INSPECTION OF MEAT PRODUCTS AND IMPROVEMENT OF CONTROL AT THE SLAUGHTERHOUSE

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Abstract: Assortment of finished products of meat is quite large in the food market of Uzbekistan, but these products quality are varying. Today quality control of meat and meat products is very important in slaughterhouses in terms of safety. An assessment of meat quality the focuses on meat organoleptic characteristics, which identifies the most characteristic features of a particular type of meat for the consumers. Meat inspection practice and inspection process differentiates due to research and the development of control measures. In the article are described solution of problems which implementing methods of improving of a meat inspection in slaughterhouses.

Keywords: Meat inspection, slaughterhouse, pesticides, zoonosis, meat product, pathogenic bacteria, viruses, parasites.

1. Introduction

Food security is one of the main goals of the agrarian and economic policy of the Uzbekistan. In 2022, the country population expecting enrich 35 million and the main growth in urban areas. It is well known that enhance of stimules an increase of demand for high-quality protein, and among candidates, food in basket of consumer undoubtedly includes meat and meat products.

In recent years, in the country increased the consumption of meat and meat products. The level of self-sufficiency or production for certain types of meat in Uzbekistan were: beef - 70%, lamp - 40%, poultry - 30%. Also, the share of local meat production for consumption about 70% meets in the country, which concludes that Uzbekistan is depends on the import of meat products [10].

To meet the needs of these populations, we will have to reorganize production systems and the distribution of food and some of the changes will bring potential problems to food safety and nutritional quality. Food-borne diseases are a major problem around the world, both in regards to human suffering and with respect to economic costs [6].

The paper analyses on solving basic systemic problems of veterinary and sanitary examination and control over the safety of products of animal origin. A

particularly focuses to importance, impact of food security to ensuring the health of the population of Uzbekistan, food and economic security of the country [5].

2. Materials and Methods

Increase in the production rates and volumes of output of the meat industry requires improvement of existing and development of new production processes, which ensure efficient use of raw material resources, increase in the output and improvement in the product quality [11].

Internationally, meat inspection procedures are guiding through international food standards by the Food and Agriculture Organization and World Health Organization(WHO) jointly meat inspection guidelines has two main objectives:

- to make sure, before slaughtering of animals, a separate abnormal one from healthy, physiologically normal animals; and,

- to ensure that animals meat is free from a disease, is wholesome and carries no risk to human health.

As a result of large-scale reforms in the livestock sector in recent years, significant works have done to provide additional income by increasing the number of livestock in dehkan (household) and private farms, especially family subsistence farms to provide food a sufficiency requirements of people [4].

In particular, if paying to attention to the normative documents adopted by government, over the past fifteen years, the production of food products, ensuring the quality and safety of meat and meat products. The main focus increases a supply of meat production by business companies, provide a high quality leather raw materials to tanneries and enhance a regulation of the activities of slaughterhouses. (Table 1)

Table 1. Policy chronical of the quality and safety of meat and meat products in Uzbekistan

№	№ & date of the document	Main content
1	President's resolution RUz PR №-483, 30/08/1997 y	Establishing a legal framework to provide for population a high quality and safety food.
2	President's resolution RUz №545, 26/12/1997 y	Protecting and using wildlife, preserving the diversity of animals and the integrity of their herds in a state of natural freedom.

3	UzR Cabinet of Ministries resolution № 36, 22/01/2018 y	Further increase the potential of processing livestock products of the country, conducting inspections of the slaughter before human's consumption, the implementation of a system of standardization and certification of meat and meat products.
4	President's decree RUz PR № 5696, 28/03/2019 y	Ensuring a sustainable increase in the number of livestock and poultry in the country, strengthening veterinary control and improving the quality of veterinary services, effective organization of animal health protection, ensuring epizootic peace and food security.
5	UzR Cabinet of Ministries resolution № 386,8/05/2019 y	Regulation of the activities of specialized slaughterhouses and supplying consumer market with meat and meat products and implementing a system of veterinary sanitary expertise of meat, fish, eggs, milk and dairy products.
6	UzR State Sanitary and Epidemiological Service № 0366-19, 27/06/2019 y.	Hygienic standards of food safety of the Republic of Uzbekistan, Ensuring compliance of sanitary rules, norms and hygiene standards of juridical person and individual entrepreneurs engaged in production , transportation, storage and sale of food and raw materials of food .

3. Improving meat inspection in slaughterhouses

A primary responsibility of National Veterinary Service (NVS) a develop ante and post-mortem meat inspection guidelines. Wherever possible, inspection procedures should be designed according to a risk-based approach and management systems should reflect international norms [8]. The national competent authority (Cabinet of Ministries RUz) should also provide an appropriate institutional environment for Veterinary Services (NVS) to develop such policies and measures [7].

The guidelines of NVS requires to use the Meat Factory Cell (MFC) approach, which provides smaller carcass parts and targeted risk based investigation at meat inspection that make opportunities for future objective sensing and diagnosis. We assume that a meat inspection can be significantly improved and made more relevant by adoption, adaptation and development of present and future inline technologies on objective sensing and diagnostic tools [9].

The meat inspection should keep on prioritizing assessment of food chain information, ante mortem inspection, diagnosing, verification and removal of pathological changes, monitoring and control of zoonosis and zoonotic agents, sampling for the National Residue Plans, and detection of notifiable animal diseases on the OIE (The World Organization for Animal Health) list[1]. Types of hazards that may be present in meat products include chemicals, biological agents' pathogenic bacteria, viruses and parasites as well as [12]. The quality and safety of meat and meat products are best maintained by an integrated preventive approach throughout all segments of the meat sector, including producers, processors, retailers, food service, as well as consumers.

In case of Uzbekistan slaughterhouses are following national and international guidelines, that veterinarian inspection specialists checking animal's health, a taking a blood from animal and providing laboratory analysis. A blood analysis against to brucellosis, and in negative cases are allowing to slaughter the animal. However, subsistence family farms for domestic consumption not always follows these guidelines at remote rural areas, although they using traditional 'eye' and 'touch' checking before slaughtering at home.

The aim of meat inspection is to provide safe and wholesome meat for human consumption. Meat inspection, meat hygiene and official control tasks in the slaughterhouse have always been of major importance in the meat industry, and are intimately related with animal diseases and animal welfare. Various factors influence the quality and safety of meat including public health hazards (zoonotic pathogens, infectious diseases, pesticides, chemical substances and veterinary drugs), animal health and welfare issues during transportation and slaughter.

Summary

In Uzbekistan, enrich to healthy meat products for consumption, should be organized a regularly trainings for inspection specialists, implementing modern best practices for monitoring and using express sample tests for meat quality control. As mentioned to enrich international sanitary inspection standards the country has to monitor existing all legislative norms and modernize its for current conditions, improve infrastructure of inspection laboratories, and capacity building of specialists is also key point. These measures provides a meat products safety and quality for consumption toward domestic and international markets.

[1] http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2018/

References

1. Decree of the President of the Republic of Uzbekistan dated March 28, 2019 № PF-5696 "On measures to radically improve the public administration system in the field of veterinary medicine and livestock"www.lex.uz
2. Law of the President of the Republic of Uzbekistan "On quality and safety of food products" dated August 30, 1997 № 483-I. www.lex.uz
3. Law of the President of the Republic of Uzbekistan "On protection and use of wildlife" dated December 26, 1997 № 545-I.www.lex.uz.
4. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan. “On measures to further improve the system for streamlining the activities of specialized enterprises for slaughtering livestock and delivering meat and meat products to the consumer market” May 8, 2019, № 386. https://lex.uz/docs/4327600
5. Resolution cabinet of ministers of the Republic of Uzbekistan. On adoption of the general technical regulation on safety of meat and meat products. Tashkent, January 22, 2018, № 36 https://lex.uz/docs/3516470
6. Begoña Panea, Guillermo Ripoll. Quality and Safety of Meat Products. Foods 2018/ www.mdpi.com/journal/foods.
7. J. B. Wintle and B. W. Kenzie. In the absence of a risk-based approach, inspection measures are prescribed according to long-standing practice: see Appendix I. Copyright Unit. 2001.
8. OIE Animal Production Food Safety Working Group. “Role and functionality of veterinary services in meat hygiene throughout the food chain”. 71st General Session of the OIE. 2003.
9. Ole Alvseike, Miguel Prieto, Kristin Torkveen, Cecilie Ruud, Truls Nesbakken. Meat inspection and hygiene in a Meat Factory Cell - An alternative concept. Food Control 90 (2018) 35-36.
10. Samatova G. Influence of refrigeration on the quality and safety of raw materials / Journal of zoo veterinary. 2016. -№1.17-19.
11. S. Murodov, S. Xoliqov, A. Xudoyberganov. Physicochemical changes in the structural structure of beef. Article. Science and education in the modern world: challenges of the XXI century. Nur-sultan, Kazakhstan, December 2019. Pp 7-11.
12. T. Ninios, J. Lundén, H. Korkeala, M. Fredriksson-Ahomaa. Meat inspection and control in the slaughterhouse. John Wiley & Sons (2014).
13. Elmuradovich, A. O. (2022, January). BACTERIAL DAMAGE TO CARCASSES AND INTERNAL ORGANS IN CATTLE ECHINOCOCCOSIS. In Archive of Conferences (pp. 15-18).
14. Ачилов, О., & Гуиди, А. (2021). QUALITY AND SAFETY OF SHEEP MEAT INFECTED WITH ECHINOCOCCOSIS IN THE UZBEKISTAN. Вестник Ветеринарии и Животноводства, 1(1).
15. Бойсинова, Н. Б., Ачилов, О. Э., & Исхакова, М. (2021). Обеспечение безопасности говядины в условиях продовольственного рынка Самарканда. Бойсинова, НБ Обеспечение безопасности говядины в условиях продовольственного рынка Самарканда/НБ Бойсинова, ОЭ Ачилов, М. Исхакова//Ветеринарная медицина в XXI веке: роль биотехнологий и цифровых технологий: материалы Международной научно-практической

конференции студентов, магистрантов и молодых ученых (г. Витебск, г. Самарканд, 2 февраля 2021 г.)/Витебская государственная академия ветеринарной медицины, Самаркандский институт ветеринарной медицины.-Витебск: ВГАВМ, 2021.-С. 194-197..
16. Ачилов, О. Э., Ибрагимов, Ф. Б., & Абдурахманова, Н. Ш. (2021). Качество мяса при эхинококкозе баранины.
17. Achilov, O., Ibragimov, F., Boysinova, N., & Abdurakhmanova, N. (2021). Impact of echinococcosis on beef quality in Uzbekistan. ACADEMICIA: An International Multidisciplinary Research Journal, 11(5), 260-268.
18. Achilov, O., Hasanov, S., & Yulchiev, J. (2020). IMPROVING MEAT INSPECTION AND CONTROL ON THE SLAUGHTERHOUSE IN UZBEKISTAN. Financed by the Erasmus+ programme of the European Union The conclusions and view expressed herein are those of the authors and do not necessarily reflect an official view of the European Commission.
19. Ачилов, О. Э. (2018). ПАТОЛОГИЧЕСКИЕ ИЗМЕНЕНИЯ ПРИ ЭХИНОКОККОЗЕ КРУПНОГО РОГАТОГО СКОТА В САМАРКАНДЕ. ГЛОБАЛЬНАЯ НАУКА И ИННОВАЦИЯ 2021: ЦЕНТРАЛЬНАЯ АЗИЯ.
20. Дилмуродов, Н., & Мухторов, Э. (2021). ТУРЛИ ЯШАШ ШАРОИТИДАГИ ҲИСОРИ ЗОТЛИ ҚЎЙЛАР ПОСТНАТАЛ ОНТОГЕНЕЗИДА ОЁҚЛАР ПРОКСИМАЛ МУСКУЛЛАРИНИНГ МОРФОМЕТРИК ХУСУСИЯТЛАРИ. Вестник Ветеринарии и Животноводства, 1(1).
21. Жуков, А. И., Юнусов, Х. Б., Джаббаров, Ш. А., Федотов, Д. Н., Даминов, А. С., & Кучинский, М. П. (2020). Морфологическое проявление патологических процессов в органах животных.
22. Захаров, С. Л., & Юнусов, Х. Б. (2009). Бароэлектрохимические процессы и аппараты на мембранах различной пористости.
23. Кононенко, Л. В., Самбурова, Е. В., & Юнусов, Х. Б. (2018). Метапредметность: опыт, реализуемый в жизни. Химия в школе, (5), 50-54.
24. Zakharov, S. L., Yunusov, K. B., & Levin, S. N. (2016). Material for protection of oil products against evaporation. Chemical and Petroleum Engineering, 52(1), 69-70.
25. Юнусов, Х. Б., & Лялина, И. Ю. (2016). Современные риски и особенности экологической и биологической безопасности. In Актуальные проблемы биологической и химической экологии (pp. 315-322).
26. Беляева, А. В., Юнусов, Х. Б., & Лялина, И. Ю. (2016). Распространенность кариеса у студентов и его профилактика. In Актуальные проблемы биологической и химической экологии (pp. 192-196).
27. Солтанов, С. Х., & Юнусов, Х. Б. (2016). Деградация окружающей среды вследствие утечки технической жидкости «SkyKem» при наземном обслуживании воздушных судов гражданской авиации. Географическая среда и живые системы, (1), 64-69.
28. ЮНУСОВА, Т., Лётова, К. К., & ЮНУСОВ, Х. (2015). Экологические проблемы окружающей среды и правовые основы работы с экологически

опасными веществами и отходами. In Проблемы экологии Московской области (pp. 72-74).
29. Юнусов, Х. Б., Захаров, С. Л., Зверев, О. М., Солтанов, С. Х., & Кривошея, И. В. (2015). УЛУЧШЕНИЕ ЭКОЛОГИЧЕСКИХ ПАРАМЕТРОВ СТОЧНЫХ ВОД НА ТЕКСТИЛЬНОМ ПРЕДПРИЯТИИ. In Нетрадиционные природные ресурсы, инновационные технологии и продукты (pp. 13-17).
30. Юнусов, Х. Б. (2008). Совершенствование технологии электрохимической очистки воды от растворенных органических веществ. Успехи в химии и химической технологии, 22(10 (90)), 58-60.
31. Yunusov, B. K., & Nosov, M. P. (1983). Methodological Bases for Measurement and Calculations of Damping of Ultrasonic Energy in Fibres.
32. Urdushev, K., Yunusov, K., & Eshankulov, S. (2021). Analysis of the Current State of the Economy of Fruit and Vegetable Clusters in Uzbekistan. International Journal of Multicultural and Multireligious Understanding, 8(5), 321-329.
33. Федотов, Д. Н., Юнусов, Х. Б., & Ковалев, К. Д. (2021). Экологические и морфологические аспекты мониторинга органов гомеостатического обеспечения у енотовидной собаки в зоне отчуждения Чернобыльской АЭС.
34. Юнусов, Х. Б., & Силушкин, С. А. (2019). Гематологические и биохимические показатели крови кур-несушек при использовании в рационе настоя из лекарственных растений. In Актуальные проблемы биологической и химической экологии (pp. 79-84).
35. Кривошея, И. В., Солтанов, С. Х., & Юнусов, Х. Б. (2016). Применение установки рекуперации нефтепродуктов, основанной на адсорбционных свойствах активированного угля. In Актуальные проблемы биологической и химической экологии (pp. 304-307).
36. Балакин, Ю. А., Гладков, М. И., Юнусов, Х. Б., & Захаров, С. Л. (2015). Математическое моделирование влияния вибрации на рафинирование расплавов металлов. Географическая среда и живые системы, (4), 51-58.
37. Кривошея, И. В., Солтанов, С. Х., Лялина, И. Ю., & Юнусов, Х. Б. (2015). Применение фиторемедиации как одного из эффективных и перспективных методов очистки почв от тяжелых металлов на территориях, прилегающих к аэродромам и автозаправочным станциям. In Проблемы экологии Московской области (pp. 84-87).
38. Захаров, С. Л., Юнусов, Х. Б., Смирнов, В. С., & Телюк, А. Ю. (2014). Модернизация водообеспечения в городах с малым населением. Естественные и технические науки, (7), 77-79.
39. Кулагина, Т. В., Лялина, И. Ю., & Юнусов, Х. Б. (2015). Изучение влияния антропогенных экологических факторов на здоровье подростков Московской области. In Проблемы экологии Московской области (pp. 216-222).
40. Юнусов, Х. Б. (2008). Совершенствование технологии электрохимической очистки воды от растворенных органических веществ. Успехи в химии и химической технологии, 22(10 (90)), 58-60.
41. Юнусов, Х. Б., Солтанов, С. Х., Лялина, И. Ю., & Кривошея, И. В. (2016). Экологическое состояние водных источников и особенности экологической

и биологической безопасности. Солтанов СХ, Лялина ИЮ/Агро Эко Инфо М, (4).
42. Юнусов, Х. Б. (2022). SHO 'RLANGAN, OG 'IR METALLI VA PESTITSIDLI SHAROITLARDA A. CHROOCOCCUM K1 HAMDA A. VINELANDII S21 SHTAMMLARIDA FITOGORMONLAR SINTEZI TADQIQI. Вестник Ветеринарии и Животноводства, 2(1).
43. Боймуродов, Х. Т., Юнусов, Х. Б., Суяров, С. А., Ахмедов, Я. А., Иззатуллаев, Х. З., & Баратов, К. У. (2022). РАСПРОСТРАНЕНИЕ И ЭКОЛОГИЧЕСКИЕ ГРУППЫ ГИДРОБИОНТОВ В БИОТОПАХ КАНАЛА МИРЗААРИК. Бюллетень науки и практики, 8(6), 40-53.
44. Маннапов, А. Г., Юнусов, Х. Б., Рашидов, Х. А., & Суяркулов, Ш. Р. (2022). ИНТЕРЬЕРНЫЕ ПОКАЗАТЕЛИ И УРОВЕНЬ АМИНОКИСЛОТ В ГЕМОЛИМФЕ ПЧЁЛ ПРИ ЗИМОВКЕ НА ЦВЕТОЧНОМ, ХЛОПКОВОМ И САХАРНОМ МЁДЕ. Вестник АПК Верхневолжья, 3, 59.
45. Riyaziddinovich, M. A., Sharifboevich, K. N., & Beknazarovich, Y. X. (2022). Impact of ecology of northern tajikistan on morphological changes of skin cover of pamir ecotype of Yakov. Web of Scientist: International Scientific Research Journal, 3(8), 280-292.
46. Yunusov, K. B., & Fiadotau, D. N. (2021). The Influence of the Inhabited Near-Field Chernobyl APS Zone Contaminated with Radio Nuclides on the Histology Thyroid Gland in a Hedgehog.
47. Бакыев, Б. Н., Субботин, А. М., Юнусов, Х. Б., & Субботина, И. А. (2021). Спарганоз у оленя благородного.
48. HB Yunusov, NB Dilmurodov, BA Kuliev, SM Akhmedov. The Role Of Coccal Microflora In The Etiology And Pathogenesis Of Respiratory Diseases In Lambs Of The Karakul Breed Of Uzbekistan. Int. J. of Aquatic Science 12 (3), 1923-1928