Monitoring Animal Welfare at Dutch dairy farms

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A brief history....
Farm monitoring system, risk analysis
Cow Compass®

- Risk analysis at the farm:
  1. Risks focused at the quality of milk
  2. Risks focused at the quality of the way milk is produced

- Certified Veterinarian
- Integrated Cow Management (ICM)
- Prospective approach.
Components Cow Compass®

- 7 CSF’s (Critical Success Factors)
- ± 40 PI’s (Performance Indicators)
- > 100 MCP’s (Management Control Points)

Information for:
- Stakeholders
- Farmer

tractor
# Feeding and water (CSF)

<table>
<thead>
<tr>
<th>PI</th>
<th>MCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Indicator</td>
<td>Management Control</td>
</tr>
</tbody>
</table>

- **Silage process**: Mould, conservation | 1
- **Feed milk cows**: Quantity, quality, ration for milking cows | 3
- **Feed dry cows**: Quantity, quality, ration for dry cows | 4
- **Water milking cows**: Quantity, clarity, sediment, smell | 3
- **Water dry cows**: Quantity, clarity, sediment, smell | 5
- **Feed management**: Concentrates, silage analyses, hygiene feed place | 5

**PI score x weighing factor ==>**

<table>
<thead>
<tr>
<th><strong>score feed and water</strong></th>
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<tbody>
<tr>
<td>3,6</td>
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Cow Compass®

- Holistic view and predictive at the farm
- Integral approach by the vet: basis is cow’s physiology
- Good for the cow = good for the farmer
Cows Compass®

- 354 trained (ICM) veterinarians are doing this job
- 2 audits per year (2 x 3 hours per 120 cow farm)
- 2730 participating dairy farms (16%)
- Part of delivery terms of Dutch dairy industry

2017:
Cows Compass®-Welfare Monitor
The aim of developing a Welfare Monitor

• A practical system to show animal welfare on dairy farms

• Basis is Welfare Quality ("gold standard"), but time spending, not enough distinction between farms

• That’s why the sector, in coöperation with the government and the Dutch welfare protecting organisation, initiated a Welfare Monitor
12 criteria from WQ form the basis for the calculation of four main principles

<table>
<thead>
<tr>
<th>Principle</th>
<th>Criteria (WQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good feeding</td>
<td>1. Absence of prolonged hunger</td>
</tr>
<tr>
<td></td>
<td>2. Absence of prolonged thirst</td>
</tr>
<tr>
<td>Good housing</td>
<td>3. Lying comfort</td>
</tr>
<tr>
<td>Good health</td>
<td>4. Temperature (not measured)</td>
</tr>
<tr>
<td></td>
<td>5. Freedom of movement</td>
</tr>
<tr>
<td>Normal behaviour</td>
<td>6. Injuries</td>
</tr>
<tr>
<td></td>
<td>7. Diseases</td>
</tr>
<tr>
<td></td>
<td>8. Pain by interventions</td>
</tr>
<tr>
<td></td>
<td>9. Normal social behaviour</td>
</tr>
<tr>
<td></td>
<td>10. Normal species behaviour</td>
</tr>
<tr>
<td></td>
<td>11. Good men-animal relation</td>
</tr>
<tr>
<td></td>
<td>12. Positive emotional state</td>
</tr>
<tr>
<td>Good feeding</td>
<td>Good housing</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Conservation and ensiling</td>
<td>Feed bunk and space</td>
</tr>
<tr>
<td>Feeding lactating cows</td>
<td>Housing condition (climate)</td>
</tr>
<tr>
<td>Feeding dry cows</td>
<td>Walking space, pasture path</td>
</tr>
<tr>
<td>Water lactating cows</td>
<td>Lying comfort</td>
</tr>
<tr>
<td>Water dry cows</td>
<td>Hygiene score</td>
</tr>
<tr>
<td>Feeding management</td>
<td>Excessive stocking</td>
</tr>
<tr>
<td>% of animals BCS&lt;2</td>
<td></td>
</tr>
<tr>
<td>% of animals BCS&gt;4</td>
<td></td>
</tr>
<tr>
<td>Deviant cows</td>
<td></td>
</tr>
</tbody>
</table>
Species specific behaviour....
Marten Knol
Melkveehouderij 't Eyland
from Kampen (The Netherlands)
The farm

- 200 dairy cows production 8000 kg milk with 4.3 % fat and 3.5 % protein.

- 80 hectares of gras and 20 hectares of corn silages.

- Goal: Produce a lot of milk from our homegrown grass and corn silage.

- Grazing: during the summer our cows graze in the pasture. Brings us 2 eurocent per liter extra, paid by our milk buyer.

- CowCompas: More then 10 years.
First result:
• Cleaning the water tanks each week

✓ More water intake, better quality

Another result:
• Cows have to lie down as much as possible.

• Cubicles in our new barn. Filled with chalk-straw-water mix.

✓ Cows lie longer and stay healthier.
Storage of grass and corn silages

• We had old and small places to store our feed. This was a big risk in Cow Compass®.

• Our new place for storing feed is far better.

• We produce 16000 kg milk/hectare.

✓ Our additive feed costs went from 12 cent to 7 cent per kilogram milk.
Free space for calving cows

• In our new barn we have a lot of room for calving cows. In our old situation this was a big risk.

• Outcome: less culling of cows.

✓ Last year the average age of culled cows was 6 years and 4 months and they gave 32000 kg of milk.

• Dutch average 2016: 5 years and 10 months/31000 kg.
Calf rearing:

• Our computerized calf drinking system gave a lot of risks for the calves.

• We have gone back to give the calves milk by bucket + more individual boxes

✓ Beter results and less risks:
  ➜ 2015 20 % calf mortality > 24 h.
  ➜ 2017 7 % calf mortality > 24 h.
Welzijn wordt beoordeeld vanuit de volgende Principes: Goede voeding, Goede huisvesting, Goede gezondheid en Normaal gedrag. Vanuit de KoeKompas waarnemingen vormen onderstaande indicatoren de basis van de WelzijnsMonitor.

1. Goede voeding
   - Conditiescore
   - Water: kwaliteit, kwantiteit, bereikbaarheid

2. Goede huisvesting
   - Boxafmetingen
   - Hygiene, damslapers
   - Zachtheid ligbox
   - Stalomgeving: licht, ventilatie, roterende borstel

3. Goede gezondheid
   - Locomotiescore: kreupelheid
   - Klinische inspectie: wonden, zwellingen, kale plekken
   - Ziekten en aandoeningen
   - Pijnstilling bij onthoornen

4. Normaal Gedrag
   - Ontwijktest
   - Weidegang
Overview
Cows Compass®/Welfare monitor: PDCA approach

- Ideal zero measurement
- Starting point of choosing and implementation of improvement-management
- Co-operation with other farm advisors
- Good evaluation and actualisation of risk factors
- Critical success factor: follow up
Time management of the cow

Lying and ruminating:
✓ 13 hours

Feed intake:
✓ 6 hours

Drinking (20 liters per minute):
✓ 5 -10 min

Milking and socializing:
✓ 5 - 6 hours
When do you take action?

<table>
<thead>
<tr>
<th>Locomotion Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normaal</td>
</tr>
<tr>
<td></td>
<td>Staat en loopt normaal. Alle klauwen doelbewust neergezet.</td>
</tr>
<tr>
<td>2</td>
<td>Licht kreupel</td>
</tr>
<tr>
<td></td>
<td>Staat met rechte rug, maar kromt de rug in beweging. Gang is licht afwijking.</td>
</tr>
<tr>
<td>3</td>
<td>Matig kreupel</td>
</tr>
<tr>
<td>4</td>
<td>Kreupel</td>
</tr>
<tr>
<td></td>
<td>Kromme rug in stilstand en beweging. Eén of meerdere klauwen worden omlaag.</td>
</tr>
<tr>
<td>5</td>
<td>Ernstig kreupel</td>
</tr>
<tr>
<td></td>
<td>Kromme rug. Weigeren op een klauw te staan of hinkt. Blijft liggen of heeft grote moeite op te staan.</td>
</tr>
</tbody>
</table>

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Red dots: no bald spots, injuries or swellings!
Conclusions

• Certified vets carry out Cow Compass®

• Takes 1,5 hours/120 cow farm plus 1,5 hours for filling in a software program and to write report, totally 3 hours

• Welfare Monitor calculated from the Cow Compass® score

• Results are aggregated and used by the Dutch Dairy Chain to show animal welfare of dairy farms to stakeholders

• In favour for the farmer: it can be used as a screening tool to detect welfare problems and lead to improvement/optimisation
Come and see!

Foto: Josef Berchthold