A state experiencing TB may require all feeder calves to have a negative individual TB test within 60 days of movement. [PHOTOS COURTESY OF USDA NRCS]

Tuberculosis:

An Old Nemesis

Story by
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A decade ago, U.S. animal health authorities thought they might be close to winning the battle against bovine tuberculosis (TB). Eradication efforts had been so successful that the disease had become a rarity. Many states had boasted TB-free status for so long that most cattle producers considered it beaten — if they gave it any thought at all.

During the last few years, however, the old nemesis has made a comeback in certain parts of the country. TB-infected herds have been detected in four states. To guard against reintroduction, other states have their own rules requiring out-of-state animals to be tested prior to entry. The so-called re-emergence of TB is not cause for alarm, but it could be considered a warning against complacency.

"Bovine TB has a low prevalence in the U.S., but it still presents a risk," cautions Robert Meyer, national TB epidemiologist for the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS). Based in Fort Collins, Colo., Meyer has 20 years of experience in the APHIS Veterinary Services' battle against TB.

"We can't let down our guard and think that it isn't a threat," he adds.

Spreading infection

An infectious bacterial disease, TB affects practically all species of vertebrates, but the three main types include those primarily associated with humans, bovines and birds, respectively. The two mammalian types are most closely related, but all three types may produce infection in species other than their own. Before control measures were adopted, TB was a major disease among humans and domestic animals. In many parts of the world, infected animals (especially cattle) still serve as significant sources of transmission to humans. And humans may transmit TB to animals.

Infection commonly attacks the respiratory system and the lymph nodes, but it may attack other organs. Destructive lesions form in affected tissues, along with an associated production of toxins. Symptoms are generally similar among species. Signs include progressive emaciation, lethargy, weakness and a low-grade fever. In its respiratory form, TB causes a moist cough followed by progressive deterioration of the respiratory system.

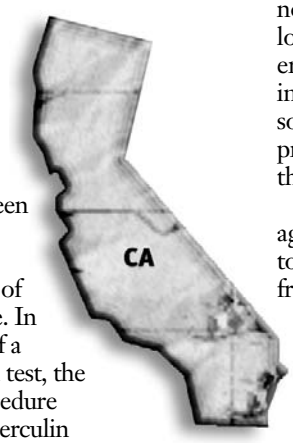
Consumption of infected raw milk is a potential source of infection, but milk pasteurization has significantly reduced the incidence of human TB in many countries. Inhalation of infected droplets expelled from infected lungs is the most common route of infection.

Meyer says TB may take an acute course, but it often is a prolonged, chronic disease. Infected cattle may not show symptoms until long after exposure. They may remain in the herd undetected and productive for several years, all the while shedding the bacteria and exposing herdmates.

"Clinical signs of TB might not become apparent until eight to 10 years after exposure. By then, the trail to the source of infection is pretty cold," Meyer states.

To be TB-free

Neither treatment of TB nor vaccination against the disease has been particularly successful. In the United States, the principal approach to control has been through herd testing and depopulation of infected cattle. In the absence of a reliable blood test, the standard procedure involves a tuberculin inoculation, which, within three days, produces a skin reaction in the infected animal. The U.S. eradication program also includes surveillance at packing plants to detect infected animals at the time of harvest.



Currently, APHIS classifies 46 states as "TB-Free." There is no federal rule requiring TB testing prior to interstate movement of cattle among TB-free states. However, several states have adopted new rules barring entry without a negative TB test — particularly since the resurgence of TB in Texas, California, New Mexico and Michigan.

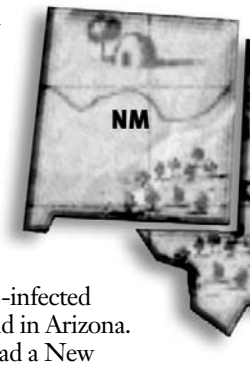
Federal testing requirements do apply to cattle moving from or within states where TB is known to be present. These states are classified relative to disease prevalence and the rules vary accordingly. Texas, California and New Mexico are classified as "Modified Accredited Advanced." During 2003, two TB-infected herds were detected in both California and New Mexico. Two Texas herds were found to harbor TB in 2001, and another was detected in 2003. A fourth herd was added to the list in early 2004. Infected herds in all three states are subject to depopulation or repeated testing procedures to remove infected animals.

Federal regulations also require that breeding cattle in "Modified Accredited Advanced" states must test negative for TB within 60 days prior to movement. No testing is required for feeder cattle being shipped to an approved feedlot.

Michigan, with five infected herds detected in 2003 and two more in early 2004, has "Modified Accredited" status. There, too, a negative individual test is required within 60 days of movement for breeding stock. In addition, its herd of origin must have undergone a whole-herd test within the previous year. A negative individual test within 60 days prior to movement is the only requirement for feeder cattle.

Meyer calls Michigan unique among the states currently wrestling with TB, because the disease is believed to have spilled over into cattle from infected deer. Thus far, the problem is confined to the northeastern part of Michigan's lower peninsula. An aggressive eradication plan has been implemented, and Michigan has sought split status, so that only the problem area would be subject to the strict testing requirements.

Texas has implemented an aggressive testing program, hoping to recover its TB-free status. Initiated in November 2003, the program calls for testing of all of the state's 850 dairies and 25% (about 2,400) of its seedstock herds.



In January, a TB-infected dairy herd was found in Arizona. That herd, which had a New Mexico origin, was depopulated. If no other TB cases are detected within 48 months, Arizona may retain its TB-free status.

"There are infected beef herds in

both Texas and Michigan, but the majority of TB cases occur in dairies," Meyer explains, noting that dairy heifer development programs may be a contributing factor.

"There is concern that heifer calves with low-level TB infection are delivered to large-scale growing operations and feedlots where they are commingled with other heifers from multiple sources and infection spreads. And it can spread to beef heifers being developed at the same feedlots that grow infected dairy heifers," Meyer adds.

TB transmission, near and far

Another potential source of TB infection is cattle imported from Mexico. Meyer reports that about a million head of Mexican feeder cattle come to U.S. feedlots annually, ultimately going to harvest. In 1993, TB surveillance measures detected more than 690 cases on U.S. kill floors. Meyer says most of the infected animals were of Mexican origin.

"That number has been reduced tremendously by halting imports of Holsteins and by Mexico's efforts to clean up their beef cattle. They have done a good job of reducing the prevalence of TB in Mexico, but the work isn't finished. So far this year, we have found 18 cases on kill floors, and still, most are Mexican cattle," Meyer says.

"U.S. producers need to think about it. The majority of Mexican steers come here as light cattle. They are grazed in pastures all across the West, maybe right across the fence from cow herds. Then they go into feedlots," he says. "Are you having replacement heifers grown and developed in a feedlot where they might be right across the fence from Mexican steers?"

Mexican roping cattle may also transmit TB to U.S. herds. Generally, they are long-lived cattle, used for recreational purposes for several seasons before going to feedlots. Many are transported frequently and to multiple locations. It's not uncommon to see roping cattle wintered with beef heifers or cows. Considering the opportunities to spread infection, they should be tested for TB, Meyer stresses.

It has been suggested that those responsible for TB surveillance may have let down their guard, thus contributing to TB's comeback.

Meyer admits that inspection procedures at some packing plants need improvement, with more tissue samples taken and tested. In general, however, surveillance efforts have been stepped up.

The take-home message for producers, Meyer says, is to avoid complacency. Know what federal and state TB testing, if any, is required prior to intrastate and interstate movement of cattle. And know the source of any cattle brought into the herd.

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