AN ATTEMPT TO ESTIMATE INTAKE OF FEEDLOT FED STEERS FROM THREE DIFFERENT GROWTH SELECTION LINES USING CHROMIC OXIDE CAPSULES

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Commercial feedlots are aware that cattle from different vendors vary greatly in growth and carcass attributes. Using Breedplan, beef producers can breed cattle with higher growth potential. If such cattle selected for higher growth potential are more efficient at converting feed to beef during the growth phase, there would be cost savings to the feedlot industry. This study attempted to measure, in a feedlot, the differences in intake of steers selected for 3 rates of growth.

From 1974 onwards an Angus herd at Trangie Research Centre, N.S.W., was divided into 3 closed selection lines: a high line (H) where replacement heifers and bulls are selected for increased growth from birth to yearling, a low line (L) where replacements are selected for low growth, and a control line (C) where replacements are selected at random (Parnell et al. 1991).

In 1988, 20, 15 and 14 weaner steers from the H, C and L lines respectively entered a commercial feedlot and were fed as 1 group. All cattle were dosed with chromic oxide (Cr₂O₃) slow-release capsules 63 days after entering the feedlot, and faecal samples for Cr₂O₃ analysis taken once per day at days 10, 13, 14 and 17 days after dosing. The feed offered in the feedlot pen averaged 6.5 kg DM/head/day over the sampling period.

Feed intake (EI") was estimated using the capsule manufacturer's stated Cr₂O₃ release rate of 1534 mg/day and ration digestibility of 79.8% DDM (in vitro analysis). A model, using data from feedlot fed cattle predicting intake from faecal Cr₂O₃ (Graham et al. 1990), was also used to calculate intake (CI).

Table 1. Steer liveweight (LW kg) prior to dosing, liveweight gain (LWG kg/day) during dosing, estimated feed intake (EI" kg DM/day), and calculated intake (CI kg DM/day) for the 3 lines

<table>
<thead>
<tr>
<th>Line</th>
<th>LW (± s.e.)</th>
<th>LWG (± s.e.)</th>
<th>EI&quot; (± s.e.)</th>
<th>CI (± s.e.)</th>
</tr>
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<tbody>
<tr>
<td>High</td>
<td>297.5a(7.54)</td>
<td>1.0a(0.04)</td>
<td>11.7x(0.58)</td>
<td>6.7x(0.53)</td>
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<tr>
<td>Control</td>
<td>286.0b(8.89)</td>
<td>0.9b(0.06)</td>
<td>9.6y(0.61)</td>
<td>5.3y(0.55)</td>
</tr>
<tr>
<td>Low</td>
<td>227.8c(6.12)</td>
<td>0.7c(0.06)</td>
<td>9.3y(0.63)</td>
<td>5.2y(0.41)</td>
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Estimated intake (EI") suggested that the H steers ate more than steers from the other 2 lines. When comparing EI" to the actual feed offered and CI, it is apparent that EI" is over-estimating intake, indicating that release rate of the capsules was much less than stated, or that the in vitro digestibility of the ration was lower than that measured. The intakes predicted by the model (CI) were much closer to the amount of feed offered, indicating that the capsules released less Cr₂O₃ than that stated. Even though there were large differences in LW and LWG similar differences in EI" or CI could not be determined using these capsules. In this study, the use of these devices, even with quite large groups of animals, did not allow us to calculate intake accurately enough to determine the relative efficiency of the 3 groups. Under feedlot conditions this batch of capsules appeared to overestimate feed intake.