

BSE and Indiana

The announcement of the first diagnosis of bovine spongiform encephalopathy BSE in a cow living in the United States has blighted the seasonal cheer for many dairy and beef producers in Indiana. Cattle prices have been high for the beef industry, partly as a result of the import ban on Canadian beef resulting from their discovery of a BSE case back in May 2003. The loss of major export markets for American beef will surely affect beef prices, but that is not the major long term issue for cattle producers. The overriding question for the future of the cattle industry is whether the consuming public believes that beef and dairy products are safe and wholesome.

The facts known at this time are that the affected cow originated in Canada and was brought into the United States in a group of 74 animals. Conflicting information on the age of the cow has been given, but it appears the cow is either 4 1/2 or 6 1/2 years old and was slaughtered as a downer cow on December 9. The brain and spinal cord were condemned, but the remainder of the carcass was processed for human consumption. Meat and meat products from this cow, and from the animals slaughtered on the same day in the slaughter plant, have been recalled.

The question to which everyone wants an answer is how did the Washington State cow come to have BSE? As yet there are no answers and it remains to be seen whether investigations will provide a definitive answer. The finding of a second cow originating in Alberta suggests two things. The first is that the possibility of a common contaminated feed source being incriminated becomes more likely. The second is that if this is indeed a feed associated case then it is likely that at least a few more cases will come to light.

In Britain, which has the most experience with the disease, the disease has an average incubation period of five years from the time of consumption of cattle food contaminated with the prion protein that causes BSE. Both the United States and Canada banned the practice of feeding ruminant protein back to cattle in 1997. If ruminant protein fed to cattle has caused the cases of the disease in the US and Canada, it is extremely unlikely that a major epidemic will ensue, since the practice that permitted the spread of the disease among cattle was banned six years ago. Even if the ban was not perfectly applied in its early stages, it is unlikely that substantial numbers of cattle were affected. The possibility that these two cases represent the tip of a giant iceberg of BSE infected animals is extremely remote.

The information we have about the two affected cattle does not preclude other possible explanations for the appearance of the disease. One is that these cases may be spontaneous occurrences of BSE in the cattle population that have nothing to do with consumption of contaminated feedstuffs. Spontaneously occurring spongiform encephalopathies occur in other species. Indeed classical Creutzfeldt - Jakob Disease (CJD), a spongiform encephalopathy of humans that is not associated with consumption of materials from BSE infected cattle, occurs at a rate of one in a million people per year. It is certainly possible that the surveillance system has picked up rare cases of a similar spontaneous disease in cattle. Another possibility is that this cow is the calf of a BSE

infected cow which was never identified. Passage of BSE from infected cows to their daughters has been reported in Britain.

The next issue that needs to be addressed is that of the public health risk if BSE infected cattle do enter the human food chain and are consumed by people. Over 180,000 cases of BSE in cattle have been reported in Britain since the first case was recognized in 1986, but it is not known how widespread human exposure to the disease was before control measures were put in place. The transmission of BSE to humans has been studied in Britain where a new disease called variant Creutzfeldt - Jakob disease (vCJD) was described and is generally believed to have been caused by consumption of BSE contaminated material from infected cattle. The British Department of Health lists 137 deaths due to vCJD in humans from 1995 up to December 2003. So far in 2003 16 people have died from vCJD in Britain while 53 have died from classical CJD and over 4 million people have become ill from other foodborne diseases. For comparison, foodborne bacterial diseases in the US such as *Salmonella*, *Campylobacter* and *E.coli* are responsible for up to 33 million cases of human illness a year and up to 9,000 deaths. Clearly, the risks of BSE to the public in the US are very small compared to other common disease risks.

What changes are we likely to see in the cattle industry as a result of the discovery of a domestic case of BSE? Fortunately countries such as Britain already have considerable experience with measures which reduce risk for the consumer. Certainly there will be an increase in the level of surveillance in order to detect any other animals that may have the disease. It seems inevitable that there will be calls for a massively increased level of testing, similar to that done in other BSE affected countries. It is possible that high risk cattle, such as downer cows or other cows showing neurological diseases, will no longer be slaughtered for human consumption. If the number of cases increases there may come a time when older cows will no longer be slaughtered for human consumption unless tested free of BSE. Animals under 30 months of age are generally considered to present no risk to the consumer in Britain, and most beef eaten in the US is already slaughtered at a younger age. Efforts are likely to be seen to ban the inclusion of brain, spinal cord, or nerves coming out of the spine from meat for human consumption, as these are the parts of the carcass that have been shown to carry the infectious agent. This may affect carcass de-boning procedures and the availability of such cuts as T-bone steaks. The practice of mechanical recovery of meat from the spine in which scraps of meat are stripped from the vertebrae will certainly be examined.

Dairy and beef producers in Indiana will want to support efforts to create a system of universal identification of cattle and other farm animals, as well as of farm premises, to ensure that tracing of animals can be done rapidly and accurately. This is essential to maintaining the confidence of the consumer in our food production system. Experience in Europe, particularly in Britain and Germany, has shown that statements dismissive of any risk to the consumer, and ill advised "Beef is Safe" campaigns that cannot be supported by evidence, can backfire disastrously. If ever there was a time for an open and honest discussion of the whole process of delivering safe food to the consumer's table, this is it.