COMPARISON OF TWO TYPES OF SALT LICKS LOCATED NEAR OR FAR THE WATER: INGESTION AND COWS BEHAVIOUR

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Introduction

- **Sodium:**
  - Major mineral in the metabolic pathways: nervous cells function, sugars and amino-acids absorption, blood and rumen pH regulator ...
  - Daily requirement for cattle: 1.5-2.5 g/kg DMI (Andrieu et al., 1986; Meshy, 2010)
  - Chronic deficiencies can cause pica, polyuria, polydispsia, weight losses and milk production reductions
  - One of the most common deficiencies in European farms (Meshy, 2010) while the treatment is simple and cheap
  - Self regulation ???

- **Aims:** comparison of intake and behaviour of dairy cows offered two types of salt licks located in two different positions in the barn
Materials and methods

- **80 dairy cows:**
  - Two homogeneous groups according to breed (Mombeliarde, Abondance and Holstein), parity, days in milk, milk yield and quality.
  - Study from January to May

- **Two salt licks:**
  - with sodium chloride alone (39.3% Na)
  - with minerals and trace minerals (only 19.5% Na) and more brittle

- **Similar diet:**
  - Hay + ground corn cob silage + rapeseed meal + minerals (1.2-1.3 g Na/kg DM)
  - Concentrates in an automatic feeder according to milk yield.
Materials and methods

- Salt licks were changed and weighted 3 times per week.
- 4 video recorders:
  - Images were analysed 2 consecutive days per week.
  - 36 Mombeliardes were chosen (easy to recognize)
Results

- Similar intakes of roughage and concentrates in the 2 groups (25.3 ±1.9 vs 26.0 ±2.4 kg DM, 15% refusal)
- Intakes and time spent to the salt licks

<table>
<thead>
<tr>
<th></th>
<th>SIMPLE</th>
<th>ENRICHED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time spent</td>
<td>8 min 57 s</td>
<td>** 4 min 43 s</td>
</tr>
<tr>
<td>Near the water trough</td>
<td>5 min</td>
<td>2 min 28 s</td>
</tr>
<tr>
<td>Far from the water trough</td>
<td>3 min 57s</td>
<td>2 min 15s</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Simple</th>
<th>Enriched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt intake (g/c/d)</td>
<td>40,2</td>
<td>60,1</td>
</tr>
<tr>
<td>Na intake (g/c/d)</td>
<td>14,9</td>
<td>11,6</td>
</tr>
</tbody>
</table>

** indicates significance.
Results

• Number of visits:
  – Higher daily visits in the simple group: \(3.5 \pm 1.6\) vs \(2.1 \pm 1.1\) (\(P<0.05\))
  – In the simple group, higher daily visits to the lick near the WT: \(2.1 \pm 1.2\) vs \(1.5 \pm 0.6\)

• Individual variability in the time spent and visits to the salt licks
• Frequentation behaviour

Results

Period of great activity

Milking period

Period of rest

peaks
Results

- What cows do after licking salt?

Near Water

**Enriched Group**
- Going to feed fence: 43%
- Going to water trough: 29%
- Going to rest: 10%
- Activity: 13%
- Going to concentrates: 5%

**Simple Group**
- Going to feed fence: 47%
- Going to water trough: 26%
- Going to rest: 7%
- Activity: 13%
- Going to concentrates: 7%

Far From Water

**Enriched Group**
- Going to feed fence: 39%
- Going to water trough: 5%
- Activity: 28%
- Going to rest: 23%
- Going to concentrates: 5%

**Simple Group**
- Going to feed fence: 63%
- Going to water trough: 5%
- Activity: 5%
- Going to rest: 27%
- Going to concentrates: 0%
• Cows in the enriched group licked 20 g more from the salt licks than in the sodium chloride alone group
  – More brittle
  – Less individual variations and no correlations with milk yield, parity or DIM
• Cows in the enriched group:
  – Ingested less Na (self regulation ?) with the same diet
  – Spent less time and visited to a lower extent the salt lick than in the simple salt lick group (irritation ?)
• Ingestion of Na was on average 15g/d/c with the salt lick. The remaining nutrients have to be provided by feeds and minerals
• **Disposition of the salt lick was important:**
  - Peak of frequentation after milking
  - Salt ingestion stimulated the roughage intake
  - Salt ingestion stimulated water intake when placed near the water trough especially for simple more hard salt licks.

• **Recommendations for farmers:**
  - Use several simple salt licks located near water troughs, close to the milking parlor and feed fences to maximise ingestion of Na, water intake and diet (economic solution)
  - Na intake from salt licks was about 15 g/d/c and was highly variable from individuals
Thank you for your attention

Some questions?