

Associations between biosecurity and neonatal calf mortality in Denmark based on questionnaire data and Multiple Correspondence Analysis (MCA)

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Background: Questionnaires regarding different management procedures and biosecurity measures can help identify factors that potentially affect calf mortality. However, the number of questions and complex interrelations make risk factor analysis difficult.

Objective: To characterize biosecurity related risk factors of neonatal calf mortality

Results: The results show (figure 1 & 2) that it is possible to associate Dimension 1 from the MCA to early calf mortality. Dimension 1 is characterized by 6 questions related to colostrum management and managing the risk of disease transmission, where the procedures by the herds with high values of Dimension 1 is characterised as beneficial.

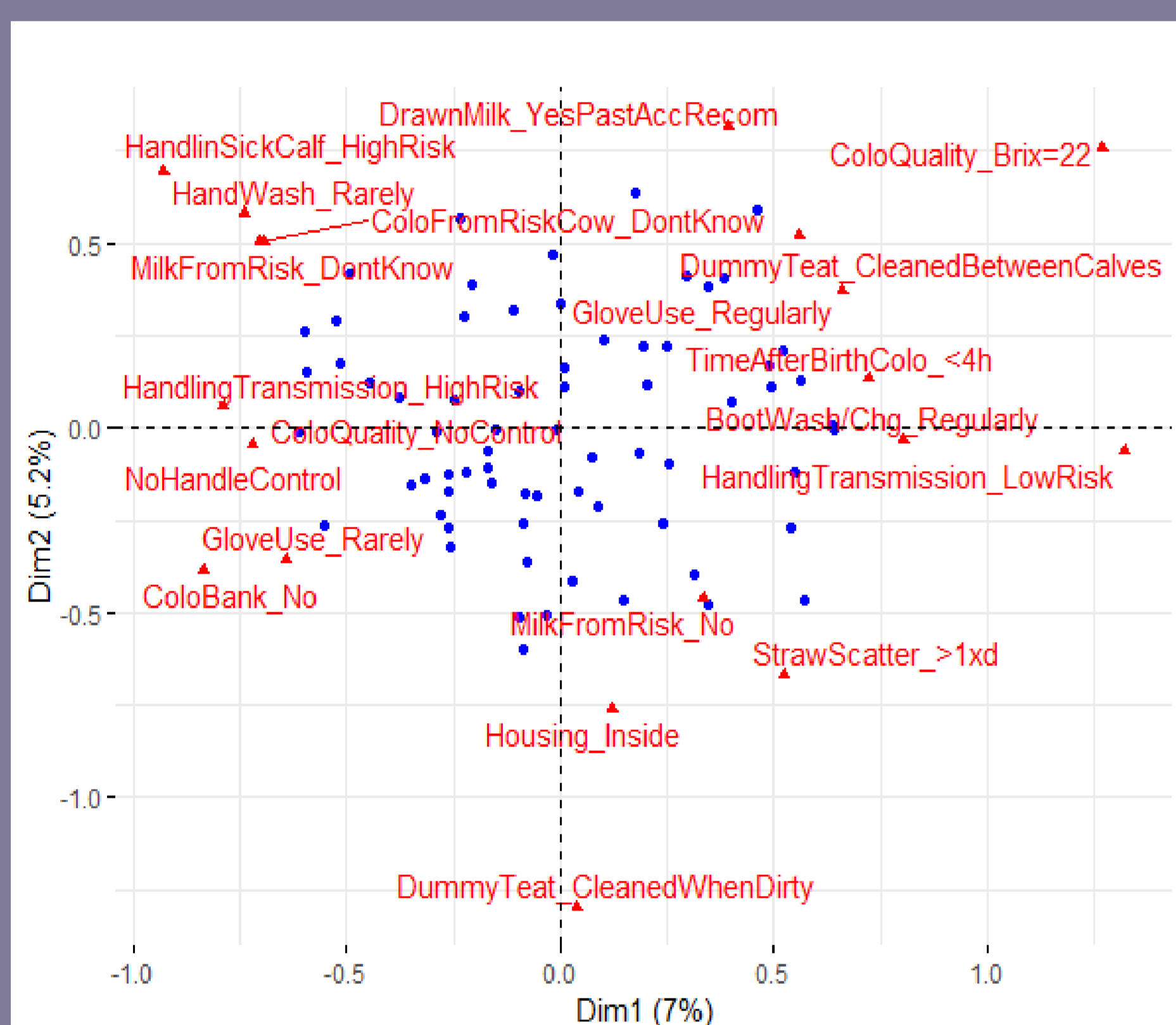


Figure 1: Results from the MCA on 2 dimensions. The red triangles: answers to the 20 most influential answers. The blue dots are the individual herds.

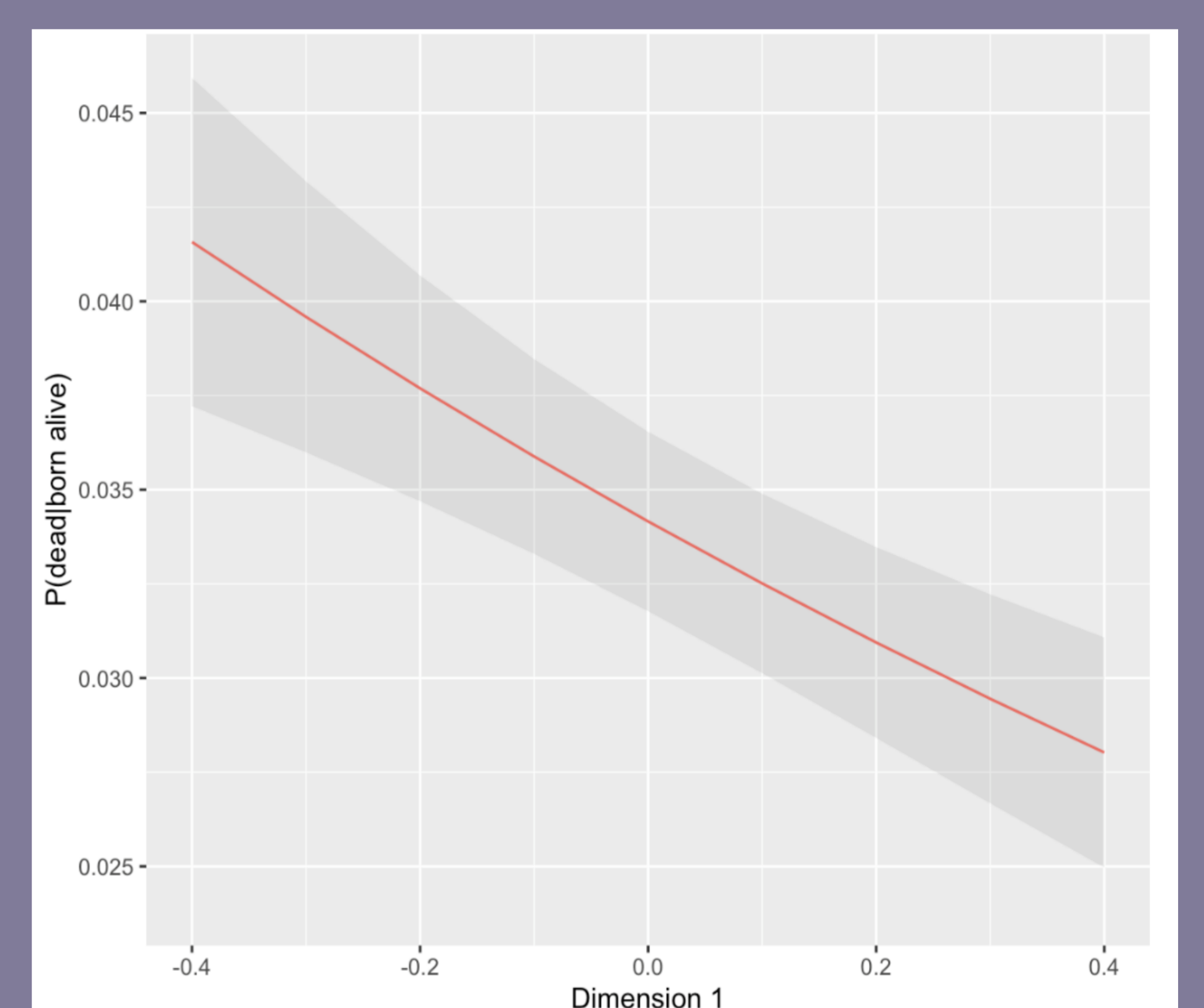


Figure 2: Predicted mortality and 95% prediction interval with different values of Dimension 1 (colostrum & infection transmission management).

Conclusion: Applying MCA on questionnaire data is promising for characterising patterns in answers that can be associated with production outcomes such as mortality.

Materials & Methods:

- 69 dairy farmers that delivered bull calves to intensified slaughter calf production systems, completed the BioSecure questionnaire.
- BioSecure contains 13 sections where each section relates to a specific area of biosecurity and/or calf management. BioSecure consists of 183 questions in total.
- MCA was performed on 63 BioSecure questions of potential relevance to neonatal calf mortality to reduce the response from the questionnaires to fewer dimensions of inter-correlated variables.
- The calf mortality the first 14 days of life was found from production records for each herd.
- The dimensions were used as predictive variables in logistic regression analysis of neonatal calf mortality.



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