Water and Natural Resources Committee

Drought Effects and Economic Impacts on Beef Cattle and Ranching

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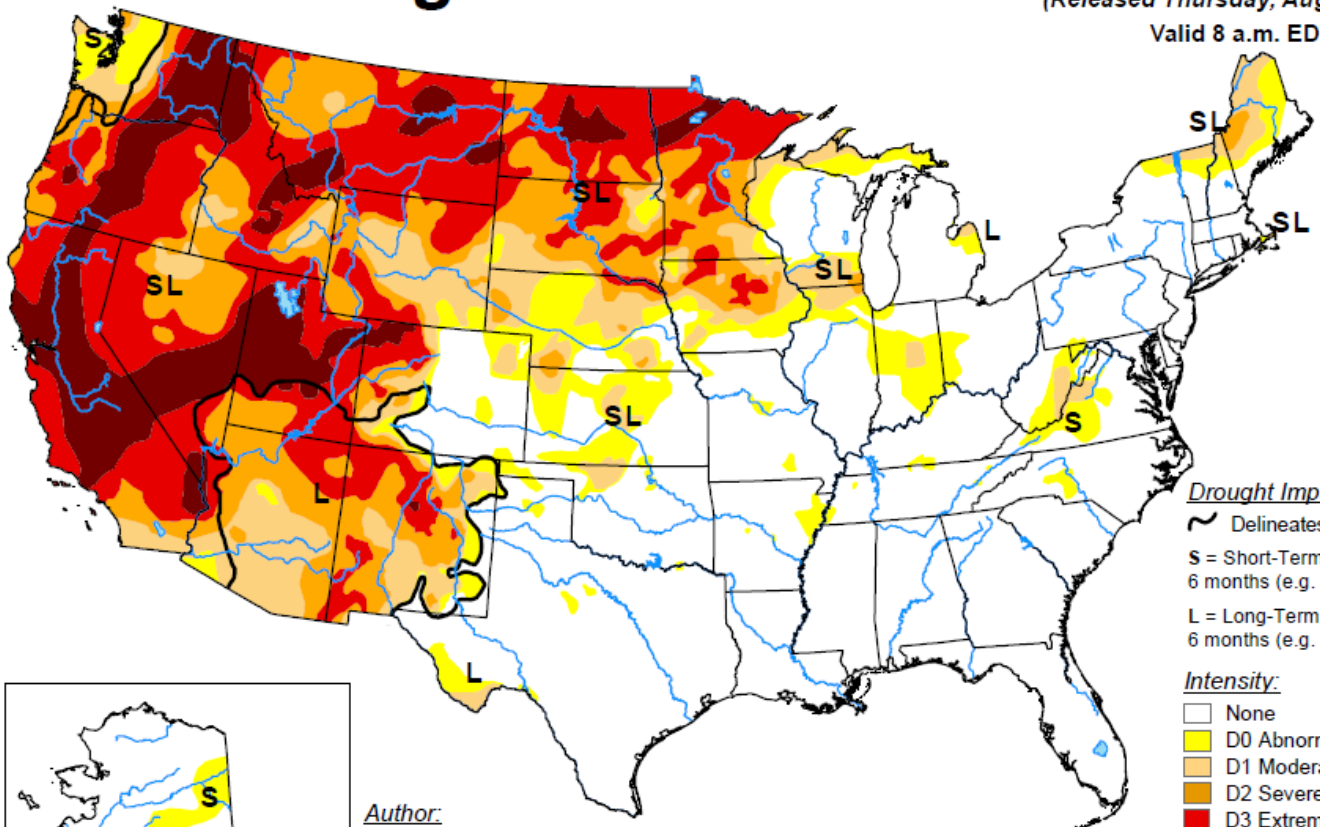
September 7, 2021

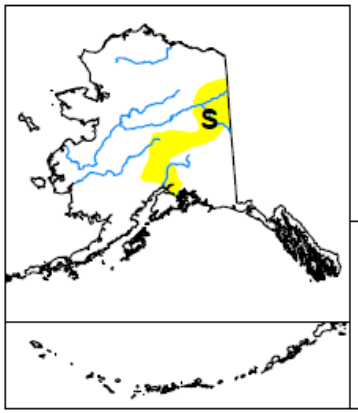
U.S. Drought Monitor

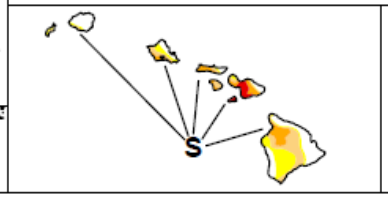
August 24, 2021

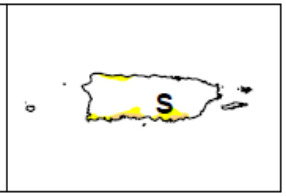
(Released Thursday, Aug. 26, 2021)

Valid 8 a.m. EDT









Author:
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Drought Impact Types:

~ Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

USDA NDMC NOAA

droughtmonitor.unl.edu

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New Mexico

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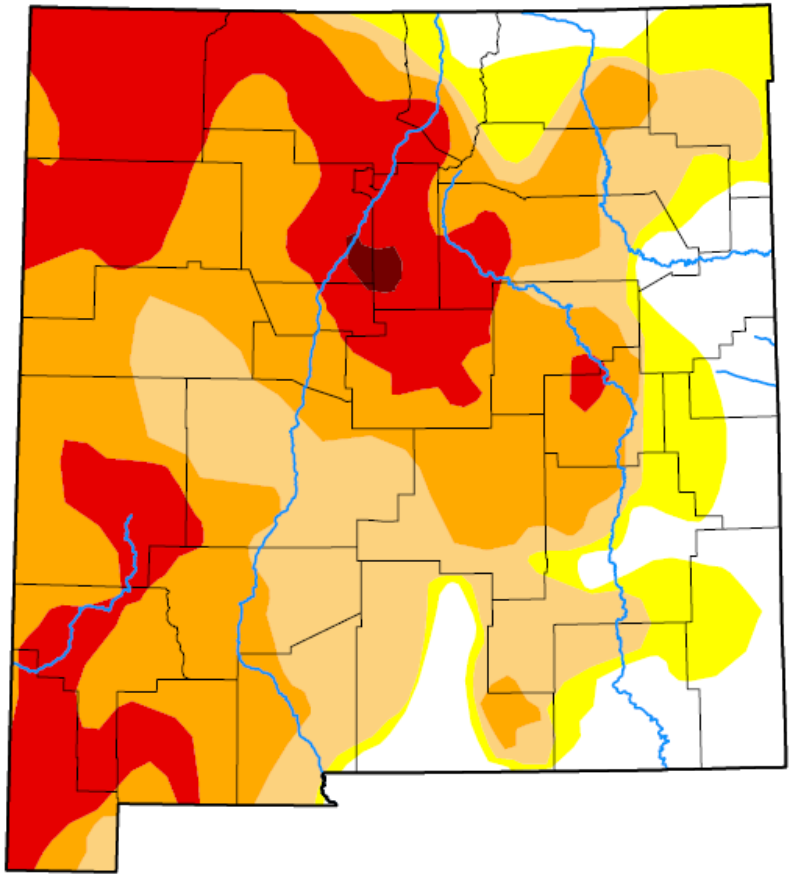

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Impact of drought

- **Lack of water will increase, in short-term, forage quality**
- **Long-term forage quality declines**
- **Forage quantity declines due to lack of growth**
  - **Reduced forage intake – harder to digest**
- **Water quality declines**
  - **Potential increase in minerals/ Total Dissolved Solids**
  - **Decreased water intake = decrease forage intake**
  - **Decreased milk production**

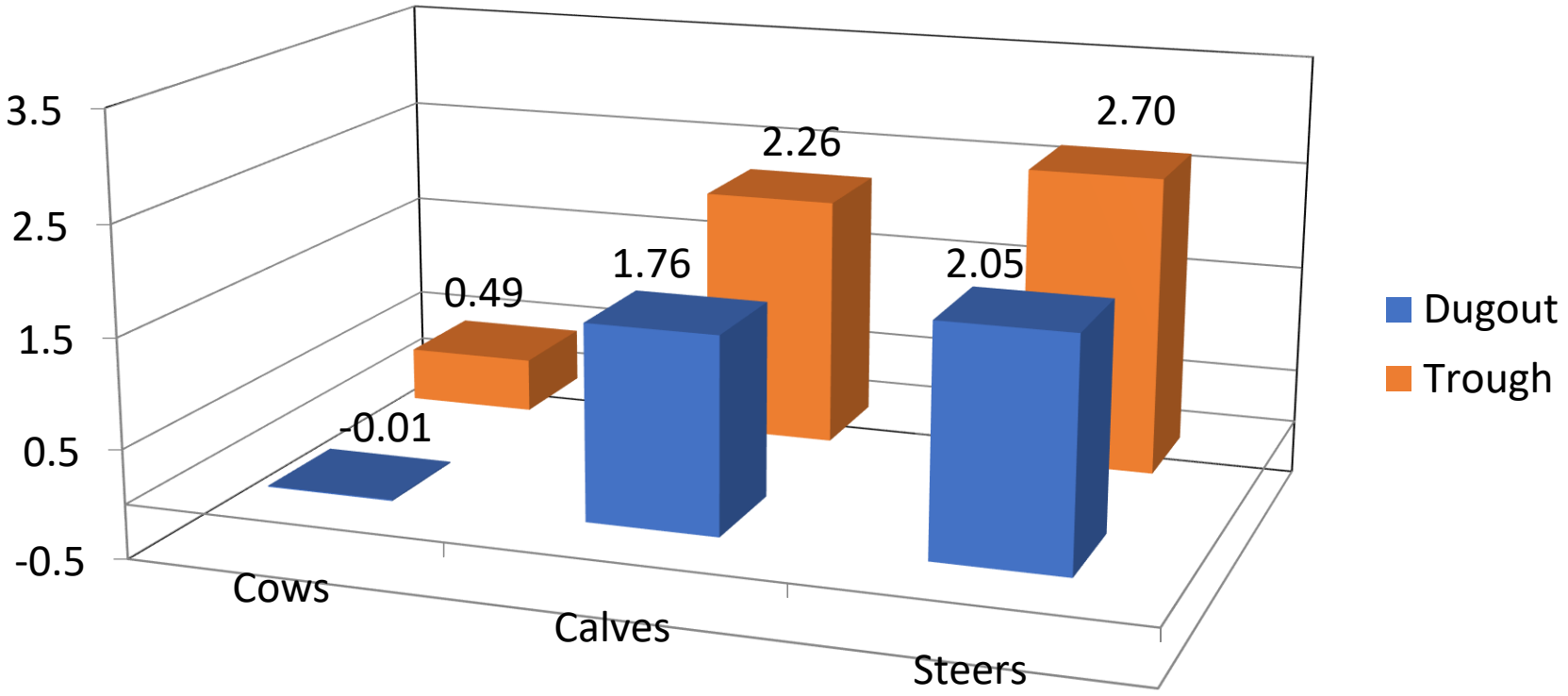
Drought management

- **Early wean offspring**
  - **Weaning and selling offspring early will save grazing for cows**
    - **As calves mature, their consumption of grass increases**
    - **Milk production ceases and lowers maintenance requirements**
- **Creep feeding calves**
  - **Expensive supplements made to replace milk and some grass**
- **Place animals in a pen and feed stored feeds**
  - **Expensive during a drought due to limited supplies and increased demand**
- **Cull low productivity animals**
    - **Old then young**

WATER

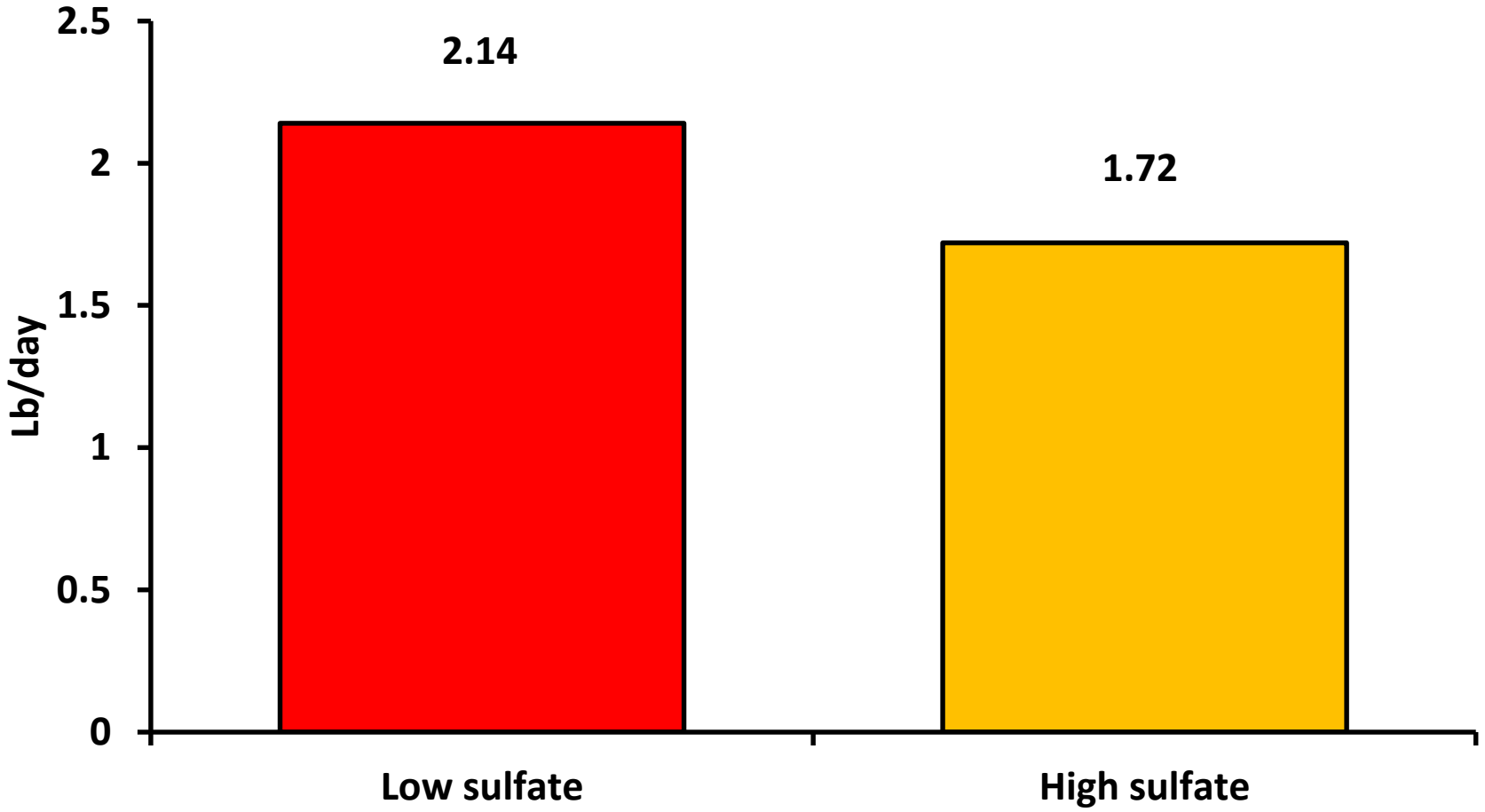
https://upload.wikimedia.org/wikipedia/commons/3/3e/Drinking_cow,_River_Thames.jpg

Weight gain



Willms et al., 1996

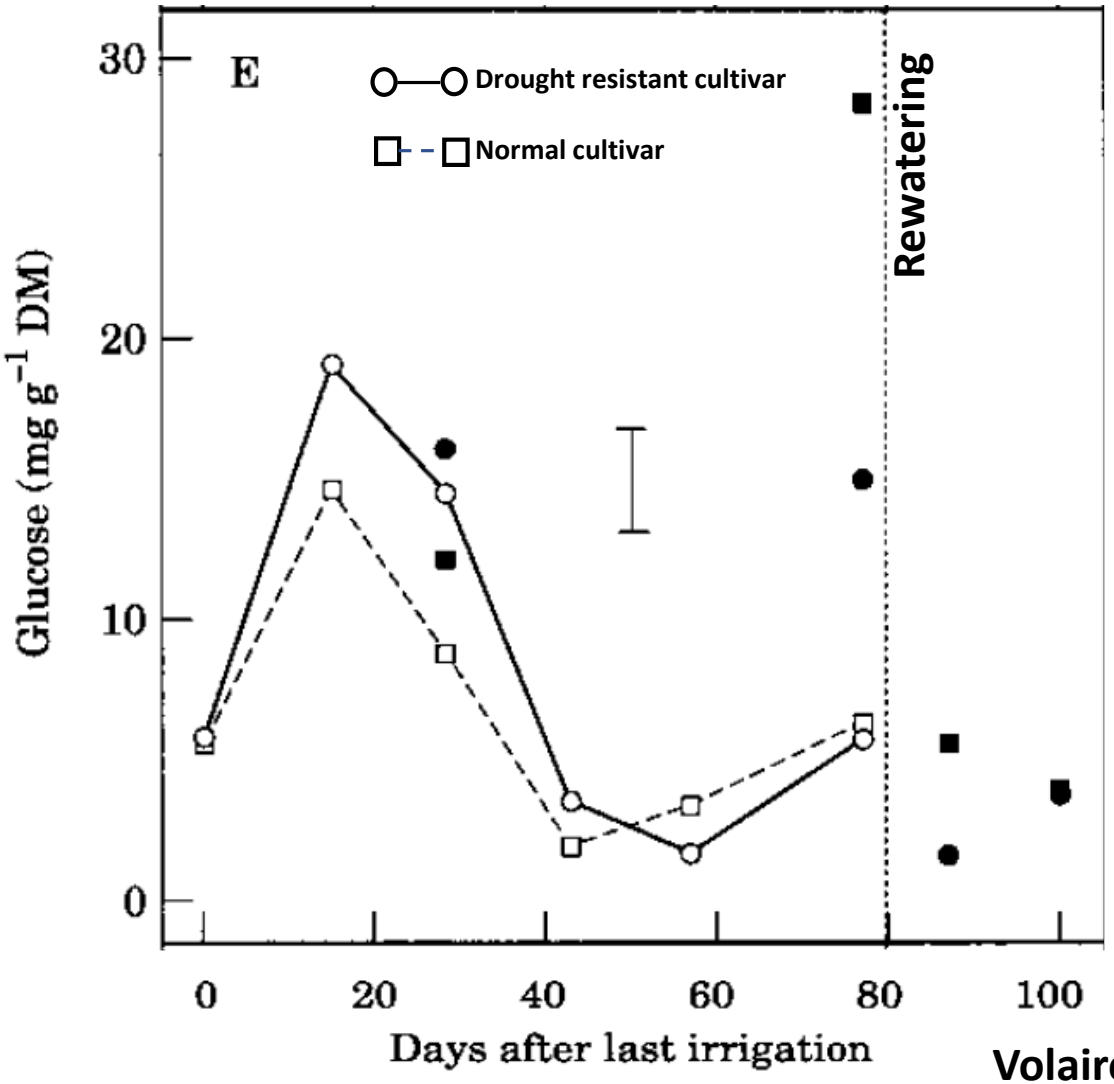
Effects of water sulfates on daily gain in grazing steers



Johnson et al., 2004

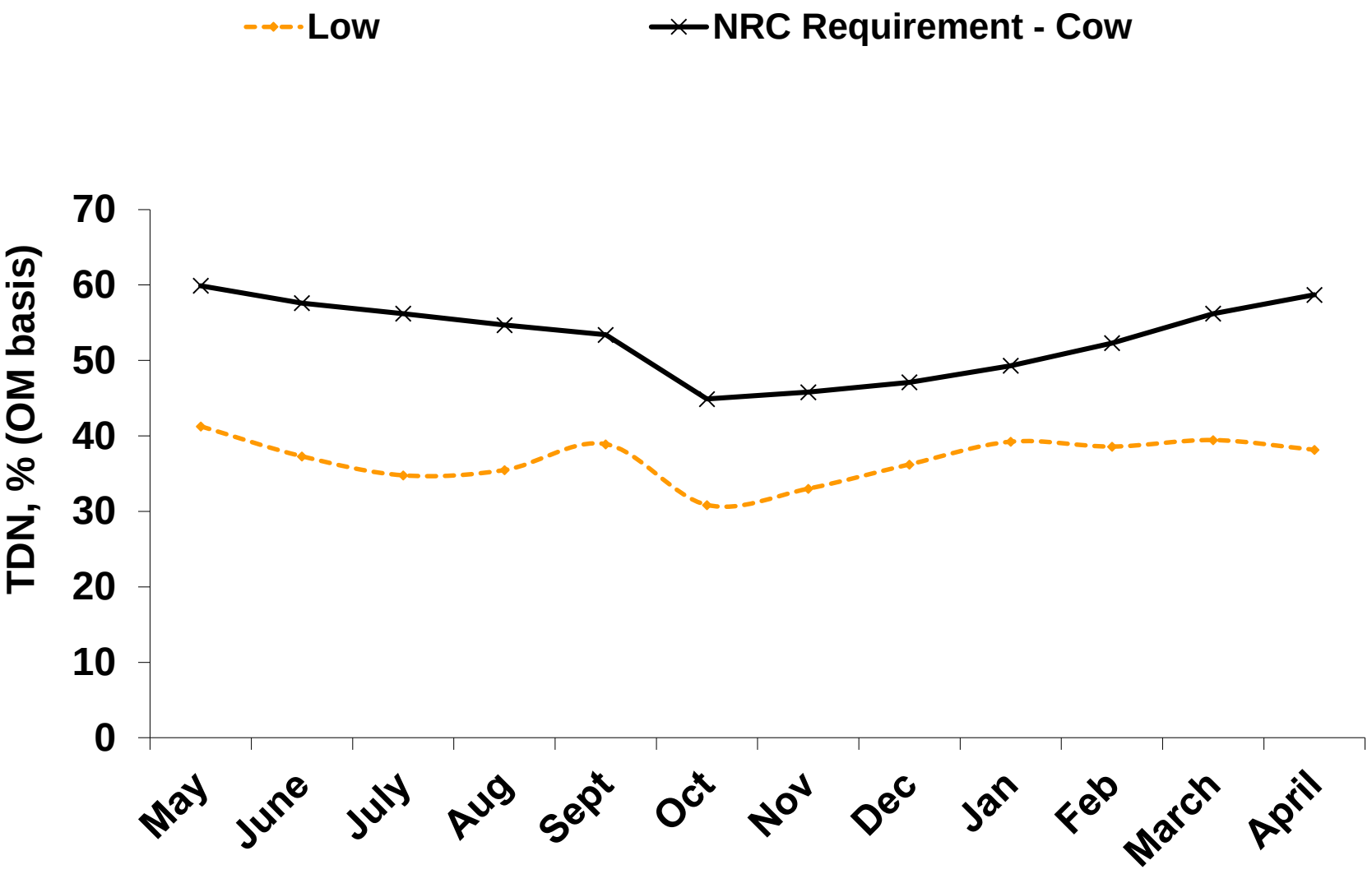
Forage

Carbohydrate content of tillers



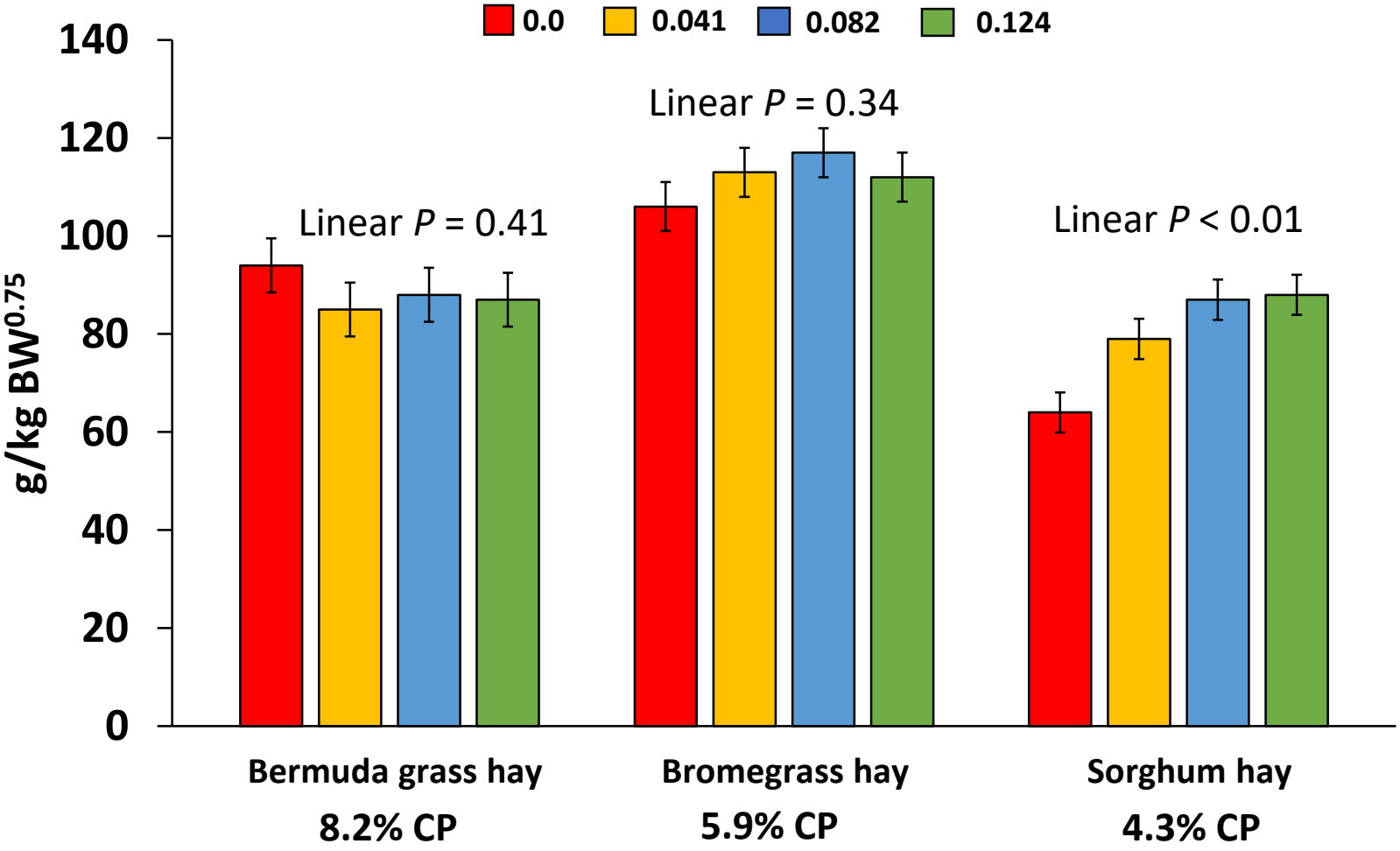
Volaire and Thomas, 1995

Corona Forage Quality in bad years over the course of 18 yrs



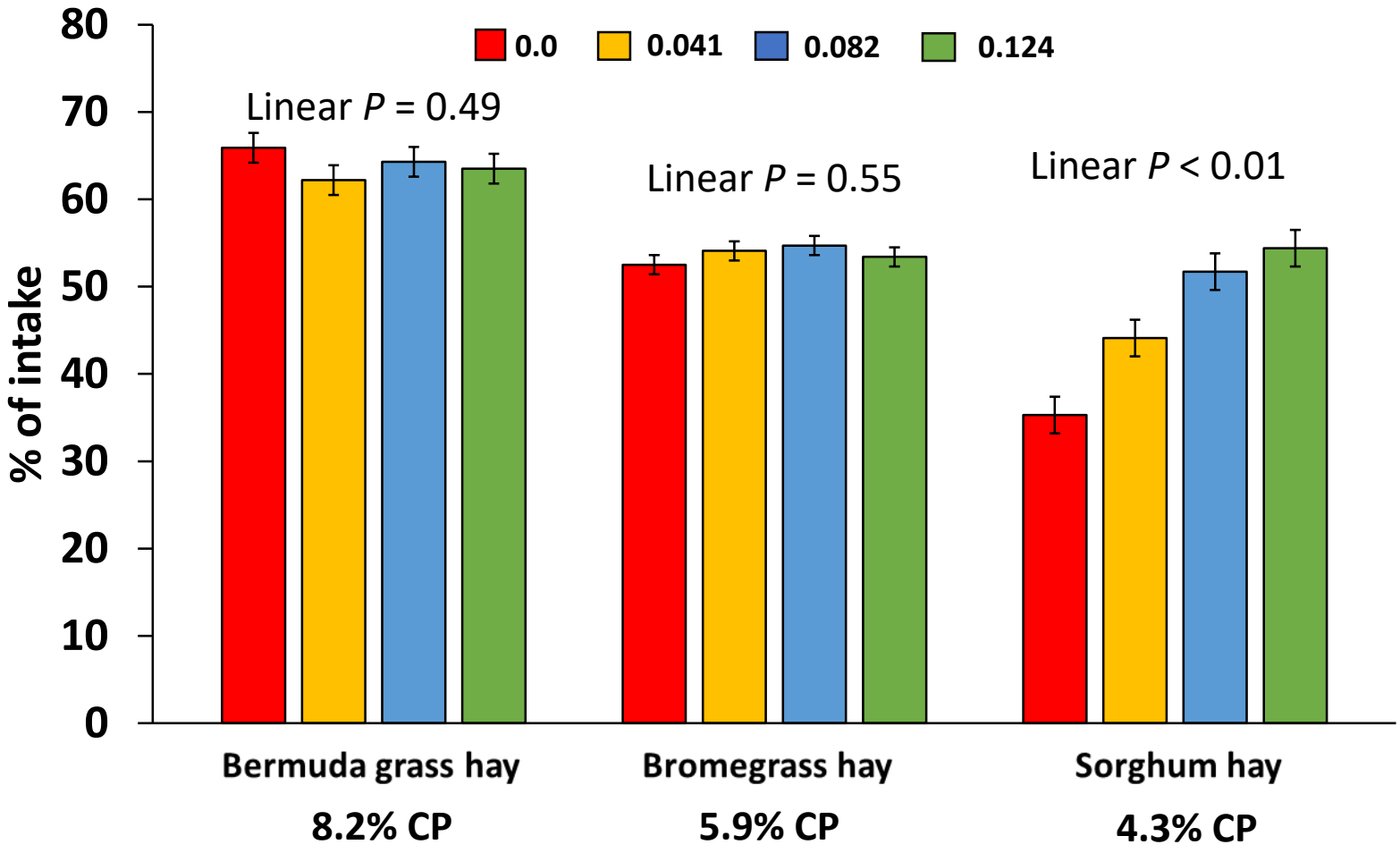
SUPPLEMENTATION

Effects of additional rumen degradable protein (% BW) on forage OM intake



Mathis et al., 2000

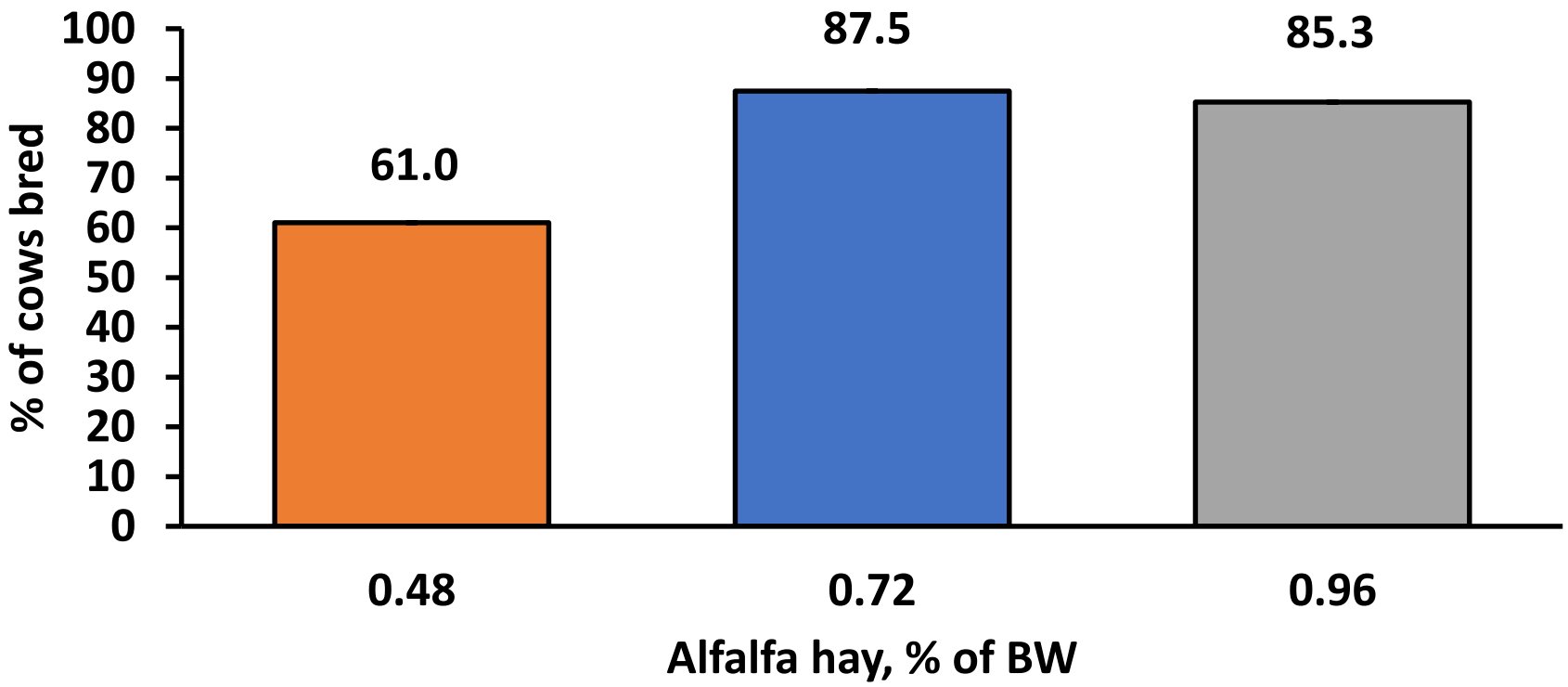
Effects of additional ruminally degradable protein (% BW) on total tract NDF digestion



Mathis et al., 2000

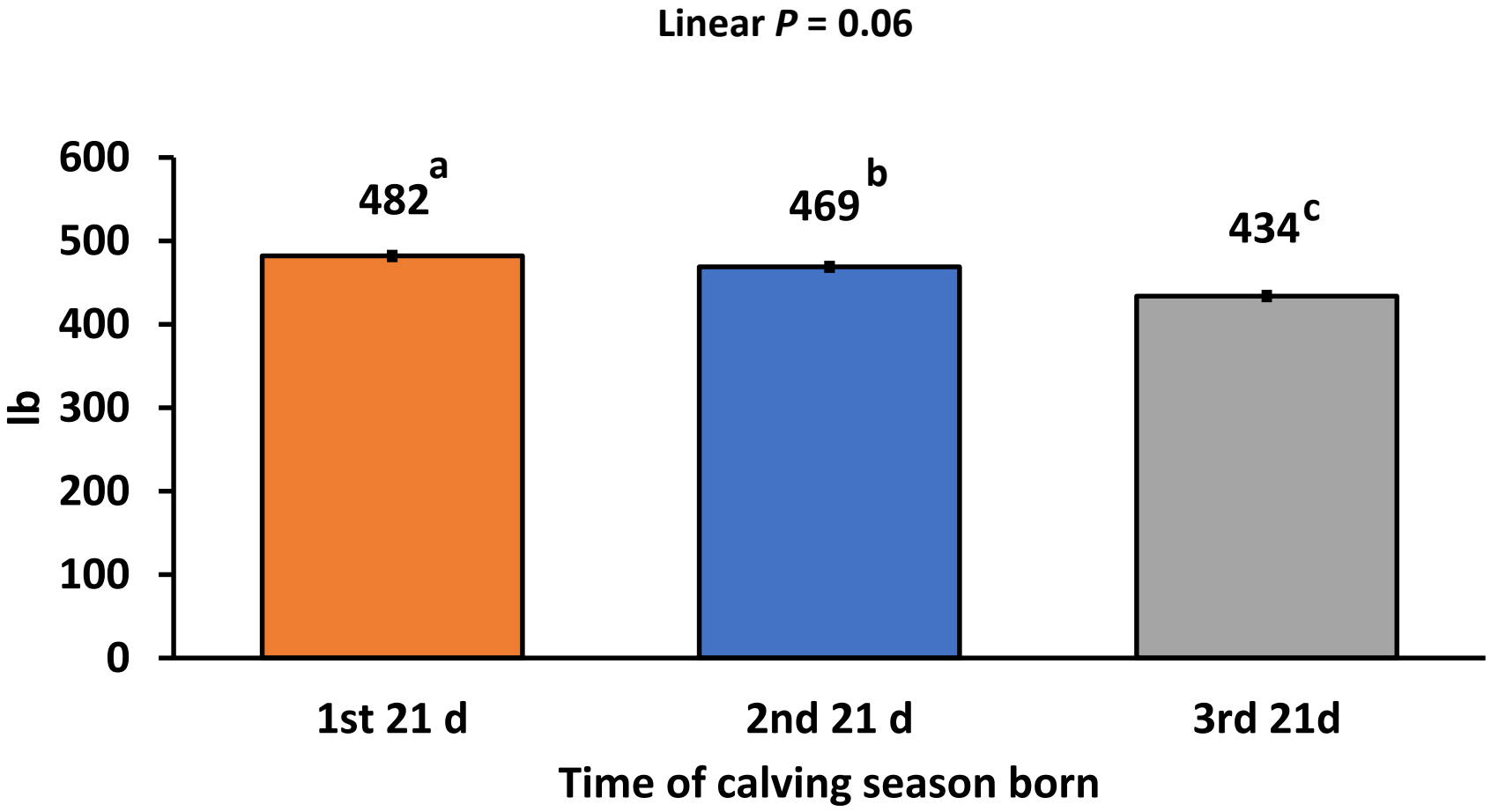
Reproduction

Percentage of cows bred in first 20 d of breeding season



Vanzant and Cochran, 1994

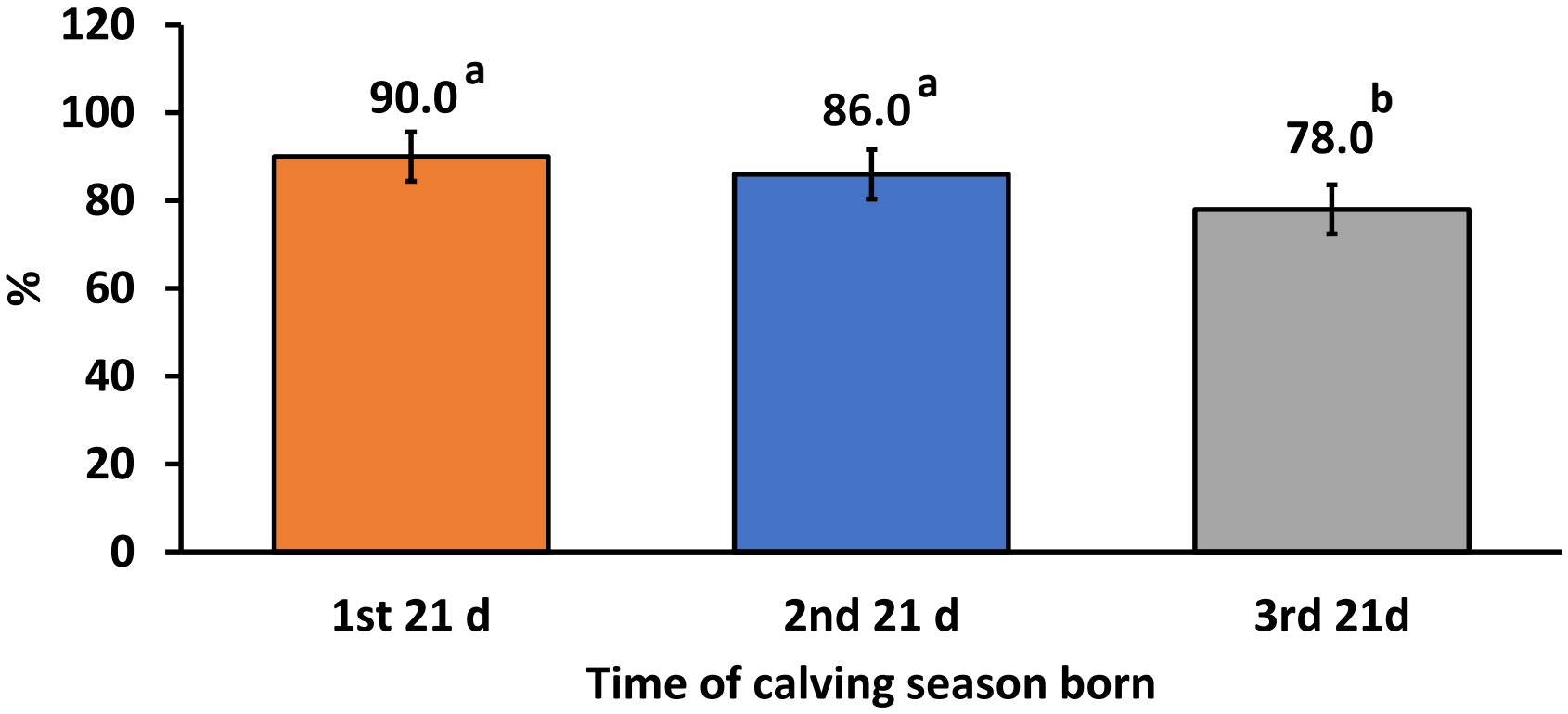
Calving distribution impacts calf weaning wt



Funston et al., 2012

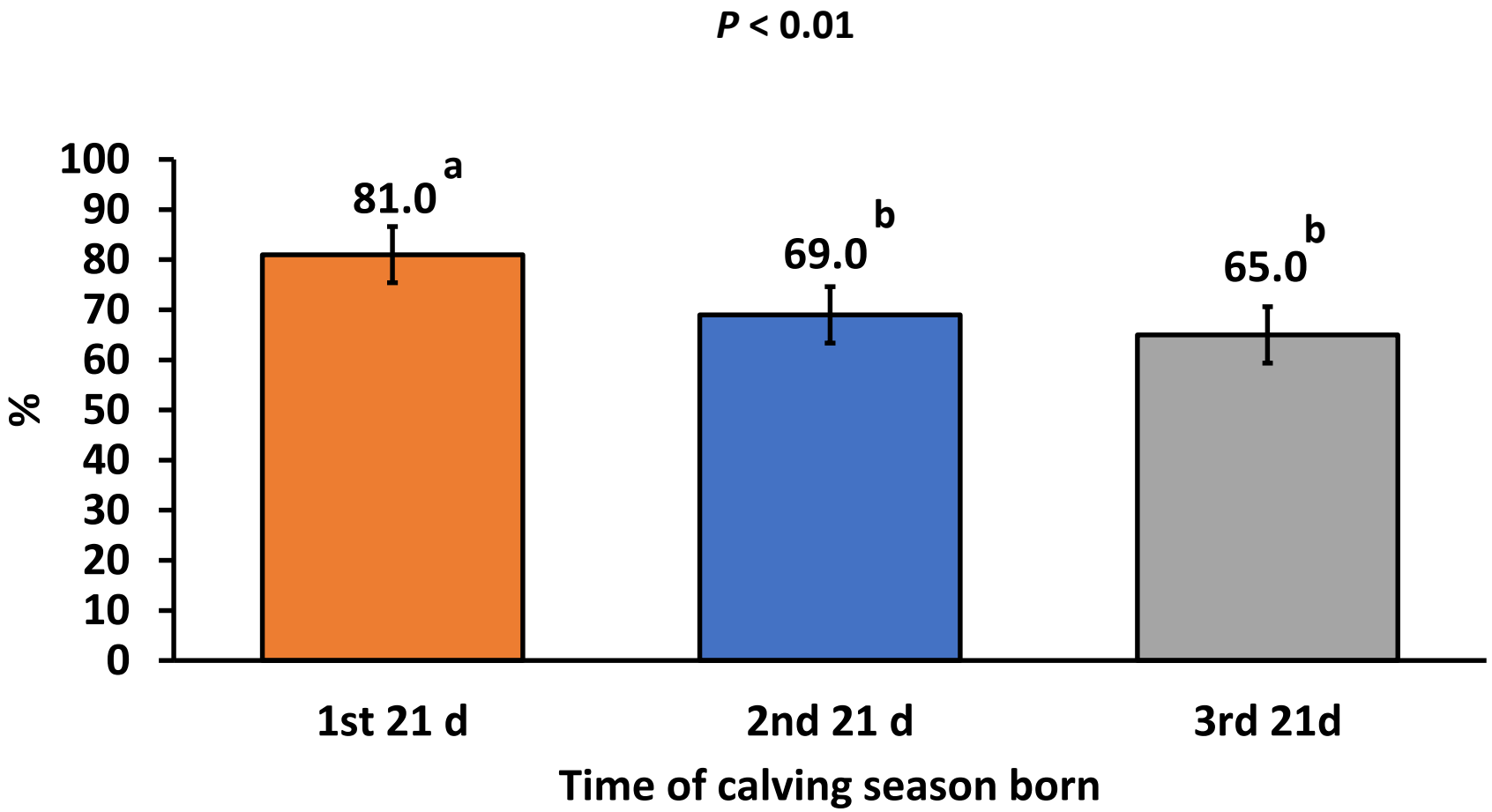
Calving distribution impacts subsequent heifer pregnancy

P = 0.02



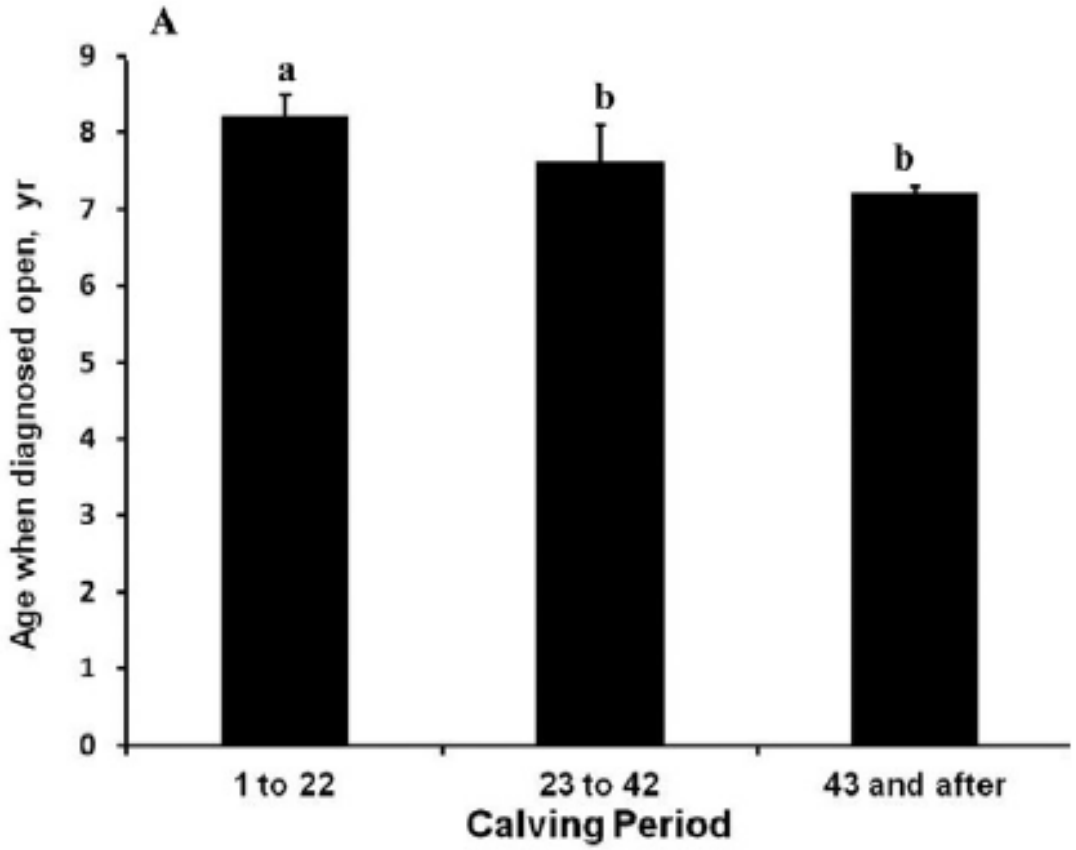
Funston et al., 2012

Calving distribution impacts subsequent heifer calving in first 21 d



Funston et al., 2012

Heifer calving earlier in the calving season have greater longevity

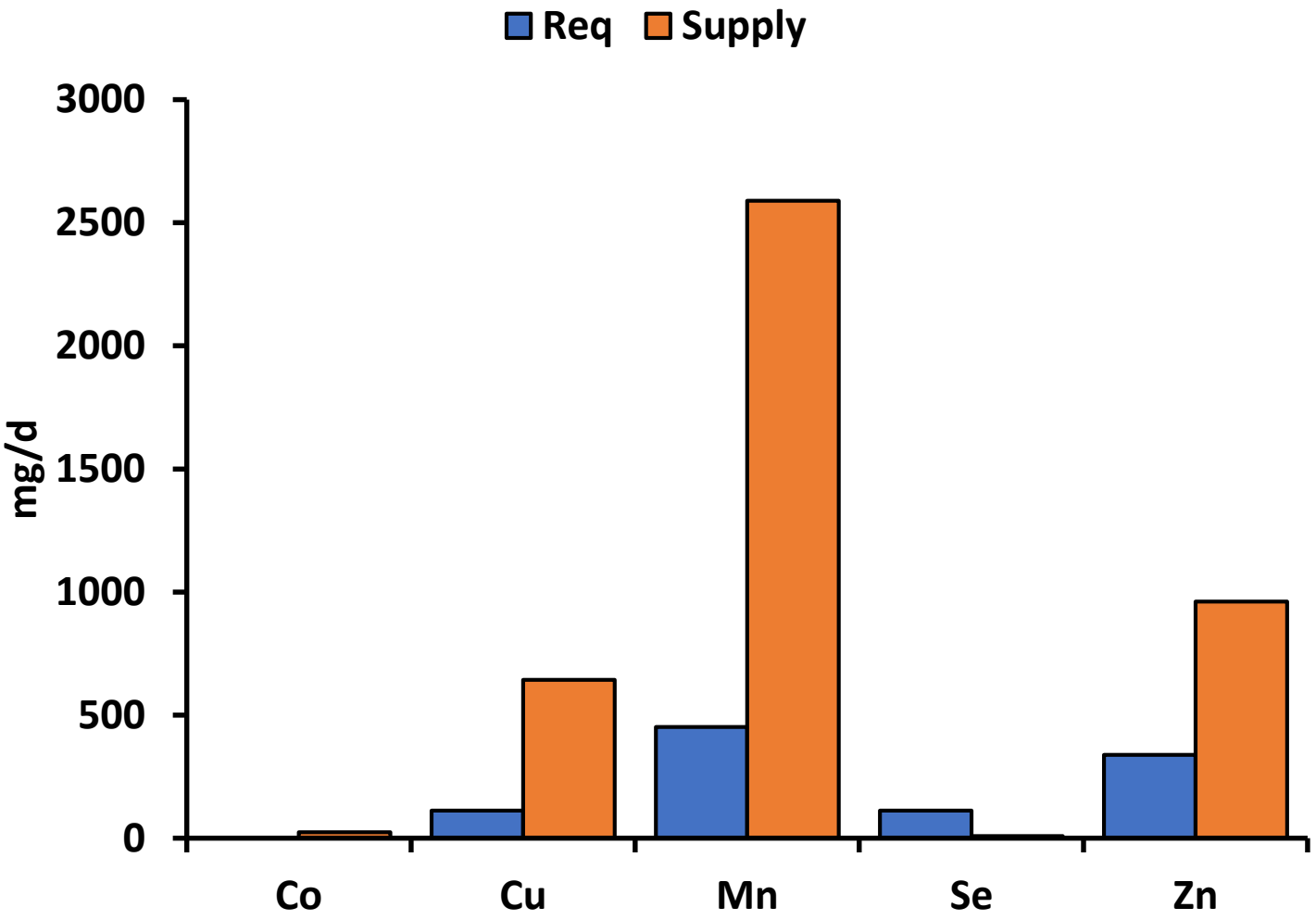


Cushman et al., 2013

MINERALS

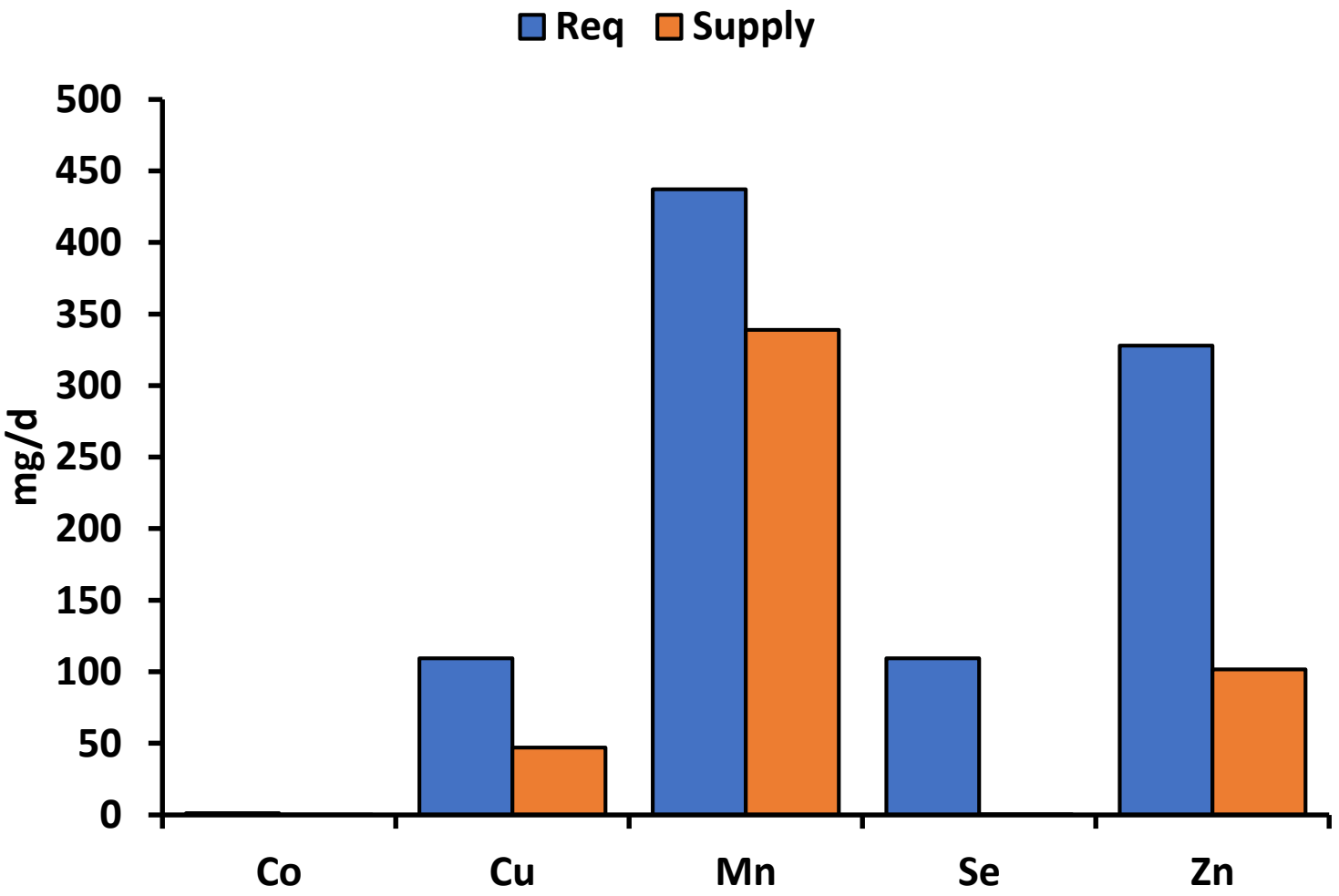
https://www.sweetlix.com/research-articles/cattle/what-prevents-livestock-from-eating-minerals/

Cow micromineral supply: d 60 of gestation



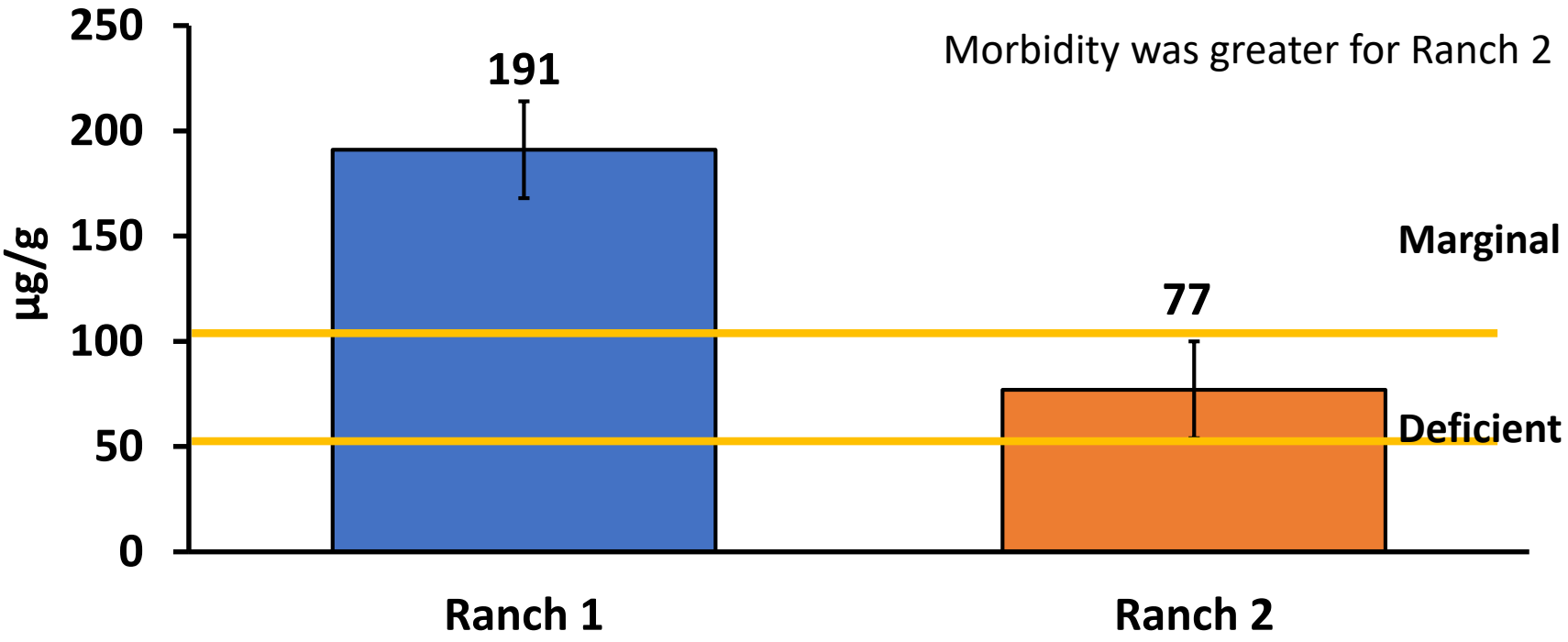
Adapted from Mathis and Sawyer, 2004

Cow micromineral supply: third trimester



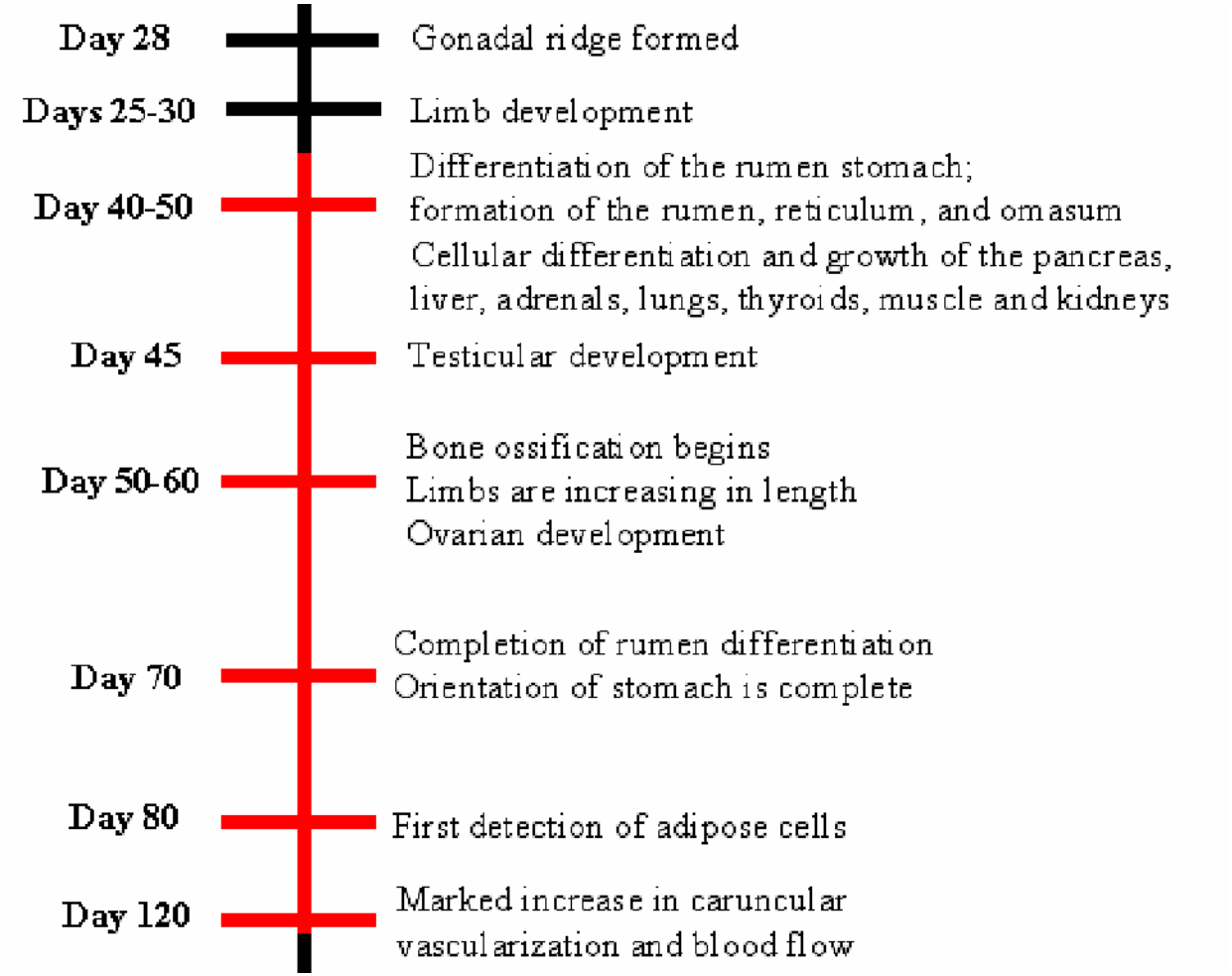
Adapted from Mathis and Sawyer, 2004

Newly received calf liver Cu



Garcia, 2015, Unpublished data

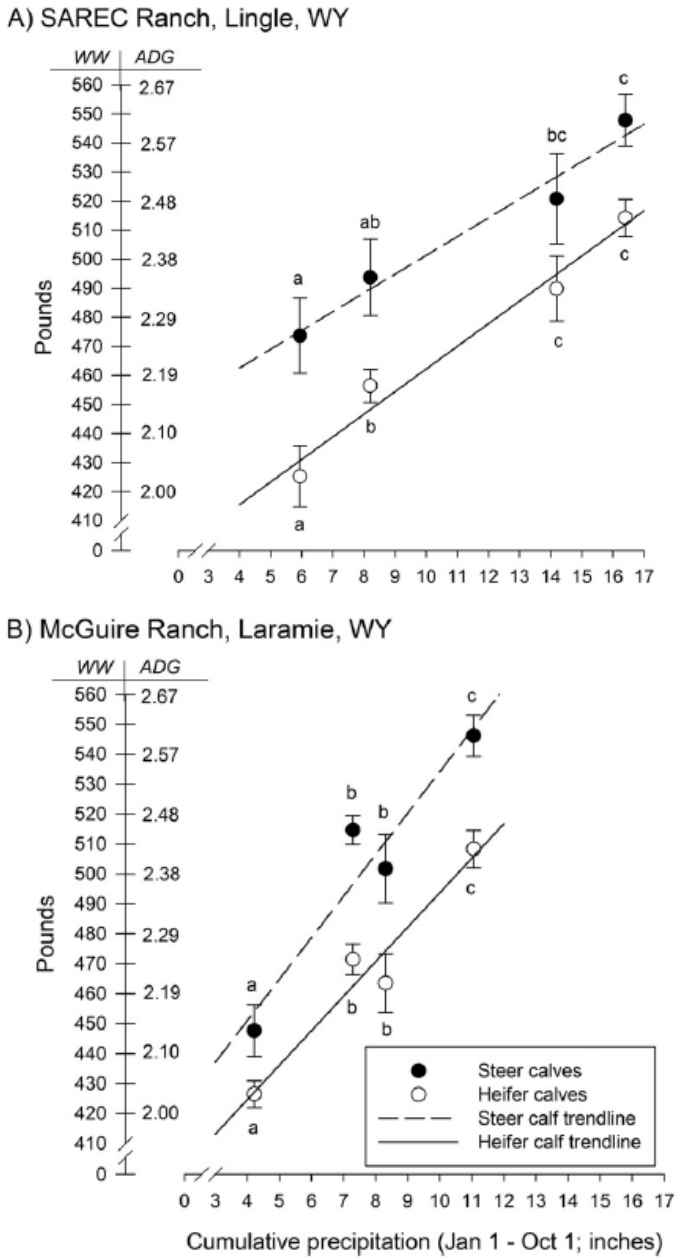
Bovine Fetal Growth Time Line



K. A. Vonnahme, Personal communication

- **Increased rainfall pattern increased calf weaning weights**
  (Scasta et al., 2015)
  - **Two Wyoming ranch locations**

- **Tri-County Carcass futurity (Meyer et al 2016)**
  - **Lighter body weight entering feedlot**
  - **Calves born during dry years had greater marbling scores**
  - **No difference in final finishing weight**



Scasta et al., 2015

Conclusions

- **Drought conditions**
  - **Decrease animal growth**
  - **Increase cost of production**
    - **More inputs required**
  - **Decrease prices for calves**
    - **Flooded market**
  - **Increase cost of cattle when restocking**
    - **Lack of supply with increased demand**

Questions

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