



## The Significance of Tuberculosis Disease Detection and Measures of Control in Cattle Farms of the Xiva, Khorazm Region

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***Abstract:** The outcomes of reaction results, forms of tuberculinization, methodologies, essence, and relevance are all described in the scientific research study.*

***Keywords:** allergen, tuberculin, allergic reactions, anaphylaxis, ophthalmic test, skin test.*

**Relevance of the research.** In the years that followed, our government made a number of steps to advance livestock breeding in our nation, guarantee food safety, and satisfy the need for animal products (meat, milk, eggs). In particular, the decree of the first President of our Republic dated March 23, 2006 "On measures to encourage the increase of livestock in personal assistants, farmers and farms" No. Decisions PQ-842 "On additional measures to strengthen the expansion of production" and in the following years No. 845 of October 18, 2017 "On measures to strengthen the feed base of livestock and fishery industries", "Poaching and desert ecology" of March 16, 2018 "Bukhara branch of scientific research institute", PQ-4243 dated March 18, 2019 "On further development and support measures of the livestock sector" is aimed at the rapid development of several livestock farms and the satisfaction of our people's demand for livestock products, which is growing day by day. The above-mentioned livestock farms' ability to produce their livestock quickly is, however, seriously hampered by the diseases associated with tuberculosis that affect domestic animals, particularly cattle.

One of the extremely hazardous infectious diseases that occurs in our nation is tuberculosis, a disease of zoonosis. Unsanitized animal products, the air, infected dust, and direct touch are all ways that tuberculosis can spread to people. The spread of tuberculosis among people would cause political and social harm, the forced euthanasia of sick animals would cause physical harm, and there would be significant financial costs associated with manpower, preventive and diagnostic measures for the wellbeing of the environment and animal husbandry. Based on the aforementioned, it is the responsibility of every veterinarian to gain the information and abilities necessary to effectively implement the diagnosis, control, and preventative measures of tuberculosis disease.

**The purpose of scientific research.** Complete, flawless mastery of ocular testing, skin-to-skin testing, and the development of knowledge, skills, and the interpretation of test results in order to diagnose tuberculosis disease in cattle.



**The task of scientific research.** to learn about the methods used for skin tests, the ocular test for tuberculinization, and the calculation of results in the cattle ranches of Khiva district, Khorezm region.

**Verification methods of scientific research.** On cattle at the designated farm, ophthalmic tests and skin tests (with and without needles) were performed. The outcomes were analyzed, compared, and a conclusion was drawn. Perfect tuberculinization is accomplished.

**Object and subject of scientific research.** There are 71 calves, 35 heifers, 11 bulls, and 88 dairy cows living in Khiva district, Khorezm area. There are 205 head of cattle in all, and 43 heads of the cattle used for the allergic tuberculosis test underwent ocular and skin tests, with the findings being examined.

**Research results and discussion.** First off, it's important to highlight that G.H. Mamadullaev, director of the VITI Tuberculosis Control Laboratory, is responsible for tuberculinization. The "Instructions for the diagnosis of animal tuberculosis," created in 2011 and approved by the UzR DVBB, were followed when conducting the allergy examination. The author's advice and instructions were strictly adhered to in this regard.

This directive is based on Resolution No. 20 of the Ministry of Agriculture and Water Management of the Republic of Uzbekistan, dated January 30, 2011, which was created to ensure the completion of tasks such as "Development of veterinary-sanitary interdepartmental regulatory documents," and Resolution No. 21 of the Cabinet of Ministers of the Republic of Uzbekistan, dated January 26, 2011, "On additional measures to implement the UN Millennium Development Goals in Uzbekistan in 2011-2015."

## 1. General rules.

1.1. Tuberculosis - a disease that affects all animals, birds, and people and is contagious, chronic, zoonanthropous, and infectious. It is distinguished by the development of unique tubercles (nodules) in internal organs and tissues.

Mycobacteria is a genus that includes more than 38 species of pathogens. Disease is brought on by *M. avium* in birds, *M. humanis* in humans, and *M. bovis* in cattle. Each species not only infects its own animal, people, and poultry with sickness, but is also harmful to other species.

The *M. bovis* species is primarily harmful to cattle. Additionally, this kind affects all animals including human beings.

*M. humanis* may infect pigs, goats, cats, and dogs in addition to people.

Both domestic and wild birds can contract TB from *M. avium*. This kind can temporarily sensitize the body of cattle to tuberculin and also produces pathological alterations in the pig's body.

Some types or associations of atypical (atypical) mycobacteria can sensitize the organism of cattle, pigs and poultry to tuberculin, in some cases, atypical mycobacteriosis produces pathomorphological changes in the lymph nodes of pigs, and such changes cannot be distinguished from foci typical of tuberculosis.

1.2. Animal TB is diagnosed by epizootological, clinical, pathoanatomical, histological, bacteriological, allergenic, and molecular genetic polymer chain reaction (PCR) approaches. Tuberculin test between the skin (cattle, sheep, and goats), palpebral test in fur animals and foxes, and ocular test in horses are the three most common methods of TB detection in veterinary practice.



In farms free of TB, animals who have responded positively to tuberculin are isolated, and further allergy testing and intravenous tuberculin administration are performed. If a favorable outcome is attained, it will be forwarded to the required meat.

1.3. The diagnosis of tuberculosis in cattle is confirmed in the following cases:

- if the pathological anatomical changes are fully consistent;
- if the PCR and biosynamic method give positive results when clinical symptoms are not evident;
- if *M. bovis* or *M. humanis* species are detected in the bacteriological examination;
- if a positive result is obtained in the bioassay.

1.4. Only PPD designed for cattle is utilized for allergy testing in cattle. The day the PPD vial is opened must be the day it is used.

1.5. BI-7, IBV-01, and IBV-02 needleless injectors, specialized 1-2 ml syringes and needles with a needle, and eye pipettes are used to administer PPD between the skin.

1.6. Tuberculinization is carried out in cattle from the age of 2 months.

1.7. Tuberculinization can be performed after 21 days if animals are vaccinated against infectious diseases and helminths.

1.8. Tuberculin is injected into cattle in 0.2 ml between the skin of the neck (in the center of the neck).

The region is shaved and cleansed with a 700 alcohol swab before receiving tuberculin. After 72 hours, the reaction's outcome is known. In unhealthy areas, tuberculinization is done twice. After the second injection, the reaction's outcome is assessed after 24 hours.

Simultaneous testing is required for the evaluation of the epizootic scenario, and the number of animals exhibiting a positive reaction in the examined animals should not be fewer than 6 heads.

In the course of our scientific investigation, 70 dairy cows and calves, 2 breeding bulls, and 20 heifers had thorough veterinarian examinations as well as allergy tests.

The procedure of injecting PPD between the skin was used for the first time. After administering 0.2 ml of PPD intravenously to 62 rats, the outcome was ascertained by measuring the tumor volume on the skin using a cutimeter (barbell circle) after 72 hours. 4 dairy cows and 4 calf calves are the result of this favorable reaction. Bulls had an unfavorable response. Two of the heifers responded well.

These animals had an ocular test a month later, and like with the intradermal injection procedure, the findings were similarly positive in this instance.

It was suggested to use PCR, bacteriological analysis, and bioassay procedures after consulting with knowledgeable vets in the area. The locations of our experiment were proven to be tuberculosis-unhealthy zones by epizootological analyses.

### Conclusions:

1. All farms should have tuberculinization inspections performed on a scheduled basis, in our opinion.
2. In our opinion, it is essential to provide seminars and trainings on the eradication of extremely severe infectious illnesses that affect cattle that are part of the general populace.
3. Improving agricultural sanitation and hygiene practices continues to be a pressing issue today.



4. In our opinion, it is crucial to rigorously regulate herd movement and TB diagnosis procedures.

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