HAUB SCHOOL &
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UNIVERSITY OF WYOMING

Fact Sheet on the Consortium for the Advancement of Brucellosis Science (CABS)
A Scientific Synthesis to Inform Policy and Research

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The mission of CABS is to identify gaps in current research, secure funding, award research grants, and conduct outreach for the advancement of brucellosis science worldwide.

Overview

The Consortium for the Advancement of Brucellosis Science (CABS) is a cooperative research and outreach effort among scientists and stakeholders. The CABS has been formed to provide broad scientific guidance to the activities involved in the research with a focus on immunology, vaccines, and diagnostic tests. The ultimate goal of the CABS is to conduct stakeholder outreach and partner with state and federal policy makers to fund research initiatives that will work toward successful brucellosis disease control and prevention in free-ranging bison and elk in the Greater Yellowstone Area (GYA). The GYA is the last remaining reservoir of brucellosis in the United States.

CABS will promote in-depth research that will be conducted at Bio-security Level 3 veterinary disease laboratories in the United States. The depth of analysis proposed can only be accomplished by harnessing the collective knowledge of widely respected research scientists with intimate knowledge of brucellosis vaccine and delivery technologies and practices and policies in their respective regions. Equally important, the project will include stakeholder input and adaptive research strategies, with the outcomes of the analyses widely disseminated and made available to policy makers, disease control agencies, as well as stakeholders impacted by brucellosis throughout the world.

The Problem

Because domestic livestock and wildlife are important economically and ecologically, brucellosis has received a lot of attention but requires additional research and funding support in order to further advance the science and effectively work toward the prevention and control of the disease, which is the collective goal of CABS.

The United States Department of Agriculture's (USDA) National Brucellosis Eradication Program began in the 1930's with the goal of eliminating the disease in the nation's cattle herds, and has recently been successful in eradicating brucellosis in cattle herds nationally. The investment in this program has been extensive, with approximately $3.5 billion in state, federal and private funds spent over the last 70 years and continued spending of approximately $30 million dollars per year for surveillance. In 2004, the Wyoming Department of Administration and Information, Economic Analysis Division estimated the cost of testing for brucellosis to Wyoming producers ranged from $495,000 to $3,700,000 per year. This estimate does not include lost marketing opportunities (Wyoming Brucellosis Coordination Team 2005).

The last remaining reservoir for *B. abortus* in the United States is in free ranging bison and elk in the Greater Yellowstone Area (GYA), and continues to threaten the cattle industry, the nation's wildlife resources, and ecosystem health.

Vaccines and their modes of delivery are not as effective as is necessary. Vaccine research and development is not economically viable for private industry due to the limited market in the United States. All levels of government, including state and federal food and agriculture agencies, federal land management agencies, land-grant institutions, state and national wildlife departments, agricultural interests, and non-governmental organizations, will need to take an active role in finding solutions. Projects will vary in scope and include short-term and long-term research proposals and funding.

Brucellosis

Brucellosis is an infectious disease spread by contact with animals carrying a bacterium called *Brucella*. *Brucella abortus* is a bacterium that can infect domestic livestock and free-ranging populations of elk and bison. The disease was imported to the United States through European cattle more than 100 years ago. The bacterium causes abortion in affected animals and inflammation of the male reproductive tract. It has manifested itself in livestock and wildlife. This contagious pathogen also has the ability to infect humans as undulant fever and is known as a zoonotic disease.

Filling the Gap

The CABS project is national in scope and will draw on existing science and past projects, including the 2005 *Laramie Agenda Meeting: A roadmap for improved vaccines, vaccine delivery and testing for brucellosis in elk and bison in the Greater Yellowstone Area,* convened by the United States Animal Health Association and held at the University of Wyoming (UW). This symposium was facilitated and summary proceedings developed (released in 2006) by UW's Ruckelshaus Institute of Environment and Natural Resources (See main Web page for the reports).

The Laramie Agenda included 40 international animal disease experts and over 80 stakeholders from across the United States and Canada. The meeting was sponsored by the United States Animal Health Association (USAHA) and received bipartisan support. The meeting was jointly underwritten by the U.S. Departments of Interior and Agriculture, with broad backing from the biotech industry, and several regional and national livestock associations and wildlife organizations. The Laramie Agenda resulted in a roadmap for the development of improved vaccines, vaccine delivery and testing for brucellosis in free-ranging elk and bison in the Greater Yellowstone Area (GYA).

The CABS project has been designed to further the efforts of the Laramie Agenda, and provide the in-depth research and analysis that scientists, stakeholders, and policy makers currently lack.

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The Process and Outcome

The CABS science and stakeholder advisory teams will identify research priorities, secure funding for selected short-and long-term projects, and if funded, generate requests for proposals for evaluation and selection by the CABS. The CABS will also develop criteria to assess the quality of the science underlying the testing, prevention and control, and their outcomes using a broad range of descriptive data (e.g., who, what, where, goals, outcome/results, costs, methods) from the representative brucellosis projects (under CABS) from various regions within the U.S.

CABS will also develop data sets that represent issues of greatest concern to policy makers and stakeholders. The science team will synthesize this information and draw general lessons concerning the links between trials, testing, and, ultimately the successful research efforts for the prevention and control of brucellosis.

CABS will make this information available through training modules and other resources to other research scientists, and ensure that the project's findings are communicated to animal health professionals and policy makers across the country.

CABS will enable the food and agriculture industry, state and federal public health officials, wildlife managers, scientists, and other interested parties to add new brucellosis projects to the database, ensuring that it will be a growing resource center for brucellosis scientists in the future.

Funding

Approximately $10 million ($1.8-2 million per year) for the first five-year phase is required to administer research grants as well as CABS meetings, its outreach program, and general operational costs. The Laramie Agenda determined that a total of $48.5 million distributed over 10 to 20 years will be required to undertake improvements of brucellosis vaccines, vaccine delivery, and disease testing of elk and bison in the GYA.

Reference:
Wyoming Brucellosis Coordination Team: Report and Recommendations, Jan.11, 2005.