



United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

December 26, 2019

Dr. Martin A. Zaluski
President
United States Animal Health Association
4221 Mitchell Avenue
St. Joseph, Missouri 64507

Dear Dr. Zaluski:

Thank you for your letter of December 9, 2019, in which you discussed the United States Animal Health Association (USAHA) resolutions 26 and 27 that were approved at the recent USAHA annual meeting. The resolutions discuss the need for ongoing scrapie research and the need for a vaccine against *Coxiella burnetii*. I have included some information below about work at the Agricultural Research Service (ARS) on these two important animal diseases.

Historically, a single diagnosis of scrapie resulted in permanent quarantine or euthanasia of all goats and sheep on a farm. Sheep have acquired genetic resistance to scrapie through breeding efforts and this has supported scrapie eradication efforts by the sheep industry, but goats do not exhibit the same genetic resistance. This recently changed with the discovery of two naturally occurring prion gene alleles in goats that have shown exceptional promise for conferring disease resistance. ARS scientists in Pullman, Washington, and scientists in other laboratories around the world have shown that even one copy of either of these genes confers strong resistance to classical scrapie in goats. Although the USDA National Scrapie Eradication Program has not yet formally recognized these alleles, USDA is planning pilot genetic-based cleanup plans for goats that are similar to programs used in sheep. Scrapie resistance should significantly enhance goat breeding programs and goat health; in addition, breeding scrapie-resistant goats will benefit all small ruminant producers by reducing scrapie in the United States and supporting efforts to designate the import-export status of the United States as a scrapie-free country.

My colleagues and I agree that *C. burnetii* and Q fever warrant additional investigation. ARS researchers in Pullman, Washington, are studying the genetics and host response in Q fever and starting work on vaccine development. During the 2018 outbreak, ARS scientists collaborated with multiple Federal agencies to collect the largest placental *C. burnetii* shedding dataset in U.S. history. These data will be used to show correlations with more common shedding measures from milk and vaginal swab samples and dramatically improve modeling of total *C. burnetii* shedding from ruminant livestock. In addition, these data provide a platform for genome-wide association studies to identify major genes influencing amounts of *C. burnetii* shedding, and eventual development of a DNA test for *C. burnetii* shedding potential that does not affect

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Jamie L. Whitten Federal Building, Room 302-A
1400 Independence Avenue, SW
Washington, D.C. 20250-0300
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production parameters. Additionally, ARS scientists are working to develop a mouse model that can be used to test vaccine candidates and novel therapeutics as they become available. Using this multidisciplinary approach, ARS hopes to provide multiple solutions to producers, veterinarians, and our regulatory counterparts to control this disease and protect animal and public health.

ARS will continue to work with the USDA Animal and Plant Health Inspection Service, other Federal and State partners, and stakeholders to find ways to control and eradicate scrapie and Q fever. Thank you for taking the time to share your thoughts about these important issues. We look forward to continuing our work with USAHA and other organizations to protect and promote U.S. livestock health and production.

Sincerely,


for CHAVONDA JACOBS-YOUNG
Administrator