

Texas Dairy Matters

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Revisiting Brucellosis

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Recently brucellosis was in the news due to a raw milk recall. Although brucellosis is nearly eradicated in the U.S., brucellosis still exists in bison and elk in the Greater Yellowstone Area. Some Western states require heifers moving to them be vaccinated, consequently many in Texas continue to vaccinate. Since a consumer has become ill, it's time to revisit brucellosis as a disease.

What is Brucellosis? A contagious disease of animals (Contagious abortion or Bang's disease) and humans (Undulant fever or Malta fever) caused by infection with a strain of the bacteria *Brucella*.

What causes brucellosis? The bacteria *Brucella* causes brucellosis and was first recovered from goats in 1884, cattle in 1895, pigs in 1914. The first recognized human case of brucellosis in the United States was in 1898.

Which animals are susceptible to brucellosis? According to the OIE brucellosis affects most domestic animals including cattle, swine, sheep, goats, camels, equine, dogs, bison, elk, European hares, and some marine mammals as well as humans.

Are there different strains of *Brucella*? The disease in different animal species is caused by various bacteria of the genus *Brucella*. *Brucella melintensis* is associated with goats, *B. abortus* with cattle, *B. ovis* with sheep, and *B. suis* with swine.

How is it spread? *Brucella* is concentrated in birth fluids as well as the milk of infected animals. The bacteria can survive for months in the environment outside the animal. Humans can be



infected by ingesting the bacteria or through skin cuts/abrasions or the mucous membranes. Humans contract brucellosis by consuming infected unpasteurized milk or milk products and through contact with the placenta or birth fluids of new born animals.

What are the symptoms in people? Brucellosis in humans is characterized by sudden or insidious onset of fever, night sweats, joint pain, headache, fatigue, loss of appetite, muscle pain, weight loss, arthritis, inflammation of brain/spinal cord, swelling of the liver and spleen as well as damage to the heart and testicles.

Can meat and milk be contaminated with the bacteria? The *Brucella* organism is not normally found in muscle tissue and is killed by normal cooking temperature. The disease can be transmitted to humans when slaughtering infected animals or processing infected organs (ie. processing feral swine for consumption). Pasteurization destroys *Brucella* bacteria in milk and milk products.

What are the symptoms in animals? Symptoms in cattle include abortions in heifers after the fifth month of pregnancy, with subsequent pregnancies going to term, testicular and epididymis infection in bulls, and inflammation of joint linings. Fistulous withers (inflammation of bursa in the ridge between the shoulder bones) are common in horses infected with *Brucella*. *Brucella* in sheep is associated with infertility in rams and occasional abortions in ewes. *Brucella* infection in swine is associated with infertility in sows and boars as well as deaths in piglets. *Brucella melintensis* causes abortions and weak offspring in goats and sheep and is an important zoonotic disease in humans.

Does vaccination prevent the disease? Currently heifers are vaccinated with RB 51 as an aid in prevention of *B. abortus*. Vaccination will reduce the risk, but not always prevent abortions.

When do you vaccinate? Vaccination is limited to the ages of 4 to 12 months in heifers and must be administered by an accredited veterinarian. In special circumstances, adult cattle can be vaccinated. Avoid vaccinating pregnant animals. The bacterial strain involved in this vaccine has an affinity for the bovine placenta and has been associated with placental infection and abortion and can be a risk to humans assisting with calf delivery in dams that were vaccinated while pregnant.

Do we have a surveillance program in Texas? Mandatory testing was suspended in 2011, but some livestock markets have voluntary testing programs. In addition, USDA has a reduced level of slaughter surveillance. Many buyers request breeding cattle be tested for brucellosis.

Why are there false positive reactors? All diagnostic tests have the possibility of misclassifying infected or non-infected animals. Older vaccines were associated with false positive tests, but RB51 vaccine does not produce long term, measurable antibodies.

Although Texas was declared Brucellosis free in 2008, producers must remain vigilant. Talk with your veterinarian and review your vaccination protocols to insure that your herd is receiving the necessary protection it needs.

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