Managing First Calf Heifers Through the Second Calving Season

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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
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
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
Sources