Dairy herd biosecurity – Assessment and intervention

Siobhán O'Donovan[1,2], Conor McAloon[2], Luke O'Grady[2], Tim Geraghty[3] and John F. Mee[1]

[1]Teagasc, Animal & Grassland Research & Innovation Centre, Moorepark, Fermoy, Co. Cork; [2]University College Dublin, School of Veterinary Medicine, Veterinary Science Centre, Belfield, Dublin 4; [3]Craibstone Estate, Bucksburn, SRUC, Ferguson Building, AB21 9YA Aberdeen, United Kingdom

Summary

- A new joint Teagasc-UCD biosecurity research study started in late 2022.
- The study will assess the biosecurity status of Irish dairy herds through the National Farm Survey, Animal Health Ireland and e-Profit Monitor farmers.
- The study will also assess the impact of biosecurity interventions.

Introduction

Given the recent expansion of the dairy herd and the associated increase in cattle movements, the Department of Agriculture, Food and Marine (DAFM) launched the National Farmed Animal Biosecurity Strategy (NFABS; 2021-2024). This strategy builds on the National Farmed Animal Health Strategy with a focus on preventing infectious diseases in farmed animals. In support of the NFABS, a new project began in Moorepark and University College Dublin in September 2022. The research project has two overarching aims; 1) assess the current status of biosecurity among Irish dairy herds and 2) assess the impact of interventions on this biosecurity status and associated herd health and productivity.

Biosecurity risk assessment

A biosecurity risk assessment is an audit of farm biosecurity status. This is usually implemented using a questionnaire where the risk of disease entry and spread within a herd is monitored. In Ireland, there is currently no cattle biosecurity risk assessment tool. University of Ghent in Belgium developed a risk assessment tool known as Biocheck. This tool is used in agricultural industries such as the pig industry, however, the dairy version is based on indoor production systems.

Hence, as part of this project a risk assessment tool has been designed focusing on pasture-based cattle production in Ireland. This online risk assessment tool contains four sections; Risk of disease entry, Speed of spread of disease, Diagnosis and Baseline resilience/ Vaccinations (ESDR). The risk assessment tool will be administered to farmers, via Animal Health Ireland and Teagasc's e-Profit Monitor (ePM) farmers. Additionally, the National Farm Survey will contain a set of supplementary biosecurity questions.

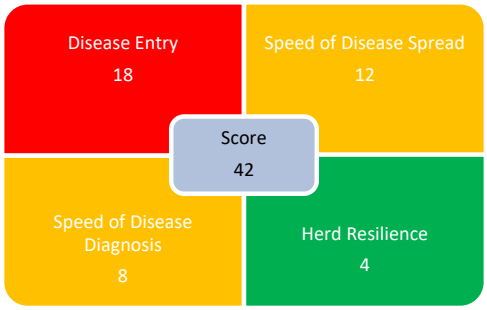

Figure 1. *Example of farm Risk Assessment Score in four sections and overall*

The responses to the questions in each of these four sections will be weighted and a farm-level score calculated. This will highlight areas of highest risk, moderate risk and lowest risk. A traffic light system of red, amber and green will be used to demonstrate such risk factors as in Figure 1.

The development of the scoring of the responses is being carried out using a platform called "Conjointly". This allows for a large network of expert opinions to be compiled into scores from best management practices to worst. For example, in Figure 2, there are four answer options for a question relating to clinical disease outbreaks. Experts selected the best and worst answers and Conjointly software calculated scores and ranked the answer options.

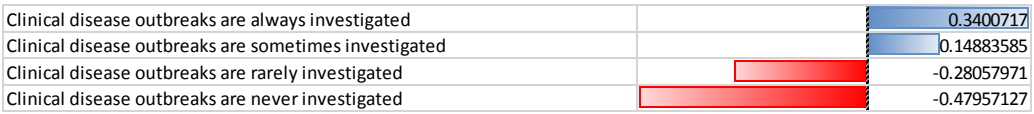

Figure 2. *Example of Best/Worst Scaling responses from expert opinion on a single biosecurity question; always investigating was scored best and never investigating was scored worst*

Biosecurity interventions

The second objective of this project is to assess the impact of intervention on biosecurity status and the herd's production, health and economic status. This will be carried out through the recruitment of ePM spring calving dairy herds. Farmers will be recruited and randomly allocated to three subgroups. Group 1) Data analysis only 2) Data analysis and annual risk assessment and 3) Data analysis, annual risk assessment and farm visit feedback. This process has begun in 2023 and will continue through 2024 and 2025.

Conclusions

Ireland's dairy cow population growth has led to concerns surrounding biosecurity. This project will determine current national biosecurity status and assess the impact of implementing good biosecurity on herd health, production and economic status.

Acknowledgements

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