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Confused over “mad cow” and foot-and-mouth disease?

Destruction of cattle, first to stop mad cow disease and then to stop foot-and-mouth disease, dominated news stories from Great Britain for nearly three years. The proximity of the diseases, both in place and time, has caused a lot of confusion.

Many people think the diseases are the same. The truth is that they are very different. Bovine spongiform encephalopathy, dubbed “mad cow disease” by the British public, is a deadly neurological disease that may affect humans. Foot-and-mouth is a virus that usually does not affect humans.

Only the methods used to control the diseases, the need to depopulate herds, is similar. This fact sheet describes both diseases and the ways they differ from each other. It reflects knowledge and situations current at the time of publication. As science progresses, this information may change.

What species is affected?

Bovine spongiform encephalopathy (BSE)

Cattle. BSE is one variety of a rare group of diseases called transmissible spongiform encephalopathies (TSEs).

Sheep, goats, cats, mink, deer, elk, cattle and humans each have their own form of TSE.

Foot-and-mouth disease

All cloven hoofed animals, such as sheep, goats, deer, swine, elephants, giraffes, elk, bison and cattle.

Sheep are only mildly affected. In them, the disease can be misdiagnosed as foot rot. However, they continue to spread the disease even after clinical signs subside.

Does the disease affect humans?

Bovine spongiform encephalopathy (BSE)

Perhaps. Scientists cannot distinguish between the infective agent in variant Creutzfeldt-Jakob disease (vCJD), a human disease, and that found in BSE.

There is no proven link between the two diseases. Most scientists agree that eating food containing central nervous system tissue

from BSE-infected cattle likely is the cause of vCJD. In the United Kingdom, people that work in close contact with animals or animal feeds have no higher incidence of vCJD than the general public.

Foot-and-mouth disease

Usually, no. The only human health effects reported have been mild, flu-like symptoms. Recovery occurred without treatment.

What infective agent causes the disease?

Bovine spongiform encephalopathy (BSE)

The most widely accepted theory is that a protein called a prion causes BSE. Prions have survived heat up to 680° F and burial for three years. Known cases of BSE have been in Europe and Japan, and some cases of animals exported from Europe. No case has been found in the U.S. despite active surveillance.

Foot-and-mouth disease

There are seven strains of the virus that causes foot-and-mouth. The only continents that do not have active outbreaks are North and Central America, Australia and New Zealand. There has not been a case of foot-and-mouth disease in the U.S. since 1929.

How is the disease spread?

Bovine spongiform encephalopathy (BSE)

Scientists believe cattle contract BSE when they eat feed that contains protein from infected animals. There may be a low rate of passage from cows to their offspring; however, more research is needed before a conclusion is reached. There is no evidence of spread through routine contact between cattle.

Foot-and-mouth disease

Contaminated vehicles, clothing, equipment and exposed animals can transmit this very contagious disease. Humans can carry it to an uninfected farm if they visit within five days after leaving an infected farm. The virus can be carried several miles in the wind. It can persist in contaminated feed and soil up to one month.

What are the signs of the disease?

Bovine spongiform encephalopathy (BSE)

Disease signs usually appear two to eight years after infection. Behavioral changes occur first: the animal may become nervous, fearful, anxious, aggressive or apprehensive. It may stay away from other cattle, panic, kick, or refuse to enter the parlor or go through doorways. Next, locomotion changes: lost coordination of rear legs, difficulty or inability to rise. Other signs include lost weight and muscle tone despite normal appetite and reduced ruminal contractions. Signs progressively worsen until death, usually within one year. The disease is always fatal.

Foot-and-mouth disease

Signs appear one to five days after infection. They include: fever, depression, no appetite, excessive salivation, smacking of lips, drooling, lameness, altered gait, decreased milk production, mastitis and abortions. Recovery in two weeks, but the animal will be debilitated. Five percent of animals die. Severe production losses occur in all species except sheep.

In sheep clinical signs are not as prominent, and the disease may be more difficult to detect.

What is government doing to prevent the disease?

Bovine spongiform encephalopathy (BSE)

The Food and Drug Administration prohibits the use of nearly all mammalian protein in ruminant feed. The only exceptions to the ban are: milk products, blood products, gelatin, pure pork and horse protein, inspected meat products cooked and offered for human consumption and further heat processed.

The U.S. Department of Agriculture (USDA) began searching for evidence of BSE in this country in 1990. It has banned importation

of live cattle and cattle products from Europe for several years. State and federal officials continue to educate producers and to inspect rendering plants, feed mills, feed handling facilities and retail stores.

Foot-and-mouth disease

USDA has increased inspections and enforcement of customs regulations at ports of entry. State departments of agriculture are educating veterinarians, animal producers, staff of state and county agencies, emergency management offices and the public.

What can producers do to prevent the disease?

Bovine spongiform encephalopathy (BSE)

Do not feed prohibited mammalian protein to ruminant animals. (See *What is government doing to prevent the disease?*)

Check feed tags for the statement ***Do not feed to cattle or other ruminants***. Train employees not to give feed with that statement to ruminants. Keep pet food, hog or poultry feed away from ruminants; they may contain prohibited mammalian protein. Prevent contamination of ruminant feed with feed that contains prohibited mammalian protein.

Keep invoices and labels for all feeds that contain animal proteins for at least one year as required by law. It is better to keep them for the entire life of your livestock because incubation can take several years. Records will be used to determine risk and whether a herd needs to be destroyed if BSE is discovered in the U.S.

Do not allow deliveries of feed that contains prohibited mammalian protein as ruminant feed. Ask feed transporters to certify that they did not haul prohibited mammalian protein in the previous load, or that the truck was thoroughly cleaned between loads.

Foot-and-mouth disease

Restrict visits to farms or ranches, especially to anyone who has traveled outside the U.S. during the last five days. Remove organic matter and sanitize boots before entering your farm.

Effective sanitizing solutions include:

- a) Virkon-S – follow label instructions. (Potassium Peroxymonosulfate and Sodium Chloride).
- b) Household bleach – two parts bleach to three parts water. (5.25 percent Sodium Hypochlorite).
- c) Acetic Acid (4 to 5 percent). Use undiluted household vinegar.
- d) Soda Ash – mix one pound in three gallons of water. (Sodium Carbonate). Mildly caustic. Will dull paint.
- e) Lye – mix one-cup of lye in three gallons of water. (Sodium Hydroxide). Highly caustic. Will corrode equipment. Use goggles and other personal protective equipment.

If you see signs described at the top of this page, call your veterinarian, the state Department of Agriculture (360) 902-1878, or the U.S. Department of Agriculture (360) 753-9430.

What will government do if a case is found?

Bovine spongiform encephalopathy (BSE)

The herd will be quarantined. Tissue and blood samples will be sent to the National Veterinary Service Lab for preliminary diagnosis, then to the United Kingdom for confirmation.

All animals that left the herd in recent years will be traced and put under surveillance. All feed sources will be traced and checked. Other farms that purchased feed from the same source will be checked; and animal movement from those farms will be traced.

Foot-and-mouth disease

Immediate quarantine of the herd and all animals within several miles of it. Tissue and blood samples will be sent to Plum Island, New York for diagnosis.

Multiple agencies will respond within 24 hours. Major disruption of normal activities, such as road closures and restrictions on the movement of animals and people on or off the farm. Entire herds may be depopulated.