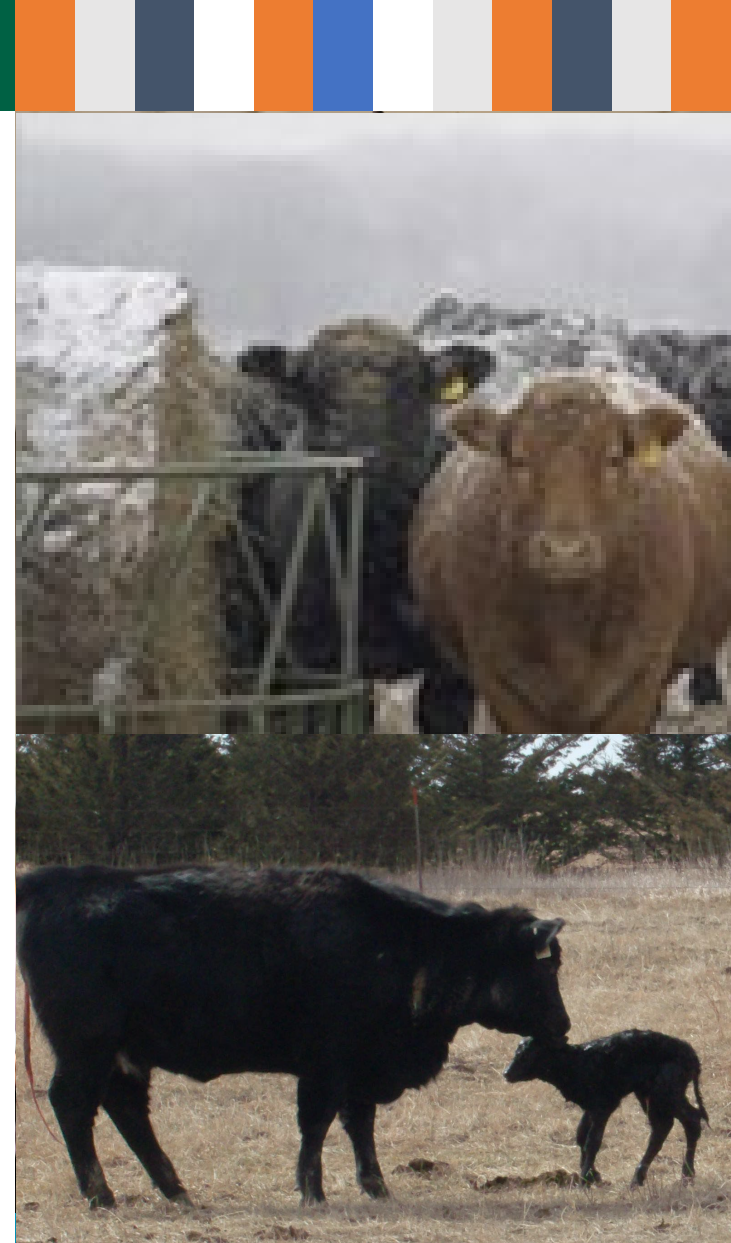


Importance of Vitamin A in the cow herd

Dr. Kathy Whitman

Livestock and Forage Growers Update

March 12, 2025



Outline

- Sources
- Cow requirements
- Factors influencing deficiency
- Impact of deficiency
- Treatment
- Management strategies



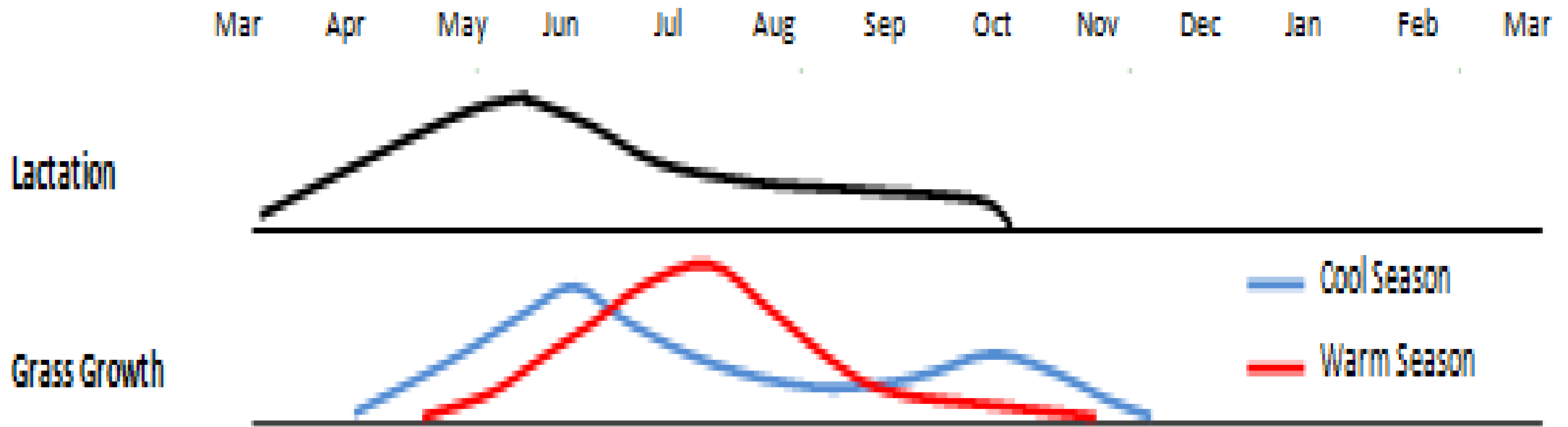


Where does she get
Vitamin A?

- Greens
- Oral
supplementation
- Injectables



When does she get Vitamin A?



3rd Trimester

- Calf growth-*minimal transfer of Vitamin A across the placenta*
- Colostrum formation



Cow Requirements

STAGE	IU
Pregnant	1300/lb feed intake
Lactating	1800/lb feed intake
Supplement (no green forage)	30000-100000/day

~2-4 mo liver storage

1500lb cow x 2.5% BW= 37.5lb intake

37.5lb intake = 48750 IU/day pregnant;

67500 IU/day lactating



Vitamin A Content

FEEDSTUFF	IU/lb DM
Fresh forage (fescue)	18120 IU/lb ¹
Corn silage	3136 IU/lb ¹
WS Corn	79 IU/lb ¹
Cow cake	33000 IU/lb
Hay (average)	1300 IU/lb ¹
Supplement	150000 IU/lb

¹Pickworth et al. 2012





Causes of deficiency

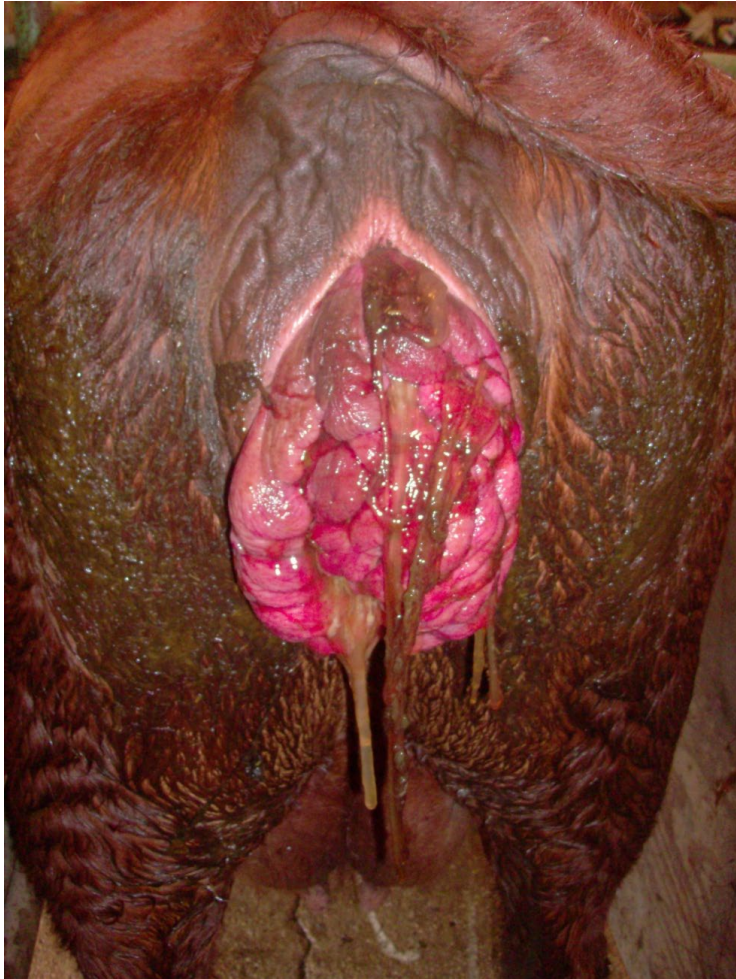
- Forage quality
 - **Drought**
 - Season
- Hay quality
 - Age
- Nutrient chelators
 - High nitrates
- Intake

Calves affected by Vitamin A deficiency

- Deficient cow
- Low Vitamin A in colostrum
- Weak
- Eye defects
- Diarrhea
- Continued poor performance



Cow issues



Clinical

- Ill-thrift
- Abortions
- Retained membranes



Cow issues



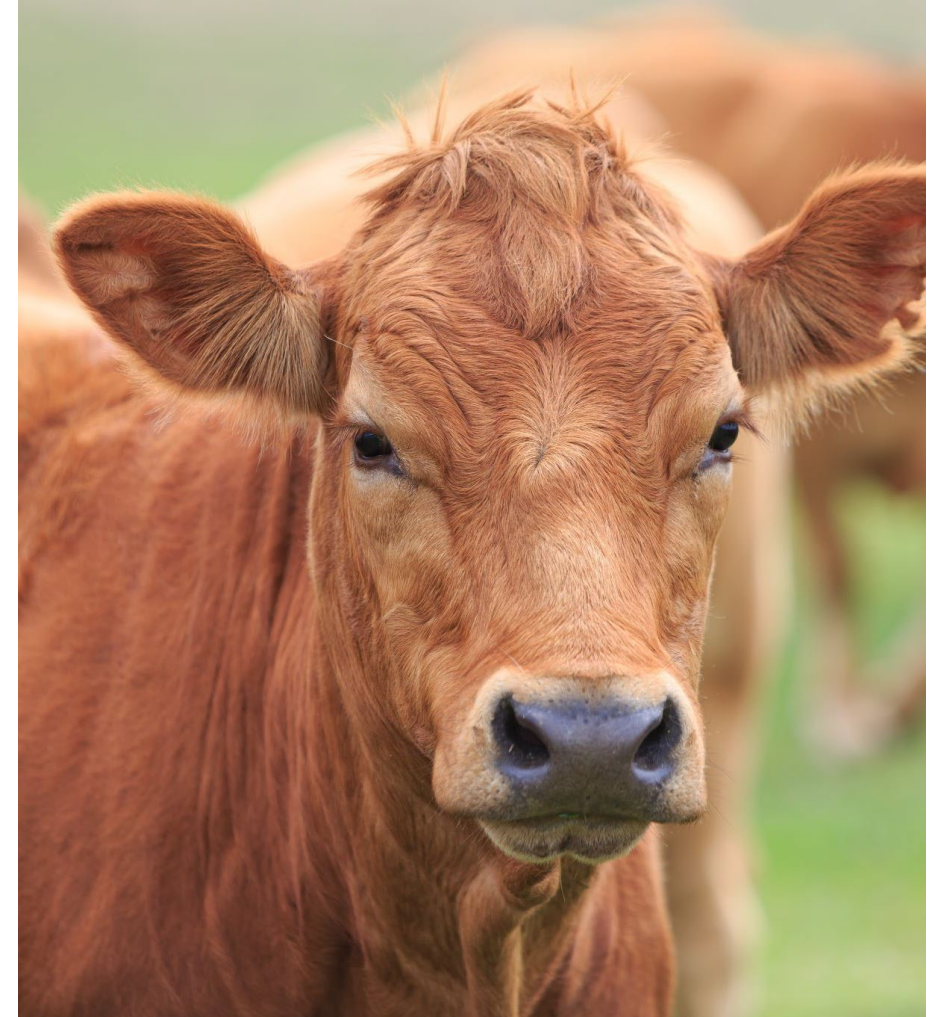
Non-clinical/non-specific

- Poor reproductive performance
- Decrease immune function
 - Pre-breeding vaccination
 - Calf vaccine response
- **More impactful??**



Recommendations for testing

- Blood-low is low, normal is ?
- Fetal liver
- Cow liver biopsy-most sensitive
- Feed analysis
 - Forage at or near time of feeding
 - Include all supplements at appropriate intake levels



Immediate correction



- Treatment of clinical signs
- Injectable supplementation in calves
 - 500,000 IU/hd
- Injectable treatment in cows prior to calving
 - Timing?
 - 1-1.5 million IU/hd
 - May need to repeat monthly



Management Assessment

- Feed/forage testing
- Vitamin and mineral program evaluation
- Appropriate timing of supplementation
 - Drought/drought stressed forages
 - High stress
 - Winter



Final thoughts

- *Critical nutrient!*
- Supplementation not needed year-round: Low-cost strategies
 - Forage availability
 - Hepatic storage
- High quality supplement program only as good as 4 balancers
- Know what's in your feed
- Differentiate from underlying disease



Thank you

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