

Global Perspectives Project Report

Award Period: Summer 2019

Principle Investigators:

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Project Title: Economic Benefits of Vaccination Against Brucellosis in Cattle of Argentina and Wyoming

Amount Spent: \$4,379.36

Summary:

Bovine brucellosis poses an on-going economic threat to cow-calf operations in the Greater Yellowstone Area (GYA) of Wyoming, Montana, and Idaho, as well as many countries throughout the world. Brucellosis causes cows to abort their fetus during the third trimester, which directly impacts a ranch-family's income. Ranchers can reduce the risk of infection by using vaccines; however, the economic effectiveness of alternative vaccination strategies, such as adult-booster vaccination, has remained elusive. This project, through a collaboration between researchers at the University of Wyoming and the National Agricultural Technology Institute in Argentina, will estimate the economic *net* benefits of alternative vaccination strategies to control brucellosis in cow-calf operations of northwest Wyoming and central Argentina.

Economic Benefits of Vaccination Against Brucellosis in Cattle of Argentina and Wyoming

1. Results of Planned Activities

The overall objective of our broader research project is to estimate the economic impacts of alternative vaccination strategies, such as adult booster vaccination, to control brucellosis in Wyoming and Argentina. To meet this objective, we needed to partner with Dr. Natalia Aznar of the Instituto Nacional de Tecnología Agropecuaria (INTA) in Argentina. Dr. Aznar has developed a unique simulation model that will enable us to quantify the benefits of vaccination against brucellosis, including the benefits of using adult booster vaccinations. The biological benefits of vaccination include fewer infected animals, increased pregnancy rates, higher calving rates, and improved milk production to support calf growth. The ultimate goal of our proposed research is to translate these biological benefits into economic benefits using an economic budget model created at UW, so we can calculate the economic *net* benefits to cow-calf producers—in both Wyoming and Argentina—of implementing vaccination strategies. This will enable ranchers and policy-makers in both countries to make fully-informed brucellosis risk management decisions, and improve profitability.

The trip supported by Global Perspectives set the foundation to achieve our research objectives by allowing us to: 1) Work directly with Dr. Aznar to parameterize her simulation model to represent a typical Wyoming cow-calf producer; and 2) Work directly with scientists at the INTA-Institute of Economy and visit directly with livestock producers and supply chain business to

While in country July 28 – August 6, 2019, we were granted incredible access to the livestock production, research and policy centers of Argentina. Our activities included:

- 1) Multiple presentations to a variety of audiences (see below) about our brucellosis research and other research opportunities at the University of Wyoming;
- 2) Multiple day-long work sessions with epidemiological modeling experts (Dr. Aznar and Dr. Emilio Leon) to adapt the simulation model to capture Wyoming production;
- 3) Multiple visits to livestock production and supply chain businesses that provided detailed production economic data we needed to parameterize our budget models, including the largest artificial insemination facility in Argentina (Cabana Las Lilas), the largest agricultural fair and exposition in Argentina (Expo Rural), two typical cow-calf production facilities in the Pampas region, and the largest cattle auction facility in South America (Mercado de Liniers).

Seminars Presented

Gordon, Jessica. Bovine Brucellosis in Wyoming and Argentina: Economic Analysis of Control Methods. Presented at INTA, Buenos Aires, July 29, 2019

Schumaker, Brant. History of Bovine Brucellosis Control in the United States. Presented at INTA, Buenos Aires, July 29, 2019

Gordon, Jessica. Bovine Brucellosis in Wyoming and Argentina: Economic Analysis of Control Methods. Presented at SENASA, Buenos Aires, July 30, 2019

Schumaker, Brant. History of Bovine Brucellosis Control in the United States. Presented at INTA – Institute of Economy, Buenos Aires, July 30, 2019

Rashford, Benjamin. Shared Research Interests and Collaborative Opportunities for Economists in Argentina and Wyoming. Presented at INTA – Institute of Economy, Buenos Aires, July 30, 2019

Gordon, Jessica. Bovine Brucellosis in Wyoming and Argentina: Economic Analysis of Control Methods. Presented at INTA – Institute of Economy, Buenos Aires, July 30, 2019

Schumaker, Brant. History of Bovine Brucellosis Control in the United States. Presented at INTA – Institute of Economy, Buenos Aires, July 30, 2019

Press

<https://inta.gob.ar/noticias/inta-y-senasa-trabajando-juntos-con-la-universidad-de-wyoming-en-el-analisis-economico-de-enfermedades-del-ganado>

2. Future Plans

Travel supported by this grant built a foundation to support our current research project on the economics of brucellosis in Wyoming and Argentina, and future projects of interest to partners in both countries. With respect to our ongoing brucellosis project, Rashford, Shumaker and Gordon continue to work closely with Dr. Aznar to finalize parameterization of the farm-level epidemiological model to simulate brucellosis impacts on a representative ranch in the GYE, and to finalize economic budget parameters to represent typical ‘breeding farms’ in Argentina. MS student, Jessi Gordon (supported by Y-Cross funds) will finalize these models and is expected to have preliminary results during winter 2019-2020, with final results for dissemination in Spring 2020.

Additionally, to further facilitate our ongoing collaboration, Dr. Aznar is in the process of applying for a Fulbright award to spend an extended period at the University of Wyoming in 2020.

Our visit also facilitated relationships that may foster future collaborations. Dr. Brant Schumaker, for example, visited with researchers at INTA and SENASA about other diseases of interest to both countries (e.g., chronic wasting disease, brucella suis, etc.). Dr. Ben Rashford met with Karina Casellas (Director, INTA Center for Economic Investigation) and colleagues regarding joint research interests on land-use and climate change. Dr. Rashford also met with Daniel Lema and Marcos Gallechar at Universidad Del Cema about opportunities for UW faculty to collaborate on research and teaching initiatives of joint interest, and the potential for student and faculty exchanges.

3. Potential Impacts

Our team’s visit to Argentina provided amazing exposure to the agricultural production, research and policy infrastructure of Argentina. As a result, we were able to collect the data necessary to finalize our epidemiological and economic models of brucellosis in the GYE. Once applied, results will inform policymakers in Wyoming of how to improve disease management policies and ultimately minimize the economic impacts of brucellosis on Wyoming cow-calf producers.

Additionally, as a result of our international partners hospitality and close cooperation, we had unique opportunity to highlight and market the College, University and State. Such exposure contributes directly to the College’s and University’s strategic priorities for internationalization of our faculty and students.

Photos (We have many more photos but need photo releases)

Jessi Gordon, MS AGEC
On-farm in the Pampas region of
Argentina



Jessi Gordon, Ben Rashford, Dannele Peck, and Brant Schumaker at Expo Rural in
Buenos Aires





Jessi Gordon (MS AGEC), Dannele Peck (USDA/UW) and Brant Schumaker presenting to policy makers and representatives at SENASA (National Food Safety and Quality Service)

Ben Rashford presenting to researchers at INTA (National Agricultural Technology Institute) in Buenos Aires



Jessi Gordon, Ben Rashford, Dannele Peck, and Brant Schumaker on-site at a dairy/cattle farm in the Pampas region

