the conditions in which animals are kept on farms and want more information about the level of animal welfare.

References

1. Blokhuis, H.J., Keeling, L.J., Gavinelli, A., & Serratosa, J. (2008). Animal welfare's impact on the food chain. *Trends in Food Science & Technology*, 19, S79-S87. https://doi.org/10.1016/j.tifs.2008.09.007.
2. Clark, B., Stewart, G.B., Panzone, L.A., Kyriazakis, I., & Frewer L.J. (2017) Citizens, consumers and farm animal welfare: A meta-analysis of willingness-to-pay studies. *Food Policy*, 68, 112-127. https://doi.org/10.1016/j.foodpol.2017.01.006.
3. Eurobarometer (2016). Attitudes of Europeans towards animal welfare. In: *Special Eurobarometer 442 Wave EB*; European Commission: Brussels, Belgium, Available online: https://europa.eu/eurobarometer/surveys/detail/2096 (accessed on 13 January 2020).
4. Fonseca, R. P., & Sanchez-Sabate, R. (2022). Consumers' Attitudes towards Animal Suffering: A Systematic Review on Awareness, Willingness and Dietary Change. *International journal of environmental research and public health*, 19(23), 16372. https://doi.org/10.3390/ijerph192316372.
5. Goldberg A.M. (2016). Farm Animal Welfare and Human Health. *Current environmental health reports*, 3(3), 313–321. https://doi.org/10.1007/s40572-016-0097-9.
6. Blokhuis, H.J., Keeling, L.J., Gavinelli, A., Serratosa, J. (2008). Animal welfare's impact on the food chain. *Trends in Food Science & Technology*, 19(1), 79-87. https://doi.org/10.1016/j.tifs.2008.09.007.
7. Kjaernes, U., Miele, M., & Roex, J. (2007) Attitudes of Consumers, Retailers and Producers to Farm Animal Welfare Welfare Quality®, Reports No. 2, Cardiff University.
8. McKendree, M.G., Croney, C.C., & Widmar, N.J. (2014). Effects of demographic factors and information sources on United States consumer perceptions of animal welfare. *Journal of animal science*, 92(7), 3161–3173. https://doi.org/10.2527/jas.2014-6874.
9. Spooner, J.M., Schuppli, C.A., Fraser, D. (2014). Attitudes of Canadian pig producers toward animal welfare. *Journal of Agricultural and Environmental Ethics*, 27(4), 569-589.
10. Wolf, C. A., Tonsor, G. T., McKendree, M. G. S., Thomson, D. U., & Swanson, J. C. (2016). Public and farmer perceptions of dairy cattle welfare in the United States. *Journal of dairy science*, 99(7), 5892–5903. https://doi.org/10.3168/jds.2015-10619.

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ACCUMULATION OF MYCOTOXINS IN THE BODIES OF AQUATIC ANIMALS AS A RESULT OF WATER POLLUTION

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Keywords: *mycotoxins, aquatic animals, water pollution*

Introduction. The harmful effects of mycotoxins on aquatic organisms can have serious consequences for their health and viability. The main problems associated with mycotoxins in aquatic environments include toxicity and adverse organ effects, as mycotoxins can affect the organs of aquatic organisms, such as the liver, kidneys and nervous system, leading to functional disorders by altering the biochemical status of these organs [4]. Molluscs, in particular, are often used as biomarkers of environmental purity because it is known that toxic substances can alter indicators of oxidative stress in these organisms [6]. In addition, mycotoxins can suppress the

immune system of animals, making them more susceptible to viruses, bacteria and other pathogens. This can lead to increased susceptibility to disease in aquatic organisms and a decrease in their viability, along with changes in physiological and morphological indicators [3]. Another risk factor is the effect on reproduction - mycotoxins can have a negative effect on the reproductive system, resulting in a reduction in reproduction rates or even affecting the survival and development of juvenile fish and other aquatic organisms [1].

Materials and methods. The accumulation of mycotoxin T2 in the tissues and organs of common carp [5], induced by an elevated level of T2 toxin in the aquatic environment at twice the maximum permissible concentration (MPC), was studied.

Results and Discussion. It is known that fish can accumulate mycotoxins in their tissues, especially in the liver and muscles. This can pose a threat to humans who consume such fish, as mycotoxins can be passed up the food chain. In summary, mycotoxins in water can pose a serious threat to aquatic life, affecting their health, development and reproductive function. These toxins can also affect the aquatic ecosystem and become a problem for fish consumers [4].

The possibility of mycotoxins in freshwater fish feed is due to several factors. The most important of these are feed ingredients (fish feeds contain mycotoxin-contaminated raw materials, such as cereals or oilseeds, which can lead to contamination of the feed itself), improper storage conditions (improper storage of feeds leads to the creation of favourable conditions for the growth of fungi and the production of mycotoxins), water contamination and processes such as biotransformation. If fish receive contaminated feed, they can accumulate mycotoxins in their bodies), water contamination and processes such as biotransformation can also affect the concentration of mycotoxins in the fish body. Some fish species are able to metabolise mycotoxins, producing new compounds that may be less toxic or, conversely, more toxic. he results of the research carried out show that there is no accumulation of the substance in question in the white muscle of carp, but the biochemical changes observed require a more detailed study of this issue, in particular the dependence of the accumulation of mycotoxin T2 on the method of exposure of the animal, the use of other methods of determining toxins, etc.

Conclusions. It should be noted that quality control of feed, its proper storage and screening of contaminated raw materials can help to avoid contamination of freshwater fish with mycotoxins. It is also important to consider the environment in which the fish are kept and to take measures to reduce water contamination with these toxins.

References

1. Желай, М., Ячна, М., Мехед, О., & Третяк, О. (2023). Адаптивні зміни іхтіологічних показників коропових риб за дії мікотоксину Т2. *Природні ресурси прикордонних територій в умовах зміни клімату:* VII Міжнародна наукова конференція, програма, тези доповідей (Україна, Чернігів, 27–29 вересня 2023 р.). Чернігів: Десна-Поліграф. – С. 77-78.

2. Ніколаєнко, Т.М., Іващенко, М.О., Іващенко, Н.В, & Мехед, О.Б. (2023) Біохімічні показники крові лабораторних тварин за дії мікотоксину Т2. *"Vin Smart Eco"*. Збірник матеріалів ІІІ Міжнародної науково-практичної конференції. Вінниця: КЗВО "Вінницька академія безперервної освіти". – С. 276-277.
3. Полотнянко Л.В., & Мехед О.Б. (2023). Зміни біохімічних показників в тканинах коропа лускатого (*Cyprinus carpio* L.) під дією мікотоксину Т-2. *Актуальні проблеми дослідження довкілля*: Матеріали X Міжнародної наукової конференції. Суми: Сумський державний педагогічний університет імені А. С. Макаренка. – С. 205-207.
4. Полотнянко Л., & Мехед О. (2023). Накопичення мікотоксинів у м'язах коропа лускатого (*Cyprinus carpio* Linnaeus, 1758) при згодовуванні корму, контамінованого Т2-токсином. *Природні ресурси прикордонних територій в умовах зміни клімату:* VII Міжнародна наукова конференція, програма, тези доповідей (Україна, Чернігів, 27–29 вересня 2023 р.). Чернігів: Десна-Поліграф. – С. 105-106.
5. *Скринінг-метод одночасного виявлення афлатоксину В1, патуліну, стеригматоцистину, Т-2 токсину, зеараленону тавомітоксину в різних кормах*. Затв. Держдепартам. вет. мед. Мін. АПК України 09.04.1996 р.
6. Тюпова, Т., Ткаченко, Г., Мехед, О., & Кургалюк, Н. (2023). Відповіді на оксидаційний стрес у наземних молюсків як біомаркери для оцінки впливу токсикантів. ВНТ: *Biota, Human, Technology*, (1), 41-51.

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POLYMORPHISM OF *ESR1*, *PRLR*, AND *VRTN* GENES IN THE MYRHOROD PIG BREED

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Keywords: *Myrhorod pig breed, vertnin, prolactin receptor, estrogen receptor 1, polymorphism*

Introduction. Pork occupies an important place among other meats in the food industry. The economic efficiency of pig production depends not only on the fattening and meat qualities of the pigs, but also on their reproduction, which is influenced by the approaches used in breeding. An important stage in determining the success of selective breeding is the evaluation of the animals, typically using indicators of their own productivity and the productivity of their progeny [1]. Based on the results of such an evaluation, conclusions are drawn about the productive potential of an individual animal and its prospects for use in the herd. However, the information provided by this traditional method is neither accurate nor complete, and the evaluation process is time-consuming and influenced by paratypical factors.

The selection process in pig breeding can be much more effective if, in addition to traditional approaches, molecular genetic marking of individual animals using Quantitative Trait Loci (QTL) is used to evaluate the genotypes of animals and their subsequent selection. This approach is based on the use of a number of genetic markers for which significant associations with specific reproductive, fattening and