

# RESEARCH FACTS



UNIVERSITY OF SASKATCHEWAN  
Livestock and Forage  
Centre of Excellence  
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## IN PROGRESS

Using sensory additives to boost feed intake and immune function of newly arrived feedlot cattle

### PROJECT TITLE

The use of sensory additives to boost feed intake and immune function of newly arrived feedlot cattle

### In progress:

*Results expected in end of 2021*

### RESEARCHERS

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### Background:

The first stage of feedlot production systems is highly critical as poor cattle performance during the first receiving period often means sub-optimal performance throughout the growing-finishing period. Being transported, co-mingling with strange calves, weaning and being introduced to a novel diet are among some of the stresses a newly received calf might face in the feedlot environment. All these factors have a negative impact on feed intake upon arrival, which will exacerbate the effects of stress on both growth performance and the immune system. They also make calves more susceptible to disease such as bovine respiratory disease.

Getting new cattle on feed quickly is key to successful conditioning programs leading to optimal cattle health and performance, and reducing death loss and the use of antimicrobials. Improving diet palatability is one of the recommended strategies to boost intake upon arrival. In other livestock industries dealing with transitioning diets, such as dairy calves and piglets, the use of feed flavours is a cost-effective option to improve diet palatability.

## Objectives:

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In this project, we will assess the effects of feed flavours to increase diet palatability and stimulate feed intake of newly received feedlot cattle. We will also evaluate the consequences on growth performance, feeding behaviour, immune system, chronic stress and cattle temperament. We hypothesize that increasing the diet palatability with flavours known to increase the hedonic response in ruminants will promote feed intake with a positive impact in calves' performance, health and welfare.

## What They Will Do:

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Ninety newly arrived feedlot cattle will be used in a 60-day experiment at the Livestock and Forage Centre of Excellence (University of Saskatchewan). Upon arrival, heifers will be homogenously assigned to one out of three treatments based on body weight and farm or auction market of origin.

The treatments will be:

- A) a negative control (standard receiving diet),
- B) the same diet as treatment A plus a flavouring agent (Lucta 1) and
- C) the same diet as treatment A plus a different flavouring agent (Lucta 2).

Animals will be housed in groups of 15 heads/pen in six pens equipped with the GrowSafe system for automatic monitoring of feed intake and feeding behaviour over the length of the experiment. Additional measurements will include: body weight, animal temperament (flight speed and chute reactivity), acute stress (salivary cortisol), chronic stress (hair cortisol) and blood parameters to assess the immune status (complete cell blood count). Health and treatment records will be used retrospectively to find significances.

## Implications:

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The deliverables include the provision of science-based evidence for the inclusion of feed flavour additives in the diet of newly arrived feedlot cattle and the assessment of the long-term impact of boosting intake in such a sensitive period on cattle morbidity and growth performance. We will also evaluate how the promotion of pleasant hedonic responses towards the food impacts the stress of these animals as reflected in lower levels of circulating stress hormones (cortisol) and calmer temperaments.

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