



Bovine Tuberculosis (TB) Update

Staff are tracing about 260 cattle received in California from a TB-affected dairy in Texas. The Texas dairy of >2,000 adult cattle had active TB transmission and frequent cattle movements into and out of the herd, including the recent purchase of hundreds of heifers. Traces of about 3,400 heifers involve at least 15 states.



Since January 2008, seven cows from three Fresno Co. herds and one cow from a San Bernardino Co. herd have been diagnosed with bovine TB. Approximately 419,000 cattle have been TB-tested, two herds depopulated and over 8,000 cattle killed in this investigation. Two affected herds are on a test and removal program.

Affected Herd Information		
# Affected Herds	# Infected Animals	# Cattle in Herds
4	8	~21,000

TB strain typing indicates these cases had three separate sources. The strains are not related to the herds detected in California in 2002-2003, nor to the newly detected Texas dairy herd; the strains are related to infections found in Southwest feeder cattle.

TB Testing To Date		
# Herds Tested	# Herd tests	# Cattle tests
254	310	418,996

California is an MAA State

As of September 18, 2008, California is classified as "Modified Accredited Advanced" (MAA). Veterinarians and producers must check the TB requirements of receiving states when moving cattle out of California; state requirements may be more restrictive than federal rules. Current rules require that intact cattle over six months of age from an MAA state must be officially identified and tested negative to an official TB test conducted within 60 days prior to interstate movement.

Exceptions include:

- Cattle from an accredited herd with a whole herd test within 12 months of the movement.
- Cattle moving directly to a federally inspected slaughter facility.
- Feeder cattle – identification and TB testing requirements are delayed, however, some states require a test or a special permit (see factsheet "**Tuberculosis Requirements for Feeder Cattle Leaving California**").
- Breeding beef herds moving for grazing on a Pasture-to-Pasture Permit have the TB test waived until November 2009.

Dairy Cattle Entering California Fairs

Fairs throughout California adopted TB testing requirements for **dairy breeding cattle** over six (6) months of age. Those being sold at the fair must be tested within 60 days of the sale; those for exhibition only must be tested within 6 months of the show. Cattle are exempt from testing if the herd of origin had a negative herd test within 12 months of the show.

Caudal Fold Tuberculin (CFT) Skin Test

Cows typically become skin test positive 3-6 weeks after infection with *M. bovis*. Any response to this test must be reported immediately so regulatory



CFT test responder

veterinarians can apply either the CCT or gamma interferon confirmatory test. CCT and gamma have equivalent sensitivity (73-100%) and specificity (85-99%). Cattle positive to confirmatory tests are necropsied and tissues sent to the National Veterinary

Service Laboratory (NVSL), Ames, Iowa.

Comparative Cervical Tuberculin (CCT) Test

This skin test determines if a CFT response is more likely due to *M. bovis* or *M. avium*. It must be done within 10 days (or after 60 days) of the CFT injection. Two areas on the neck are shaved, the skin thickness measured, and bovine and avian extracts injected at the separate sites. Responses are evaluated and measured 72 hours after the injections. The

differences in pre and post-test measurements determine the result as negative, suspect, or reactor.

TB Gamma Interferon Test

This test uses whole blood. The lymphocytes are stimulated with *M. bovis* and *M. avium* extracts, the ISA for gamma interferon. Cows typically become gamma interferon test positive 3-5 weeks after infection with *M. bovis*.

National Report

At least 82 cattle herds and 10 captive cervid herds have been detected with bovine TB since 1998. Slaughter surveillance detected 364 infected cattle since 2000; 34 infected adult cattle and 330 infected fed/fat cattle (75% were Mexican origin).

Texas detected an affected dairy herd during private testing to sell the herd in 2009. Six infected cows have been identified, and the strain type matches that detected in old roping steers of Mexican origin recently slaughtered from a nearby feedlot.

Nebraska detected an affected cervid herd and an affected beef herd, both through slaughter surveillance, in 2009. The infections are not related – they have different TB strain types.

Minnesota has detected 12 affected beef herds since 2005, and 25 infected free-ranging white-tailed deer. They received split state status in September 2008 with an MA zone around the affected herds and an MAA zone for the rest of the state.

Michigan has detected 46 affected cattle herds and three cervid herds since 1998. The state has three zones – the infected area classified as MA, the Upper Peninsula as TB-free, and the rest of the state as MAA. Infected free-ranging white-tailed deer continue to be detected, and infection has been found in several other wildlife species.

New Mexico detected one new herd in 2008. The state has split-state status; an MAA zone around Curry and Roosevelt counties, and the rest of the state TB-Free.

Indiana detected three infected cervid herds through slaughter surveillance in 2009; an investigation into a beef cow located 2 miles away infected with the same TB strain did not identify an affected herd.

New York detected and depopulated a captive deer herd after a routine test was positive for TB in 2008.

South Dakota and **Pennsylvania** are each investigating a recent slaughter trace.

North Dakota's follow up testing of a herd from a recent slaughter trace was negative.

On Farm TB Prevention

The best ways cattle producers can prevent bovine TB are to:

- Maintain a closed herd.
- Mandate in agreements that calves and heifers raised off-site will not be exposed to or housed with feeder cattle.
- Prevent contact between breeding cattle and feeder cattle, including in the sick pen.
- Prevent contact with cattle of unknown TB status.
- Isolate and test cattle entering the herd.
- Establish a TB screening policy for employees.
- Obtain TB-free herd accreditation.
- Arrange professional diagnostic workups of suspicious, sick or dead animals.
- Enhance disease tracing by recording animal identification and maintaining accurate records.

Significance of Bovine TB

While the risk of humans contracting bovine TB is extremely low due to the safeguards of milk pasteurization and routine meat inspection, people can contract TB through consuming illegal soft cheese products, unpasteurized milk and through respiratory exposure to live infected cattle or their carcasses. Conversely, humans infected with bovine TB can transmit disease to cattle.

Challenges to the Bovine TB Program

The cooperative federal-state-industry program to eradicate bovine TB from cattle in the US has made significant progress since its inception in 1917. However, eradication remains elusive as challenges hinder progress:

- Most TB-infected cattle detected at slaughter are imported from Mexico.
- TB is established in free-ranging white-tailed deer in Michigan and Minnesota.
- Today's cattle industries are specialized and often move animals among multiple premises, leading to increased risks of TB transmission.
- There is no fully implemented national animal identification and traceability system.
- Diagnostic tests for TB fail to detect all infected cattle, especially in populations with low disease prevalence.



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