

REPORT OF THE COMMITTEE ON INFECTIOUS DISEASES OF CATTLE, BISON AND CAMELIDS

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The Committee met on October 26, 2008 at the Sheraton Greensboro Hotel Greensboro, North Carolina, from 12:30 to 5:30 pm. There were 15 members and 45 guests present. Members and guests were welcomed and the agenda, procedures and expectations outlined. Members were asked to provide names for a new Vice Chair.

In a summary of efforts supporting the development of bovine viral diarrhea virus (BVDV) control programs, Julia Ridpath, National Animal Disease Center (NADC), Agriculture Research Service (ARS), United States Department of Agriculture (USDA), reported that BVDV1b continues to be predominant subgenotype isolated from persistently infected (PI) cattle in the US. Regional control efforts in the upper Michigan Peninsula, Montana, Washington and Alabama are ongoing. Efforts are voluntary but producer costs are offset by various combinations of federal, state and commercial funding. The control effort focusing on the upper Michigan Peninsula is in its first year of a three year plan. Thus far 130 herds (5668 animals) have been tested. The Montana program is in the second year of testing which has included 526 herds (173,473 animals). Similarly a two year effort in Alabama has resulted in the testing of 140 herds (12,000 animals). The testing of spring 2008 calves in Washington State involved 48 herds (7020 animals). In these studies the incidence of PI animals ranged from 0.50 to 0.14 percent of the animals tested and the incidence of herds including a PI animal ranged between 10 and 20 percent. Studies of BVDV infections in deer confirm development of persistent infection and transmission between cattle and deer. New tools for BVDV control include newly licensed commercial tests and new vaccines. The HoBi virus has been identified as a potential problem for BVDV control programs.

Dr. James Evermann detailed a study of the outcome of BVDV persistent and transient infection of alpaca crias. Based on these studies it appears that persistent infection of crias is a rare event that tends to occur in clusters. The PI crias studied were unthrifty and none survived to breeding age. It was not possible, based on repeated testing over a six month period, to determine the infection status of one cria in this study. Testing for BVDV infection in this animal was positive based on positive polymerase chain reaction (PCR) testing but negative based on virus isolation. Serum neutralization tests did not detect antibodies. There are no vaccines licensed for use in this species and their use would preclude the surveillance of alpaca populations by serology.

The objective of a study summarized by Dr. Clayton Kelling, University of Nebraska, was to determine the current prevalence of BVDV-infected alpaca herds in the United States by testing crias from a randomly selected sample of herds for BVDV neutralizing antibodies, BVDV ribonucleic acid (RNA) and BVDV. Sixty three breeders, representing 26 states, participated in the study by submitting blood samples from crias during a 14-month period extending from May, 2006 to July, 2007. Sixteen of the herds (25.4 percent) had crias with BVDV neutralizing antibody titers. PCR and virus isolation assays showed that one seropositive herd had a PI cria. Case studies revealed that three additional herds recently had PI crias. Infections in three of the four infected herds were linked based on genetic homologies of viruses. In addition to PI crias, ingestion of bovine colostrum provided at birth, as well as colostrum from dams previously exposed to BVDV in other herds was associated with seropositive herd status. Based on these findings the use of

untested colostrums for supplemental feeding of neonates was discouraged. These findings confirm the importance of BVDV infections in US alpacas and the importance of determining the BVDV infection status of animals before they are commingled to limit exposure of herds to BVDV infection.

Dr. Robert W. Fulton, Oklahoma State University, reported that research priorities have been discussed for BVDV at each of the prior international symposiums for BVDV since 2002 in Ames, Iowa, 2004 in Davis, California and at the meeting held in conjunction with the National Cattleman's Beef Association (NCBA) in January 2006. A set of research priorities was developed by a Committee composed of Dr. Julia Ripdath, NADC-ARS- USDA, Dr. Fulton, and Dr. Mike Sanderson, Kansas State University. The Committee had its beginning with the NCBA BVD Research Subcommittee of the NCBA BVD Working Group. Initial research objectives were prepared and input was provided by the Academy of Veterinary Consultants BVDV Committee along with input from representatives from the American Association of Bovine Practitioners (AABP) BVDV Ad Hoc Committee. At the NCBA meeting Reno, Nevada February 2008 an open forum was available to veterinarians and producers regarding the research objectives. After the input of the various groups the following objectives were developed and submitted to the NCBA Health and Well-Being Committee. There are seven major objectives with subcategories for each major objective. For each objective there are issues.

Mr. John Lawrence, IDEXX Laboratories, Inc., presented information on Product Development, Licensing and Kit Quality Control Considerations providing BVDV Antigen ELISA-specific examples. Veterinary biologics companies must obtain USDA product licenses prior to marketing various products (i.e. ELISA kits). This presentation review USDA diagnostic kit licensing requirements along with company-specific development activities that support licensure. BVDV Antigen ELISA-specific examples were shown, including assay validation during product development, routine quality control and practical performance aspects.

Dr. Susan Taus, ARS-USDA, Washington State University, provided the Committee a malignant catarrhal fever research update. Sheep-associated malignant catarrhal fever (SA-MCF), a frequently fatal lymphoproliferative disease, continues to be a major concern of bison producers in North America. Ovine herpes virus 2 (OvHV-2), carried as a subclinical infection in sheep, is the causative virus of SA-MCF. No vaccine is available to protect against SA-MCF and separation of bison from sheep is the only available management tool to control the disease. Major objectives of the ARS- MCF research project includes defining host-virus interactions in sheep and developing immunological control strategies, including vaccination for MCF in clinically susceptible ruminants. A recent study in sheep indicates that OvHV-2 replicates primarily in lungs during initial infection and that this replication is promptly controlled by host defense mechanisms. In contrast, data from experimentally infected bison indicate that OvHV-2 replication occurs in all tissues of bison with SA-MCF. Current research is directed toward detailed characterization of immune control of OvHV-2 replication in sheep and bison and evaluation of the differences in the initial immune responses between the two species. This work will provide fundamental knowledge to be used in developing vaccine strategies to protect clinically susceptible hosts, particularly bison, from SA-MCF.

Ms. Susan W. Tellez, Camelid Alliance, presented an update on bluetongue virus (BTV) in Europe and the United States. European information has been gathered from personal contacts in France, Germany and Switzerland. Additional facts were presented in the Committee on Bluetongue and Related Orbiviruses meeting. All European countries plus the UK have animals susceptible to BTV infection. From 1998-2008, Serotypes 1, 2, 8, 12, and 16 have been identified. France and Germany have accrued annual case numbers from 12,000 – 21,500. The very newest strain to hit Europe was identified as BTV-6, with origin from Africa and/or Central America. Vaccination products from Merial and Intervet have been tested; Recommendations for cattle, sheep, goats and camelids are two doses 21 days apart, with annual booster. Europe's first case in camelid was in 2007 in Germany documented by M. Heinrich. Suspect cases in France have not been documented at the present time. Recommended vaccination protocol is two doses, 21 days apart, with annual booster. The first camelid case of BTV in the US was identified in 2002 at Colorado State University with positive lung tissue and virus isolation. In the fall of 2007 numerous cases of severe respiratory distress were tested, without any documentation of positive BTV infection. Symptoms of other livestock diseases have been noted, but no positive identifications have been reported. Camelids are

susceptible to BTV, West Nile virus, bovine viral diarrhea virus; therefore the importance of bio-security is being stressed for owners of camelids co-mingling at shows or under transportation stresses.

Dr. Steve Olsen, NADC-ARS- USDA, presented an update on brucellosis research in cattle and bison. Brucellosis continues to be of concern in the Greater Yellowstone Area (GYA). Two cattle herds were infected with brucellosis, probably from wildlife reservoirs, within the last year. Elk remain the most likely source of transmission of brucellosis to livestock in the GYA. Research continues on the developing existing and new vaccines, and vaccine delivery systems for use in vaccination of wildlife. It is likely that species-specific vaccination strategies will need to be developed for the GYA.

Committee Business:

One Resolution was passed unanimously by the Committee and submitted to the Committee on Nominations and Resolutions. The Resolution addressed surveillance for bluetongue and epizootic hemorrhagic disease in the United States and Caribbean Region.