2012

Use of Complete-feed Diets RAMP™ and Test Starter for Receiving Cattle

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Schneider, Cody J.; Nuttelman, Brandon J.; Rolfe, Kelsey M. Rolfe; Griffin, William A.; Smith, David R.; Klopfenstein, Terry J.; and Erickson, Galen E., "Use of Complete-feed Diets RAMP™ and Test Starter for Receiving Cattle" (2012). *Nebraska Beef Cattle Reports*. 682.  
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Introduction

RAMP is a complete-feed starter ration developed by Cargill, which contains a high level of Sweet Bran® and a minimal amount of forage. RAMP is intended to serve as an alternative to a mixture of grain and forage for receiving cattle or adapting cattle to grain, therefore eliminating a large portion of the forage needed in feedlots and the need to mix a starter ration developed by Cargill, is very similar to RAMP but contains more forage. The objective of the current study was to compare performance and health characteristics of cattle fed two complete feeds (RAMP and Test Starter) during the receiving period.

Procedure

Crossbred steers (n = 965; BW = 576 ± 11 lb) from two livestock auctions were received at the University of Nebraska–Lincoln Agricultural Research and Development Center, Mead, Neb., over two consecutive days: Oct. 14 and Oct. 15, 2010. Steers were blocked by arrival date and randomly allocated to pens within block based on processing order, resulting in 15 and 20 cattle per pen for blocks 1 and 2, respectively, with 17 pens per treatment. During processing, steers were identified with an individual ear tag, vaccinated with Micotil® and weighed. Cattle were revaccinated with Bovi-Shield® Gold 5, Ultrabac® 7/Somubac®, and Dectomax® Injectable, and orally drenched with Safe-Guard®. Thirteen days subsequent to initial processing, cattle were revaccinated with Bovi-Shield Gold 5, Ultrabac® 7/Somubac®, injected with Micotil® and weighed.

Treatments included a control receiving diet (35% alfalfa hay, 30% Sweet Bran, 30% dry-rolled corn, and 5% supplement; 16.7% CP, 36.7% NDF) and two complete feeds: RAMP (21.9% CP, 41.9% NDF) and Test Starter (23.4% CP, 43.5% NDF). Both complete feeds contained a high level of Sweet Bran and a minimal amount of forage, which was formulated and provided by Cargill Inc., Blair, Neb. All diets contained 25 g/ton Rumensin and 12 mg/lb thiamine (DM). Cattle were offered ad libitum access to treatment diets for 30 or 31 days followed by limit feeding a common diet (47.5% Sweet Bran, 23.75% grass hay, 23.75% alfalfa hay, and 5% supplement) for five days prior to collecting final BW to minimize variation in gut fill. Final BW were collected over two days following the five-day limit-fed period. Initial weight was not shrunk because steers were weighed within 12 hours of arrival and had no access to feed before weighing.

Performance data were analyzed using the MIXED procedure of SAS (SAS Inst., Inc., Cary, N.C.) with pen as the experimental unit. Block was treated as a random effect, and treatment was a fixed effect. Treatment comparisons were made using a protected F-test (P < 0.10) separated with Bonferroni t-test. Incidence of BRD was evaluated as the rate of respiratory illness or the number of steers treated for BRD in a pen divided by the number of steers in that pen. Incidence of BRD was then analyzed using the GENMOD procedure of SAS. Incidence of BRD was affected by DMI and ADG; consequently, ADG and DMI were added to the model when assessing treatment effects on BRD. No significant effect of block existed so it was removed from the model. Treatment means for BRD incidence were calculated using the PROC MEANS function of SAS.

Table 1. Performance of cattle fed RAMP, Test Starter, or a control receiving diet.

<table>
<thead>
<tr>
<th>Item</th>
<th>Control</th>
<th>RAMP</th>
<th>Test Starter</th>
<th>SEM</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial BW, lb</td>
<td>576</td>
<td>578</td>
<td>573</td>
<td>11.2</td>
<td>0.89</td>
</tr>
<tr>
<td>Final BW, lb</td>
<td>645</td>
<td>657</td>
<td>645</td>
<td>10.3</td>
<td>0.36</td>
</tr>
<tr>
<td>DMI, lb/day</td>
<td>13.4</td>
<td>13.8</td>
<td>13.9</td>
<td>0.27</td>
<td>0.14</td>
</tr>
<tr>
<td>ADG, lb</td>
<td>2.73a</td>
<td>3.04b</td>
<td>2.81ab</td>
<td>0.13</td>
<td>0.07</td>
</tr>
<tr>
<td>Feed:Gain¹</td>
<td>4.91</td>
<td>4.54</td>
<td>4.95</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>BRD incidence, %²</td>
<td>4.3</td>
<td>7.4</td>
<td>11.7</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Treated for BRD, n</td>
<td>18/322</td>
<td>23/320</td>
<td>37/321</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

¹Statistics calculated on Gain:Feed.
²Control vs. RAMP P = 0.03; Control vs. Test Starter P < 0.01.
⁴Means within a row without a common superscript are different, (P = 0.03).

(Continued on next page)
Results

Feeding RAMP increased (P = 0.02) ADG compared to the control diet (Table 1). Daily gain of cattle fed Test Starter was not different (P > 0.11) from cattle fed control or RAMP. Dry matter intake was not different (P = 0.14) among treatments, although approaching significance with the complete feed treatments having numerically greater DMI than the control. On approximately day 19 of the feeding period, intakes of the control cattle seemed to plateau (Figure 1) and DMI of cattle on the complete-feed rations continued to increase, which might explain increased performance of the cattle fed RAMP. Final BW was not affected by treatment and F:G was similar for all treatments.

Incidence of BRD was affected by DMI and ADG; consequently, variation in ADG and DMI were accounted for in the analysis of treatment effects on BRD. Feeding both complete feeds increased (P < 0.03) the incidence of BRD; however, overall incidence of BRD was low (8%). Starting cattle on RAMP is a viable alternative to starting cattle on a mixture of grain and forage.

Figure 1. Dry matter intake over the receiving period for cattle fed control, RAMP, or Test Starter treatment diets.

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