



“Field Study of the Impact of Trace Minerals and Infectious Disease on Reproductive Performance in Beef Cow-Calf Herds”

IMPROVING THE REPRODUCTIVE PERFORMANCE OF BEEF COWS

PROJECT NO.: 0008-002

RESEARCH INSTITUTION: University of Saskatchewan (Western College of Veterinary Medicine)

LEAD RESEARCHERS: Dr. Cheryl Waldner and Dr. Steve Hendrick

Objectives: The objectives of this research are to:

1. Evaluate the association between trace mineral and vitamin status and reproductive efficiency, and
2. Estimate the prevalence of Lepto and Vibrio in western Canadian cow-calf herds.

Background: Both nutritional deficiencies and infectious diseases can impact reproductive performance. In dairy cows, selenium and vitamin E deficiencies have been associated with retained placentas, inflammation of the uterus, cystic ovaries, and delayed conception. Copper deficiencies are suspected to reduce conception rates. Because of differences in management and the nutritional demands on beef cows, the effects of trace mineral deficiencies in cow-calf herds are not well known. The mineral composition of forage varies throughout Western Canada. Minerals can also interact with each other; e.g. high sulfate concentrations in the water may bind the copper from the feed, reducing copper availability to the animal. As a result, the need for mineral and vitamin supplementation likely varies in different regions.

Unlike BVD, IBR, and *Neospora*, there have been no recent studies of the prevalence of

Campylobacter fetus or *Leptospira hardjo* in Western Canadian beef herds. *Campylobacter fetus* (Vibrio) can cause abortion, repeat breeding and infertility. *Leptospirosis hardjo* can cause abortion, stillbirth, weak calves, and infertility. Commercial vaccines are available for both diseases, but more information is needed to determine whether using these vaccines is cost effective.

These researchers will study 800 cows (20 cows from 10 herds in each of 4 community pastures). They will evaluate body score on arrival, and blood samples will be tested for micronutrients and *Leptospira*. Bulls will be tested for Trichomoniasis and *Campylobacter*. Management information of the herd of origin and community pasture will be collected, along with pasture condition and water samples. Cows will be pregnancy tested, scored for BCS and blood sampled again in fall. This project is scheduled to be completed in the fall of 2009.

Implications of the Research: The results of this study will help nutritionists to refine micronutrient recommendations throughout Western Canada, and will help veterinarians design appropriate vaccination recommendations for cow-calf producers.



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