Approximately 180 individuals from 23 countries gathered in Fort Collins, Colorado, USA for the International Conference entitled “TSE in Animal Populations, Fact or Fiction”. The conference was sponsored by the Canadian Food Safety Inspection Agency, US Department of Agriculture (APHIS), the International Office of Animal Health (OIE), and International Forum for TSE and Food Safety (TAFS). The Animal Population Health Institute (APHI) of Colorado State University - College of Veterinary Medicine and Biomedical Sciences hosted this event. Experts from around the world presented perspectives on the diagnosis, transmission and epidemiology of the TSE diseases as well as regulations and issues of public perception.

This conference was a second in a series of scientific communication programs on Transmissible Spongiform Encephalopathy (TSE) that were initiated by TAFS, whose purpose is to establish a line of communication between scientists, policy makers, regulators, and the public on topics related to TSEs in animal populations. The conference focused on the similarities and differences of scrapie with Bovine Spongiform Encephalopathy (BSE) and Chronic Wasting Disease (CWD). There were three topics that were addressed during this conference. Below is a short summary of the presentations and the discussions related to these topics.

**Pathogenesis**

Scrapie is used as a baseline disease for contrast and comparison of other TSEs because there is a larger knowledge base. Both BSE and CWD share some characteristics with scrapie although the similarities are not perfect. Most contrasts are well-recognized and are the basis for differentiation of diseases.

BSE has a limited route of transmission mainly via feed. Genetic involvement for BSE is uncertain. BSE has limited tissue involvement outside of central nervous system. Viable BSE testing in live animals is unlikely in the near future.

Wild animals have been identified as the natural host for CWD. There are potentially broad routes for transmission of CWD. Genetic involvement for CWD is uncertain. Pathogenicity and virulence of CWD is undetermined, CWD involves multiple tissues but the potential for a live test is promising.

There is a commonality in the pathogenicity between scrapie, BSE and CWD. Advances in understanding and control will be most promising due to such commonality with all TSEs.
Investigations are completed or are underway regarding the potential for cross species, tissue location and infectivity. There is, however, still a need to conduct studies to observe the natural exposure of animals to these agents and there are a number of questions that have not been answered.

**Diagnosis and Epidemiology**

Valid and reliable screening and diagnostic tests for BSE and CWD are needed. For CWD there is limited validation of rapid tests and uncertainty about them depending upon the stage of disease. These tests must be used with the appropriate tissue to be valid. Due to the extreme complexity of the nature of prion diseases there is difficulty in the diagnosis of TSE disease with current tests.

When a surveillance program is developed it should be targeted at the correct “high risk” population. A true surveillance plan is structured to meet the goals of the plan rather than random samples from the population. In order to conduct a targeted surveillance program, there must be some knowledge of risk. Current surveillance programs are limited to the varied sampling protocols used by individual countries, states or provinces. At this time, it is difficult to determine disease freedom from BSE or CWD. Status is only known when a positive case is found. Increasing the sample size does not ensure a representative sample for BSE/CWD.

There is a need to expand the knowledge about TSEs in a natural setting. The United Kingdom is the basis for BSE epidemiology and ecology which has been supported by the success of intervention strategies. Colorado and Wyoming wildlife observations are the basis for CWD. Captive cervid herds have not provided additional information due to intervention strategies.

**Management and Regulations**

For BSE there has been interaction of research findings and implementation of policy. There is difference between EU and OIE classification status and the risk analysis processes. BSE regulations have had positive impacts on other livestock health programs.

For CWD there is a difference between captive and free-ranging populations. Multiple agencies are involved with a variety of agendas. Standardization of diagnostic assays and surveillance systems for captive herds have been developed and a national plan to deal with the wildlife portion of disease is underway.

Risk management is an essential component in dealing with these diseases. Particular emphasis should be on transparent communication to build public confidence. Policy makers could learn from early BSE experiences in handling other TSE diseases.
The conference concluded that some fictitious ideas become factual “statements” due to the lack of scientific assessment. These statements, then, need to be evaluated with scientific evidence before they are conveyed as facts. Public perception and public health issues dominate the priority of dealing with such diseases. Therefore, there is a need to assess the validity of approaches in terms of practicality and their economical values. The risk analysis process is an essential component assessing preventive and eradication measures. Trust and transparency are essential components for a successful effort to handle these diseases. Standardization of protocols for sampling and surveillance systems requires a team effort and thorough planning. There is a need for further research with an open-minded attitude.

A detailed report with synopses from each presenter will be available soon on the website.