

# PANORAMA

Thematic portfolio



## Controlling bovine tuberculosis: a One Health challenge



# PERSPECTIVES

# DOSSIER

# AROUND THE WORLD

*Tuberculosis, which affects multiple species worldwide, is a zoonotic One Health issue. Bovine tuberculosis control commenced in the early 20th century, with scientists collaborating to refine tuberculin and optimise the skin test methodologies still necessary today, as a simple, technologically undemanding means of detecting infected farmed cattle and protecting humans from infection.*

## Tuberculosis in context

Tuberculosis (TB) has existed for over three million years, thriving worldwide in multiple species, with zoonotic transmission between animals and humans occurring in both directions. Before the introduction of milk pasteurisation in the 20th century, milk-borne *Mycobacterium bovis* caused mainly extrapulmonary TB, particularly in young children, with significant death rates.

## Tuberculin development and standardisation

In 1893, Bang started using Koch's Old Tuberculin in cattle to detect bovine TB (bTB) and it was used thereafter in early bTB control programmes. Throughout most of the 20th century, scientists collaborated worldwide on refining and optimising the production and standardisation of tuberculin of sufficient potency, and on developing various test methodologies with sufficient sensitivity and specificity to detect most infected cattle. The World Health Organization (WHO) and World Organisation for Animal Health (OIE) defined standards for tuberculin production, potency, assay performance and intradermal tests for bovines. Within a few years of commencing a bTB control/eradication programme, clinical TB was rarely seen to cause disease, leading to significant improvements in livestock production.

Notwithstanding the launch of the first-ever roadmap to combat zoonotic TB [1], people still ask if bTB is a problem; if better controls for bTB exist; if alternative sites for conducting the intradermal skin test would be better; if all tuberculins are equal; and why haven't 'better' tests been developed?

## Review

These questions prompted the paper, [\*The History of In Vivo Tuberculin Testing in Bovines: Tuberculosis, a 'One Health' Issue, published in \*\*Frontiers in Veterinary Science\*\*\*](#) [2]. This review tries to succinctly summarise the literature from the late 19th century until today. It focuses on why tuberculin skin tests have been successful; why zoonotic TB is an important One Health concern; why tuberculin skin tests will remain the screening test of choice for farmed livestock for the foreseeable future; and why the reduction of TB is necessary, and too important and urgent to await possible future developments in novel diagnostic assays before addressing the problem.

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## DOSSIER

# The history of *in vivo* tuberculin testing in bovines

(Abstract from manuscript)

## KEYWORDS

#bovine tuberculosis, #cattle, #Frontiers in Veterinary Science, #One Health, #tuberculin, #zoonotic tuberculosis.

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