



Managing First Calf Heifers Through the Second Calving Season

Adam S. Bassett, DVM, MS

Resident in Theriogenology

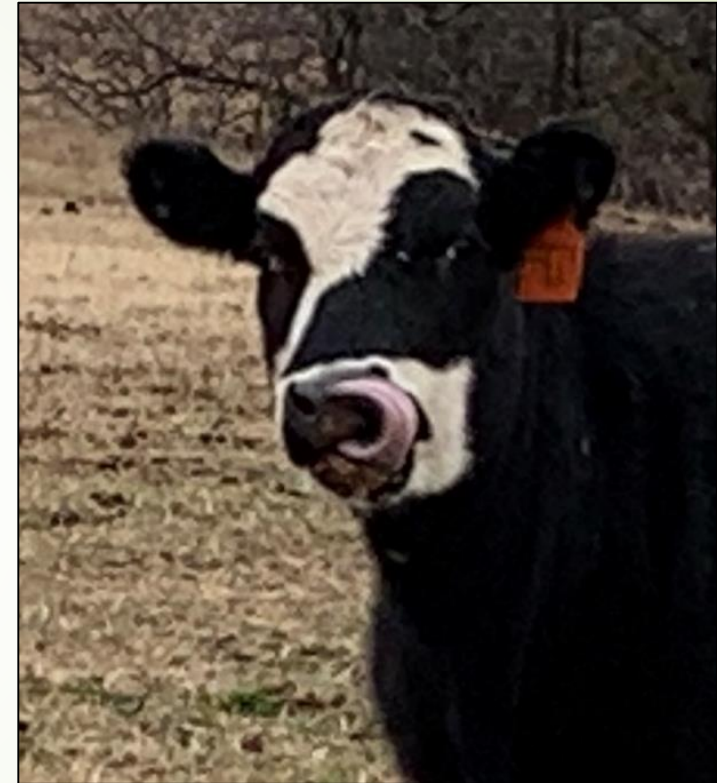
Oklahoma State University College of Veterinary Medicine



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Outline

- ▶ Process of Puberty
 - ▶ Puberty of the beef female
 - ▶ Hormones
 - ▶ Development of the hypothalamus
 - ▶ Onset of puberty
- ▶ Management Strategies
 - ▶ Selection
 - ▶ Nutrition
 - ▶ Genetic testing
 - ▶ Breeding
 - ▶ Gestation
 - ▶ Postpartum period
 - ▶ Body condition score
 - ▶ Pregnancy diagnosis
 - ▶ Calving



Puberty



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Puberty of the Beef Female

- ▶ Age at puberty
 - ▶ Bos taurus – 12-14 months of age
 - ▶ Bos indicus – 15-18 months of age
 - ▶ Onset is also affected by breed
- ▶ Onset of puberty
 - ▶ Age at first estrus
 - ▶ Age at first ovulation
 - ▶ Age for pregnancy support
- ▶ Common rule of thumb
 - ▶ 60-65% of adult body weight by first breeding season
 - ▶ Shoot for 85% of mature bw during gestation
 - ▶ Allows for proper development of hypothalamic GnRH neurons
- ▶ May occur at predetermined size





Hormones

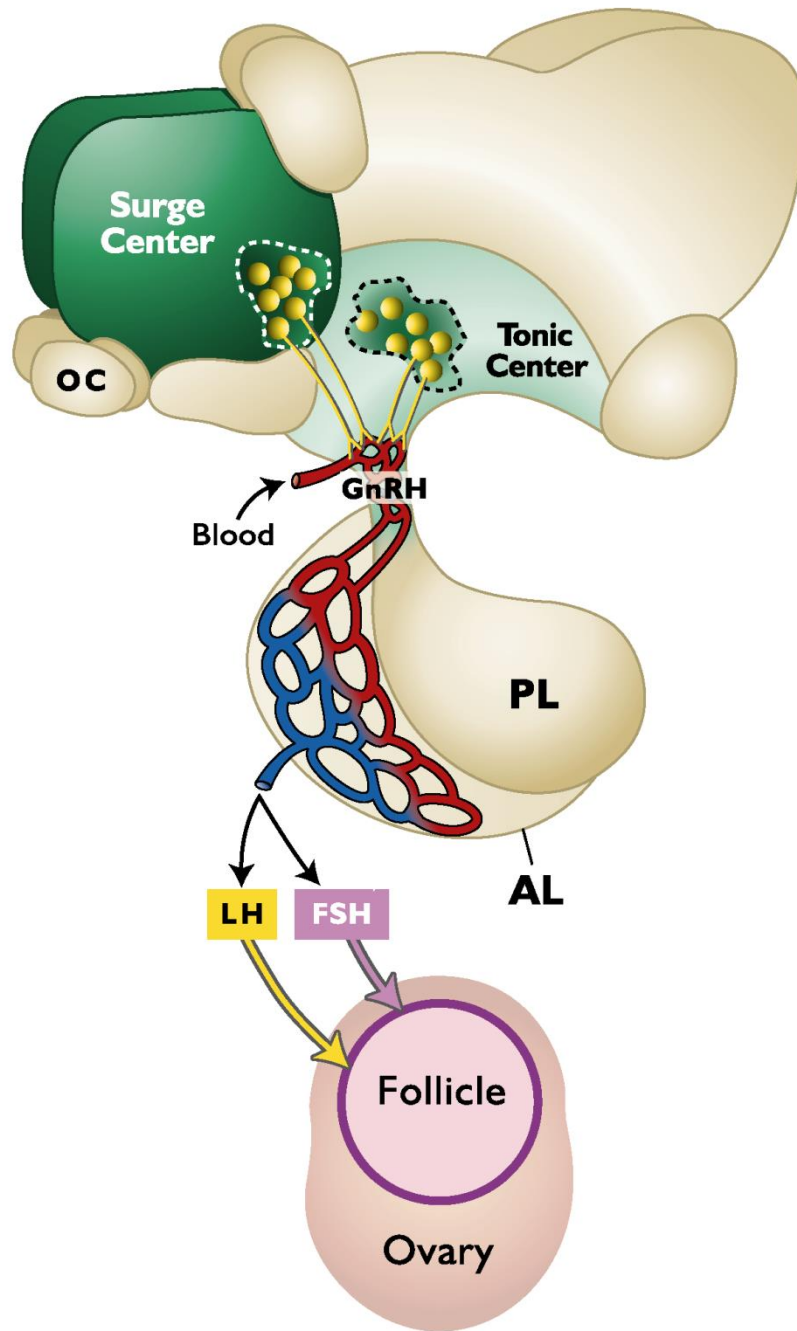
- ▶ GnRH
 - ▶ Gonadotropin releasing hormone
 - ▶ Released from hypothalamus to cause a release of other hormones in pituitary
- ▶ LH
 - ▶ Luteinizing hormone
 - ▶ Released from pituitary in response to GnRH surge
 - ▶ Surge causes ovulation



Development of hypothalamus

- Grows gradually as heifer grows
- Surge center must gain full neural activity
 - GnRH surge is what leads to LH surge, which causes ovulation
 - No surge occurs in pre-pubertal animals
 - Once animals reach puberty, surge start occurring
- Ovulation fails if surge center of hypothalamus is not fully developed







Onset of Puberty

- ▶ Male effect
- ▶ Social cues
- ▶ Season of birth
- ▶ Body weight



Management Strategies



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Selection of Heifers

- ▶ Retain more than you think you need
- ▶ Common to retain oldest and/or heaviest heifers
- ▶ Things to consider:
 - ▶ Think about your environment
 - ▶ Reproductive tract scoring
 - ▶ Conformation
 - ▶ Mothering ability of the dam
 - ▶ Overall health



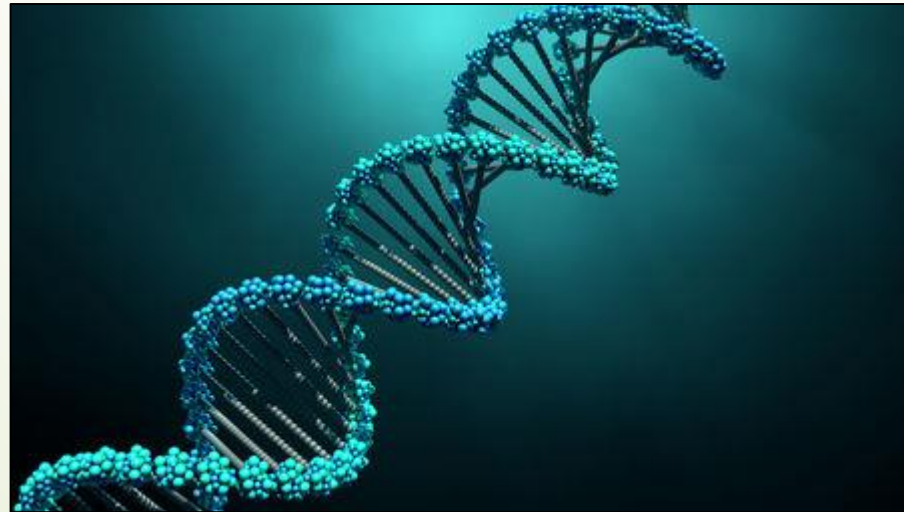
Nutrition for Heifers

- ▶ Still growing
- ▶ Feed separately from cow herd – both before and after breeding season
- ▶ Ensure adequate milk when still calves
- ▶ Dam nutrition
 - ▶ Protein supplementation
 - ▶ Adequate water
 - ▶ Hay in winter
- ▶ BCS
 - ▶ Shoot for 5-6/9 at breeding and at calving



Genetic Testing

- ▶ Test more heifers than you think you will need for replacements
- ▶ Marbling traits, genetic diseases





Breeding of Heifers

- Keep them separated from cow herd
- Breed one month before cow herd
- Artificial insemination may be beneficial



Management During Gestation

- ▶ Adequate hay
 - ▶ Especially late gestation and winter months
- ▶ Protein supplementation
- ▶ Heifers are still growing
 - ▶ Need nutrients for themselves and the fetus
 - ▶ Good idea to manage separately from mature cows



Postpartum Period

- ▶ Time between calving and first cycle
 - ▶ Longer in heifers than mature cows
- ▶ Full uterine involution - ~30 days in heifers (20 days in cows)
- ▶ Nutritional management has an impact on post-partum period
 - ▶ BCS
- ▶ Dystocia
 - ▶ Associated with extended postpartum period
 - ▶ Delayed calving assistance lengthens PP
- ▶ Earlier breeding is important
- ▶ Late calving shortens PP





Pregnancy Diagnosis

- ▶ Palpation by hand or with ultrasound
- ▶ Benefit of ultrasound
 - ▶ Can age fetus – gives idea for when heifer conceived
 - ▶ Want to select the heifers that have conceived the earliest



Calving heifers

- ▶ Still a good idea to calve separately
 - ▶ Even as second calf heifers
 - ▶ Calving earlier allows for more time for completion of uterine involution
- ▶ Intervene as soon as possible
 - ▶ Delayed assistance lengthens postpartum interval
- ▶ BCS 5-6/9
 - ▶ Too big or too small can predispose to calving difficulties



Conclusion

- ▶ Second calf heifers present unique challenges
- ▶ Longevity within a herd can be enhanced with various management strategies specific to heifers



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Sources



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