

REPORT OF THE COMMITTEE ON SHEEP AND GOATS

Chair: William Edmiston Jr., TX
Vice Chair: Don Knowles, WA

Scott Bender, AZ; Deborah Brennan, GA; John Clifford, DC; Thomas Conner, OH; Walter Cook, WY; Stephen Crawford, NH; Linda Detwiler, NJ; Nancy East, CA; Effingham Embree, Jr., IL; Chester Gipson, MD; Joseph Huff, CO; Paul Jones, AL; Eileen Kuhlmann, MN; James Leafstedt, SD; Howard Lehmkuhl, IA; Mary Lis, CT; Jim Logan, WY; Linda Logan, TX; Francine Lord, CAN; David Marshall, NC; Michael Marshall, UT; Chuck Massengill, MO; Cheryl Miller, IN; Ron Miller, PA; Jeffrey Nelson, IA; Charles Palmer, CA; Kris Petrini, MN; Suelee Robbe-Austerman, IA; Paul Rodgers, WV; Joan Rowe, CA; Mo Salman, CO; A. David Scarfe, IL; William Shulaw, OH; Diane Sutton, MD; David Thain, NV; Peter Timm, CA; Stephen White, WA; Margaret Wild, CO; Ellen Wilson, CA; William Wilson, KS; George Winegar, MI; Nora Wineland, MO; David Winters, TX; Cindy Wolf, MN.

The Committee met on October 23, 2012 at the Greensboro Sheraton Hotel, Greensboro, North Carolina, from 1:00 to 3:30 p.m. There were 13 members and 12 guests present.

Presentations

National Animal Health Monitoring System (NAHMS) Sheep 2011

Katherine Marshall

USDA, Animal and Plant Health Inspection Service (APHIS)

Dr. Marshall reported on questionnaires and resulting samples from producer flocks. Objectives of the study were to describe trends in sheep health and management practices from 1996 to 2011, describe management and biosecurity practices, determine producer awareness of the zoonotic potential of contagious ecthyma (sore mouth) and the management practices used to prevent transmission of the disease, provide serum to the serological bank for future research, examine enteric pathogen prevalence and antimicrobial resistance, and facilitate the collection of information and samples regarding zoonotic causes of abortion.

Participation by 2,369 producers produced several significant groups of information. Significant levels of *Coxiella* infection were discovered, with low levels producer awareness of disease processes or dangers. Enteric pathogens, including the emergence of a highly pathogenic and tetracycline resistant *Camphylobacter jejuni* SA (Sheep Abortion) which affects many food animal and human species was discussed.

Fetal Loss in Goats: Take a Look at Bovine Viral Diarrhea (BVD) Virus

Kay Riddell

Animal Health Research, Auburn University

Dr. Riddell presented on Fetal Loss in Goats, taking a look at Bovine Viral Diarrhea Virus (BVD). The report concerned intranasal inoculation of does with BVD virus, the resulting viremia, abortion storm, and production of a persistently infected male offspring who consistently sheds BVD virus. Prospective work with transmission studies to cattle and goats were outlined.

Sheep Genetics to Assist Control of Ovine Progressive Pneumonia Virus: Emerging tools and possibilities

Stephen White

Animal Disease Research Unit, USDA, Agricultural Research Service (ARS)

Genetic marker tests in livestock species have great potential for use in marker-assisted selection to improve difficult to measure traits, including susceptibility to infectious disease. This potential is beginning to be realized to reduce susceptibility to ovine progressive pneumonia virus (OPPV). The first genetic marker test has already been developed in the TMEM154 gene by USDA-ARS scientists in Nebraska, Washington state, and Idaho, in collaboration with the Universities of Nebraska, Illinois, and Louisville. In addition to the initial discovery of association with infection under natural, field exposure shown by 69 case-control pairs, this test has been validated in over 2,700 sheep from Nebraska, Iowa, and Idaho from a variety of breeds and production environments. These animal sets all confirm the initial association, and suggest the undesirable, higher risk genotypes are 2.85 times as likely to become infected with OPPV under field exposure as the more desirable, lower risk genotype. It is important to note that the undesirable, higher risk alleles are dominant; only one copy is necessary to confer the full elevated risk of infection. However, incremental improvement in individual and flock risk should be possible through selective breeding. Theoretical considerations and genomic location suggest it is unlikely that selection to reduce susceptibility to OPPV would require tradeoffs like lower production, but there are currently no large-scale data to confirm that premise empirically. Future studies will be necessary to address that issue. Unlike the widely used genetic marker test for scrapie, strong resistance to infection has not been reported to date, but this first genetic test nonetheless enables selection for less susceptible sheep prior to any

flock exposure. Further, additional studies have highlighted additional genes that suggest it may be possible to develop additional genetic marker tests for use in reducing both odds of infection and proviral concentration, a measure of viral replication associated with severity of pathology. A useful genetic marker test for susceptibility to OPPV is available today, and additional studies may improve and expand the utility of such tests in the future.

Committee Business

The Committee reviewed and passed two resolutions for presentation to the Committee on Nominations and Resolutions. The first was concerning Export of Sheep and Goats (Scrapie) and a second concerning Minor Use Animal Drug Program.

The Committee also adopted a recommendation titled: Support for National Association of State Public Health Veterinarians *Coxiella burnetii* Work Group, as follows:

BACKGROUND INFORMATION:

Q-Fever is a zoonotic disease caused by the bacterium *Coxiella burnetii*. *Coxiella* infection is found in many species in many countries of the world, including the United States. The disease is a major cause of abortion in sheep and goats, which results significant economic losses to producers, but also results in significant risk of transmission to human beings. Exposure to the products of abortion (or raw milk products) either directly or through environmental contamination pose a significant public health risk, as demonstrated by the recent Q-fever epidemic (human and goat) in the Netherlands.

In 2011 the National Association of State Public Health Veterinarians formed a working group to address the need for a comprehensive source of information and uniform recommendations for control of *Coxiella burnetii* infection and protection of public health.

RECOMMENDATION:

The United States Animal Health Association (USAHA) commends the work of the National Association of State Public Health Veterinarians Q-Fever Work Group. In the interest of animal and public health, USAHA urges publication of their work compiling knowledge and making recommendations regarding *Coxiella burnetii* infections, including risk mitigation, control, prevention and appropriate regulatory response.