

# Report of the Meeting of the *ad hoc* Group on Alternative Strategies for the Control and Elimination of *Mycobacterium tuberculosis* Complex Infection (MTBC) in Livestock

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Paris

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## 1. Welcome

Dr Gregorio Torres, Head of the World Organisation for Animal Health (WOAH) Science Department, welcomed the participants of the *ad hoc* Group (hereafter referred to as 'the Group') on behalf of Dr Monique Eloit, Director General of the WOAH.

Dr Torres provided background information on the rationale and purpose of the meeting, which was to bring expert opinion on a set of science-based guidelines on alternative strategies to testing and slaughtering of livestock and wild animals to reduce the burden of bovine tuberculosis. He highlighted the United Nations Sustainable Development Goals (SDGs), emphasising SDG 3 on global health issues such as reducing the burden of tuberculosis (TB) in humans by 2030, and this effort must also encompass zoonotic TB (zTB).

Dr Torres shared that the decision to establish the Group was part of the implementation of the [Roadmap for Zoonotic Tuberculosis](#) (hereafter referred to as 'the Roadmap'<sup>1</sup>), which was jointly launched by the World Health Organization (WHO), WOAH, the Food and Agriculture Organization of the United Nations (FAO) and the International Union Against Tuberculosis and Lung Disease in 2017, and which describes ten priority intervention for tackling zTB in people and TB in animals. He provided some background about the 2022 [WOAH \*ad hoc\* Group \(AHG\)](#) on Alternative Strategies for the Control and Elimination of *Mycobacterium tuberculosis* complex (MTBC) infection in livestock which addressed three specific priorities from the Roadmap and discussed actionable strategies to control TB in livestock other than test and slaughter. To support the Roadmap and a call for action to tackle zTB in people and animals, the Centers for Disease Control and Prevention (USA) has awarded a federally-funded project to WOAH for 'Strengthening animal health systems to enhance prevention, detection and response to emerging zoonotic 'diseases'.

As a part of the project, WOAH launched a consultancy for the development of guidelines for alternative strategies for TB control in livestock. The objective of this consultancy, which was awarded to Dr Francisco Olea-Popelka and Dr Paula Fujiwara, was to identify alternative strategies for the control of MTBC in livestock through a literature review and eliciting expert opinions via focus group discussions, interviews and an online survey, from experts from different geographical background and multidisciplinary domains, such as those who may be involved in the bovine supply chain, animal /public health policymakers, field veterinarians, epidemiologists, meat traders, dairy farmers among others.

Prior to this in-person meeting, the consultants had presented the methodology of the project and key findings via a virtual meeting with members of the Group and circulated the first draft of the guidelines, the literature review and the results of the survey and focus group discussions.

Finally, Dr Torres reminded the Group about the purpose, which is to review the guidelines and recommend actionable strategies to control MTBC infections in livestock in regions where the zTB burden in humans is high and slaughter of livestock is neither economically feasible nor culturally or socially acceptable.

## 2. Adoption of the agenda

Dr Olea-Popelka facilitated the meeting while the WOAH Secretariat acted as rapporteur. The draft agenda, including group discussions and plenary discussions, was adopted by the Group. The terms of reference, agenda and list of participants are provided as [Annexes I, II and III](#), respectively. Each member of the Group was identified as lead discussant for specific topics in the guidelines and asked to discuss the opportunities and challenges related to their respective topics.

## 3. Overview of the project

Dr Olea-Popelka provided the background of the project and the methodology used in developing the guidelines on alternative strategies for controlling MTBC infections in livestock. He highlighted that the objective of the guidelines is to assist endemic countries in reducing the burden of diseases by providing an array of strategies that could be adapted to different contexts, considering the local epidemiologic, socio-economic and cultural settings. This process involved three phases.

Phase 1: Review of the literature: A comprehensive review of peer-reviewed scientific literature was conducted, utilising systematic and standard approaches described in the preferred reporting items for systematic reviews and meta-analyses. Additionally, the consultants identified relevant and current grey literature, including government and international organisations' official reports, documents, and manuals.

Phase 2: Expert opinion elicitation: A multisectoral, multidisciplinary approach was adopted, involving 23 participants in focus group discussions, interviews, and an online survey to 215 individuals globally. Qualitative data from the FGD/interviews was analysed using Reflexive Thematic Analysis (RTA), following the Braun and Clarke approach<sup>1</sup>, to

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<sup>1</sup> Virginia Braun & Victoria Clarke (2021) One size fits all? What counts as quality practice in (reflexive) thematic analysis?, *Qualitative Research in Psychology*, 18:3, 328-352, DOI: 10.1080/14780887.2020.1769238

identify patterns (themes) among responders' answers. Overall, responses for each question reflected diverse opinions depending on the realities of each country. Dr Olea-Popelka informed that the survey yielded a completion rate of 46.5% (100/215) from 37 countries across all five WOA regions. He informed the Group that the majority of respondents (~64%) were academics, researchers and scientists; however, efforts were made to obtain responses from community representatives. Survey data were analyzed using standard descriptive statistics.

Phase 3: Developing first draft of the guidelines: Information, data, and knowledge obtained from both the literature review (Phase 1) and the expert opinion (Phase 2) were used to develop the first draft of the guidelines, focusing on strategies that extend beyond conventional disease management strategies.

#### **4. Structure and general comments on the guidelines**

In reviewing the first draft of the guidelines, the Group agreed that the guidelines should be based on science and not be too prescriptive to cater to different Member contexts. The Group also noted that the guidelines could be revised in the future should new evidence emerge. Practical examples may be included to illustrate how the guidelines may be implemented. The Group recommended that for the purpose of this report 'TB' would encompass bovine Tuberculosis (BTB) and *Mycobacterium tuberculosis* complex (MTBC) infection. The Group recommended that this should be explicitly mentioned in the final guidelines to ensure uniformity.

The Group highlighted the objectives of the proposed guidelines are not intended to replace the test and slaughter strategy, and it was agreed that they would provide an array of alternative strategies to support TB-endemic Member countries to reducing the burden of MTBC in animals where elimination of TB is not the main goal. In particular, the guidelines would be helpful for Members that have no TB disease control programme or are struggling with implementing one. While it should be acknowledged in the guidelines that TB elimination may not be attainable by countries using alternatives to test and slaughter, significant reductions in disease burden may be expected by implementing the suggested strategies, particularly in regions where the test-and-slaughter are currently unimplemented. The Group additionally observed that the guidelines should incorporate expected outcomes of adopting these alternative approaches and potential indicators of success, which could encompass enhancements in market accessibility, reduction of TB burden in animals, improved livestock productivity, mitigation of public health risks, and potential for being more cost effective than test and slaughter and can have economic advantages by indirectly reducing the cost of intervention in the affected regions.

Furthermore, the Group recommended adding a dedicated section on capacity building in the guidelines to improve understanding of disease control measures at different levels for different stakeholders. The Group noted that improving the technical capacity and training are instrumental to the success of any TB programme. These should encompass capacity building for laboratory diagnostics, training of personnel performing tests, slaughterhouse personnels, on notification procedures, and implementation of control strategy.

In terms of the target audience, the Group considered that Veterinary Authorities, producers, private industry, such as the milk and meat industry, and other key stakeholders, such as NGOs, and international partners, would find the guidelines useful. The Group also agreed that the guidelines should make cross-references to relevant documents, such as WOA's *Terrestrial Code* and *Terrestrial Manual*.

#### **5. Epidemiological situation**

The Group agreed that it was important to understand the country's epidemiologic scenario of MTBC infection in humans, livestock, and wildlife, including the use of modelling to ascertain the burden of disease and risk stratification to serve as a basis for developing a strategic plan to control the disease. In addition, the Group noted that it was important for this section also to cover the economic analyses and associated modelling to determine the feasibility of control options and provide a business case to decision-makers. It was highlighted that dairy intensification will lead to accelerated spread in the absence of a control strategy, and that this will result in substantial future costs for disease elimination.

#### **6. Resources and infrastructure**

The Group agreed that a section of the guidelines should be dedicated to the resourcing and infrastructure necessary to support the control of TB in livestock. Importantly, there should be an assessment of regulatory frameworks which would form the basis of the activities of the Veterinary Authority, encompassing aspects such as animal identification and traceability of livestock, registration of animal holdings, movement controls and quarantine, etc. The Group also noted that in certain localities with no dedicated TB control programme, an option could be to integrate TB control as part of wider disease control programmes on other animal health and zoonotic diseases (e.g. brucellosis).

Regarding resource mobilisation and sustainability of TB control measures, the Group recognised that while compensation could be applied in some parts of the world, this may not be feasible in others and therefore other means of incentivisation could be considered. The control of TB should be considered as a public good and as a precautionary measure, and

thereby leveraging on investments from both the public and private sectors and recommended adding this into the guidelines.

## 7. Awareness & communication

The Group discussed the need for awareness and communication on TB and zTb and acknowledged a communication gap between the scientific community, producers and the general public. The Group recommended to add a section on communication in the guidelines as information, education, and behaviour change campaigns could be part of the strategy for disease control. This section would include measures to improve awareness on TB and zTb among different stakeholders including those from the livestock, medical and veterinary sectors. The Group suggested that Members should develop tailored and targeted communication material, keeping the local context in mind, preferably involving local community representatives to strengthen support and impact of the message. The Group also suggested creating community awareness materials in local languages and encouraged a tailored approach to addressing local problems with local solutions. Members could also try to leverage the existing community awareness materials available on other zoonotic diseases to generate awareness on TB and perhaps consider combining campaigns to optimise the use of resources. Finally, the Group stressed the importance of cross-sectoral and multidisciplinary engagement in the control of MTBC infections and noted that the design and execution of any control programme should include a variety of stakeholders and partners, including the livestock owners, associated industry, veterinary services, community leaders and animal health workers.

## 7. Surveillance

### 7.1. Ante-mortem surveillance

The Group noted that WOA's *Terrestrial Manual* [Chapter 3.1.13](#), provides detailed recommendations on TB diagnosis and agreed that these guidelines should be cross-referenced, and not duplicate or contradict information provided in the WOA's [standards](#). The Group, however, noted that it was important to provide Members with specific advice on tests recommended for different objectives and diagnostic constraints, pros and cons, as well as interpretation, especially when differentiating infection from exposure. In particular, the Group also noted that ante-mortem surveillance should be recommended for Members interested in measuring the progress of disease control strategies. The Group also agreed that it would be important to provide examples of tests being applied in practice to guide decision-making and recommend Members to attempt follow-up of suspected cases with a confirmatory test according to the *Terrestrial Manual* [Chapter 3.1.13](#). The Group recommended adding this information in the section dedicated for country scenarios.

### 7.2. Post-mortem surveillance

The Group agreed on highlighting in the guidelines the importance of record keeping, traceability system, capacity building and education of slaughterhouse personnel. The Group suggested that it is important to mention in the guidelines that Members that do not have any information on the occurrence of TB should be encouraged to stratify the risk by conducting slaughterhouse surveillance so they could identify high risk areas or herds and aid in prioritising resources. The Group discussed the importance of routine training for slaughterhouse personnel to identify suspected samples by recognising lesions typical of TB in animal carcasses, which is critical for subsequent confirmatory diagnoses in the laboratory and recommended to include training and capacity building in the guidelines. Notably, the Group discussed about importance of tracing infections back to the herd and implementing various herd management practices, along with targeted disease control strategies, to improve disease control efforts. For this reason, the Group emphasised on highlighting in the guidelines the importance of record-keeping, in both formal and informal slaughterhouse systems and raising awareness among slaughterhouse personnels about screening of carcasses for TB, reporting channels, and establishing a system for sample collection, testing, and reporting.

## 8. Disease Management & Targeted Control

### 8.1. Biosecurity cleaning and disinfection

The Group recommended using the section on biosecurity for addressing measures to reduce intra- and inter-herd transmission, as well as transmission between livestock and wildlife, through improved animal husbandry practices. The Group suggested distinguishing between biosecurity measures for livestock and wildlife, recognising that they require different sets of interventions. Furthermore, the Group discussed the importance of cleaning and disinfection practices alongside biosecurity, as these constitute basic principles for disease control within a herd and therefore recommended mentioning in the guidelines. The Group suggested to include in the guidelines that Biosecurity measures and cleaning and disinfection should also be applicable to abattoirs, and proper disposal of affected organs/meat should be encouraged by Members.

## 8.2. Animal Movement control

The Group considered the importance of monitoring animal movement in a disease control programme as it prevents the spread of diseases, helps contain infection, facilitates traceability of disease sources, enhances biosecurity, and assist in optimising resource allocation for surveillance and management efforts. Furthermore, the Group also noted that the *Terrestrial Code Chapter 8.12*, provides a comprehensive information on herd movement and therefore proposed to align this section in the guidelines with this chapter while emphasising in the guidelines on the importance of maintenance of animal records to monitor animal movement within the country including inspection and certification.

## 8.3. Test and segregation

The Group emphasised that WOAAH has outlined comprehensive recommendations in its *Terrestrial Code Chapter 8.12 'Infection with MBTC'*, for attaining country, zone and herd-level disease-free status, along with corresponding requirements. The Group acknowledged that the test and segregation strategy has proven to be relevant in some Low- and Middle-Income Countries (LMICs) and was of the opinion that, Members must consider the feasibility of implementing this strategy, as it may entail a resource-intensive process for individual farmers to separately house infected animals, additional land requirements and financial implications associated with the strategy. This consideration is particularly pertinent in the absence of a clearly defined incentives such as market access or premium milk pricing for certified BTB-free herds. The Group recommended to emphasise in the guidelines that Members should actively measure the progress and effectiveness of the test and segregation strategy. This includes assessing the overall reduction in the burden of the disease and reducing risk of spread of the disease through resale of test-positive animals. The Group recommended to mention in the guidelines that Members are advised to establish their own set of key performance indicators (KPIs) to systematically gauge the success and progression in reducing the burden of the disease.

The Group also noted that the *Terrestrial Code Chapter 8.12*, made cross reference to the *Terrestrial Code Chapter 1.4*, 'Animal Health Surveillance' but does not provide specific surveillance recommendations as per other disease specific chapters including how to monitor reduction of within-herd prevalence which could assist Members in assessing the burden of the disease in the herd. The Group invited WOAAH to consider providing more guidance to Members on this subject. This could include indicators such as a reduction in test reactivity and overall incidence of pathological lesions during post-mortem examination.

## 8.4. Vaccination of cattle and wildlife

### 8.4.1. Livestock

The Group noted that the *Terrestrial Manual Chapter 3.1.13. 'Mammalian tuberculosis'* and the *Terrestrial Code Chapter 4.18*, provides foundational information and context regarding the use of BCG as a vaccine against mammalian tuberculosis. The Group discussed the ongoing field trials evaluating the efficacy of BCG vaccination in livestock along with the expert consensus, literature review, and recent meta-analysis, and noted that the BCG vaccine of cattle has been reported to have only a modest direct efficacy<sup>2</sup> (~25%) for reduction in susceptibility to the disease as well as indirect effects in reducing infectiousness. Furthermore, the Group noted that a modelling exercise<sup>2</sup> ("herd level transmission dynamic model") indicated that BCG vaccination may enable a substantial reduction in the future spread and overall burden of disease. The Group also noted that some countries are conducting [field trials](#) for the use of BCG in livestock and highlighted the need for large-scale field trials to assess the efficacy and potential contribution of BCG vaccination of livestock as a component of comprehensive animal TB control plans. Importantly, the Group was of the opinion that the guidelines should highlight that, BCG vaccination for livestock should not be employed as a standalone strategy and should be complemented with other control methods such as those measures included in routine surveillance, movement control, and test and slaughter or segregate.

The Group further recommended to add in the guidelines that Members may consider pilot projects to assess the feasibility and effectiveness of interventions including vaccination, ensuring a comprehensive and informed approach to disease control in their context. These projects could also help Members create a "business case" considering the lower risks and costs, as well as the direct and indirect benefits of implementing BCG vaccination or other interventions for livestock as part of their broader BTB control programme. The Group suggested adding to the guidelines that Members who lack TB control programmes but are TB endemic and are contemplating livestock vaccination should consider the potential benefits, such as reducing public health risks, lowering susceptibility to new infections amid dairy intensification, improving productivity, and enhancing market access as incentives for initiating TB control measures.

Finally, the Group noted that occasional shortages of availability of BCG for use in humans might be a consideration in some regions. In such cases, the Group encouraged Members to assess the ethical implications of using BCG vaccines in animals when there are potential shortages for human vaccines and therefore recommended highlighting this point and including it in the guidelines.

#### **8.4.2. Wildlife**

The Group acknowledged the existence of approved vaccines for badgers, with the Republic of Ireland and the [UK](#) using this strategy into their efforts to control the spread of bovine tuberculosis. However, the Group emphasised that the use of wildlife vaccines for animal tuberculosis is context-dependent. For example, Members in the final stages of disease elimination without infection in livestock might consider vaccinating wild animals and endangered wildlife species. However, this strategy may not be feasible for endemic situations where elimination of the disease in wildlife populations is a stated goal.

### **9. Reducing risk of zoonotic transmission**

The Group acknowledged that the guidelines primarily focused on the control of TB in livestock. However, during the establishment of a business case for TB control in livestock, the Group recommended Members to recognise the importance of considering not only the economic benefits derived from reducing the burden of TB in animals but also assessing the broader public health impacts. The Group highlighted that controlling bovine TB would not only yield economic advantages but may also contribute significantly to public health benefits by reducing risk of zoonotic transmission, mitigating risk of antimicrobial resistance emergence and, improvement in the overall efficacy of health systems. This holistic perspective reinforces the interconnectedness of animal and human health in the context of TB control efforts consistent with the One Health paradigm.

### **10. Other considerations**

The Group noted that there are limited reports of antimycobacterial chemotherapy and chemoprophylaxis of livestock species using compounds such as isoniazid (INH) that are currently used as first line treatments in humans. Furthermore, the Group noted that despite the use of antimycobacterial treatments, particularly INH in susceptible zoo and companion animals, the Group cautioned using this approach in treatment of livestock. The Group noted that despite treatment, there is a possibility that the animal could continue to shed and transmit the disease. The Group acknowledged the concerns regarding antimicrobial resistance and the position of quadripartite partners on the prudent use of antimicrobials, and recommended to discourage the use of antimicrobials for the treatment of TB in livestock in the guidelines. The use of phytochemicals or traditional remedies for TB was also raised, but there is currently insufficient evidence regarding the effectiveness of such treatments. Therefore, the Group recommended to exclude this from the current guidelines, while acknowledging the need for further study in this area, and the potential for emergence of new technologies/ approaches.

### **11. Scenarios for different settings**

The Group recommended adding a separate section in the guidelines that specifically addresses the applicability of different methods to various case scenarios, considering different epidemiological and socio-economic settings. The objective of this section is to provide a progressive approach that recognises the diversity of scenarios and supports effective decision-making in the implementation of TB control measures. The Group also suggested adding specific examples in the guidelines on how different disease control strategies are currently being implemented as part of research activities or national programme.

### **12. Operational Research**

The Group agreed to include a section on operational research, which is also an important component of national disease control programmes. The operational research should be locally driven and generate results that allow assessment of the impact and feasibility of control strategies and, if relevant, inform their improvement.

### **13. Dissemination strategy**

The Group recommended employing a comprehensive dissemination strategy to maximise the impact of the guidelines and suggested targeted communication campaigns for Veterinary Authorities. The Group proposed exploring dissemination through internal WOAHA channels, such as the General Session, WOAHA publications, and other events. Additionally, the Group, emphasising the importance of engagement with FAO, WHO and UNEP (the Quadripartite) for successful dissemination, recommended exploring collaboration with other networks and organisations. The Group further suggested developing content for social media, recognising its broader audience reach. Additional recommendations included a soft virtual launch of the guidelines, training of WOAHA regional representatives on disseminating these guidelines, peer-reviewed publication, and dissemination through this Group's network.

Finally, the Group acknowledged that the tools and science for MTBC infections have evolved and recommended that the Zoonotic TB roadmap be updated, since the 2020 timeline of its milestones has now passed.

#### **14. Next steps**

The Secretariat informed the *ad hoc* Group that once validated by the WOAHA Director General, the report will be presented to the Scientific Commission for consideration at its February 2024 meetings. The second draft of the guidelines will be circulated in first week of March 2024 for final feedback from the Group and the Scientific Commission for animal disease. The guidelines will be launched in April- May 2024 and presented in the General Assembly in May, 2024.

.../Annexes

## Annex 1. Agenda

### MEETING OF THE *AD HOC* GROUP ON ALTERNATIVE STRATEGIES FOR THE CONTROL AND ELIMINATION OF *MYCOBACTERIUM TUBERCULOSIS* COMPLEX (MTBC) INFECTION IN LIVESTOCK

16 - 18 January 2024

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#### Day 1, Tuesday January 16

1. Opening
2. Welcome and brief introduction of the participants (GT)
3. Adoption of the agenda and work plan, and appointment of lead & facilitator (GT)
4. Session 1 - Overview of the project (PF & FO-P)
  - Methodology of the project
  - Presentation of the 1<sup>st</sup> draft of the guidelines
  - Proceeding for group discussions
5. Session 2 – Foundational Framework & Technical guidelines
  - Group Discussion
  - Recommendations for Session 2

#### Day 2: Wednesday January 17

6. Session 2 – Technical guidelines
  - Group Discussion
  - Recommendations for Session 3

#### Day 3: Thursday January 18

7. Session 3 - Designing & structuring of the guidelines.
    - Group Discussion
    - Recommendations for Session 3
  8. Session 4 - Dissemination strategy
    - Group Discussion
    - Recommendations for Session 4
  9. Session 5 – Presentation of report.
    - Presentation of key changes in Second draft of the guidelines
    - Presentation of key recommendations for the AHG report
    - Way forward
    - Day conclusions
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## Annex 2. List of Participants

### MEETING OF THE AD HOC GROUP ON ALTERNATIVE STRATEGIES FOR THE CONTROL AND ELIMINATION OF MYCOBACTERIUM TUBERCULOSIS COMPLEX INFECTION (MTBC) IN LIVESTOCK

16 - 18 January 2024

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#### MEMBERS OF THE AD HOC GROUP

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Senior Animal Health Officer FAO AMR Focal Point Unit Head The Joint FAO/WHO Center (zoonotic disease and AMR)  
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**Dr Paula I Fujiwara**

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#### REPRESENTATIVE OF THE SPECIALIST COMMISSION

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**Dr Silvia Bellini**

Scientific Commission for Animal Diseases  
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## WOAH HEADQUARTERS

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Head  
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Scientific Secretariat Officer  
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## Annex 3. Terms of Reference

### MEETING OF THE AD HOC GROUP ON ALTERNATIVE STRATEGIES FOR THE CONTROL AND ELIMINATION OF MYCOBACTERIUM TUBERCULOSIS COMPLEX INFECTION (MTBC) IN LIVESTOCK

16 - 18 January 2024

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#### 1. Purpose

The purpose of the ad hoc Group is to review the guidelines developed through the WOAAH consultancy project on 'Developing Guidelines for Alternative Strategies for the control of *Mycobacterium tuberculosis* complex infection in 'livestock' and provide recommendations and expert opinion on specific aspects identified by the authors. For the purpose of this ad hoc Group, zoonotic tuberculosis (zTB) is defined as an infection in humans caused by those species belonging to the *Mycobacterium tuberculosis complex* (MTBC) that are transmitted from an animal host.

The ad hoc Group is convened under the authority of the Director General of the WOAAH and reports through the Scientific Commission for Animal Diseases.

#### 2. Background

In 2017, the Food and Agriculture Organization (FAO), the World Organisation for Animal Health (WOAH), the World Health Organization (WHO), and the International Union Against Tuberculosis and Lung Disease (Union) jointly developed a Roadmap for Zoonotic Tuberculosis (TB), and a call for action to tackle zTB in people and animals. The Roadmap lays down 10 priorities, which include: (i) the need to reduce the prevalence of TB in livestock; (ii) the development of policies and guidelines for the prevention and, surveillance and control of TB in animals, and (iii) the implementation of community-based interventions to reduce burden of TB in humans and livestock, recognising the cultural and socio-economic realities of each setting.

In September 2020, the WOAAH ad hoc Group (AHG) on Alternative Strategies for the Control and Elimination of *Mycobacterium tuberculosis* complex infection in livestock considered addressing the three specific priorities listed above and discussed actionable strategies to control TB in livestock other than by test and slaughter. The Group suggested that the selected TB control strategies need to be flexible and adaptable to the changing conditions of real-world scenarios, taking into account the socio-economic and cultural settings. The Group recognised that one of the critical tasks of this initiative is to elicit expert opinions on science-based and community-accepted TB control strategies through interviews and focus groups with subject-matter experts.

To support the Roadmap for Zoonotic Tuberculosis and a call for action to tackle zTB in people and animals, the Centers for Disease Control and Prevention (USA) has awarded a federally funded project to WOAAH for 'Strengthening animal health systems to enhance prevention, detection and response to emerging zoonotic 'diseases'. As a part of the project, WOAAH launched a consultancy for the development of guidelines for alternative strategies for TB control in livestock. The objective of this consultancy is to identify alternative strategies for control of *Mycobacterium tuberculosis* complex infection in livestock through a literature review, a survey, interviews and focus group discussions with experts from different geographical background and multidisciplinary domains, such as those who may be involved in the bovine supply chain, animal /public health policymakers, field veterinarians, epidemiologists, meat traders, dairy farmers etc.

The consultants have now developed a literature review of the existing strategies for controlling MTBC infection in livestock, and elicited expert opinions through surveys, interviews and focus group discussion. The consultants have analysed the findings and prepared a first draft of the guidelines for alternative strategies for control of MTBC infection in livestock that will be presented to the WOAAH ad hoc Group.

The discussions for the validation of the guidelines will take place through discussions with the WOAAH ad hoc Group, WOAAH headquarters, and the consultants during the in person meeting.

Based on the feedback from this WOAAH ad hoc Group, the consultants will revise the guidelines. The final output will be presented to the WOAAH Scientific Commission in 2024 for its opinion and subsequently to the WOAAH DG for validation.

#### 3. Actions to deliver for the first meeting

The ad hoc Group will:

- Consider findings from the literature review, online survey, focus group discussions and interviews prepared by the consultants on current disease control strategies for TB in livestock, including identifying constraints and

limitations of approaches, but also identify opportunities for improving the effectiveness of existing disease control measures.

- Review and discuss the draft guidelines on alternative disease control strategies drafted by the consultants for TB in livestock that could reduce economic impacts, while remaining socially and culturally acceptable in low-resource settings. These strategies should consist of measures that can be implemented at the herd level, with the potential to scale up to national and regional strategies.
- Provide expert opinion and recommendations on the specific technical content of the guidelines identified by the consultants.

#### 4. WOAH Considerations

Ad hoc Group members are expected to be familiar with:

1. The [Roadmap for Zoonotic Tuberculosis](#).
2. [Chapter 8.12](#) 'Infection with *Mycobacterium tuberculosis* complex' of the WOAH *Terrestrial Animal Health Code* (most recent update adopted in 2017).
3. [Chapter 3.1.13](#) 'Mammalian tuberculosis (infection with *Mycobacterium tuberculosis* complex)' of the WOAH *Terrestrial Animal Health Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (most recent update adopted in 2022).
4. The literature review, online survey, focus group discussions and interviews developed through this consultancy.
5. Draft guidelines for alternative strategies for the control of *Mycobacterium tuberculosis* complex infection in livestock developed through this consultancy.
6. All other relevant material shared by the WOAH and *ad hoc* Group's members.

#### 5. Expectations

*Ad hoc* Group members should:

- Sign the WOAH Undertaking on Confidentiality of Information (if not done already).
- Complete the Declaration of Interests form.
- Read and study in detail all materials provided by the WOAH prior to the meeting (see section "WOAH Considerations").
- Agree on the appointment of the Chair of the Group.
- Contribute to online and offline discussions.
- Contribute to drafting any advice.
- Understand that the membership of this *ad hoc* Group may be revised between group meetings to reflect changing needs and priorities (for example, if additional expertise becomes necessary).

#### 6. Deliverables

Deliverables of this *ad hoc* Group include:

- Provide feedback on the literature review, online survey, focus groups discussions and interviews and the draft guidelines developed through the consultancy.
- Produce a report of the meeting summarising its recommendations within 2 weeks of the meeting.
- Provide advice, if any, of the proposed disease control alternatives may require a revision of the WOAH standards on tuberculosis.

#### 7. Reporting / timeline

An introductory video call will be organised in December 2023 or early January 2024 to provide the *ad hoc* Group with the necessary background information including materials to be discussed during the in-person meeting, which will take place from 16 to 18 January 2024 at WOAH Headquarters in Paris, France.