Benchmarking for Health from the Perspective of Consultants

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Introduction

• The role of benchmarking
• The benchmarking process
  • Common pitfalls
• Benchmarking in the dairy industry
  • Business benchmarking
  • Benchmarking for health
    • National
    • Small groups
    • Within an enterprise
The Role of Benchmarking

• to measure according to specified standards in order to compare it with and improve one's own performance.
• to evaluate (something) by comparison with a standard
• "Finding and implementing best practice"

The Role of Benchmarking

- Comparing Performance
  - Within and between sectors
  - Within and between farms
  - Over time
- Determine best practice
  - Validate and justify change
- Increasingly used by consultants
  - Over reliance on a few KPIs
  - Lack of understanding
  - Many pitfalls!
- Not a trivial process!
The Benchmarking Process

- Approach may vary according to the objective
- Should be an ongoing informal process within any dairy consultancy
- Two Phases
  - Planning (periodic re-planning)
    - Often iterative
  - Implementation

Often using data collected for genetic evaluations for a very different reason
The Benchmarking Process

Implementation
- Implement change
- Review and re-assess
- Establish targets
- Undertake gap analysis, determine shortfalls
- Analyse performance

Planning
- Determine objective(s)
- Select appropriate benchmarking parameters
- Facilitate and ensure robust data capture
- Identify an appropriate benchmarking group
The Benchmarking Process

- Determine objective(s)
  - High level
    - Improve milk quality
    - Improve fertility
  - More focussed
    - Improve dry period mastitis control
    - Improve submission rates
  - These will evolve over time
The Benchmarking Process

- Select appropriate benchmarking parameters
  - Improvement in output sought
  - Monitoring and influencing inputs is more appropriate
  - Consider secondary parameters
    - eg influential confounders

- Composite indices can be useful
  - The Transition Cow Index (Noorland and Cook)

- Beware of the impact of missing data
- Beware of the impact of errors
  - Systematic errors
  - carryover
The Impact of Missing Data

• The impact of clinical mastitis on somatic cell count data
  • Cows absent from milk recording in early lactation
Without integration of CM Data
With integration of CM Data
Selecting Appropriate Benchmarking Parameters

- Reducing Bulk Milk SCC (Output)
  - Milk sold vs calculated value?
  - Easily manipulated
    - Culling and withholding cows
  - Secondary parameter of milk sold of milk produced?

- Monitor Inputs
  - High SCC and Chronically infected cows....
  - More appropriate would be new IMI rate
    - the rate of ‘evolution’ of new high SCC COWS
Selecting Appropriate Benchmarking Parameters

Bulk Milk SCC

Chronically Infected Cows

Infected Cows

Uninfected Cows

Cure Rate

New Infection Rate

Lactation

Dry Period

Days in Milk

Age of the herd

Method of Recording (factoring)

Cows withheld from recording

Milk Quality Penalties

Farmer Behaviour

Other Factors

Output

Inputs

Drivers

Other Factors
Why Diverse Parameters?
Selecting Appropriate Benchmarking Parameters

- Improving Fertility
- 100 day in calf rate
  - Proportion of those cows calved that were eligible to be served that have conceived by 100 days in milk
  - Encompasses both submission and conception rates
- But...
The Benchmarking Process

- Facilitate and ensure robust data capture
  - Garbage in .... Garbage out.....
  - The most difficult part
  - Appropriate data source
    - Engage the user
    - Closer to the farmer the better
    - Facilitate feedback

- Beware of ‘data drift’
  - Discrepancies between ‘on farm’ and central databases
Robust Data Capture

- HP28: Proportion infected (>200,000 cells/ml) (rolling annual average)
- HP61: Mastitis rate (cases per 100 cow-years) in the last year
- HP93: Lameness treatment rate (100 cow-years) rolling annual average
- FP4: Mean historic calving index (days)
- FP105: 1st service submission rate in last 12 months
Data quality

(Hudson et al, 2011)
The Benchmarking Process

- **Identify an appropriate benchmarking group**
  - Management approach
  - Geographical location
  - Herd size *etc*
  - Common objective
    - Knowledge transfer between diverse models

- **Analyse performance**
  - Careful and appropriate analysis
    - Time periods (herd size)
    - Incidence and prevalence
    - Means, medians and inter-quartile ranges
The Benchmarking Process

- Undertake gap analysis, determine shortfalls
  - Facilitate knowledge transfer to determine best practice
- Establish targets
  - Appropriate, achievable, relative?
- Implement change
  - Using an evidence base wherever possible
- Review and re-asses
  - Feedback impact of change
  - Re-assess and recalibrate as necessary
  - Maintain relevance
Benchmarking in the Dairy Industry
Benchmarking in the Dairy Industry

- Business benchmarking
- Benchmarking for health
  - National
  - Small groups
  - Within an enterprise
Dairy Business Benchmarking

- Well established (eg Milkbench+)
- High level overview of enterprise profitability
- Incorporates some high level health measures
Benchmarking For Health
Benchmarking as Part of a National Scheme

- Used as part of the DairyCo Mastitis Control Plan Initiative in the UK
  - ‘High Level’
  - Limited parameters
  - Insight into potential
  - Cost estimations
  - Motivation
  - Not for intervention
    - Quality less crucial

www.mastitiscontrolplan.co.uk
Benchmarking Small Groups

• Useful approach in managing herd health
• **Actual vs Relative Performance**
  • Given point in time
  • Over time
• National comparison
• Support network
• Robust data collation
Benchmarking Small Groups

- Meaningful analysis possible
- Individual gap analysis
- Comparison of systems
- Discussion of management practices
  - On farm
- Easy knowledge transfer
Benchmarking Individual Farms

• Broad oversight is useful, but....
• Comparison to self more relevant
  • The ‘Purest’ form
  • Need to know what’s achievable but....
    • Relative performance more important
    • Am I better that last year, quarter, month etc
• Should be occurring on every farm as part of routine herd health
Benchmarking Individual Farms

**CELL COUNT PERFORMANCE SUMMARY**

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<th>Location New Infection Rate</th>
<th>% Follicular New</th>
<th>% Follicular New</th>
<th>% Follicular New</th>
<th>% Follicular New</th>
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<tr>
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<td>1.4</td>
<td>9.9</td>
<td>10.3</td>
<td>6.2</td>
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<tr>
<td>% Follicular New Infection Rate</td>
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<td>9.9</td>
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</tr>
</tbody>
</table>

**HERD CELL COUNT SUMMARY**

![Graph showing herd cell count summary.](image)

The graph shows a comparison of herd cell count over different months. The x-axis represents the months, and the y-axis represents the cell count percentage. The color-coded bars indicate the percentage of cells for different categories. The legend includes labels for different categories, and the graph provides a visual representation of the herd's health status.
Conclusions

- Benchmarking offers the consultant a useful tool to:
  - compare herd performance and facilitate the transfer of best practice
  - monitor herd performance over time
  - improve animal health
- However the consultant needs to be aware of:
  - the pitfalls
  - and benchmarking for benchmarkings sake.