The Postpartum Interval: Management of Anestrus

Anestrus

- **Definition**: Females that are not exhibiting estrous cycles
- Anestrus occurs annually; heifers are anestrus prior to puberty and anestrus occurs in cows after each calving.
- The anestrous period in postpartum cows ranges from 14-180 days in length.
  - For mature cows, 30-90 days is normal.
  - For young cows (2 year olds), 60-120 days is normal.

Management of Anestrus in Cattle

1. What is anestrus and is it a problem?
2. What factors influence the duration of anestrus?
3. How is anestrus managed?
Anestrus in US Beef Cattle

Percent of Cows Cyclic by Year (~ 60 d postpartum)

Reproductive Classes Within the Cow Herd

Factors Regulating the Length of Anestrus

Presence of the Calf

Factors Regulating the Length of Anestrus

Presence of the Calf

BCS

Ribs visible, sharp bones

Smooth, no visible ribs or bone structures, fat deposits on tail head, brisket
Les Anderson, University of Kentucky

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Influence of BCS on Anestrus

Source: Stevenson et al., 2003

BCS and Reproduction - Mature Cows

BCS and Reproduction - Young Cows

BCS and Anestrus

Pregnancy potential 5-30%

Pregnancy potential ~ 90%
Influence of Days Since Calving on Anestrus

- Source: Stevenson et al., 2003

Impact of PPI, calving, and rebreeding

Managing Anestrus

- Managing Anestrus

How do we mimic the transition?

- Can we mimic the short cycle?
  - Give estrogen
  - Induces estrus within 24-48 hours
  - CL is short-lived; fertility is very low

- Can we induce the LH surge?
  - Give LH/GnRH
  - Induces or induces LH surge
  - CL is short-lived; fertility is very low

How do we mimic the transition?

- Can we mimic the short cycle?
  - Progestin administration (>5 days) will induce an LH surge and usually estrus within 72 hours
  - CL is typically normal
  - Fertility can be acceptable; 45-70%

- Products with progestin activity
  - MGA®
  - EAZI-BREED CIDR® Cattle Inserts
  - GnRH

Induction of Estrus Using a CIDR or MGA
ES and Natural Service

Turn in bulls
MGA or CIDR

ESNS
Lamb et al, 2007

<table>
<thead>
<tr>
<th>Calving Group</th>
<th>n</th>
<th>Preg %</th>
<th>% Calved First 30 d</th>
<th>Days to Conception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control**</td>
<td>421</td>
<td>84</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>CIDR**</td>
<td>421</td>
<td>81</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

*21 locations, conducted in 2004
**16 locations, conducted in 2005
Ratio the same within a location
Cows - BCS minimum 5 at calving, 14-103 days PP, 2-13 years of age

Return on Investment

- 108 cows; 54 MGA-Bull, 54 Corn-bull
- 15% increase in pregnancy rate (80 vs 95)
- 40.4 extra pounds at weaning per calf (17 d older)
- Estimated return on investment:
  - Cost per cow = $2.96/cow for 7 days of MGA
  - Return per cow
    - 31,110 lbs x $140 = $4,355,400
    - $171,120 return per cow treated

Very Late-Calving Cows

- Project of the last 5 years
- 177 mature cows, minimum BCS 5, 19 locations
- 14-28 days postpartum
- 88% conceived
- 77% calved in first 30 days, calving date shifted 28 days
Example

<table>
<thead>
<tr>
<th>Insert CIDR's on May 14, 2013</th>
<th>2013 calving date</th>
<th>2014 calving date</th>
<th>Days Earlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st calf heifer</td>
<td>4/11</td>
<td>3/5</td>
<td>36 days</td>
</tr>
<tr>
<td>2nd calf heifer</td>
<td>4/12</td>
<td>3/20</td>
<td>31 days</td>
</tr>
<tr>
<td>Cow</td>
<td>4/25</td>
<td>4/20</td>
<td>22 days</td>
</tr>
<tr>
<td>Cow</td>
<td>5/19</td>
<td>3/21</td>
<td>30 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insert CIDR's on June 17, 2013</th>
<th>2013 calving date</th>
<th>2014 calving date</th>
<th>Days Earlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st calf heifer</td>
<td>5/26</td>
<td>4/7</td>
<td>49 days</td>
</tr>
<tr>
<td>Cow</td>
<td>5/19</td>
<td>4/30</td>
<td>20 days</td>
</tr>
<tr>
<td>Cow</td>
<td>5/24</td>
<td>5/60</td>
<td>4 days</td>
</tr>
<tr>
<td>Cow</td>
<td>5/31</td>
<td>4/8</td>
<td>52 days</td>
</tr>
</tbody>
</table>

7 of the 8 cows calved an average of 36 days earlier in 2014 compared to 2013. Additional 70 pounds of WW per calf for a total of 490 additional pounds X $140 (average price of steers and heifers weighing 500/550 pounds) = $686 return on a $88 investment.

Summary

- Anestrus is the major factor regulating reproductive efficiency.
- Induction of estrus in anestrous cows is essential to maintaining a high reproductive rate.
- Estrous synchronization protocols for anestrous females MUST include a progestin (CIDR, MGA, or GnRH).