Practical example of 3 interfaces with independent process computers and 3 national interfaces on farm.

Ir. Harm-Jan van der Beek
Agenda

1. Intro
2. Examples of farms with 3 links
3. How about Data Entry?
4. Advantages of the multiple interfaces
5. Challenges of the multiple interfaces
6. Examples screens
7. Summary
Linking on farm automation
Sensors, milking robots, parlors, scales, sorting gates & concentrate stations

... and others
National interfaces
More than 100 different interfaces in over 25 countries

- Australia
- Austria
- Belgium
- Canada
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Hungary
- Italy
- Luxemburg
- Portugal
- Russia
- Spain
- Sweden
- Switzerland
- Netherlands
- Northern Ireland
- Norway
- Ukraine
- United Kingdom
- United States

...and new links are being developed as we speak..

- Herdbook
- Milkrecording
- National database
- Quality control
- Dairy factories
Examples of triple interfaces.

- **Dutch example.** National Interfaces: Milk recording, DIY-AI, I&R
  - Milk meters By Boumatic (GM3000) > 10 years old.
  - Heat detection by Nedap’s Velos
  - Spider from Hanskamp for individual feeding.

- **UK example.** Milk Recording with CIS & BCMS for Cattle movement
  - Milk meters by GEA Rotary
  - Milk meters by Lely Robot
  - CowAlert Heat detection by Ice Robotics

- **French example.** Milk recording by EDEL and VSE for Cattle mov.
  - Milk meters from BouMatic (SmartDairy)
  - Individual feeding by BouMatic (SmartDairy)
  - Heat Detection moving between systems: SmartBow & Nedap.
What is the practical situation on farm 1 (Netherlands)

- Milk recording
- DIY-Inseminations
- Cattle movement I&R
- Fertility Consultancy
- BouMatic GM3000
- Nedap
- Velos
- Spider Feeding
What is the practical situation on farm 2 UK

- Milk recording by CIS
- Cattle movement by BCMS
- Vet for Consultancy
- Dairyplan
- CowAlert
- T4C
What is the practical situation on farm 3, France?

- Milk recording by EDEL
- Animal movement VSE

Smartdairy
BouMatic
nedap
technology that matters
SMARTBOW
Data Entry with multiple interface

Entering a calving, what is happening?

■ **First: data validation! Correct and complete!!**
  ■ Complete: Country specific validation
  ■ Correct; Validate in relation to all other data.
  ■ All kind of follow-up actions + protocols (Cow & Calf)

■ **Sending the calving data to each processor (bi-directional link)**
  ■ Check by comparing and adjust and send.
  ■ Each process computer can have its own Cow ID, or jointly.

■ **Sending data to central system; DHIA & Government, Herdbook**
  ■ The new calving date needs to be sent up to several systems.
  ■ The new born calf needs to be registered with specific data.
  ■ Farm needs to get message back if data is accepted and correct.
Advantages of Multiple interfaces

- Better Quality of Data.
  - Data is more complete
  - Data is more accurate and up-to-date
  - Data in systems are all in sync.

- Reduction of Admin work on farm
  - One time data entry instead of 5 to 7 times.
  - Validation immediately at entry prevents correcting afterwards.

- Up-take of innovation with sensors and flexibility for farms.
  - Farms can buy new sensors and combine with existing systems.
  - Farms can go for the specialized products from different brands.
  - Farms can combine data from different systems in one database.
Challenges of multiple interfaces

- **Support for the farmers.**
  - Who can give support for the full system?
  - Who gets the blame, when something is wrong? (liability)
  - Does the farmer know who to call in what situation?

- **Competition**
  - Sensor suppliers like this and don’t like this.
  - Good analytics can give sensitive conclusions.

- **Up-dates and data protection.**
  - Up-dates never come at the same moment.
  - Some systems are never up-dated (need old Windows versions)
  - Who owns the Data?
How to handle multiple transponders
Milkings from parlour and Robot in one system

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<th>Date</th>
<th>Kg Milk</th>
<th>Milkspeed (Kg/Min)</th>
<th>Milk duration</th>
<th>SCC</th>
<th>No. Milkstand</th>
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16:38:00 | 10,6    | 2,1                | 05:02         |     |               |
| 06:10:00 | 13,5    | 1,99               | 06:46         |     |               |
| 13-6-2019
16:28:00 | 10,2    | 1,91               | 05:19         |     |               |
| 05:22:00 | 13,2    | 1,99               | 06:37         |     |               |

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<th>Milk duration</th>
<th>SCC</th>
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| 01:51:24 |         |                    |               |     |
| 8-6-2019
19:36:30 | 8,4     |                    |               |     |
| 14:32:39 | 9,4     |                    |               |     |
| 09:02:17 | 8,3     |                    |               |     |
| 04:37:04 | 11,1    |                    |               |     |
| 7-6-2019
22:35:33 | 7,8     |                    |               |     |
| 17:40:05 | 8,5     |                    |               |     |
| 12:30:50 | 7,5     |                    |               |     |
| 08:08:29 | 8,5     |                    |               |     |
| 03:37:58 | 10,6    |                    |               |     |
Milk deviation list from both milking systems

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<th>No.</th>
<th>Group no</th>
<th>Lact.no</th>
<th>DIM</th>
<th>Status</th>
<th>Prev.</th>
<th>Last rec.</th>
<th>Exp.</th>
<th>% Dev.</th>
<th>7 day</th>
<th>DayProd</th>
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<td>24</td>
<td>F 24</td>
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<td>15,1</td>
<td>14,5</td>
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<td>32,7</td>
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<tr>
<td>727</td>
<td>1</td>
<td>7</td>
<td>138</td>
<td>Pd+ 83</td>
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<td>F 49</td>
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</table>
Summary

■ Multiple interfaces on farms is growing.
■ Data quality increases in multi interface situations.
■ Without multiple interfaces it is hard to use.
■ Multiple interfaces of different brands support innovation and usage of new sensors.