

What You Should Know About BSE

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The following are some brief facts about Bovine Spongiform Encephalopathy that you may find useful. The media should be urged to call either Dr. John Lawrence on economic and marketing issues and Dr. Nolan Hartwig on technical and public health issues related to BSE.

- BSE (so-called Mad Cow Disease) was first diagnosed in the United Kingdom in 1986. There was some spread from the U.K. to the European continent, mostly as a result of importation of exposed cattle.
- BSE is one of several diseases called Transmissible Spongiform Encephalopathies (TSEs). These include:
 - Kuru, Creutzfeldt-Jakob Disease, and Gerstmann-Straussler-Scheinker syndrome in people. All of these are relatively rare human diseases.
 - Variant Creutzfeldt-Jakob Disease (vCJD) of man that is, in essence, the human form of BSE.
 - Scrapie in sheep. Not transmissible to man.
 - Chronic wasting disease (CWD) of deer and elk. Not transmissible to man.
 - Transmissible mink encephalopathy. Not transmissible to man.
- There are no known TSE diseases in swine or poultry.
- Vigorous control and eradication programs have dramatically reduced the incidence of BSE in the U.K. and Europe.
- All of the TSE diseases are caused by the development of abnormal prions in the central nervous system. Prions are large proteins found in the central nervous system (CNS). The body cannot breakdown these abnormal prions. They build up in the central nervous system and eventually lead to neurological disease. Prions are very heat resistant, contain no DNA (are not "living" in the sense that bacteria, fungi, all animals and plants, and even viruses, are considered as "living.") The precise mechanism of invasion of the body, replication, transmission, and other factors are not fully worked out by research scientists, but many major risk factors are known.
- vCJD is caused by consumption of contaminated beef. The prions are in the nervous system, not muscle tissues, although one cannot be 100% sure that there is absolutely no nerve tissue in beef cuts and ground beef.

The vast majority of the prions are in the central nervous system, not the peripheral nerves that might be included in ground beef.

- There have been about 137 cases of vCJD in the United Kingdom. It is 100% fatal. The incidence is decreasing as BSE is eliminated from the country and as additional precautions have been implemented. There is an extremely low risk of getting vCJD, even in the U.K.
- Brain and spinal cord (CNS) tissue are not allowed in ground beef and other processed meats.
- The U.S. has protected its cattle herd from BSE by:
 - An immediate ban on importation of cattle and animal products, including meat and bone meal, from the U.K. once the disease was recognized there in the 1980s.
 - Waste and condemned products are rendered at high temperature and pressure to produce meat and bone meal. This by-product of meat and poultry harvest is a source of high protein supplement for the livestock and poultry industry.
 - Since BSE is thought to be transmitted between cattle by feeding by-products such as meat and bone meal, importation of these products was banned. In 1997, the feeding of meat and bone meal to ruminants (beef, dairy, sheep) derived from all ruminants has been banned. This is a vital control mechanism to prevent introduction and spread of the disease in the United States.
 - Testing of the brain of downer animals and animals that show signs of neurological diseases is mandatory. There have been no cases identified in the U.S. until the cow harvested in Washington State on December 9th.
 - Veterinarians have been intensively trained to watch for signs of BSE in U.S. cattle.
- No animal that shows signs of systemic disease is allowed to be harvested for human food in the U.S. and most other countries.
- Downer animals are animals that are not ambulatory. They receive intensive ante mortem and post mortem examination at slaughter by trained veterinarians.
- One cow from Canada was diagnosed with BSE in May, 2003.
- USDA officials, in cooperation with colleagues from Canada, are tracing the source of the affected cow that was harvested in the state of Washington. The precise source and age of the affected animal has not been determined as of 12/29/03.
- Ground beef from the cow has been shipped to several states and is being recalled. Some of it has probably been consumed.
- The herd of origin of the index case is quarantined.
- The prions that cause BSE have never been found in milk or blood.
- Risk to humans:
 - Proving a negative (zero risk) is impossible in situations like the one we have now.

- The risk can accurately be described as “not zero, but so close to zero that it cannot be measured.”
 - Beef is safe.
 - Cooking will not destroy prions.
 - vCJD is not related to common human neurological diseases.
- An accurate system that allows us to trace the complete life history of all meat animals is needed. This can benefit the livestock industry and significantly enhance consumer confidence.