Self-assessment and benchmarking of biosecurity in dairy farms in a new web-based tool

CPH Cattle seminar
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Biosecurity – what is it?

**National biosecurity:**
between countries or regions

**External biosecurity:**
between-farms, or between epidemiological units/farms in large, multi-site herds

**Internal biosecurity:**
within-farm, between animals, animals-environment, animals-humans, between buildings within-farm property
Biosecurity – what is it?

‘Biosecurity refers to those measures taken to keep diseases out of populations, herds, or groups of animals where they do not currently exist or to limit the spread of disease within the herd’

Animal Health Strategy 2007-2013, "Prevention is better than cure"
EU Animal Health Law 2016

– some interesting points related to biosecurity

➢ Disease definition should include carriers
➢ No law, if the private sector can deal with the disease (except highly transmissible and zoonotic infections)
➢ Self–regulatory measures or codes of practice is encouraged within sectors
➢ ‘Tailor-made’ prevention and control for each disease and taking into account local conditions
➢ Responsibility lies with those working with the animals

Prevention is still better than cure
Host – agent - environment

Infection mechanisms, pathogenecity, virulence, host-adaptation, resistance patterns, agent genetics ......

Production system, climate, feeding, management procedures, hygiene, reservoirs ......

Age, breed, species, sex, size, conformation, immunity, resilience, genetics ......

Host

Agent

Environment

Interaction
Box 4.1. List of biosecurity procedures in cattle farms, not in order of priority
(adapted from Moore et al. 2008)

- Perform risk assessment
- Follow biosecurity plan
- On-farm biosecurity signage
- Employee training
- Restrictive purchase / closed herd policy
- Avoid mingling with animals from other farms, e.g. at shows or on pasture
- Perimeter fence, locked gates and doors
- Appropriate animal flow including not moving older animals back in the system
- Animal identification and record-keeping of location and health status of animals
- Disease awareness, isolation of sick animals, and culling protocols
- Calving management, e.g. clean calving pen, separate cows at calving/single calving pens, remove calf immediately after calving
- Colostrum management
- Young stock (YS) management and housing
- Manure storage and management
- Vector control (i.e. rodents, insects, birds, pets, wild life)
- Methods to prevent feed and water contamination
- Cleaning routines for feeding tables and water troughs
- Equipment and tool cleaning and disinfection
- Do not share equipment / tools between barn sections
- Clean clothing and hand sanitation
- Footbaths or disposable boots
- Control of visitor and vehicle access, disinfection of vehicles
- Quarantine or isolation of animals entering or returning to the farm
- Appropriate pick up and disposal of dead stock
- Vaccination if feasible and effective
- Maintenance of visitor logs (rarely used in cattle herds)
- Shower-in procedures (rarely used in cattle herds)
- Employee or owner restrictions on owning livestock (rarely used in cattle herds)
  

Self-assessment using BioSecure©

- to make it herd-specific
- to motivate change and follow-up
- to cover a wide range of pathogens without having to know the occurrence and mechanisms for each of them

Demographics
Responsibilities
Physical conditions
Procedures / actions
Systematic / perseverance
Perceptions
Self-assessment using BioSecure®

**DLI-login:** Extracts demographic data from the Cattle Database Ensures identifiability and stores responses together for each DLI-user.
Self-assessment using BioSecure©

4 questionnaires: 1) New-born and milk fed calves, 2) weaned calves and heifers, 3) cows and milking and 4) external biosecurity
Self-assessment using BioSecure©

Dyr i alt: 600
Antal dyr indkøbt sidste år: 0
Antal besætninger der er indkøbt dyr fra det sidste år: 0

Jeg accepterer at indtastede data og spørgeskema besvarelse anvendes til forskning.

Rolle:
- Vælg rolle -
- Besætningssejer involveret i driften
- Besætningssejer ikke involveret i driften
- Afgifter, der hjælper i bedriften
- Driftsleder med overblik over hele driften
- Ansat med ansvar/opgaver i hele driften
- Ansatt med ansvar/opgaver hos kæde
- Elev med ansvar/opgaver hos kæde
- Elev med ansvar/opgaver hos kæde/ungdyr
- Rådgivende kvægkonsulent
- Rådgivende dyrlæge
- Studerende/forsker/underviser
- Andet

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Tildeling af råmælk

Hvor mange liter råmælk bliver kviekalve tildelt ved første fodring?

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<td>1/2 L</td>
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<td>2 L</td>
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<td>3 L</td>
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</tbody>
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Tilbage

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## BioSecure

**Nyfødte og mælkefodrede kalve**

Cvr: 99999999, Chr: 99999, Besætningsnr: 9999

13-11-2016, indtastet af: Test Testerson

Max. score der kan opnås indenfor hvert afsnit er 100%

<table>
<thead>
<tr>
<th>Afsnit</th>
<th>Din score</th>
<th>Dansk gennemsnit (baseret på besætninger)</th>
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<tbody>
<tr>
<td>Kalve generelt</td>
<td>46,63%</td>
<td>80,58%</td>
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<tr>
<td>Spæde- og småkalve generelt</td>
<td>85%</td>
<td>100%</td>
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<tr>
<td>Opstaldning - enkeltbokse</td>
<td>69,09%</td>
<td>83,18%</td>
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<tr>
<td>Opstaldning - grupper</td>
<td>71,36%</td>
<td>78,16%</td>
</tr>
<tr>
<td>Tildeling af råmælk</td>
<td>53,49%</td>
<td>66,86%</td>
</tr>
<tr>
<td>Råmælkskvalitet og hygiejne</td>
<td>63,14%</td>
<td>85,88%</td>
</tr>
<tr>
<td>Råmælksudmælning og opbevaring</td>
<td>77,27%</td>
<td>78,41%</td>
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<tr>
<td><strong>Total</strong></td>
<td>67,17%</td>
<td>80,78%</td>
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**Rød** (< 50 %) betyder, at sygdomme ikke bliver forebygget godt nok.

**Gul** (50-80 %) betyder, at der med fordel kan opnås bedre forebyggelse mod sygdomme.

**Blå** (>80 %) betyder, at smittebeskyttelsen generelt er høj og løbende bør vedligeholdes på det niveau for at bevare god sygdomsforebyggelse.

En score tæt på 100% kan opnås ved optimering af alle procedurer og forhold.

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**Benchmarking**

(when we have enough data)
How to use BioSecure?

• Communication
• As a tool in advisory service
• Step-by-step
• Follow-up
• Continuously over time

• Education
  (veterinary, animal science, farming students)

• In research projects
Thank you for listening

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Prototype to be finalised in 2018

Partners
IPH KU SUND
Danish Technological Institute
SEGES-Cattle
SEGES-Cattle IT
SAGRO Cattle

Photo: Anne Mette Graumann