

BSE Prevention: Myths and Critical Control Points

Over the past four months we have read and heard more about BSE (Bovine Spongiform Encephalopathy; Mad Cow Disease) than we may have ever wanted to know. The California Cattlemen's Association and other allied groups, particularly the NCBA have done a wonderful job in terms of getting out the facts about BSE and the message that beef is safe for consumers. Despite these efforts and all the good press, a number of myths have been repeated in the media. I thought I would spend some time this month discussing these problems and reviewing some of the important points about BSE prevention. Hopefully, you can utilize this information as you talk with the media, local officials, neighbors, and consumers.

Does BSE occur spontaneously in cattle?

The message that BSE occurs spontaneously in cattle has been repeated in the media several times. Where does this idea come from? There is a disease in humans called Creutzfeldt-Jakob Disease (CJD) which does occur spontaneously. It occurs at a rate of about 1-2 people per million population per year, worldwide. This is the so-called spontaneous CJD. Some have extrapolated this information to the cattle population, saying that BSE occurs spontaneously in cattle just as spontaneous CJD occurs in humans. Therefore, if we have about 100 million cattle in the U.S., we have 100-200 cases of BSE each year. This assumption is the basis for the argument that we should be testing every slaughtered animal for BSE. There is no basis in fact for this assumption, however. To the contrary, there is ample evidence that BSE is not occurring spontaneously. For example, we have been able to detect cattle diseases with public health significance that occurs at a much lower rate than 1 per million and one such disease is rabies. The diagnosis of rabies is dependent on a thorough examination of the brain of the animal. BSE diagnosis is also dependent on the complete examination and testing of the animal's brain. In California, cattle rabies is detected every year or so and almost every case is associated with significant human exposure. If we were unable to detect this central nervous system disease (rabies) one or more fatal cases of rabies in humans would occur. The fact is, we are able to routinely diagnose rabies and the same experts are more than capable of diagnosing BSE. Every veterinary diagnostic laboratory in every state is actively looking for BSE and has been since 1986. We are not missing the diagnosis of BSE in cattle in the U.S.

Those who are publicly concerned about spontaneous BSE in cattle and who advocate testing all slaughtered cattle are not at all concerned about beef products imported into the U.S. If BSE does spontaneously occur, it must do so world wide, thus imported beef products would carry the same or greater risk. It may be that those concerned are interested in selling test kits or have some other motive.

What are the critical control points for preventing BSE in U.S. cattle?

The first step is to prevent the introduction of cattle into the U.S. that might be “incubating” the disease. This is the basis of our ban on the importation of any cattle from countries that are known or suspected of having BSE. For example, we banned the importation of cattle from Britain after 1986 and banned live cattle importation from Canada in May of 2003. Secondly, because this disease is transmitted by the feeding of contaminated meat and bone meal (MBM), the feed ban on feeding ruminant MBM to cattle was put into effect in 1997 in the U.S. Obviously, it is imperative that this feed ban be strictly enforced and this is the responsibility of the Food & Drug Administration (FDA). The third measure is to have an active surveillance program to be sure the other preventive measures are working correctly. The surveillance program must include potential clinical cases of BSE and must also include “at-risk cattle” (downer cattle are part of this “at-risk” group). In the section above we discussed the fact that our veterinary diagnostic laboratories are excellent at detecting various diseases in cattle, especially diseases like BSE or rabies that have public health concerns. The monitoring of clinical cases of BSE has been actively occurring for almost 18 years. Secondly, the surveillance of “at-risk cattle” has also been an active area for a number of years. This is the part of the surveillance program that found the Canadian dairy cow in Washington state last year. In 2003, the USDA tested about 20,000 cattle for BSE. The USDA’s surveillance of “at-risk cattle” had focused on downer cattle at slaughter houses. Because downer cattle can no longer be slaughtered for human consumption, the USDA will need to accomplish this part of the surveillance program by other methods. It is still extremely important to monitor this group of animals for BSE. By the time you read this column, the USDA will probably have announced that BSE testing will be done on 200,000-to-300,000 cattle each year. Also, this testing will be accomplished by using the agency’s network of 20 regional laboratories and by the use of the rapid test technology that allows negative results to be reported within 24 hours or less. Additionally, to satisfy our export markets (Japan, South Korea, etc); it may become necessary to test a percentage of healthy cattle over 30 months of age when they are slaughtered. Therefore, surveillance of cattle for BSE will continue to be an important part of our preventive measures.

An additional preventive measure in the future will be the development of cost effective tests that can be used on live animals. This would allow us to detect BSE “infected” cattle before slaughter. Sheep also have a transmissible spongiform encephalopathy called Scrapie and there is a test to detect this disease in the live animal. Also, some sheep are resistant to Scrapie and some are more susceptible. Currently, there are genetic tests available to detect this resistance or susceptibility. To prevent BSE it would be extremely helpful to have both live cattle tests and genetic susceptibility tests. Hopefully, these tests can be developed and implemented in the future.

What are the critical control points for food safety with regard to BSE?

The main food safety procedure is to prevent BSE in U.S. cattle in the first place. If healthy slaughtered cattle over 30 months of age are tested for BSE it is essential to have “test and hold” facilities at the plants. The carcasses will have to be held until the negative test results are reported. This would prevent the possibility of large scale meat

recalls due to false positives. An additional procedure is to eliminate the “specified risk materials” (SRMs) from the human food chain. This process has already been initiated. The SRMs include the brain, eyes, skull, tonsils, spinal cord, spleen, small intestines, vertebral column (bones of the neck and back that surround the spinal canal), and thymus. For animals over 30 months of age, the SRMs will be removed from the carcass, segregated, and eliminated from the food supply.

We have not found a case of BSE in a native U.S. animal and hopefully we never will. However, it is important we continue to have an active process to prevent this disease, maintain consumer confidence, and protect public health. It is also important we base our decisions on facts and not myths or unfounded fears. I hope the information above will help you stay informed and armed with these important facts.

John Maas, DVM, MS
Diplomate, ACVN & ACVIM
Extension Veterinarian
School of Veterinary Medicine
University of California, Davis