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Reproduction - Impact of Estrous Synchronization and AI on Cowherd Performance Over Time

G. Cliff Lamb

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Reproduction - Impact of Estrous Synchronization and AI on Cowherd Performance Over Time

We know how to synchronize cows!

ESTROUS SYNCHRONIZATION AND AI IN BEEF CATTLE

LOCATION/HERD EFFECTS

UF-NFREC CASE STUDY

Pregnancy has 4 times greater economic impact than any other production trait!
Influence of Calving Period on Reproductive Longevity

Influence of Calving Period on Weaning Weights

Expectations for Every NFREC Female in the Herd

- Must calve by 24 months of age
- Cow must have a calf every 365 days
- Cow must calve without assistance
- Cow must provide sufficient resources for the calf to reach its genetic potential
- Calf must be genetically capable to perform
- Cows must maintain their body condition score for my conditions
- Must not be crazy (disposition)

Primary Reasons for Choosing Not to ES/AI

- Too many hassle factors!!!

Primary Reasons for Choosing Not to ES/AI

- Complicated protocols and sire selection

Primary Reasons for Choosing Not to ES/AI

- Reliable facilities

Cliff Lamb, UF-NFREC, Impacts of Synchronization and AI

2015 Range Beef Cow Symposium, Loveland, Colo.
**PRIMARY REASONS FOR CHOOSING NOT TO ES/AI**

Labor for AI and administering products

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**UF-NFREC CASE STUDY**

- **2006**
  - Start breeding season
  - Remove bulls

- **2007**
  - Start breeding season
  - Remove bulls

- **2008**
  - Start breeding season
  - Remove bulls

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**UF-NFREC CASE STUDY**

- **2009**
  - Start breeding season
  - Remove bulls

- **2010**
  - Start breeding season
  - Remove bulls

- **2011**
  - Start breeding season
  - Remove bulls

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**UF-NFREC CASE STUDY**

- **2012**
  - Start breeding season
  - Remove bulls

- **2013**
  - Start breeding season
  - Remove bulls
Breeding season pregnancy rates:

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR</td>
<td>81%</td>
<td>86%</td>
<td>84%</td>
<td>86%</td>
<td>94%</td>
<td>92%</td>
<td>93%</td>
<td></td>
</tr>
<tr>
<td>Mean calving day</td>
<td>79.2</td>
<td>80.9</td>
<td>59.2</td>
<td>56.2</td>
<td>53.7</td>
<td>47.2</td>
<td>39.5</td>
<td>38.7</td>
</tr>
<tr>
<td>BS length</td>
<td>120</td>
<td>120</td>
<td>110</td>
<td>88</td>
<td>80</td>
<td>75</td>
<td>70</td>
<td>72</td>
</tr>
</tbody>
</table>

Change in calf value:

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
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<tr>
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<td>79.2</td>
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<td>59.2</td>
<td>56.2</td>
<td>53.7</td>
<td>47.2</td>
<td>39.5</td>
<td>38.7</td>
</tr>
<tr>
<td>Difference from 2006/2007</td>
<td>0</td>
<td>0</td>
<td>21.7</td>
<td>24.7</td>
<td>27.2</td>
<td>35.7</td>
<td>41.4</td>
<td>42.2</td>
</tr>
<tr>
<td>Per calf increase in value</td>
<td>0</td>
<td>0</td>
<td>$87</td>
<td>$99</td>
<td>$109</td>
<td>$135</td>
<td>$186</td>
<td>$169</td>
</tr>
<tr>
<td>Herd increase in value</td>
<td>0</td>
<td>0</td>
<td>$18,100</td>
<td>$29,700</td>
<td>$32,700</td>
<td>$40,500</td>
<td>$49,800</td>
<td>$50,700</td>
</tr>
</tbody>
</table>

**2nd Experiment Case Study**

- 1,700 cows on 7 operations

**Pregnancy Rates by Herds**

**Distribution of Days Postpartum – Herd 1**

Standard deviation: Herd 1 – 5.6 days

**Distribution of Days Postpartum – Herd 5**

Standard deviation: Herd 5 – 16.9 days
ECONOMICS OF IMPLEMENTING TAI PROGRAM

IMPACT OF FIXED-TIME AI ON CALVING AND WEANING

<table>
<thead>
<tr>
<th>Item</th>
<th>Treatment</th>
<th>Control</th>
<th>TAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cows</td>
<td></td>
<td>615</td>
<td>582</td>
</tr>
<tr>
<td>Weaning rate, %</td>
<td></td>
<td>78</td>
<td>84</td>
</tr>
<tr>
<td>Weaning weight, lb</td>
<td></td>
<td>387 ± 8</td>
<td>425 ± 8</td>
</tr>
<tr>
<td>Means within row differ (P &lt; 0.01)</td>
<td></td>
<td>38 lbs</td>
<td></td>
</tr>
</tbody>
</table>

GAIN OR LOSS PER COW EXPOSED TO TAI

CHANGE IN VALUE BASED ON HERD SIRE COSTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Bull Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased returns (increased value of AI calves)</td>
<td>$97.22 $97.22 $97.22</td>
</tr>
<tr>
<td>Decreased costs (increased costs of clean-up bulls)</td>
<td>$32.11 $61.35 $100.34</td>
</tr>
<tr>
<td>Decreased returns (attributed to fewer clean-up bulls included in decreased costs calculation)</td>
<td>$0.00 $0.00 $0.00</td>
</tr>
<tr>
<td>Increased costs (additional labor, semen, AI supplies, etc.)</td>
<td>$44.60 $44.60 $44.60</td>
</tr>
<tr>
<td>Gain per cow exposed to AI</td>
<td>$84.73 $113.97 $152.97</td>
</tr>
<tr>
<td>Gain per 34 head operation</td>
<td>$2,881 $3,875 $5,201</td>
</tr>
<tr>
<td>Gain per 100 head operation</td>
<td>$7,446 $9,434 $12,086</td>
</tr>
</tbody>
</table>
Google Play Store
or
Apple iTunes

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THANK YOU!