ADSA®
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Influence of a lactic acid bacteria & yeast-based postbiotic product (Probisan®) on the performance of pre-weaned newborn calves

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Abstract #202
Monday June 25th

Biotics and their potential effects

Pro-biotic: Microorganism/s that are claimed to provide health benefits when consumed

Pre-biotic: Food ingredients that induce the growth or activity of beneficial microorganisms

Post-biotic: Inactivated microorganism + products or metabolic byproducts from probiotic microorganisms

Potential effects:

LOCAL effect: Immunomodulating
Anti-inflammatory
Antimicrobial

SYSTEMIC effect: Antioxidant
Antiproliferative
Antiobesogenic
Antihypertensive
Hypocholesterolemic

Postbiotic feed supplement Probisan®

ESHORIZONTE2020

Marco de Innovación e Investigación de la Unión Europea

2015: to support projects capable of providing solutions and expectations of improvement under European topics as **Sustainable Food Security**

European Union's Horizon 2020 (grant # 733627)

The European Commission has awarded the 2º Phase of Horizon 2020's SME Instrument

Unión Europea

The EU Framework Programme for Research and Innovation

2016: main objective is to gradually **reduce the preventive application of antibiotics** in animal feeding

PROBISAN

PENTABIOL S.L

Navarra (SPAIN)

South Dakota State University

Department of Dairy and Food Science

Animal Performance

- **Commercial swine** farm in Spain comparing **Probisan®** with a specific fodder engineered using probiotic additives for this farm (PROBIO) and the leading products in the market:
  - ✓ **Probisan®** piglets consumed **3.3% less** feed and **grew 4%** more than PROBIO piglets, and consumed **10% less** and **grew 4%** more in comparison with the best animal feed in the market

- ✓ **Probisan® reduces** morbidity and mortality caused by *Lowsonnia intracellularis*
- **Undergoing research** on other European Countries and Asia on cattle, swine, poultry & small ruminants

Hypothesis & Objectives

- Probisan® (Postbiotics, joint culture of lactic bacteria and non bitter beer yeast) **induces changes in gut microbiota** and will **improve calf growth performance**, immune system development, rumen development, and nutrient utilization in newborn calves

To determine the effect of **fermented feed supplement** (Probisan®) on **feed intake**, **growth performance**, and **body measurements** in dairy heifer calves

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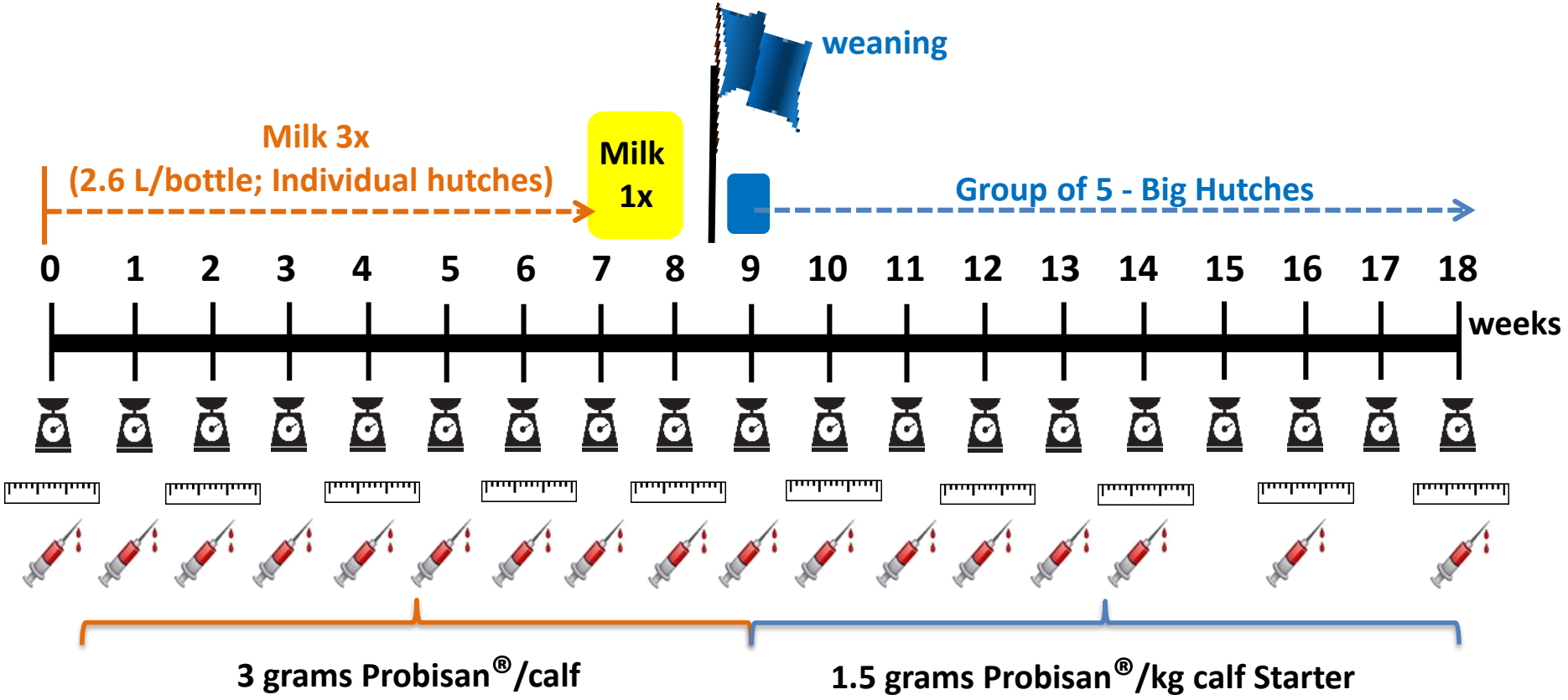
Materials & Methods

- 70 newborn crossbred Jersey-Holstein heifers calves
- Commercial Dairy located north of Brookings, SD (Hammink Dairy)
- Winter: December 17 – April 18 (T = -35 to 4◦C)



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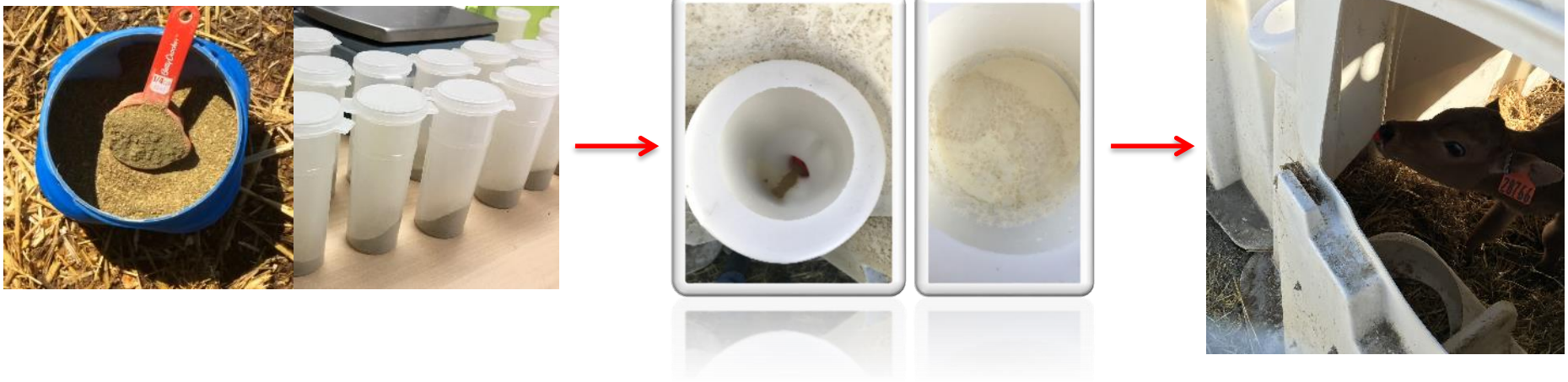
Materials & Methods

- Treatments:
  - Control without supplement (n = 35)
  - Supplemented with postbiotic (Probisan®, Pentabiol S.L., Navarra, Spain; n = 35):
    - **3 g/d** in milk from d 3 to weaning at wk 8

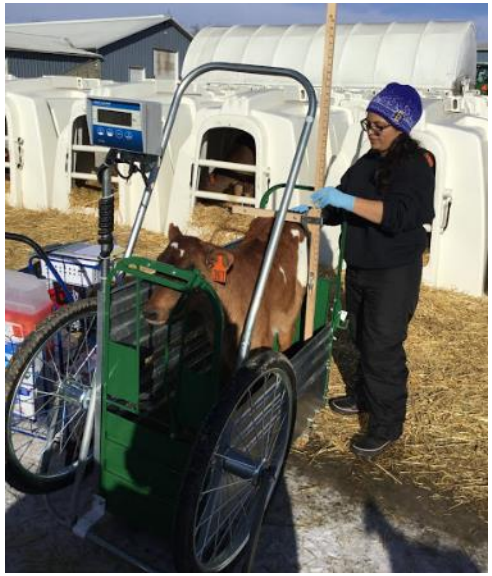


Materials & Methods

- **Measurements**:
  - Feed Intake

  - Body dimensions

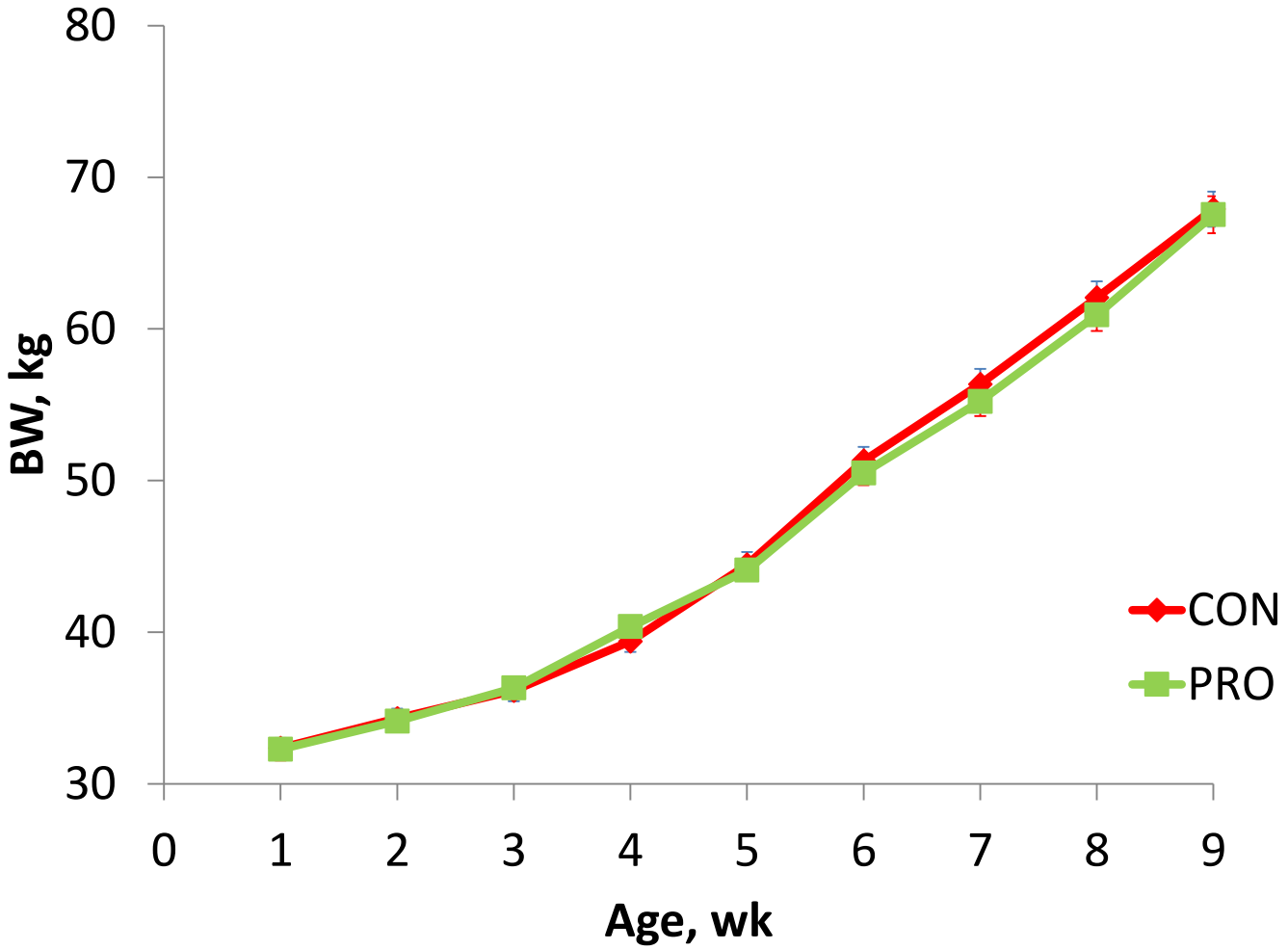
Hip height



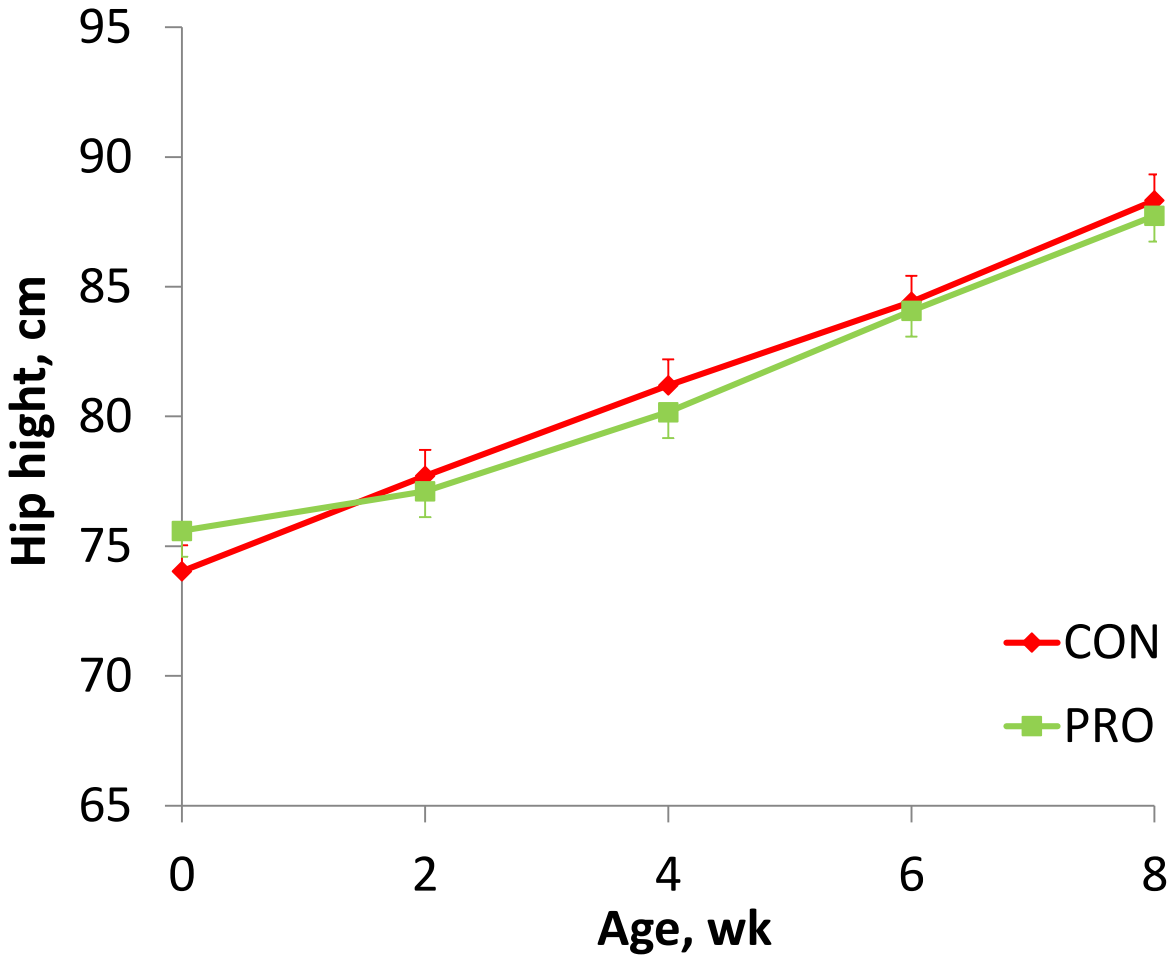
Hip width

- **Statistical analyses**: Data analyzed by mixed model of SAS (treatment, week, interaction)

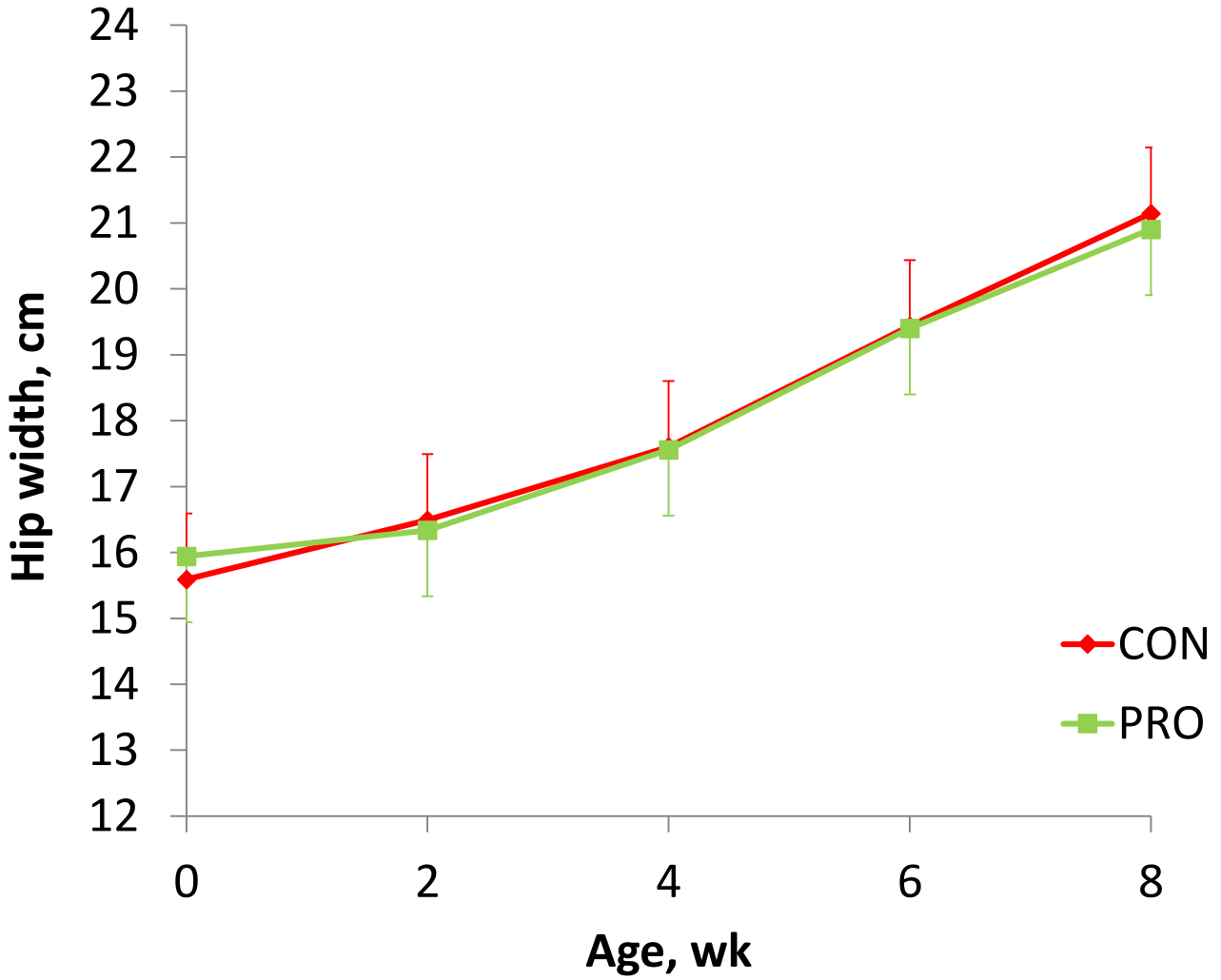
Results: body weight



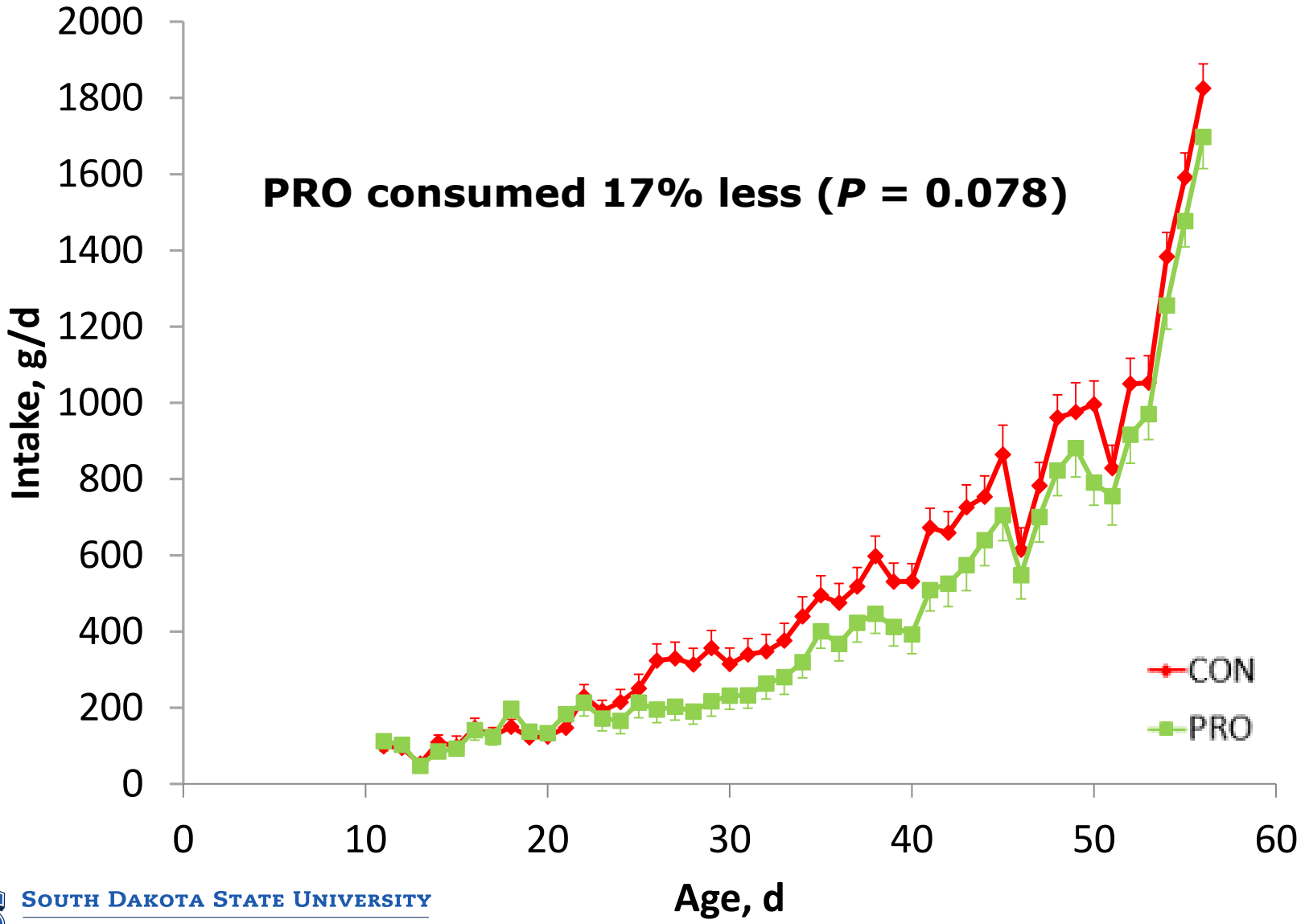
Results: hip height



Results: hip width



Results: feed intake



Conclusions

- Supplementation with a **postbiotic** (Probisan®) resulted in:
  - PRO calves consumed **17% less starter** from wk 4 until weaning indicating better feed efficiency
  - Body weight gain or body measurements did not change
- **Ongoing research:**
  - Metabolomics
  - Microbiome
  - Immune function
- **Future research:**
  - Effects during the transition period in dairy cows

Acknowledgments

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