World Organisation for Animal Health

IZS TERAMO

WOAH Reference Laboratory for CBPP

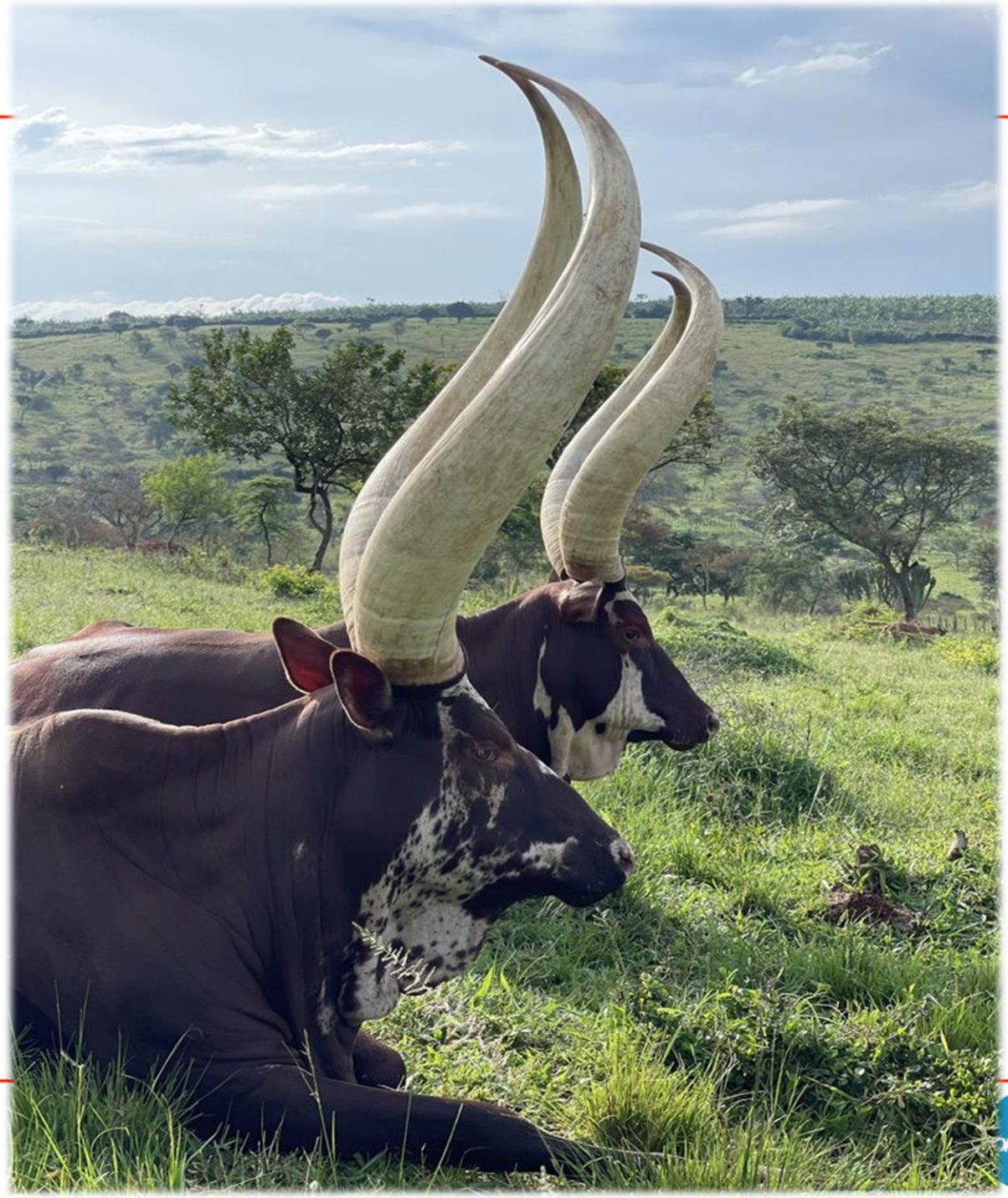
Regional Training Course on Abattoir Surveillance for Contagious Bovine Pleuropneumonia (CBPP)

24 – 27 March 2026, Nairobi, Kenya

COMESA SPS Project

World Organisation for Animal Health

CBPP Differential Diagnosis



Dr. Daniel Senerwa
Uiversity of Nairobi

Dr. Leruo Keokilwe
Department of Veterinary Services
Provided this presnetation Online Training
02 December 2025

Regional Training Course on Abattoir Surveillance for Contagious Bovine Pleuropneumonia (CBPP)
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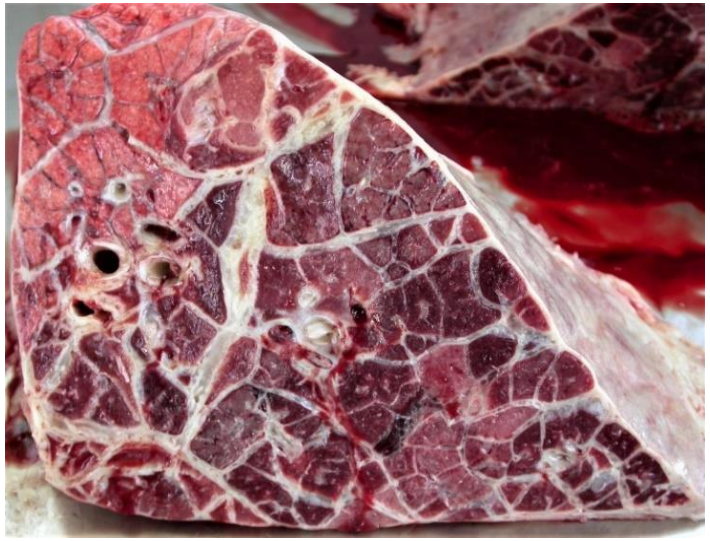
Overview of CBPP Clinical Signs

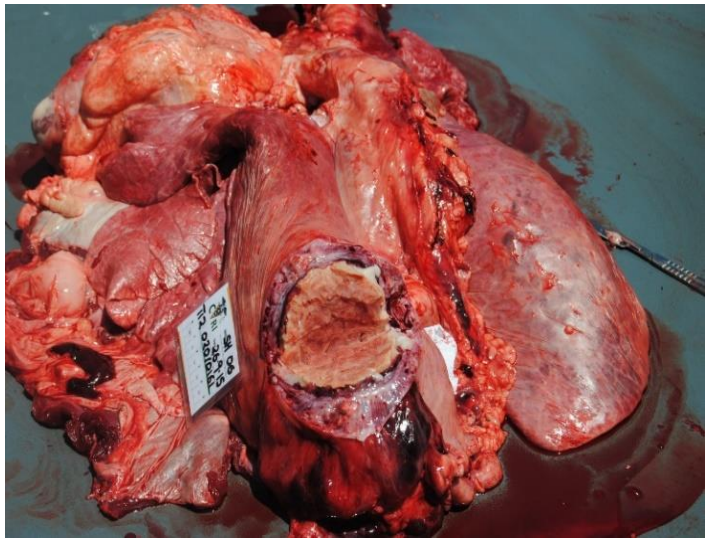
- CBPP affects the lungs and may present in the hyperacute, acute and chronic form
- Hyperacute: sudden death and fever may be the only clinical sign
- Acute:
    - Fever (up to 42°C)
    - Rapid or difficult breathing
    - Anorexia
    - Cough exacerbated by exercise
    - Vocalisation/grunt due to pain
    - Reluctance to move
    - Standing with splayed legs and head extended
    - Nasal discharge that turns mucopurulent and
    - ptyalism
- Chronic: emaciation and cough

Overview of CBPP Pathologic lesions



Typical pneumonic lesions observed in acute, subacute cases show: lung hepatisation characterized by a ‘marbling’ appearance and the distension of interlobular septae

Fibrinous pleuropneumonia can be seen at post mortem with or without the accumulation of pleural fluid and adhesions of the lung to the chest wall



Chronic lesions resulting in the formation of one or more sequestra

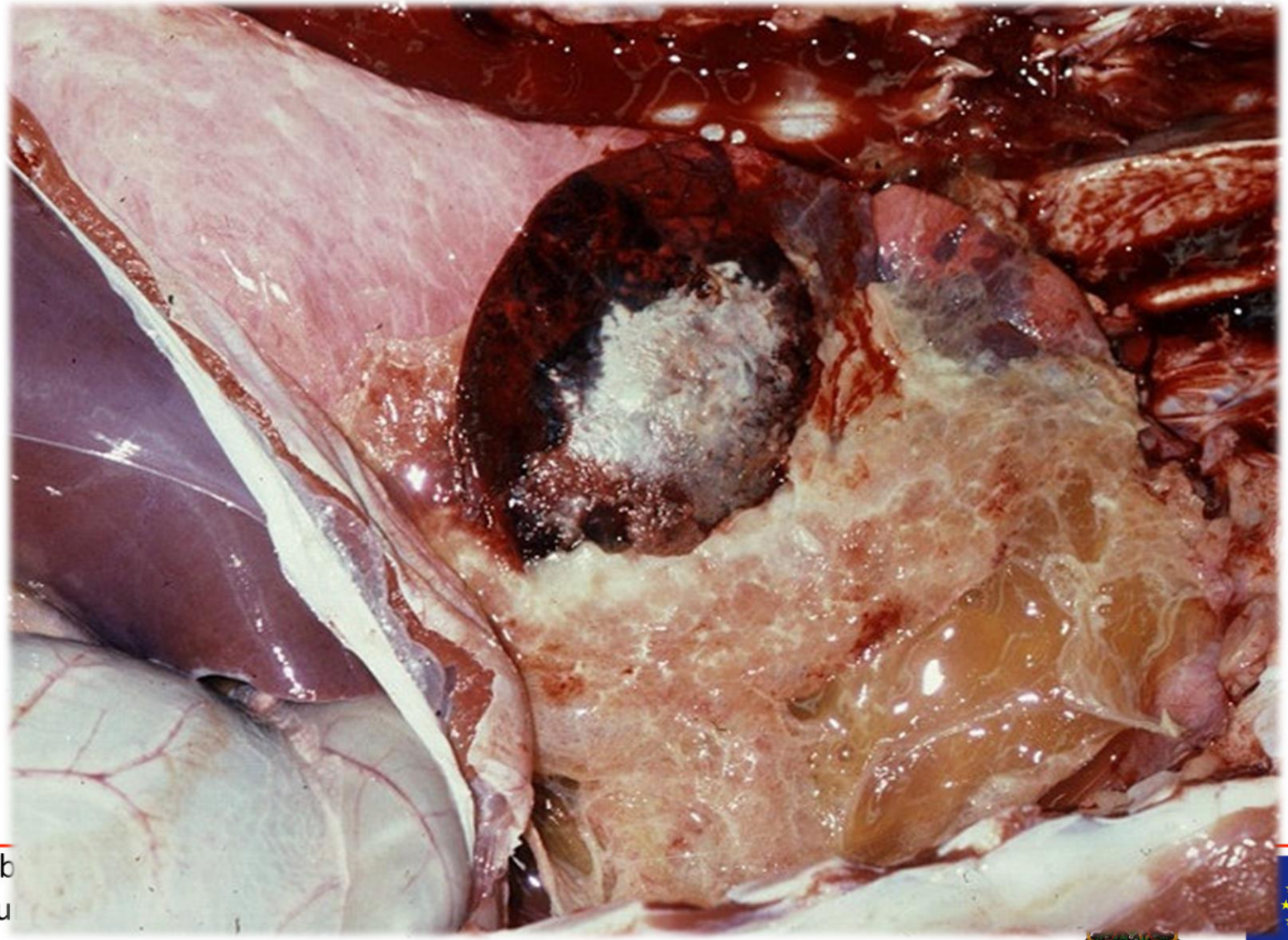
Mannheimia haemolytica and Pasteurella multocida

- ***Mannheimia haemolytica* serotype 1** is the bacterial pathogen most frequently isolated from the lungs of recently weaned feedlot cattle with bovine respiratory disease and in dairy, beef or veal calves with enzootic pneumonia
- ***Pasteurella multocida*** is also an important cause of bacterial pneumonia
  - Clinical signs: A combination of depression and fever (40°–41°C) without any signs attributable to other body systems, are the classic clinical components

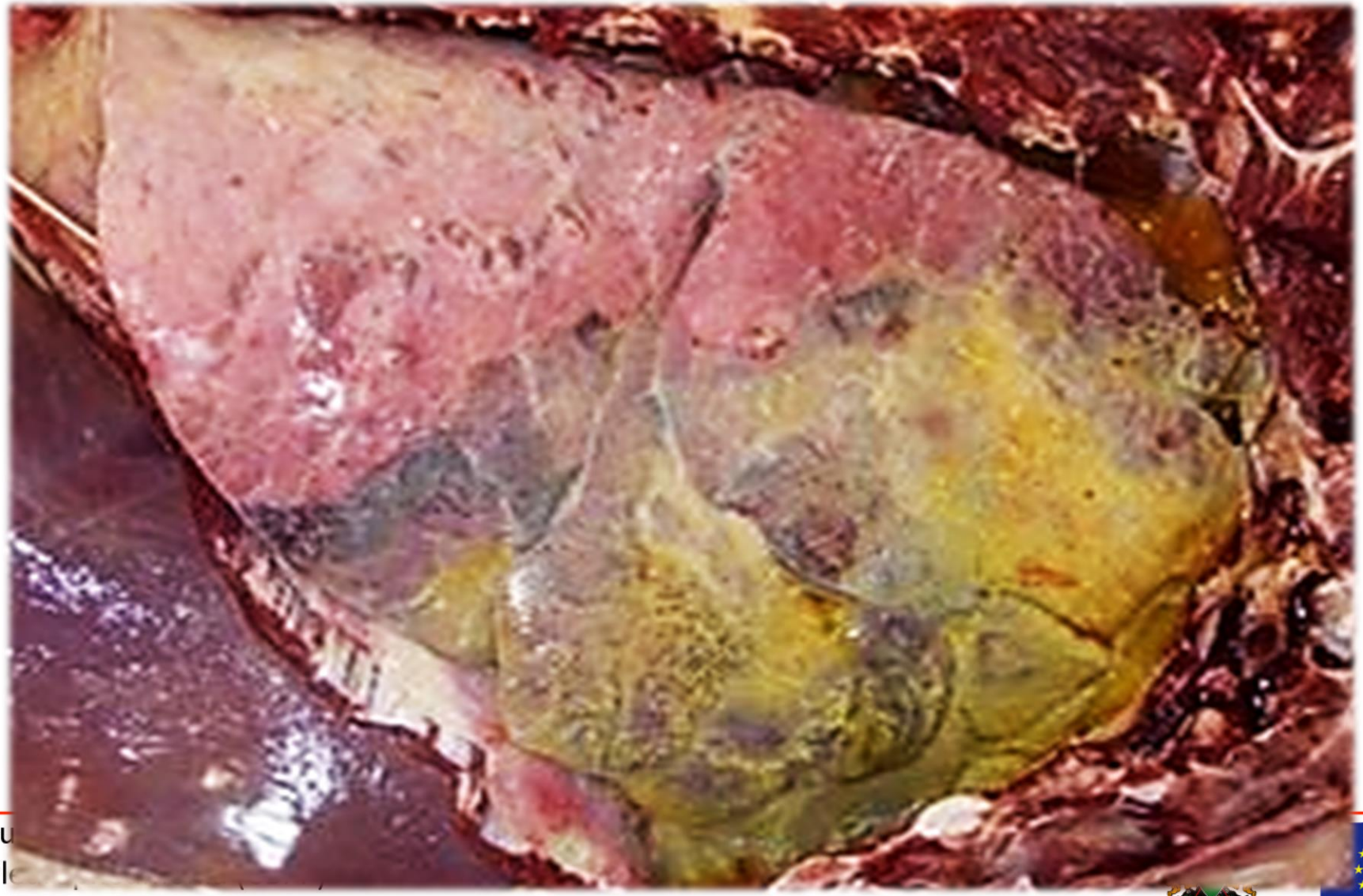
Mannheimia haemolytica and Pasteurella multocida - Lesions

- *M. Haemolytica* causes a severe, acute, haemorrhagic fibrinonecrotic pneumonia
  - Grossly, there are extensive reddish-black to greyish-brown cranioventral regions of consolidation with gelatinous thickening of interlobular septa and fibrinous pleuritis
- *P. Multocida* is associated with a less fulminating fibrinous to fibrinopurulent bronchopneumonia

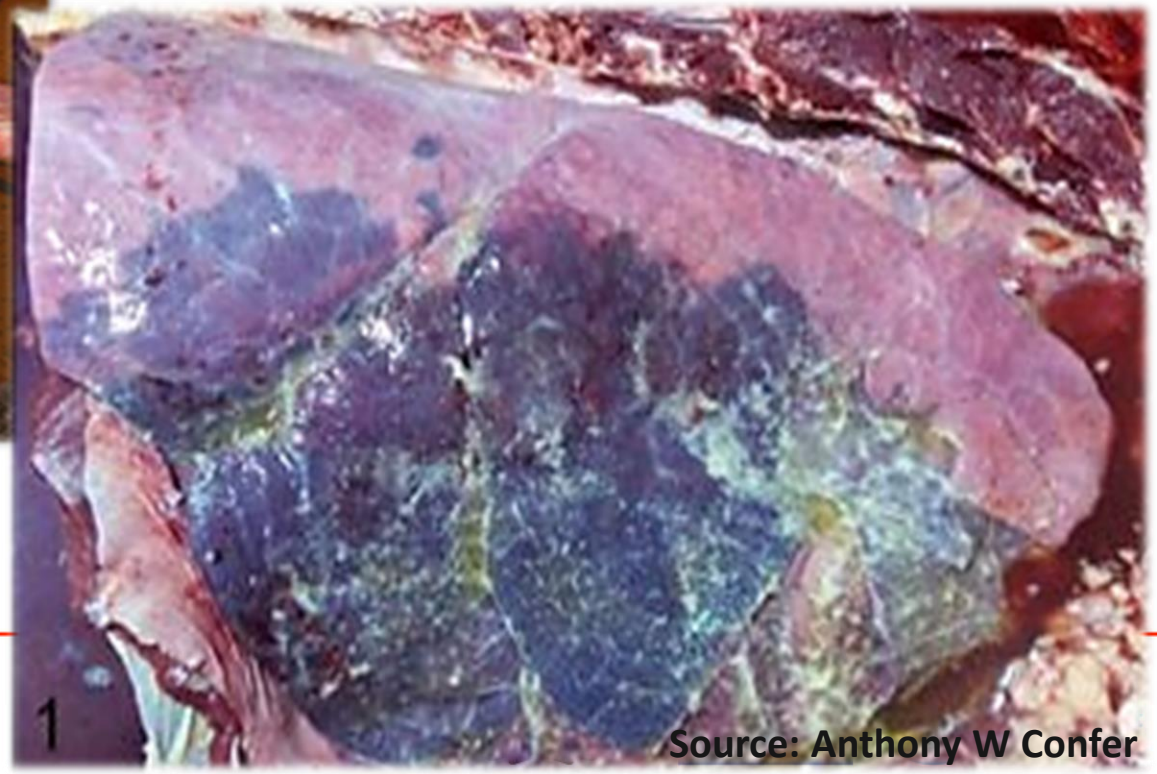
Mannheimia haemolytica



Mannheimia haemolytica



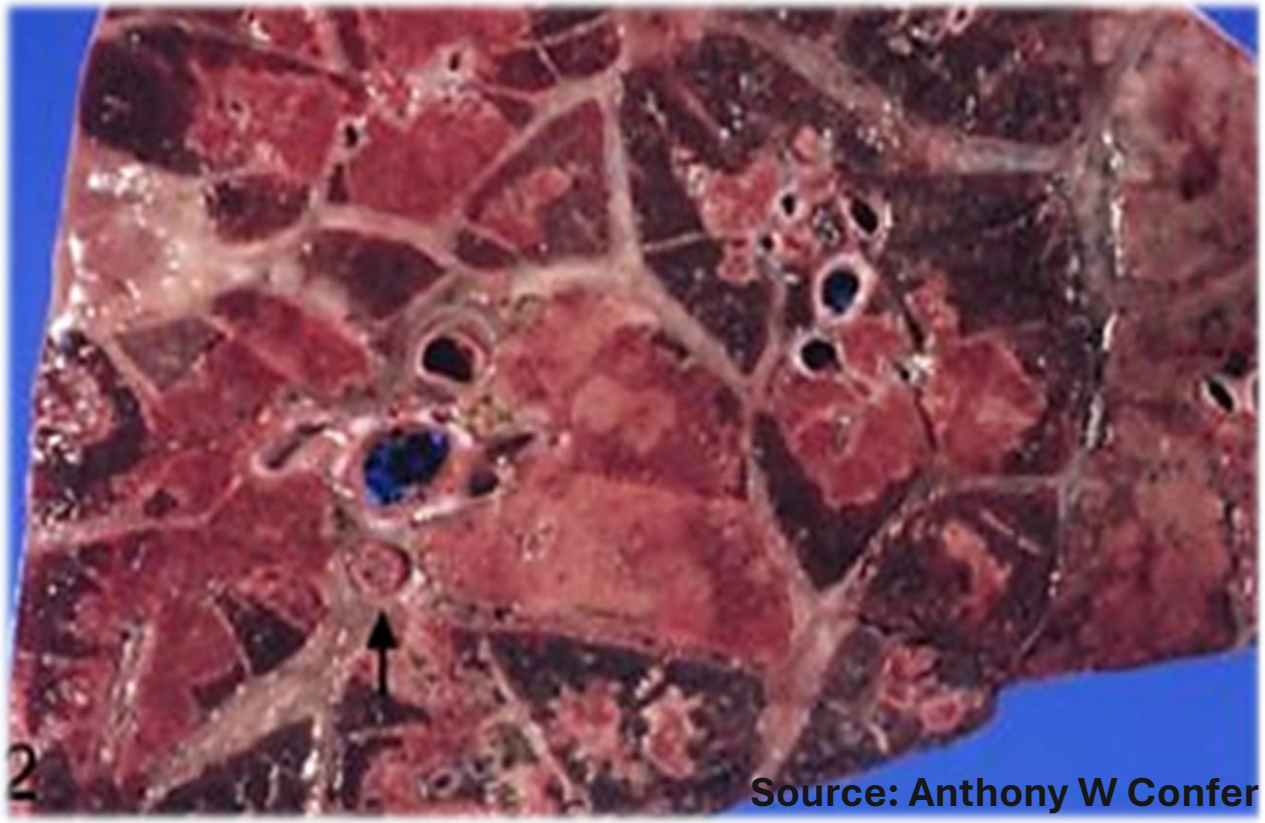
Mannheimia haemolytica



Source: Anthony W Confer

Mannheimia haemolytica

Source: M.M. Biesheuvel



Source: Anthony W Confer

Pasteurella multocida

Source: https://doi.org/10.1590/0103-8478cr20170750

CBPP

Bovine Herpesvirus 1 (BoHV-1) - IBR

- Clinical signs: Bovine herpesvirus 1 is associated with several clinical manifestations in cattle: infectious bovine rhinotracheitis (IBR), infectious pustular vulvovaginitis, balanoposthitis, conjunctivitis, abortion, encephalomyelitis, and mastitis

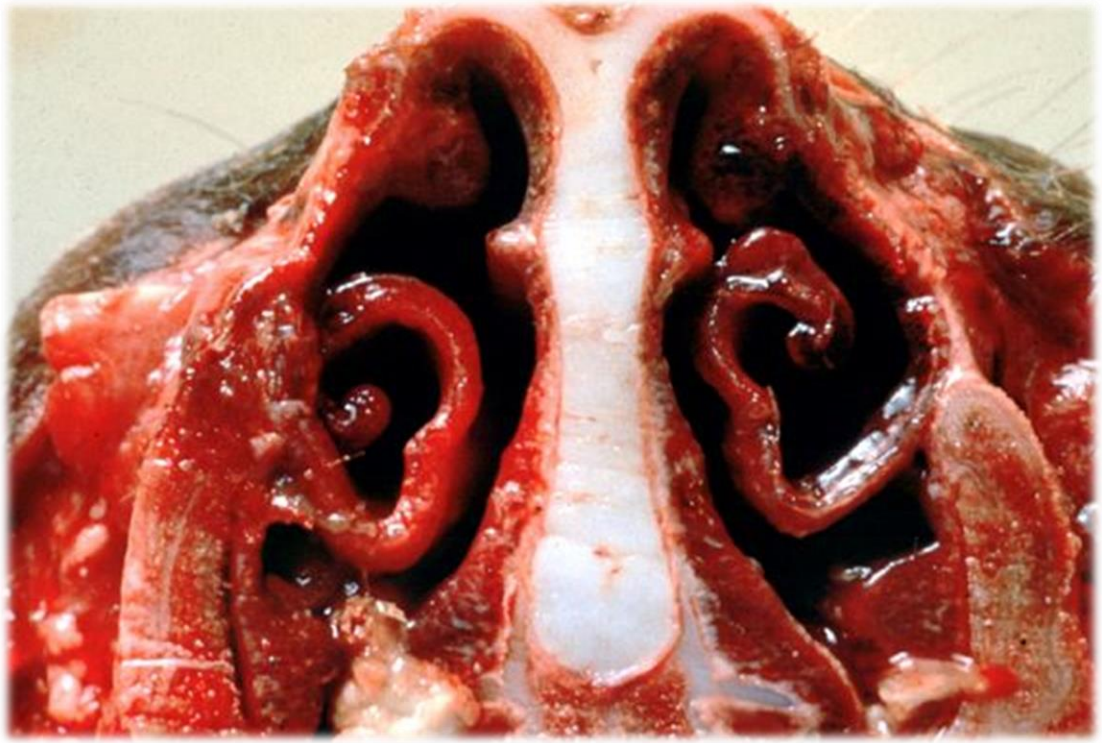
- Lesions: In uncomplicated IBR infections, most lesions are restricted to the upper respiratory tract and trachea

IBR

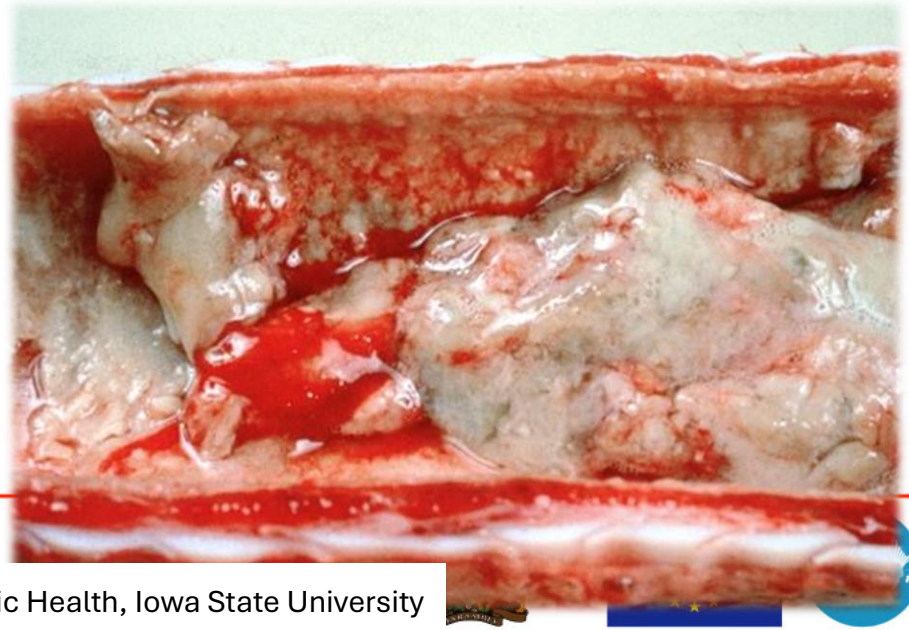
Source: Dr. John Campbe

Source: www.vet111.co.nz

IBR



Source: CABI Compendium



Source: Center for Food Security and Public Health, Iowa State University

IBR and Mannheimia haemolytica

IBR and Mannheimia haemolytica

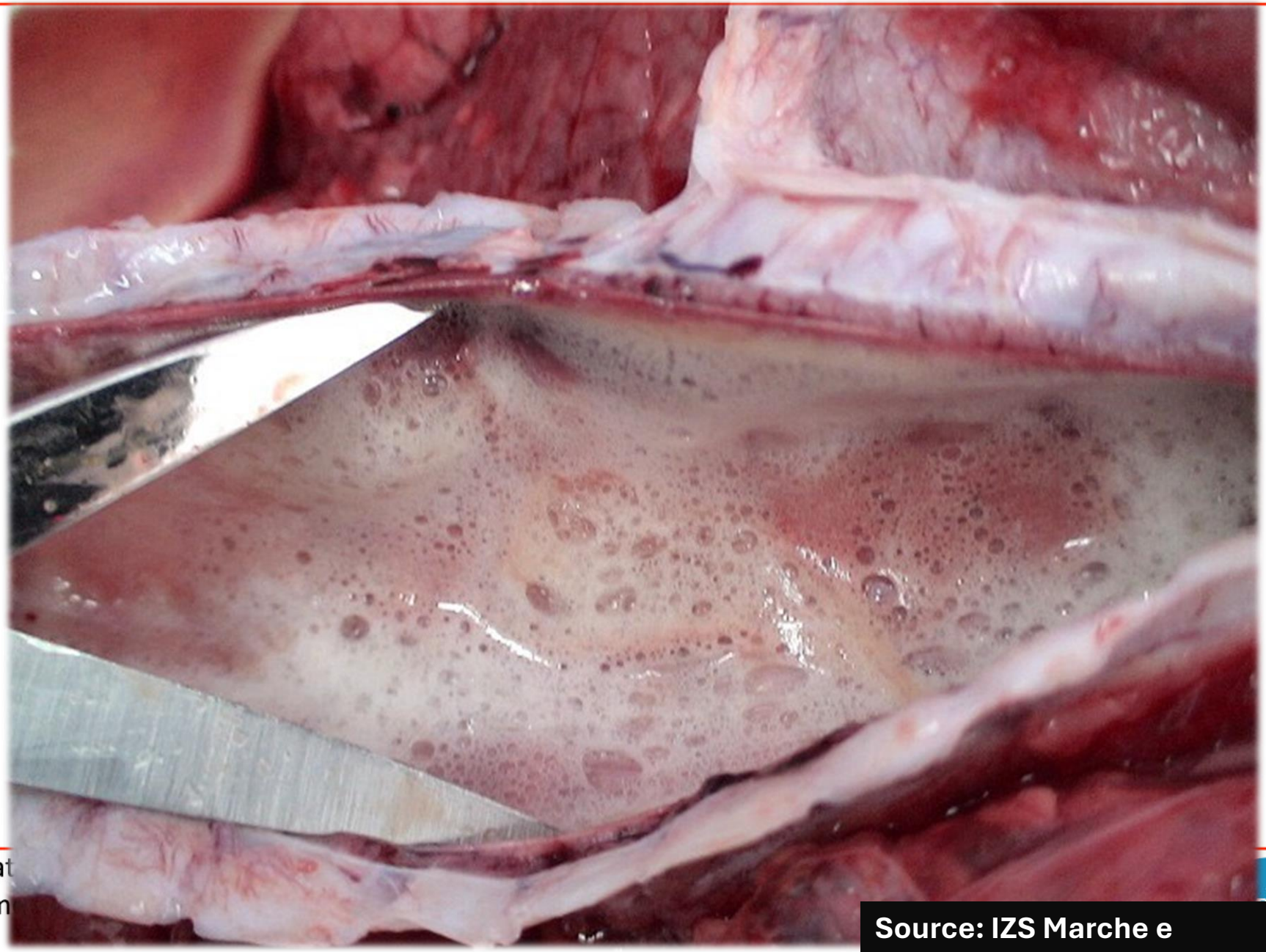
Bovine Respiratory Syncytial Virus (BRSV)

- **Bovine Respiratory Syncytial Virus (BRSV)** often associated with **Bovine Parainfluenza 3 Virus** is involved in outbreaks of Bovine Respiratory Disease affects young calves and young stock
- Outbreaks are typically related to environmental stress factors
- Clinical signs: Naïve calves usually develop a fever starting about 2 days after exposure, with body temperatures reaching up to 40 °C, often associated with depression, lack of appetite or anorexia, and an increased respiratory rate

Bovine Respiratory Syncytial Virus (BRSV)

- Lesions: The results obtained at post-mortem investigation are similar for both viruses
  - The most common macroscopic lesions described are multilobular consolidation, mainly in the cranial lung lobes
  - Interlobular emphysema is characteristic of BRSV infection but has not been described after infection with BPIV3

BRSV



Source: IZS Marche e

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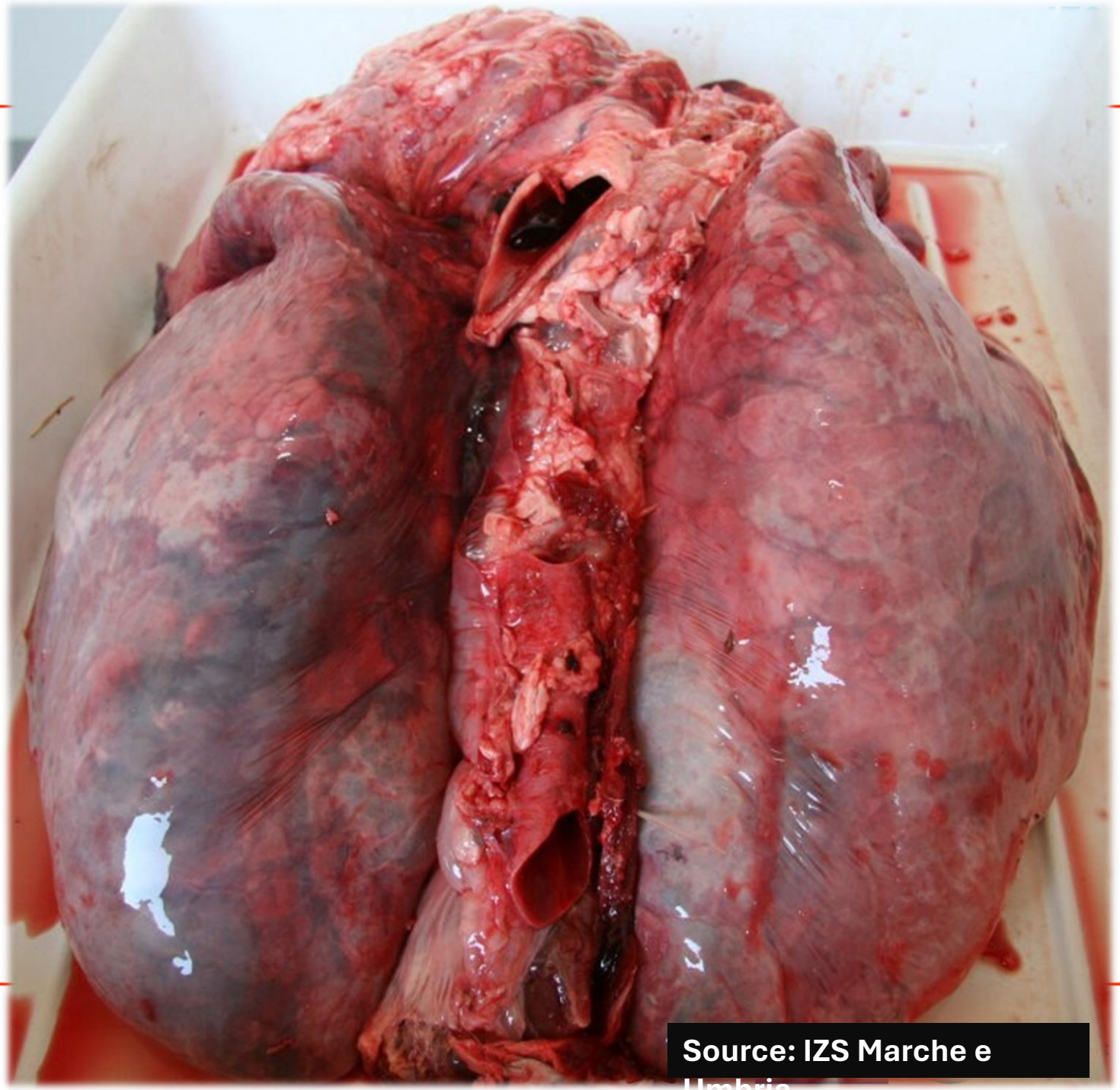
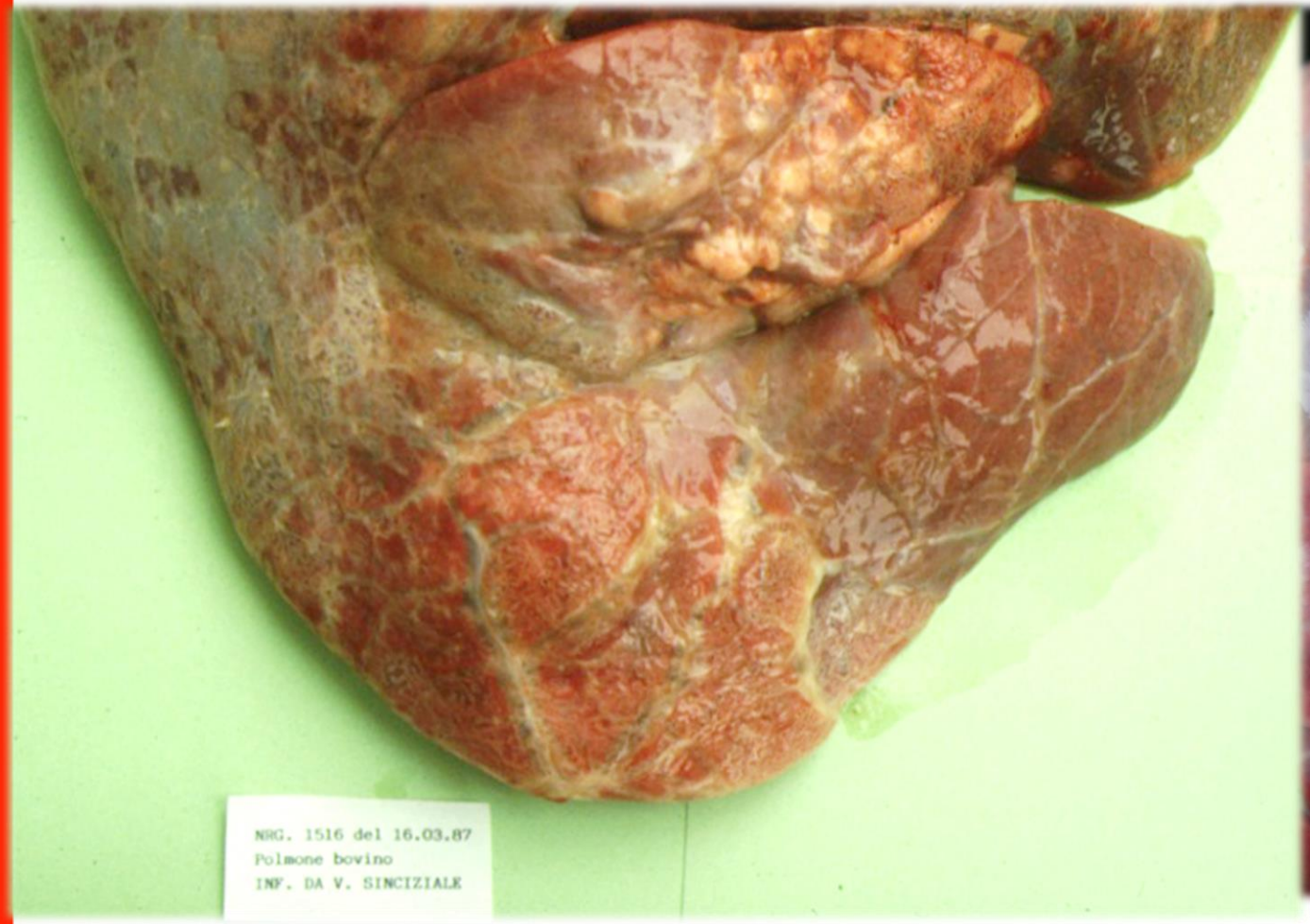
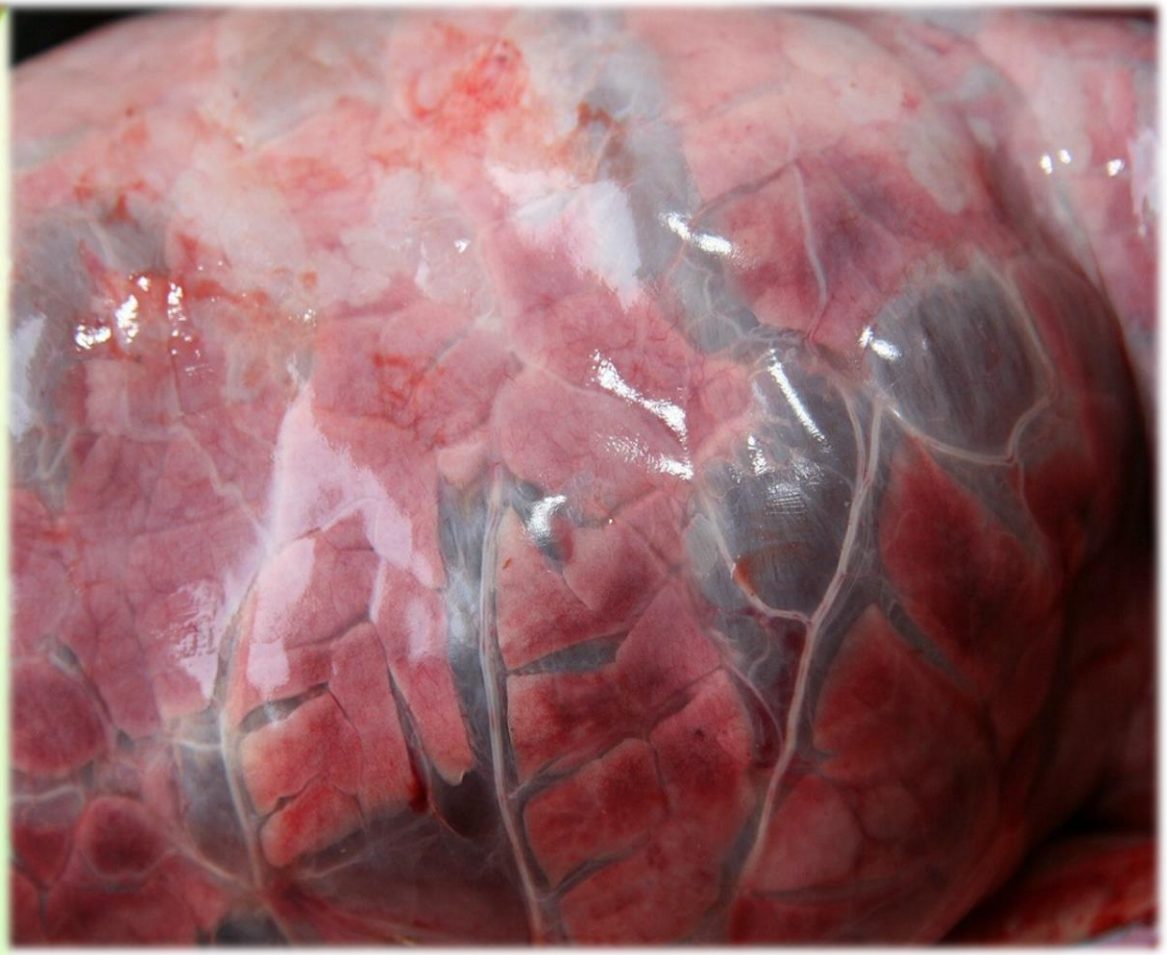
BRSV



Source: IZS Marche e Umbria

BRSV





Source: IZS Marche e

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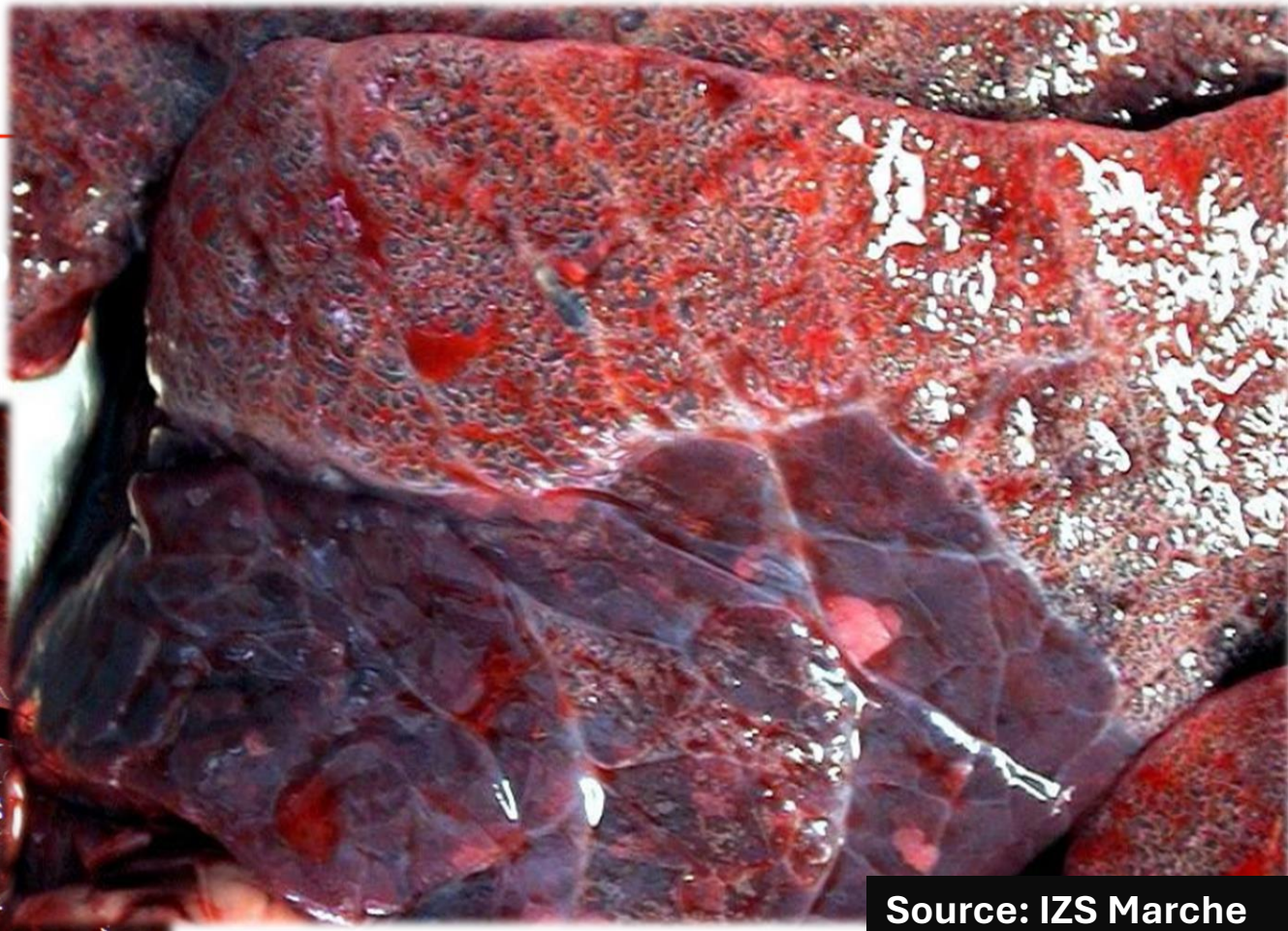
BRSV



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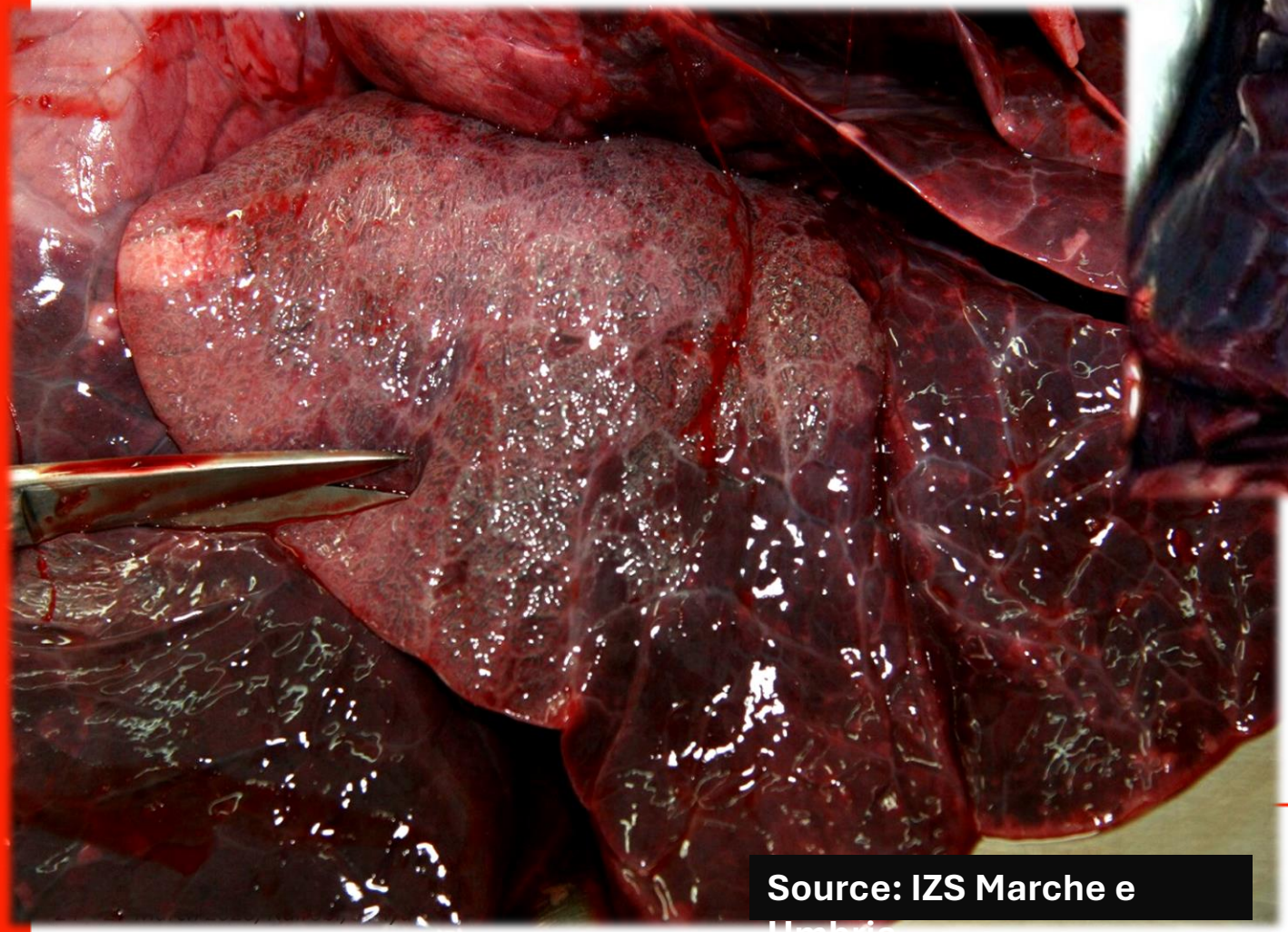

Source: IZS Marche e Umbria

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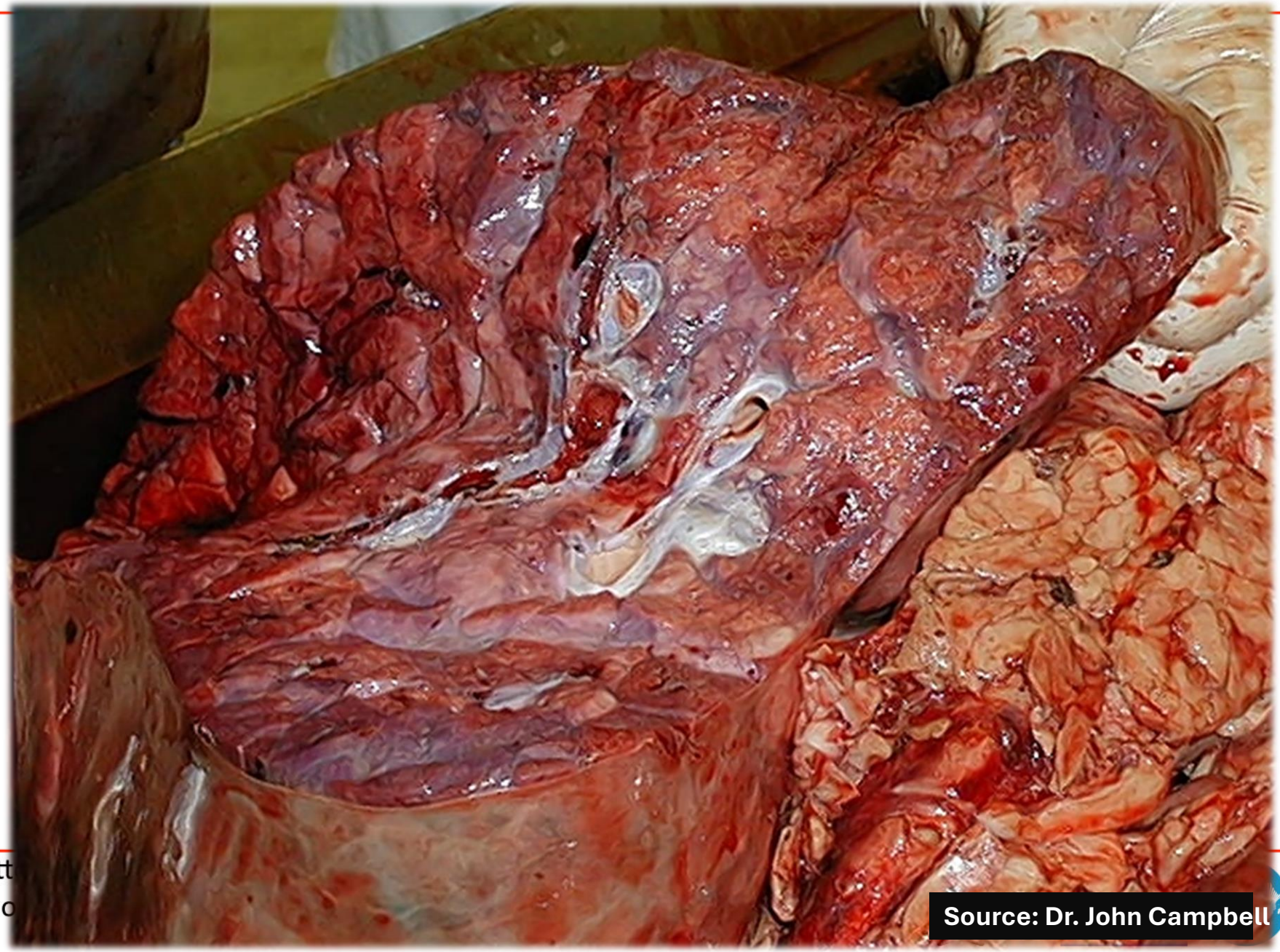
BRSV



Source: Dr. John Campbell

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Mycoplasma bovis

- ***Mycoplasma bovis*** is an important cause of chronic respiratory disease and arthritis in feedlot cattle and in young dairy and veal calves
- Clinical signs: *M. bovis* has been associated with otitis media and a syndrome involving chronic pneumonia and polyarthritis in feedlot cattle and in young dairy and beef calves

Mycoplasma bovis

- Lesions: These cattle invariably have chronic bronchopneumonia with caseous and coagulative necrosis, and 40%–60% may also develop a polyarthritis and tenosynovitis that causes severe chronic lameness
- The condition results in a chronic disease that does not respond to antimicrobial treatment; many of these animals are euthanized as a result

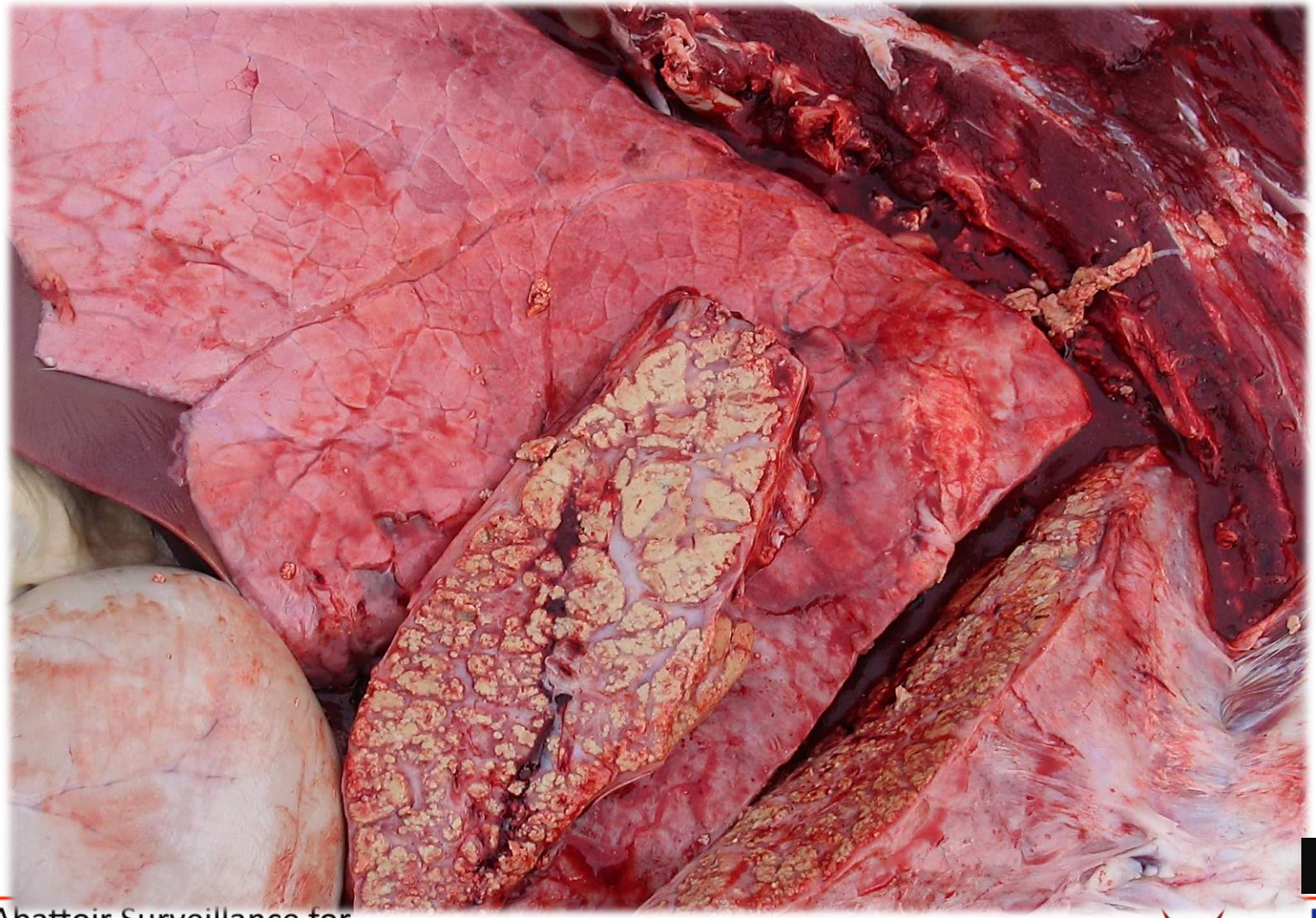
Mycoplasma bovis

Source: Dr R. Nicholas

Mycoplasma bovis

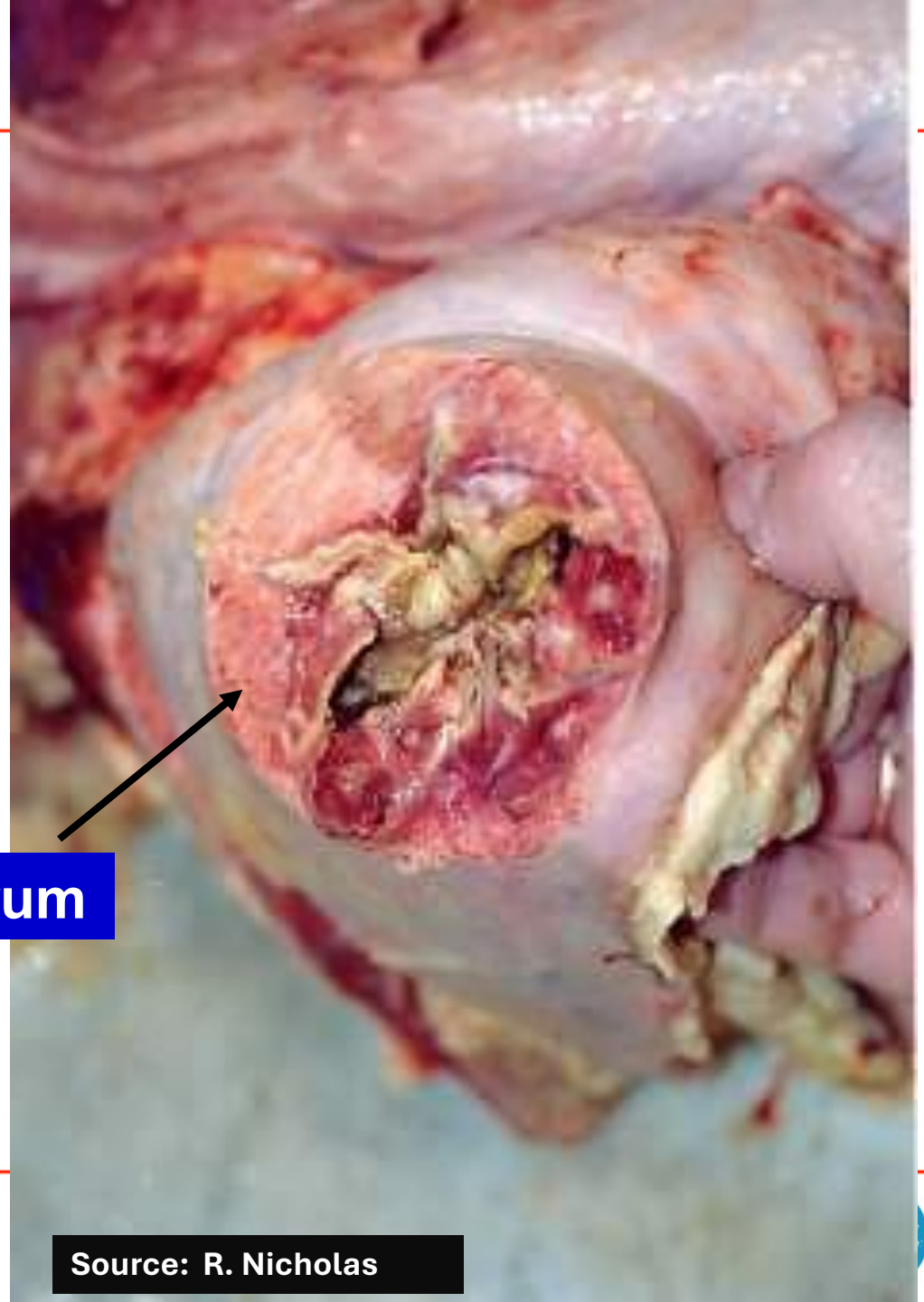
Source: R. Nicholas

Mycoplasma bovis

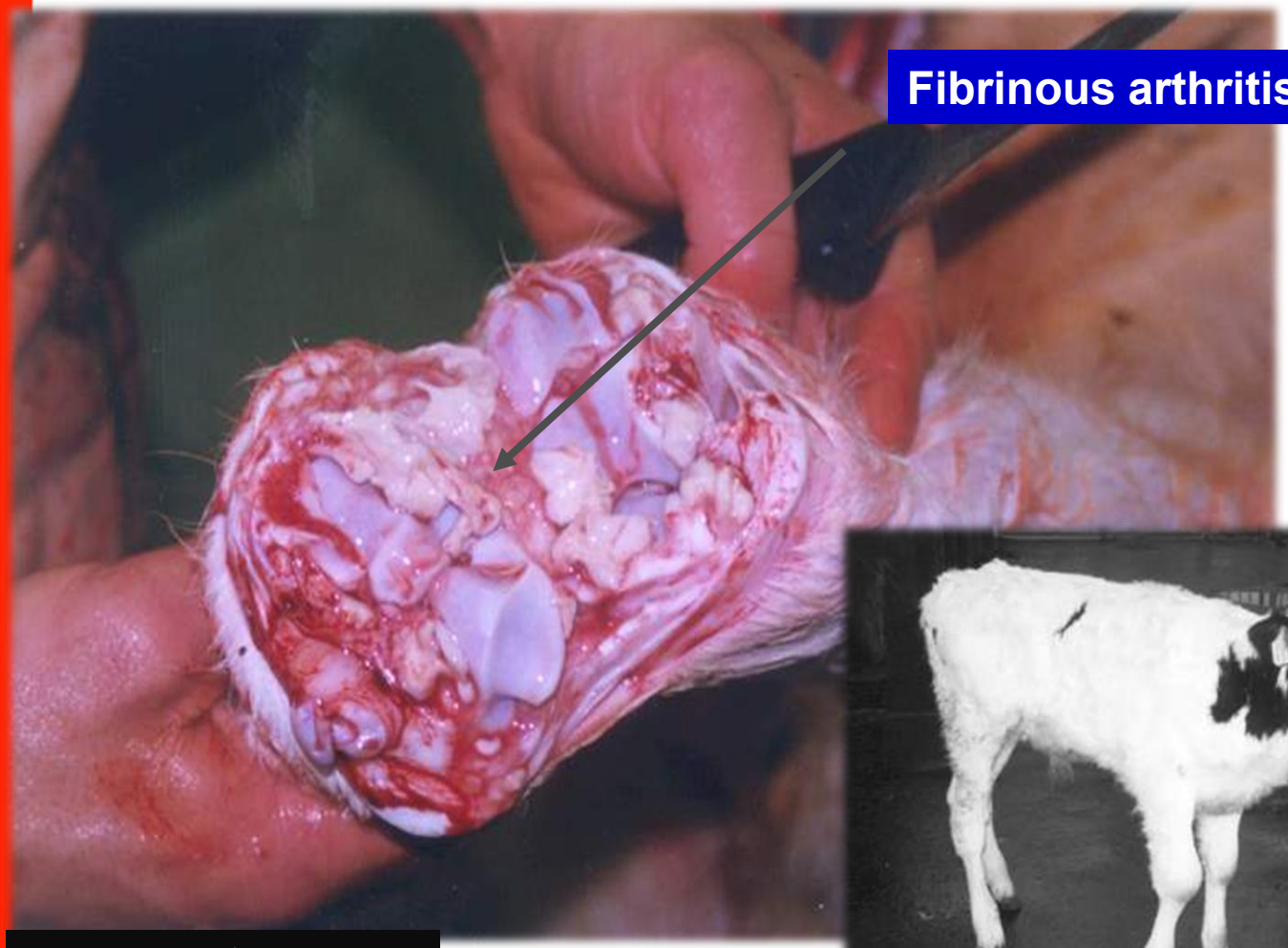


Source: John Campbe

Mycoplasma bovis



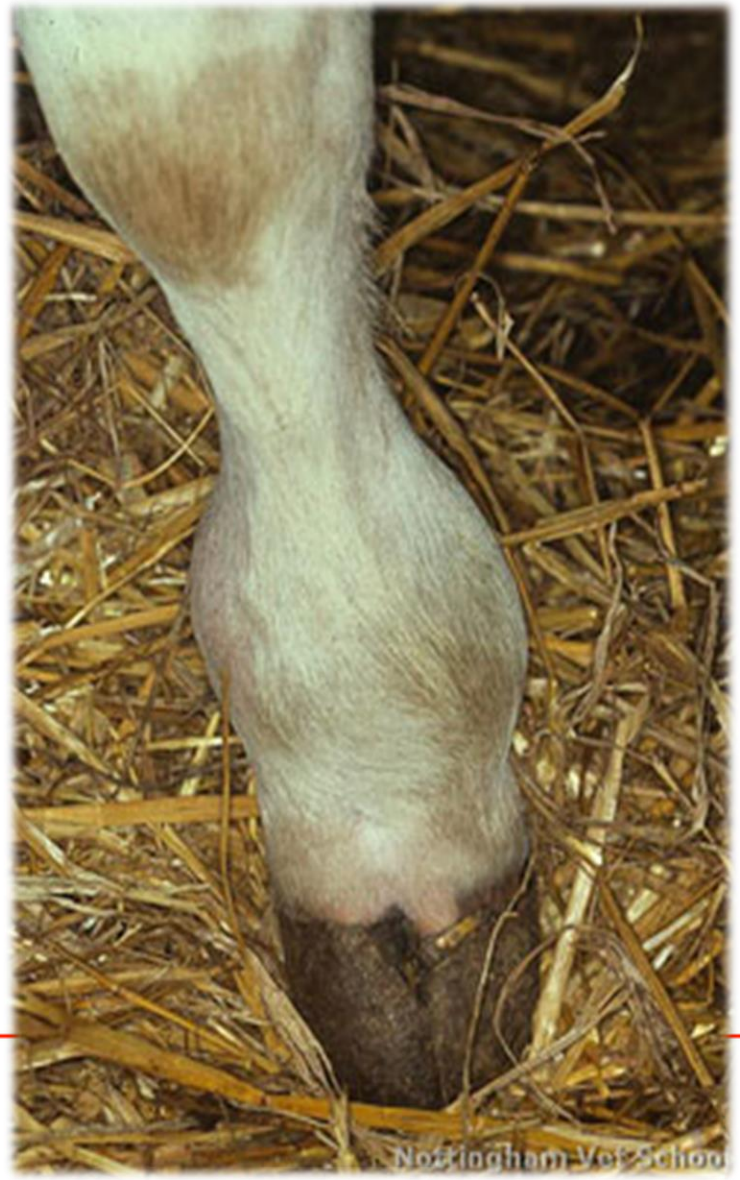
Mycoplasma bovis



Source: R. Nicholas

Mastitis/arthritis

In adult cattle



Mycoplasma bovis and
Mannheimia haemolytica

CBPP

Bovine Tuberculosis

- ***Mycobacterium tuberculosis*** complex (mammalian tubercle bacilli) *M. tuberculosis*, *M. bovis*, etc.

- ***Mycobacterium avium*** complex includes *M. avium avium* (avian tubercle bacilli), *M. avium hominissuis*

Bovine tuberculosis

- Clinical signs: Generalized clinical signs include progressive emaciation, lethargy, weakness, anorexia, diarrhoea, and a low-grade, fluctuating fever
- The bronchopneumonia of the respiratory form of the disease causes a chronic, intermittent, moist cough with later signs of dyspnoea and tachypnoea

Bovine tuberculosis

- Lesions: Inhaled bacilli are phagocytosed by alveolar macrophages that may either clear the infection or allow the mycobacteria to proliferate
- In the latter instance, a granuloma may form, consisting of dead and degenerate macrophages surrounded by epithelioid cells, granulocytes, lymphocytes, and eventually, multinucleated giant cells
- The purulent to caseous necrotic center may calcify, and the lesion may become surrounded by granulation tissue and a fibrous capsule, forming a “tubercle”

Bovine Tuberculosi

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Bovine tuberculosis

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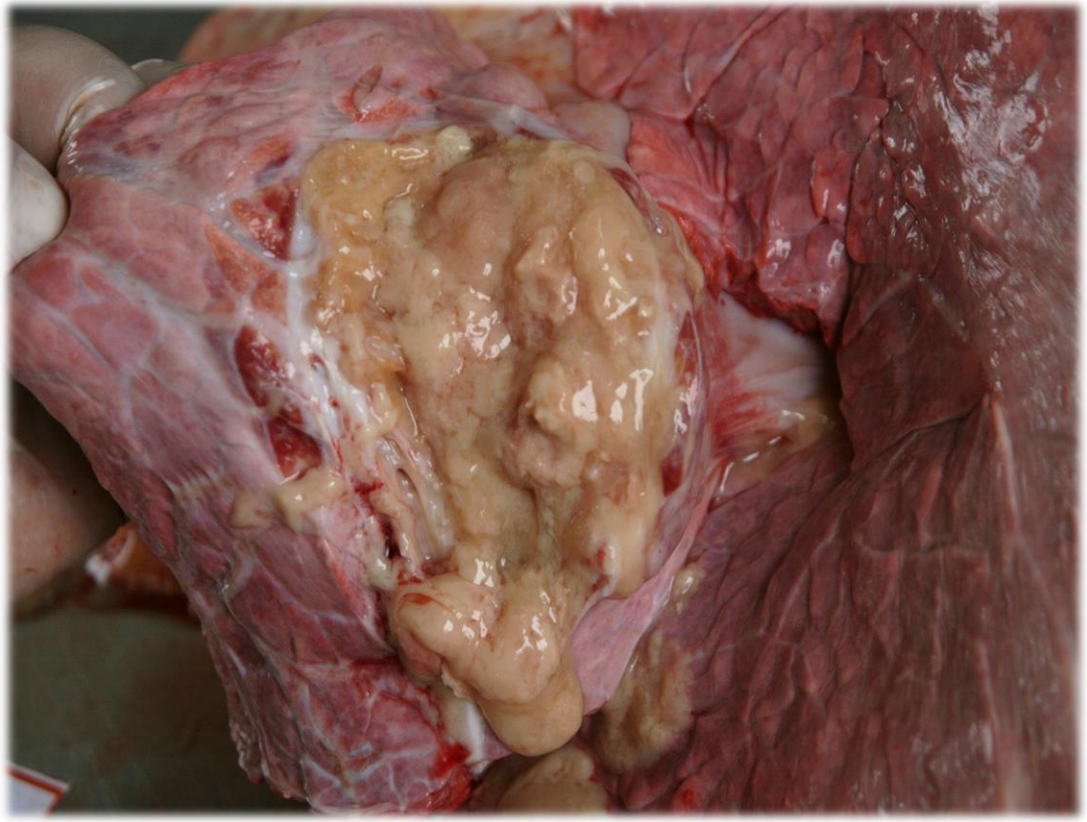

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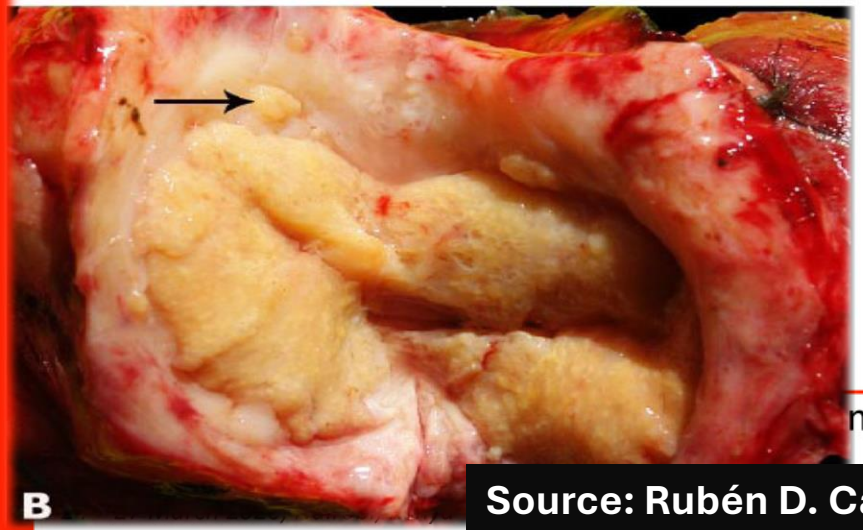
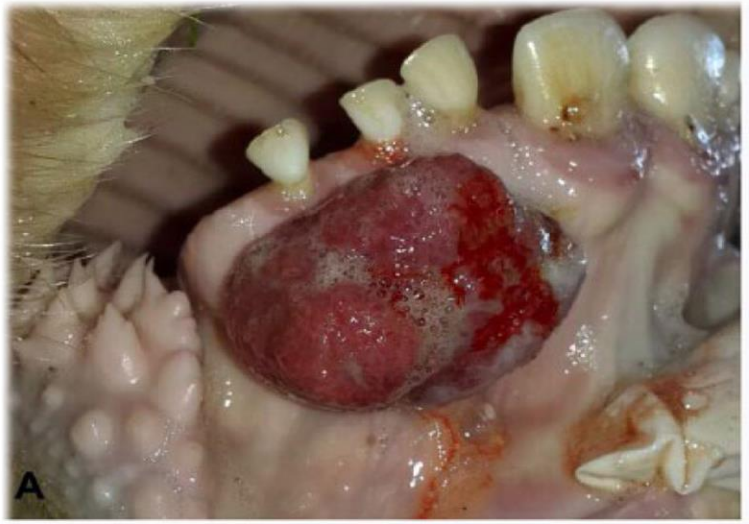
Bovine tuberculosis

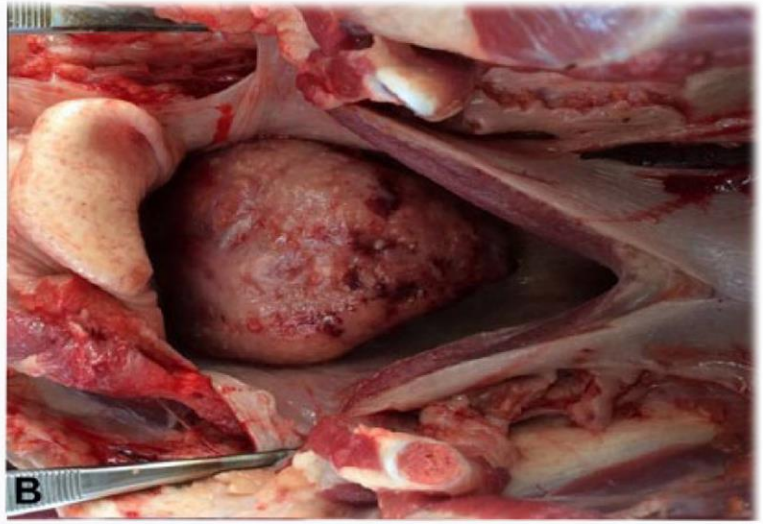
Actinobacillosis

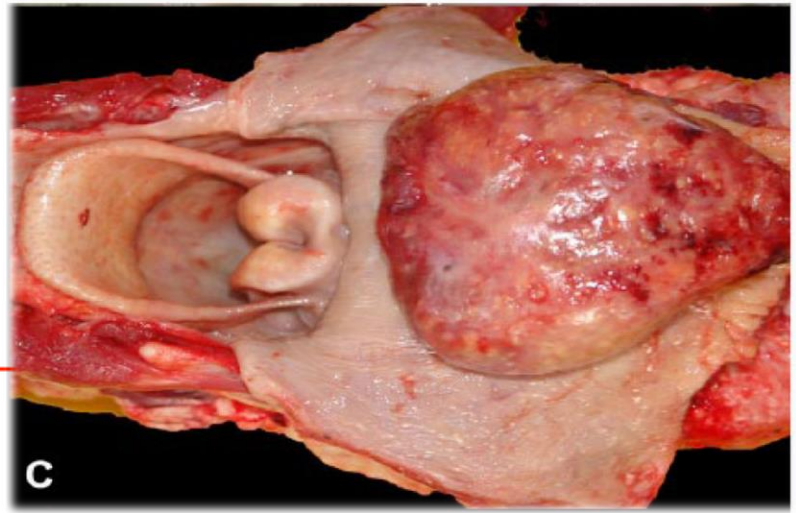
- ***Actinobacillus lignieresii*** causes tumorous abscesses of the tongue, usually referred to as wooden tongue
- The organism may also cause pyogranulomatous lesions in soft tissues associated with the head, neck, limbs, and occasionally the lungs, lymph nodes, pleura, udder, and subcutaneous tissue

Actinobacillosis









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Source: Rubén D. Caffaren

Actinobacillosis

CBPP

CBPP Differential Diagnosis

- Mannheimia haemolytica and Pasteurella multocida
- Bovine Herpesvirus 1 (BoHV-1) – IBR
- Bovine Respiratory Syncytial Virus
- Mycoplasma bovis
- Bovine Tuberculosis
- Actinobacillosis (*Actinobacillus lignieresii*)

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Thank You