Replacement Heifer Development

Changing Minds for the Change In Times

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Many changes have occurred that have brought about how some beef producers manage their cattle operations

- Grain prices
- Land allocation
- Livestock prices
- Technology
- Time
- Weather
These changes have led to developing and maintaining a dry lot replacement heifer program

- **History**
  - Began 2003 with 59 head of commercial heifers
  - Set program timeline and protocol
  - Communicated with producers
  - AI’d heifers
  - Set up great relationship with Angus producer for clean up bulls
Common Reasons for Failed Heifer Development

• Heifers not of adequate age/puberty at breeding
  – 35% of beef heifers fail to reach puberty by 15 months of age (need 1-3 months prior to breeding)
• Nutrition too fat or too thin
  – Gone to wet gluten/hay ration for majority of development
• Bull power/Bull selection
• Weather
• Infectious disease
• Not rebreeding the following season
Common Reasons for Failed Heifer Development

- Space
- Time
- Money
VMC Heifer Development Program Provide the Control and Management

• Prior to arrival
  – Weaned for 21-45 days
  – Vaccinations and boosterred at least 10 days prior to arrival
  – Dewormed, deloused
Control and Management

• Arrival
  – ID
  – Booster vaccinated
  – Weighed
  – Hip Height
  – BVD ear notched
Control and Management

• Mid February
  – Weight
  – Disposition scored
  – Pre-breeding vaccination
  – Freeze branded
Control and Management

- April 1st
  - Weight
  - Pelvic Measured
  - Reproductive Tract Scored

- Mid-April
  - Synchronization begins
Control and Management

- May 15th
  - Heat detect and breed then time breed
- May 20th
  - Clean-up bulls turned in
- July 1st
  - Pull bulls
- August 1st
  - Ultrasound
Selection of the Replacement Heifer

- Try to select heifers out of the 1st 21 day calving window
  - Moderate to high heritability
  - Puberty 10-12 months of age at breeding
Selection of the Replacement Heifer

• Early growth heifers
  – Mammary fat deposits
  – Hormonal imbalances
    • Decreases fertility
Selection of the Replacement Heifer

• Fertility
  – Cull heifers that are extreme
  – Breeding season 45/65 day window
    • 60-70% 1\textsuperscript{ST} service conception rate
    • 90-95% pregnant after 65 day breeding season
Selection of the Replacement Heifer

• Calving ease (pelvic measure)
  – 1\textsuperscript{st} calf heifers dystocia rate 30%
  – 10% calf mortality rate
  – Delayed return to estrus or breed back
    • 85 days average

• Bull side of the equation
  – Use high accuracy low birth weight bulls
  – Herd bulls with large pelvic areas=increased pelvic area in replacement heifers
Selection of the Replacement Heifer

• Milking ability
  – The every other year scenario

• Structural soundness

• Temperament
  – Disposition scores

• Frame score (1-9 scale)
2003-2013 Feed/Yardage/Med Cost Per Day (2014 Projected Cost)
### Total RTS Comparison With Missouri Data

<table>
<thead>
<tr>
<th>2003-2013</th>
<th>VMC</th>
<th>Pregnancy Rate</th>
<th></th>
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<tbody>
<tr>
<td>RTS</td>
<td>Exposed</td>
<td>Head</td>
<td>Percent</td>
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<tr>
<td>1</td>
<td>12</td>
<td>5</td>
<td>42%</td>
</tr>
<tr>
<td>2</td>
<td>419</td>
<td>352</td>
<td>84%</td>
</tr>
<tr>
<td>3</td>
<td>1006</td>
<td>873</td>
<td>87%</td>
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<tr>
<td>4</td>
<td>692</td>
<td>594</td>
<td>86%</td>
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<tr>
<td>5</td>
<td>98</td>
<td>80</td>
<td>82%</td>
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<tr>
<td>Totals</td>
<td>2227</td>
<td>1904</td>
<td>85%</td>
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</table>

<table>
<thead>
<tr>
<th>1997-2001 Missouri Heifer Program</th>
<th>Pregnancy Rate</th>
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<tbody>
<tr>
<td>RTS</td>
<td>Exposed</td>
<td>Head</td>
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<tr>
<td>1</td>
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<td>22</td>
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<tr>
<td>2</td>
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<td>409</td>
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<td>3</td>
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<td>2096</td>
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<tr>
<td>4</td>
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<td>2752</td>
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<tr>
<td>5</td>
<td>2417</td>
<td>2127</td>
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<tr>
<td>Totals</td>
<td>8602</td>
<td>7406</td>
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What is a Reproductive Tract Score (RTS)

• Rectal Palpation of the uterine horn and ovaries
  – 11-12 months of age
  – Gauge sexual maturity
  – Size of uterine horns (reproductive tract)
  – Ovarian follicular development
## The RTS Chart

<table>
<thead>
<tr>
<th>Reproductive tract score</th>
<th>Uterine horns</th>
<th>Size and characteristics of ovaries</th>
<th>Ovarian structures</th>
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<tbody>
<tr>
<td>1</td>
<td>Immature &lt;20 mm diameter, no tone</td>
<td>15 mm</td>
<td>10 mm</td>
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<tr>
<td>2</td>
<td>20-25 mm diameter, no tone</td>
<td>18 mm</td>
<td>12 mm</td>
</tr>
<tr>
<td>3</td>
<td>25-30 mm diameter, slight tone</td>
<td>22 mm</td>
<td>15 mm</td>
</tr>
<tr>
<td>4</td>
<td>30 mm diameter, good tone</td>
<td>30 mm</td>
<td>16 mm</td>
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<tr>
<td>5</td>
<td>30 mm diameter, good tone, erect</td>
<td>&gt;32 mm</td>
<td>20 mm</td>
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RTS Meaning

- 1 = small, toneless uterine horns and small ovaries
- 2 = closer to cycling than 1
- 3 = verge of cycling, some uterine tone, some follicles
- 4 = cycling, good uterine tone and size, with follicular growth
- 5 = 4 plus corpus luteum
2003-2013 Total Program Cost Per Head (2014 Projected Cost)
2003-2013 Total Cost Per Day (2014 Projected Cost)
Average Estimated Bred Heifer Cost (Accounting for Opens)
Breeding Cost of Replacement Heifers

• MGA/CIDR
• Prostaglandin/GnRH
• AI cost
• Semen cost
• Clean-up bull cost
Estimated Individual Breeding Cost

- **Bull Price**
  - $2000 to $4000
- **Carry cost of bull per year**
  - $500
- **Salvage weight of bull**
  - 1650 pounds
  - Price $1/lbs
- **Total bull cost**
Average Total Breeding Cost

<table>
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<tr>
<th>Year</th>
<th>Cost</th>
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<tbody>
<tr>
<td>2003</td>
<td>$50.00</td>
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<tr>
<td>2005</td>
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<tr>
<td>2007</td>
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<tr>
<td>2011</td>
<td>$70.00</td>
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<tr>
<td>2013</td>
<td>$75.00</td>
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Interval Breeding Window

2003-2013 Breeding Data

Number of Head

Days
Individual vs. Program Breeding Cost

![Cost vs. Number of Head Graph]

- **Cost**:
  - $100.00
  - $200.00
  - $300.00
  - $400.00
  - $500.00
  - $600.00

- **Number of Head**:
  - 5
  - 10
  - 15
  - 20
  - 25
  - 30

- **Cost Levels**:
  - $2,000.00
  - $3,000.00
  - $4,000.00
  - Average

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**Average Cost**

- $2,000.00
- $3,000.00
- $4,000.00
- Average