

## Advisers between a rock and a hard place

**The possibility that bovine spongiform encephalopathy (BSE) may have spread to sheep is causing concern to scientific advisory committees in Europe. More research is urgently required, but so too is more openness.**

Serving on scientific committees that advise governments can be a privilege. But there are circumstances where the judgments of experts can have far reaching and important consequences; where risks seem remote, but where the outcome were the worst to occur could be damaging to the economic and public health of nations. A government may then be highly dependent on scientific advice, and the experts find themselves in an utterly unenviable position.

Have some sympathy, therefore, for the members of the Spongiform Encephalopathy Advisory Committee (SEAC), which advises the British ministries of agriculture and of health, and its equivalents elsewhere in Europe. For the quandary they face is that BSE, which is suspected of having passed from cows to create a new variant of Creutzfeldt–Jakob disease in humans (vCJD), may also be lurking in sheep flocks. Given that sheep were certainly exposed to BSE-contaminated meat and bonemeal, experts reckon that the risk is real that some BSE may be masquerading as the sheep's equivalent of BSE, scrapie (see page 6).

### Inconclusive

So far there is no conclusive evidence that this has happened. Indeed, the experimental evidence either way is slim. In one set of experiments, a Cheviot sheep inoculated with infected cattle brain succumbed to the disease, the agent adopting the pattern of infection of scrapie — spreading wider within the body than it does in cows. The experiments have not been repeated or extended to other breeds. Experiments to test whether sheep can contract BSE from contaminated feed have also not been done.

One optimistic view is that, even if BSE has entered the sheep population, it may have left it again, following the 1988 ban on meat and bonemeal feeds. But, without more data, experts have been forced to conclude that in theory sheep BSE could represent the worst of both worlds — having the killer pathology of cow BSE, but spreading from animal to animal as scrapie does. As a precaution, the United Kingdom and France have therefore banned sheep heads, spinal cords and spleen from the human and animal food chains.

Unfortunately, distinguishing scrapie from BSE in a single sheep is itself full of uncertainties, very costly, and can take over a year to accomplish. Only nine sheep have been analysed so far and, while none was found to have BSE, that is scant cause for comfort, given that there are an estimated 100 million sheep in Europe alone. To make matters worse, there are major gaps and uncertainties in the epidemiology of scrapie, in the genetic characteristics of susceptibility to it, and in the histories of sheep feeding and rendering practices across Europe. Knowledge of the mechanism underlying these diseases is also flimsy.

Where the uncertainties are so pervasive, further measures to reduce risk could only be correspondingly broad in scope and huge in cost and misery. A ban on sheep offals or all mutton, for example,

would seem untenable at present, in particular given that only 27 cases of vCJD have been confirmed so far — although it is still too early to predict the scale of any vCJD epidemic.

SEAC and its equivalents in Brussels and elsewhere can do little more than the obvious: spell out the limited facts and the uncertainties, and recommend spending considerable sums of money on extensive and urgent research — a relatively small and wise investment compared to retrospective action, considering that the BSE crisis has already cost the European Union some ECU3.5 billion (US\$3.9 billion) in beef subsidies.

### Transparency

If, as is to be hoped, the chances of BSE having spread to sheep are negligible, it may take years to demonstrate the fact; if it has, such drastic measures would become a political possibility. Only politicians can take responsibility for future or present precautions — but the interplay with experts and the public is crucial in determining the difficulties and impact of such decisions.

The readiness of society to understand and anticipate precautions depends in turn on the openness of debate on risk and the scientific advice given. Openness has drawbacks. Complex issues may be misunderstood or misrepresented. Moreover, genuine damage may be done to those who, in all innocence, lose some of their livelihood or reputation through the enhanced perception of risk.

But those penalties must be weighed against the costs of secrecy: that the science itself is undermined if not discussed openly, and that a public which suspects it has been kept in the dark and thereby misled may overreact to the sudden announcement of profoundly bad news. Not least, there is the fundamental issue of the rights of a citizen in a democracy — SEAC's only consumer representative makes the valid point that, although she is not a scientist, the access to data which she enjoys as a member of SEAC allows her to make an informed judgement on what she eats that is largely denied to the rest of the public.

In his 1997 note, *The use of scientific advice in policy making*, Sir Robert May, chief scientific adviser to the UK government, insisted on a presumption towards openness: "departments should aim to publish all the scientific evidence and analysis underlying policy decisions on the sensitive issues — an action which could in itself avoid greater controversy in the longer run".

Sir Robert is right. SEAC would be doing itself and the public a favour by making all the information readily available in the public domain in comprehensible language, organizing a public consensus conference on the issue, and creating a comprehensive SEAC website.

Fears that such openness might create public hysteria should give rise to sensitivity rather than secrecy. If there is one lesson that governments are learning, it is surely that panic feeds on ignorance and a lack of anticipation. □