Six years of mobile milking at experimental farm Trévarez in France

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Combining Robotic Milking and Grazing

• in a 100% grazed grass system in organic production
  (Trevarez experimental Farm, Brittany)
The base of the farm production system

Certified organic since May’15

- 85 ha
- 55 Holstein cows
- Production: 5,200 kg cow\(^{-1}\) yr\(^{-1}\)
- Crossbreeding in progress
- 2 * 3 months calving periods (spring and autumn)

Target: maximal feeding and protein self sufficiency (no purchase of concentrate)

- Maximal grass use, minimal concentrate use
- Minimal working time (no fetching of cows)
The background: a fragmented land design for a grass based system

The solution: a mobile robot

The robot trailer inside the winter shed

The tank trailer
Mobile milking and grazing

The summer location (6 months per year)
The robot on the summer site
## The transfer management: not a problem

<table>
<thead>
<tr>
<th>Number of transfers (*2) performed until now</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance winter site-summer site</td>
<td>4.5 km</td>
</tr>
<tr>
<td>Time required (human hours)</td>
<td>13-17 h (3 to 4 people)</td>
</tr>
<tr>
<td>Transfer of</td>
<td>Cows, tank, robot, drafting gate</td>
</tr>
<tr>
<td>Robot stopped</td>
<td>3-4 h</td>
</tr>
</tbody>
</table>

- Does not require presence of AMS retailer
- Duration of transfer = silage organisation
Grass management: the motivation factor for cow flow

- Rotational grazing with front fence
  Paddocks of 0.7 to 1 ha
- Main tracks stabilized
- Waterpoints located on the tracks
- Grass cover and growth assessed by weekly platemeter measurements
- AB or ABC system (experiments), monitoring with drafting gate.
- <1 kg concentrate per cow per day
- No buffer feed
• 250 days grazing, 5 to 6 months 100% grazing
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• Grazed grass intake increased up to 3.3 t DM per cow per yr
## Daily performances on the summer site

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing system</td>
<td>AB</td>
<td>ABC</td>
<td>ABC</td>
<td>AB</td>
</tr>
<tr>
<td># milking cows</td>
<td>46</td>
<td>52</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>Milk per box (kg per d)</td>
<td>867</td>
<td>911</td>
<td>914</td>
<td>786</td>
</tr>
<tr>
<td>Production per cow per day (kg)</td>
<td>18.6</td>
<td>17.6</td>
<td>17.7</td>
<td>17.1</td>
</tr>
<tr>
<td>Milking frequency (per cow per day)</td>
<td>1.8</td>
<td>1.8</td>
<td>1.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Concentrate (kg per cow per day)</td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Conclusion: Mobility = Technically realistic

• Mobile robot robust, no technical issue until now
• Transfers = not a problem
• Grass use = 4 times higher than regional average for AMS farms
• Herd performances satisfactory for organic system
• Key factor for success: a well stabilized waiting area
Summer site versus winter site

Feeding cost = -75 %

Working time = -2 h per day

Animal welfare
Health
Image
Environment

What else?
Thank you for your attention

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