

Assessing the Economic Impact of Different Bluetongue Virus (BTV) Incursion Scenarios to Help Develop Policy for Scotland



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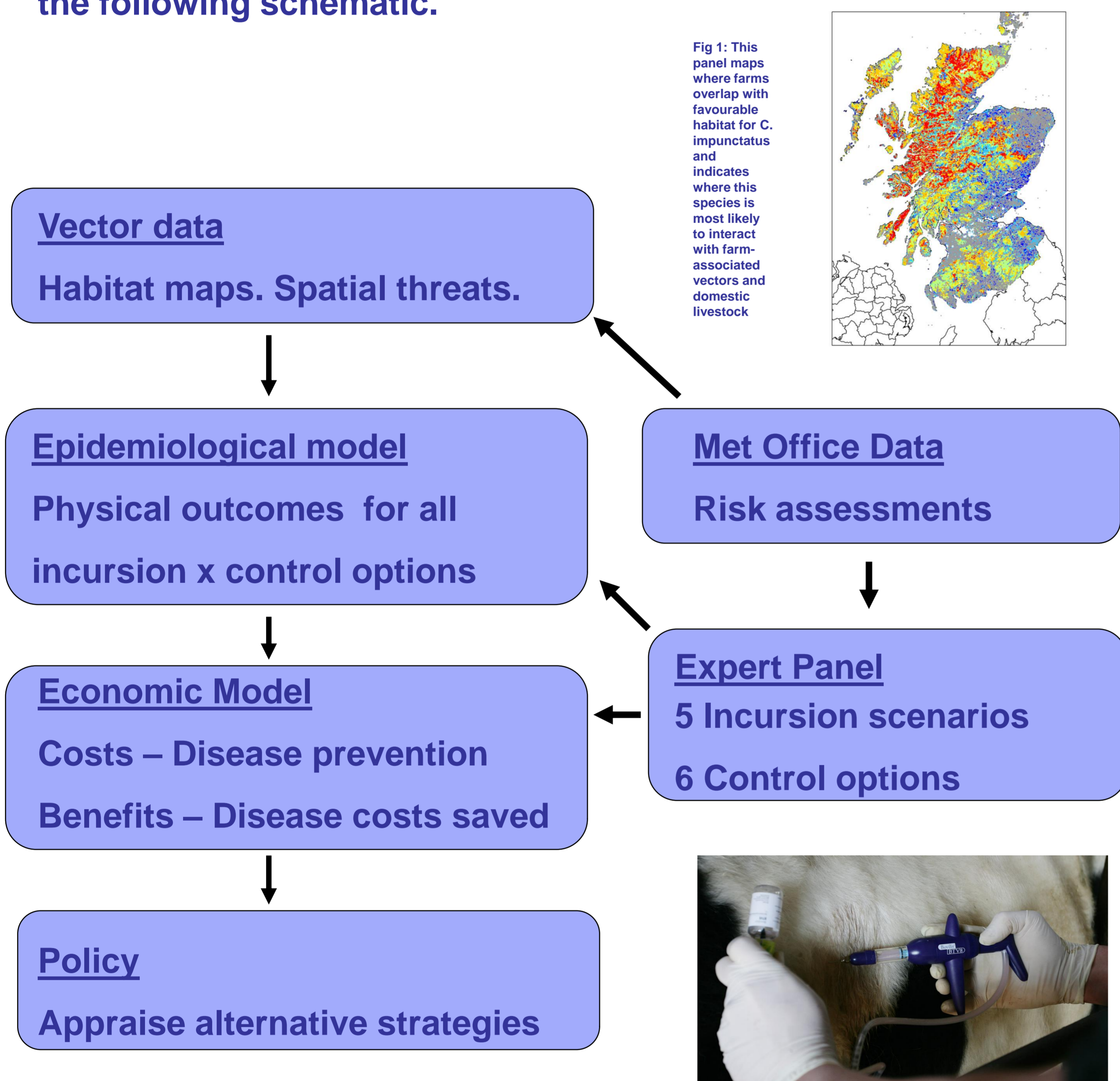
Introduction

In late 2007 the Scottish Government (SG) perceived a need to review potential BTV control strategies for Scotland prior to implementation, and evaluate their effectiveness in order to prepare for any possible incursion of BTV.

This work was led by EPIC (the Epidemiology Population Health and Infectious Disease Control consortium) involving many researchers/organisations including Scottish Agricultural College, Institute for Animal Health (Pirbright) and Centre for Ecology and Hydrology (Edinburgh) working closely with SG staff who in turn liaised closely with SG ministers. (See Gunn et al¹ for details)

Methods

A key aspect of this research was an interdisciplinary network of experts, researchers and policy makers co-ordinated as shown in the following schematic.



A cost benefit methodology was applied where baseline costs of current BTV prevention in Scotland (£140m/5 years) were compared with the benefits of avoiding direct and indirect costs of a certain single incursion of BTV8 virus into Scotland from one of the following incursion scenarios:

- a: northwards spread with BTV arriving in July 2008
- b: northwards spread with BTV arriving in September 2008
- c: northwards spread with BTV arriving in April 2009
- d: import of infected animals in September 2008
- e: import of infected animals in April 2009

With each of the following control options:

- C1: minimal control measures
- C2: vaccinate 100% farms in a border protection zone
- C3: vaccinate 80% of farms in a PZ to the Highland line
- C4: vaccinate 50% of farms in a PZ for whole of Scotland
- C5: vaccinate 80% of farms in 100km PZ around first IP
- C6: vaccinate 80% of farms in a PZ for whole of Scotland

¹Gunn, G. J., et al (2008) Assessing the Economic Impact of Different Bluetongue Virus (BTV) Incursion Scenarios in Scotland. Report to Scottish Government. www.scotland.gov.uk

Results

Discounted losses for each vaccination strategy relative to C1 (Minimal Control)

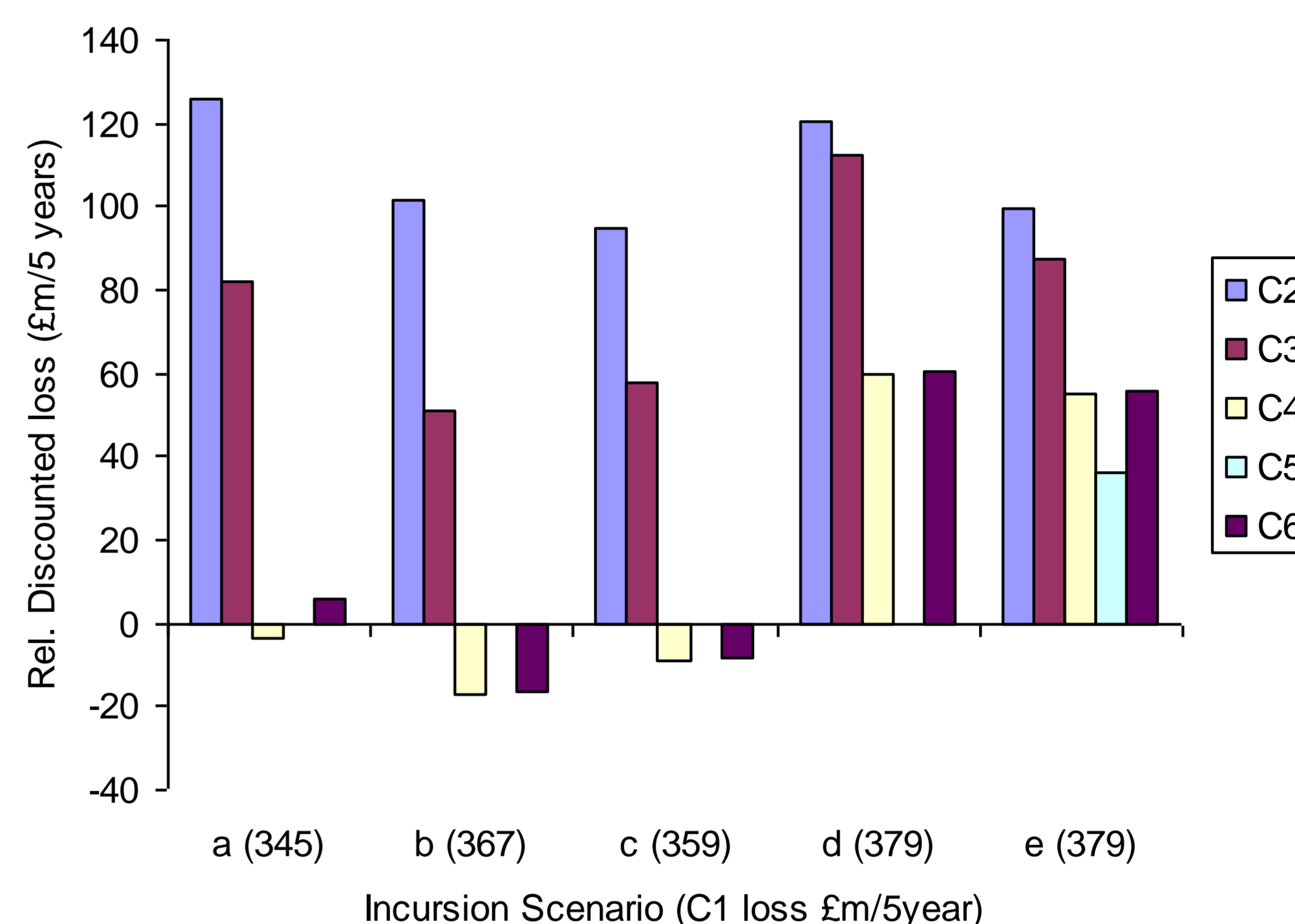


Fig 2: In worst case scenario (constant 5 year BTV8 epidemic with no license to facilitate access to slaughter) best option C6 (PZ all Scotland & vaccinate 80%+)

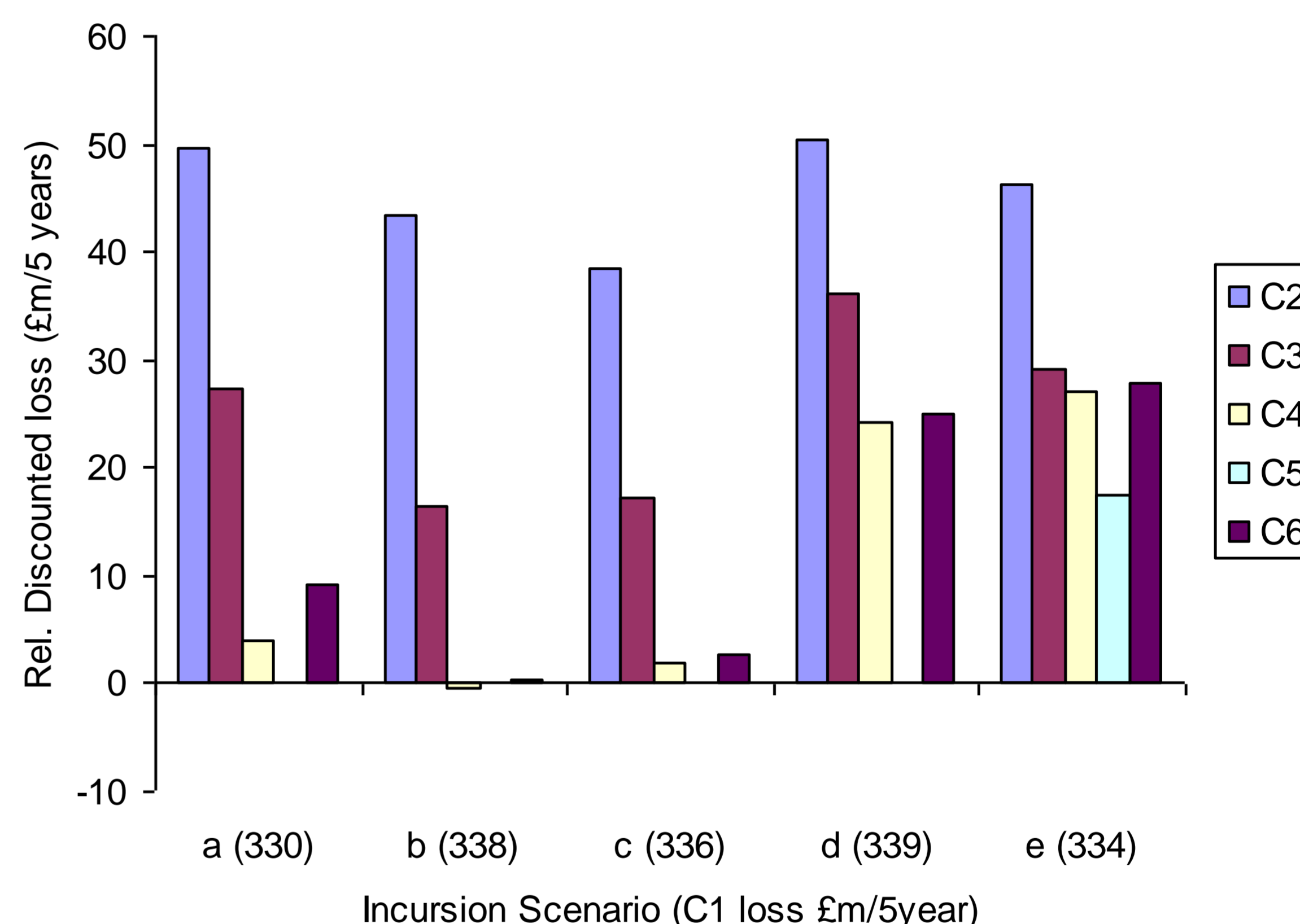


Fig 3: In best case scenario (declining 5 year BTV8 epidemic with license to facilitate access to slaughter) best option is also C6 (PZ all Scotland & vaccinate 80%+)

Conclusions

- Benefits of losses avoided greatly exceeded costs of prevention.
- C6 proved the best control strategy under most scenarios.
- Indirect losses exceeded direct losses by a factor of over 2.5.
- Losses to the cattle sector exceeded sheep by a factor of ~9.
- Quantitative assessment of incursion risks was lacking.
- EPIC provided an effective platform for this interdisciplinary study.

Acknowledgements

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