THE EFFECT OF SHORT-TERM PRE-PARTUM SUPPLEMENTATION ON POST-PARTUM OVARIAN ACTIVITY IN BOS INDICUS CROSS COWS

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Post-partum anoestrus (PPA) is the major limitation to good fertility in beef cows in northern Australia (Entwistle 1983). The PPA interval averages about 7 months. Body weight is the major factor influencing onset of oestrus. Pre-partum feed quality may have a further specific effect (Rudder et al. 1985). The objective of our experiment was to assess the effects of pre-partum nutrition on ovarian function one to three months post-partum.

Pregnant Sahiwal crossbred females were used. There were 42 three-year-old heifers (av. wt = 338kg) in their first parity and 72 four- to nine-year-old cows (av. wt = 359kg). Most were in store body condition. The cattle were randomly allocated within groups to one of three supplement treatments, whilst grazing low quality native pastures: no supplement (Control); ad lib. molasses with 8% urea (M8W) and 1kg/bd/day of cotton seed meal (CSM). Supplementation was for six weeks and ceased in mid-October prior to the first storms and the start of calving. All animals were spayed at either 40, 60 or 80 days post-partum.

Average daily supplement intakes were almost isonitrogenous (c. 70g of N), though the calculated energy intake of the CSM group was less than that of the M8U group (11MJ vs 15MJ). From Table 1 it can be seen that there were no differences between supplemented groups. Ovaries responded to the small liveweight advantage due to supplementation with indications of increased folliculogenesis and an increase in the proportion of cows ovulating prior to ovariectomy. Table 1. Pre-partum supplementation effects on weight and ovarian activity

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>M8U</th>
<th>CSM</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of animals</td>
<td>38</td>
<td>37</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Live weight change during supplementation (kg)</td>
<td>-26.9a$</td>
<td>-17.8b</td>
<td>-16.5b</td>
<td>0.01</td>
</tr>
<tr>
<td>Follicles per cow - ovarian surface count</td>
<td>21.0</td>
<td>28.7</td>
<td>26.0</td>
<td>0.08</td>
</tr>
<tr>
<td>Evidence of ovulation at ovariectomy (%)</td>
<td>25</td>
<td>37</td>
<td>33</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

§ Means within row with different postscripts are significantly different.

These preliminary results suggest that short-term, high-level, pre-partum supplementation may enhance post-partum ovarian activity. The effect appeared to exceed that predicted from established liveweight-fertility relationships (Fordyce, unpublished data). Possible explanations of the supplement effect may be increased recruitment of follicles and or reduced follicular atresia rates.


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