Improving knowledge about biosecurity

against Salmonella Dublin introduction and establishment in dairy cattle farms



We asked

Can we provide new knowledge about the effect of biosecurity in dairy farms located in S. Dublin-endemic areas of Denmark by assessing biosecurity level semiquantitatively?

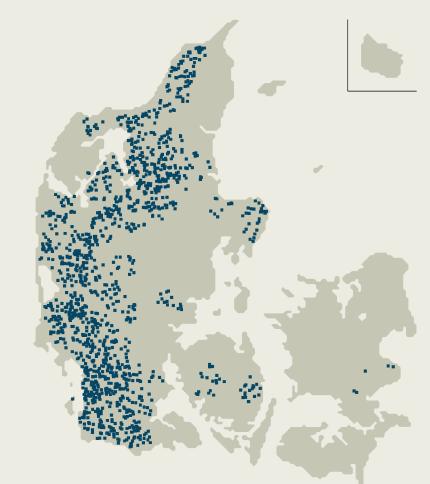
Why we asked

- There are many introduction pathways for *S.* Dublin and it is hard to point out single environmental risk factors.
- The prevalence of *S.* Dublin increased in Danish dairy cattle farms since 2015 despite a national eradication programme in place.

LOOK CLOSELY!

Do you spot compromised biosecurity and how can you assess it? Discuss it with a colleague.

What we did ...



Follow ~1,400 dairy farms at risk with no recent history of salmonella located in *S.* Dublin-endemic areas



were excluded or out of reach.

Control

* 8 case farms declined to participate,

Select newly test-positive and remaining test-negative farms, matched on herd size, from the Danish surveillance

programme over a one-year period.





Total lack of biosecurity

Score biosecurity level on-farm in 12 different farm sections based on observations, interview questions and a scoring guide.

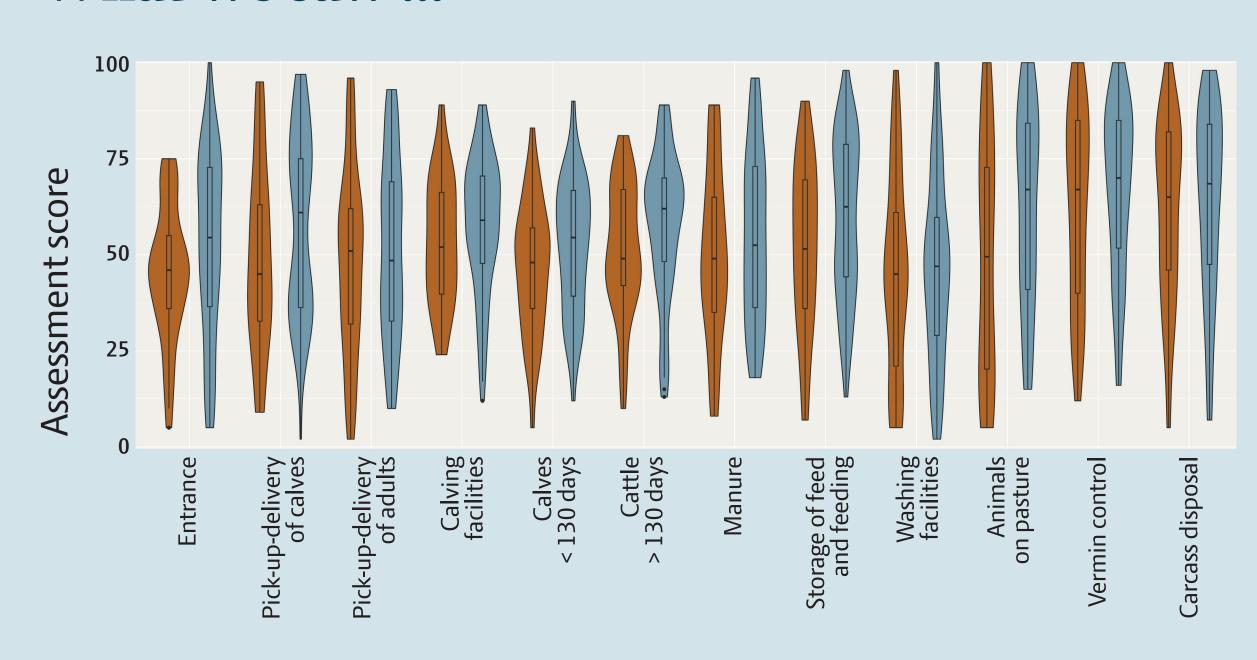
 Local infection pressure Business network

Ingoing animal

Production type, organic

What we saw ...

of Denmark.

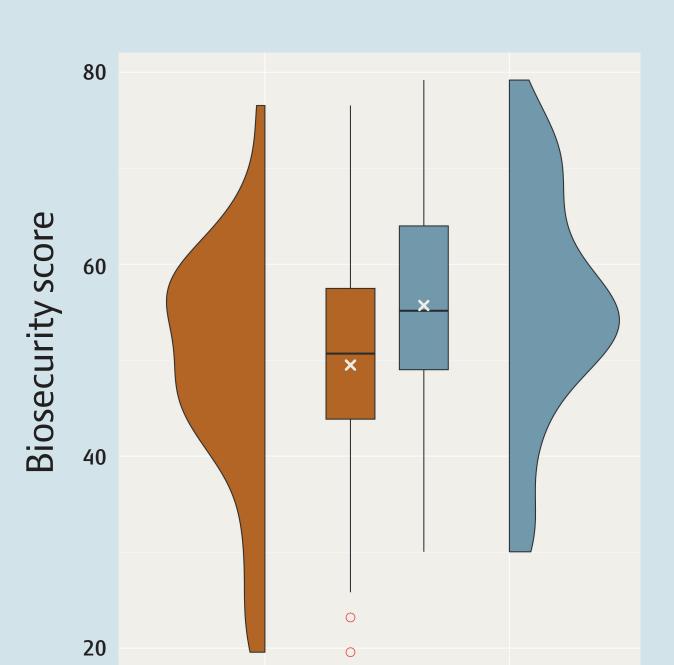


Biosecurity section

Expert-weighted into a single overall biosecurity score



Case Control



Outcome

Include farm register data for secondary variables and conditional logistic analysis.

No farms with very good

or excellent level of over-

all biosecurity (score ≥80)

What we found ...

Biosecurity **reduces** the odds of becoming a case:

OR = 0.64 (95% CI = 0.43-0.96, p = 0.03)

For each 10-unit increment in overall biosecurity level.

Local infection pressure **increases** the odds of becoming a case:

OR = 1.13 (95% CI = 1.01-1.25, p = 0.03)

For each 1,000 increment in number of cattle in *S.* Dublin test-positive neighbour farms within a 10 km radius.

READ ARTICLE IN FRONTIERS

And we concluded ...

Individual biosecurity section effects

but not clearly identified as risk factors.

A preventive effect of the overall biosecurity level

for introduction and establishment of S. Dublin in Danish dairy cattle farms.

Present level of biosecurity is insufficient

to resist current infection pressure from the surroundings.

IN COLLABORATION BETWEEN





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