Bovine Spongiform Encephalopathy

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The Bovine Spongiform Encephalopathy (BSE) problem is of enormous importance as a food safety issue. It is most difficult to summarize because there are several unknown scientific factors which are needed in order to make sound judgments. Intense research effort is being focused on the problem with the result that considerable new information is forthcoming rapidly; publications are rapidly outdated. Therefore, only a brief and general statement follows and it is suggested that the Internet be consulted for the most recent conclusions (see for example — http://www.aphis.usda.gov/oa/bse.html).

BSE is also known as "mad-cow disease" since affected animals lose their coordination, develop abnormal posture and experience changes in behavior. The incubation period for the disease is 2 to 8 years, and when clinical symptoms appear, the disease course is from weeks to months and results in death.

BSE was observed in Great Britain in 1985, and the epidemic peaked in 1993 at nearly 1,000 new cases per week. The disease has been identified in several other countries. Most evidence points to the disease-causing agents as being unique proteins that do not contain genetic material, as do other infectious agents. These proteins are called prions, a shortened form for proteinaceous infectious particles. BSE is one of a number of neurodegenerative diseases known as transmissible spongiform encephalopathies (TSE). The most common form is scrapie, which has been known for some time as a disease of sheep and goats. One theory regarding the cause of BSE in Great Britain is the use of protein feed supplements made from meat and bonemeal of carcasses of scrapie-infected sheep. In 1988, Great Britain banned the use of protein supplements derived from ruminants for use in ruminant feeds.

Of great concern is the question of whether humans can become infected with a disease by consuming meat from BSE-infected cattle. The most common spongiform encephalopathy in humans is termed Creutzfeldt-Jakob disease (CJD). It is rare and occurs world-wide at a rate of about 1 person per 1,000,000. It usually affects older adults of about 60 years of age. Of concern, however, was a variant discovered in Great Britain and which affects victims ranging in age from late teens to early 40's. The human disease is fatal.

No cases of CJD have been linked directly to consumption of beef. In March 1996, the British Government reported however that 10 recent cases of the variant CJD may have been associated with BSE.

The USA is following a strict program to avoid introduction of BSE into the country. Since 1985, no beef has been imported from Great Britain. In 1989, the USDA banned the importation of live sheep, cattle and goats from countries where BSE exists. In 1994, the FDA proposed to prohibit the use in ruminant feed of specified offal from adult sheep and goats. A strong surveillance program continues. Field investigations are regularly conducted of suspicious disease conditions. The brains from cattle more than two years of age and which show signs of neurological disease are examined by trained pathologists. More than 2,660 specimens from 43 states have been examined and none have tested positive for BSE. Surveillance of CJD in the USA reveals that the disease rate remains consistent with the worldwide incidence.

BSE has not been identified in cattle in the USA and no cases of CJD have been linked directly to BSE.

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