

# Current status of bovine TB/zoonotic TB & Brucellosis [In Iran]

Regional Workshop on Zoonotic TB and Brucellosis in the Asia Pacific Region Qingdao, 24-26 September 2024

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## Bovine TB/Zoonotic TB

### CURRENT SITUATION

#### The situation of Bovine tuberculosis in Iran:

The rate of incidence of bovine tuberculosis in the cattle farms covered by the bovine tuberculosis surveillance program in the last 4 years has been almost stable, and the number of reactor cows identified and slaughtered in 2023 was about 1100 cows with a ratio of 8 in 100,000.

#### The situation of human tuberculosis in Iran:

The incidence of human tuberculosis in Iran has been decreasing in recent years (5-year period) and its incidence has decreased from 10.5 per 100,000 to 8.5 per 100,000 and the number of registered cases in 2023 is about 7,000.

**Compilation of instruction:** Executive guidelines for the control methods of bovine tuberculosis in industrial and rural cattle farms with the approach of eliminating and eradicating bovine tuberculosis every year by the experts of the Iran Veterinary Organization and with the cooperation and coordination of university professors, the Ministry of Health, researchers and stakeholders were compiled and sent to the general veterinary departments of the provinces for implementation.

**Scope of application:** This instruction is carried out in order to control and limit bovine tuberculosis in the country's cattle population through the use of control methods as described below.

1- Active surveillance of the disease by carrying out operations to identify and slaughter infected animals, 2- Slaughterhouse monitoring, 3- Education and promotion of livestock farmers, 4- Evaluation and monitoring, 5- Compensation for part of the losses caused by the slaughter of infected livestock.

## DIAGNOSIS, SURVEILLANCE, CONTROL

**Diagnosis:** The main method for diagnosing the disease is the tuberculin skin test. Contamination with other mycobacteria, such as Johne's disease, avian tuberculosis, or vaccination against Johne's disease, etc., may cause interference with tuberculin test results. Therefore, in such cases and conditions, the Comparative Cervical skin Test (CCST) method is used to distinguish bovine tuberculosis from other mycobacteria.

**SURVEILLANCE:** Tuberculin injection and reading its result according to the organization's instructions, as well as performing other tests related to the diagnosis of the disease, should be done exclusively by a veterinarian trained and approved by the IVO.

**CONTROL:** After diagnosis, the infected cow or reactor must be immediately separated from other herd animals and kept in a completely separate place inside the cowshed or another place that is determined until it is sent to the slaughterhouse under the supervision of the city veterinary department.

### Collaborate and coordinate with the Ministry of Health:

- ❑ After the diagnosis of the infected cow, by informing the health centers of the region, all the workers and people related to the livestock will be covered for free of the necessary tests to diagnose the tuberculosis disease.
- ❑ Also, in cases where the origin of human tuberculosis is reported M.Bovis by the MOH, the veterinary organization will do the necessary follow-up to find the origin of the disease.
- ❑ In Iran, zoonotic tuberculosis is not given much importance and the Ministry of Health focuses mostly on *Mycobacterium tuberculosis*.

## CHALLENGES AND WAY FORWARD

The challenges related to the control of bovine tuberculosis in Iran are as follows:

1- The existence of more than 4 million rural cows, only 2% of which are covered by the active surveillance program for bovine tuberculosis.

The solution to the problem: providing financial and human resources

2- Lack of financial and human resources

The solution to the problem: increasing the financial and human resources of veterinary organization and implementation of the self-control program of bovine tuberculosis in megafarms, which is derived from the PPP (Public-private partnerships).

3-Lack of equipment of the laboratories covered by the veterinary organization to perform other molecular and serum diagnostic tests

The solution to the problem: Equipping 32 laboratories of the province's general veterinary departments to perform molecular and blood tests such as interferon-gamma (IFN- $\gamma$ )

4-Unsuitability of many rural livestock stables

The solution to the problem: Improvement of the place of keeping rural livestock by relevant organizations.

## Brucellosis

### CURRENT SITUATION

#### The situation of animals brucellosis in Iran:

The rate of incidence of brucellosis in the cattle farms covered by the test & slaughter program in the last year was 0.18%, and the number of reactor cows identified and slaughtered in 2023 was about 2850 cows and the prevalence of brucellosis in rural sheep, goat and cow is unclear, but in the latest study conducted in 2017, the prevalence of brucellosis in the cattle population was estimated at 1.3% and in the sheep and goat population at 4%.

#### The situation of human brucellosis in Iran:

The incidence rate of human brucellosis (Malta Fever) in 2023 is reported to be 25 per 100,000 and the number of registered patients is about 21,000

**Compilation of instruction:** Executive guidelines for the control and prevention methods of animal brucellosis in industrial and rural farms with the approach of control animal brucellosis, every year by the experts of the Iran Veterinary Organization and with the cooperation and coordination of university professors, the Ministry of Health, researchers and stakeholders were compiled and sent to the general veterinary departments of the provinces for implementation.

**Scope of application:** The regulations are used for the prevention and control of animal brucellosis in cattle, buffalo, camel, sheep and goat populations throughout the country (Iran).

## DIAGNOSIS, SURVEILLANCE, CONTROL

**Diagnosis:** The primary test is Rose Bengal test (RBT), which is used as a screening test. Wright's seroagglutination tests and 2-mercaptoethanol, Indirect ELISA, competitive ELISA, complement fixation test (CFT), Fluorescence polarization assay (FPA) and Native Hapten (NH), are used as complementary tests.

Confirmatory tests including polymerase chain reaction (PCR) and bacterial culture will be performed if necessary.

In sheep, goats, and camels, the Rose Bengal test (preferably modified Rose Bengal) is used as a screening test, CFT/NH and PCR/Bacterial culture tests are used as complementary and confirmatory tests.

**SURVEILLANCE:** All female calves over 12 months old, pregnant and non-pregnant cows and bulls (except fattening calves) also all vaccinated sheep and goats that have passed 18 months since their vaccination and camels over 12 years old will be sampled and tested.

#### Control measures:

1-Vaccination with RB51 (in cattle) and Rev1 (in sheep and goat), 2-The infected animals or reactors separated from other animals and kept in a completely separate place until it is sent to the slaughterhouse, 3-Payment compensation, 4-Education and promotion of livestock farmers, 5-Evaluation and monitoring.

[https://ivo.ir/uploads/1/2024/Sep/08/brucellosis\\_1.pdf](https://ivo.ir/uploads/1/2024/Sep/08/brucellosis_1.pdf)

### Collaborate and coordinate with the Ministry of Health:

- ❑ After receiving the report of human cases of Malta fever from the health centers, the regional veterinary department will take the necessary measures to identify and slaughter the infected animals by taking samples from all the animals (cows, sheep, goats) that exist in the area.
- ❑ The veterinary department reports the results of testing and slaughtering of identified reactor/contaminated animals to the city health center, and subsequently, the city health center will follow up and take action if necessary.
- ❑ Monthly reports related to animal vaccination against brucellosis and sampling for disease diagnosis are continuously announced to health centers.

## CHALLENGES AND WAY FORWARD

The challenges related to the control of animals brucellosis in Iran are as follows:

1- Lack of financial and human resources

2- The inappropriateness of the amount of compensation paid to the rancher compared to the real price of the livestock.

3- There are more than 70 million sheep and goats that are kept and bred in a traditional way.

4-Grazing together and keeping all kinds of livestock in one place

