Short-term supplementation with rice bran in pre-partum primiparous grazing beef cows

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URUGUAY
South America
Uruguay

Total Area: 17.6 million ha
Latitude: 30 - 35º South
Annual Rainfall: 1.175 mm ± 500
Temperatures: Max. 28-33º
Min. 6-9
Frost Nº: 10-50
Frost average/yr 21
Uruguay

• 6th beef exporter (400,000 ton/year)
• 61 kg beef meet/hab

• Stock: 11 million head / 4 million cows
  7 million sheep
  11 million of hectares of native pastures

• Within the top 4 best football teams
Frequent climatic events
- “open sky” production-
Unsubsidized production

TECHNOLOGIES IN COW-CALF SYSTEMS: LOW COSTS
In the same way of thinking......
Why pre-partum supplementation?
Why a short period?
Daily growing rate of native pastures

<table>
<thead>
<tr>
<th>AUTUMN</th>
<th>WINTER</th>
<th>SPRING</th>
<th>SUMMER</th>
<th>TOTAL PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.40%</td>
<td>9.70%</td>
<td>28.90%</td>
<td>38%</td>
<td>3626 kg/ha/d</td>
</tr>
</tbody>
</table>

Ayala y Bermudez, 2005
Why pre-partum supplementation?
Why a short period?

$\ldots\ldots\ldots\ldots\ldots$

££ € € USD
Background

• In Dairy Cows:

Last 6 weeks prepartum with access to improvement grass decreased the length of post-partum anoestrous (Chagas et al., 2006)
Background

- **In Beef Cows:**

  Exploratory experiments of short term period of supplementation prepartum (35-40d) had positive effects on multiparous cows.
Short-term supplementation with rice bran in pre-partum primiparous grazing beef cows

- **Objective:** evaluate short term supplementation with rice bran in pre-partum primiparous cows on their performance (cows and calves)

- **Materials and Methods:**
  
  \[ \text{SUP} = 38 \text{ d of supplementation (until calving, Day 0=calving)}; \]
  \[ n=13; \text{whole rice bran 0.75k/100 kg LW (aprox. 3 k/a/d)} \]
  
  \[ \text{CON} = \text{grazed native pastures, n=12} \]
Experimental design

Pre-partum treatments | Post-partum management
---|---
-38 | 0 | 49 | 109 | 160
| calving | mating period | weaning
CON
SUP
## Measurements

<table>
<thead>
<tr>
<th>Pre-partum treatments</th>
<th>Post-partum management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calving (Day 0)</td>
<td>Mating period</td>
</tr>
<tr>
<td>Weaning (Day 210)</td>
<td>Weaning</td>
</tr>
<tr>
<td>AI/mating (Day 270)</td>
<td></td>
</tr>
</tbody>
</table>

-38  0  49  109  160

- BW and BCS every 14 days
- Milk production every 30 days
- Blood sampling every 7 days
Results I

- BLW and BCS
Results II

- Milk yield
Results III

- Calves BLW
Results IV

- Insulin concentrations
Results V

- Reproductive parameters

<table>
<thead>
<tr>
<th></th>
<th>CON</th>
<th>SUP</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-partum period (days)</td>
<td>104</td>
<td>97</td>
<td>0.07</td>
</tr>
<tr>
<td>Probability of early pregnancy (%)</td>
<td>23</td>
<td>58</td>
<td>0.09</td>
</tr>
</tbody>
</table>
Discussion and Conclusions
MULTIPAROUS BEEF COWS (Quintans et al., 2009)

Effects of short-term supplementation during the last month of gestation in winter on reproductive performance of MULTIPAROUS beef cows.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>CON</th>
<th>SUP</th>
<th>SE</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cows</td>
<td>17</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum follicle diameter at 60 DPP(^2); mm</td>
<td>10.5</td>
<td>11</td>
<td>0.7</td>
<td>0.625</td>
</tr>
<tr>
<td>Probability of cows with follicles =10 mm at 60 DPP; %</td>
<td>35</td>
<td>56</td>
<td></td>
<td>0.052</td>
</tr>
<tr>
<td>Probability of cows cycling during the first 90 DPP; %</td>
<td>65</td>
<td>83</td>
<td></td>
<td>0.084</td>
</tr>
<tr>
<td>Pregnancy rate; %</td>
<td>88</td>
<td>100</td>
<td></td>
<td>0.082</td>
</tr>
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\(^{2}\)DPP = days postpartum

CON = control cows; SUP = cows supplemented with 4.5 kg/animal per day of a mix of sorghum grain (0.67 as-fed basis) and protein concentrated (0.33 as-fed basis) from 33±1.4 d prepartum until calving.
MULTIPAROUS BEEF COWS
(Scarsi et al, in press)

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<tr>
<td>Post-partum anoestrous period (days)</td>
<td>123a</td>
<td>88b</td>
</tr>
<tr>
<td>Pregnancy rate (%)</td>
<td>61a</td>
<td>83b</td>
</tr>
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</table>

Treat x days: P<0.005

**BCS (u)**

**Days post-partum**

**Insulin (µU/mL)**

**Days post-partum**
PRIMIPAROUS BEEF COWS
(Scarsi et al, in press)

**Post-partum anoestrous period (days)**

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<tr>
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<tbody>
<tr>
<td></td>
<td>126</td>
<td>125</td>
</tr>
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**Pregnancy rate (%)**

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<td></td>
<td>36</td>
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**Treatment:** P<0.05

**Treat x days:** P<0.05
### Results V

- **Reproductive parameters**

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In this experiment short term supplementation during the last month of gestation tended to improve reproductive performance.

Calves birth weight was not affected.
Short-term supplementation with rice bran in pre-partum primiparous grazing beef cows

VĎAKA

Thanks!