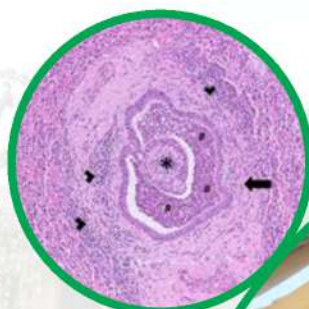




World Organisation
for Animal Health
Founded as OIE



VETERINARY SCIENCES RESEARCH INSTITUTE



TRAINING GUIDE FOR CBPP COMPLEMENT FIXATION TEST (CFT)

1.0 Introduction

Contagious bovine pleuropneumonia (CBPP) is a disease of cattle prevalent in many parts of Africa caused by *Mycoplasma mycoides subsp. mycoides* Small Colonies (MmmSC). Diagnosis depends on the isolation of the aetiological agent (Antigen) and by serological tests (Antibodies). For serological diagnosis, the modified complement fixation test, as outlined by Campbell & Turner, (1953) continues to be the recommended test.

CFT-is a WOAHA-recommended serological test for CBPP used to detect antibodies (Ab) against MmmSC. It detects IgM antibodies, with high specificity making it better for herd-level screening than individual diagnosis. It is highly effective in identifying animals during the acute stages of the disease.

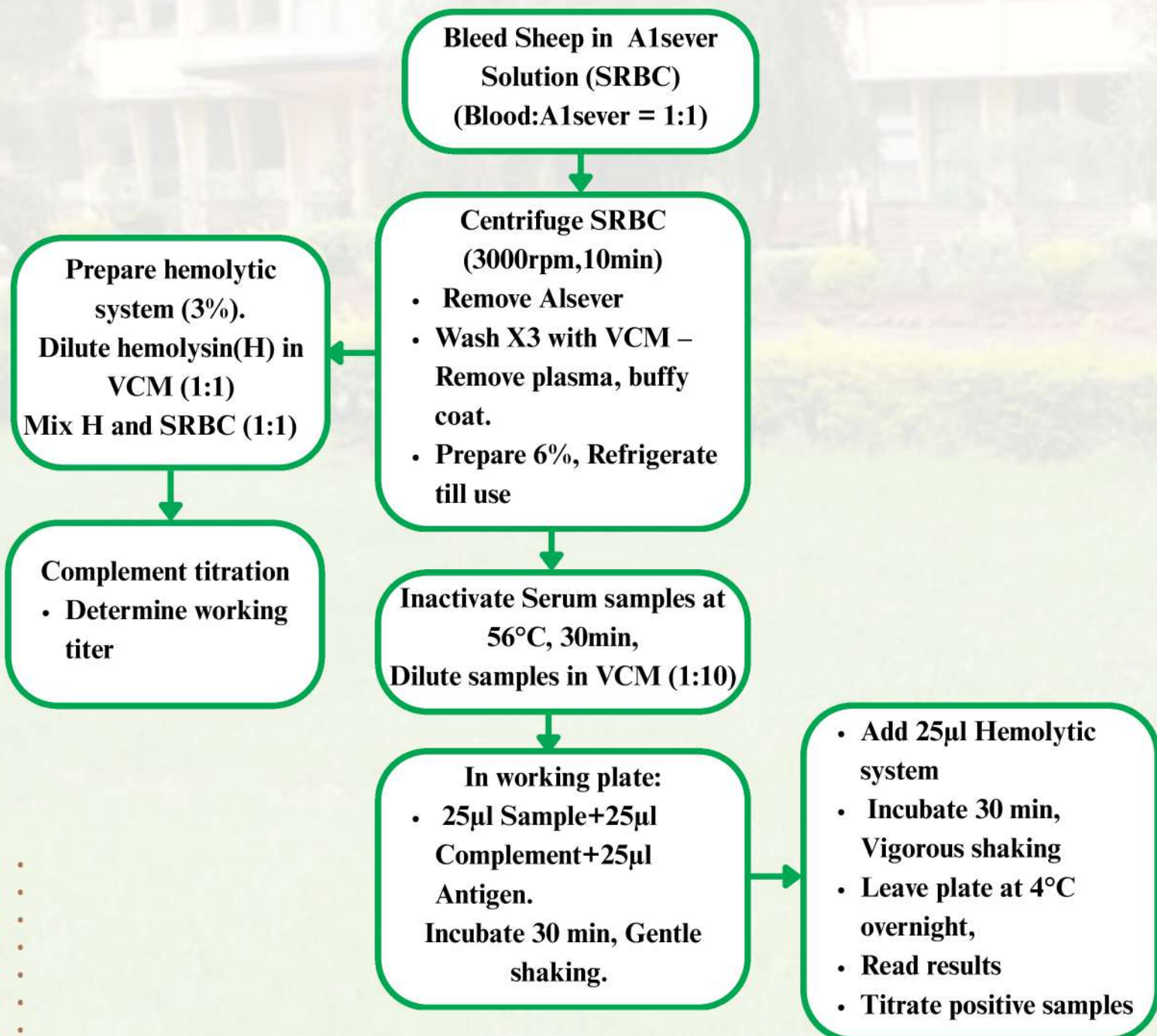
1.1 Objectives of CFT training in relation to Abattoir surveillance

- To strengthen early detection and reporting systems for CBPP. Combine abattoir findings with CFT results to facilitate timely reporting of confirmed cases to veterinary authorities and national surveillance systems.
- To strengthen the linkage between abattoir inspection and laboratory diagnosis. Enable participants to integrate post-mortem findings from abattoir surveillance with CFT results for accurate confirmation of suspected CBPP cases.

Requirements for CFT

- Antigen: *Mycoplasma mycoides subsp. mycoides* (MmmSC)
- Complement
- Hemolysin
- Sheep Red Blood Cells – Indicator system
- VCM- Veronal Buffer with calcium and magnesium
- Alsever Solution

1.2 Flow chart of Complement Fixation Test



1.3 Results Interpretation

Reading of the microplate is based on macroscopic observation

Positive: Ag + Ab \succ AgAb + C' \succ AgAbC' + SSRBCs \gg No haemolysis observed

Negative: Ag - Ab \succ Ag + C' \succ AgC' + SSRBCs \gg Haemolysis observed

Recording/Scoring:

0 - Complete haemolysis -(shown by Ag control, NS, C'1)

1- Almost complete haemolysis - fixation (shown by C'2)

2- Partial haemolysis -(shown by C'3)

3- Very slight haemolysis - (shown by C'4)

4- No haemolysis - (shown by PS Control, HS)

NB: Titrate Positive samples to determine antibody titer.



Fig 1: Microtiter plate showing results of serum samples in 1:10 dilution.



Fig 2: Microtiter plate showing titration results of serum samples in double dilution.

Acronyms used

AG- Antigen

C1 – working dilution of Complement

C2, C4, C8- Double dilution of complement from the working dilution

HS- Hemolytic system

NC- Negative Control

AC-Anticomplementary control

1.4 Discussion

The training on Complement Fixation Test for CBPP plays a critical role in strengthening abattoir-based surveillance systems. By improving technical capacity in laboratory diagnosis and linking abattoir inspection findings with serological confirmation, veterinary services can enhance the accuracy and reliability of CBPP detection. The harmonization of testing procedures and improved reporting systems contribute to more effective epidemiological monitoring of the disease. Ultimately, integrating CFT with abattoir surveillance strengthens early detection, supports evidence-based disease control strategies, and enhances regional efforts toward the control of CBPP in affected countries.

**KENYA AGRICULTURAL AND LIVESTOCK
RESEARCH ORGANIZATION (KALRO)**

**VETERINARY SCIENCES RESEARCH INSTITUTE
(VSRD), MUGUGA NORTH**

**P.O. Box 32-00902,
Kikuyu, Kenya.**

Tel: 020 - 2519769, 2524616

Fax: +254 020 2020512

Email:

director.vsri@kalro.org

Website:

[http://www.kalro.org/Veterinary Research Institute](http://www.kalro.org/Veterinary_Research_Institute)