Feeding behavior of dairy calves reared by the dam with access to automatic milk feeders

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DairyCare STSM “Cow & Calf Together”
2018
Introduction

- Many benefits to dam-rearing system

- But... weaning & separation = challenge!
  - Disentagling social & nutritional independence (*Weary et al.*, 2008)
  - Providing supplementary milk to suckling calves (*Johnsen et al.* 2015)
Short Term Scientific Mission (STSM)

- Incubator grant “Cow & Calf Together”
- From Jan 22\textsuperscript{th} to Feb 23\textsuperscript{th} 2018
Work done during STSM

1. Analysis on pre-existing data *(Johnsen et al., 2015; Johnsen et al., 2017)*
   - Trial in 2012 at University of British Columbia
   - Body weight, milk intake, # visits automatic milk feeder, ...
   - Before & after separation / weaning

2. Trial on concentrate-dependent weaning in NR calves *(ongoing)*
Material & Methods

AMF only (n=10)

AMF + suckling (n=10)

D0  D42  D47  D50  D60
Material & Methods

The diagram illustrates the layout of different phases and areas within a facility. The diagram is labeled with phases and durations:

- **Phase I**: D0
- **Phase II**: D42
- **Phase III**: D47
- **Phase IV**: D50, D60

Key areas and labels include:
- **Calf Creep**
- **Separation Pen**
- **Cow Pen**
- **Feed Alley**
- **Hay/TMR**
- **Cubicles**
- **CF**
- **MF**

The diagram shows the progression and separation of different areas and phases over the specified durations.
Material & Methods
Material & Methods

- D0
- D42
- D47
- D50
- D60

Phase I

Phase II & III

Phase IV
Material & Methods

Phase I

Phase II

Phase III

Phase IV
Statistical analysis

- Mixed linear / Poisson regression models

- Outcome variables
  - Body weight
  - (Un)rewarded visits to AMF
  - Milk intake

- Fixed effects
  - Treatment, phase or age, interaction
  - Health (healthy vs. sick)

- Random effect
  - Calf
Results

Milk intake (L/d)

- Phase 1: AMF + dam (2.5 L/d), AMF only (3.0 L/d)
- Phase 2: AMF + dam (8.0 L/d), AMF only (10.0 L/d)
- Phase 3: AMF + dam (8.5 L/d), AMF only (11.0 L/d)
- Phase 4: AMF + dam (2.0 L/d), AMF only (3.0 L/d)

Significance: * p < 0.05
Results

# Rewarded AMF visits

Phase 1
- AMF + dam: *  
- AMF + only: 2

Phase 2
- AMF + dam: 4
- AMF + only: 4

Phase 3
- AMF + dam: 6
- AMF + only: 6

Phase 4
- AMF + dam: 8
- AMF + only: 10

* Indicates significance level
Results

# Unrewarded AMF visits

- Phase 1
- Phase 2
- Phase 3
- Phase 4

- AMF + dam
- AMF only
Conclusions

- No difference in weight over time between treatments

- “AMF + suckling” calves prefer suckling from dam, but switch easily to AMF during separation phase

- # unrewarded AMF visits
  - ↑ during separation & weaning phase for both groups
  - ↓ when calves are sick
Acknowledgements