Short Reports—Off-Station

1. Genomic research and prediction technologies for beef cattle: Where’s the economics?

Investigators: Nicole Ballenger, Matt Andersen, Chris Bastian, Kristi Cammack, and Bridger Feuz

Issue: The beef industry adds value to its product through health and nutrition programs, genetic choices, and addressing temperament of the cattle. Commercially available genomic prediction technologies—stemming from public investments in beef genomics research—may have potential to increase the economic returns from these value-adding production strategies.

Goal: Study benefits and distribution of benefits in the beef cattle industry stemming from public investments in beef genomic research.

Objectives: The primary initial objective is to 1) understand advances in beef genomic prediction technologies and 2) develop an economic framework for evaluating their potential benefits and the distribution of their benefits within the vertically segmented beef cattle industry.

Impact: Results should improve understanding and communication of potential economic effects of genomic prediction technologies resulting from investments and discoveries in beef genomic research. Better understanding of potential benefits and costs can help direct future research investments toward the highest potential return, and can assist cow-calf operators in determining if and when using genomic prediction technologies can improve competitiveness.

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Keywords: beef cattle, genomics research, genomic prediction technologies

PARP: V, VII, VIII

2. Quantifying production of ecosystem services by Western ranchers

Investigators: Philip Lavallee Jr., John Tanaka, and Kristie Maczko

Issue: Beef production is one of the largest market-based uses of rangelands in the West, but it is certainly not the only product or use coming from these lands. Ranchers may also engage in practices that enhance or conserve such ecosystem services as clean water, biodiversity, or recreational activities that benefit society and which may be converted into alternative income streams.

Goal: Study the impacts and attitudes of Western ranchers on ecosystem services and quantify the ecosystem services produced by their operations.

Objectives: Quantify the ecosystem services produced by ranchers in the central Rocky Mountains, Colorado Plateau, Great Basin, and Desert Southwest regions and determine if ranchers are adjusting management practices to produce more or less of the services.

Impact: Results should assist marketing efforts in terms of what else ranchers produce beyond red meat. Knowledge of the amount of the ecosystem services produced could assist decision-makers as they make resource allocation decisions.

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Keywords: ecosystem services, ranching

PARP: VI:1,3,5, VII:2,4
3. Development of a new test for diagnosis of livestock brucellosis

**Investigators:** Brant Schumaker, Gerard Andrews, Jason Gigley, Myrna Miller, William Laegreid, William Edwards, and Noah Hull

**Issue:** Recurrent cases of livestock brucellosis in the Greater Yellowstone Area (GYA) can cause severe economic losses to producers in the form of lower calving rates and decreased ability to market and sell their animals; however, current diagnostic tests for brucellosis are costly, time consuming, and inefficient.

**Goal:** Develop and validate a new test to diagnose livestock brucellosis.

**Objectives:** Using tissue samples from an affected producer’s herd in the GYA, we are designing the new test to more quickly and accurately diagnose brucellosis infections.

**Impact:** Our new test should have earlier detection of infections and better accuracy. This should greatly assist with control and eradication efforts for this devastating livestock disease.

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**Keywords:** brucellosis, diagnostic test, livestock

**PARP:** not applicable

4. Prevalence of *Brucella ovis* in Wyoming domestic sheep

**Investigators:** Kerry Sondgeroth and Molly Elderbrook

**Issue:** *Brucella ovis* has direct negative effects on lamb production and is of major concern for Wyoming sheep producers. Infection into a flock is introduced by an infected ram; however, less than half of rams show clinical signs of infection.

**Goal:** Determine if *Brucella ovis* is present in Wyoming sheep flocks.

**Objectives:** Collect and test blood samples from apparent healthy rams and ewes across Wyoming and determine how many, if any, have been exposed to *Brucella ovis*.

**Impact:** Results should give a better understanding if any Wyoming sheep have been exposed to *Brucella ovis*, and if so how many. The outcome should help producers identify infected animals, decrease infection rates through blood testing during breeding soundness exams, and, ultimately, increase lamb production rates.

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**Keywords:** sheep, lamb production, *Brucella ovis*

**PARP:** not applicable