

Bovine Tuberculosis Livestock Testing Procedures



Caudal Fold Tuberculin Test (CFT test)

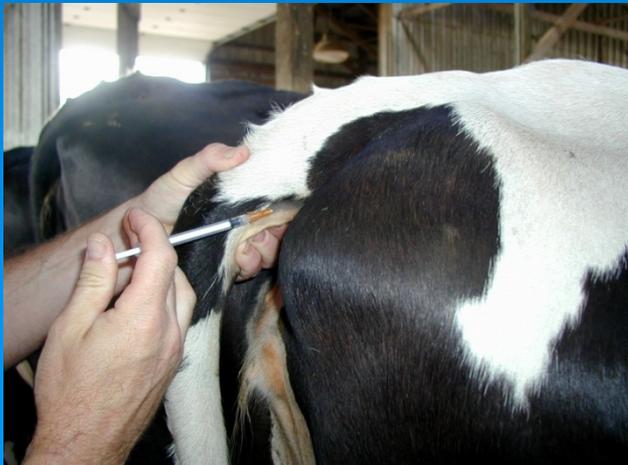
- First screening step in the TB-testing process



Handling Equipment

- **Veterinarian will use the on-farm equipment or set up additional equipment**
- **Animals are moved into handling equipment for testing**

Caudal Fold Tuberculin Test



- The Purified Protein Derivative (PPD) tuberculin is injected intradermally (between the layers of skin) of the caudal tail fold, under the animal's tail

- **Some veterinarians will make a mark on the animal's hide to indicate which side of the caudal tail fold was injected**
- **The animal is also given a unique, permanent identification number, usually an ear tag. Registration tattoos may be used as official identification**

- **The injection site is examined 72 hours later, plus or minus 6 hours**
- **The same veterinarian who injected the caudal fold tuberculin must examine the injection site**
- **The veterinarian will feel and observe the injection site**

- **Five to seven percent of the cattle, goat, and bison population will respond to the CFT test**
 - **This may happen because the animal was exposed to another disease that causes the response, for example**
 - **Mycobacterium avium (Bird TB)**
 - **Mycobacterium Paratuberculosis (Johne's Disease)**

- **If there is any response at the injection site**
 - swelling
 - redness
 - hardness
 - etc.
- **The animal is considered suspect (responder) and further testing is required**

- **The herd will be quarantined if even one animal is suspect**
- **This means no animals can come into the herd and no animals can move out of the herd without approval from MDA**

Comparative Cervical Tuberculin (CCT) Test

- **This test is only done on animals that respond to the caudal fold test (CFT)**
- **The CCT test must be done within 10 days of the injection date of the CFT**
 - **CCT must be administered by a state or federal veterinarian**

Handling Equipment

- Veterinarian will use the on-farm equipment or set up additional equipment
- Animals are moved into handling equipment for testing
- Once the animal is secured a section of the neck is shaved in two places before administering the CCT test between (intradermally) the skin layers on the animal's neck

- **Skin thickness is measured using a special caliper and then the veterinarian will inject avian (bird) tuberculin and bovine (cattle) tuberculin into two shaved sites on the neck**

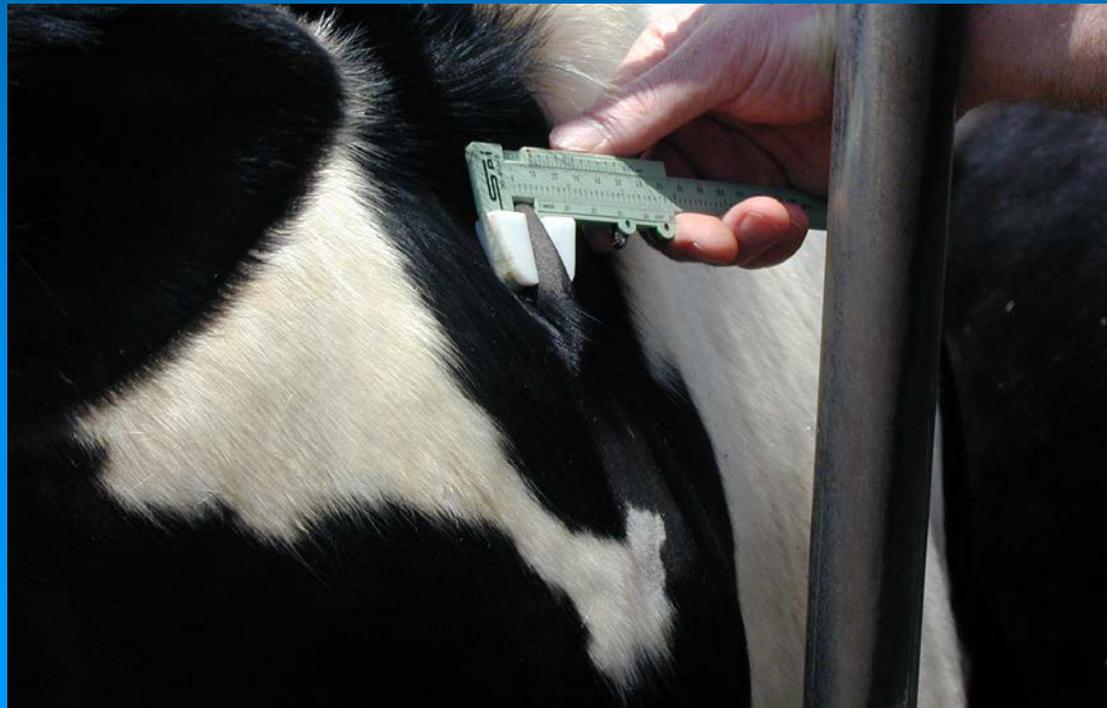


- **The animal is released from the handling equipment**
- **Injection sites are examined three days later**



- **The same veterinarian who administered the CCT test must examine the injection sites approximately 72 hours (plus or minus six hours) later**

- **When observing the injection sites, the veterinarian looks for differences in the two sites, and measures the skin thickness with a special caliper**



- **Swelling is often the reaction to the avian TB injection.**
 - **Producers should not be alarmed**
- **The veterinarian or an assistant records the tag number and test results**
- **Test results are plotted on a scattergram. Based on where the results fit on the graph, the animals will be classified**

Classifications

- **Negative**
- **Suspect**
- **Reactor**



Negative

- **These animals are considered TB negative**
- **If the entire herd tests negative then the quarantine is released**

Suspect

- **An animal whose response to the CCT test is plotted midway on the graph is classified as a suspect**
- **Herd owners must decide whether to:**
 - **have the suspect animal removed for euthanasia and testing at MSU**
 - **have the animal re-tested on the farm after 60 days**

Euthanasia

- **If the owner chooses euthanasia then:**
- **the animal is removed for necropsy and further testing, the herd owner will receive payment for the animal based on the animals value as written in PA 446**
- **Shipping costs will also be paid for by MDA**
- **The herd remains under quarantine until initial laboratory results are available**

Re-Test

- **If the owner chooses to wait and re-test the animal:**
- **The herd remains under quarantine until the second CCT test results are available**
- **Animals that respond to two CCT test are reclassified as reactors and arrangements are made for removal from the farm**
- **Classification as a suspect does not mean the animal has bovine TB**

Reactor

- **An animal is classified as a reactor if**
 - its response to the CCT test falls into the reactor range on the scattergram
 - it plots as a suspect on the graph on two separate CCT tests
- **Classification as a reactor does not mean the animal has bovine TB**

Reactor cont.

- **The animal is removed from the farm for necropsy and further laboratory tests**
- **The herd remains quarantined until test results are available.**
- **If laboratory results show definitive signs of bovine TB, the animal is classified as a reactor**

Reactor cont.

- **Milk from reactor animals cannot be put into the milk bulk tank or consumed by humans or animals**
- **Livestock producers are advised to keep reactor animals confined and separated from the rest of the herd until they can be removed from the farm**

Necropsy and Laboratory Testing

- **Animals removed from the farm go to the Animal Health Diagnostic Lab (AHDL) at Michigan State University for necropsy and histopathology**
- **Scientists look for:**
 - internal lesions
 - swollen lymph nodes
 - other signs of disease



Mesenteric lymph node

Necropsy and Laboratory Testing

- **Tissue samples are collected and sent to the lab for culturing and further diagnostic testing**
- **The herd remains under quarantine until laboratory test results are available**

Tuberculosis lesions in the lungs of a two-year-old heifer

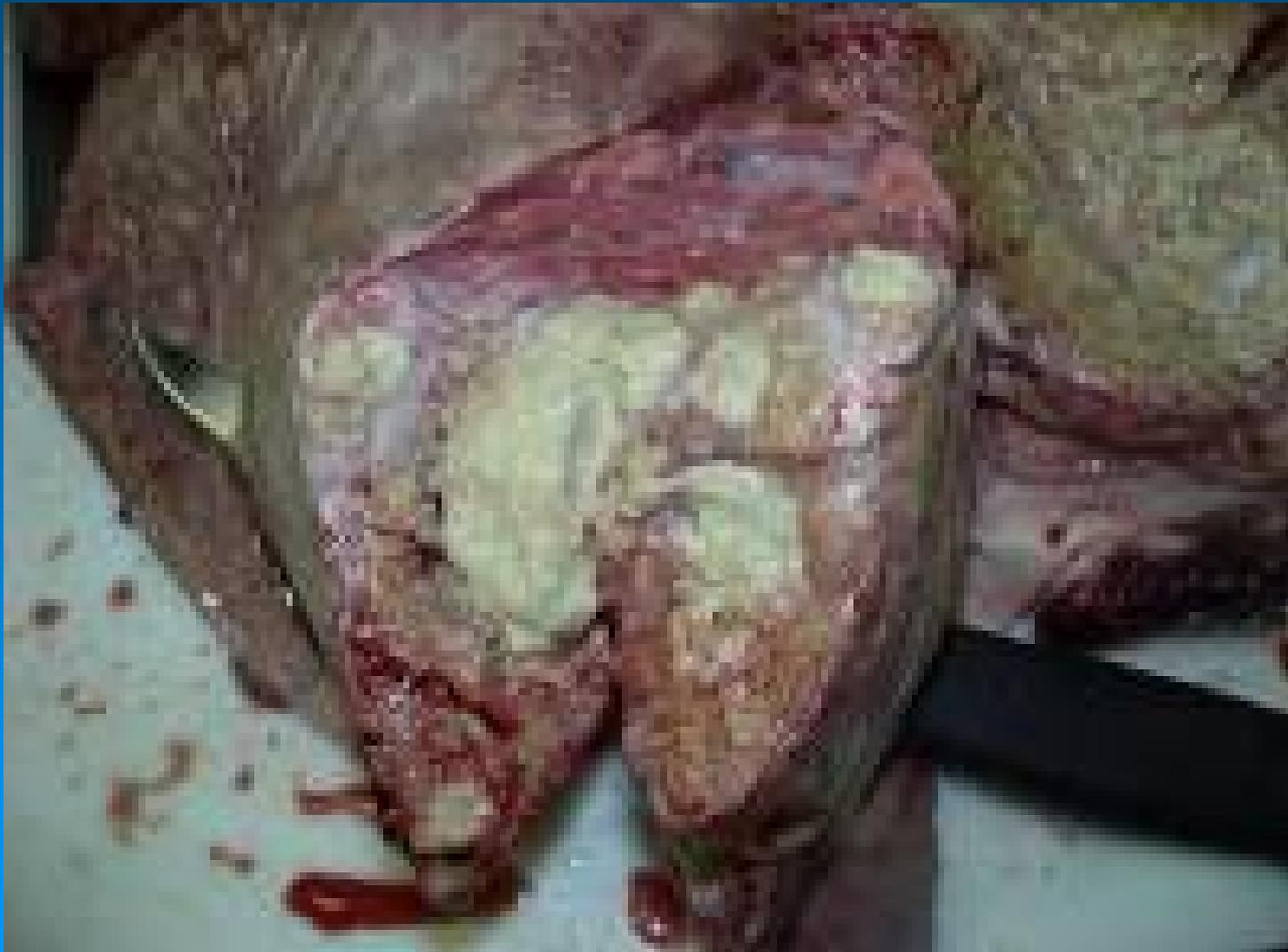
**Pictures courtesy of USDA
Food Safety and Inspection
Service (FSIS)**











Test Results

- **If lab results indicate infection with bovine TB, the herd is considered affected**
- **Animals classified as bovine TB suspects by the first CCT are re-tested**
- **Animals classified as suspect on a second CCT test are reclassified as reactors, and subject to the rules and regulations governing this classification**

Herd Owner's Choices

- **If a farm owner is notified that the CCT reactor had bovine TB, the owner may choose one of two options:**
 - **Complete herd depopulation**
 - **Test and remove program with a specified herd plan**
- **Farmers are encouraged to consider whole herd depopulation**
- **Test and removal can be costly and may have long term implications for the farm operation**

Test and Remove

- **The farm remains under quarantine until all testing reveals a bovine TB-negative herd**
- **Each time an animal responds to a CFT test it will immediately be removed and testing will commence again**
- **This process of a minimum of 6 whole herd tests may take as long as 24 months providing no additional infected animals are found**

Test and Remove (cont.)

- Once the quarantine is released, yearly tests may be required for five years
- Dairy herds in the test and remove plan may continue to sell milk as long as the herd plan is followed

Depopulation

- **Depopulation= destruction of all livestock exposed to bovine TB in the herd before any restocking of the premises with cattle, privately owned cervids, bison, or goats**



Depopulation (cont.)

- **Livestock are removed from the premises**
- **The farm is disinfected**
- **May be repopulated when determined clean by Designated Tuberculosis Epidemiologist (DTE), or one year after removal of all animals**

Accreditation

- **When herds have passed at least two consecutive whole herd tests**
- **There is no evidence of bovine TB**
- **Standards of the Uniform Methods and Rules (UMR) for bovine TB eradication have been met**
- **Herds are eligible to be recognized as bovine TB-free by the USDA**

Herd Additions

- **Cattle**
 - All animals 24 months of age and older
 - Any animals other than natural additions under 24 months of age
 - **MUST BE TESTED**
- **Goats**
 - All animals 12 months of age or older must be tested

A Commitment to Safety

- **The MDA, the Michigan Department of Natural Resources, and their partner agencies maintain a strong commitment to eradicating bovine TB from Michigan livestock and deer. In keeping with its long-standing tradition of making food safety a top priority, MDA pledges an equally rigorous effort to continue ensuring the safety of venison, beef and milk, through comprehensive testing, monitoring and educational efforts from the farm or processing plant to the retail store.**