

# Effect of gradual weaning programs on intakes and growth of dairy calves fed a high level of milk

Sarah Parsons<sup>1</sup>, Michael Steele<sup>2</sup>, Ken Leslie<sup>3</sup>, and Trevor DeVries<sup>1,\*</sup><sup>1</sup>Dept. of Animal Biosciences, University of Guelph. <sup>2</sup>Dept. of Agricultural Food and Nutritional Science, University of Alberta. <sup>3</sup>Dept. of Population Medicine, University of Guelph

## Introduction & Objective

### Introduction:

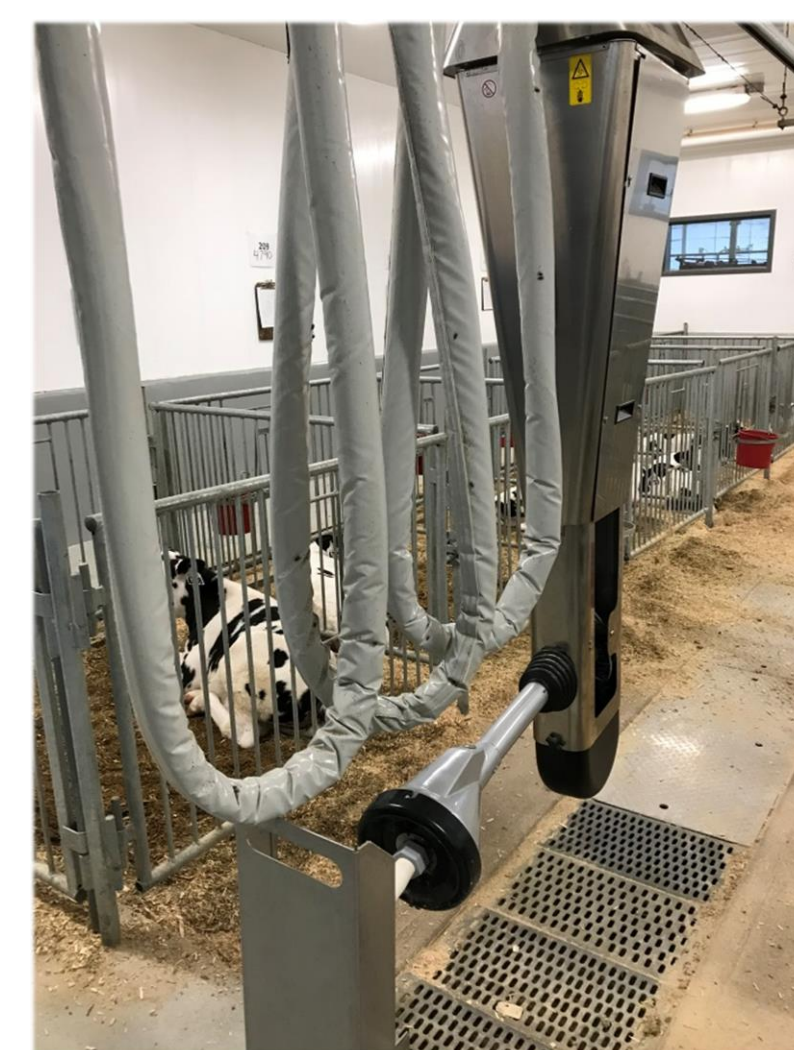
- Increased adoption of intensified feeding programs
  - Feeding higher levels ( $\geq 20\%$  birth body weight) of milk
  - $\uparrow$  growth
  - More natural feeding behaviors
- Weaning off high levels of milk can be stressful
- Gradual weaning is better than abrupt weaning
  - $\uparrow$  growth
  - $\downarrow$  behavioral signs of hunger
  - $\downarrow$  health challenges

### Objective:

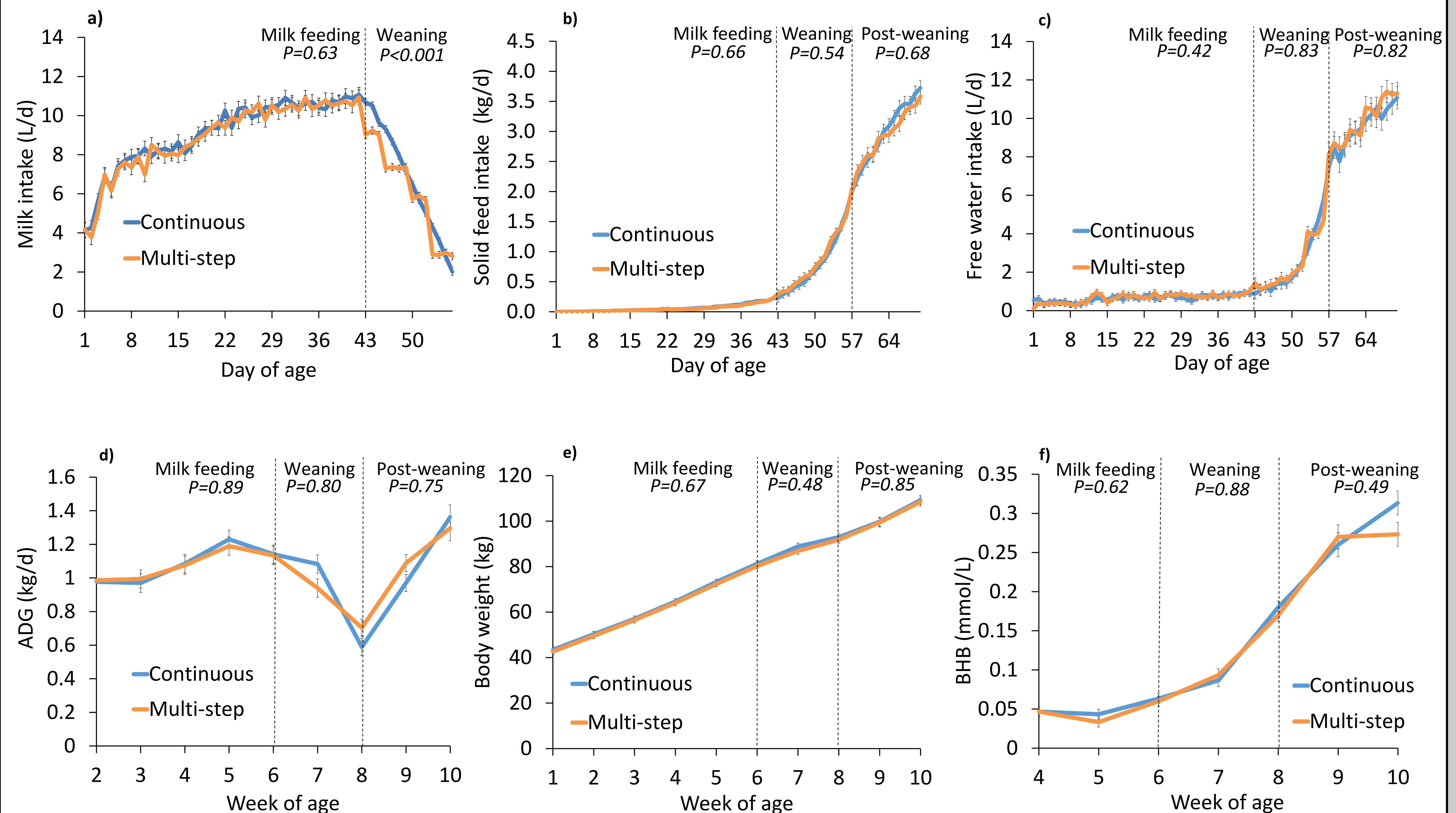
The objective of this study was to investigate how two gradual weaning programs affect intake and growth of dairy calves from birth (day 0) until 2 weeks post-weaning (day 70).

## Methods

- 60 female Holstein dairy calves fed 12.5 L/d (2.5 L meals, 5x/d) by automated rail milk feeder until day 43
- Day 43-56 weaning occurred according to treatment:
  - Continuous gradual weaning** (n=30)
    - 12.5  $\rightarrow$  2 L in small equal increments
  - Multi-step gradual weaning** (n=30)
    - 10 L/d for 3 days
    - 8 L/d for 4 days
    - 6 L/d for 3 days
    - 3 L/d for 4 days
- Access to water ad libitum from birth, starter feed from d 5
- Milk, water and solid feed consumption measured daily
- Body weights taken 2x/week
- Blood  $\beta$ -hydroxybutyrate (**BHB**) measured weekly



## Results



**Figures: a) milk intake (L/d), b) solid feed intake (kg/d), c) free water intake (L/d), d) average daily gain (kg/d), e) body weight (kg), and f) blood BHB concentrations (mmol/L) for calves on either continuous or multi-step gradual weaning programs.**

## Implications

The results indicate that when feeding a high level of milk to dairy calves, there are no differences in calf intakes or growth when weaned by a continuous gradual weaning program compared to a multi-step gradual weaning program. Regardless, gradual weaning has been shown to be beneficial for calf performance and welfare and, therefore, some type of gradual weaning program should be used.

