

Colostrum 101

Lindsay Waechter-Mead, DVM
Nebraska Beef Extension Educator



Institute of Agriculture and Natural Resources
NEBRASKA EXTENSION

1

Build Resistance in Calves

- First line of defense: **Colostrum**
 - Why is it important?
 - What is it?
 - What prevents transfer to the calf?
 - How much does the calf need?

2

Colostrum – Why is it needed?

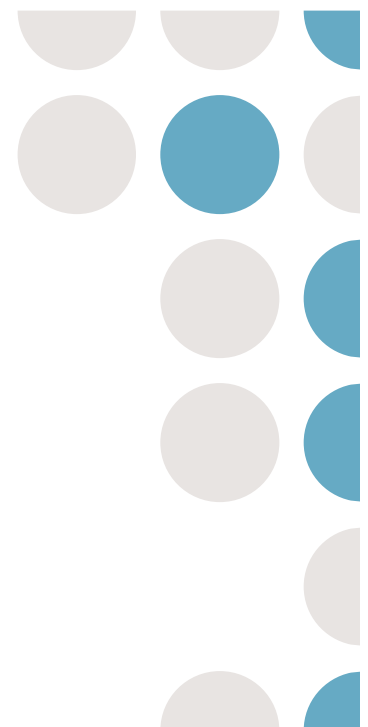
- Bovine placenta is unique
 - Prevents maternal/fetal blood supply from mixing
 - Calf is born completely naïve of immune system
 - FPT calves have increased risk of preweaning and neonatal morbidity and mortality (Wittum TE, Perino LJ. 1995)
 - FPT has negative effect on weaning weights and ADG in feed yard (Wittum TE, Perino LJ. 1995)
-

3

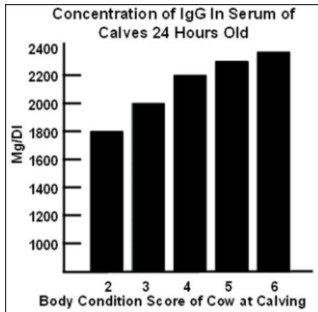
Colostrum – what is it?

- Colostrogenesis begins several weeks (~6 weeks) before parturition
 - Production ceases immediately prior to parturition
 - **IgG1** – most important component of passive immunity
 - **Leukocytes** – activate cell-mediated immunity
 - **Fat and energy** – essential for thermoregulation
 - **Vitamins A & E** – antioxidant, immunostimulant
-

4



Colostrum – what prevents transfer?



Odde, K.G. 1997. Reproductive efficiency, precalving nutrition, and improving calf survival. Proc. Bovine Connection, pg. 660-662.

• Production Problems

- Body Condition Scores
- Parity
- Low Antibody production

5



6

Colostrum – what prevents transfer?

• Environmental contamination

- Bacteria compete with IgG absorption sites across intestinal cells

• Timing is Critical

- For every hour post calving there was a 3.7% decrease in colostrum IgG (Godden, et al. 2019.)
- Every 30-minute delay in feeding after birth, a reduction of 2g/L IgG in serum (Rajala, et al. 1995)

Colostrum – what prevents transfer?

• Dystocia

- Trauma leads to increased acidosis
- “Dummy” calves
- Weak suckle reflex = 41x greater odds of failed colostrum consumption (Homerosky, et al. 2017)
- Hypothermia



Photo: Elizabeth Homerosky

7

Colostrum – how much?



- 280-300g total colostrum IgG mass in 1st 6 hours of life (Stockler, Chamorro 2021)
 - Beef cow colostrum IgG average ~95g/L
- “Mother Knows Best”
- Read the package!

Limited ability to ensure all calves get 100% antibody protection

8

Calf Resuscitation

- DO NOT HANG or SWING
- “Frog leg” position
 - Sternal with back legs towards the shoulders
- Vigorous stimulation
- Acupuncture
 - 20g needle
 - Nasal planum
- Straw in nose



Institute of Agriculture and Natural Resources
NEBRASKA EXTENSION

9

Contact info:

lindsay.waechter-mead@unl.edu

Office: 402-746-3417

Cell: 402-480-0002



10