

*This 2020 study aimed to confirm if handling acclimation, positive reinforcement and feed rewards keep cattle calmer, therefore improving reproductive performance.*

### Objectives

- Study the association between reactivity at handling measurements and a physiological indicator of stress.
- Assess the effect of treatments on pregnancy rate.
- Evaluate the effect of treatments on measurements of reactivity at handling.

### Introduction

TACLP is working alongside Neilson Cattle Development to improve herd efficiency and address the challenge of cattle showing an excitable temperament during routine handling, which usually results in heifers injuring themselves, handlers and/or other animals.

The primary goal of a cow-calf operation is to produce one calf per cow a year. Studies show that calmly and gently handling cattle more regularly can minimize the animal's stress and anxiety during routine management procedures.

### Study details

- Performed May 7 - October 2, 2020 at Neilson Cattle Development in Stettler, AB.
- 200 heifers aged 13-14 months were assessed.
- Heifers were ranked prior to the breeding season for baseline measurement and allocated to 4 groups (2 groups per treatment). Each group was in a separate feedlot pen and was randomly assigned to “acclimated group” or “control group”.
- Heifers in the acclimated groups were talked to softly while being fed daily, and every other day offered a small additional feed supplement in the feedlot pen (approx. 100 grams per heifer). Additionally, they were run through the chute on 3 separate days with feed rewards immediately after handling (positive reinforcement). Heifers in the control groups were fed by feed truck without any human interaction, and were not exposed to handling acclimation procedures prior to breeding.
- Pregnancy rate was evaluated via ultrasonography after the end of breeding season.
- Saliva samples were collected to assess the salivary cortisol concentration, a physiological indicator of acute stress.

### Results

- Acclimated heifers had lower salivary cortisol concentration than the control group, which indicates acclimated heifers were less stressed than the control group during and after breeding season.
- Findings indicate heifers categorized as calm and excitable in the baseline measurement, on average remained calm or reduced their excitability after being acclimated, which lasted for 4 weeks; only extremely excitable heifers remained the same.
- Acclimated heifers had a numerically greater pregnancy rate when compared to the control group.

### Future Research

TACLP is performing a replicate study in 2021 using new heifers to increase the total number of animals assessed and improve statistical results. TACLP is also studying the same heifers from last year's study — cows going to their second calving — to see if the acclimation procedures need to be repeated every year or not.

The expected results of the combined studies will provide recommended acclimation practices to increase reproductive efficiency, improve overall animal welfare, and increase the profitability and sustainability of cow-calf operations.

Treatment	Pregnant	Non-pregnant	P-value <sup>1</sup>
Acclimated group	96	3	0.491
	96.97 %	3.03 %	
Control group	90	5	
	94.74 %	5.26 %	

<sup>1</sup>Significance for comparison of distribution in columns (Fisher's exact test)

