Quality assessment of contagious bovine pleuropneumonia (CBPP) T1/44 vaccines

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INTRODUCTION

Contagious bovine pleuropneumonia (CBPP) is a highly contagious respiratory disease affecting cattle, caused by *Mycoplasma mycoides* subsp. *mycoides*. It causes major economic losses in Africa due to animal deaths, loss of productivity, and costs of control measures. Vaccination is a key control strategy along with biosecurity measures. Ensuring good quality control of CBPP vaccines is critical for effective disease control.

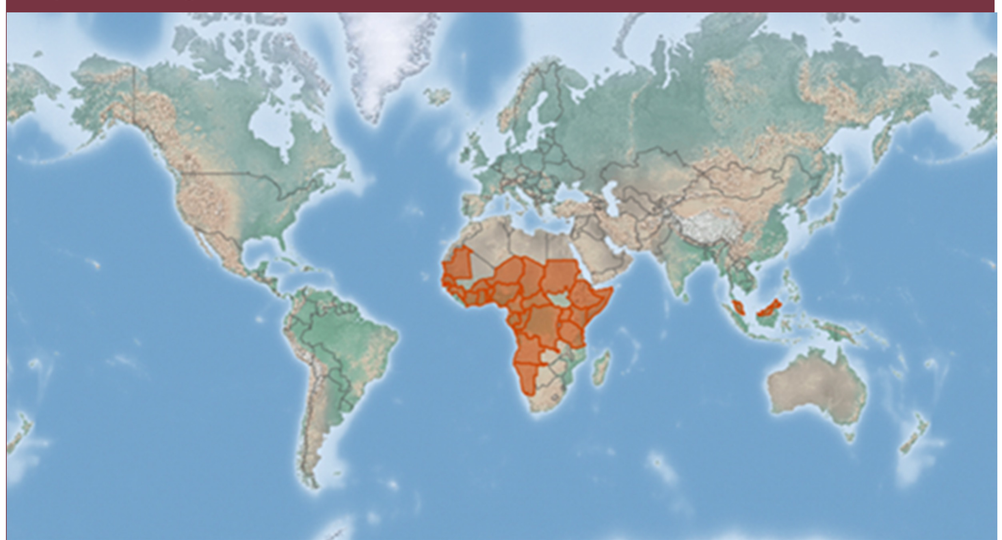
CURRENT STATUS OF CBPP VACCINE

1. Available vaccines: live attenuated freeze-dried vaccines.
2. QC tests recommended by OIE:
    1. Sterility and purity to detect bacterial/fungal contaminants.
    2. Identity to confirm the strain.
    3. Safety tests in cattle to check for excessive virulence.
    4. Potency.

CHALLENGES

- Lack of harmonized QC protocols among manufacturers.
- Technical difficulties in potency testing (challenge tests).
- *In vitro* potency tests are not fully predictive of vaccine efficacy.
- Cold chain is difficult to maintain in some remote areas.
- Lack of correlates of immune protection to guide *in vitro* tests.

Map showing CBPP endemic Areas



CABI, 2024. contagious bovine pleuropneumonia. In: CABI Compendium. Wallingford, UK: CAB International.

Funded by

BILL & MELINDA GATES foundation

OBJECTIVES

- To identify challenges and gaps in the quality of CBPP vaccines.
- To assess the quality of CBPP vaccines during vaccination in African Countries.
- To establish *in vitro* potency assays for live attenuated CBPP vaccines

METHODOLOGY

- Literature review of published research on CBPP vaccine QC.
- Performing a field survey of vaccine quality during vaccination using three different vaccine brands by random sampling in cross-sectional studies in 3 countries in Africa.
- Establishing *in vitro* assays to establish a potency test (Growth inhibition assays).

EXPECTED OUTCOMES

- Analysis and documentation of challenges and gaps in quality of CBPP vaccines.
- Recommendations for improving vaccine stability in field conditions.
- Standardization of cell culture-based assays for *in vitro* potency testing.
- Identification of knowledge gaps and priority areas for further investigation.

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The International Livestock Research Institute thanks all donors & organizations which globally support its work through their contributions to the CGIAR Trust Fund. cgiar.org/funders