CONTAGIOUS BOVINE PLEURO-PNEUMONIA

steps towards control of the disease

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Introduction

• CBPP is a highly contagious acute, subacute or chronic disease of cattle disease of cattle and water buffalo caused by *Mycoplasma mycoides mycoides* small Colony (*MmmSC*).
• It is characterised by fibrinous interstitial pneumonia, pericarditis and pleurisy, up to 100% morbidity and up to 50% mortality.
• *MmmSC*, lacks a cell wall and is highly pleomorphic (spherical, pear-shaped, filamentous)
• Requires special media rich in cholesterol for growth.
• Fragile and survives poorly outside the host
• It is sensitive to dessication and disinfectants
Disease transmission

- Transmitted almost exclusively by direct contact between infected and susceptible cattle
- Cattle are herded closely together or crowding of cattle favour rapid spread of the disease.
- Asymptomatically and chronically infected animals are very important in the spread of the disease to new areas.
- Chronic carriers often referred to as lungers (healthy looking) animals that have a localized focus of infection sequestered in a fibrous capsule in their lungs.
History of CBPP in Kenya

- CBPP outbreaks in Kenya date as far back as 1907

- In 1970s and 1980s the disease seemed to have been under control being confined only to the North parts of the country.

- Re-emergence 1990s in areas previously believed to have been free of the disease has threatened the livelihood of the pastoralists.

- For the purposes of controlling the disease the country has been zoned and rezoned over the years to include any new knowledge of out break of the disease
CBPP control

Control strategies
- vaccination
- test and slaughter
- movement control and quarantine
- surveillance and reporting
  - field surveillance
  - abattoir surveillance
  - laboratory diagnosis
CBPP Control

- The national policy with respect to CBPP is “control and eventual eradication in collaboration with neighbours”
- **CBPP clean zone**: maintain it clean while applying for freedom from disease to the OIE.
- **Surveillance area**: surrounds the infected zone—determined by natural barriers, animal movement patterns; continuous surveillance and movement from here to clean area must be by special permit
- **CBPP infected zone**: intensive vaccinations (biannual) and surveillance
CBPP CONTROL

- **Control strategies**
- **Method to be applied is dependent on the zone**
  - vaccination
  - test and slaughter
  - movement control and quarantine
  - surveillance and reporting
    - field surveillance
    - abattoir surveillance
    - laboratory diagnosis
CBPP Zonation 2010

Considers

- Pattern of disease outbreaks
- Situation of disease in neighboring countries
- Surveillance
  - Abattoir
  - Field
- Recommendations from
  - Workshops
  - Studies
  - Consultancies
CBPP field diagnosis

- Field diagnosis: occurrence of respiratory disease in a number of cattle in a herd where there is acute or chronic coughing, dyspnoea and loss of weight is highly suspicious of CBPP.
- Respiratory signs include fast, difficult and noisy breathing; discharge from the nose and coughing, especially after exercise.
- A yellow fluid in the chest cavity; lungs covered with yellowish material; lungs adhered to the chest wall; lungs that do not collapse and are solid, hepatized or marbled or sequestra are all indicative of CBPP.
CBPP lab diagnosis

- definitive diagnosis is based on isolation and identification of the causative agent and/or the finding of specific antigens or antibodies by appropriate serological tests.
- CBPP may be confused with haemorrhagic septicaemia, East coast fever, bronchopneumonia resulting from bacterial or viral infections, acute pasteurellosis, bovine tuberculosis, actinobacillosis, traumatic pericarditis, abscesses, or hydatid cysts.
- Samples for diagnosis of CBPP must be collected and transported in appropriate temperatures to reach the lab the soonest possible
CBPP Approved Labs in Kenya

- CBPP testing in Kenya is performed at
- Central Veterinary Laboratories (CVL) of the Department of Veterinary Services, Kabete.
- National Veterinary Research Centre (NVRC) of KARI
- Biotechnology laboratory of KARI
- International Livestock Research Institute (ILRI)
- Mobile field Screening teams distributed strategically to prevent CBPP entry into CBPP clean zones
CBPP diagnostic tests in Kenya

- Isolation of the causal *Mycoplasma mycoides* subspecies *Mycoides* the small colony variant *MmmSC*
- The OIE prescribed test CFT and cELISA used to establish the tests animals for the purpose of trade sero-surveillance respectively
- Field CFT is used for screening of the animals before movement
- The CVL has the capacity to perform the Immunoblot technique and LAMP-PCR for diagnosis of CBPP.
Samples for CBPP diagnosis

- Specimens of lung tissue from obvious lesions, tracheobronchial mediastinal lymph nodes, and at least 10 ml of pleural fluid should be collected aseptically.
- Joint fluid from the joints of affected calves
- Plueral fluid (transport in media that protects mycoplasma and prevent other bacteria from multiplying)
- Tissue specimens collected into neutral buffered formalin for histopathology.
- Blood samples for serum (collected from any cattle showing clinical signs and also health looking animals)
LOCATION OF CBPP FIED TEAMS
CBPP screening teams

- Central screening team at CVL Kabete (Central part of the country, quality control, technical support for other teams)
- West Pokot screening team that serves the Northern and Western part of the country
- Isiolo screening team that serves the Northern and Eastern part of the country
- Garissa screening team (North-Eastern Province)
- Tana-River screening team (supports Garissa team in providing the 2nd CFT test for animals trekking for trade from the North-eastern province to the Coast Province)
- Nakuru screening team which is to be moved to Narok district and serves the Southern part of the country.
Thank you