

# Surveillance in the sheep sector: views from the field

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## Abstract

The term 'surveillance', means different things to different people. A qualitative pilot study, using face-to-face semi-structured interviews in Scotland and two areas of England, during early 2012, was used to investigate the views of sheep farmers and their veterinarians. Farmers defined 'surveillance' as a concept that revolved around awareness of the health and disease status of their own flock, while their vets had a wider view. The farmers' view of their role and that of their vets was broadly consistent with the vets' view of their own role and that of their farmers'. Farmers have a critical front line role while vets should combine an awareness of what is going on elsewhere with investigation, plus act as a go-between on the surveillance pathway. Responses from vets and farmers were more divergent when it came to their perspectives on how current monitoring is conducted. There were also differences between responses from participants in the two countries. One resounding message was that, while not averse to collecting data for surveillance purposes, it must be done in a way that combines practical, simple systems with clearly identifiable relevance and benefits targeted to the requirements of the participating parties i.e at an individual and local level. There was a large spectrum of farmer types and attitudes. This heterogeneity may be driven by a number of factors. Careful thought must go into the design of any surveillance system to provide value that will optimise compliance and engagement; one size will not fit all.

**Keywords:** *surveillance, sheep, vets, farmers, perceptions*

## Introduction

The term 'surveillance,' when used in the context of the livestock industry, means different things to different people. These differences affect the way that surveillance system components are perceived, in terms of whether they are required and their value, depending on the viewpoint of the stakeholder in question. Thus what stakeholders understand by the term is of importance when it comes to policy development and allocation of limited resources.

The purpose of surveillance, for Governments and national veterinary authorities, is often focused on: demonstration of freedom from specified diseases; prevention of incursion combined with detection and control of outbreaks of exotic disease; identification of new and re-emerging threats and monitoring trends of endemic diseases to facilitate the former areas of interest principally at a national, or population, level.

Within Great Britain, the last decade has seen reviews of livestock surveillance systems, especially those that are based on voluntary submissions to diagnostic laboratories (1-4). These reviews have led to recent structural change and proposals for the development of new ways of working in England and Wales. The latter are focussed on the collation and use of existing data and/or improved collection. In Scotland, change has yet to be implemented to the same extent.

The effectiveness of many such systems is reliant on the engagement of the gate-keepers on the ground, namely producers and their veterinarians. The application of social science approaches in the livestock disease sector has increased dramatically in recent years. The area of surveillance is beginning to attract attention (5,6); however, to the authors' knowledge, at the time of this study, there had been little work specifically addressing animal health surveillance in the sheep sector in developed countries.

The aim of this pilot study was to provide insights into sheep farmers' and their veterinarians' (vets) interpretation of the term 'surveillance', their perceptions of their roles and their views on how they can and do contribute towards 'surveillance'

## Materials and methods

In the first quarter of 2012, ten sheep farmers and nine vets in two areas of England (North-East and South-West) and 21 sheep farmers and five vets across Scotland were recruited into the exploratory, qualitative study. The vets were purposively selected by the recruiting institutions (APHA and SRUC) to be those who were involved with a significant sheep-farming clientele. The sheep farmers were identified as potential participants via their vets.

Face-to-face semi-structured interviews were conducted using a questionnaire that had minor modifications to make it appropriate to the interviewee (e.g. farmer, vet, Scottish terminology). All interviewers received training, a full set of written instructions, plus additional information to explain the questions and the questionnaire. There was one interviewer per English area and one per vet-farmer cluster in Scotland (total = 7). Interviews were recorded, with permission, and transcribed in full, prior to manual coding to draw out the main themes.

## Results

The Scottish vets had an older age profile than the English vets; however, the practice demographics in terms of numbers of full-time vets employed, percentage of veterinary time spent servicing the sheep sector, evidence of an interest in sheep (membership of Sheep Veterinary society or further qualification in sheep health and production within the practice) and numbers of clients keeping sheep were similar. There was some indication that the Scottish practices employed fewer part-time vets and had more veterinary staff qualified as Official Veterinarians.

The demographics of the farms varied, in line with expectations associated with spatial location and known farming systems. Hill and Upland production systems transitioned to Lowland systems the further south the area of investigation was situated. All farms in both studies kept commercial flocks and the average (median) flock size was largest in Scotland (800 breeding ewes) and smallest in the north of England (250). While sheep were a primary income source for the majority of Scottish and some SW farmers, they were not the main source of income for any of the NE farms.

The interviewees' understanding of the term 'surveillance' was assessed by exploring how interviewees define the term when used in the animal health context, what they thought its purpose was and what roles farmers and practicing vets play.

The farmers mostly defined 'surveillance' as the concept of being aware of what was happening within their own flock in relation to health and diseases, on an every day basis, by observation. Awareness of what is happening nationally, and locally, as well as within their own flock, emerged in their descriptions of the purpose of surveillance. These were based on their comparatively own-flock orientated definitions but were expanded into wider concepts, both geographically and otherwise. One concept was consistent: the purpose of surveillance was to monitor the health, maintain awareness, pick up early signs of disease within the sheep flock (with the term applied both at individual and national level) and, in the Scottish study, to prevent and stop disease spread. Some illustrative quotes are as follows:

"Well, observation really at farm level because we observe flock health really isn't it and what's going on amongst the sheep, how are they reacting?"

"In a broad term surveillance would, could be looked at on a national level as in looking after the whole flock. To me, however, it probably means a lot more localised, i.e. my surveillance of my flock and seeing how they are what the health is and looking at incoming animals and implications they may have of the health of the rest of my flock."

"To make sure you have a flock UK wide or wherever a flock that's healthy and not suffering any major illness that could cause production losses."

The farmers saw their role as extremely important because they are the primary contact with the sheep and this occurs on a regular basis. The majority of the farmers thought that the practicing *vet also* had a vital and important role to play in surveillance; predominantly because they would see the bigger picture of what was happening within the local area. This was qualified by the fact that this was dependent on vets getting 'on farm' in the first place and that this was often not commercially viable for sheep.

"The farmer is pivotal to animal health surveillance you know. We obviously know our animals, or we should know our animals. We should be seeing them, if not on a daily basis certainly on a tri weekly basis, and we should be competent enough to be able to pick up when there are signs of distress or signs of problems..."

"The practicing vet is actually quite an important role as they determine what's going on in the local area. If there's an outbreak of something... they will advise if it's in the area and if it's a problem."

"Paramount as long as he's on the farm but if the farmer doesn't invite him on the farm there's a problem."

The vets defined a wider concept for the term 'surveillance', as applied to animal health, than the farmers did; one which was based on monitoring, or recording, of health and disease. Following on from their definitions, the main purpose described by the vets, in both studies, was to detect new, novel or emerging diseases. Other high level purposes were also mentioned. Some illustrative quotes are as follows:

"Surveillance would be the continual monitoring or an awareness of diseases or conditions that are prevalent in your area or nationally so that you are on the lookout for things that are probably more prevalent or changing or new or emerging diseases or conditions."

"...as a combination of disease investigation and disease confirmation so confirmation of diagnosis ... regular monitoring for presence or absence of disease and also any kind of increases in prevalence."

"At a basic level it allows us to maintain profitability on farm ...that would be from my kind of basic practitioners view point ...it allows us to detect early emerging disease, anticipate it and prevent it or reduce its impact but on a higher level I suppose there's an element of kind of flock security and ... of national disease security and that's got obviously got repercussions for our ... export markets and just the general ... level of ...sheep agricultural well-being in the country."

The vets appreciated that the farmer is critically important- "The farmer is the first line of defence", although it was noted that if something is common, or known, then the farmer will just treat it. There is also an important role to be played by recording and keeping records. This raised the concept of benefit and to whom,

which led to expression of a number of perceived reasons for why sheep farmers don't currently engage with animal health surveillance systems. These reasons ranged from not realising the importance of recording problems, to not knowing how well sheep can perform, through to "just tolerating problems". It was observed that sheep farmers need to be motivated and that they don't currently have any incentive to get involved. There was recognition of the fact that the focus for the farmer is his flock and his livelihood, not the greater good. There was also the recognition of the varying breadth of interest, motivation and action that exists across the farmer clientele from the proactive, through the reactive to the inactive.

With regard to their own role, the vets saw that they had an important and pivotal role to play in surveillance as a "go-between" the farmer and others in the surveillance pathway. They saw their roles as seeing cases; deciding what was normal, or abnormal levels for a problem; whether and how to proceed with a disease investigation to obtain a diagnosis, e.g. if samples require to be sent to the laboratory, detecting trends and new diseases, recording daily information and the provision of advice and information to the farmer. The concept of developing trusted working relationships with farmers, to enhance communication and information exchange was also identified as part of the vets' role.

The interviewees' understanding of what currently happens in terms of monitoring and tasks involved with components of the surveillance pathway, such as the interactions with the vet, data collection and, laboratory submissions etc were explored. This resulted in a broad spectrum of responses from the farmers; from those who are extremely proactive, through those who tend to be reactive, to the uninterested and those bordering on the obstructively defensive. A lot of information is not actively recorded and the use and attitudes to health plans, data recording and provision or sharing of generated data varied widely. The vets recognised the wide and variable spectrum of approaches and their view of what currently happens in the way of on-farm monitoring by farmers generally concurred with those of the farmers. When it came to frequency of visits, the number of submissions actually made for laboratory diagnosis and which diseases were considered to be of greatest concern, differences were observed not only between farmers and vets, but between countries.

Although farmers thought that they could contribute to surveillance activities in the future via the collection of sheep health information, a substantial number of barriers to actually doing so were raised. Many of these barriers, by the examples given, were due to previous negative experiences, rather than just perceived concepts. A recurring theme was that data collection and sharing must lead to action that was relevant to them, otherwise there was a lack of any incentive. This issue of relevance and appropriate feedback was also raised in the veterinary responses. While the vets could collect and collate information and saw themselves as the conduit for channeling information back to their clients, issues of complexity, time and cost would need to be overcome.

## Discussion

An accepted definition of surveillance is "The systematic – continuous or repeated – measurement, collection, collation, analysis, interpretation and timely dissemination of animal health and welfare related data from a defined population that are used to describe health hazard occurrence and to contribute to the planning, implementation and evaluation of risk mitigation activities" (7). This can be a challenge to convey concisely to those who are involved in the practicalities on the ground, in the 'real' world.

Social science approaches are increasingly being introduced into investigations of aspects of livestock health and disease control, such as, farmers' attitudes to biosecurity (8,9), practitioners' views on the use of diagnostic laboratories (10), farmers' attitudes to disease risk management (11) and the role of vets in flock health management on sheep farms (12).

To begin to determine the value of surveillance to different stakeholders, researchers and policy-makers have to understand what 'surveillance' means to those stakeholders and what they want. This may be obvious to those who have in-depth experience within the particular industry sectors; to others it is not. This pilot study provides a starting point. As with all qualitative research, the findings from this study are indicative rather than representative, or quantitative.

## References

1. **Meah, Lewis.** *Veterinary surveillance in England and Wales*, 1999
2. **Defra.** *A review of the implementation of the Veterinary Surveillance Strategy*, 2011
3. **Kinnaird.** *Review of veterinary surveillance*, 2011 <http://www.scotland.gov.uk/Publications/2011/11/09091744/0>
4. **APHA.** *Review of scanning surveillance*, 2012 [http://vla.defra.gov.uk/reports/docs/rep\\_ assp\\_report1211.pdf](http://vla.defra.gov.uk/reports/docs/rep_ assp_report1211.pdf)
5. **Bronner et al.** 2014  
DOI:10.1186/1746-6148-10-93
6. **Bougere et al.** *Aquaculture* 467, 158-169, 2017
7. **Hoinville et al.** *ICHAS 2013 v 1.2 Animal Health Surveillance Terminology Report*, 2013
8. **Hovie et al.** *Res. Vet. Sci.* 78 (Supp A), 22, 2005
9. **Palmer et al.** 2009 DOI: 10.5172/rsj.351.19.1.32
10. **Robinson, Epperson** 2013.  
DOI: 10.1136/vr.101366
11. **Garforth et al.** 2013  
DOI: 10.1016/j.prevetmed.2013.02.018
12. **Kaler, Green** 2013.  
DOI: 10.1016/j.prevetmed.2013.09.009

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