LEGAL BASIS FOR THE USE OF BIOTECHNOLOGY IN AGRICULTURE TO ENSURE FOOD SECURITY OF UKRAINE

Tamara Novak,
Ph.D. in Law,
Associate Professor, Associate Professor in Department of Agricultural, Land and Environmental Law National University of Life and Environmental Sciences of Ukraine, Ukraine,
tomanovak1980@gmail.com; ORCID: 0000-0003-2371-3014
Victoria Melnyk,
Ph.D. in Law,
Senior lecturer of Civil Law disciplines
Bila Tserkva National Agrarian University, Ukraine,
viktoriia.melnyk@ukr.net; ORCID: 0000-0002-1287-8799
Inna Kovalchuk,
Ph.D. in Law,
Associate Professor, Associate Professor in Department of Public Law of Bila Tserkva National Agrarian University, Ukraine,
kovalchuk.inn@gmail.com; ORCID: 0000-0002-1804-4189

Annotation. *The article is devoted to the study of the current state of legal support for food security in Ukraine, analysis of legislative innovations in the field of biotechnology as a way to improve food security and development of recommendations for improving the legal regulation of these relations.*

The analysis of the regulatory acts governing relations in the field of food security allowed the authors to draw conclusions about the formation of updated legislation during the period of martial law in Ukraine. The main features of legal provision of the relevant relations are as follows: the absence of a single comprehensive regulatory act which would consolidate the principles of ensuring food security of Ukraine; fragmentation of measures to ensure food security (concentration on the regulation of land relations, implementation of individual measures to support agricultural producers). The authors propose to develop the conceptual framework for food security of Ukraine with its objectification at the level of a separate law, to take into account food security measures in the formation of Ukraine's recovery plans and to establish international cooperation.

The authors characterize the updated legislation providing for genetic engineering activities and state control over the placement of genetically modified organisms and products on the market. Positive innovations are highlighted. It is established that the problem of dispersion of functions of management and control over compliance with genetically modified organisms ("GMO") legislation among numerous entities remains unresolved.

Keywords: *agriculture, food security, legal support of food security, biotechnology, genetically modified organisms, agricultural production.*

Introduction. Ensuring food security has always been and remains one of the key tasks of any state, an integral element of its security. Ukraine is no exception, as it has pursued a consistent policy and implemented measures to ensure food security throughout its existence as an independent state. However, the Russian armed aggression, in fact a full-scale war, has caused an acute crisis in Ukrainian agricultural production and threatened further food security not only at the level of Ukraine but also at the global level. The domestic agricultural sector has suffered and continues to suffer enormous damage due to the war. As of the end of April 2023, according to experts of the Kyiv School of Economics ("KSE") of the project "Russia will pay", the amount of direct damage to Ukraine's agricultural sector amounted to USD 8.7 billion. In terms of categories of damage, the largest share is the destruction and damage to agricultural machinery (over 4.65 billion). Destruction and theft of agricultural products came in second (about 1.87 billion). The third place goes to the damage caused by the destruction and damage to the infrastructure for storing agricultural products, which, according to preliminary data, is estimated at UAH 1.33 billion [4]. Potentially contaminated areas include 17.4 million hectares of land under temporary occupation and those that have been subjected to air, missile and artillery strikes. Thus, the situation in the agricultural sector is currently critical. This directly affects the Global Food Security Index ("GFSI"). According to Saviano Abreu, a representative for the UN Office for the Coordination of Humanitarian Affairs in Ukraine, 18 million Ukrainians need humanitarian assistance, which includes the need to provide food to the population [7]. The continuing intensity of Russian strikes on the territory of Ukraine allows us to make disappointing predictions about the further aggravation of these problems. In addition, according to international experts, the Russian Federation's attack on Ukraine, which is one of the world's major food suppliers, has already caused a food crisis. This has significantly deepened the existing humanitarian crisis in the world. The experts already qualify it as «the worst crisis since the Second World War» [1]. The Food and Agriculture Organization of the United Nations ("FAO") has already developed basic recommendations to ensure food security in Ukraine. These recommendations include: immediate restoration of safe agricultural production; compliance by the parties to the conflict with the rules of war and relevant conventions; support for agricultural producers with seeds, fertilizers, feed, fuel, veterinary drugs, etc [26]. However, these recommendations are measures that can only offset the «acute phase» of the crisis in the agricultural sector to some extent. The issue of rethinking the vectors of agricultural development both in wartime and in the postwar period and adapting it to new realities remains relevant. And one of these areas, according to experts (supported by the authors of this article), should be the intensification of the introduction of modern biotechnology into agricultural production. This will make it possible to intensify the production of agricultural products in the crop and livestock sectors, to compensate to some extent for the agricultural land lost due to the war, to obtain the characteristics of agricultural products in demand in the modern market, etc. At the same time, to minimize the risks inherent in the use of biotechnology in agricultural production, Ukraine must create a perfect legal framework for regulating such relations, taking into account the realities of today and international requirements and standards.

Purpose and objectives of the study. Given the above, the purpose of this article is to study the current state of legal provision for food security in Ukraine, to analyze legislative innovations in the area of biotechnology use as a way to improve food security, and to formulate recommendations for improving the legal regulation of the above relations.

Achievement of the aim of the work was facilitated by the use of a set of methods of scientific cognition by the authors of the study. The work is based on the dialectical (philosophical) method, which allowed the authors to determine the overall state of legal support for the use of biotechnology in agriculture to ensure food security in Ukraine. General scientific methods of logic, analysis and synthesis were also used. The special scientific (formal legal) method was used to determine the content of the provisions of the regulations governing relations in the field of food security, as well as relations on the use of biotechnology in agriculture.

Literature review. Given the urgency of the problem of ensuring food security, including the legal regulation of relevant relations, this issue has repeatedly been the subject of scientific research.

Among the many works of the pre-war period devoted to the general theoretical and practical legal aspects of food security, we can distinguish the following: M.V. Grebenyuk on the formation of the Concept of Food Security of Ukraine [6, p. 79], A. Dukhnevych on Ukraine's obligations on food security under the World Trade Organization (“WTO”) Agreement “On Agriculture” [5, p. 93], T.O. Kovalenko on comparing the concept, signs and criteria of food security under the legislation of Ukraine and other states [7, p. 31]. S.O. Lushpaev's dissertation research was devoted to clarifying the legal basis of food security of the state, its concept, features and principles of legal regulation [20, p. 19]. The legal issues of food security in Ukraine and the world were covered in the researches of T. V. Kurman and O. M. Tuieva [12, p. 92].

We should also note several works that investigated the issues of legal regulation of food security in Ukraine and the world in the context of the Covid-19 pandemic, as the latter was also a completely new challenge for the world. Thus, O. O. Surilova studied the international legal mechanisms for minimizing the negative effects of the pandemic on food security and developed proposals on the risks and threats to Ukraine's food security, taking into account the European experience [33, p. 122]. The analysis of Ukraine's legal framework for direct or derivative regulation of food security, as well as its effectiveness and relevance to the realities of the Covid-19 coronavirus pandemic, was carried out by M.Yu. Pokalchuk and B. V. Yakubov [24, p. 22]. For the sake of objectivity of the review of sources, the authors of the article consider it correct to provide examples of non-legal researches on the topic under study, since the problem of food security is global. For example, the food security challenges faced by the Association of Southeast Asian Nations region due to the Covid-19 pandemic were highlighted by Pushpanathan Sundram. The author emphasized the need for an integrated approach to addressing the impact of climate change, investing in rural infrastructure and agricultural research, and promoting sustainable and inclusive agriculture for long-term food security. He proved the importance of cooperation with international partners and organizations to leverage

experience and resources [28].

An array of scientific research is currently being formed on the specifics of legal support for food security in wartime. For example, T. Ye. Kharytonova and H. A. Grigorieva in their article formulated rule-making proposals for preserving food security of the population of Ukraine based on the study of similar experience of countries where military operations took place over the past thirty years (1990 - to current date): Syria, Ethiopia, Eritrea, Sudan, Afghanistan, Iraq, Kosovo, Yemen [8, p. 289]. The issues of regulatory and legal support of food security under the legal regime of martial law were studied in the work of Ye.M. Bilousov and A.A. Olkhovska [22, p.28]. The issue of legal support for food security and the functioning of agribusiness under martial law in Ukraine was the subject of research by T. M. Kurman [11, p.123]. The authors of this article believe that the works of foreign scholars who extrapolate the experience of Ukraine during the period of martial law to address the problems of global food security are also interesting. For example, the concept of food sovereignty is proposed as an alternative to the dominant neoliberal model of food security [3, p.16]. There are also studies that analyze the state of food security in geopolitical conditions and review theoretical aspects of food security in the context of the Russian-Ukrainian conflict [2, p.345].

As for ensuring food security through the introduction of biotechnology in agricultural production, it is worth highlighting the work of T. M. Kurman [10, p.98], in which the author proposes two approaches to improving the legislative framework: 1) development and adoption of the general Law of Ukraine «On Biotechnology in Agriculture»; 2) adoption of legislative acts of a narrower scope - the Laws of Ukraine «On Biopesticides» or «On Biological Protection of Agricultural Plants», «On Biological Products In Animal Husbandry», etc. The directions of ensuring food security through the introduction of biotechnology in agriculture, taking into account international experience, were once identified by K.A. Pylypenko [26, p.153]. However, all these works were performed in the pre-war period and do not take into account the innovations in the legal support for the introduction of biotechnology into agricultural production that are currently taking place, which further emphasizes the timeliness and relevance of this scientific article.

Results obtained. From the very first days of the war, the state promptly responded to the legal support of food security in the new realities of martial law.

A number of bylaws were adopted to regulate key aspects of the relevant relations and prevent a catastrophic situation. These are the following regulations: Resolutions of the Cabinet of Ministers of Ukraine «On Ensuring Stable Operation of Food Producers under Martial Law» No. 160, dated 26.02.2022 [27], «Some Issues of Ensuring Economic Activity under Martial Law» No. No. 314, dated 18.03.2022 [30], «On Regulation of Prices for Certain Types of Food Products and Ensuring Stable Operation of Food Producers under Martial Law» of 19.06.2023, No. 650 [31], «Issues of Providing Humanitarian and Other Assistance to the Civilian Population under Martial Law in Ukraine» of 07.03.2022 [29], etc.

A significant step was the adoption of the Law of Ukraine «On Amendments to Certain Legislative Acts of Ukraine on Creating Conditions for Ensuring Food Security under Martial Law» No. 2145-IX, of 24.03.2022 [14], and later the Law of Ukraine «On

Amendments to Certain Laws of Ukraine on Uninterrupted Production and Supply of Agricultural Products during Martial Law» No. 2246-IX, of 12.05.2022 [15].

In general, the authors of the article agree with experts that these rule-making steps have significantly supported domestic agricultural producers and contributed to the improvement of the situation with production and export of Ukrainian agricultural products and attraction of international assistance [36, p.111]. At the same time, it is premature to talk about a systematic approach to the legal regulation of relations related to food security, from the point of view of the authors of this article. Since all of the above-mentioned legal acts are focused on individual measures that should contribute to improving the situation in the field of food security: establishing the specifics of regulation of land relations during martial law; establishing the priority of public interests in ensuring the immediate use of available agricultural land for food production over the interests and desires of land owners and users; maximizing the simplification of agricultural production under martial law.

With regard to the legal framework for the use of biotechnology in agriculture as a way to improve food security, the authors of the article consider it necessary to focus on the following. The concept of biotechnology was once studied in detail by O.Yu. Piddubnyi, who concluded that it is «a set of scientific and technical activities in various spheres of social life, including the application of techniques and methods of using biological processes to meet the needs of man and society» [23, p. 352]. V. Zavgorodnya gives a more detailed definition of biotechnology: «it is all types of work in which certain products are produced from raw materials with the help of living organisms and biological processes, and which covers a set of methods: microbiological synthesis, genetic engineering, cell and protein engineering, engineering enzymology, cultivation of plant, animal and bacterial cells, methods of cell fusion, etc.» [35, p. 119]. Given this «voluminous» content of the category «biotechnology», it is not possible to explore the entire range of problems of legal regulation of the relevant area within one article. Therefore, the authors of this study focus on the use of GMOs in agricultural production. Moreover, as T.M. Kurman correctly emphasizes, it is the relations in the field of use of GMOs in agricultural production in Ukraine that are the most regulated (although not sufficiently) by law [10, p. 99] and it is here that we have a number of shortcomings.

Legislation on the use of biotechnology in agricultural production is currently in the process of being developed. So far, there is no separate regulatory act that would regulate these relations. Although the same National Economic Strategy for the period until 2030 among the tasks to increase the technological level of the agricultural sector under strategic Goal 3 «Creation of conditions for producers regarding the possibility of providing available material and technical resources» calls «ensuring the development of laboratories of cloning, microbiology and biotechnology for internal selection seeds and fertilizers», and among the tasks to ensure the development of sustainable production under strategic Goal 4 «Balance of the production of high- and low-margin products to increase the profitability of the sector» - «the use of biotechnology» [28].

In the pre-war period, the main legislative act in the field of GMO use was the Law of Ukraine «On the State System of Biosafety in the Creation, Testing, Transportation

and Use of Genetically Modified Organisms» of 31.05.2007 [13]. This normative act has been repeatedly criticized by scientists. Thus, V.Yu. Urkevych proved the general nature of the provisions of this law, its inconsistency with the European Union legislation on GMO circulation, and the low level of compliance with its requirements [34, p. 67]. T. M. Kurman substantiated the existence of gaps and defects in the regulation of genetic engineering activities in an open system, liability for violation of legislation in the field of GMOs, the system of regulatory authorities and the definition of their powers in the field of GMOs [10, p. 98]. In general, the experts are unanimous in the need to improve the legislation on biotechnology in general and its results in the field of agricultural production in particular.

It is worth noting that it was during the war that domestic legislation in this area was significantly developed. To a certain extent, this was facilitated, firstly, by the inclusion of the direction «implementation of the best international practices of control and distribution of GMOs» in the Draft Recovery Plan of Ukraine (under the section «New Agricultural Policy») [25]. Secondly, according to the authors of the article, was the need to accelerate Ukraine's fulfillment of its European integration obligations as a condition for membership in the European Union. In particular, Art. 64 of the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other hand, regarding approximation of Ukrainian legislation on sanitary and phytosanitary measures for animal protection to EU legislation, formation of unified regulation of relations in the field of GMOs in Ukraine with EU legislation.

As a result, the Law of Ukraine «On State Regulation of Genetic Engineering Activities and State Control over Placing Genetically Modified Organisms and Products on the Market» No. 3339-IX dated 23.08.2023 [18] (hereinafter referred to as Law No. 3339-IX) was adopted, which defined the legal and organizational principles of genetic engineering activities, including the issues of state control over the placement of genetically modified organisms and products on the market.

It is important from the point of view of the subject matter of this research article that this particular regulatory act (as stated in its preamble) is aimed at ensuring environmental, genetic, biological and food security of Ukraine.

The most important innovations introduced by Law No. 3339-IX include the following. First of all, it is the definition of terminology, including such basic concepts as «biological safety», «genetic engineering», «genetic security», «genetically modified products», «GM products as feed», «GM products as food», «genetically modified organism», etc. The authors of the article believe that this will help to simplify law enforcement in terms of avoiding different interpretations of the relevant categories. The introduction of mechanisms for state registration of GMOs that meet European requirements; improvement of rules, requirements and procedures for labeling GM products; and establishment of rules for traceability of GM products are also positive.

The next significant step towards improving the legal regulation of GMO use, including in agricultural production, is the delineation of powers of public authorities by Law No. 3339-IX in order to eliminate duplication of functions in the field of GMO

management. The Law provides for the functioning of the State Commission on GMO Risk Assessment, which, according to Part 1 of Article 13 of the Law No. 3339-IX, is positioned as a «permanent expert advisory body functioning under the central executive body that ensures the formation and implementation of state policy in the field of placing GMOs and GM products on the market, in order to assess the risk of GMOs». At the same time, the «dispersion» of functions among a large number of entities is preserved. The controlling functions are also delineated (Section IX of the Law No. 3339-IX): 1) state control over compliance with biosafety requirements in the implementation of genetic engineering activities in a closed system is carried out by the central executive body that implements state policy in the field of sanitary and epidemiological well-being of the population, or its territorial bodies; 2) state control over compliance with the requirements for placing GMOs and GM products on the market, including the rules for the parallel use of GMOs, GM products and non-GMO products, shall be carried out by the central executive body implementing the state policy in the field of state control over placing GMOs and GM products on the market, or its territorial bodies.

This position has been repeatedly criticized in academic circles [10, p.100]. The authors of the article also support the need to concentrate these functions in one specialized body.

According to the authors of the article, the establishment of rules for handling GMOs in an open system (Section IV of Law No. 3339-IX) is important for improving the regulation of relations on the use of GMOs in agricultural production. In particular, the requirements for authorization to conduct research and testing of GMOs in the open system are clearly defined. This has largely eliminated the shortcomings of the Law of Ukraine «On the State System of Biosafety in the Creation, Testing, Transportation and Use of Genetically Modified Organisms» in this part.

At one time, special sources also drew attention to the declarative nature of the provisions of the above law on liability for violations of legislation in the field of GMOs. It was pointed out that there was no effective and efficient mechanism for controlling legal liability in this area [10, p. 109] . Law No. 3339-IX pays considerable attention to this issue. In particular, Art. 40 is devoted to the requirements for the application of response measures in case of violation of the requirements of the legislation in the field of GMOs; Art. 41 defines the grounds for liability for violation of the legislation in the field of GMOs and sets the amount of fines for the relevant offenses. In addition, Art. 42 of Law No. 3339-IX regulates the main procedural issues of proceedings in cases of violation of legislation on GMOs, which, according to the authors of the article, is a guarantee of the principle of inevitability of legal liability in the field under study.

Of course, this is far from a complete analysis of the novelties of Law No. 3339-IX, and their detailed study with the determination of implementation prospects should continue within the framework of further scientific research. However, Law No. 3339-IX, from the point of view of the authors of this article, can be called a new stage in the regulation of relations with the use of biotechnology (in terms of GMOs) in agriculture, as it completely «reboots» the legal provision in this area, terminating the effect of the basic the Law of Ukraine «On the State System of Biosafety in the Creation, Testing,

Transportation and Use of Genetically Modified Organisms». Law No. 3339-IX will enter into force on September 16, 2026, except for the provisions on the labeling of genetically modified products, which are already in force at this time. This gives enough time for all interested parties to properly respond to the novelties introduced by him.

The adoption of the Law of Ukraine «On Amendments to Certain Laws of Ukraine Regarding the Improvement of State Regulation of Food Safety and Livestock Development» dated June 30, 2023 No. 3221-IX [17] was an important update of the legislation in the field of application of biotechnology in agriculture. This normative act amended the Law of Ukraine «On the Safety and Hygiene of Feeds» [16], allowing the introduction into circulation in Ukraine of zootechnical feed additives, coccidiostats and histomonostatics, as well as feed additives that are composed of, contain or are produced using genetically modified organisms. However, only the owners of the registration (their successors, authorized persons) of such feed additives have this right. In addition, the Law of Ukraine «On Amendments to Certain Laws of Ukraine Regarding the Improvement of State Regulation of Food Safety and Development of Animal Husbandry» dated 30.06.2023 No. 3221-IX granted permission to use without state registration feed additives that are composed of, contain or are produced using genetically modified organisms. But it is imperative to establish the maximum possible content of genetically modified organisms in such a feed supplement - no more than 0.1 %, and specify that the presence of GMOs in it is accidental or technically unavoidable. Compliance with these conditions allows not to label such feed additives according to special requirements (Article 31 of the Law of Ukraine «On the Safety and Hygiene of Feeds»).

Conclusions. Summarizing the conducted research on the legal bases of the use of biotechnology in agriculture to ensure food security of Ukraine, the authors of the article offer the following conclusions, which are characterized by scientific novelty and which testify to the achievement of the set goal of the work.

Currently, there is no systematic approach to legal provision of food security in Ukraine. Current regulatory acts regulate these relations in a fragmented manner, focusing on individual measures to improve the state of food security in war time. Considering the importance of food security as a component of national security both today and in post-war periods, the authors of the article consider it necessary to pay more attention to this issue when forming plans for the recovery of Ukraine and international cooperation. It is urgent to develop the conceptual principles of food security of Ukraine with their objectification at the level of a separate law. The latter should become the basis for the development of specific plans and measures to ensure food security of Ukraine in the new conditions.

Taking into account the prospects of biotechnology, in particular the use of genetically modified organisms and genetically modified products in agriculture, the changes that have taken place in the legal provision of genetic engineering activities and state control over the placement of genetically modified organisms and products on the market, the authors of the article generally assess positively. It has been established that for the effective implementation of the new rules, it is mandatory to form the prescribed set of by-laws, i.e. «restarting» the legal regulation of this area requires the coordinated

work of authorized subjects.

It was established that despite the radical changes in the legal regulation of the use of GMOs, the problem of dispersion of management and control functions among numerous subjects remained open.

The obtained results are a contribution to the science of agrarian law. They can be used in rule-making activities during further work on updating normative acts in the field of the use of biotechnology in agriculture to ensure food security of Ukraine.

References:

1. Act by giving: WFP Executive Director calls for private sector to «step-up» in a world jolted by Europe's war. Retrieved from https://www.wfp. org/news/act-giving-wfp-executive-director-calls-private-sector-step-world-jolted-europes-war

2. Alibay, Y., Onuchko, M., Myrzantay, Zh., Menlikul, Sh., Baibolat, L., Assel, K. (2023). Food Security as a Component Part of National Security: The Impact of the Russian-Ukrainian Conflict. Journal of Educational and Social Research, 13(3), 344–355.

3. Byaruhanga, R., Isgren, E. (2023). Rethinking the Alternatives: Food Sovereignty as a Prerequisite for Sustainable Food Security. Food ethics 8, 16.

4. Damages to the agricultural sector and land resources of Ukraine from a full-scale war amount to $8.7 billion Retrieved from https://kse.ua/ua/about-the-school/news/zbitki-agrosektoru-ta-zemelnim-resursam-ukrayini-vid-povnomasshtabnoyi-viyni-skladayut-8-7-mlrd/

5. Dukhnevych, A. (2015). Ukraine's Commitments on Food Security in Accordance with the WTOAgreement «On Agriculture». Historical and legal journal, 2 (6), 92–97.

6. Hrebenyuk, M.V. (2010). Regarding the creation of the Concept of Food Security of Ukraine. Law Bulletin of the «Krok» University, 5(1), 78–84.

7. In Ukraine, 18 million people are currently in need of humanitarian assistance, the humanitarian situation is expected to worsen - UN Office for the Coordination of Humanitarian Affairs. Retrieved from https://interfax.com.ua/news/interview/935083.html

8. Kharitonova, T. E., Grigoryeva, H. A. (2023). Food security in the conditions of modern military conflicts: legal experience of foreign countries. Legal scientific electronic journal, 2, 287–291.

9. Kovalenko, T.O. (2018). Concepts, signs and criteria of food safety according to the legislation of Ukraine and other countries. Administrative law and process, 1 (20), 30–41.

10. Kurman, T.M. (2018). Legal principles of the use of biotechnology in the conditions of sustainable development of agricultural production. Entrepreneurship, economy and law, 7, 97–102.

11. Kurman, T.V. (2022). Agribusiness and food security: threats and challenges of legal protection under martial law. Analytical and comparative jurisprudence, 3, 122–126.

12. Kurman, T.V., Tuyeva, O.M. (2021). The right to food security: education. manual Kharkiv: Jurayt, 92.

13. Law of Ukraine No. 1103-V "On the state system of biosafety in the creation, testing, transportation and use of genetically modified organisms ". (2007, May). Retrieved from https://zakon.rada.gov.ua/laws/show/1103-16#Text

14. Law of Ukraine No. 2145-IX "On the introduction of changes to some legislative acts of Ukraine regarding the creation of conditions for ensuring food security in the conditions of martial law". (2022, March). Retrieved from https://zakon.rada.gov.ua/laws/show/2145-20#Text

15. Law of Ukraine No. 2246-IX "On making changes to some laws of Ukraine regarding uninterrupted production and supply of agricultural products during martial law". (2022, May). Retrieved from https://zakon.rada.gov.ua/laws/show/2246-20#Text

16. Law of Ukraine No. 2264-VIII "On the safety and hygiene of fodder". (2017, December). Retrieved from https://zakon.rada.gov.ua/laws/show/2264-19#Text

17. Law of Ukraine No. 3221-IX "On the introduction of changes to some laws of Ukraine regarding the improvement of state regulation of food safety and the development of animal husbandry". (2023, June). Retrieved from https://zakon.rada.gov.ua/laws/show/3221-20#Text

18. Law of Ukraine No. 3339-IX "On state regulation of genetic engineering activities and state control over placement on the market of genetically modified organisms and products". (2023, August). Retrieved from https://zakon.rada.gov.ua/laws/show/3339-20#Text

19. Legal regulation of human, animal, and plant health protection in the European Union and Ukraine: monograph. (2007) / edited by E. Inshin. K.: Center for studies. literature, 440.

20. Lushpaev, S.O. (2014). Legal principles of food security of Ukraine, 19.

21. Note on the impact of the war on food security in Ukraine. Retrieved from https://www.fao.org/3/cb9171en/cb9171en.pdf

22. Olkhovska, A.-M. A., Bilousov, E.M. (2022). Normative and legal provision of food security in the conditions of the legal regime of martial law (statement of the problem). Law and innovation, 2 (38), 27–34.

23. Poddubny, O.Yu. (2016). Legal relations in the field of biotechnology: development prospects: monograph. K.: Iridium, 352.

24. Pokalchuk, M.Yu., Yakubov, B.V. (2021). Problems of legal regulation of food safety of Ukraine in the context of the Covid-19 pandemic. Bulletin of Kharkiv National University named after V. N. Karazin. «Law» series, 32, 21–26.

25. Project of the Recovery Plan of Ukraine. Materials of the working group «New Agrarian Policy». Retrieved from https://uploads-ssl.webflow.com/625d81ec8313622a52e2f031/62dea34c6639ce60b482c39c_%D0%9D%D0%BE%D0%B2%D0%B0%20%D0%B0%D0%B3%D1%80%D0%B0%D1%80%D0%BD%D0%B0%20%D0%BF%D0%BE%D0%BB%D1%96%D1%82%D0%B8%D0%BA%D0%B0.pdf

26. Pylypenko, K.A. (2016). Directions for ensuring food security through the introduction of biotechnology in agriculture: international experience. Economy and

society, 2, 152–157.

27. Resolution of the Cabinet of Ministers of Ukraine No. 160 “Regarding ensuring the stable work of food producers in the conditions of martial law”. (2022, February). Retrieved from https://zakon.rada.gov.ua/laws/show/160-2022-%D0%BF#Text

28. Resolution of the Cabinet of Ministers of Ukraine No. 179 “On approval of the National Economic Strategy for the period up to 2030”. (2021, March). Retrieved from https://zakon.rada.gov.ua/laws/show/179-2021-%D0%BF#Text

29. Resolution of the Cabinet of Ministers of Ukraine No. 220 “ The issue of providing humanitarian and other aid to the civilian population under martial law in Ukraine”. (2022, March). Retrieved from https://zakon.rada.gov.ua/laws/show/220-2022-%D0%BF#Text.

30. Resolution of the Cabinet of Ministers of Ukraine No. 314 “Some issues of ensuring the conduct of economic activity in the conditions of martial law”. (2022, March). Retrieved from https://zakon.rada.gov.ua/laws/show/314-2022-%D0%BF#Text

31. Resolution of the Cabinet of Ministers of Ukraine No. 650 “On regulation of prices for certain types of food products and ensuring the stable work of food producers in the conditions of martial law”. (2023, June). Retrieved from https://zakon.rada.gov.ua/laws/show/650-2023-%D0%BF#n24

32. Sundram, P. (2023). Food security in ASEAN: progress, challenges and future. Front. Sustain. Food Syst. 7:1260619.

33. Surilova, O.O. (2021). Food security in the conditions of a pandemic. Scientific works of the National University «Odesa Law Academy», 28, 117–123.

34. Urkevich, V.Yu. (2017). Legal issues of environmentalization of agricultural production when using GMOs. From the legal protection of nature of the Ukrainian SSR to the environmental law of Ukraine: coll. theses of the All-Ukrainian science and practice conference, May 26, 2017, Kyiv / organized by: V.V. Nosik, etc.; Kyiv National University named after T. Shevchenko. Chernivtsi: Kondratiev A.V., 66–69.

35. Zavhorodnia, V. (2007). Problems of formation of legal terminology in the sphere of legal support of biological safety. Entrepreneurship, economy and law, 9, 117–120.

36. Zemko, A.M. (2022). Food security in wartime: legal aspect. Food and environmental security in war and post-war times: legal challenges for Ukraine and the world: abstracts of the reports of the participants of the International science and practice online/offline conferences (Kyiv, September 16, 2022). Kyiv: FOP Yamchynskyi O.V., 112–115.