

Substantiation of Issues in the Procedural Document on the Appointment of a Multidisciplinary Forensic Examination Concerning Animal Poisoning

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The author intended to identify and substantiate questions addressed in the ruling (of the investigating judge, court) or the resolution (of the investigator, inquiring officer, prosecutor) on the appointment of a multidisciplinary forensic veterinary examination and examination of highly toxic substances when investigating animal poisoning. The dialectical method, methods of formal logic (analysis, synthesis, deduction, induction, analogy, formalization, abstraction, idealization) as well as special methods (comparison, modeling, system-structural, system-functional, comparative-legal, hypothesis building) have been applied to fulfill this goal. A range of issues based on the principles of formal logic, dialectics, system analysis, and modeling has been outlined and can be tentatively grouped into three groups: 1) identification signs and physiological features of a living animal (animal corpse); 2) identifying the poison and establishing ways and means of its entry into the animal's body, the mechanism of poisoning action, determining the degree of the animal's health impairment and the degree of loss of an animal's value as a result of poisoning; 3) establishing a causal link between poisoning and health impairments (poisoning and death) of the animal, clarifying consequences of poisoning (specifically whether the animal was subjected to physical pain and suffering before death).

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The practical value of the research findings consists in that logically systematic and scientifically developed questions may be addressed by the subject of pre-trial investigation or the court in the procedural document on the appointment of a multidisciplinary forensic veterinary examination to obtain the most complete and detailed answers to them in forensic expert conclusions in the shortest possible time.

Keywords: multidisciplinary forensic examination; poisoning; exogenous poisons; procedural document; forensic examination appointment; questions in investigator's ruling or court decision.

Research Problem Formulation

A fast-paced development of veterinary medicine opens up new opportunities for practically applying its achievements, particularly for performing the tasks of forensic veterinary examination (hereinafter referred to as FVE) and related forensic examinations, as well as their reflection in the practice of court proceedings¹. This is due to the fact that FVE is the most advanced and well-developed procedural form of using specific expertise during the investigation of crimes committed against

the health and life of animals, which facilitates the solution of identification, diagnostic, situational tasks and helps to provide a conclusion on issues that are or will be the subject of trial². This forensic examination's significance for court proceedings is that it is a reliable means of proof, and the expert's conclusion is admissible in court³.

The FVE subject is a set of factual data and circumstances of a case (proceedings) associated with damage inflicted on the health and life of animals (especially in case of their poisoning as a form of cruel treatment)⁴. The completeness of forensic

- 1 Stern A. W., McEwen B., McDonough S. P., Viner T., et al. Veterinary forensic pathology standards. *Journal of Forensic Sciences*. 2021. Vol. 66. Is. 3. Pp. 1176. DOI: [10.1111/1556-4029.14683](https://doi.org/10.1111/1556-4029.14683) (date accessed: 01.11.2024).
- 2 Cooper J. E., Cooper M. Veterinary involvement in forensic medicine. *The Veterinary Record*. 2021. Vol. 189. Is. 6. Pp. 249–250. DOI: [10.1002/vetr.1004](https://doi.org/10.1002/vetr.1004) (date accessed: 01.11.2024) ; Lockwood R., Touroo R., Olin J., Dolan E. The Influence of Evidence on Animal Cruelty Prosecution and Case Outcomes: Results of a Survey. *Journal of Forensic Sciences*. 2019. Vol. 64. Is. 6. Pp. 1687–1692. DOI: [10.1111/1556-4029.14085](https://doi.org/10.1111/1556-4029.14085) (date accessed: 01.11.2024).
- 3 Munro R. Viewpoint: Integrity and Limitations of Forensic Veterinary Evidence. *Journal of Comparative Pathology*. 2022. Vol. 199. Pp. 86–87. DOI: [10.1016/j.jcpa.2022.10.003](https://doi.org/10.1016/j.jcpa.2022.10.003) (date accessed: 01.11.2024) ; Yatsenko I. Problems of concluding an expert opinion based on the results of a forensic veterinary examination of a live animal and ways to solve them. *Law. Human. Environment*. 2022. Vol. 13. No. 4. Pp. 71–88. DOI: [10.31548/law2022.04.008](https://doi.org/10.31548/law2022.04.008) (date accessed: 05.11.2024).
- 4 Turkmen Z., Zengin S., Genc M. K., Yayla M. et al. The Role of Forensic Veterinary Toxicology in Pet Custody Cases. *Journal of Analytical Toxicology*. 2023. Vol. 46. Is. 9. Pp. 239–242. DOI: [10.1093/jat/bkac088](https://doi.org/10.1093/jat/bkac088) (date accessed: 05.11.2024) ; Gwaltney-Brant S. M. Veterinary Forensic Toxicology. *Veterinary Pathology*. 2016. Vol. 53. Is. 5. Pp. 1067–1077. DOI: [10.1177/0300985816641994](https://doi.org/10.1177/0300985816641994) (date accessed: 07.11.2024) ; Wilson-Frank Ch. R., Hooser S. B. Investigative Diagnostic Toxicology and the Role of the Veterinarian in Pet Food-Related Outbreaks: An Update. *The Veterinary Clinics of North America. Small Animal Practice*. 2018. Vol. 48. Is. 6. Pp. 909–915. DOI: [10.1016/j.cvs.2018.07.001](https://doi.org/10.1016/j.cvs.2018.07.001) (date accessed: 07.11.2024).

expert examinations, as well as the validity of the expert's conclusion, are fully based on the number of questions raised by the subject of pre-trial investigation or by the court in the procedural document on FVE appointment (ruling, resolution). Therefore, the system of questions addressed to a forensic expert and their justification becomes crucial. Unfortunately, these issues have not been sufficiently resolved to date.

That is why development and substantiation of issues addressed in the ruling (of the investigating judge or court) or resolution (of the prosecutor, investigator, inquiring officer) during a FVE appointment are relevant and possess theoretical and practical value both in jurisprudence and in FVE.

Analysis of Essential Researches and Publications

Ukrainian researchers have already studied animal poisoning: cardiac glycosides (I. Yatsenko et al.⁵), brodifacoum and bromadiolone (R. Kazantsev, I. Yatsenko⁶), isoniazid (H. Kotsiumbas et al.⁷).

Foreign scientists have made a significant contribution to the research of the analyzed issue, which lies in the fact that they have comprehensively studied poisoning as a chemical injury inflicted on animals with the aim of encroaching on their health and life, especially in the case of poisoning of: dogs (K. Bischoff et al.⁸, D. Pivariu et al.⁹, A. F. M. Botelho et al.¹⁰, T. Śniegocki et al.¹¹), cats (A. Chłopaś-

- 5 Яценко І. В., Сердюков Я. К., Якименко Л. П. Судово-ветеринарне встановлення отруєнь тварин препаратами, що містять серцеві глікозиди, за результатами патоморфологічного дослідження. *Ветеринарія, технології тваринництва та природокористування*. 2018. № 2. С. 101–105. DOI: 10.31890/vttp.2018.02.27 (date accessed: 07.11.2024).
- 6 Казанцев Р. Г., Яценко І. В. Алгоритм діагностики фатального отруєння бродячаком котів та ізоніазидом собак: ключові судово-ветеринарні акценти. *Сучасні досягнення та перспективи клінічної лабораторної медицини у діагностиці хвороб людини та тварин* : мат-ли IV наук-практ. міжнар. дистанц. конф. (Харків, 28.03.2024). Харків, 2024. С. 105–107. URL: <https://repo.btu.kharkov.ua/handle/123456789/56696> (date accessed: 07.11.2024) ; Їх же. Судово-ветеринарна діагностика смертельного отруєння собак антикоагулянтним родентицидом — бромадіолоном. *Науковий вісник ветеринарної медицини*. 2022. № 1. С. 120–136. DOI: 10.33245/2310-4902-2022-1-1-120-136 (date accessed: 07.11.2024).
- 7 Коцюмбас Г. І., Данкович Р. С., Врецьона Н. П. Патоморфологія та діагностика отруєння собак ізоніазидом. *Науковий вісник Львівського національного університету ветеринарної медицини та біотехнологій імені С. З. Гіжцького. Серія: Ветеринарні науки*. 2018. Т. 20. № 83. С. 108–114. URL: http://nbuv.gov.ua/UJRN/nvlnuvmbvn_2018_20_83_23 (date accessed: 07.11.2024).
- 8 Bischoff K., Rumbeih W. K. Pet Food Recalls and Pet Food Contaminants in Small Animals: An Update. *The Veterinary Clinics of North America. Small Animal Practice*. 2018. Vol. 48. Is. 6. Pp. 917–931. DOI: 10.1016/j.cvsm.2018.07.005 (date accessed: 08.11.2024).
- 9 Pivariu D., Oros A.-N., Tabaran F., Gal A. et al. Intentional Carbofuran poisoning in 7 dogs. *BMC Veterinary Research*. 2020. Vol. 16. Is. 1. Pp. 318. DOI: 10.1186/s12917-020-02534-w (date accessed: 01.11.2024).
- 10 Botelho A. F. M., Machado A. M. D., da Silva R. H. S., Faria A. C. et al. Fatal metaldehyde poisoning in a dog confirmed by gas chromatography. *Ibid.* Vol. 16. Is. 1. Pp. 139. DOI: 10.1186/s12917-020-02348-w (date accessed: 08.11.2024).
- 11 Śniegocki T., Sell B., Posyniak A. The Usefulness of MS³ to Confirm Poisoning on the Example of Dog Poisoning with Strychnine. *Molecules*. 2019. Vol. 24. Is. 20. Pp. 3765. DOI: 10.3390/molecules24203765 (date accessed: 08.11.2024).

Konowalek et al.¹²), wild animals (I. Valverde et al.¹³, N. Ushine et al.¹⁴), birds (A. Chłopaś-Konowalek et al.¹⁵, K. Nambirajan et al.¹⁶), livestock (C. Zacometti et al.¹⁷, D. G. Ubiali et al.¹⁸, M. J. Clayton et al.¹⁹, A. Bertero et al.²⁰, B. L. Stegelmeier et al.²¹, N. Bates et al.²², M. Machado et al.²³, S. F. Jiang et al.²⁴), poisoning with medicines, house-

- 12 Chłopaś-Konowalek A., Tusiewicz K., Wachelko O. et al. A Case of Amphetamine and Methamphetamine Intoxication in Cat. *Toxics*. 2022. Vol. 10. Is. 12. Pp. 749. DOI: [10.3390/toxics10120749](https://doi.org/10.3390/toxics10120749) (date accessed: 08.11.2024).
- 13 Valverde I., Espín S., Gómez-Ramírez P., Navas I. et al. Wildlife poisoning: a novel scoring system and review of analytical methods for anticoagulant rodenticide determination. *Ecotoxicology*. 2021. Vol. 30. Is. 5. Pp. 767–782. DOI: [10.1007/s10646-021-02411-8](https://doi.org/10.1007/s10646-021-02411-8) (date accessed: 08.11.2024).
- 14 Ushine N., Tanaka A., Hayama Sh.-I. Investigation of causes of death in wildlife using veterinary molecular and wound analysis methods. *The Journal of Veterinary Medical Science*. 2020. Vol. 82. Is. 8. Pp. 1173–1177. DOI: [10.1292/jvms.19-0394](https://doi.org/10.1292/jvms.19-0394) (date accessed: 08.11.2024).
- 15 Chłopaś-Konowalek A., Zawadzki M., Kurach Ł., Wachelko O. et al. Simultaneous poisoning of 48 birds of prey – bendiocarb determination with the use of UHPLC-ESI-MS/MS method in fatal case from Eastern Europe. *Archiwum Medycyny Sadowej i Kryminologii*. 2022. Vol. 72. Is. 2. Pp. 67–80. DOI: [10.4467/16891716AMSIK.22.009.16807](https://doi.org/10.4467/16891716AMSIK.22.009.16807) (date accessed: 08.11.2024).
- 16 Nambirajan K., Muralidharan S., Ashimkumar A. R., Jadhav Sh. Nimesulide poisoning in white-rumped vulture *Gyps bengalensis* in Gujarat, India. *Environmental Science and Pollution Research International*. 2021. Vol. 28. Is. 41. Pp. 57818–57824. DOI: [10.1007/s11356-021-14702-y](https://doi.org/10.1007/s11356-021-14702-y) (date accessed: 08.11.2024).
- 17 Zacometti C., Tata A., Stella R., Leone S. et al. DART-HRMS allows the detection of toxic alkaloids in animal autopsy specimens and guides the selection of confirmatory methods in accidental plant poisoning. *Analytica Chimica Acta*. 2023. Vol. 1264. Art. 341309. DOI: [10.1016/j.aca.2023.341309](https://doi.org/10.1016/j.aca.2023.341309) (date accessed: 11.11.2024).
- 18 Ubiali D. G., Lee S. T., Gardner D. R., Cook D. et al. Cestrum axillare (Solanaceae) poisoning in ruminants. *Toxicon*. 2022. Vol. 218. Pp. 76–82. DOI: [10.1016/j.toxicon.2022.09.005](https://doi.org/10.1016/j.toxicon.2022.09.005) (date accessed: 11.11.2024).
- 19 Clayton M. J., Davis T. Z., Knoppel E. L., Stegelmeier B. L. Hepatotoxic Plants that Poison Livestock. *The Veterinary Clinics of North America. Food Animal Practice*. 2020. Vol. 36. Is. 3. Pp. 715–723. DOI: [10.1016/j.cvfa.2020.08.003](https://doi.org/10.1016/j.cvfa.2020.08.003) (date accessed: 11.11.2024).
- 20 Bertero A., Chiari M., Vitale N., Zanoni M. et al. Types of pesticides involved in domestic and wild animal poisoning in Italy. *The Science of the Total Environment*. 2020. Art. 707:136129. DOI: [10.1016/j.scitotenv.2019.136129](https://doi.org/10.1016/j.scitotenv.2019.136129) (date accessed: 11.11.2024).
- 21 Stegelmeier B. L., Davis T. Z. Range and Pasture Plants Likely to Poison Horses. *The Veterinary Clinics of North America. Equine Practice*. 2024. Vol. 40 Is. 1. Pp. 29–44. DOI: [10.1016/j.cveq.2023.12.002](https://doi.org/10.1016/j.cveq.2023.12.002) (date accessed: 11.11.2024).
- 22 Bates N., Morrison C., Flaig L., Turner A. D. Paralytic shellfish poisoning and palytoxin poisoning in dogs. *Veterinary Record*. 2020. Vol. 187. Is. 7. P. e46. DOI: [10.1136/vr.105686](https://doi.org/10.1136/vr.105686) (date accessed: 01.11.2024).
- 23 Machado M., Queiroz C. R. R., Wilson T. M., Sousa D. E. R. et al. Neurological and gastrointestinal manifestations of spontaneous poisoning by *Ricinus communis* in goats. *Toxicon*. 2022. Vol. 214. Pp. 74–77. DOI: [10.1016/j.toxicon.2022.05.004](https://doi.org/10.1016/j.toxicon.2022.05.004) (date accessed: 11.11.2024).
- 24 Jiang S. F., Zhang Y. T., Sun J. et al. Study on the pharmacokinetics of bromadiolone in oral poisoning rabbits. *Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi*. 2020. Vol. 38. Is. 6. Pp. 444–446. DOI: [10.3760/cma.j.cn121094-20190927-00395](https://doi.org/10.3760/cma.j.cn121094-20190927-00395) (date accessed: 11.11.2024).

hold products, and pesticides (*M. T. Quail* et al.²⁵, *A. Bertero* et al.²⁶), and also substantiated and proposed approaches to the identification, collection, and preservation of veterinary forensic evidence at the scene (*R. Touroo* et al.²⁷), methods of forensic analytical detection of poisons in various objects, specifically of animal origin (*A. R. Fukushima* et al.²⁸, *F. Galloccchio* et al.²⁹, *S. Schweikle*³⁰, *K. O. Seljetun*³¹, *J. P. Buchweitz*³²) for practical use.

However, a clear system of questions that can be addressed in a ruling (of the investigating judge, court) or resolution (investigator, inquiring officer, prosecutor) on the appointment of a multidisciplinary forensic examination in the case of animal poisoning investigation has not been developed in scientific studies to date. Thus, their importance to the expert's conclusion and the court testifying to the

relevance and novelty of our scientific research has not been highlighted.

Article Purpose

Identify and substantiate questions raised in the ruling (of the investigating judge, court) or resolution (investigator, inquiring officer, prosecutor) on the appointment of a multidisciplinary forensic examination in the animal poisoning investigation case, and demonstrate their significance for drawing up the expert's conclusion and for the court.

Research Methods

The author employs the dialectical method, methods of formal logic (analysis,

- 25 Quail M. Th. Rising abuse of veterinary drugs. *Nursing*. 2022. Vol. 52 Is. 11. Pp. 34–37. DOI: [10.1097/01.NURSE.0000872420.88590.68](https://doi.org/10.1097/01.NURSE.0000872420.88590.68) (date accessed: 11.11.2024).
- 26 Bertero A., Rivolta M., Davanzo F., Caloni F. Suspected environmental poisoning by drugs, household products and pesticides in domestic animals. *Environmental Toxicology and Pharmacology*. 2020. Art. 80:103471. DOI: [10.1016/j.etap.2020.103471](https://doi.org/10.1016/j.etap.2020.103471) (date accessed: 01.11.2024).
- 27 Touroo R., Fitch A. Identification, Collection, and Preservation of Veterinary Forensic Evidence: On Scene and During the Postmortem Examination. *Veterinary Pathology*. 2016. Vol. 53. Is. 5. Pp. 880–887. DOI: [10.1177/0300985816641175](https://doi.org/10.1177/0300985816641175) (date accessed: 11.11.2024).
- 28 Fukushima A. R., Peña-Muñoz J. W., Leoni L. A. B., Nicoletti M. A., et al. Development, Optimization, and Validation of Forensic Analytical Method for Quantification of Anticholinesterase Pesticides in Biological Matrices from Suspected Cases of Animal Poisoning. *Toxics*. 2022. Vol. 10. Is. 5. P. 269. DOI: [10.3390/toxics10050269](https://doi.org/10.3390/toxics10050269) (date accessed: 11.11.2024).
- 29 Galloccchio F., Moressa A., Stella R., Rosin R., et al. Fast and simultaneous analysis of carbamate pesticides and anticoagulant rodenticides used in suspected cases of animal poisoning. *Forensic Science International*. 2021. Art. 323:110810. DOI: [10.1016/j.forsciint.2021.110810](https://doi.org/10.1016/j.forsciint.2021.110810) (date accessed: 11.11.2024).
- 30 Schweikle S., Häser A., Wetters S., Raisin M., et al. DNA barcoding as new diagnostic tool to lethal plant poisoning in herbivorous mammals. *PLoS One*. 2023. Vol. 18. Is. 11. DOI: [10.1371/journal.pone.0292275](https://doi.org/10.1371/journal.pone.0292275) (date accessed: 11.11.2024).
- 31 Seljetun K. O., Eliassen E., Karinen R., Moe L., Vindenes V. Quantitative method for analysis of six anticoagulant rodenticides in faeces, applied in a case with repeated samples from a dog. *Acta Veterinaria Scandinavica*. 2018. Vol. 60. Is. 1. P. 3. DOI: [10.1186/s13028-018-0357-9](https://doi.org/10.1186/s13028-018-0357-9) (date accessed: 11.11.2024).
- 32 Buchweitz J. P., Johnson M., Wixson M., Puschner B. Quantitation of Methamphetamine and Amphetamine in Postmortem Canine Tissues and Fluids. *Journal of Analytical Toxicology*. 2021. Vol. 46. Is. 2. Pp. e92–e96. DOI: [10.1093/jat/bkab043](https://doi.org/10.1093/jat/bkab043) (date accessed: 12.11.2024).

synthesis, deduction, induction, analogy, formalization, abstraction, idealization), and special methods (comparison, modeling, system-structural, system-functional, comparative legal, hypothesis building).

The relationship between these scientific cognition methods has contributed to a comprehensive analysis, substantiation of theoretical conclusions, and the development of practical guidelines.

The empirical basis of the study is the analysis of experts' conclusions drawn from the findings of the forensic veterinary examination of animal cruelty conducted between 2010 and 2024 at the Bureau of Forensic Veterinary Research of Kharkiv State Zooveterinary Academy (currently, *the State Biotechnological University*) and National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» of the Ministry of Justice of Ukraine.

Main Content Presentation

The personal forensic experience of the author of this research paper in this field from 2010 to 2024 forms the basis for the development of questions that can be addressed in the procedural document on the appointment of a forensic veterinary examination (decision, ruling) in the case of animal poisoning suspicion. A range of issues based on the principles of formal logic, dialectics, system analysis, and modeling has been outlined and can be tentatively grouped into three groups: 1) identification signs and physiological features of a living animal (animal corpse); 2) identifying the poison and establishing ways and means of its entry into the animal's body, the mechanism of poisoning action, determining the degree of the animal's health impairment and the degree of loss of an animal's usefulness as a result of

poisoning; 3) establishing a causal link between poisoning and health impairments (poisoning and death) of the animal, clarifying consequences of poisoning (specifically whether the animal was subjected to physical pain and suffering before death). The suggested list of questions can be used to draw up a resolution (of the prosecutor, investigator, inquiring officer) or ruling (of the investigating judge, court) on the appointment of a multidisciplinary forensic examination in the animal poisoning investigation case:

1. To what species and class does an animal (animal carcass) submitted for research purposes belong? Is the animal a vertebrate?
2. What is the sex and age of the animal provided for research? What are its physiological features?
3. What clinical signs in a living animal or pathomorphological changes in an animal's carcass were detected during a forensic veterinary examination?
4. What health complications did the animal have and are these complications fatal?
5. What is the severity of harm inflicted on the animal's health?
6. What is the cause of death of an animal whose carcass was submitted for research? If the animal died due to poisoning, which poison resulted in death? (*Note.* a multidisciplinary forensic examination addresses the 6th question. For example: forensic veterinary examination and examination of highly toxic substances).
7. Did poison enter the animal's body intravitaly or postmortem?
8. How exactly did the poison enter the animal's body and in what form? Is animal poisoning related to feed and water consumption?

9. Is poisoning dangerous to the animal's life, and if so, what is the reason for this danger?
10. Did the veterinary care provided to the animal have defects that caused its poisoning?
11. Do the substances found in an animal's carcass (in the body of a living animal) and in external environment objects (feed and water consumed by an animal) have a common generic (group) affiliation?
12. Has the poisoning prevented an animal from being used for general economic or special purposes and, if so, for how long (*specify the period*)?
13. Did an animal's poisoning result in its mutilations?
14. Is an animal's poisoning in a causal link with the animal's health impairment or death?
15. Did poisoning cause an animal's physical pain and suffering before death?

We also deem it appropriate to supplement our proposed list of questions with clause 9.3 of Section IX *Forensic veterinary examination* of the Scientific and Methodological Recommendations on the Preparation and Appointment of Forensic Examinations and Expert Studies³³.

Let's examine these issues more carefully and justify their importance for the resolution of forensic expert tasks, the court, and law enforcement agencies.

1. To what species and class does an animal (animal carcass) submitted

for research purposes belong? Is the animal a vertebrate?

The *animal* definition varies in Ukrainian legislation and in specialized scientific literature. Since poisoning can refer to different animals, we will provide the relevant definitions set forth in Part 1 of Article 1 of the Law of Ukraine *On the Protection of Animals from Brutal Treatment* — *animals* are biological entities belonging to the following types of fauna: agricultural (farm animals), domestic, wild including domestic and wild birds, fur-bearing, laboratory, and animals in zoos and circuses (cl. 2); *wild animals* are animals whose natural habitat is in the wild, including those in captivity and semicaptivity (cl. 3); *domestic animals* are dogs, cats and other animals which by long tradition are kept and bred by man, and also animals belonging to species or breeds artificially raised by man for fulfilment of his/her aesthetic or companionship needs (cl. 4); *agricultural animals* are animals kept and bred by man in order to obtain products and raw materials of animal origin (cl. 5); *homeless animals* are domestic animals abandoned by humans or living in semi-free groups, able to reproduce outside man's control (cl. 6); *experimental animals* are animals used in the conduct of scientific experiments (cl. 7)³⁴.

At the same time, the Law of Ukraine *On Veterinary Medicine* states that animals are mammals, poultry, wild birds, bees, insects, fish, crustaceans, mollusks, frogs, amphibians, and reptiles³⁵.

33 Науково-методичні рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень : затв. наказ. Мін'юсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 08.11.2024).

34 Про захист тварин URL: <https://zakon.rada.gov.ua/laws/show/3447-15#Text> (date accessed: 01.11.2024).

35 Про ветеринарну медицину : Закон України від 04.02.2021 р. № 1206-IX (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/1206-20#Text> (date accessed: 01.11.2024).

The Criminal Code of Ukraine envisages criminal liability for animal cruelty exclusively in relation to vertebrates (Article 299)³⁶. In systematic zoological taxonomy, vertebrates are several classes of animals: fish, amphibians, reptiles, birds, and mammals.

Therefore, domestic, wild, agricultural, laboratory, exotic, zoo, and circus vertebrate animals can be the offense object, regardless of their living conditions, level of productivity, welfare facility, purpose of use, age, sex, ownership of them, etc.

As outlined in Article 299 of the Criminal Code of Ukraine³⁷, a forensic expert (based on the results of a forensic veterinary examination) should establish that the living animal under examination or the examined animal carcass belongs to vertebrates³⁸ so that law enforcement agencies can classify actions against an animal as cruelty.

2. What is the sex and age of the animal provided for research? What are its physiological features?

As specified in Article 299 of the Criminal Code of Ukraine, criminal liability is imposed for animal cruelty, while Article 89 of the Code of Ukraine on Administrative Offenses establishes administrative liability for the same offense³⁹. What is more, certain signs of cruelty to animals (regarding the crippled; the elderly; newborns [in birds: flightless]; pregnant animals; sick, lame, with serious injuries [unable to move independently]; certain signs related to the cruel treatment of animals with

genetic developmental defects; as well as those who are in a state of stress, freezing, suffering from hunger, thirst, etc.; during the period of breeding and rearing offspring, etc.) may be qualified as aggravating circumstances by the court in the course of trial.

3. What clinical signs in a living animal or pathomorphological changes in an animal's carcass were detected during a forensic veterinary examination?

Poisoning can be *fulminant*, *acute*, *subacute*, or *chronic*. Fulminant and acute forms usually occur in the event of a single ingestion of a toxic or lethal dose of poison, progress rapidly, and are fatal without any clinical or pathological signs (e.g., cyanide poisoning).

Acute poisoning is characterized by loss of visual and auditory reflexes, convulsions, colic, excessive sweating, repeated vomiting, paresis and paralysis, cardiovascular and respiratory failure, asphyxiation (death of animals occurs within 24–48 hours).

However, most poisonings develop some time after the poison has entered the animal's body, depending on the nature of the poison and the rate at which it is absorbed into the bloodstream. Such poisonings occur in stages, lasting from several hours to a day.

Subacute poisoning results from a single dose of poison, but develops slowly over 1–3 weeks due to the intake of a smaller dose of poison, slow absorption, or excretion from the body. During

36 Кримінальний кодекс України від 05.04.2001 р. № 2341-III (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 01.11.2024).

37 Там само.

38 Там само.

39 Кодекс України про адміністративні правопорушення від 07.12.1984 р. № 8073-X (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/80731-10#Text> (date accessed: 01.11.2024).

subacute poisoning, the animal exhibits morphofunctional changes in individual internal organs.

Chronic poisoning involves repeated ingestion of low-toxic amounts of poison over a long period of time. Clinical signs appear gradually, sometimes becoming atypical. The animal dies within a few weeks or even months in this case.

Clinical signs of poisoning depend on the type of toxic substances that enter the animal's body. Poisoning by lead, nitrates, phenol compounds, poisonous plants containing alkaloids and essential oils causes disturbances in the function of the central nervous system; by organophosphate pesticides results in narrowing of the pupils, salivation, heavy breathing, slowing of the heart rate, increased peristalsis.

It is worth pointing out that the duration of poisoning and the severity of clinical and pathomorphological signs in the body of a poisoned animal are strongly influenced by: 1) poison characteristics (its physical condition [state of matter], chemical properties, amount [the same dose can be indifferent, therapeutic, toxic or lethal], and concentration in liquid or air; the rate of administration [slow or intensive]; nature of the related substance [in an insoluble mixture, the related substance is able to neutralize or weaken the effect of a poison, and vice versa, in a rapidly soluble mixture, the effect of the poison is enhanced or the related substance accelerates the absorption process]; interaction of poisons in the case of their sequential or simultaneous administration [synergism or antagonism], the nature of transformation in the body); 2) peculiarities of the animal's body (health condition associated with impaired detoxification and excretory functions of the body; hypersensitivity [causes more severe poisoning and death even from subtoxic doses];

presence of concomitant diseases; age; body weight; sex [in certain cases]; routes of entering the body; ways of excretion [elimination] from the body [through the kidneys, lungs, liver, mucous membranes, tonsils]; addiction to a particular chemical, the nature of stomach contents and the degree of its filling; the body's ability to resist; individual genetically determined intolerance; drug allergic reaction; addiction to poisons; conducted medical procedures [active detoxification, symptomatic therapy, etc.] etc.).

Organoleptic evaluation of the smell of the stomach contents during a forensic autopsy of an animal's carcass is important (the smell of garlic indicates poisoning with zinc phosphide; bitter almonds: hydrocyanic acid; vinegar: acetic acid; phenol: carbolic acid vapor; etc.) to recognize poisoning.

The color of the mucous membranes of the gastrointestinal tract is also of diagnostic value: yellow is characteristic of poisoning with nitric and picric acids, as well as chromium salts; blue or green: copper salts; gray-black: lead, gray-white: phenol (carbolic acid). In the gastrointestinal tract, it is possible to detect the remains of grains or crystals of toxic compounds (e.g., copper sulfate crystals). Poison can change the blood color: carbon monoxide – to bright red, nitrates and nitrites – to chocolate.

Intoxication with caustic poisons is characterized by inflammatory and necrotic changes in the mucous membrane of the digestive organs (tongue, pharynx, esophagus, small intestine), the formation of hematin in the blood (due to poisoning with acetic acid, acid salts, caustic alkalis), carboxyhemoglobin (as result of carbon monoxide poisoning), methemoglobin (for nitrate and nitrite poisoning). Additionally, individual particles of undigested

plant objects (leaves, berries, tubers, etc.) that resulted in poisoning can be found in the gastrointestinal tract; brown alkaline masses with flaps of exfoliated mucous membrane (for poisoning by caustic poisons, in particular alkalis).

Pathomorphological changes in the body of a poisoned animal manifested as hemorrhages in internal organs may be caused by poisons that increase vascular permeability (arsenic, phosphorus, etc.).

4. What health complications did the animal have and are these complications fatal?

Animal poisoning is a chemical damage causing reversible or irreversible health impairment, mutilation, or death of an animal. It disrupts the anatomical integrity, structure, and/or function of organs and tissues.

An animal's health impairment is any violation of the normal functioning of the body, a permanent violation of the habitual mode of existence (way of life), the inability to use it for specific (general economic or special) purposes and/or its incapability to exist independently in the environment, or the development of a disease process directly related to the damage inflicted on its health.

Health complications are secondary abnormal conditions that occur after poisoning and are causally linked to it. Therefore, complications are a consequence of the poisoning itself, its complications, or the severity of competing, combined, background, and concomitant pathologies

(shock, collapse, acute blood loss, acute multiorgan failure; hypoxia; secondary disorders of intra-organ blood circulation; critical reduction of capillary blood flow; hemolysis of erythrocytes, etc.).

Complications of animal health from poisoning are fatal in the case of severe bodily injuries that, at the time of infliction or after a certain period, lead to the development of pathological processes threatening to the body's normal functioning and result (may result) in death. In this scenario, a forensic expert must identify a direct causal relationship between the poisoning and an animal's death.

Another type of animal health complication caused by poisoning may be its mutilation. It is easier to study it using the Methods of forensic veterinary examination of animals for the purpose of establishing their mutilation⁴⁰.

5. What is the severity of harm inflicted on the animal's health?

The severity of the harm inflicted on an animal's health is determined exclusively by a forensic expert certified in expert specialty 18.1 *Veterinary Research*. It is done to assess damage of various natures, in particular chemical, during a forensic veterinary examination of a living animal (animal carcass) in compliance with the *Rules for forensic veterinary determination of the degree of severity of damage caused to the animal's health (methodological recommendations)*⁴¹ (hereinafter referred to as *the Rules*).

Harm caused to an animal's health consists of temporary or persistent im-

40 Яценко І. В., Парилівський О. І., Казанцев Р. Г. Методика судово-ветеринарного дослідження тварин з метою встановлення їх каліцтва. Харків, 2021. 50 с. Реєстр. код 18.1.01 / Реєстр методик проведення судових експертиз : офіц. сайт. URL: <https://rmpse.minjust.gov.ua/search> (date accessed: 01.11.2024).

41 Яценко І. В., Парилівський О. І. Правила судово-ветеринарного визначення ступеня тяжкості шкоди, заподіяної здоров'ю тварини (методичні рекомендації). Харків, 2022. 47 с.

pairment of organ functions, body systems and/or body parts, as a result of injury (trauma), disease, a pathological condition that has limited the main manifestations of vital activity in an animal compared to other animals of the same species, as well as disfigured the appearance of an animal due to deformation of body parts and/or their physical absence.

Bodily injury (trauma) is harm to health resulting in temporary or permanent impairment, disability or death, caused by traumatic factors of the external environment (especially chemical: poisons) and manifested by a violation of the anatomical integrity, structure, and function of tissues, organs, or parts of the body.

There are three degrees of damage severity, which differ in specific formalized signs: *severe* (danger to life at the time of causing harm; loss of any organ or part of the body or loss of functions by an organ or part of the body; disfigurement [distortion] of the exterior; traumatic abortion); *moderately severe* (no signs of serious injury; long-term health impairment and loss of ability to perform useful work for 21 days or longer); *minor* (transient consequences without health impairment lasting no more than 6 days; short-term health impairments and short-term loss of ability to do useful work for 6–21 days).

6. What is the cause of death of an animal whose carcass was submitted for research? If the animal died due to poisoning, which poison resulted in death? (Note. A multidisciplinary forensic examination addresses the 6th question. For example: forensic veterinary examination and examination of highly toxic substances).

Determining the cause of an animal's death in case of suspected poisoning is

arguably the most crucial and complex issue for both forensic experts and law enforcement agencies (for a reasonable qualification of the committed offense). Adequate determination of the cause of an animal's death is strongly associated with an objectively established forensic veterinary diagnosis based on a set of signs: clinical manifestations (symptoms), pathomorphological signs, chemical and toxicological detection of poison in the body (taking into account the analysis of data from case files of criminal proceedings: minutes of scene inspection and interrogation of witnesses, etc.).

The forensic veterinarian should note that the cause of an animal's death is the main damage (poisoning by exogenous poisons, as they cause chemical damage) or its complications. *The main injury* is a certain nosological form (e.g., poisoning with organophosphate pesticides). *Complications of poisoning* are pathological processes that are a consequence of the main damage (poisoning) and are etiologically and pathogenetically related to it, leading directly or through complications of the main damage (poisoning) to the death of an animal. Complications may be a leading factor in the pathogenesis of poisoning and can be decisive for the animal's death (e.g., poisoning of an animal against the background of diabetes mellitus, or anemia, or acute multi-organ failure, etc.).

Related pathological conditions are etiologically unrelated to poisoning and its complications (e.g., poisoning on the background of traumatic reticulopericarditis). Related pathology can develop and appear both before and after the animal is poisoned.

As a direct cause of death in poisoning, morphological changes in organs leading to the development of irreversible functional disorders and the inability to

continue living must be considered (e.g., fatal poisoning by exogenous poisons, or complications of non-fatal poisonings, such as: pancreonecrosis, critical blood loss due to poisoning with anticoagulant rodenticides, in particular, bromadiolone).

In the event of deliberate or negligent poisoning of an animal (to determine if poisoning is the cause), multidisciplinary forensic veterinary examination and examination of highly toxic substances are appointed. Within the framework of these examinations, a forensic expert, based on specific veterinary expertise: 1) analyzes veterinary documents submitted for a forensic examination (e.g., an extract from the animal's medical record); 2) outlines clinical signs of the course of poisoning by direct examination of an animal under examination; 3) conducts a forensic-veterinary autopsy of an animal's carcass under examination; and the forensic expert in the study of potent and poisonous substances (relying on his/her specific expertise) detects poison in the blood or internal organs (e.g., a certain insecticide, pesticide, etc., and determines its concentration if necessary and possible).

The synthesis of the specific expertise of these two forensic experts within the framework of a multidisciplinary forensic examination enables to make a forensic veterinary diagnosis in an objective and reasoned manner and to establish the cause of an animal's death associated with poisoning as well as a causal link between the entry of the detected poison into the body and the onset of death (if the object under study is the carcass) or the development of a painful (pathological) process, which is *poisoning* (if the object under study is a living animal).

Accordingly, multidisciplinary forensic veterinary examination and examination of highly toxic substances should

determine the main damage (poisoning by exogenous poisons), complications of poisoning, concomitant, background, competing, and combined pathologies that collectively will define the cause of an animal's death.

7. Did poison enter the animal's body intravitality or postmortem?

Elucidation of intravitality or post-mortality of poison entering the body is essential for determining the nature of a crime by the investigation subject, and for forensic experts: to address the question regarding the cause of death or health impairment in an animal. The answer of forensic experts to this question outlines the following actions of the pre-trial investigation subject: opening criminal proceedings or refusing to initiate them.

Postmortem ingestion of any substances into the body may require veterinary resuscitation immediately after the animal's biological death, or may mask a graver crime with poisoning.

Common signs of an animal's intravital poisoning are the reaction of functioning organs or tissues: the circulatory system under the influence of certain poisons reacts by increasing the porosity of blood vessel walls (massive hemorrhages into body cavities, tissues, or organ cavities, blood seepage into the parenchymal organs with its subsequent clotting and, as a result, the development of general exsanguination); hemorrhages under the endocardium; myocardial weakness; overflow of coronary vessels with blood; disappearance of the transverse striation of the myocardial myofibrils; multiple areas of necrosis; dystrophic phenomena.

The respiratory system reacts to intravital poisoning by gaseous toxins with congestive hyperemia, oedema, accumulation

of soot on the mucous membranes of the nasal cavity, pharynx, larynx, trachea, and bronchi when the animal inhales carbon monoxide and combustion products (vomit may be found in the respiratory system as a result of aspiration of the latter).

During the animal's life, digestive organs react to the poison with redness or cyanosis; acute serous-catarrhal, hemorrhagic, croupous diphtheric, or diphtheric-necrotic inflammation of the mucous membranes; hemorrhages and erosions in the gastrointestinal canal; plethora of solid organs and dystrophic changes in them; hemorrhages on the serous membranes; a specific odor of the contents of the stomach and intestines (in case of poisoning with zinc phosphide: garlic); yellowing of mucous membranes (occurs in lupinosis); inflammatory and necrotic changes in the mucous membranes of the alimentary canal organs (due to poisoning with destructive poisons).

Central nervous system organs react to the poison with brain hyperemia, swelling of the brain's pea matter and grey matter, softening of certain areas of the latter.

Blood reacts to poisons by changing its color (to brownish-brown [chocolate] in case of poisoning with nitrates and nitrites); rheological properties; carboxy-hemoglobin content (in case of carbon monoxide poisoning).

Urinary organs respond to poison with dystrophic and necrotic changes in the kidneys, torsion of the nephron tubules, hemorrhages in the bladder's walls.

Ultimately, a significant response of the body, indicating the intravital poisoning, is numerous dystrophic, necrotic foci, as well as signs of inflammation, accompanied by reactive infiltration of leukocytes and plasma cells, perivascular edema.

If poison is injected into the animal postmortem, it can be detected only in lo-

calized sites of injection, together with traces of injections or infusions, especially in atypical areas of an animal's body; also, as a response of the animal's body to the poison, cellular and vascular inflammatory reactions, dystrophic and necrotic phenomena will not be observed.

***8. How exactly did the poison enter the animal's body and in what form?
Is animal poisoning related to feed and water consumption?***

The intensity of the poison's action depends on the route of its entry into the body: through the mouth, rectum, nose, intact skin, vagina, parenterally (subcutaneously, intramuscularly, intravenously, intraperitoneally, etc.).

The typical way in which toxins enter an animal's body is through the mouth, with feed and water, which are absorbed into the bloodstream in the stomach and small intestine, then through the portal vein to the liver, where they are partially decontaminated. Instead, poisons injected through the rectum (intrarectally) and vagina (intravaginally) enter overall circulation, bypassing the liver barrier, and therefore having a greater toxic effect at the same dose.

Poisons enter the bloodstream rapidly and almost unchanged in the form of solutions when administered parenterally and as gases and vapors when inhaled through the respiratory system. The intensity of the percutaneous penetration of poisons depends on the area and duration of their contact with the skin and their ability to dissolve in fats.

When administering parenterally, emphasis should be made on pinpoint puncture wounds on the animal's skin caused by the injection of a syringe needle. At the same time, it is essential to exclude such traces if an animal has been under veterinary care. The time of their formation and

the coincidence with the onset of animal poisoning must also be taken into account.

Poisons can be absorbed by the animal's body as powder (poisons for the control of mouse-like rodents, rats: ecocide C, zinc phosphide, etc.), pills (isoniazid, rifampicin, granules for the control of mice and rodents [iRex], etc.), pastes (paste Bros, etc.), solution (pesticides, rodenticides, and corrosive poisons such as sodium hydroxide, potassium hydroxide, ammonium hydroxide, hydrogen peroxide, potassium permanganate, hydrochloric acid, nitric acid, acetic acid, oxalic acid, sulfuric acid, and carbolic acid (and its derivatives: lysol, cresol, tricresol). They can also enter the body as gases, such as carbon monoxide, carbon dioxide, hydrogen sulfide, carbolic acid vapors, etc.

9. Is poisoning dangerous to the animal's life, and if so, what is the reason for this danger?

A lot of poisons that enter into an animal's body are life-threatening and can result in substantial health impairments or death of an animal. As set forth in subclause 2.5.33 of *the Rules*, life-threatening conditions to the animal are those in which functions of organs, organ systems, and the body as a whole cannot recover on their own and require intensive care (toxic coma and shock; collapse; blood loss [more than 30% of the total volume]); acute cardiovascular and respiratory, kidney and liver failure; pulmonary edema; "shock lung" syndrome; paralysis of respiratory muscles; acute hemocoagulation syndrome; severe intoxications with general toxic poisons without local chemical damage phenomena; acute pancreatic necrosis, etc.)⁴².

Veterinary care which has saved the animal's life should not be considered

when assessing the threat to life of such injuries, however, the life-threatening condition of an animal that develops during the clinical course of injuries, regardless of the time that has passed since its occurrence, is in a direct causal link with it: this should be confirmed by objective clinical studies.

In the absence of life-threatening phenomena for an animal, the severity of the harm caused by an animal's poisoning should be assessed after the injury.

10. Did the veterinary care provided to the animal have defects that caused its poisoning?

Malpractice in veterinary care is the inadequate performance of diagnostic, therapeutic, resuscitation, rehabilitation, and other procedures by a veterinary worker, poor organization and implementation of preventive measures related to inadequate performance or failure of a veterinary worker to perform his or her professional duties, which resulted in negative consequences for an animal in the form of health impairment (illness, injury, mutilation, etc.) or death. Animal poisoning can be the result of defects in veterinary care provision: due to errors in the dosage of veterinary drugs (concentrations, methods, and frequency of their administration), disregard for requirements and warnings of instructions adopted for their use (regarding youngsters, the pregnant, individual and species sensitivity and/or intolerance, combining with other means, possible side effects, etc.). Given the above conditions, veterinary medicines can result in toxic effects: poisoning. Inadequate provision of veterinary care may take place due to a combination of accidental circumstances (accident), professional errors of veterinary workers, unlawful vete-

rietary activities, professional crime, or misconduct.

When carrying out a forensic examination, defects in the provision of veterinary care are established based on the methodology developed by the author of this article⁴³.

Resolving this issue in the expert's conclusion will help the subject of pre-trial investigation and court identify the cause of an animal's poisoning. One of such causes may be improper provision of veterinary care.

11. Do the substances found in an animal's carcass (in the body of a living animal) and in external environment objects (feed and water consumed by an animal) have a common generic (group) affiliation?

To address this issue, results of a chemical-toxicological study of the biomaterial removed from an animal's carcass (entrails and biological fluids of the body [blood, urine, feces, bile, milk, vomit, contents of the gastrointestinal tract, etc.]) and feed and water consumed by the animal on the eve of poisoning or death and removed directly from the feeder should be analyzed. If the same poison is detected in the animal's body and in the consumed feed or water, it is stated that the death or health impairment was caused by the identified poison.

Analysis of chemical-toxicological study results of the substance found in open ampoules, vials, syringes left at the scene, and in the biological material obtained from an animal (animal carcass), will provide a basis for confirming or refuting the identity of the poison found in ampoules,

vials, syringes, etc., and in the animal's body, as well as for clarifying the method (route) of its administration (during diagnostic and therapeutic measures or with the aim of causing harm to the health and life of an animal: this is resolved by the pre-trial investigation subject).

12. Has the poisoning prevented an animal from being used for general economic or special purposes and, if so, for how long (specify the period)?

Losing the ability to use an animal for overall economic or special purposes is real in the event of a health impairment, injury, or an animal's death.

As envisaged in *the Rules*, overall economic use of an animal should be viewed as its ability to perform useful work through the consolidation of a set of skills necessary for a person, at the level of the animal's conditioned reflexes (for the purpose of, for example, searching for physical objects, protection under certain circumstances, guarding facilities, participation in sports and entertainment events, etc.; cll. 1.16 and 1.17)⁴⁴.

Useful is an animal's work bringing maximum benefit to a person. In terms of duration, the animal's health impairment (when it is unable to perform useful work) can be *temporary* (insignificant transitory consequences lasting no more than 6 days); *short-term* (6–21 days); *long* (more than 21 days)⁴⁵. In this regard, there are three degrees of severity of harm deliberately inflicted on an animal's health, including poisoning: severe, moderately severe, and minor (for more details, see *question 5*).

43 Яценко І. Методика проведення судово-ветеринарної експертизи з метою визначення дефектів ветеринарної допомоги. *Теорія та практика судової експертизи і криміналістики*. 2023. Вип. 4 (33). С. 57–86. DOI: 10.32353/khrife.4.2023.05 (date accessed: 01.11.2024).

44 Яценко І. В., Парилівський О. І. Зазнач. твір.

45 Там само.

The importance of resolving this issue lies in the fact that the conclusion of a forensic veterinarian on the loss of the ability to use an animal in economically useful work for a certain period of time may become a valid basis for demanding compensation for material damages for the time (determined by a forensic veterinarian) when an animal did not work due to health impairment in court.

13. Did an animal's poisoning result in its mutilations?

Article 299 of the Criminal Code of Ukraine stipulates criminal liability for cruelty to animals, specifically if the animal has been mutilated⁴⁶. Various poisons can lead to severe impairments and complications in the functioning of an animal's body, hence the loss of health, complete or partial functional loss of any organ, which will lead to physical disabilities, including mutilation.

In view of the above, limitation of an animal's vital activity in relation to its overall economic use should be understood as the reduced ability to perform useful unskilled work, however, limitation of an animal's vital activity with regard to special use must be interpreted as the ability to perform useful qualified, specialized work, i.e., for carrying out which it is necessary to purposefully develop and consolidate the set of service skills needed for a man.

The degree of limitation of an animal's vital activity is the amount of deviation from its normal vital activity. It is characterized by one or a combination of its most important criteria. In forensic veterinary

practice, there are three degrees of limiting an animal's vital activity: *moderately severe* (III degree), *severe* (II degree), and *considerable* (I degree).

The fact of animal mutilation is established solely by a forensic veterinarian in accordance with the methodology developed by the author of this article along with co-authors⁴⁷. Forensic veterinary examination of poisoned animal carcasses to determine its mutilation is performed in the same way as the research on living animals.

14. Is an animal's poisoning in a causal link with the animal's health impairment or death?

The poisoning of animals as objects of criminal protection may be classified as cruelty by law enforcement authorities or a court: a crime with a material component under Article 299 of the Criminal Code of Ukraine⁴⁸. In this case, there is a need to objectively determine a causal link between poisoning (cause) and consequence (illness, mutilation, or death of an animal), when the cause conditions these consequences exceptionally stemming from the results of multidisciplinary forensic veterinary examination and examination of highly toxic substances. Let's point out that such a reason is self-sufficient and does not need any additional conditions, except for committing a dangerous act.

Forensic experts must trace a causal link between the poisoning and death of an animal. The presence of poison in the body does not mean that the animal died from poison: poison may be detected in the

46 Кримінальний кодекс URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 01.11.2024).

47 Яценко І. В., Париловський О. І., Казанцев Р. Г. Зазнач. твір.

48 Кримінальний кодекс URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 01.11.2024).

body, but in a concentration that would not have led to the animal's death.

When poison is present in the body, death can occur for another reason (e.g., from the rupture of an aortic aneurysm due to excessive strain: in this case, there is no direct causal link between the poisoning [the presence of poison in the body] and death of an animal).

In this connection, it is not enough to detect the fact of the presence or absence of poison in the body: it is also essential to take into account clinical signs and patho-anatomical changes occurring at a certain time in the course of poisoning.

Dangerous effects of an animal's health impairments or death inflicted due to poisoning are intangible harm caused to it that has no physical units of measurement: such damage is determined by the criteria of intangible (moral) nature. Since the nature of the consequences of an animal's poisoning (health impairment, injury, or death) affects the severity of harm caused to its health⁴⁹, then such a crime is punishable under Art. 299 of the Criminal Code of Ukraine⁵⁰ in accordance with the degree of its public danger.

As is it is known, there is a distinction between *direct* and *indirect* causal link. If research results confirm *the direct causal link* between an animal's poisoning and the impairment of its health or death, a forensic veterinarian must draw up *a categorical conclusion*. However, for the subject of pre-trial investigation or court, such confirmation in the expert's conclusion is only the first stage, which brings closer the conviction of the guilty party of the crime

mentioned in Article 299 of the Criminal Code of Ukraine⁵¹, leading him/her to face legal responsibility. What is more, the subject of pretrial investigation subject or court must prove the subjective side of such a crime, i.e., the person's guilt manifested as intent or carelessness regarding the consequences that occurred.

15. Did poisoning cause an animal physical pain and suffering before death?

Forensic veterinary medicine singles out several groups of poisons (depending on the nature of their effects on organs and tissues): caustic (highly acidic or alkaline chemicals) which might result in severe chemical burns of the digestive tract (symptoms: pain [especially when swallowing], coughing, shortness of breath, and vomiting); destructive (causing necrotic and dystrophic changes in the liver, kidneys, heart, and brain); leading to blood hemoglobin and resulting in asphyxiation. Therefore, poisons cause physical pain and suffering to an animal. In this regard, *physical pain* is a condition of an animal manifested as suffering caused by physical or chemical effects on its body (specifically poisons).

Suffering is a combination of intense suffering or unpleasant feelings experienced by a living being, when it endures physical and/or psycho-emotional discomfort, pain, stress, or excruciating pain. This term covers a variety of conditions and situations that can vary substantially depending on the peculiarities of the impact of certain factors on the body. Inflicting severe

49 Яценко І. В. Теоретико-гносеологічна конструкція феномену ступеня тяжкості шкоди, заподіяної здоров'ю тварини, в судово-ветеринарній експертизі. *Форум права*. 2023. Вип. 75. № 2. С. 65—88. DOI: 10.5281/zenodo.7699531 (date accessed: 01.11.2024).

50 Кримінальний кодекс URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 01.11.2024).

51 Там само.

and prolonged suffering on an animal that leads to health impairments, mutilation, chronic stress⁵², or death indicates that the offender lacks any compassion for the animal, especially if he/she enjoys observing its pain and suffering.

Actions resulting in pain and suffering to an animal include: long-term deprivation of food, drink, heat, keeping in conditions hazardous to health, excessive exploitation, etc.⁵³. We deem it appropriate to use the 'psycho-emotional suffering' term rather than 'moral suffering' when talking about animals. Unfortunately, to date, forensic veterinary medicine has not defined certain components of the category and conceptual apparatus (in particular, the duration and extent of pain). Researchers have also not reached a consensus on the ability of animals to experience suffering when exposed to various negative external factors. According to zoopsychologists, animals are able to feel pain and react emotionally to a certain situation (since they have a well-developed nervous system and higher nervous activity). However, a great number of issues are currently at the level of scientific discussion⁵⁴. A clinical forensic examination (of stress hormones, the structure of adrenal glands, discirculatory changes in organs,

etc.) will help to interpret them in each specific expert case.

The degree of physical pain and suffering are proportionately dependent on clinical condition of the poisoned animal, and is also affected by the degree of its pain and suffering from the inflicted poisoning: in case of severe poisoning, they are very strong or unbearable; they are moderate, minor, and extremely minor in case of moderately severe or minor poisoning.

A forensic veterinarian's conclusion on the infliction of injuries, physical pain, and suffering to an animal (in particular, immediately before its death) is of value since it enables to accurately qualify the 'cruelty to animals' offense: if an animal has been injured, mutilated, or died, such acts are qualified by law enforcement agencies or the court as a crime defined by Article 299 of the Criminal Code of Ukraine⁵⁵; if an animal's suffering was not accompanied by bodily harm, mutilation, or its death, such actions with the animal are qualified as an administrative offense envisaged in Art. 89 of the Labor Code of Ukraine⁵⁶.

Conclusions

Relying on the principles of dialectic, formal logic, system analysis, and mode-

52 Camps T., Amat M., Manteca X. A Review of Medical Conditions and Behavioral Problems in Dogs and Cats. *Animals (Basel)*. 2019. Vol. 9. Is. 12. Art. 1133. DOI: [10.3390/ani9121133](https://doi.org/10.3390/ani9121133) (date accessed: 01.11.2024); Kooriyama T., Ogata N. Salivary stress markers in dogs: Potential markers of acute stress. *Research in Veterinary Science*. 2021. Vol. 141. Pp. 48–55. DOI: [10.1016/j.rvsc.2021.10.009](https://doi.org/10.1016/j.rvsc.2021.10.009) (date accessed: 01.11.2024).

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56 Кодекс ... про адміністративні правопорушення URL: <https://zakon.rada.gov.ua/laws/show/80731-10#Text> (date accessed: 01.11.2024).

ling, the author has developed, justified, and formulated a system of questions that can be addressed to a medical examiner in a resolution (by a prosecutor, investigator, inquiring officer) or ruling (by an investigating judge, court) on the appointment of forensic examination of animals in case of poisoning by exogenous poisons, which, in turn, will contribute to the efficiency and effectiveness of forensic examination, and the provision of a well-grounded and objective conclusion in a categorical form. It would be expedient to supplement the Scientific and Methodological Recommendations on the Preparation and Appointment of Forensic Examinations and Expert Studies with this system of questions.

All the issues addressed in the procedural document on forensic examination appointment (specifically in animal poisoning case) can be conditionally grouped into three groups: 1) identification signs and physiological features of a living animal (animal corpse); 2) identifying the poison and establishing ways and means of its entry into the animal's body, the mechanism of poisoning action, determining the degree of the animal's health impairment and the degree of loss of an animal's value as a result of poisoning; 3) establishing a causal link between poisoning and health impairments (poisoning and death) of the animal, clarifying consequences of poisoning (specifically whether the animal was subjected to physical pain and suffering before death).

**Обґрунтування питань
у процесуальному документі
про призначення комплексної
судової експертизи
щодо отруєння тварин**

Іван Яценко

Мета статті — виокремити й обґрунтувати питання, які ставлять в ухвалі

(слідчого судді, суду) або постанові (слідчого, дізнавача, прокурора) про призначення комплексної судової ветеринарної та з дослідження сильнодіючих і отруйних речовин експертизи в разі розслідування отруєння тварин. Для досягнення поставленої мети застосовано діалектичний метод та методи формальної логіки (аналіз, синтез, дедукція, індукція, аналогія, формалізація, абстрагування, ідеалізація) і спеціальні методи (порівняння, моделювання, системно-структурний, системно-функціональний, порівняльно-правовий, побудова гіпотез). Окреслено коло питань, які ґрунтуються на принципах формальної логіки, діалектики, системного аналізу й моделювання та які можна умовно об'єднати у три групи: 1) розпізнавальні ознаки й фізіологічні особливості живої тварини (трупа тварини); 2) виявлення отрути та визначення шляхів і способів її потрапляння до організму тварини, механізму дії отрути, з'ясування ступеня розладу здоров'я тварини та ступеня втрати можливості використовувати тварину внаслідок її отруєння; 3) визначення причиново-наслідкового зв'язку між отруєнням і розладом здоров'я (отруєнням і смертю) тварини, з'ясування наслідків отруєння (зокрема, чи завдано тварині перед смертю фізичного болю та страждань). Практичне значення здобутих результатів дослідження полягає в тому, що логічно систематизовані й науково сформульовані питання суб'єкт досудового розслідування або суд можуть поставити в процесуальному документі про призначення комплексної експертизи з метою отримати найбільш повні й обґрунтовані відповіді на них у висновку експертів у найбільш оптимальний строк.

Ключові слова: комплексна судова експертиза; отруєння; екзогенні отрути; процесуальний документ; призначення судової експертизи; питання в постанові слідчого або ухвалі суду.

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Declaration of Competing Interest

Author declare no conflict of interest.

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