Effect of water availability in grazed paddock on milking frequency and milk yield

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Introduction: AMS in Belgium and grazing

- Trend with the AMS: Release of grazing
- Grazing: natural practice, animal health, period of recovery, reduced feeding costs, appreciated by the consumers, benefit impact on the environment.
- The project:
  - prove that grazing is not inconsistent with AMS
  - optimize the system
- The aims: effects of availability of water in the paddocks on milking frequency and milk yield
Materials and methods: grazing system

48 cows on 13 paddocks (1.33 ha)
Materials and methods: milking settlement in pasture

Cows were fetched twice a day in the waiting area.

1000 liter water trough: always available near the AMS.

THE AMS was accessible 24h/24.
Materials and methods: experimental design

• **Type of paddocks:**
  - Control paddocks: with an extra individual automatic bowl
  - Test paddocks: no water available except in the trough near the AMS.

• **Cows grazed successively 3 days in control paddocks and in test paddocks**

• **Experiment during 1 month: from 15 August to 15 September**

• **Diet:** grazed grass and concentrates in the AMS
Results:

- Mean temperature during the experiment: 17°C
- Average days in milk of the cows: 211 d
- Mean distance between the AMS and the paddocks: 150 m
- Cows received 2.7 kg concentrates per day in the AMS.
Results: frequentation of the AMS

When no water was available in the paddocks:

- Milk frequency higher due to voluntary returns
- Voluntary returns twice higher, with as result, increased frequentation

<table>
<thead>
<tr>
<th>Water availability</th>
<th>Control</th>
<th>Tested</th>
<th>P&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milking frequency (n/c)</td>
<td>2,0</td>
<td>2,3</td>
<td>P&lt;0,001</td>
</tr>
<tr>
<td>Refused milking (n/c)</td>
<td>0,44</td>
<td>0,77</td>
<td>P&lt;0,05</td>
</tr>
<tr>
<td>Voluntary returns (n/c)</td>
<td>0,5</td>
<td>1,3</td>
<td>P&lt;0,001</td>
</tr>
</tbody>
</table>

Voluntary returns = milkings + refused milking + milking failures – number of fetching
Results: production parameters

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<th>P&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk yield /milking (kg/c)</td>
<td>8,9</td>
<td>7,6</td>
<td>P&lt;0,001</td>
</tr>
<tr>
<td>Milking time /cow</td>
<td>5min 15s</td>
<td>4 min 52s</td>
<td>P&lt;0,001</td>
</tr>
<tr>
<td>Milk yield /cow/day</td>
<td>17.8</td>
<td>18.3</td>
<td>NS</td>
</tr>
</tbody>
</table>

- Milk yield/milking higher in the control paddocks.
- No difference in milk yield
Conclusion and perspectives

• As observed in other studies, water stimulated the cows to visit the AMS

• However no differences were observed in milk yield:
  – Water intake is influenced by the diet, the climate, the days in milk, the individuals behaviour (Melin et al., 2005)
  – The weather was fresh and the DIM high in our study
  – The experiment lasted only for one month
  – The paddocks were close the AMS

• Perspectives:
  – What are the effects of temperature variations and of dry matter content in the grass?
  – How do the cows behave with hot weather and when the AMS is far away?
  – What is the limit of the system for production and welfare?
Thank you for your attention

Questions?