

TUBERCULOSIS TESTING IN CALIFORNIA

A Review for Accredited Veterinarians

As Category II accredited veterinarians, you play a critical role in detecting and preventing bovine tuberculosis. Please follow these testing guidelines; we appreciate your efforts towards the eradication of bovine tuberculosis in the U.S.:

1. Handling Tuberculin (PPD)

- Do not use tuberculin after the expiration date
- Store in the dark at 35-45°F; do not allow to freeze, and avoid exposure to sunlight (proteins will denature)
- Do not store dose amounts out of original amber-colored container for longer than 12 hours; if syringes are pre-filled, they should be used within a few hours
- Discard vials properly within three months of opening

2. Animal Identification (ID)

- Record the **official** identification of every animal tested (an official ear tag (RFID, NUES tags) or registration tattoo), *as well as* any additional form of ID (e.g. bangle tags) on VS Form 6-22
- Apply official ID to animal if none is present (RFID, NUES tags)
- Breed, sex, approximate age in years of each animal tested must be recorded on the test record

3. Caudal Fold Tuberculin (CFT) Test Injection

- **Palpate** area before injecting; if there is a lesion or thickening, pick another spot (note on test record VS Form 6-22 for that animal)
- Use a 1 ml syringe with a 26 gauge, 3/8" long needle
- Inject 0.1 ml intradermally into the caudal fold. *If you don't see a bleb the injection is not intradermal*, re-inject the other fold and note this in the test record VS Form 6-22
- Use a new needle for each animal to minimize transmission, or appearance of transmission, of blood-borne infectious agents or contaminants
- If *you* inject, *you* read (note injection site on VS Form 6-22)
- Do not vaccinate, treat, or test obviously sick cows on injection day; it may interfere with their response
- There is no meat or milk withdrawal time for tuberculin

4. Reading the Test

- Read the test at 72 hours post-injection \pm 6 hours
- All animals injected must be read, and the results recorded on official forms with all forms of ID indicated
- Visualize *and* palpate the injection site
- **ANY change in size/swelling is a positive response** (check "suspect" box on form)
- **Report any responders immediately to the Animal Health Branch**, and provide a copy of the test records
- Explain the CFT response to your client and expect approximately a 1% false positive rate due to exposure to *M. avium* sub. *paratuberculosis*, *M. avium*, and other soil-borne Mycobacteria; response rates are monitored
- State/Federal regulatory staff must apply a Comparative Cervical Tuberculin (CCT) test on responders within 10 days of CFT injection (or wait 60 days), or collect blood for a gamma interferon test (optimally within 3-7 days of CFT injection); all cohort cattle will remain under quarantine pending results
- **Email the signed electronic files and data to evet@cdfa.ca.gov, and/or mail white and green copies of all test records to the Animal Health Branch District Office in your area within 48 hours of reading the test**

California Department of Food and Agriculture - Animal Health Branch Offices	
Sacramento Headquarters	916-900-5002
Modesto District	209-491-9350
Ontario District	909-947-5932
Redding District	530-225-2140
Tulare District	559-685-3500
USDA/APHIS/VS 916-854-3950 or 877-741-3690	

TUBERCULIN and ITS APPLICATION

The tuberculin provided for the bovine TB eradication program is scientifically produced by the USDA according to very stringent criteria. To maintain the potency and high quality of these diagnostic agents, also ensuring they will provide accurate testing, they must be properly stored and handled.

1. Tuberculin loses potency when exposed to light and/or air. Do not draw tuberculin into plastic syringes or store in dose amounts for longer than 12 hours, as proteins may interact with the container material. Once opened, tuberculin remaining in vials may lose potency due to oxidation with the air in the container, so discard partially used vials of tuberculin within three months. Different sized bottles of tuberculin are available to match testing needs and minimize waste. Do not use expired tuberculin or tuberculin that has frozen. Call your CDFA Animal Health Branch (AHB) Office to order additional tuberculin; there is no charge.
2. Several drugs and hormones (particularly live vaccine and corticosteroid drugs) depress the tuberculin response. The same is true of viral infections. Avoid testing animals that are diseased, and plan to give any vaccines or treatments the day the tuberculin test is read rather than on the day of injection if possible. There is no meat or milk withdrawal time after using tuberculin.
3. The Caudal Fold Test (CFT) is based on a Type IV Delayed Hypersensitivity response to tuberculin. ***Tuberculin must be injected intradermally, not subcutaneously. Correct administration is verified by observance of a "bleb".***
4. The timing of reading the delayed hypersensitivity response is important. Tests should be read at 72 ± 6 hours from the time of injection. If the test cannot be read within that time frame, you must wait 60 days to retest cattle, and 90 days to retest cervids.
5. The animals' genetic make-up affects the magnitude of the tuberculin response. Certain breeds, ages or strains of cattle may respond differently, and tuberculin sensitivity is usually higher in females than in males.
6. The method of reading is also important. ***Each injection site must be palpated by the injecting veterinarian; visual inspection alone is inadequate, and responders will be missed.*** Differentiate other swellings, thickness, and dermal lesions from a tuberculin response; comparison with the opposite caudal fold can be helpful for small responses.
7. The magnitude of the response is ***not*** proportional to the level of infection; cattle infected with bovine tuberculosis may react very minimally, or have a very large response to the CFT.
8. ***Exposure to avian, soil-borne, and other Mycobacteria can cause a "false positive" CFT response rate of 1% to 5% of all animals tested.*** You should expect to see some responders.
9. Report ***any and all*** CFT responses immediately to your local AHB District Office for secondary testing. A Comparative Cervical Tuberculin (CCT) test must be applied to responders within 10 days of the CFT injection, or you must wait 60 days to retest cattle and 90 days to retest cervids. Alternatively, blood for a gamma interferon test is collected within 30 days (optimally within 3-7 days) of the CFT injection.
10. Educate your clients to provide you with advance notice (three (3) weeks) of their plans to ship cattle. This will allow for complete diagnostic testing, which may include CCT tests and can reduce the pressure on you to ignore a response to avoid delaying an animal shipment.
11. Call and alert your local AHB office to the possibility of supplemental testing when testing a large group of cattle or cattle that must move.
12. Mail the signed white and green copies of your tuberculosis test sheets (VS form 6-22) to your AHB District Office or email the signed electronic files and data to evet@cdfa.ca.gov within 48 hours of reading the test.
13. You must be certified to perform the Single Cervical Tuberculin (SCT) test in cervidae (deer, elk, moose) and Axillary test in camelidae. This involves training in proper test procedures by a regulatory veterinarian. Upon certification, your name will be placed on a list of those approved to conduct these tests.