Cow Tales

The Unofficial Ink on Brucellosis

Bangs vaccination is another term for official calfhood vaccination against brucellosis in cattle and bison. In fact, vaccinated cows are considered official vaccines. But, most producers have officially forgotten why we vaccinate against brucellosis.

A cooperative state, federal, and industry effort to eradicate brucellosis began in 1934. Widespread vaccination and surveillance have continued to suppress the threat of brucellosis in the United States. Today, less than one in a million cattle herds in the United States has brucellosis. Complete eradication has proven challenging due to the wild free-roaming elk and bison in the Greater Yellowstone Area. Here the disease is endemic and occasionally is transmitted to domestic cattle herds.

Brucellosis mainly causes reproductive disease in cattle and bison. Infected animals abort their fetus during late second and early third trimester. Typically this is during the winter when animals congregate around available feed resources. Consequently, the disease is easily spread by direct contact between animals within a herd. Other signs of brucellosis include weak calves, decreased milk production, poor fertility, and repeat breeders. It has been estimated brucellosis costs the beef industry more than $400 million in 1952. Studies indicate that, if the eradication program efforts were stopped, production losses would reach $80 million within ten years.

Cattle are vaccinated by a veterinarian, an official tattoo is placed in the right ear, and an orange metal tag is placed in the same ear. The metal tag is stamped with a unique nine-digit alphanumeric number. The first two numbers of the code indicate the state in which the vaccination took place. For example, all heifers vaccinated in South Dakota will receive a tag beginning with the number 46. As a unique identifier, the metal tag can be used to trace an animal disease incident back to the herd of origin and to any potentially exposed individuals/herds.

The tattoo has three digits; an “R”, a shield with a “V” in the middle, and a number. The R stands for the vaccine used. The vaccine currently used is a modified live bacterial culture of strain RB 51. Prior to 1996 the vaccine was derived from strain 19. Animals tattooed with strain 19 had a number in place of the “R” indicating the quarter of the year in which the vaccination took place. The shield with a “V” in the middle indicates an official tattoo. The number of the tattoo indicates the last digit of the year in which the tattoo was placed. A heifer vaccinated in December of 2011 will have a tattoo ending with “1” while vaccinations during January will end in “2”. Producers and veterinarians sometimes use the tattoo to help age an individual cow.

Vaccination requirements are determined by each state separately. Each state has different requirements for cattle transported into and within their state boundaries. Typically, producers select females with breeding potential for vaccination because animals intended for feeding are not typically required to be vaccinated. Here in western South Dakota, producers vaccinate for brucellosis to increase marketing options for their heifer calves. Official vaccinates are allowed across neighboring state lines for breeding purposes. This creates more potential buyers during the marketing process. Additionally, middle aged cows that are official vaccinates can be marketed across state lines for purposes other than feeding. Cow herd vaccination status can become very important during periods of herd liquidation such as drought. Vaccinations can only be given to heifers from four to twelve months of age. Individuals older than twelve months of age are sometimes vaccinated in high-risk areas with special permission from state animal health officials.
Brucellosis is a zoonotic disease caused by the bacterium *brucella abortus*. Zoonotic means it can be transmitted from animals to people. However, few people in the United States are exposed to brucellosis causing bacteria. Most exposure occurs outside the US in Southern Europe, Eastern Europe, North Africa, the Middle East, Asia, Central America, and Southern America. The most common source of exposure for people is the consumption of unpasteurized milk and milk products from infected cattle.

The symptoms of brucellosis in people are vague and include fever, sweats, headaches, back pains, and weakness. Sometimes, brucellosis causes long-lasting chronic effects with recurrent fevers, joint pain, and fatigue. As a result, brucellosis in people is sometimes referred to as undulant fever.

In conclusion, there are many species of brucella organisms. Each infects a narrow range of host animals. Bangs vaccination is targeted toward brucella abortus that infects cattle, bison, elk, as well as people. The current eradication program has minimized the threat of an outbreak today but pockets of endemically infected wildlife and imported livestock still pose a risk. People in the United States have minimal risk of exposure to the infectious organism unless traveling to another country. Control efforts have successfully minimized the negative production effects and monetary losses to the beef industry. Contact your veterinarian should you have further questions.

Nerd Fact

BT Corn – a genetically modified variety of corn with a toxin gene from a member of the brucella genus, brucella thuringiensis. The toxin produced creates pores in European corn borer larvae. The pores allow naturally occurring bacteria to enter the larvae causing sepsis.