

# Tuberculosis and the Caudal Fold Test



## WHY DO WE TEST FOR TUBERCULOSIS?

Tuberculosis (TB) is a significant disease among production animals, especially cattle. With continued risk for tuberculosis entering our herds, the State of Colorado and USDA rely on accredited veterinarians in the field to conduct the Caudal Fold Test (CFT) regularly and with accuracy.

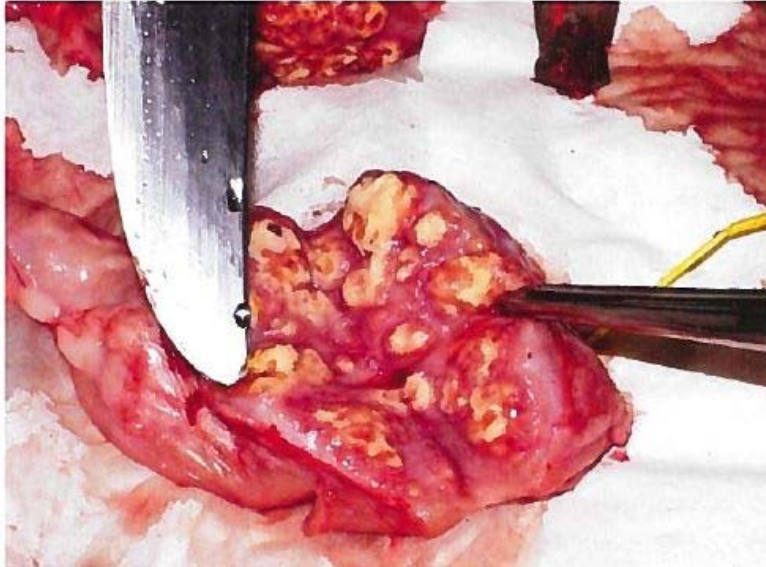
Today all U.S. animal carcasses slaughtered for human consumption are inspected by USDA FSIS for signs of tuberculosis. In Colorado, all dairies selling milk for human consumption must undergo a milk ordinance test every three years in which the whole herd is tested for TB. In addition animals are tested for TB in agreement with state rules for import and export, such as rodeo cattle coming in from Mexico.



All live animals that are tested for TB undergo a Caudal Fold Test which is performed only by a USDA accredited veterinarian. Proper administration of the CFT is critical for the continued monitoring of TB in Colorado.

## WHAT IS BOVINE TB?

Bovine tuberculosis is an infectious bacterial disease caused by the bacterium *Mycobacterium bovis* which can infect all warm-blooded animals, including humans. It is typically spread via respiratory aerosols or in milk. It can also be spread through consumption of contaminated meats.



*M. bovis* grows slowly and therefore an infected animal can appear healthy and be spreading the disease without the owner's knowledge. Regular screening to detect *M. bovis* using the Caudal Fold Test is an important step in the continued safety of Colorado's milk and beef supply.

## ADMINISTERING THE CAUDAL FOLD TEST

**Record All Official ID's:** Official ID's include a USDA brite tag, Official Calfhood Vaccination OCV tag, 840 visual or RFID tag. If an animal has multiple official ID's, record them all.

### Injection:

- Use a clean, fresh tuberculin syringe with a 26 gauge, 3/8" needle
- Ensure the skin is clean where you are giving the injection
- Injection must be **intradermal** and create a bleb





- Inject 0.1 cc of Bovine Purified Protein Derivative (PPD) approximately 2" below the base of the tail in the caudal fold
- Inject all animals on the same side to streamline injecting/reading. If an animal must be injected on the opposite side, make a note of that individual.

## CARE OF THE TUBERCULIN

- Keep refrigerated until needed and do not expose to light

## READING THE CFT

- All animals must be observed in 72 hours +/- 6 hours and read by the same veterinarian that gave the injection.
- Observe and palpate the entire length of the caudal fold. Observation without palpation is unacceptable.
- **SUSPECT ANIMAL(S)**: If you observe or palpate ANY type of response (edema, swelling, or firmness) of ANY size you MUST report the animal as a suspect.
- **Historically many veterinarians were taught that a response was a pea-sized swelling or larger, but the definition of a suspect has changed to include ANY response.**
- Complete the TB Test Form VS 6-22 in its entirety, noting any suspects.
- If you have detected a CFT response, call your local USDA or CDA Field Veterinarian, or the State Veterinarian's Office at the Colorado Department of Agriculture.
- Mail your VS 6-22 form immediately, whether you have suspects or not.
- Normal response rates on CFT tests are 1-5%. That means in a herd of 100 animals, you should see 1 to 5 suspect animals normally.

**YOU SHOULD SEE A 1-5% SUSPECT RATE IN THE FIELD WHEN READING THE CFT.**

**THE DEFINITION OF A SUSPECT HAS CHANGED TO INCLUDE ANY SIZE RESPONSE.**

## WHY DO ANIMALS RESPOND TO THE CAUDAL FOLD TEST?

- Naturally infected with *M. bovis* – size of the response to the test is NOT indicative of the intensity of the infection.
- Exposure to *M. avium* especially from bird contamination of feed bunks



- Concurrent skin lesions elsewhere on the body
- Johne's Disease or previous vaccination to Johne's Disease
- Exposure to other Myco-bacterium species



Repeated testing using the CFT does NOT usually create an increased sensitivity to the test. It may actually **DECREASE** the animal's response to the CFT.



## CFT - MEASURE OF TEST PERFORMANCE

Variations may occur due to animal population such as beef vs. dairy and young vs. old; however, you should see suspects in the field at some level.



When using bovine PPD:

**Sensitivity Range:** 80-85% (15-20% false negative)

**Specificity Range:** 94-98% (2-6% false positive)

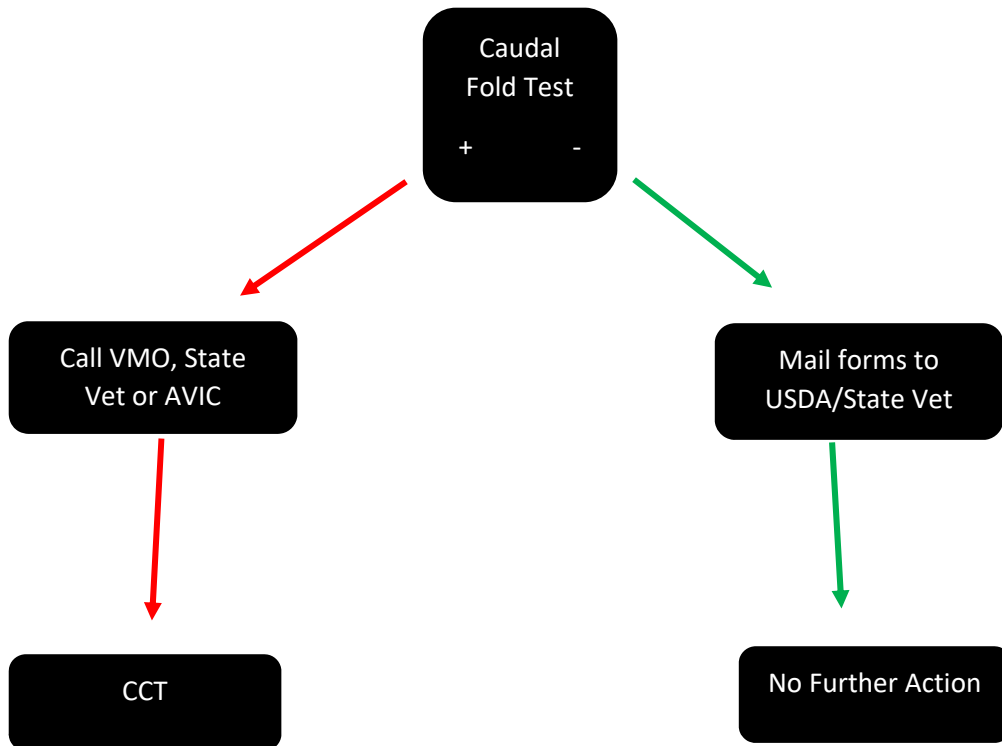
## CFT RESPONSE RATES OVER TIME

The US Animal Health Association (USAHA) TB Committee works with USDA to ensure the CFT is being applied correctly. Each state is asked to implement a monitoring system of CFT response rates.

In Colorado, data is collected for all accredited veterinarians that perform CFTs. Periodic educational seminars and personal visits may be necessary to refresh skills and clarify expectations.

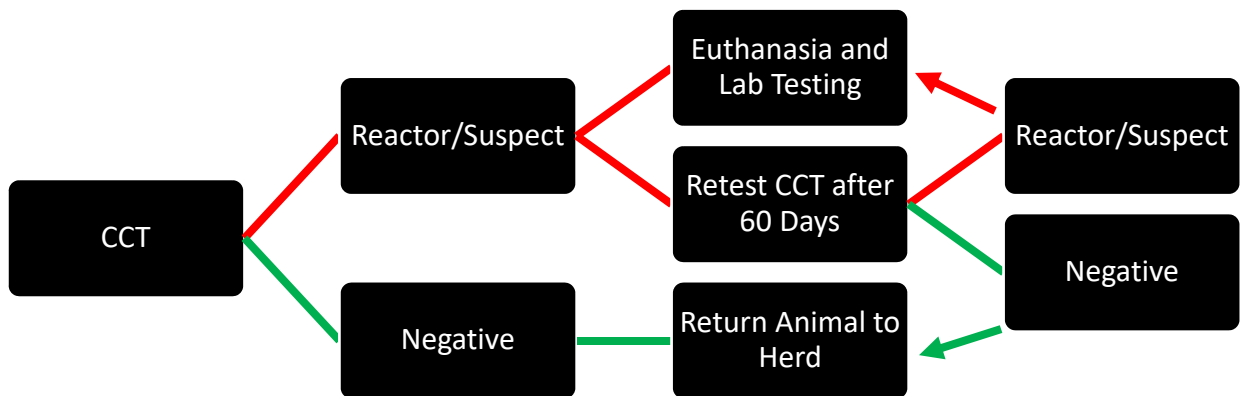
## HOW A CAUDAL FOLD TEST PROCEEDS

**Caudal Test Results:** If you identify a suspect animal that has any type of response to the CFT, call your local USDA or CDA Field Veterinarian or the State Veterinarian's Office at the Colorado Department of Agriculture. If no animals respond to the test, all animals may be returned to the herd and no further testing is necessary. Please submit the VS 6-22 Tuberculosis Test form promptly to the regional USDA office.



**CAUDAL FOLD RESPONDERS:** A Suspect Animal will undergo additional field tests. The Comparative Cervical Test (CCT) will be completed by your USDA or CDA Field Veterinarian.

An animal will either be identified as a Reactor, Suspect, or Negative by the State or Federal veterinarian's CCT test. If the animal is a Reactor, it is either slaughtered or necropsied. The body is then inspected for TB lesions and samples are collected and sent to NVSL for confirmatory testing. If it is a Suspect, the owner has the option of either euthanizing or quarantining the herd for 60 days when the cow can then be retested. If it is found to be suspect or a reactor on the second test, it is slaughtered or necropsied. If the cow is negative on the first field test or the retest, it can be returned to the herd and no further testing is required.

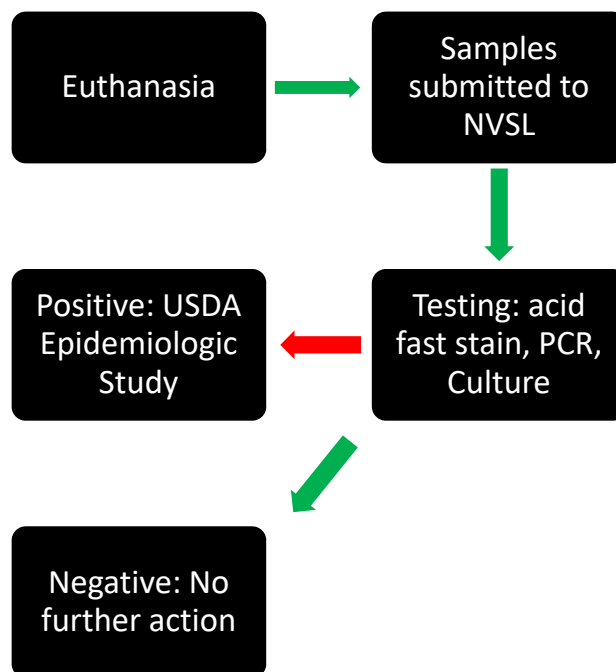




**CONFIRMED SUSPECTS:** If an animal is found to be a reactor or found to be a suspect on two consecutive tests, it is euthanized and samples are collected for further diagnostic testing. This testing is conducted at the NVSL in Ames, IA.

Specific lymph nodes are collected from the head, chest, and abdomen. In addition, and tissues with gross lesions and their associated lymph nodes are also submitted for further testing.

If an animal is confirmed to have Tuberculosis, the USDA uses a complex model to determine the best plan of action. Depending on the economics and feasibility of each plan, the USDA will work with the owner to either depopulate the herd or test and remove infected animals.



A trace out investigation must also be completed to investigate all animals that came into contact with the original infected animal. Proper animal identification and paperwork is essential in completing the trace out in a timely and economic fashion.

## **ORDERING FORMS AND SUPPLIES**

PPD can be ordered from Colorado Department of Agriculture Animal Health Laboratory 303-477-0049.

To order USDA VS 6-22 Test Forms, please contact:



USDA, APHIS, VS  
755 Parfet Street, Suite 136  
Lakewood, CO  
Phone: 303.231.5385  
Fax: 303.231.5390

## **COMPLETING THE TB FORM VS 6-22 ELECTRONICALLY**

USDA has developed a program to assist veterinarians in completing the VS 6-22 electronically. Mobile Information Management System (MIMs) is a free program that can be downloaded to your computer and used to manage herd data and create electronic TB and Official Calfhood Vaccinate Forms.

Creating these forms electronically saves time and ensures that data is generated accurately. Want to learn more? Visit the site below or call our office.

<https://mim.aphis.usda.gov/MimWS/Files/Manager/publish.htm>