

**WHO SAYS WHAT AND WHY?
USING ORGANOPHOSPHATE SHEEP DIP AS A CASE STUDY TO
EXPLORE DIFFERENCES IN PERCEPTIONS OF RISK HELD BY
EXPERTS, PUBLIC AND FARMERS IN THE UK.**

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Often different sections of the community may ascribe different risks and benefits to scientific research and development of a new product or process. Effective risk communication between scientists, regulators and the community is essential for many animal associated issues and is contingent on a clear understanding of similarities and differences in perceptions of risk from public viewpoint as well as technical estimate.

Insight into perceptions of risk and benefit surrounding a process facilitates effective risk communication by enabling dialogue which is both relevant and salient to stakeholders and so is most likely to achieve an outcome that is beneficial to society. From the regulatory perspective taking account and being seen to take account of people's views results in policy, and other decisions on risk management which are, more likely to be accepted and therefore adhered to.

Organophosphate (OP) compounds used in sheep dips have in the UK been a centre of debate and controversy related to potential adverse effects to the user, usually the Farmer or farm worker. OP dips used to treat and prevent sheep scab were introduced to the UK in the early 1980s as a replacement for the environmentally persistent organochlorine dips. OP dips have been widely regarded as the 'gold standard' for treatment. They are frequently described as the most effective and economical solution due to their broad spectrum and long lasting effect relative to the alternatives available to treat sheep ectoparasites such as the scab mite, ticks, lice, keds and blowfly.

As toxic chemicals OPs must be handled with care in order to minimise risk to the operator from exposure via absorption through the skin, ingestion or inhalation. In the UK over the last decade OP sheep dip operators have reported ill health effects, both long and short-term, that they attribute to the use of OPs. Whilst it is accepted that acute exposure to OPs has the potential to have a serious impact upon human health, the question of an effect from long term low level exposure remains under investigation.

Stakeholders, from members of the public to government policy makers, to producers of OP dips and the farmers themselves all have a key voice. The different emphases put on the complex equation of cost and benefit surrounding the use of OP dips

provide a case study for investigation of differences in risk/benefit evaluation factors used by three interest groups; farmers, the general public and 'technical experts'.

Materials and Methods

Semi-structured one to one interviews based on the laddering technique¹ were held to investigate the range of perceptions of risk surrounding OP sheep dips held by members of each of the three interest groups. Laddering, a qualitative technique, combines the flexibility of unstructured techniques with the quantifiable nature of more structured research. The technique uses as its basis Gutman's means-end theory², a problem solving approach where people select a course of action or means to achieve a solution or end. Laddering focuses on Attribute-Consequence-Value chains¹, where Attributes are defined as the concrete characteristics of a product, Consequences the benefits accruing from the Attributes and Values the personal or higher order goals resulting from the consequences.

Interviews held with between 35 and 45 members of each interest group each lasted approximately one hour and involved participants responding to a series of demographic questions and participating in a discussion of their views surrounding OP sheep dips. The discussion was initiated with a short definition of OP sheep dips, with participants next being asked to generate their key ideas about OP sheep dips. These key ideas were then explored systematically using a series of directed probes or pre-set questions to elaborate and clarify. The probes were based on those used in the laddering technique, for example, the general probe question: "Why is concern X important to you?"³ Throughout the discussion participants' comments were recorded in writing as well as on audio-tape for later clarification where necessary. A protocol developed through piloting was applied to all interviews to facilitate a consistent approach.

Content analysis was performed on the written interview notes following the elimination of redundant responses, i.e., those responses that it was possible to eliminate without the loss of overall significance from the dataset. Content analysis, an iterative process involving the development of a series of numbered labels or content codes, was used to summarise the issues expressed by participants in the interviews.

Implication matrices, contingency tables showing the frequencies of associations or consequential comments made by individuals, were used to summarise the data into the three interest groups. Each individual's comments and associations as expressed by numerical content code chains were included in the implication matrix for the appropriate interest group.

Results

Key associations, that is those above a specified cut-off point, were selected and visually represented on ladder maps. The two ladder maps, figures (1) and (2), below, represent the range of perceptions of risk surrounding OP sheep dips as expressed by farmers and members of the public.

Associations were considered in terms of seven key themes, each shown in a different colour, with the relationships between themes shown by the direction of the arrows.

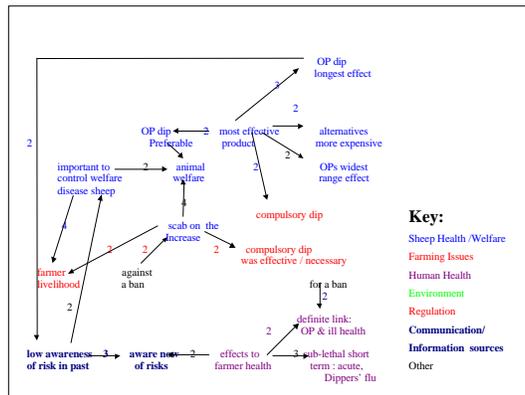


Figure (1) Ladder map one - Farmers

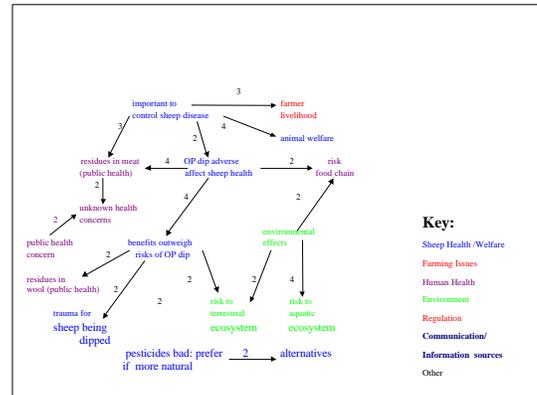


Figure (2) Ladder map two – members of the public

The numbers alongside the arrows connecting the two issues denote the number of times a particular connection was made. For example, in Figure (1) two farmers said that sheep scab was on the increase and followed this by saying that this would affect farmer livelihood.

Discussion

Whilst there was overlap in terms of the kinds of concerns shown there were some clear differences. Farmers more often discussed issues such as guidelines for the disposal of spent dip and the compulsory use of OP dipes, that is, those related to regulation compared to members of the public. The public in turn expressed at more length concerns over issues of the environment, such as effects on the aquatic ecosystem.

The similarities and differences in the perceptions of risk held by farmers and the public as identified by these preliminary results demonstrate the need for a targeted approach to risk communication of issues involving considerations of human health and animal welfare.

The results from the semi-structured interview study will be used as the basis for construction of a structured questionnaire. This quantitative approach will be based on a larger more representative sample of farmers, public and ‘technical experts’ to validate the findings of the first study and examine the underlying determinants of perceptions of risk surrounding OP sheep dipes.

References

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- ³ Rugg G and McGeorge P. Laddering, Expert systems. 1995. 12(4)