

# Imported Belgium/Netherlands Sheep Test Results

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) announced that 2 sheep from a flock of 125 which were confiscated in March of 2001 from a farm in Vermont have tested positive for an atypical undifferentiated transmissible spongiform encephalopathy (TSE).

TSEs are a class of degenerative neurological diseases that are characterized by a very long incubation period and a 100-percent mortality rate. Two of the better known varieties of TSEs are bovine spongiform encephalopathy (BSE) in cattle and scrapie in sheep.

Additional tests will be conducted to determine exactly what TSE the animals have—BSE or scrapie. These tests involve the use of bioassays that consist of injecting mice with tissue from the infected animals and waiting for them to develop disease. This testing may take at least 2 to 3 years to complete.

This flock of 125 sheep was confiscated in March 2001 after 4 animals from an associated flock tested positive for an atypical TSE of foreign origin. In all, APHIS acquired 380 sheep from a total of three flocks. All of the animals were humanely euthanized, sampled, and disposed. The animals did not enter the animal or human food supply.

The decision to confiscate the sheep was made after four sheep from one of the flocks tested positive for an atypical undifferentiated TSE of foreign origin in July 2000. On July 14, 2000, USDA issued a declaration of emergency and extraordinary emergency to acquire the sheep.

The first flock of 21 sheep were voluntarily sold to USDA on July 14, 2000. Those animals tested negative for a TSE.

The owners of the other two flocks contested USDA's action. A federal district court judge ruled in favor of USDA based on the merits of the case. The flock owners appealed to the Second Circuit Court requesting a stay, which was denied. After the request for a stay was denied, the flocks were confiscated by USDA in March 2001.

The second flock of 234 animals was confiscated on March 21, 2001. Testing for TSEs is ongoing for this flock. The third flock of 125 sheep was confiscated on March 23, 2001.

## Background

APHIS' mission is to "Protect American Agriculture." As part of that mission APHIS regulates the importation of animals and works with U.S. producers to eradicate animal diseases. To improve the genetic base of the domestic sheep population or to gain access to breeds not commonly found in the United States, there was a brief window of time in 1996 when USDA allowed the importation of sheep from certain countries. In August and November 1996, two importations of sheep from Belgium occurred. The sheep were primarily East Friesian milk sheep which originated from both Belgium and the Netherlands. A total of 65 sheep were imported. These sheep were used for milk production; milk from these sheep was used to produce cheese that was sold locally and nationally.

This brief import window was shut in late 1996 after published research indicated that sheep that were orally infected with BSE had a wider tissue distribution of the agent than cattle with BSE. This raised the possibility that if sheep were naturally infected with BSE the disease may spread from one sheep to another.

In late 1997, both Belgium and the Netherlands reported their first cases of BSE in native cattle. In 1998, the European Union's Scientific Steering Committee issued an opinion that stated it is highly likely that European sheep were exposed to feed contaminated with the BSE agent. Based on these reports, the state of Vermont, in consultation with APHIS, imposed a quarantine on these sheep in October 1998. The two flocks of sheep and their progeny were prohibited, by the State quarantine, from entering either the human food or animal feed chains or being sold for breeding purposes. Subsequent to the quarantine, APHIS obtained information that the flocks of origin had been fed concentrates prepared at local mills. This practice has been shown as the most likely route of BSE exposure for the infected cattle in Belgium.

If any of the quarantined sheep were to be culled or died, tissues from animals greater than 6 months of age were collected for diagnostic purposes and the carcasses were incinerated at APHIS' expense. Based on four animals from one flock testing positive for an atypical undifferentiated TSE, USDA determined that an emergency and extraordinary emergency existed in Vermont. These declarations, which were effective July 14, 2000, provided funds and the authority to seize and dispose of these sheep.

The declaration of emergency provides authority for USDA to seize and destroy the sheep and authorizes payment of fair market value for the sheep. On October, 28, 2000, Congress provided the USDA with additional authority and funding (\$2.4 million) to compensate the owners for economic losses incurred due to seizure and destruction of the Vermont sheep. This was in addition to fair market value funds that would have been provided for the sheep. This additional funding, which was available only if the sheep were destroyed on or before November 17, 2000, was declined by the owners. The owners of the other two flocks contested USDA's action. A federal district court judge ruled in favor of USDA based on the merits of the case. The flock owners appealed to the Second Circuit Court requesting a stay, which was denied.

## **TSE Testing**

Tissues from the sheep have been subjected to three tests; histopathology, immuno-histochemistry, and Western-blot.

Histopathology examines brain tissue for microscopic changes indicative of a TSE. Immuno-histochemistry examines the brain tissue for the abnormal prion protein, which is a marker for TSE disease. The Western-blot test also detects the abnormal form of prion protein in the brain tissue. All of these are recognized as official tests by APHIS.

The abnormal prion protein was detected by the Western-blot test in all of the sheep that have tested positive for a TSE in these groups of animals. The method used for this test has been published in literature and is an accepted methodology. The tissue samples were from the obex, which is the best location in the brain to find the abnormal form of the prion protein (an indicator of TSE infection) if it is present.

The Western-blot test however cannot differentiate between scrapie and BSE. The only known validated method to differentiate between these two diseases requires a series of mouse bioassay systems, which take at least 2–3 years for completion.

---

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326–W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250–9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.