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Introduction

Gaps in epidemiological knowledge can be important barriers to the implementation of effective control measures for some animal diseases.

Current epidemiological understanding of Johne's disease (*Paratuberculosis*) is incomplete and experiential knowledge could be highly valuable. It is an important disease of cattle and sheep and can cause a chronic enteritis, though most cases are sub-clinical.

In this study we test a technique called *Adaptive Conjoint Analysis* as a method for the collection and analysis of veterinarian experiential knowledge of Johne's disease.

Through experience veterinarians will have gained some knowledge about factors associated with disease transmission and effective control actions. Capturing and collating this knowledge could provide better information on the control of diseases where scientific understanding is incomplete, and identify key research areas.

Johne's may also be zoonotic and be a causal agent in Crohn's disease. Past experience, for example salmonella in eggs, listeria in cheese and BSE in cattle, has shown the potential market importance of zoonotic diseases. Farms are one point in the food supply chain where actions can be taken to control Johne's disease and prevent zoonosis.

Methods: Adaptive Conjoint Analysis (ACA)

This technique was developed for market research - to ascertain the value that individual respondents place on particular products or product attributes (e.g. price, colour etc.).

The questionnaire is computer mediated and respondents are asked to indicate their preferences for a product (or an attribute). The value placed on any product, or attribute, is assessed by scoring competing attribute levels in a controlled sequence that adapts to the responses. An example ACA question:

If two farm management systems were identical in all other ways, how important would this difference be in terms of altering the risk of MAP transmission?

Direct contact only with cattle from other herds known to be free of Johne's disease.

instead of

Any direct contact with cattle from other herds known to be infected with Johne's disease.

Not important	Somewhat important	Very important	Extremely important
1	2	3	4
5	6	7	

Click the number that best describes your opinion.

Five risk factors for Johne's disease were investigated:

- direct contact between stock,
- indirect contact between stock
- source of drinking water,
- housing regime,
- herd size

In 2003 the computerised questionnaire was sent out to 14 veterinary practices across Scotland.

A total of 11 out of 14 vets surveyed returned completed questionnaires

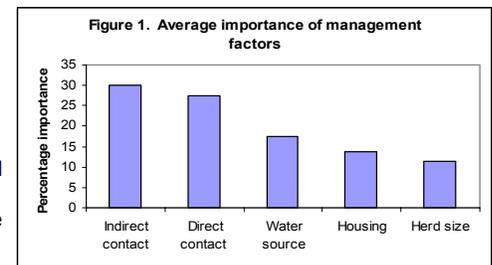
Respondents experience of Johne's (in previous year)

No. of cases seen	No. of farms seen with Johne's		
	< 2 farms	3-5 farms	6-10 farms
< 5	-	1	-
6-15	-	4	-
16-25	5	-	1
>25	-	-	-

Results:

Indirect and direct contact with other herds/flocks were considered the most important factors in the transmission of Johne's disease, as shown in Figure 1. Herd size and housing were on average considered to be the least important factors.

However: there was variation in views around the average, and the respondent who had seen the greatest number of cases (between 16 and 25) during the year, on one of the highest numbers of farms (6-10) had a different view from the average. This respondent, who had reported the greatest experience, thought that herd size followed by water source were the greatest risk factors, with risk increasing with herd size and highest where drinking water was sourced from riverines.



Conclusion: Adaptive Conjoint Analysis provides a method of gathering experiential knowledge on animal disease - but sample size and respondent experience are important to confidence in the results.