Current tools and technologies for animal identification and recording in the dairy chain

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Outline

- AIR in the dairy chain
- Dairy Production Systems
  - Unique characteristics
- Available tools & technologies
- Conclusion
AIR in the Dairy Chain

- Breeding & management
- Traceability

- For multiple purposes including:
  - Reducing public health risks from zoonosis, e.g. brucellosis
  - Providing guarantees to consumers
Is it really organic?
Dairy Breeding & Management

- Major driver of AIR
- Other commodities are followers
  - eg. in South Africa:
    - dairy recording initiated in 1917
    - beef recording only followed in 1940!
  - ICAR formerly known as ICRPMA
  - Dairy animals recorded more extensively than any other livestock species
Dairy Production Systems

- Predominantly intensive
- Regular handling of animals
  - Milking
  - Breeding (AI)
  - etc.
- Dairy animals naturally docile
  ➔ Simple identification tools
Identification Devices

- Simple visual ear-tags adequate in most cases
  - Cheaper
  - User friendly
  - Reliable

- Electronic devices may be necessary in large scale automated production units
What’s in the glass?
<table>
<thead>
<tr>
<th>Data Recorded</th>
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<tbody>
<tr>
<td><strong>Production</strong></td>
<td>Milk volume/yield</td>
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<tr>
<td></td>
<td>Milk compositional quality</td>
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<td></td>
<td>Milk hygienic quality</td>
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<tr>
<td><strong>Health</strong></td>
<td>Disease incidence</td>
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<td>Conformation defects</td>
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<tr>
<td><strong>Breeding Details</strong></td>
<td>Insemination dates</td>
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<td>Service sire</td>
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<td></td>
<td>Pregnancy diagnosis</td>
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<tr>
<td><strong>Animal Condition</strong></td>
<td>Condition score</td>
</tr>
<tr>
<td>Parameter</td>
<td>Measuring device/technology</td>
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<td>---------------------</td>
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<tr>
<td>Yield/volume</td>
<td>Meters</td>
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<td>Jars</td>
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<td>Scales</td>
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<td>Composition</td>
<td>Wet chemistry</td>
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<td>Infra-red analysis</td>
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<td>Hygienic quality</td>
<td>Spectrophotometry</td>
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<td>Microscopy</td>
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<td>Electronic machine</td>
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Recording Technologies

- Paper-based
- Electronic
  - May be integrated into milking system
- Mobile communication (cellphone)
Conclusions

- Which are the best tools & technologies?
- Consider:
  1. Utility (Horses for courses)
  2. Cost effectiveness

“Simplicity is the ultimate sophistication”
- Leonardo da Vinci
Thank you!