



World Organisation
for Animal Health
Founded in 1924

中华人民共和国农业农村部
Ministry of Agriculture and Rural Affairs of the People's Republic of China

Guidelines for Alternative Strategies for the Control and Elimination of *Mycobacterium tuberculosis* complex (MTBC) Infection in Livestock.

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WORLD ORGANISATION FOR ANIMAL HEALTH
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**MEETING OF THE AD HOC GROUP ON ALTERNATIVE STRATEGIES FOR THE CONTROL
AND ELIMINATION OF MYCOBACTERIUM TUBERCULOSIS COMPLEX INFECTION IN LIVESTOCK**
Videoconference, 29 September 2020

The Group recognised that one of its critical tasks of this initiative is to elicit expert opinion on TB control strategies by means of interviews and focus groups with external experts other than *ad hoc* Group members. This step is necessary to gather and collate information and formulate recommendations that are based on scientific evidence, and take into consideration different perspectives, needs, and values.



Main Goal

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- The **main goal** of developing the guidelines was to identify **science-based strategies** for the control of *Mycobacterium tuberculosis* complex (MTBC) infection in livestock **other than test and slaughter**.
- **Consider different socio-economic-cultural contexts** to provide **science-based recommendations in the form of guidelines** that will support WOAHA Members and partners in their efforts to reduce the burden of MTBC infection in livestock.



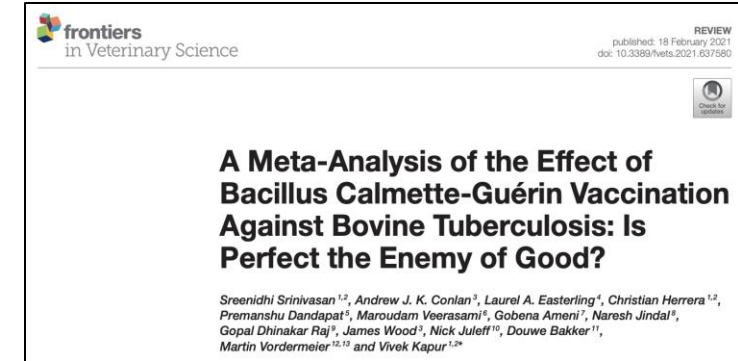


Building Phases (May 23-July 2024)

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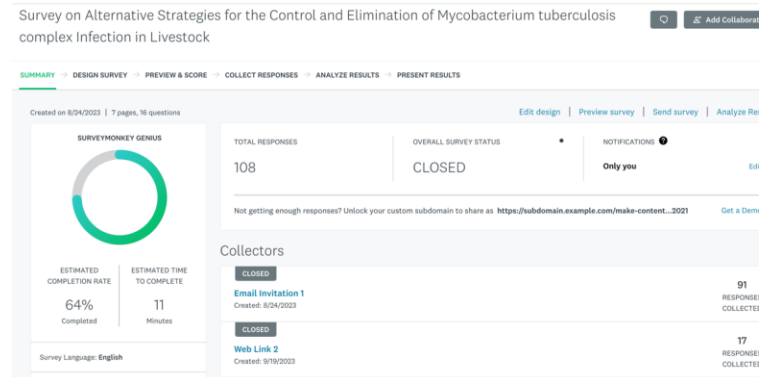
Phase 1: Literature Review

- 1.1 Scientific
- 1.2 Grey literature



Phase 2: Expert Opinion Elicitation

- 2.1 Focus Groups
Discussion/Interviews
- 2.2. Online Survey



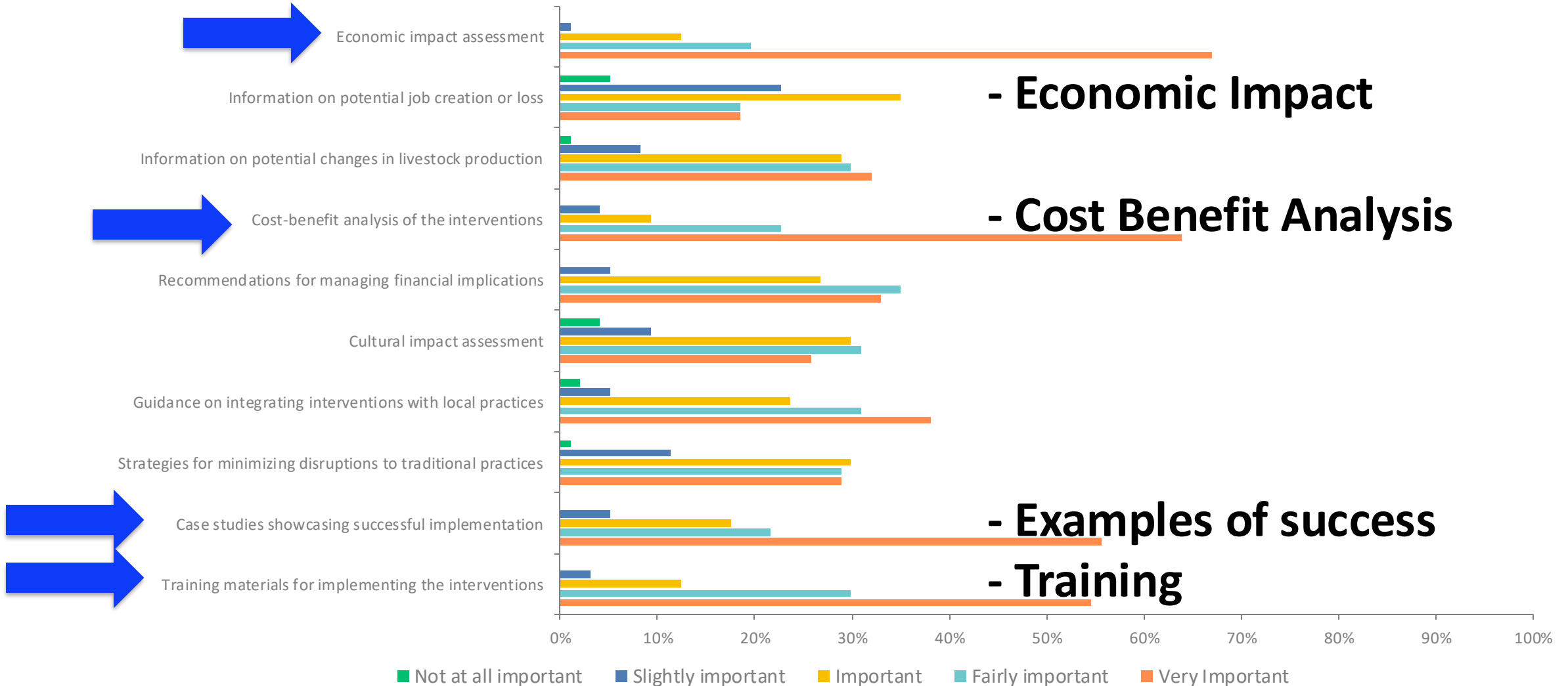
Phase 3: Guidelines Development

- 3.1 Draft 1 of Guidelines
- 3.2 Discussion, review, and editing with experts
- 3.3 Finalization of guidelines





Imagine your governing structure were to implement alternative interventions for controlling livestock species-related MTBC infection and disease. On a scale from 1 (not important at all) to 5 (very important), how important would it be to you to receive EACH of the following types of information about the alternative intervention strategies?





Opinions from stakeholders from Asia

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India In India, to control and eliminate the circulation of mycobacterial pathogens among livestock, **coordination of multiple Ministries such as the Ministry of Human Health and Welfare, Ministries of Agriculture, and Farmers Welfare and Fisheries (Animal Husbandry, IARI) and Ministry of Environment (Wildlife) is required.** This combined effort will help establish **financial support and a reliable, trained workforce for the One Health** program. Moreover, this **awareness of Zoonotic and reverse zoonotic diseases** must be included in the medical and Veterinary teaching curriculum.

India **Cost benefit** impact studies to be conducted and **shared with policy makers.**

Korea South I think **WOAH** should consider the **distinct characteristics of the area** before implementing alternative strategies.

Nepal First of all **awareness campaign to farmers, consumers about livestock related MTBC. Surveillance in live animals** and animal **products such as milk.** Apply interventions that can be **economically viable and culturally acceptable.**

ASIA-PACIFIC

Australia The most important part of the Australian story was the program was **jointly** owned and funded by **Industry and Government.**

India It would be important to launch National Programme on bovine TB elimination, with **government support for vaccination, surveillance and monitoring.** This will not only reduce the incidence of TB in livestock, but also contribute to ongoing national program for elimination of TB in human population.

India Species specific **MTNC studies with vaccine protection.**

India Need to **estimate Zoonotic TB burden at Human-Animal** interface.

India **Milk pasteurization combined** with **effective vaccination of livestock** would be ideal to disrupt transmission of pathogenic mycobacteria among susceptible cattle and humans.

India There should be attention of **policy makers** will along with **technical backstopping.**

Korea South The herd **prevalence in South Korea is low (below 0.25%).** In case of low prevalence, it would be the **best to adopt test and slaughter strategy.**

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- It **complements** the framework of **standards** provided by the **WOAH *Terrestrial Animal Health Code* (Terrestrial Code)** and the ***Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (Terrestrial Manual)**.
- Provides guidance on key aspects of the control of MTBC species infection and bTB in livestock species that should be considered to address the specific challenges faced by **countries with different epidemiologic, economic, and socio-cultural characteristics**.
- These guidelines start with an understanding of a **country's epidemiologic situation, the resources and infrastructure needed to detect bTB**, followed by relevant control strategies in different settings.
- While these guidelines focus on **livestock species**, they also address control strategies related to **wildlife species** and the **zoonotic** aspects of MTBC species, using the One Health approach.



Main take home message

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3. Where to start

3.1. Epidemiological situation

3.2. Resources and infrastructure

3.2.1. Regulatory frameworks and control programmes

3.2.2. Technical capacity and training

3.2.3. Stakeholder and partner engagement

3.2.4. Resource mobilisation

3.2.5. Awareness and communication

4. Control strategies

4.1. Surveillance

4.1.1. Antemortem surveillance

4.1.1.1. Tuberculin Skin Test

4.1.1.2. Blood-based laboratory test

4.1.2. Postmortem surveillance

4.2. Biosecurity: Disease Management & Targeted Control

4.2.1. Wildlife-livestock interactions and risk of transmission MTBC species

4.2.1.1. Vaccination of wildlife species with BCG

4.2.2. Reducing intra and inter herd transmission of MTBC species

4.2.2.1. Pasteurisation of milk products

4.2.2.2. Animal Movement control

4.2.2.3. Test and segregation

4.2.2.4. Cleaning and disinfection

4.2.2.5. Vaccination of livestock with BCG

4.2.2.6. Reducing risk of zoonotic transmission

A “package” of sustainable interventions is required, tailored to the **specific needs, epidemiology, and challenges** faced by a country or zone.



Examples and Scenarios to Consider

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- **Scenario 1:** Bovine TB-free countries, or countries with low (2%-5%) or extremely low herd prevalence (<2%), with a fully implemented bTB national control programme, and intensive agriculture.
- **Scenario 2:** Bovine TB herd prevalence greater than 5%, bTB national control programme partially implemented, good Veterinary Services, emerging economies transitioning from extensive to intensive farming.
- **Scenario 3:** Bovine TB herd prevalence >5%, without an active, functioning, or operational bTB national control programme, low resource, extensive farming countries.
- **Scenario 4:** Countries with significant MTBC species wildlife reservoirs.



Why?

- To **decrease prevalence** of bTB by improving control of bTB amid changing farming practices from extensive to intensive farming, which is known to increase bTB prevalence;
- improve **productivity**;
- promote and/or improve **market access**;
- reduce the **risk of zoonotic** MTBC species transmission to humans.



What to do:

- **Surveillance:** measuring and assessing the magnitude of bTB is crucial for long-term success.
- **Control programmes** - Updating the disease control programme along with identifying the necessary legislative and regulatory mechanisms to support activities.
- **Awareness Programmes:** to generate awareness among the community at high risk of having disease in the animal population. This would further support during the implementation of the surveillance activities
- **Zoning and compartmentalisation:** separate areas of intensive farming helps control disease spread, supports transition to intensive farming and high-value market access; requires fit-for-purpose surveillance, animal identification and traceability systems.



What to do:

- **Animal Movement Controls:** requires regulatory enforcement to promote prevention of MTBC species transmission between animals, herds, countries/zones.
- **Market- and Policy-Drivers:** Potential for success with specific incentives to increase market access for farmers to participate (e.g., premium pricing for products from bTB-free herds); Policy initiatives (e.g., mandatory testing, subsidies for BCG vaccination of livestock, compensation for slaughtered animals).
- **Test and Segregate:** in more developed regions with intensifying dairy herds, separate housing of infected animals may be precluded by lack of availability and/or cost of land; possibly feasible.
- **BCG Vaccination of livestock:** Before considering roll out of BCG vaccine for livestock, it is highly recommended to continue to field test it in order to optimise its use in livestock (see guidelines, section 4.2.2.5). Once BCG vaccine for livestock is evaluated under field trial conditions, in different settings, this strategy could be a cost-effective strategy, especially in countries where routine ante- or post-mortem surveillance is not conducted on a routine basis and where trade will not be affected by its use. The use of BCG vaccine for livestock could be considered only in countries with epidemiologic scenarios that would benefit from this strategy; for example, countries in which bTB is endemic with high bTB herd prevalence and the country is not planning for engaging in trading of animal or not conducting DIVA testing



Summary

- The control and elimination of *Mycobacterium tuberculosis* complex (MTBC) species and bovine tuberculosis (bTB) disease is a **long-term process** encompassing years, and no single strategy is sufficient.
- This is because although in theory, bTB in livestock species is labeled as a single disease, the epidemiology, clinical presentation, animal production and management systems wild reservoirs species; and the potential zoonotic risk **differ greatly between, and even within, countries/zones.**



- Thus, a “**package**” of **sustainable and science-based interventions** is required, tailored to the specific needs, epidemiology, and challenges faced by a country or zone.
- These guidelines incorporate factors related to **animal** health, transmission of MTBC species among different **livestock** hosts in variable environments, as well as **wildlife** and humans, and different characteristics of the animal population and/or farming management practices.



Expected outcomes after using these guidelines

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Overall, the implementation of these guidelines, considering the unique context of different countries will ultimately improve the prevention, detection, and control of MTBC species and bTB.

The outcome of applying one or more of the strategies presented in these guidelines will be the **reduction of bTB burden in animals** leading to several beneficial consequences:

- improved livestock **productivity**,
- **mitigation of public health** risks,
- enhancements in **market** accessibility,
- potential for being more **cost effective** than T&S,
- **avoiding the destruction of farmers' livelihood** if their animals are killed, and
- potential **economic advantages** by indirectly reducing the cost of intervention in the affected regions.





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Thank you!

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