalities, 45 people are from this industry [2]. The situation is also complicated with occupational diseases (poisoning) of persons employed in agriculture. For example: according to the Social Insurance Fund of Ukraine in the Cherkasy region in 2019, 62.5% of the

total number of established occupational diseases were in agriculture [3]. Although, according to the existing data at the state level, the level of occupational diseases in agriculture is low [4]. However, the author fully agree with Yu. Konovalov [5], who states that the available data do not reflect the real picture, since a significant part of occupational diseases of people employed in the agricultural production is not recorded due to the destruction of medical care system in rural areas, primarily the occupational pathology care system.

In turn, the work with pesticides is one of the most hazardous jobs for health in agriculture. Improvement of situation is possible only through the comprehensive approach to the organization of labor protection of persons employed in such work. The proper legal support is key factor in this process, which determines the relevance of this scientific work [6].

Various aspects of labor protection of persons employed in agricultural production have repeatedly been the subject of scientific research by both the scientists-lawyers and representatives of other sciences. For example, these are the developments by A.P. Berezovetskyi [7], O.V. Voinalovich [7], V.M. Garashchuk, I.M. Gorodetskyi [7], V.V. Zhernakova, P.A. Izuita, L.I. Lazora, V.M. Lapina, O.A. Miroshnichenko, P.D. Pilipenko, V.G. Rotan, V.P. Skaf, G.I. Chanysheva, I.I. Shamshina, O.M. Eroshenko, V.Z. Yanchuk and others. At the same time, many problems of legal support of labor protection in agriculture remain unresolved, which necessitates the conducting of scientific research in this direction.

*The purpose of the article* is to analyze the current state of legal security for labor protection when working with pesticides, as well as formulate conclusions and proposals based on it, aimed at improving the current legislation in this area.

## **Results and Discussion**

The Rules for labor protection in agricultural production, approved by the order of the Ministry of Labor and Social Policy of Ukraine dated August 29, 2018 № 1240 are the basic regulatory act on labor protection that establishes safety requirements when working with pesticides. However, this document is limited only to individual instructions regarding transportation and usage of pesticides and mineral fertilizers, preparation of pesticide solutions, and it also establishes the conditions for workers' admission to perform such work (passing special training, having an appropriate certificate and the absence of medical contraindications).

Point 1 of subsection 1 of the section IV of the Regulations for Labor Safety in agricultural production contains a rule that "the transportation, storage and use of pesticides must be carried out in compliance with the requirements of the Law of Ukraine "On pesticides and agrochemicals" and other regulatory legal acts in terms of safe work on transportation, storage and use of pesticides". The latter ones include the State Sanitary Rules SSR 8.8.1.2.001-98 "Transportation, storage and use of pesticides in the national economy", approved by order of the Ministry of Health of Ukraine dated August 8, 1998 № 1. The

point 1.4 of this document is mandatory for compliance for all persons who perform any actions with pesticides. However, a significant part of provisions enshrined in the given SSR 8.8.1.2.001-98 is outdated, which makes it difficult to comply with their requirements.

Above all, SSR 8.8.1.2.001-98 contains references to invalid regulations such as: The procedure for the use of pesticides and agrochemicals in areas subjected to radioactive contamination and in areas of environmental emergency situations, approved by the Cabinet of Ministers of Ukraine dated January 16, 1996, № 92; GOST 12.0.004-90 "Occupational safety standards system. Organization of labor safety training. General Provisions"; Regulations on the procedure for conducting medical examinations of workers of certain categories, approved by order of the Ministry of Health of Ukraine dated March 31, 1994; GOST 19433-88 "Dangerous cargoes. Classification and labeling"; SNiP 11-108-78 "Warehouses for dry mineral fertilizers and plant protection chemicals"; GOST 12.2.003-91 "Industrial equipment. General safety requirements" and others.

Another disadvantage of SSR 8.8.1.2.001-98 is that it "does not keep pace" with the changes arising on the market of pesticide, the vast majority of which are currently imported, and their range is increasing every year. The author fully shares the opinion of experts that the following documents are developed considering the scientific achievements in the field of hygiene and toxicology of pesticides for 2000 [7]: the SSR 8.8.1.2.001-98, and

another key document in the field under study – DSanPiN 8.8.1.2.3.4-000-2001 [6], which determines the permissible doses, concentrations, quantities and levels of pesticides in agricultural raw materials, food products, air of the working area, atmospheric air, water of water ponds, soil.

The regulation of SSR 8.8.1.2.001-98 for the choice of personal protective equipment when working with pesticides is an important aspect that needs improvement. Very fruitful work has been done in this direction [7]. The authors (using the example of a comparison of the recommended protective equipment for workers when applying pesticides of hazard class II according to SSR 8.8.1.2.001-98 and according to the safety data sheet of Fungicide Acanto Plus manufactured by the DuPont International according to Regulation (EC) No. 1907/2006 with amendments [8]) came to the correct conclusion that compliance with the requirements of SSR 8.8.1.2.001-98 on providing employees with the same types of protection for various operations is vague and it causes errors in the selection of personal protective equipment, which leads to dangerous working conditions [7]. That is, the "strict" regulation adopted in Ukraine's regulatory legal acts on labor protection of the choice of one or another personal protective equipment in modern conditions (considering the significant update of both the range of pesticides and the range of personal protective equipment (both the domestic and foreign production)) does not give the expected result – it does not protect the worker at the proper level.

These are the possible steps to improve situation: firstly, providing at the level of SSR 8.8.1.2.001-98 the possibility of choosing personal protective equipment, depending on the information given in the safety data sheet of a particular pesticide. Secondly, it is necessary to expand the list of mandatory information about pesticide when entering it into the State Register of Preparations, considering the provisions of Regulation (EC) № 1907/2006. For comparison: according to the Procedure for carrying out state testing, state registration and re-registration, publication of a list of pesticides and agrochemicals permitted for the use in Ukraine, approved by the Resolution of the Cabinet of Ministers of Ukraine dated March 4, 1996 № 295, The State Register of Preparations include the following: registration number of product, date of issue, series, name and content of the active substance, trade name of the product and designation of its formulation, classification of the product, name of the applicant and his address, name of the product's manufacturer, scope of application (list of crops), consumption standards (grams, kilograms, liters/hectares, sq.m. tons), term of registration of the product, date of cancellation (suspension) of the state registration of the product. In turn, the Annex II "Requirements for the safety data sheet" of Regulation (EC) № 1907/2006 provides for the inclusion of the following information in the safety data sheet of the product: identification of the substance/mixture and the company/enterprise; hazard identification; information about the composition and ingredients;

first aid measures; fire fighting measures; measures for accidental release of substances; handling and storage; control over the influence (personal protection); physical and chemical properties; stability and reactivity; toxicological information; environmental information; disposal; transportation information; regulatory information; other information. It is obvious that the provision of this information to all interested parties through its publication in the public domain in the State Register of Pesticides and Agrochemicals permitted for the use in Ukraine can greatly simplify the solution of the issue regarding the protection of employees working with such substances.

In addition to the above-mentioned, the analysis of the content of SSR 8.8.1.2.001-98 shows a very detailed regulation of carrying out the work with pesticides, as well as a reference to a significant number of other mandatory regulations. On the one hand, this can be considered a positive moment, since a clear fixing of the rules of conduct is intended to contribute to the organization of labor protection in the direction under study. However, on the other hand, such an "overload" of the employer's obligations in practice often leads to the formal fulfillment of requirements.

The above-mentioned information clearly illustrates the already recognized fact in the scientific community that the labor protection legislation of Ukraine is outdated and does not keep up with changes in technological processes, technologies, means of protecting workers, etc. Experts prove that it is necessary to respond to

challenges in the field of labor protection, first of all, at the level of an enterprise, institution, organization, business entity. This should be carried out through the management strategies and should be objectified in labor protection management systems [9]. Ukraine should introduce a risk-oriented approach to the organization of labor protection; that is, an approach based on the study and analysis of industrial risks, and further development of labor protection measures at the enterprise level, which would consider the specifics of this business entity.

The legal field is already beginning to form for this; in particular, it has been developed the drafts of the Methodology for conducting occupational safety and health measures by the employer based on a risk-related approach [10], the Law of Ukraine "On the safety and health of employees at work" [11]. In this research, it has been analyzed the provisions of the latest draft law and it has been concluded that they generally meet international standards in the field of labor protection and allow solving the main problems in terms of motivating employers and employees to comply with labor protection legislation; they lay the foundation for a gradual shift in emphasis when organizing the labor protection directly for the business entity regarding the prevention of onset of accidents and occupational diseases, reduce bureaucratic pressure on employers and give it greater freedom in responding to changes in production processes and economic conditions for conducting the relevant activities [12].

Simultaneously with the development of general legislation, the work for updating the industry regulations on labor protection should be carried out, namely those ones that regulate the safety requirements when working with pesticides and agrochemicals. These changes should be based on a preliminary analysis of industrial risks existing in this particular area, objective data on industrial injuries and occupational morbidity in agriculture. It should also become mandatory to provide the owner of agricultural enterprise with a legally fixed opportunity to quickly respond to new risks while ensuring an appropriate level of safety for employees who work with pesticides and agrochemicals. And here, it is possible to cite as a positive moment the adoption of the Minimum requirements for the safety and health of employees at work during storage and packaging of ammonium nitrate and its use for the manufacture of complex and liquid mineral fertilizers, approved by order of the Ministry of Economic Development, Trade and Agriculture of Ukraine dated April 15, 2021, № 775-21, which extended their effect to all business entities and/or institutions of all forms of ownership, whose activities are related to the storage (in the amount of 500 kg or more), packaging, loading and unloading operations with ammonium nitrate and/or its use for the manufacture of complex and liquid mineral fertilizers and/or its consumption. Thus, it was canceled the Order of the State Committee of Ukraine regarding the industrial safety, labor protection and mining supervision "On approval of the Rules for labor protection during pro-

cessing and storage of ammonium nitrate in bulk” dated September 1, 2009, № 142, which created an excessive burden on the business entities by unreasonable regulation, contained numerous references to the rules, DSTU, SBS, BS and GOST, (which are canceled and do not belong to regulatory legal acts on labor protection).

### **Conclusions**

Thus, currently in Ukraine, there is a process of updating the legislation that regulates relations in the field of labor protection of persons employed in work with pesticides. Along with this, the basic documents (SSR 8.8.1.2.001-98 “Transportation, storage and use of pesticides in the national economy”

and DSanPiN 8.8.1.2.3.4-000-2001 “Permissible doses, concentrations, amounts and levels of pesticides in agricultural raw materials, food, working area air, atmospheric air, water of water ponds, soil”) are not able to properly regulate the relevant relations due to their outdated provisions. Further scientific research should be concentrated in the following directions: the introduction of a risk-based approach to the organization of labor protection, including the agriculture field, borrowing positive international experience in the field of awareness of interested parties about the hygiene regulation of the use of pesticides, the necessary safety measures for working with the use of such substances.

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## Безпека праці при виконанні робіт із пестицидами: стан правового забезпечення

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### Анотація

Стаття присвячена аналізу сучасного стану правового забезпечення охорони праці при виконанні робіт із пестицидами, а також формулювання на його основі висновків та пропозицій, спрямованих на удосконалення чинного законодавства у зазначеній сфері. Встановлено, що на даний час в Україні триває процес оновлення законодавства у досліджуваній сфері. Зокрема, через прийняття нормативних актів, що регламентують правила охорони праці при роботі з окремими видами хімічних речовин (приміром, аміачної селітри).

У підсумку дослідження чинного законодавства у сфері охорони праці при виконанні робіт із пестицидами зроблено висновок, що базові документи (ДСП 8.8.1.2.001-98 «Транспортування, зберігання та застосування пестицидів у народному господарстві» та ДСанПіН 8.8.1.2.3.4-000-2001 «Допустимі дози, концентрації, кількості та рівні вмісту пестицидів у сільськогосподарській сировині, харчових продуктах, повітрі робочої зони, атмосферному повітрі, воді водоймищ, ґрунті») не здатні належним чином врегулювати відповідні відносини через застарілість їх положень. Визначено основні недоліки ДСП 8.8.1.2.001-98: посилання у його змісті на вже нечинні нормативні акти з охорони праці, невідповідність сучасним напрацюванням у галузі гігієни та токсикології пестицидів; необґрунтовано деталізоване регулювання, що має наслідком надмірне навантаження на суб'єктів господарювання та призводить до формалізму при виконанні положень цього документу роботодавцями; некоректно «жорстка» регламентація вибору засобів індивідуального захисту для виконання робіт із пестицидами. Визначено напрями удосконалення законодавства у сфері охорони праці при виконанні робіт із пестицидами. Серед яких: впровадження ризикоорієнтованого підходу до організації охорони праці, зокрема й в галузі сільського господарства; запозичення позитивного міжнародного досвіду у сфері поінформованості зацікавлених осіб щодо гігієнічного нормування використання пестицидів, необхідних заходів безпеки для робіт із використанням таких речовин

**Ключові слова:** безпека праці, небезпечний виробничий фактор, нормативний акт з охорони праці, охорона праці, пестициди, правове забезпечення, сільське господарство