Background

The major transboundary diseases (TAD) and in particular contagious bovine pleuropneumonia (CBPP) are one of the most important constraints to the development of the livestock sector in Angola. The success for the control of CBPP will depend on concise information on the extent of the endemic focus in southern Angola, which is not connected to any other infected areas on the continent. Accurate diagnosis and laboratory confirmation are essential. The IAEA assists Angola through IAEA TCP ANG/5/002 to improve the control of CBPP and other TAD.

Objectives and content of the workshop

The overall objective of the workshop is to establish a comprehensive capacity for the monitoring and surveillance of CBPP at the laboratory level which is linked to the field activities. Additional objectives are to improve the effectiveness of the laboratory and field activities for the monitoring and surveillance of CBPP and other transboundary animal diseases and to achieve a better integration of these activities.

The first part of the workshop during the first week will focus on stock inspectors and meat inspectors and cover the clinical diagnosis and the post mortem diagnosis of CBPP. It will also include practical aspects on sample collection, preparation and submission to the laboratory.

The laboratory component in the remaining three weeks will focus on laboratory staff and all relevant aspects for the laboratory confirmation of CBPP such as sample taking, sample preparation, the bacteriological and serological diagnosis of CBPP, in particular the use of the cELISA for the detection of antibodies to Mycoplasma mycoides subsp. mycoides SC (MmmSC), the problems associated with the isolation and cultivation of mycoplasmas, and the identification of using bacteriological/biochemical techniques and dot blots. The main serological techniques such as the complement fixation test and the competitive ELISA for the detection of antibodies to MmmSC will be dealt with in detail. An
introduction and practical exercises for a pen side test for the detection of the MmmSC capsular polysaccharide-specific antigen by latex agglutination test will be included in the workshop.
The main objective is to give the participants an understanding on the background and practical aspects of the clinical diagnosis, sample taking and the confirmatory laboratory diagnosis of CBPP. This also includes the background on the epidemiology of CBPP and the surveillance of CBPP and other transboundary diseases.

**Nature of workshop**

The workshop will be held in two parts and each part will consist of a series of formal presentations, which are followed by practical exercises and discussions. Practical sessions for sample taking, preparation and submission to the laboratory for confirmation will be included.

The first part of the workshop consisting of five days is for stock inspectors, meat inspectors and field staff and will focus on the clinical diagnosis of CBPP, disease reporting, meat inspection/post mortem examinations for CBPP, sample taking from live animals and sample submissions to the laboratory.

The second part of the workshop consisting of three weeks will be for veterinarians, laboratory technicians and will include disease reporting, sample taking, sample submission and all practical aspects on the diagnosis of CBPP. Lectures and exercises on test interpretation and epidemiology are included to give an understanding of the general principles of disease surveillance.

The presentations will be in English and Portuguese. Participants should be able to follow scientific presentations in English.

**Venue, duration and date of workshop**

It is proposed to hold the workshop at the Regional Laboratory, Lubango, from 1-26 September, 2003.

**Background and qualification of participants**

The first part of the workshop will be open to 12 technicians, meat inspectors and stock inspectors from the veterinary services of Angola. The second part of the workshop is open to 10 diagnosticians and technicians from veterinary laboratories of Angola involved in the diagnosis of CBPP.
# Timetable

1st part of the workshop for meat inspectors and stock inspectors

**Monday, 1 September**
- Opening of the course
  - Director
- Introduction of participants and administrative arrangements
  - Workshop director
- CBPP in Angola: background, distribution and significance
  - Presentation-Director
- Pathogenesis of mycoplasma infections
  - Lecture-Baptista
- Clinical diagnosis and differential diagnosis of CBPP
  - Lecture
- Post mortem findings, gross lesions
  - Lecture

**Tuesday, 2 September**
- Sampling of live animals
  - Practical
- Post mortem diagnosis of CBPP, gross lesions
  - Lecture/Practical
- Post mortem of an affected animal
  - Practical
- Sampling from carcasses
  - Practical
- Histology
  - Practical

**Wednesday, 3 September**
- Field trip
- Clinical investigations of CBPP outbreaks
  - Practical
- Outbreak investigations, forward tracing, backward tracing
- Participatory disease search (interviews with farmers)
  - Practical
- Sampling from live animals
  - Practical

**Thursday, 4 September**
- Slaughter house and meat inspection
  - Practical
- Sanitary inspections
  - Practical/Lecture

**Friday, 5 September**
- Sampling in outbreaks, storage of samples, submission of samples, background for serological testing, isolation of mycoplasma,
Background of control programmes (movement controls, stamping out, vaccination)
CBPP control in Angola
Closing of first part of workshop

2nd part of the workshop:
*Laboratory component for laboratory technicians, veterinarians*

First week laboratory workshop

**Monday, 8 September**

- Opening of the laboratory component
- Introduction into the objectives of the workshop- administrative arrangements
- ANG/5/002 background and objectives
- Historical and epidemiological background of CBPP
- CBPP in Angola, background, distribution and significance
- CBPP in Namibia, background and control programmes

**Director**

**Workshop director - R. Geiger**

**Presentation-R. Geiger**

**Presentation-J. Regalla**

**Tuesday, 9 September**

- Organisation of serology laboratory (e.g. collection, handling, registration and preparation of biological material for serology)
- Laboratory diagnosis of CBPP in Namibia – SOPs and techniques
- Serum banks, background, organization
- Introduction into epidemiology and sampling frames
- Surveillance and control of transboundary animal diseases – regional control programmes

**Presentation/practical-J. Regalla**

**Presentation-Representative Namibia**

**Presentation-R. Geiger**

**Lecture-R. Geiger**

**Presentation/discussion-R. Geiger**

**Wednesday, 10 September**

- Serological diagnosis of CBPP, revision of serological methods (fundamentals and limitations)

**Lecture- J. Regalla**
Basic considerations in the interpretation of laboratory tests  
Complement fixation test  
Competitive ELISA

Lecture-R. Geiger
Lecture-J. Regalla
Lecture-R. Geiger

Thursday, 11 September

Competitive ELISA for the detection of antibodies to MmmSC
Serological surveillance of CBPP in Namibia
Quality control of ELISAs

Practical-Tjipura-R. Geiger
Presentation-Tjipura
Presentation-R. Geiger

Friday, 12 September

Competitive ELISA for the detection of antibodies to MmmSC
ELISA data management
Discussion and interpretation of ELISA results

Practical-Tjipura-R. Geiger
Presentation-Tjipura
Presentation-R. Geiger

Second week laboratory workshop

Monday, 15 September

Preparation of buffers and reagents
Titration of the reagents (complement, haemolysin and antigen)
Complement fixation test
Interpretation of results
Preparation for biochemical tests

Practical-J. Regalla
Practical-J. Regalla
Practical-J. Regalla

Tuesday, 16 September

Veterinary significance and importance of mycoplasmas
Preparation of media, liquid, solid
Complement fixation test
Interpretation of results

Lecture-A. Botelho
Practical-A. Botelho
Practical-J. Regalla

Wednesday, 17 September

Characteristics of bovine mycoplasmas
MmmSC the etiological agent of CBPP
Culturing of MmmSC

Lecture-A. Botelho
Lecture-A. Botelho
Practical-A. Botelho
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**Thursday, 18 September**
- Immunoblotting test (IBT)  
  *Lecture/Practical-J. Regalla*
- Preparation of digitonin sensitivity test  
  *Lecture/Practical*

**Friday, 19 September**
- Immunoblotting test (IBT)  
  *Lecture/Practical-J. Regalla*
- Interpretation of serological results  
  *Round table discussion*

**Third week laboratory workshop**

**Monday, 22 September**
- Observation of mycoplasma growth, liquid and solid media  
  *Lecture/practical-A. Botelho*
- Confirmatory tests for mycoplasma  
  *Lecture-A. Botelho*

**Tuesday, 23 September**
- Latex agglutination test  
  *Lecture/Practical-A. Botelho*
- Reading and interpreting the results  
  *Lecture-A. Botelho*
- Colometric PCR for the detection of MmmSC, confirmation of MmmSC by PCR-background, problems and potentials of the technique  
  *Lecture-A. Botelho*

**Wednesday, 24 September**
- Interpretation of digitonin sensitivity test  
  *Lecture/Practical*
- Dot blot test  
  *Lecture/Practical*

**Thursday, 25 September**
- Confirmatory tests, biochemical test  
  *Practical*
- Background  
  *Lecture*
- Reading and interpretation of results  
  *Lecture/Practical*

**Friday, 26 September**
- Standing operating procedures for the  
  *Lecture, practical*
laboratory diagnosis of CBPP
Discussion of the workshop results  Lecture
Evaluation of the workshop