SPECIAL ASPECTS OF STATE SUPERVISION (CONTROL) IN FOOD SAFETY DOMAIN IN KHARKIV REGION UNDER THE CONDITIONS OF WAR WITH THE RUSSIAN FEDERATION

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Abstract. Currently, the system of state control (supervision) in the food safety and veterinary medicine domain ensures the safety of products of animal origin, plant-based food products intended for human consumption, as well as feed for animals. Objects of sanitary supervision can be a source of dangerous factors of chemical, microbiological, and radiological contamination that pose a threat to human and animal health. Taking into account Ukrainian commitments to the international community, Ukraine performs state monitoring of food products and feeds and assesses possible risks. According to the State monitoring Plans for 2022, the Main Administration of the State Service of Ukraine for Food Safety and Consumer Protection in Kharkiv Region carried out planned sampling of animal food and plant-based products, animal feeds and sent samples for chemical-toxicological, microbiological, radiological laboratory tests, to trace residues of veterinary medicines. Under the conditions of military aggression, there was an adaptation to changes to external negative factors taking into account compliance with the requirements of both domestic legislation and international agreements.

Keywords: state control, food products, feeds, state monitoring, safety.

Introduction. By Association Agreement between the European Union and the European Atomic Energy Community and their Member States, of the one part, and Ukraine, of the other part, Ukraine has committed to protecting the life and health of humans and animals, preventing the spread of dangerous infectious diseases within its territory, and responding promptly to outbreaks of dangerous infectious diseases (Order of the Cabinet of Ministers of Ukraine). No 1416-r, 2019).

To resolve the issue of ensuring the proper level of biological safety and protection, Ukraine requires cross-sectoral cooperation and the gradual establishment of a unified biological safety and protection system based on the "One Health" principle. Without the involvement of substantial intellectual and financial resources to implement effective management decisions, and support from the government, local communities, and the international community is impossible (Order of the Cabinet of Ministers of Ukraine, November 27, 2019). No 1416-r, amended, 2019).

The Cabinet of Ministers of Ukraine adopted an order as of November 27, 2019, approving the Strategy for ensuring biological safety and biological protection based on the "One Health" principle for the period until 2025 and the action plan for its implementation (Order of the Cabinet of Ministers of Ukraine, November 27, 2019). No 1416 r, amended, 2019).

One of the key tasks of veterinary medicine in implementing food safety systems is to identify and minimize the threats and risks associated with the uncontrolled use of antibacterial drugs, pesticides, protective chemical substances, radionuclides, and factors related to foodborne toxic infections.

In general, within the scope of issues related to ensuring food safety, it is important to control all farming products, including animal products, taking into account quality and safety indicators (Gadzalo, 2017).

Since 2014, the State Service of Ukraine for Food Safety and Consumer Protection has been implementing the state policy in the domain of veterinary medicine, safety aspects, and specific indicators of the quality of food products and feeds, and the sanitary and epidemiological well-being of the population. It arranges and carries out, within the scope of its legal authorities, state supervision (control) to ensure compliance with safety requirements and specific quality indicators of food products,
compliance with sanitary legislation, the health and well-being of animals (Cabinet of Ministers Order No. 667; amended. 2022).

To promote the export of Ukrainian animal products, especially to the EU countries, and to harmonize the regulatory framework in the veterinary medicine and food safety domains with the EU and WTO requirements, the control of the residual amounts of veterinary medicines (including antibiotics) the annual action plan is introduced that includes: monitoring of the residues of veterinary medicines and residuals thereof in live animals, unprocessed animal food products, and feeds; plant-based food products, fish products, and animal feeds (the Order of the State Committee of Veterinary Medicine of Ukraine No. 577, 2010).

Failure to comply with the requirements of the Council Directive 96/23/EEC of April 29, 1996, on measures to monitor certain substances and residues thereof in live animals and animal products, will fail to meet one of the requirements for Ukrainian products to enter the international market, including the EU. It also constitutes a violation of the provisions of the Association Agreement between Ukraine and the European Union (Ukrainian Law No. 4029-VI, 2011).

The objective of the paper – is to analyze the status of implementing State monitoring in the Kharkiv region in 2022.


The state monitoring is conducted by the competent body to:
1) identify the priority directions of state policy in the domain of food products and feeds, health and well-being of animals;
2) elaborate actions to exclude circulation of dangerous food products and feeds;
3) identify the overall level of contamination of food products and feeds with residues of pesticides, veterinary medicines, and other contaminants (Law of Ukraine No 2042-V III; amended. 2022).

The state monitoring envisages collection, systemic analysis, and assessment of information regarding the safety of food products and feeds, animal health, and well-being, particularly concerning the detection of residues of veterinary medicines, pesticides, and contaminants in food products and feeds, it also includes the creating relevant databases. (Law of Ukraine No 2042-V III; amended 2022).

The procedure for sample taking and their transportation (dispatch) to authorized laboratories for state control is regulated by the Order of the Ministry of Agrarian Policy and Food of Ukraine as of October 11, 2018. No 490 “On approval the Procedure for samples taking and their transportation (dispatch) to authorized laboratories for state control and Form of Sampling Report” (the Order of the Ministry of Agrarian Policy and Food of Ukraine No 490, amended, 2018).

The sampling involves taking two legally and analytically identical samples (except in cases where it is impossible due to insufficient quantity of the samples or because food products are perishable), one of which is sent by the designated authority to an accredited laboratory for the main analysis (testing), and the other is handed over to the food business operator and kept by it in case of conducting a verifying laboratory analysis (testing) (Ukrainian Law No. 2042-VIII; amended 2022).

The samples were taken without prior notification of the food business operator or its authorized representative, as stated in the sampling report, which was prepared in two copies according to the form established by legislation. All copies are to be signed by the official of the State Service of Ukraine for Food Safety and Consumer Protection who has taken the samples, and by the food business operator or its authorized representative who was present during the sampling procedure. One copy of the report remains with the official who has taken the samples and prepared the report, while the second copy is handed over to the food business operator or its authorized representative (Order of the Ministry of Agrarian Policy and Food of Ukraine No. 490; amended. 2018).

The following scientific methods were used in the paper: basic research, analysis and synthesis, generalization, and comparative analysis of statistical data.

Results and discussions. To comply with the order of the State Service of Ukraine for Food Safety and Consumer Protection as of December 10, 2021. No 808 “On approval of the state monitoring plan for residues of veterinary medicines and contaminants in live animals and unprocessed food products of animal origin for the year 2022” as of December 10, 2021 the Main Administration of the
State Service of Ukraine for Food Safety and Consumer Protection in Kharkiv region (hereinafter referred to as the Main Administration) approved the Plan of the state monitoring for residues of veterinary medicines and contaminants in live animals and unprocessed animal food products for the year 2022 in Kharkiv region (http://surl.li/fqhfr).

To assess the overall contamination level of animal-origin food products with residues of pesticides and veterinary medicines, and other contaminants (synthetic steroids, antibacterial substances, anthelmintics, coccidiostats, non-steroidal narcotics, and others) in the Kharkiv region, in 2022, it was planned to take 889 samples for analysis to an authorized laboratory, including: beef (meat, liver, urine) – 86, pork (meat, liver, urine) – 110, poultry (chicken meat, liver) – 553, live fish – 31, milk (cattle) – 56, chicken egg – 37, honey – 16, respectively.

To ensure objectivity impartiality, and compliance with the provisions of international agreements of Ukraine, the sampling, in full scope according to the plan, covers livestock farms located in all administrative-territorial units (districts) of the Kharkiv region.

According to the Law of Ukraine "On Veterinary Medicine," the maximum allowable level of residues of toxic substances and other contaminants in feeds, live animals, and non-edible products of animal origin, the exceeding of which may adversely affect the health of animals and humans, is set by veterinary and sanitary measures or, if such values are not specified in the measures, is set at levels recommended by the respective international organizations (Law of Ukraine No. 2498-XII; amended, 2022).

Most of the husbandries where sampling was planned to be conducted were located in occupied areas or had a status of "especially dangerous areas" (Farming Business Company "Monolit," Izyum district; Agricultural Firm LLC "LAN" Izyum district; LLC "Nova Poultry Farm", Izyum district; "Borki Meat Processing Plant" Private Company Kupiansk district; " Vostok" Agricultural Company, Izyum district; PJSC " Kupiansk Milk Canning Plant", "Nadiya" Private Agricultural Company, Kupiansk district; LLC "Shans" Agricultural Firm, Chuguev district; "Razdolne" Poultry Breeding Private Company, Chuguev district; Agricultural Cooperative on Beef Production, Kupiansk district; PJSC "Slobodzansky" Agricultural Company, Chuguev district; LLC Gagarin Agricultural Company, Chuguev district; State Research Farm "Panteleimonivske", Kupiansk district; LLC "Chervony Partizan", Kupiansk district; LLC "Agroservice LTD", Chuguev district; State "Research Farm Gontarivka", Chuguev district; CJSC "Izium ryba", Izyum district; LLC "Building Service", Chuguev district, and many others), and there were no possibility to conduct sampling. Also, it is necessary to note that in some farms, livestock was killed due to military aggression (for example, in the State Research Farm "Kutuzivka" in Kharkiv district, at least 1800 heads of cattle were killed).

The Main Administration, as the territorial body of the competent authority of the exporting country, ensured the implementation of the Plan with a reduced number of samples, which was confirmed by the Central Office of the State Service of Ukraine for Food Safety and Consumer Protection.

The statistical analysis of the number of samples of various types of products from different districts of Kharkiv region, tested for safety as a part of the state monitoring for the year 2022, is presented in Table 1.

**The number of samples taken to implement the Plan for monitoring residues of pesticides and veterinary medicines, as well as other contaminants, in food produced by animals (with changes).**

<table>
<thead>
<tr>
<th>Sample name</th>
<th>Plan for 2022</th>
<th>Plan for 2022 with changes</th>
<th>Performed</th>
<th>Deviation/plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ / - samples</td>
</tr>
<tr>
<td>Beef</td>
<td>86</td>
<td>8</td>
<td>8</td>
<td>-78</td>
</tr>
<tr>
<td>Pork</td>
<td>110</td>
<td>21</td>
<td>21</td>
<td>-89</td>
</tr>
<tr>
<td>Poultry</td>
<td>553</td>
<td>56</td>
<td>56</td>
<td>-497</td>
</tr>
<tr>
<td>Fish</td>
<td>31</td>
<td>0</td>
<td>0</td>
<td>-31</td>
</tr>
<tr>
<td>Milk</td>
<td>56</td>
<td>8</td>
<td>8</td>
<td>-48</td>
</tr>
<tr>
<td>Eggs</td>
<td>37</td>
<td>3</td>
<td>3</td>
<td>-34</td>
</tr>
</tbody>
</table>
Samples were taken from food market operators who did not interrupt their activities or were located in relatively safe areas.

**To enhance the safety of plant-based food products and meet the public demand for safe food products, the State monitoring of plant-based food products was implemented in 2017. This monitoring has still been carried out according to the approved Plan.**

The specialists of the Main Administration assess the contamination of plant-based food products with chemical (toxic) elements, organophosphorus compounds, chlorogenic compounds, mycotoxins, radionuclides, pyrethroids, and pesticides.

Pesticides, growth stimulants, and mineral fertilizers can contaminate food products when used in agriculture for plant treatment, leading to soil, water, and atmospheric pollution, and can enter the human body. To add products with radionuclides content higher than permissible levels that cannot be consumed and should be taken for industrial processing or deactivation.

According to the approved Plan, samples have been taken at agricultural companies in the Kharkiv region that deal with the cultivation of grain crops (wheat, corn, sunflower, rape plant) and at food market operators involved in the supply of plant-based food products such as vegetables and fruits (beets, carrots, cabbage, potatoes, apples, pears). The samples have been transported to an accredited and authorized testing laboratory for state control – the Kharkiv State Regional Laboratory of the State Service of Ukraine for Food Safety and Consumer Protection. According to the Plan, the plant-based food products samples were supposed to be taken in the (3–4) quarters of 2022 from all administrative-territorial units (districts) of Kharkiv region (table 2).

**Table 2**

<table>
<thead>
<tr>
<th>No</th>
<th>Plant-based food product group</th>
<th>Plan for 2022</th>
<th>Plan for 2022. (with changes)</th>
<th>Deviation/plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Samples total</td>
<td>Samples total</td>
<td>+ / - samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Wheat</td>
<td>40</td>
<td>16</td>
<td>-24 -60</td>
</tr>
<tr>
<td>2</td>
<td>Rapeseed</td>
<td>3</td>
<td>2</td>
<td>-1 -33.3</td>
</tr>
<tr>
<td>3</td>
<td>Corn</td>
<td>27</td>
<td>12</td>
<td>-15 -55.5</td>
</tr>
<tr>
<td>4</td>
<td>Sunflower</td>
<td>28</td>
<td>11</td>
<td>-17 -39.3</td>
</tr>
<tr>
<td>5</td>
<td>Potato</td>
<td>10</td>
<td>2</td>
<td>-8 -20</td>
</tr>
<tr>
<td>6</td>
<td>Cabbage</td>
<td>10</td>
<td>3</td>
<td>-7 -30</td>
</tr>
<tr>
<td>7</td>
<td>Carrot</td>
<td>20</td>
<td>6</td>
<td>-14 -30</td>
</tr>
<tr>
<td>8</td>
<td>Table beet</td>
<td>10</td>
<td>2</td>
<td>-8 -20</td>
</tr>
<tr>
<td>9</td>
<td>Apples</td>
<td>10</td>
<td>2</td>
<td>-8 -20</td>
</tr>
<tr>
<td>10</td>
<td>Pears</td>
<td>8</td>
<td>2</td>
<td>-6 -25</td>
</tr>
</tbody>
</table>

Taking into account the fact that because of the military aggression, it was not possible to take the samples of plant-based food products in the quantity specified in the Plan, the Main Administration ensured the implementation of the Plan with a reduced number of samples, as was agreed with the Central Office of the State Service of Ukraine for Food Safety and Consumer Protection.
The state control over the production and circulation of fish products includes planned and extra inspections of vessels and other facilities to ensure that food market operators comply with hygiene and other legal requirements for the production and circulation of fish products, including their unloading, storage, transportation, and sale (Law of Ukraine No. 2042-VIII; amended, 2022).

Since 2021 and up to the present, the State Consumer Service of Ukraine has implemented and ensured the performance of State monitoring of fish products, namely: chilled/frozen marine fish, including marine aquaculture, smoked fish, canned (preserved) fish, and crustaceans. Laboratory tests for monitoring the food product samples include the following indicators: organoleptic, TVB-N (total volatile basic nitrogen), histamine, mercury, lead, cadmium, tin, benzo(a)pyrene, microbiological, and parasitological.

The Main Administration conducted the sampling of fish products according to approved orders in companies dealing with fish products, retail food market operators, etc.

When exporting (dispatching) fish products from the customs territory of Ukraine to the countries of the European Union, the products have an Official Animal Health Certificate for the export of live fish, live crustaceans, and animal products intended for human food. This is issued by an official – a state veterinary inspector from the Main Administration.

According to the provisions of Section II of the mentioned certificate, the food business operator must provide guarantees regarding live animals and products thereof, if they are of aquaculture origin, as specified in the residue plans submitted by Article 29 of Directive 96/23/EC of the European Council from 1996; then when planning state monitoring, with a focus on companies that export fishery products, including those to European Union countries (EU Council Directive No. 96/23; 1996).

According to the approved State Monitoring Plan of fishery products for 2022 in Kharkiv region, taking into account the specifics of companies and businesses engaged in retail trade, it was planned to take 14 samples of fish and fish products (to test for histamine, mercury, benzo(a)pyrene, microbiological criteria) and 2 samples of canned (preserved) fish (to test for microbiological criteria). Sampling of crustaceans was not planned.

Given the fact that some husbandries, including production companies (exporters), were located in areas affected by military actions or occupied (for example, in the Kupiansk district of Kharkiv region) and/or were not operational during the time of military aggression (some companies were located in the city of Kharkiv), a decision was made to take samples according to the Plan taking into account these changes. The changes in the number of samples did not affect canned (preserved) fish because the company (exporter) is located in a relatively safe area where direct military actions have not been taking place, although it had some damage due to military aggression.

To conduct the state control (state monitoring) tests the Competent authority authorized the State Scientific Research Institute of Laboratory Diagnostics and Veterinary and Sanitary Expertise (Kyiv city).

### Table 3

The number of samples taken for the implementation of the State Monitoring Plan for fish and fish products in the Kharkiv region in 2022 (with changes)

<table>
<thead>
<tr>
<th>Sample name</th>
<th>Plan for 2022</th>
<th>Plan for 2022. (with changes)</th>
<th>Performed</th>
<th>Deviation/plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ / - samples</td>
</tr>
<tr>
<td>Fish and smoked fish products</td>
<td>14</td>
<td>4</td>
<td>4</td>
<td>-10</td>
</tr>
<tr>
<td>Canned (preserved) fish</td>
<td>4</td>
<td>No changes</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

The laboratory research (tests) of the samples were conducted within the timeframes specified by the respective methods (techniques) of research (testing).

According to the obtained results of laboratory tests, one sample of cold-smoked mackerel (patrana) did not meet the
requirements for histamine content (n-9 mg/μg) based on the test results (419.94; 445.74; 438.39; 459.42; 391.65; 428.37; 430.37; 435.28; 437.80) the Order of the Ministry of Health of Ukraine "On Approval of Microbiological Criteria for Establishing Safety Indicators for Food Products" as of July 19, 2012. No 548, which gave the grounded suspicion of non-compliance. Given this fact, an extra state control inspection was supposed to take place to verify the food business operator's compliance with legislation on food products and feeds, animal health, and well-being and compliance of its activities with regarding (the Ministry of Health of Ukraine's Order No. 548, amended, 2012):

1) hygiene;
2) a plan of corrective actions, developed and implemented by the food business operator based on the results of previous inspections;
3) handling incidents related to the safety of food products and/or feed. (Law of Ukraine No 2042-V III; amended 2022).

However, no extra state control inspection was carried out by the resolution of the Cabinet of Ministers of Ukraine as of March 13, 2022, No. 303 "On the suspension of planned and extra state supervision (control) and state supervision of the market for the period of martial law introduced by the Decree of the President of Ukraine as of February 24, 2022. No 64 'On the introduction of martial law in Ukraine,' so measures related to incidents connected with the safety of food products were not implemented (Presidential Decree No. 64, 2022).

Conclusion

The significant difference in the number of samples between different Plans was due to the influence of adverse external factors. The State Service of Ukraine for Food Safety and Consumer Protection's adaptation to the dynamic changes in the socio-economic environment can be considered a factor of the effective management of the Main Administration of the State Service of Ukraine for Food Safety and Consumer Protection in Kharkiv region and the State Service of Ukraine for Food Safety and Consumer Protection as a whole. The effectiveness of ensuring state control (supervision) in the food safety and veterinary medicine domains, even under unstable social and political conditions, allows for maintaining the requirements for the safety and quality of food products and human health through the health and well-being of animals, within the framework of implementing the "One Health" principle.

Further research outlook. The future monitoring action should be aimed at expanding the list of indicators, including the implementation of state policy in the framework of enhancing the food security system based on the "One Health" principle.

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ОСОБЛИВОСТІ РЕАЛІЗАЦІЇ В УМОВАХ ВІЙНИ З РФ ЗАХОДІВ З ДЕРЖАВНОГО КОНТРОЛЮ (НАГЛЯДУ) У СФЕРІ ПРОДОВОЛЬЧОЇ БЕЗПЕКИ В ХАРКІВСЬКІЙ ОБЛАСТІ

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Резюме. На цей час система державного контролю (нагляду) у сфері безпеки харчових продуктів та ветеринарної медицини забезпечує гарантій щодо безпеки продуктів тваринного походження, харчових продуктів рослинного походження, призначених для
споживання людьми, а також кормів для голів тварин. Об’єкти санітарного нагляду можуть бути джерелом небезпечних факторів хімічного, мікробіологічного та радіологічного забруднення, що становить загрозу для здоров’я людини та тварин. Враховуючи міжнародні зобов’язання з боку України, впроваджено державні моніторингові програми щодо харчових продуктів та кормів, які реалізуються на засадах оцінки ризиків. Згідно Планів державного моніторингу на 2022 рік Головним управлінням Держпродспоживслужби України в Харківській області здійснені планові відбори зразків харчових продуктів тваринного та рослинного походження, кормів для тварин та переслані для лабораторних досліджень за хіміко-токсикологічними, мікробіологічними, радіологічними показниками, а також щодо залишків ветеринарних препаратів. За умов військової агресії продемонстрована адаптація до змін зовнішніх негативних факторів і як результат дотримання вимог як вітчизняного законодавства так і міжнародних угод в цілому.

Ключові слова: державний контроль, харчові продукти, корми, державний моніторинг, безпечність.

DOI: 10.31073/onehealthjournal2023-IV-05