Biosecurity Research: Existing measures against potential threats

Supporting the land-based industries for over a century

SAC

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Introduction

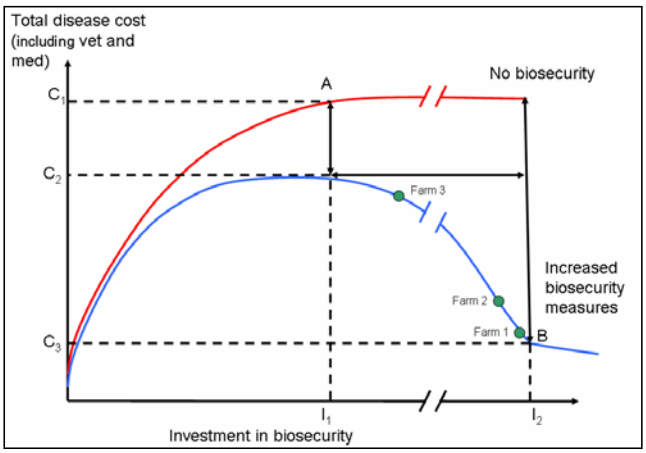
The Scottish Agricultural College (SAC) are collaborating with The Royal Veterinary College (RVC) and The University Reading (RU) to evaluate the efficacy of biosecurity measures for existing endemic diseases and exotic threats. The SAC methodologies include analysis of existing, voluntary biosecurity initiatives among UK sheep and cattle farmers in order to:

- Assess development, uptake, suitability and operational mechanisms
- Provide evidence of potential efficacy and cost/benefits
- Assess potential impact on the spread of exotic diseases

With RVC & RU the team will undertake extensive reviews of exotic disease threats throughout the EU. In addition RU will compile a knowledge base on biosecurity. This poster focuses on the SAC research into the efficacy and economics of biosecurity measures on UK farms

Theoretical background: efficacy and economics

The ongoing investigation into the efficacy of biosecurity measures utilises BVD as the baseline disease. Working from the premise that biosecurity measures aimed at BVD control will have significant impact on reducing the impact of other diseases.



•The diagram shows that when the BVD becomes a serious problem on the no-biosecurity farm (point A) the farmer will make the decision to control BVD through increased biosecurity measures, and therefore (incidentally) controlling other diseases.

•At the point (I_1) of investment in biosecurity measures then costs and losses associated with other diseases decrease resulting in a consequential shift of total disease costs from C_1 to C_2.

•With increased investment from I_1 to I_2 in biosecurity there is a further shift in total disease costs from C_2 to C_3. The optimum level of investment occurs in the region of point B. At this point further investment would result in little or no reduction in overall disease costs.

Methodologies to achieve this

Large scale data collection of blood and bulk milk samples provide estimates for on-farm prevalence of BVD.

An associated questionnaire identifies management practices associated with disease prevention.

Case studies on a range of monitored farms to track returns on investment in biosecurity.

Results: farm case studies

Preliminary findings from monitored farms:

•FARM 1: Biosecurity measures are considered important for the maintenance of low disease levels on a small upland beef and sheep unit. This farm has achieved point B through its isolated location and management strategies and practices continuous vigilance when purchasing stock.

•FARM 2: A continuous programme of health scheme membership and increased biosecurity measures has resulted in a significant reduction in veterinary costs over a ten year period on a large beef and sheep unit resulting in a shift from point A towards point B

•FARM 3: A recent decision to improve biosecurity on a beef and sheep unit with historical disease problems and boundry biosecurity challenges is resulting in a shift between points A and B.

Comments

The surveys are providing good data about the efficacy of on farm biosecurity measures for BVD

We have concerns about the quality of the economic data that commercial farmers are able to record on the case study farms. However as a theoretical exercise it is extremely useful to policy makers in clarifying the economic issues regarding biosecurity and farmers.

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