EFFECT OF ENTRY TIME TO A DAILY STRIP ON DAILY WEIGHT GAIN AND NITROGEN BALANCE

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Objective:
Assess the effect of entry time on daily weight gain and nitrogen balance in calves grazing a winter oat pasture on individual daily strips.

Materials & Methods:

Animals & diet: 24 Holstein Friesian male calves (132.9 ± 6.31 kg BW), grazing winter oat on individual daily strips (54-d experiment). Animals were randomly assigned to 1 of 3 blocks which differed in herbage DM mass (5256 ± 597; 2556 ± 741; 2863 ± 769 kg DM ha⁻¹ for B1, B2 and B3, respectively).

Treatments: entry time to an ungrazed daily strip at 8:30 h (M) or at 14:30 h (A).

Diet composition & DM intake: Diet composition and dry matter intake (B1 and B3) was estimated by the n-alkane technique. Twice a day for 10 days, animals were orally dosed with cellulose pellets containing 140.66 and 146.00 mg pellet⁻¹ of C₃₂ in B1 and B3, respectively.

Ingestive behaviour: twice on each animal of B1 (n=8), during the nitrogen balance, ingestive behaviour was recorded for 24 h using IGER solid-state behaviour recorder.

Nitrogen balance & weight gain: Nitrogen intake (B1) was estimated considering: a) individual DMI, b) N content of lamina and pseudostem and c) the main grazing events through the day. Faecal and urine nitrogen excretion (B1) were measured by total collection of faeces and urine. For daily weight gain (DWG; B1, B2 and B3), calves were weighed on d 1 and d 54 after a 48-h fast.

Statistical analysis: Dry matter intake and BW data were analysed by ANOVA according to a complete randomised block design. Nitrogen balance was analysed by a t test.

Results & Discussion:

There were no statistical differences (P > 0.05) in DMI between treatments (B1= 4.99 ± 0.98 (M) and 4.97 ± 0.56 (A) kg DM d⁻¹; B3= 4.71 ± 0.19 (M) and 4.66 ± 0.53 (A) kg DM d⁻¹). Entry time did not statistically affect DWG (P > 0.05) (M = 730 ± 190 and A = 790 ± 140 g d⁻¹). In B2 and B3 animals on treatment A had a numerically higher DWG (21 %; 790 vs. 650 g d⁻¹) than animals on M. The lack of treatment effect in B1 was probably due to a higher herbage mass in B1 than in B2 and B3. There were no statistical differences between treatments (P > 0.05) in N intake, N faecal excretion, N urine excretion or N retention.

Nitrogen balance in Holstein-Friesian calves grazing winter oats on individual daily strips with different entry time: 8:30 h (M) or 14:30 h (A).

<table>
<thead>
<tr>
<th>Treatments</th>
<th>M</th>
<th>A</th>
<th>S²*</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Balance</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Intake</td>
<td>3.03</td>
<td>2.67</td>
<td>0.26</td>
<td>0.37</td>
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<tr>
<td>Faeces</td>
<td>0.67</td>
<td>0.74</td>
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<td>0.55</td>
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<tr>
<td>Urine</td>
<td>1.64</td>
<td>1.56</td>
<td>0.05</td>
<td>0.61</td>
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<tr>
<td>Retained</td>
<td>0.71</td>
<td>0.38</td>
<td>0.16</td>
<td>0.29</td>
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</tbody>
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S²* = Pooled variance