



Infectious causes of calf diarrhea (scours) and efficacy of current vaccination strategies to prevent scours in beef calves in western Canada

# HOW EFFECTIVE ARE CURRENT SCOURS VACCINES?

## PHASE 1

PROJECT NO.: ANH.08.20

LEAD RESEARCHER: Frank van der Meer  
(University of Calgary Faculty of Veterinary Medicine)  
COLLABORATORS: Karin Orsel, John Gilleard,  
Dongyan Niu (University of Calgary Faculty of  
Veterinary Medicine); John Campbell (Western College  
of Veterinary Medicine); Dale Godson, Yanyun Huang  
(Prairie Diagnostic Services)

**Background:** Scours accounts for up to half of preweaning mortality, but can be caused by many different bacterial, viral, and protozoan pathogens. Calf scours in the first week of life is usually caused by *E. coli*. Rotavirus can cause scours in calves in the first two weeks. Coronavirus scours is most common between 5 days and three weeks after birth. Cryptosporidium and coccidiosis can cause scours in calves up to two months after birth.

Aside from fluids and electrolytes there are no effective treatments for viral scours. Scours vaccines produce an immune response in cows, and the dam's antibodies are passed to calves through their colostrum, but it's not clear that there's actually a protective benefit to the calf. Two big Western Canadian studies found no association between scours vaccination in cows and the frequency of scours treatment in calves. This team will examine whether the pathogens that are causing scours in Western Canada are the same pathogens that the vaccines were designed to protect against.

### Objectives:

1. Assess the impact of scours on cow-calf operations in western Canada as reported by cow-calf ranchers

2. Determine which pathogens are detected in scours cases in western Canada
3. Describe the gastro-intestinal microbiome of calves with scours
4. Detect emerging or minor pathogens associated with scours

**Implications of the Research:** Effective scours vaccines could help significantly reduce pre-weaning death losses. Future work by this team will explore whether current vaccines provide an effective immune response against current field strains (Phase 2) and how well they provide protection or reduce incidence in large field trials (Phase 3).

*This project is also funded by the Beef Cattle Research Council, and Results Driven Agriculture Research.*



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