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2 **A Brief Bio**

- Graduated from Iowa State University with a B.S. in Microbiology
- Earned my DVM from Iowa State University
- Earned a MS in Population Sciences in Animal Health
- Mom to two little boys and a girl
- "Heifer-developer" herself

3 **Outline**

- Introduction of day one calf care
- Environment
- Nutrition
- Health
- Case study

4 **Day one calf care (DOCC)**

5 **Environment**

- Most cattle are outdoors
- Thermoneutral zone is 55°F to 86°F (1)
- Energy expenditure increases the risk of failure of passive transfer (2,3)
  - removes brown adipose tissue faster than can replace energy= failure to walk, stand or nurse
- Moisture in the environment not just temperature matter
- Maternal bonding
- Environment exposure of disease

6 **Environment- mitigation strategies**

1 Cold, wet or windy environment

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- Warm
  - Get calf up to normal temperature (101-103°F)
    - Vehicle heater, calf warmer, warm bath
- Dry
  - Dry calf
    - Towel, fan, blower, dam
  - Dry environment
    - Deep bedding and out of wind
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3 Hot, dry environment

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- Shade
- Air movement
- Evaporative cooling

7 **Environment-maternal bonding**

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8 **Nutrition**

- Calves are born hypogammaglobinemia or agammaglobinemia (5-7)
  - Cotyledenary synepitheliochorial
- Colostrum is sole source of nutrition and immunity for calves
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10 **Colostrum**

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- Carbohydrates
  - Lactose and oligosaccharides sialyllactose #1
- Proteins
  - IgG, IgM, and IgA- IgG1 #1
  - Albumin, lactoferrin, casein
- Growth factors
  - Insulin growth factor #1
- Enzymes
  - Lactoperoxidase, proteinases, lipase, esterases, phosphatases
- Enzyme inhibitors
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- Nucleotides and Nucleosides
- Cytokines
- Lipids
- Minerals
- Vitamins
  - Vitamin A, Vitamin E, Vitamin D
  - Vitamin C

11 **Colostrum**

- Parity
- Feedstuff prior to parturition
  - Energy
- Immunologic priming
- Mineral and vitamin status
- Pre-term parturition
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  -

12 **How good did she do??**

1 Total Protein

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- ELISA for IgG specific
  - Direct method

- 1+ day for result
- Multiple steps

3 - Measure ALL proteins
  - indirect
- Cow side
- Simplistic
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13 **When to intervene?**

- Dystocia
- Calves that had not stood within 1-2 hours from birth
- No udder development on dam
- Leaking colostrum
- "I don't wanna mom today, or ever"
- Poor udder confirmation

14 **What to Intervene with?**

- Ensure calf is warm
- COLOSTRUM based colostrum products
- At least 200g IgG if you are going to replace, if dam has enough or you want to jump start it 100g
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15 **Colostrum based supplements/replacers**

16 **Health**

- Observational
- Umbilical health
- Immune stimulation

17 **Observation**

- Brief physical exam
- Is it standing?
- Is it nursing?
- Any milk coming out of the nose/milk?
- Is it defecating?

18 **Umbilical health**

- Watch for excessive hemorrhage or herniation
- Spray with 7% iodine tincture
  - Dip entire cord or spray EVERYWHERE
  - Re-dip every 12 + hours
- Clean environment

19 **Immune stimulation**

- Maternal antibody interference caution
  - Ineffective
  - Harmful
- Oral or Nasal IgA stimulation products (8)

20 **CASE STUDY**

21 **Case:**

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29 **What to do right now?**

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31 **What to do right now?**

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33 **What to do right now?**

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36 **What to do right now?**

37 **Day one calf care (DOCC)**

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42 **Day one calf care (DOCC)**

43 **Other observations**

- Intervention is recorded and occurs if:
  - Dystocia, brix score on colostrum <22, fail to observe nurse within 2 hrs
  - 200 g of IgG PO of bovine colostrum product
- Once calved, pairs are placed in a pen together for 3-4 days
  - Cows exit pairing pens in the morning for various times to eat at bunk
- Cows provided TMR
  - Mineral/vitamin pack meets recommendations
  - Cows are on a low energy diet

- Vaccination status of cows: great
  - Respiratory MLV and scour vaccine administered on the label prior to calving
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44 **Opportunities**

- Intervention is recorded and occurs if:
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  - 200 g of IgG PO of bovine colostrum product
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45 **What do we do going forward?**

- Stop cow movement from pairing pens
- Increased only energy in ration at the last 4-6 weeks of gestation to 120% above maintenance (9)
- ~~Vaccination~~

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48 **Day one calf care (DOCC)**

49 **References**

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50 **QUESTIONS**

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