Success Factors for a Successful Robot Start-up

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• In this presentation:
  ➢ History and why producers buy robots
  ➢ Study Critical Success Factors
  ➢ Management perspectives
History: We’ve come a long way

< 1992: Playing around in workshop/parlor
1992: Commercial introduction in Europe
2001: Introduction in North America:
  - Focus on machine
2006: Commercial start in USA
  - Focus on cow
2008: Farm management support
  - Focus on dairy management

History: Where we’ve been…

- More than 20,000 Astronauts in the field worldwide
- USA robot areas:
  - majority
  - exists
  - expected

… and will go?

(Map Progressive Dairyman 2012)
Why producers buy a milk robot?

1. Lifestyle
2. Labor efficiency
3. Quality of milking
4. Higher production / frequent milking
5. Improved herd management

Success Factors Robot Start-up

- In this presentation:
  - History and why producers buy robots
  - Study Critical Success Factors
  - Management Perspectives

Building your future
Study Success Factors Robot Startup:

- Survey Monkey 100 Lely North American customers:
- Customers started between Jan 2008 - Jan 2011 and running > 1 year
- Category of questions:
  1. Current setup:
     - herd size / barn / ration / stall and bunk ratio / bedding / manure handling / bunk management
  2. Results 3 months before startup and 1 year after startup:
     - milkings / yield / SCC / PI / DIM / Reproduction / cull reasons / labor / DHIA / BST
  3. Farm Management Support (FMS) before and after startup:
     - FMS visits / webinars / ranking of support level and knowledge
  4. Recommendations to farmers starting robot milking in the future.

Results Producers: Yield and SCC

- Response 55% (57 of the 104 NA farmers)
- Yield improved 6.3 % over all herds in the survey
- Yield 2x milking herds without BST improved 11%
- Five herds stopped BST during the transition period
- Age and type of barn have no significant effect on yield increase
- SCC and PI were not significantly different, which is better than EU 2003.

<table>
<thead>
<tr>
<th></th>
<th>Before Startup</th>
<th>After Startup</th>
<th>Change</th>
<th>Significance T-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk production (kg) on daily basis?</td>
<td>30</td>
<td>32</td>
<td>+2</td>
<td>0.001</td>
</tr>
<tr>
<td>Milk production (kg) on yearly basis?</td>
<td>9418</td>
<td>9853</td>
<td>+435</td>
<td>0.000</td>
</tr>
<tr>
<td>Somatic Cell Count?</td>
<td>256288</td>
<td>239750</td>
<td>-16538</td>
<td>0.203</td>
</tr>
<tr>
<td>Bulk tank PI (Pre-Incubation)?</td>
<td>10548</td>
<td>12358</td>
<td>+1811</td>
<td>0.074</td>
</tr>
<tr>
<td>Average days in milk of the herd?</td>
<td>175</td>
<td>173</td>
<td>-2</td>
<td>0.252</td>
</tr>
</tbody>
</table>
Results Producers: SCC

• Before startup < 200K ⇒ no big change after startup
• Before startup > 200K ⇒ big improvement!!

Results Producers: Reproduction

• Reproduction results improved significantly in the first year of AMS:
  • Days to conception -6
  • Calving interval -7
  • USA: significant lower cull rate.......

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<tr>
<td>Average days to first breeding?</td>
<td>74</td>
<td>70</td>
<td>-3</td>
<td>0.056</td>
</tr>
<tr>
<td>Average days to conception?</td>
<td>117</td>
<td>111</td>
<td>-6</td>
<td>0.045</td>
</tr>
<tr>
<td>Average calving interval?</td>
<td>399</td>
<td>392</td>
<td>-7</td>
<td>0.000</td>
</tr>
<tr>
<td>Average cull rate %?</td>
<td>24</td>
<td>23</td>
<td>-1</td>
<td>0.381</td>
</tr>
</tbody>
</table>
Results Producers: Cull rates/reasons

- High cull rates prior AMS improve significantly
- Low cull rates prior to AMS stay on same level
- Cull reasons shifted in the 1st year after AMS:
  - Fertility -6.6%
  - Udder Health -5.1 %
  - Slow milking +4.1%
  - Teat placement +6.5%

**Effects on Longevity.**

<table>
<thead>
<tr>
<th>Main reason for culling cows?</th>
<th>Before Startup</th>
<th>After Startup</th>
<th>Change</th>
<th>Significance T Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertility</td>
<td>34</td>
<td>25</td>
<td>-9</td>
<td>0.381</td>
</tr>
<tr>
<td>Udder Health</td>
<td>28</td>
<td>21</td>
<td>-7</td>
<td>0.432</td>
</tr>
<tr>
<td>Claw Health</td>
<td>8</td>
<td>6</td>
<td>-2</td>
<td>0.906</td>
</tr>
<tr>
<td>Low Yield</td>
<td>21</td>
<td>22</td>
<td>+1</td>
<td>0.893</td>
</tr>
<tr>
<td>Slow milker</td>
<td>1</td>
<td>6</td>
<td>+5</td>
<td>0.218</td>
</tr>
<tr>
<td>Teat Placement</td>
<td>3</td>
<td>11</td>
<td>+8</td>
<td>0.074</td>
</tr>
<tr>
<td>Age</td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>0.950</td>
</tr>
<tr>
<td>Died</td>
<td>12</td>
<td>14</td>
<td>+2</td>
<td>0.397</td>
</tr>
</tbody>
</table>

Results Producers: Management practices:

Significant factors found:
- Higher cow/stall ratio => more days to first breeding
- Higher cow/stall ratio => increase SCC
- Higher cow/feed bunk ratio => increase SCC

Yield and Feed ration: **PMR vs. TMR:**
Recommendation from users to starters

1. “Prepare herd before startup: health, feed, feet”
2. “Prepare yourself. Take time to listen to Lely specialists before startup”
3. “Visit other robot farms, experience management, learn pros and cons”
4. “Have experienced robot nutritionist, feed ration is the key to success”
5. “Change daily management, use T4C and keep in contact with the herd”
6. “Do not start with too many cows on the robot”

Other remarks from farmers

• “I wish we would have learned more before we started robots”
• “Hold pre startup classes for robot and T4C, I would pay to go to one”
• “Don't get caught up in all technology - we are still just milking cows!”
• “You always have your cell phone with you, problems can happen at any time”
• “Let the cows go through the robot in training mode for a few days if possible”
• “Top dress pellets to the bunk the week prior to startup”
• “Keep maintenance up to date.”
Summary 57 North American Robot Startups

- Implementing Automatic Milking is not about milking cows....
  ....it is about proper herd management:

- Success factors AMS:
  1. Barn layout: great cow comfort, lots of space, open AMS access
  2. Perfect feed ration encouraging cows to go to the robot
  3. Professional guidance during the transition period into AMS
  4. Proper use of Precision Dairy Management tools

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Building your future
What changes with robots?

- Cows behavior
- Feeding strategies
- Herd Management
- People Management

Cows...

- Cows are calmer
- React less to humans
- New set of motivations
Getting cows to the robot

Entice them!

Make milking a safe and rewarding experience….

Herd Info Management

- Robotic vs. Conventional milking:
  - Different cow contact: Parlor <-> Barn
  - More ‘Quality Time’ with ‘natural’ behaving cows
  - More sensor technology
  - Much more info!!!!
> 120 Values/cow/day from the robot:

- Activity*
- Rumination*
- Feed intake
- Weight*

Milk Yield
Milk Fat
Milk Protein
Milk Lactose
Milk Speed
Milk Temperature
SCC class*
Robot visits
Box times

Per Quarter:
- Yield contribution
- Teat position
- Pre Milk Time
- Milk Time
- Conductivity
- Color

* = option

+ combinations of all of the above ...
+ combinations with calendar + health events.

Sensor + calendar info:

Automatic Analysis of:

✓ Udder health
✓ Body health
✓ Reproduction
Precision Dairy: Farmer perspective

- Combination of sensors are more than the sum of data
- **Data** becomes practical **Information**:
  - Earlier alerts
  - Prevent sickness or loss of production
  - Improved health, production, reproduction and longevity!
- Proactive instead of Reactive
- But it’s not magic:
  - A bad cow person will not become a good cow person
  - Excellent cow comfort + herd management are the key!

Precision Dairy: Advisor perspective

- Better long term decisions:
  - Mastitis prevention; Transition Management; Milk Quality; ...
  - Ration; Effective Fiber; Ketosis; Acidosis; ...
- Real Time information:
  - GPS navigation instead of Accounting Tax
- Way to consult is different:
  - Right or wrong, Farmer more knowledgeable
  - Come up with ‘Scenarios’ instead of ‘Advice’
  - Excellent Proactive Farm Management Support is key.
Take home messages:

1. Preparation is KING!!
2. Be Proactive (and not reactive)
3. Good advise before AMS startup gives early success!!

=> Happy Cows, Happy Producers right from the get go...!

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  - Study of Critical Success Factors
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- THANK YOU FOR YOUR ATTENTION
- Questions?

Building your future