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Rural Economy and
Land Use Programme

# Power & Responsibility –

## Who decides? You decide!

The Festival of Social Science is organised by the Economic and Social Research Council, and in 2007 it ran alongside National Science and Engineering Week, which is coordinated by the British Association for the Advancement of Science. Both celebrate some of the very best British research, as well as highlighting the ways in which science makes a difference to everyday lives. The Rural Economy and Land Use Programme organised several events across the UK, including the RELU debates "Power & Responsibility – Who decides? You decide!"

The debates reflect key objectives of the RELU Programme: working across disciplines to tackle holistically the challenges facing rural areas, and communicating research findings effectively. The topics are complex: "Consumers cannot be left to themselves to decide what to eat"; "The environment would be fine if only scientists were in charge" and "Farmers should be responsible for controlling livestock diseases". And they raise a multitude of questions. Top academics and leading experts craft their arguments with an engaging mix of intellect and personal experience, drawing in their audience of policy-makers and practitioners and showing us that these are all issues in which there are no easy answers. When we are faced with questions of power and responsibility who should decide?

# Power & Responsibility– Who decides? You decide!

Is there just too much choice available for modern consumers? Choice is generally trumpeted as a good thing, but it doesn't seem to have encouraged us to eat more healthily. Well over half of all adults in this country are either overweight or obese, and although the government recommends eating at least five portions a day of fruit and vegetables to help reduce the risk of heart disease and cancer, the average consumption is less than three. Poorer people eat even fewer, and are more likely to be obese. At the same time, there are some people who choose to spend more money on buying organic food – but does it do them more good than conventionally grown produce? The Environment Secretary has said that organic food is just "a lifestyle choice that people can make," so perhaps they are wasting their money? And is locally-grown a more ethical choice – or is the food miles debate just a red herring?

# Consumers cannot be left to themselves to decide what to eat

**Gareth Edwards-Jones, Professor of Agriculture and Land Use Studies at the University of Wales, Bangor and Dr Michelle Harrison, Director of the Henley Centre took an interventionist line when they proposed the motion "Consumers cannot be left to themselves to decide what to eat". They were opposed by Professor Bruce Traill from the Department of Agricultural and Food Economics at the University of Reading and Dr Tom MacMillan, Director of the Food Ethics Council.**

Professor Edwards-Jones suggests that consumers cannot be left to themselves to decide what to eat, because in our modern world these decisions are extremely complicated. He began by posing some basic questions about the food chain to his audience, such as: what is the daily recommended intake of salt for adults and what proportion of this is found in a packet of salt and vinegar crisps? Do potatoes count as one of your "five a day" portions of fruit and vegetables and how many units of alcohol constitute the daily maximum amount recommended for men? If the well informed members of the audience can't get all of these quiz questions right, how can they expect to make rational, welfare-maximising food-related decisions? And even if they do, can they be sure that the other 60 million UK citizens can do the same?

These are everyday questions, being posed to a relatively well-informed audience, but Professor Edwards-Jones pointed out that they matter because people can harm themselves, with costs to society, if they don't know the answers and make the wrong choices.

He reminds us of the health risks inherent in a poor diet. Eating the wrong things can contribute to cardiovascular disease, some cancers, diabetes, neural tube defects and dental caries, and then there is a whole range of diseases related to nutritional deficiencies. If we use one measure – Disability Adjusted Life years – to look at the effects of poor diet across the population, one estimate suggests that 37% of the years lost to death and ill health are diet-related, compared with 0.2% attributed to food-borne diseases. Diet also overtakes smoking and drinking as a cause of ill health.

According to the National Institute for Clinical Excellence, the cost of obesity to the NHS is £500 million a year, with further indirect costs of between £1.7 and £1.9 billion. Added onto that is the cost of earnings lost, amounting to £2.1 billion. Estimates from other sources put the costs even higher.

Professor Edwards-Jones also wanted to test the audience's knowledge of animal husbandry, with questions about the legality of milk-enhancing hormones for cows, whether organic farms are permitted to use organophosphate sheep dip, whether pain relief is used when pigs and sheep are being castrated, and the difference between barn-reared and free-range poultry. Most of us seem to have no idea whether the food we buy comes from high-welfare systems or not. Many people objected when they saw a poultry worker on television moving a turkey with his foot, but most eat food produced by intensive farming systems.

Professor Edwards-Jones's third point relates to organic products, specifically milk that is labeled "naturally high in omega three", which seems to imply it will be better for you than other milk. But the Food Standards Agency has found that organic milk is no more beneficial than any other kind.

He concluded: "If the organic movement, whom many people hold in the highest ethical esteem, can stoop to mischievous marketing like this – what on earth do you think that all those less ethical food marketeers are doing? The poor consumer does not have a chance of making rational decisions. The majority do not understand the science and even those with some scientific knowledge are manipulated by marketeers."

Bruce Traill, countered this line of argument with his own three points: that all free-living adults should be at liberty to make choices as long as they don't harm others; that the risks of overeating are exaggerated; and that any realistic policy intervention is unfair to the socially deprived and people who are not obese.

We are all better placed, he argues, to make our own decisions about what we eat, how long we spend on food preparation and how much exercise we take, than any government minister, civil servant or expert committee.

He used himself as an example, bravely sharing with his audience the information that, with a body mass index of 30, he is classified as "obese". He confessed that he knows perfectly well how to lose weight – less food and drink and more exercise – but that he enjoys eating and drinking and chooses to continue with these pleasurable activities. Most people, he maintains, know what they need to do to lose weight. Whether they take this action is their choice.

Governments should provide information – even try to persuade people – in order to enable them to make their choices in an informed way. But, he argues the government should also be honest. Although obesity has risen since the 1980s, from 7% of the population to around 23%, death rates from heart disease have almost halved and the incidence of diabetes remains constant.

"It has never in fact been safer to be obese," he claims. "So as a rational person, weighing up the costs and benefits of my eating decisions it makes sense for me now to choose to be more overweight than I would twenty years ago, because it is less risky."

But doesn't this impose costs on the NHS and on the rest of us tax payers, as Professor Edwards-Jones has claimed? Professor Traill believes that the costs are exaggerated and any intervention is unfair and regressive. The most commonly quoted statistic is £500 million a year. And we know that poorer people are more likely to be obese and need health care – but also tend to smoke and drink more. So it is not valid to compare costs purely on obesity. How do we know it isn't really other aspects of their lifestyle that are making them unhealthy?

Taxes and subsidies are the means that governments usually try to employ to change people's behavior. But taxes on food would just make poor people poorer and would affect everyone, including those who are not obese, which would be unfair.

Professor Traill concluded: "The fairest tax would be to tax fat people, rather than fat food, but this rather drastic proposal would essentially be taxing people with unlucky inheritance of genes. Obviously this is not a sensible option. The only serious option is to remove people from social deprivation then they can decide for themselves to eat a healthier diet."

Dr Michelle Harrison is equally concerned about inequality in our society, but this leads her to take the opposite view and argue persuasively in favour of the motion. She regards the British food economy as so socially inequitable that not intervening would encourage a vicious cycle of inequality. She agrees that poorer people suffer more from the effects of obesity and poor diet, but says this means we have to intervene.

She underlined this social division by recounting her experience of watching children leaving two different schools – one a private school, the other a state comprehensive. She estimates that about one in 25 of the children leaving the private school was obese, while for the comprehensive it was closer to one in three or four.

"There are all kinds of arguments about the different factors that are at stake, and there are all kinds of arguments about whether or not obesity really is a problem, but I think we would be really pushed to imagine that kind of social inequity will not ultimately have an impact on the quality of life of those children, on their expectation about what they can do with their lives and, ultimately, the age at which they will die," she said.

So why are people not eating well, when we have so much variety available? Dr Harrison reminded the audience that, increasingly, time and energy are as important, if not more important to people than money. Women in particular may be short of time and energy, and even in this age of equality they often take most of the responsibility within families for providing food. Ready meals can fill the gap. But lower income women are short of money, as well as short of time and energy. So they are buying convenience foods that are cheaper – and these are often less healthy.

A Henley Centre survey showed that a majority of people do think that the government has a responsibility to tackle these issues. This, says Dr Harrison, indicates that the public understand that these problems are too complex for individuals to take on alone.

She went on to remind the audience that longer-term trends show increasing privatisation of many areas. For richer people there is a movement towards personalised medical treatments, with drugs tailored to their own genetic make-up – and so for them, even if they are obese, dealing with the associated medical issues may not be a problem. It might well be safe to be obese – but only if you are rich, she told Professor Traill.

Tom MacMillan entered the fray with these questions: "Can consumers decide for themselves? Do they decide in practice? What should we do about it?"

He asked how stupid or clever we think consumers are. If we think people aren't stupid – and we are all consumers so all included in this category – they must be able to decide what to eat. When social researchers have looked at the reasons why consumers rejected GM foods, they found quite complex concerns being voiced about the power of the companies involved and the adequacy of the regulation. Scientific experts and government were telling people not to worry because these foods were safe, assuming that they just didn't understand the science, but that wasn't actually the issue for consumers. People do have the capacity for quite a complicated debate, according to Dr MacMillan.

Similarly, if people are making decisions about food that seem to be harmful to themselves, or to the planet, this doesn't mean they are incapable of making responsible decisions. It may be that they are being denied the opportunity to make that decision. After all, he argues, is there anyone who has never eaten something that they know is bad for them? We know what we should be doing – eating more vegetables and less fat, salt and sugar – but we don't always do it.

There are all sorts of factors. Sometimes policies or actions by the government or the food industry influence our decisions: the Common Agricultural Policy, the supermarkets, their pricing, where they open stores, how they arrange their goods on the shelves, food advertising, all affect everyone. And sometimes making the "right" decision is just too difficult.

So Dr MacMillan would like to see the government taking more action on behalf of consumers and showing more leadership, to help them behave more as they would like to in the marketplace. He believes that consumers can be left to decide for themselves – they just need to be given the information and the power to do it.

**Professor Jeff Waage, Centre for Environmental Policy, Imperial College:**

"Is there no justification for in any way controlling or influencing what consumers eat because of the wider implications such as maintaining British farming or minimising the wastage of energy or the creation of greenhouse gases?"

**David Mortimer, Food Standards Agency:**

"...stories about mercury in fish in the newspapers... gave us an opportunity to reiterate our advice to pregnant women or women planning to become pregnant about not eating swordfish, shark or marlin because of the mercury content which can harm the developing foetus. Would you go so far as to tell them they must not eat it?"

**Margaret Delpy, member of the public:**

"Why should we believe what we are told? You gave us a very good example – when you were pregnant you were told to eat fish, now we are told not to eat fish...over the years one develops a degree of cynicism.... and... what is normal? If there are so many overweight and obese people, perhaps this is the new normality?"

**Professor Bruce Traill, Reading University:**

"It's all very well saying we should intervene – but how? If a knackered consumer wants to save time and buy a cheap meal why shouldn't they be allowed to? Are you arguing that hamburgers shouldn't be allowed... that they should be given free fruit and vegetables?"

**Dr Michelle Harrison, Henley Centre:**

"It doesn't matter how much information you have, if you come home from work and you have to prepare a meal for three children. The provision of food on the table is more defined by people's energy and time than it is by many other things in their food cultures. "Stupid consumers" is just not the issue, "knackered consumers" is... we need to ensure that when people are choosing products for speed and ease of consumption that they are products that won't have the worst kind of impacts."

**Dr Tom MacMillan, Food Ethics Council:**

"The government already intervenes in all sorts of ways to affect what we eat and sometimes for environmental reasons whether that's through the Common Agricultural Policy or other things that have nothing to do with food... but that has no bearing on whether we vote for or against the motion, it's a separate issue."

# The environment would be fine if only scientists were in charge

**What have politicians ever done for the environment? Not much, according to some, who would cite pollution, declining fish stocks, nuclear disasters, global warming and extinct species as evidence. But would scientists serve us any better? And what would this mean for democracy?**

**Winston Churchill famously said that scientists should be "on tap, not on top" but is this still relevant in our modern high-tech world?**

**"The environment would be fine if only scientists were in charge" was the controversial motion being proposed by Bill Sutherland, Miriam Rothschild Professor of Conservation Biology at the University of Cambridge and Mark Avery, Director of Conservation Policy for the Royal Society for the Protection of Birds. They went head to head with Susan Owens, Professor of Environment and Policy and Fellow of Newnham College, Cambridge University and Andy Stirling Professorial Fellow at the University of Sussex, who were opposing the motion.**

How would we feel about putting scientists in complete charge of the environment – and would they do a better job than politicians? A lot depends on what we think of when we hear the word "scientist". Bill Sutherland described seeing the pupils at his children's school sporting not just white coats, but wild-looking wigs and thick spectacles when they had been asked to dress up as scientists, and he pointed out that the adjectives applied most commonly to scientists are "mad" and "boring". But in reality, he claims, scientists from all disciplines are pretty ordinary people who are just seeking the evidence we need to make important decisions. The trouble is that we don't always take any notice of that evidence.

He cited some examples. In the late 16th century scurvy was an occupational hazard for sailors. Some people had noticed that taking citrus fruits to eat on the voyage seemed to keep the sailors healthy, and in 1601 Captain James Lancaster did an experiment, comparing the health of crews of ships that took citrus fruits with those that did not. A hundred and fifty years later there was a randomised control trial that showed very clearly that citrus fruits were indeed the best option for preventing scurvy. But it wasn't until 1795 that the Royal Navy put this evidence into practice. In the meantime around a million sailors died as a result of vitamin C deficiency.

"So although we had the science we weren't using it. Ignoring evidence can be incredibly wasteful, and that can be true right across the spectrum, including in the environment," Professor Sutherland told the audience.

He pointed out, for instance, that we should have asked scientists about the best way of managing reed beds, which provide important habitats for animals and birds. You have to get rid of any trees and bushes or they grow up and take over the reed beds, and burning is an efficient way of doing this. But it's forbidden because burning is bad for the soil animals – or so we assume. However, when Professor Sutherland and his colleagues carried out experiments to see how long it takes the soil animals to recover from burning, they found it had no effect at all on them, because the reed bed is such a wet and soggy environment. Looking for the original evidence for damage, they found none. It was just a myth that had become accepted as truth.

We often have the evidence, but we don't use it, or we just make assumptions that aren't based on science. How can we change this situation? Professor Sutherland argued in favour of evidence-based conservation which, like evidence-based medicine, would require environmental actions to be linked to evidence that has been properly tested.

At the moment politicians are in charge, not scientists, and Professor Sutherland acknowledged the rightness of this, but pointed out that they often work to too short a timeframe. We need more politicians and civil servants who have scientific understanding, and we have to ensure that what they do is underpinned by evidence. He would like to see a greater understanding of the scientific process by the public and better teaching of the scientific process in schools.

But Susan Owens dismissed the idea that scientists should be in charge as "a technocracy rather than a democracy". Controversial issues concerning science, such as genetically modified crops, or pesticides and human health, or safeguarding biodiversity, involve much more than expert judgement, and cannot be left to scientists to decide.

Professor Owens said: "Science isn't enough; most of these sorts of questions that scientists feel understandably frustrated about, are not just scientific questions but transcend science... they involve decisions that embody political and ethical considerations, not only scientific ones. In the case of GM for example, we know that people are particularly concerned about questions of trust and control."

Professor Owens serves on the Royal Commission on Environmental Pollution which reviewed bystander risks from pesticide spraying. The report pondered the appropriate degree of precaution and the governance of risk, so she understands very well situations where there is scientific uncertainty, and also the limitation of science. She pointed out that although science can provide us with evidence, it cannot tell us why we should act – that is a question of values, and an issue for society, not for scientists.

She quoted the political scientist Albert Weale who said: "Even the best technical expertise cannot be decisive where issues of value and principle are involved and wherever we have decisions about acceptable risk then questions of value must apply[1]." And she concludes that this means we cannot put scientists in charge, as this would mean we accept that the formulation of policies only needs to take one set of considerations into account, the scientific.

She cited the ideals of science described by Robert K Merton as "communalism, universalism, disinterestedness and scepticism" and pointed out that these are difficult to apply

**Professor Bill Sutherland, Cambridge University:**

**"If you actually state the uncertainties I think people are much more respectful. Rather than scientists suppressing uncertainties, they should state the uncertainties... because that is the scientific process."**

**Professor Susan Owens, Cambridge University:**

**"It is quite easy to be cynical about politics and politicians. However, democratic politics is probably the best way we know of trying to reconcile very divergent human ends – the old adage is that democracy is the worst of all possible systems except for some of the others that have been tried from time to time."**

**Philip Merricks Elmley/Swale National Nature Reserves:**

**"We have an awful lot of scientists doing an awful lot of work but... I don't think scientists are very good at coming to a decision when so much of the natural environment has to be managed..."**

to trans-scientific or unstructured problems where "we can't even agree what the question is, let alone what the solution ought to be."

Even the purest science she argues, always takes place in a social context and scientists cannot be completely detached from this. Everyone is subject to thei own assumptions and judgements, and scientists are not immune.

"Even if scientists do not have visible interests..." she said, "it is an extraordinary expectation to think that scientists should come uncommitted to some of these contentious areas of environmental policy."

So, she concluded that scientists cannot be "in charge". Science must be available, but in the context of democratic discussion.

Mark Avery, taking up the cudgels in favour of the motion, countered by asking the audience to imagine a time when the Earth has been so damaged by human beings that we have to search for somewhere else to live. He wanted to know who we would prefer to have with us on the space ship when we find a brand new and pristine version of the Earth: politicians, economists, lawyers or scientists.

"It's an ecological world, not an economic one. ...it would help if we had some people who understood that and know their way through it," said Dr Avery.

He told us that we currently face problems of "flood, pestilence and famine" as climate change kicks in and suggested that it is science we need to help us tackle these. You can't legislate against this kind of problem, economics or politicians won't help and our only hope is "a big dollop of science".

"We've given everybody else a chance, now is the time to give scientists a chance," he concluded.

But Andy Stirling told our audience that while science is the best (though not the only) way of gathering knowledge, when you are making decisions then democracy is the best system.

He said: "Science is one of the most precious features of our culture and we should cherish it. But the more science gets drawn into power politics and claims for itself, or has claimed for it, the right to be in charge, the more it gets corrupted, the more it doesn't fulfil the vital purpose of evidence in a dispassionate way, and the more distrust is fostered of science."

And his argument is that it is very definitely democracy, rather than science, that should be in charge.

Uncertainty is the driving force behind science but when science comes into contact with policy, Professor Stirling points out that uncertainties are often downgraded and tend to disappear. There are enormous uncertainties in some of the environmental issues being debated today, but at the same time, when policies have to be formulated, politicians want definite answers.

So how do values come into this decision-making? Many of the most important decisions that have to be taken about the environment are choices between different technologies, different policies: nuclear versus renewable energies, organic versus GM farming and so on. Science cannot give us all the information we need to make those choices. The critical determinants are values and interests.

Finally, Professor Stirling reminded us that, although science is the best way we have of gathering knowledge, it is not the only source of knowledge. There are many examples where scientific knowledge has been incomplete. He cited the example of the aftermath of the Chernobyl nuclear disaster where, he says, politicians took too much account of scientists and not enough of the experience of local people. He also referred to amateurs such as birdwatchers, who have been an invaluable source of information about fish stocks, anglers who are often among the first to identify water pollution and the expert knowledge that workers in slaughterhouses could have contributed to the BSE debate. So, he concludes, we cannot assume that knowledge gained through science represents everything there is to know.

Professor Stirling said: "We need democracy as the driver of science. Democracy should be in charge because it keeps science honest. Churchill's phrase 'scientists should be on tap, not on top', is still relevant."

1. Weale, A. (2001) 'Science advice, democratic responsiveness and public policy', Science and Public Policy 28, 6 413-421, page 414.

**Dr Mark Avery, RSPB:**

**"We are in a car hurtling towards a brick wall and the brick wall is coming closer and closer. My view is that you need someone who knows where the brake is and is going to have the power to put it on. You could reach that decision by having a chat in the car about whether you are going to put the brake on or not, but I would rather see a scientist in the front seat with his or her hand on the steering wheel and a foot on the brake so that they can actually make the right decision."**

**David Mortimer, Food Standards Agency:**

**"Democracy keeps science honest? I would have said almost the opposite... I think democracy makes science have to answer to vested interests. [In the foot and mouth disease outbreak] there were alternatives to the contiguous cull that was carried out – vaccination was one – but those decisions were made under pressure from various farming lobbies. I think probably science should replace democracy and give us a chance!"**



# Farmers should be responsible for controlling livestock diseases

**The public expressed shock during the 2001 Foot and Mouth outbreak, when four million farm animals were slaughtered and burned in vast funeral pyres. Serious economic consequences followed, particularly for small businesses. More recently the spectre of bird flu has hovered over the poultry industry, and might have implications for human health, while farmers and conservationists wage a propaganda war about the role that badgers may, or may not play, in spreading bovine tuberculosis. In the future we can look forward to being threatened with outbreaks of more exotic diseases, as our climate warms up and disease-bearing insects, such as the Culicoides midge which spreads blue tongue in sheep and cattle, find the UK more to their liking. In the past farmers have been compensated for livestock culled in epidemics, but does this actually discourage them from implementing vital biosecurity measures?**

**The motion in the third and final RELU debate "Farmers should be responsible for controlling livestock diseases" provoked an impassioned discussion amongst both speakers and audience. Professor Jeff Waage is from the Centre for Environmental Policy at Imperial College, a pest management specialist by training, and chair of the Epidemic Diseases subgroup of Defra's Science Advisory Council. He was paired with Sean Rickard, Senior Lecturer in Business Economics at Cranfield University and formerly Chief Economist with the National Farmers' Union. Both were arguing for the motion – that farmers should be responsible for controlling livestock diseases – but from rather different points of view. They were opposed by Dr Rob Fish, a human geographer at Exeter University, and John Lloyd Jones, Chairman of the Countryside Council for Wales, who is also a farmer.**

Jeff Waage argued that prevention is better than cure, and farmers have the main responsibility for dealing with the consequences of disease, but should not necessarily be expected to bear the whole burden.

"They have very broad responsibilities," he said. "The great majority of livestock diseases, which have the greatest economic impact in Britain, are endemic diseases which affect the health, productivity and welfare of animals presently in the care of farmers on a daily basis. Farmers already pay for the treatments that address these chronic diseases because it makes good business sense, because animal welfare is an important consideration and because it is socially responsible."

He pointed out that farmers have a responsibility not to infect neighbouring farms. But what about exotic diseases such as foot and mouth disease where, in the past, expensive national campaigns have been put in place to stamp them out? Would we expect farmers to stump up the £7 billion that this cost in 2001? Prof Waage reminded us that the Anderson Inquiry into the outbreak did not advocate this (although he noted that the report also said "It is difficult to see why costs as substantial as these should be met by people not engaged in agriculture"). But he does think that the debate hinges on the enormous costs and social impact of stamping out these exotic diseases. Is it realistic to expect the farming industry that supplies us with food to bear all of that cost?

He summarised his argument thus: firstly, where farmers are responsible for introducing a new exotic disease they should be responsible for controlling it – the polluter pays principle - but exotic farming diseases are hardly ever caused by farmers. In past outbreaks of foot and mouth disease the virus has blown in, which is nobody's fault, or been imported in contaminated meat. Avian flu has been introduced via a wild swan and a parrot imported for the pet trade. However, we do need to be increasingly vigilant, he warned the audience, as more and more farming is multi-national, which increases the potential for bringing disease into the UK.

Secondly, he also thinks that farmers should make a contribution to stamping out campaigns – perhaps via a levy system or insurance schemes, which are common in other countries.

We learned a lot from the foot and mouth disease outbreak, he says, and we have dealt effectively so far with avian flu. But Professor Waage's third point is that there are humane alternatives to stamping out diseases by slaughter. We could use vaccines – and if these were employed in outbreaks, it would be reasonable for farmers to pay for them, as they do with other vaccinations. But there is no incentive to develop these while we are subject to European legislation and trade agreements that lock us into stamping out policies. This would be his choice for dealing with outbreaks of exotic diseases – a system based on vaccination, paid for by farmers themselves.

Rob Fish argued that: "It is misplaced to suggest that farmers have responsibility per se for controlling livestock diseases because it turns a public issue into a matter of private discretion and leads to a destabilisation of the state in issues of public health. If we accept the motion we will potentially end up with a mismatch between general questions of liberty, the right to biosecurity among citizens, and farmer assertions of choice – the right to deal with risks differently and variably. This is not how it should be. Effective biosecurity protection arises from the shared responsibilities of a liberal democracy, one in which the farmer's role should be actively supported."

Farmers have a vital role as stockmen in maintaining biosecurity, preventing, diagnosing and treating animal diseases. Many carry out this role very conscientiously, but we must take care not to turn them into "architects and technicians of risk". They have to be wide-ranging in their skills, but they are not veterinary scientists, epidemiologists or experts in formal risk management. In addition, the kinds of decision they have to take, about when to call in a vet, for example, are often discretionary rather than absolute.

We also have to remember that farmers are a diverse group, so can we expect them to play the same kinds of roles – is it reasonable to expect a hobby-farmer for example, to take the same responsibility as one with large holdings and relevant qualifications? As in any industry there are a few "bad apples" – those prepared to take short cuts or those who neglect their stock because of physical or mental illness. But that in itself does not mean that farmers in general should be held responsible – this is why we have a system of notifiable diseases, testing for TB and compensation. It allows for the diversity of the industry, gives protection to the public and "good" farmers, against the actions of "bad" farmers, but also manages an industry that is not necessarily equipped by itself to deal with problems like livestock disease that have implications far beyond the individual farm.

Dr Fish argues that as soon as we accept the right of the state to intervene and impose legal sanctions to control disease, then the suggestion that farmers should take full responsibility becomes untenable in a democratic society. State intervention also implies a sharing of costs. And if there is a policy of slaughter, then compensation makes it more likely that everyone will comply. On the other hand, if farmers have to take full responsibility, disease control becomes a question of choice, with no guarantees.

Insurance is cited as an alternative to compensation, but this would just push responsibility back onto the "bad apples" – and we cannot rely on them to comply. It also raises the possibility of legal battles between insurance companies and government about the efficacy, or otherwise, of culling.

Sean Rickard dismisses this argument and his approach to the motion is robust – farmers must take responsibility and cease to expect compensation when things go wrong. He said: "In the 21st century, as we move towards an unsupported agricultural industry, we expect agriculture to begin to behave like other industries – and that is what this debate is about ultimately."

He sees farming as an industry that is used to hand-outs and compensation and is dependent on someone else to help it out at every stage. In his view, compensation destroys responsibility. Human nature means that if you offer compensation for their actions there will be less incentive to take care, because you can guarantee that the public will bear the cost.

Citing an incident where petrol being sold at a large supermarket chain was found to be contaminated, and to have damaged the engines of cars, Mr Rickard said: "If I were responsible for putting silicon in petrol I wouldn't be expecting the government to bail me out. I would expect to bear the cost of that mistake."

He pointed out some anomalies in the system. There is no compensation for crop diseases – the farmer bears any losses. So why is it that livestock attract compensation? Is it because there is a welfare issue? But we can demonstrate that responsibility for the welfare of animals rests fully with farmers. Is it because of the public health dimension? But Mr Rickard denies that there has been any public health risk associated with recent outbreaks of foot and mouth disease and avian flu. Is it then because the farms have low incomes? He would argue that while profits may go up and down, the reluctance of farmers to bear costs of disease has not changed.

Farmers need an incentive to implement good biosecurity – this, he emphasised, is in their own interests as well as those of the public. It means that animals are healthier and more productive, and costs are lower. In New Zealand, when the government removed support, farmers did take more interest in risk management and animal welfare, he says. In Europe, where costs are shared, there is greater care taken. We stand alone in protecting farmers, according to Sean Rickard.

He argues that in order to ensure farmers improve biosecurity and welfare, not only should compensation be removed, but also fines imposed on those who take risks, while lower cost insurance should be offered to those who engage in good practice. Fines should also be imposed on those who fail to disclose disease.

This, he says, would improve efficiency of livestock farms, reduce the burden on the public purse, result in the lower instance of disease, and ensure prompter action when it does occur.

John Lloyd Jones is a farmer himself and he pointed out that farmers do a great deal already to ensure their livestock remain free of disease. Warble fly has been eradicated, and sheep scab had been eradicated until it was brought back on imported sheep. It then spread quickly, in spite of farmers' best efforts. Eliminating these kinds of disease requires coordinated action and may have far reaching implications. There is a limit to what individuals can do alone.

He also cited the emotive issue of TB, where badgers have been blamed for spreading the disease to cattle, angering farmers, but rallying many conservation and animal welfare groups to the badgers' defence.

"Farmers will say they want to see healthy badgers on farms but will farmers be quite so happy to say that if there is any kind of danger of those healthy badgers becoming unhealthy, and no compensation methods in place?" he asked.

Some diseases are very virulent and only a coordinated, pre-emptive cull will control them. But eradicating them has a national economic benefit, when farms feed a very sophisticated food industry. John Lloyd Jones thinks government intervention is inescapable and that, if and when there is another outbreak of foot and mouth disease, the only question is when and how such government intervention will occur.

Then there are the mistakes made in the past. Government experiments designed to detect BSE in sheep had to be abandoned when researchers realised that the samples had been contaminated with tissue from infected cattle. Positive results from the contaminated samples could have resulted in a widespread cull of sheep and losses to farmers. Surely this highlights a need for the government to take some responsibility? That's the kind of problem that is beyond the control of farmers.

And does avian flu really have no implications for human health? He questions Sean Rickard's sanguine dismissal of any risk and emphasises the need for compensation as a mechanism to ensure that farmers are not tempted to cover up disease or push infected animals into the food chain.

Farmers are not a homogenous group – most are honest but some are unscrupulous. Can we really leave it all up to them, asks John Lloyd Jones.

**Professor Jeff Waage, Imperial College:**

"One of the first steps farmers can take towards responsibility is to be more involved in the process of disease prevention and planning. I notice that the current consultation on sharing the costs of animal disease control is a very inclusive one. You can't expect people to pay for something that they don't take a role in designing."

**Hilary Burrage, Science Advisory Council for Defra:**

"There are a lot of parallels with MRSA – a highly contagious disease with a lot of regulation... you can sue your hospital. I presume therefore that the consumer will be able to sue the farmer."

**Dr Rob Fish, Exeter University:**

"Farmers can inform policy and be part of the process – that is not the same as being responsible."

**Sean Rickard, Cranfield University:**

"I come at this as a supporter of British agriculture – genuinely in the belief that we have in this country a potentially world-class agricultural industry and really want that industry to be as efficient as possible. If we remove compensation we will not only force farmers to take responsibility but actually benefit them."

**John Lloyd Jones, Countryside Council for Wales:**

"One of the major drivers of animal movements is that most supermarkets will only take their supplies through dedicated abattoirs and if that is in Cornwall and you are a farmer in Northumberland supplying the supermarket, your cattle will end up in Cornwall."

**Jeremy Blackburn, British Poultry Council:**

"Because the outbreak of avian flu at Bernard Matthews was at an intensive, indoor site, it was far easier to contain, eradicate and stamp out that outbreak. There is an awful lot of pressure that free-range is the route to go... but putting birds out makes them more susceptible to disease... poultry farmers don't have control over the chain that is pushing them down that route. So you want to make them responsible but they don't have control."

**The RELU debates explored some contentious questions that society is grappling with today, and all are issues that have deep implications for the rural environment and economy – who should be managing the environment with all the responsibilities that brings; given so many choices every time we visit the supermarket, will we make the right decisions about our diet; and should we be making farmers pay for mistakes in biosecurity? Who should be burdened, and trusted, with these key responsibilities that affect the health and the future of our society?**

**The RELU research programme is providing evidence that will contribute to policy making and practice in these complex areas. Researchers, working in interdisciplinary teams, are addressing questions about the effects of human activity on the environment and on biodiversity, about food production and the implications of different production systems, about animal and plant diseases and how we can most effectively arm ourselves against them in the future. The debates assist this process by providing an opportunity to unravel some of the multiple threads and perspectives involved.**

**The Rural Economy and Land Use Programme is a prime example of using joined-up science to tackle key challenges facing the UK's rural areas. It is a radically interdisciplinary programme, funded by an unprecedented collaboration between the Economic and Social Research Council (ESRC), the Biotechnology and Biological Sciences Research Council (BBSRC) and the Natural Environment Research Council (NERC). It has a budget of £25 million, with additional funding from the Scottish Executive Environment and Rural Affairs Department (SEERAD) and the Department for Environment, Food and Rural Affairs (Defra).**

Rural Economy and Land Use Programme
Centre for Rural Economy
School of Agriculture,
Food and Rural Development
University of Newcastle
Newcastle upon Tyne
NE1 7RU

Telephone: 0191 222 6903
Email: relu@ncl.ac.uk
www.relu.ac.uk

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Text by Anne Liddon, Science Communications Manager, Rural Economy and Land Use Programme.
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