## NSU Completes BSE Prevalence Estimate

The Centers for Epidemiology and Animal Health (CEAH) National Surveillance Unit has completed a report estimating the prevalence of bovine spongiform encephalopathy (BSE) in the United States. The draft results of the report were released by U.S. Agriculture Secretary Mike Johanns on April 28[1] and submitted for formal peer review in May according to Office of Management and Budget guidelines. The report and results of the peer review have not yet been finalized.

Based on data collected over the last 7 years, including more than a half million samples from the U.S. Enhanced BSE Surveillance Program under way since June 2004, the USDA's preliminary estimate of BSE prevalence among U.S. cattle was extremely low. The report concluded that prevalence was less than 1 case per million adult cattle at the 95 percent confidence level, based on an adult cattle population of 42 million animals. The surveillance data were analyzed with two different methods, the BSurvE Prevalence B method[2] and a Bayesian method that incorporates the effect of the feed ban, to estimate BSE prevalence.

The results of the two methods were similar, indicating that the most likely number of cases present in the United States is between four and seven animals. In addition, the USDA demonstrated that surveillance efforts to date far exceed the World Organization for Animal Health (OIE) "type A" surveillance requirements.

Active surveillance for BSE was initiated in the United States in 1990. In response to identification of a BSE-affected imported dairy cow in December 2003, the U.S. Enhanced BSE Surveillance Program was implemented in June 2004. The program tested as many cattle as possible in the targeted high-risk population and has continued to date at an enhanced level to ameliorate concerns of trading partners.

Through these surveillance efforts, two cases of BSE were identified through March 2006. Both cases were in beef cattle over 10 years old (born before the feed ban of 1997), one located in Texas and one in Alabama. Experience in the United Kingdom and Europe has shown that if present, BSE is most likely to be detected in adult cattle exhibiting clinical signs consistent with the disease. In general, the highest risk categories are adult cattle showing clinical signs involving the central nervous system (CNS), dead, and non-ambulatory cattle. This population was estimated in part from National Animal Health Monitoring System (NAHMS) surveys of livestock producers and other estimates

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[1] Available at http://www.usda.gov/wps/portal/usdahome?contentidonly=true&contentid=2006/04/0143.xml, accessed May 15, 2006.

[2] Wilesmith J, Morris R, Stevenson M, Cannon R, Prattley D, and Benard H (2004) Development of a Method for the Evaluation of National Surveillance Data and Optimization of National Surveillance Strategies for Bovine Spongiform Encephalopathy. Weybridge, England, European Union TSE Community Reference Laboratory, Veterinary Laboratories Agency.

to total 445,886 adult cattle per year in the United States. This number includes adult cattle in the following categories:

- Condemned at slaughter for CNS signs;
- Moribund, dead, injured or emaciated (FSIS data 2002);
- CNS abnormalities reported for FAD investigations (APHIS data 2003);
- Died on-farm of unknown causes;
- Lameness or injury that resulted in euthanasia; and
- Cattle that died with signs of incoordination or severe depression.

Between June 1, 2004, and March 17, 2006, BSE samples were collected from 5,776 unique locations across the United States.  These locations included slaughter plants, renderers, farms, public health laboratories, veterinary diagnostic laboratories, and salvage slaughter (3D-4D)[3] plants.

Surveillance data over the past 7 years were evaluated and classified according to OIE standards. In May 2005, the OIE General Assembly approved a new chapter and appendix for BSE surveillance. This approach assigned point values to each sample based on animal age, the subpopulation it was from, and the likelihood of detecting infected cattle of that age in that subpopulation.

Prior to May 2005, the OIE had recommended a surveillance level based on the size of the adult cattle population – for the United States that number was 433 samples with clinical signs consistent with BSE per year. Since May 2005, samples have been classified in the OIE system as belonging to four surveillance strata (streams): clinical suspect, casualty slaughter, fallen stock, and healthy slaughter.  BSE surveillance samples from 1999 through 2003 were collected before the OIE surveillance streams were established in 2005 and were not submitted with the same clinical history as that used for the enhanced surveillance in 2004-2005.  In order to apply the OIE point tables, data about these samples were requested from the National Veterinary Services Laboratories (NVSL) and were sorted by CEAH epidemiologists based on the history included with the sample.

**More Information Online**

"An Estimate of the Prevalence of BSE in the United States" is available at
   http://www.aphis.usda.gov/newsroom/hot_issues/bse/content/printable_version/BSEpr
   evalence-estimate4-26-06.pdf

"Summary of Enhanced BSE Surveillance in the United States" is available at
   http://www.aphis.usda.gov/newsroom/hot_issues/bse/content/printable_version/Summary
   EnhancedBSE-Surv4-26-06.pdf

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[3] 3D/4D facilities are slaughter facilities that salvage meat from dead, dying, disabled, or diseased animals, the meat from which would not likely pass inspection for human consumption (i.e., edible meat). Much of this meat goes into either pet food or rendering.