

BUYING BIO-SECURITY – COMPENSATION FOR ANIMAL DISEASES

Gareth Enticott and Robert Lee

**Centre for Business Relationships Accountability, Sustainability and Society, at Cardiff
University, Wales, UK**

Introduction

The Centre for Business Relationships, Accountability, Sustainability and Society (BRASS) is an ESRC funded interdisciplinary research centre combining expertise from the Business School, the Law School and the School of City and Regional Planning (CPLAN). Research at the centre specialises in business sustainability and corporate social responsibility with a particular focus on the relationships between businesses and their key stakeholders (customers, suppliers, investors, workers, local communities and regulators).

BRASS has a comprehensive programme of food related research incorporating the activities of over 20 members of academic staff, researchers and PhD students. This research programme is centred on 5 major themes: Biosecurity and Risk, Accountability Governance and Regulation, Agriculture and Rural Restructuring, Sustainable Supply Chains, and the Public Plate.

Recent research projects undertaken by BRASS relating to social and legal aspects of biosecurity include:

- Lessons from Foot & Mouth: Legal, Policy and Planning Perspectives
- Biosecurity and the Regulation of Animal Health: The Case of Bovine Tuberculosis
- Evaluation of the South West Wales Biosecurity Intensive Treatment Area
- Styles of Veterinary Regulation

For more details of BRASS biosecurity research see:

http://www.brass.cf.ac.uk/projects/Food/biosecurity_and_risk_front_page.html

Professor Robert Law,
BRASS Centre, Cardiff
University, 55 Park Place,
Cardiff.
CF10 3AT

Dr Gareth Enticott,
School of City and
Regional Planning,
Cardiff University,
CF10 3WA

Dr Alex Franklin,
BRASS Centre, Cardiff
University, 55 Park Place,
Cardiff.
CF10 3AT

VERY EARLY DRAFT – PLEASE DO NOT QUOTE OR CITE

Introduction

Where there is a failure in market provision, one might well anticipate State intervention. In relation to bio-security, it is not uncommon to find compensation provided by the state where diseased animals are slaughtered. Ordinarily one might expect that such losses attaching to production will be borne by the producer. The risk would generally be internalised, by insurance or through pricing mechanisms. In the case of animal diseases, however, this is not the case; surprisingly so, since the ready payment of compensation hardly provides the strongest incentive towards bio-security.

Section 32 of the Animal Health Act 1981 allows the Secretary of State to arrange the slaughter of any animal which is affected, suspected of being affected or which has been exposed to the infection of a disease covered by the Act. This is in line with: EC Council Directives 77/391/EEC on Community measures for the eradication of brucellosis, tuberculosis and leucosis in cattle; 78/52/EC establishing the Community criteria for national plans for the accelerated eradication of brucellosis, tuberculosis and enzootic leucosis in cattle; and Council Directive on Community measures for the control of foot-and-mouth disease (repealing Directive 85/511/EEC and amending Directive 92/46/EEC (2003/85/EC)). Using this power the Secretary of State has issued an Order allowing for slaughter of animals thought to be affected by bTB subject to the payment of compensation. At the time of foot and mouth outbreaks in 2001 and 2007, similar Orders were issued in respect of animals thought to be infected by that disease.

There would appear to be two possible reasons why the State would adopt this stance in relation to compensation. The first is that a strong public interest in maintaining food production dictates that the losses should be compensated to promote uninterrupted supply of food and regenerate the site of production in a manner which market mechanisms could not accomplish. A second explanation is that the compensation buys intervention rights on the part of the State. Under this explanation in order to encourage producers to behave in certain ways, compensation acts as a mechanism to influence behaviour. Compensation incentivises producers to report disease and can be made dependent on the producer following mandated, desirable course of action.

Whilst it is commonly asserted within the agricultural industry that the role of compensation is to address failings in public policy, the paper suggests that historically and presently the true purpose of compensation is to buy intervention rights. More significantly, the rationale of compensation matters ought to shape regulatory policy, though we will suggest that it does so poorly. If, as suggested, compensation provides a financial incentive to producers to report disease or present their animals for testing, it follows that compensation should be consistently applied to achieve this objective. Drawing on case law and reforms of animal health legislation, this paper will suggest that such consistency is not present largely because of the confusion of regulatory objectives.

We will suggest in this paper that though the 'intervention rights' theory best explains the payments of compensation to farmers hit by animal disease, if one is to move to a more rationale basis of compensation, distinctions may need to be drawn between endemic and epidemic diseases of animals. This being the case, the paper reviews one example of each type of disease by reference to recent examples from the UK of episodes of disease, drawing on instances in court engagement in decisions to cull diseased animals or to make awards of compensation. The example for endemic disease is that of bovine tuberculosis and that for an epidemic condition is foot and mouth disease. We will look at each in turn.

Bovine Tuberculosis in Cattle

Bovine tuberculosis (bTb) is a zoonosis caused by the bacterium *Mycobacterium bovis* commonly found in cattle. The disease was first recognised as an animal and public health problem at the end of the nineteenth century. At its height, approximately 50000 human cases of bTb were recorded annually, killing 5% of those infected. Since then, a range of public and animal health measures have been progressively implemented. For public health, the realisation that bTb could be transmitted to humans set in train successful campaigns focussing on the quality of milk and beef. Such campaigns led to the pasteurisation of milk and the establishment of meat hygiene inspectors with powers to seize unfit meat (Waddington, 2006). The disease was made a statutory notifiable disease in 1925 requiring all cases to be reported to the state.

Following an unsuccessful voluntary bTb eradication scheme, a government-sponsored programme was implemented after the Second World War. This involved injecting cattle with tuberculin using an intradermal tuberculin test – more commonly known as the ‘skin test’. If cattle “reacted” to the tuberculin – known as a ‘breakdown’ – they were slaughtered. To encourage farmers to participate in the scheme, farmers were compensated for the loss of any cattle. Only following a clear test were farmers then allowed to restock from bTb-free areas. By 1960, this ‘test and slaughter’ regime had reduced the number of bTb cases to just 28 (Proud, 2006). However, in 1971 a badger infected with bTb was found on a Gloucestershire farm that had recently suffered a bTb breakdown. On the logic that fewer badgers would equal less bTb (ISG, 2007), various badger culling policies, using poisonous gas and traps were launched.

At the same time, badgers had been afforded statutory protection as an endangered species through the Badgers Act 1973, and later through the Bern Convention. However, these measures provided the government with the power to issue licences to cull badgers on the grounds of animal health. Individuals (i.e. farmers) are also afforded some rights to cull badgers if they are immediately affecting their property. The use of the skin test to detect and slaughter bTb infected cattle had also become enshrined in EU Directive 64/432 (see also articles 14 and 15 in Council Directive 78/52/EEC). This states that member states must implement a programme of bTb eradication:

"measures must be taken within the framework of the common agricultural policy and in line with regulations already adopted or in preparation on the progressive establishment of a common organisation of markets; whereas the animal health provisions of Member States must therefore be approximated"

The Office des Epizooties (OIE) animal health code sets the international trading restrictions and the eligibility criteria for ‘officially free status’ at 99.8% of herds being free from bTB over the last three years. In the UK, this led to the current bTb surveillance policy: cattle are tested within geographical parishes at intervals of between 1 to 4 years, determined by local bTb incidence. When reactors or inconclusive reactors (IRs) are found, movement restrictions apply, prohibiting the movement of cattle on or off the farm. Reactors are slaughtered (but may enter the food chain) and the herd must pass two further tests before restrictions are lifted. IRs should be isolated from other cattle and are retested after 60 days. If they remain IRs after two tests, they are considered reactors and slaughtered. Financial compensation is provided for all slaughtered cattle.

By the mid 1990s concern that these policies were not working led to a scientific policy review commissioned to propose solutions based on “sound science” (Krebs, 1997). The resulting report established a series of scientific badger culling trials to establish its effectiveness in controlling bTb. The Independent Scientific Group (ISG) chaired by John Bourne was established to run the culling trials between 1998 – 2005 but its final conclusions suggested that ‘badger culling can make no meaningful contribution to cattle TB control in Britain’ (ISG, 2007: 5). Although the ISG recognised badgers to play a significant role in transmitting bTb to cattle, their conclusion was based on the significance of badger ‘perturbation’ following culling events. That is, the ISG argued that incomplete badger culling disrupts badgers social groups and territories, resulting in the remaining badgers migrating and spreading bTb because of increased contact with infected badgers (Woodroffe et al, 2006). Instead, the ISG recommended tighter controls on cattle movements, greater use of better diagnostic tools and enhanced on-farm biosecurity (ISG, 2007). During this period, The UK Department for Food, Environment and Rural Affairs (Defra) instigated a system of pre-movement testing to confirm cattle were bTb-free before they could be moved (e.g. to market); reduced the compensation values given to farmers; and began using the Gamma interferon blood test. In July 2008, Defra announced that it would not follow a badger culling policy and ruled out the issuing culling licences to farmers. At the time of writing this policy is under review in England. In Wales a cull of an estimated 1,500 badgers was due to have begun but has been halted pending judgment in a legal challenge.

The complex economic, social and natural factors involved in bTb make it, according to the Chief Veterinary Officer, the most difficult animal health problem to manage in the United Kingdom (Defra, 2008). Increasingly, these factors have been joined by action through the courts by farmers dissatisfied with current bTb control mechanisms. The recourse to the law is not surprising as bTb control measures currently defy European Directives. Firstly, the EU directive states that cattle that are inconclusive reactors (IRs) should be retested once. If they remain an IR they should be slaughtered. However, current policy in the UK is to retest IRs twice. Secondly, the July 2008 decision not to issue licences for badger culling denies the rights of farmers to apply for such licences as currently outlined in existing legislation. In fact, this right was withdrawn on the advice of the ISG fearing it may be prejudicial to the experiment. The National Farmers’ Union have indicated that they seek judicial review of Defra’s approach to culling licences, based on its continual statutory existence, but also as an indication of Defra’s lack of a bTb eradication as required by the EU directive. An opposite situation exists in Wales, where bTb policy is devolved, and badger culling has been sanctioned by the Minister for Rural Affairs. Here, a conservation group, the Badger Trust, has brought the judicial review proceedings mentioned in the above paragraph.

However, recently, three cases relating to bTb policy have been brought before the courts. First, in July 2007, the entire bTb test and slaughter policy was challenged in R (on the application of Swami Suryanda as a representative of the community of the many names of God) versus the Welsh Ministers [2007]. The judgment of Honour Judge Higginbottom rested on Article 9 of the European Convention for the Protection of Human Rights and Fundamental Freedoms. The judgment ruled that in applying the same policy to a sacred bullock (named “Shambo”), the government (in this case the National Assembly of Wales) had failed to consider the rights of the religious community in relation to the wider public benefits of the bTb control policy.

The Community of the Many Names of God runs a hospice and Hindu temple in Skanda Vale, Carmarthenshire, Wales. The temple, established in the 1970s, is a place of Hindu pilgrimage. The monks and nuns provide both food and shelter to pilgrims. Shambo was central to the life of the community as a temple bullock. In the eyes of the monks, because divinity lies in living things, it

was their duty to care for and preserve the rights of animals as it would be for human beings. Shambo tested positive for bovine tuberculosis. On the same day an "intention to slaughter notice" was issued ordering Shambo's slaughter within the week. It is important to note that the test was a routine skin test for bovine tuberculosis. As such it was not confirmed by later tests, but it is the practice of the Welsh Assembly Government (WAG) to slaughter in all cases where tested animals show a reaction to the skin tests. The powers under the Animal Health Act 1981 give to the Minister a power to slaughter where the Minister thinks fit. As such the slaughter is not mandated by statute but lies within the discretion of WAG.

This being the case the Community asked that exceptional treatment be afforded to Shambo and that the animal be saved from slaughter, allowing for the religious significance attaching to it. The Community had isolated Shambo and they made it clear that they would expend any necessary resources on anti-biotic treatment of the TB. Nonetheless WAG was insistent on the necessity of the slaughter notice, leading to an application for an injunction by the community on the basis that WAG had closed its mind to all but its "surveillance and slaughter" policy. An essential part of the Community's argument was that although WAG had taken expert bio-security advice, it had not given the same attention to questions of religious beliefs. This was said to breach Article 9 of the European Convention on Human Rights, which provides that the freedom to manifest religious beliefs can be restricted only for certain legitimate State aims and only by means of justified and proportionate measures. Public health is a potential public interest that might justify the interference with religious freedom.

The Community's experts had presented evidence at the High Court that the bio-security risk (given the isolation and treatment of Shambo) was negligible and said to be 'close to zero.' The Community argued that in such circumstances there would be a breach of Article 9 given that the slaughtering of Shambo would amount to a desecration of the temple and an act described by Counsel as "comparable to killing a human being" in the view of the monks. Such a grave consequence ought to bring into question WAG's insistence on slaughter, its failure to consider alternatives and its refusal to further assess the health risks attaching to the Community's plans for Shambo. This conduct was said to be disproportionate and a violation of rights protected by Article 9. WAG for their part argued at the hearing in the High Court that because of the considerable impact of the spread of bovine tuberculosis, it was quite correct to follow the expert of veterinary experts, which supported the policy of precautionary slaughter based on skin tests.

By the time the case came to court there were thousands of signatures on an on-line petition to save Shambo. Many more people still had logged on to a webcam depicting Shambo (labeled Moo-Tube). His Honour Judge Hickinbottom, sitting in the High Court in Cardiff quashed the slaughter notice and ordered that WAG reconsider its decision, describing the WAG's treatment of the Community's religious beliefs as "grudging" and "unfortunate". Its policy, based on zero risk mandated slaughter. But this failed to adequately deal with human rights' issues once Article 9 was engaged. WAG had failed to consider the necessity and proportionality of its slaughter policy given the possible infringement of the Article 9 rights. This ruling was successfully appealed (Suryanda and the Welsh Ministers [2007]). The Court of Appeal ruled that WAG had acted lawfully. Lord Justice Pill stated that:

"I have come to the conclusion that the minister was entitled to make the decision she did in regard to the very considerable problem presented by bovine TB."

In the view of the Court of Appeal the Minister had analysed both sides of the balance and suggestions to the contrary "substantially" misinterpreted evidence. There was no requirement for WAG to consider what the Court described as risks associated with the speculative alternatives

given the biosecurity issues attaching to bovine TB. This was so even though Shambo's slaughter would be considered by the community as a sacrilegious act and "a very grave and serious interference with their religious rights". The Court found the policy on culling to be a proportionate response. Shambo was therefore slaughtered and post mortem testing did disclose that he suffered from bovine TB. Bovine Tuberculosis can affect humans but the risks are considered to be low and eating meat from an animal with TB, highly unlikely to happen in Shambo's case, carries little risk. Although public health is invoked then as a reason for action, what is at stake in this case is therefore largely an economic policy and it is this that is given primacy over the religious rights in question.

In a second line of cases, there have been a number of challenges to the clinical method of detecting bTb as required by the EU directive. In the previous case, evidence was presented which suggested that the skin test was flawed, although this was not a key argument within the case. However, two other incidents in 2006 and 2007 prior to the Shambo case had raised concerns over the legitimacy of the skin test for use within any animal health surveillance policy. Although these never reached court, Defra were forced to re-test two herds following complaints of malpractice by private vets. The first case was by Devon farmer, Sheilagh Kremers, whose 9 month old Dexter bull (called "Fern") tested positive for bTb. Kremers asked for a retest but was refused by Defra. When she refused to let the bull be slaughtered, Devon County Council began legal proceedings to remove the bull. During this process, however, it came to light that the test procedure had not been conducted according to the protocols laid down by Defra. Days before the case was due before magistrates, the case was dropped, Kremers was granted a retest for Fern, and was issued an apology by the Minister for Animal Health in the House of Commons. The case prompted Defra to review how the skin test was implemented by its local veterinary inspectors (DNV Consulting, 2006). Fern, meanwhile failed his retest and was subsequently slaughtered. However, a year later a similar case arose. Farmer Richard Bown's pedigree Holstein dairy cow (named, "Ecstasy Journalist Roxie") was deemed to have failed the skin test. Bown was due to take the cow at an international agricultural show, but was instead offered £800 by Defra. Other valuations put the cow at, first £40000 (Farmers Weekly, 23rd February, 2007) and then £100,000 (Farmer's Guardian). The case was again settled out of court with Bown granted a re-test which the cow successfully passed.

These cases in part reflect DEFRA's policy "to set aside results produced by either test, unless there is clear evidence that an individual test, or group of tests, is unreliable because of concerns over the way the test was performed". This policy formed the basis of a more recent case relating to a different clinical tool to assess bTb infection. In 2005, Defra began using a blood test known as Gamma Interferon. This test is claimed to detect bTb at different periods of infectivity when compared to the skin test. The two tests have different sensitivities and specificities. In short, whilst one may be positive, the other may be negative. The test is approved as an auxiliary test to the skin test by the EU under Community Regulation 12/26/2002, but the fact that it can often detect large numbers of bTb infections where the skin test has found none has created concern within the agricultural community that the test may be more prone to identifying false positives. In April 2008, the use of the test was challenged in R (on the application of High Burrow Organic Farming Partnership) v Secretary of State for the Department of the Environment, Food and Rural Affairs [2008] EWHC 953 (Admin). It was argued by the claimant that "where blood and skin tests, taken together, produce statistically surprising results, then some further step, which he identifies as re-testing by blood and skin tests, should be undertaken to check the result". Presiding, Mr Justice Mitting stated that "there is simply no empirical evidence to show that blood tests which have proved positive may, if retaken, prove negative", suggesting that the discrepancy in test

results was likely to be because of early detection of an “explosive outbreak” rather than any of the other potential sources of error within the test. As a result, he stated that “the policy adopted by DEFRA of using blood tests on herds in areas previously free from tuberculosis is lawful, and that its decision to proceed to slaughter animals which test positive on such tests is not only lawful but mandatory, save in the case identified by it in its policy where there is reason to doubt that the test has been properly performed”.

The lawfulness of Defra’s policy was based on Mr Justice Mitting’s statement that “there is simply no empirical evidence to show that blood tests which have proved positive may, if retaken, prove negative”. Soon after his decision, however, the agricultural press were claiming that this was simply wrong. At the same as this case, another farmer in Wiltshire was attempting to get a retest of cattle after the gamma interferon test had identified 31 positive cattle. His local Animal Health Office ordered retests using the skin test, none were identified as positive and spared slaughter (Daily Telegraph, 18 May 2008). Whilst this was not a retest using the blood test, for many farmers the apparent unreliability of the screening tests for bTb is a cause of constant complaint, loss of trust with the government and declining compliance with Animal Health surveillance systems (see Enticott, 2008).

Third, action has been brought by farmers over the change in compensation values offered by Defra for cattle testing positive for bTb. In July 2008, these compensation values were effectively challenged in R (on the Application of Partridge Farms Limited) versus The Secretary of State for the Department of Environment, Food and Rural Affairs (DEFRA) [2008] EWHC 1645 (Admin). Compensation values were reduced in 2006 as part of a “cost-sharing” approach to animal health, prompted largely by the financial costs of the 2001 Foot and Mouth Disease outbreak. The aims were therefore to reduce the costs of compensation since an analysis of the range of compensation and market values shows compensation to be consistently higher than market values. There was also a wish to prevent abuses of the system. At the time of foot and mouth in spite of the wish to cull quickly to stamp out the disease, the valuers had an incentive to press for higher values as their remuneration was based on a percentage of payments made. Even in endemic disease valuers used to assess compensation may have a stake in higher values as they may also be selling new cattle to bTb affected farmers. It was also hoped to encourage farmers to take responsibility of bTb for themselves, through enhanced biosecurity measures by providing a financial disincentives for a bTb breakdown. Whilst bTb breakdowns do have economic and social effects, the phrase ‘farming TB’ is often used to describe those farmers who deliberately seek out remuneration through compensation.

Compensation is generally assessed by means of a table of valuation operative at the date (for tBT) of a skin test leading to slaughter. Table in Part 2 of the tBT Order contains 47 categories of cattle to reflect differences in age, type of animal (beef/dairy), sex and pedigree or non-pedigree status. The calculation is based on the average market price paid for cattle over the last month, for non-pedigree cattle, or the last six months, for pedigree cattle. The values in the tables are re-calculated each month and are based on records of sales prices achieved at market. The six month period to establish the market valuation of pedigree stock is telling. Animals of truly high value are much less frequently traded in that marketplace. They may be subject to other methods of transaction such as breed 'showcase' and private sale, but these are excluded from the calculation method in the Table. Using the price of the category of animal traded in the local livestock market within the proscribed time window, the average market value formula produces a broad brush approach. The Court heard evidence of the workings of the Tables. Essentially in providing for the average market value of the different categories of livestock there were significant variations between the Table value and the actual value.

The claimant, Partridge, a dairy farmer from the high risk area for bTB, of Devon, claimed he was discriminated against by the tabular valuation system. He said compensation of £8,726 for eight of his high yielding, prize cows slaughtered under the scheme did not reflect their true value of (on average) more than £3,000 each such that his compensation should have been more than £24,000. His argument was that the failure of the compensation system to cater for high-value animals such as elite breeding stock, high-value pedigree and organic cattle had a discriminatory effect. The employment of such a rigid system of average value, in effect discriminated against certain owners of animals when compared with those whose cattle had a market value is either lower than, or close to, the values set out in tables published by DEFRA. The Order was said to be irrational, unfair, discriminatory, and unlawful under English Law and contrary to the general principle of equality under EU law, contravening Article 3.2 of Council Directive 77/52/EEC, which requires that “breeders are appropriately compensated.”

In response the Secretary of State argued that the Order is fair and rational under English Law. Although EC law is applicable, the Claimant had not been treated differently to someone else in a materially different situation, but even if this were so, such a distinction was capable of objective justification applying a wide margin of appreciation to which the Secretary of State was entitled. It was argued that it would be impossible to produce a table under which ‘high value’ animals could be readily and objectively ascertained. Finally it was disputed that the Directive requires the UK to pay appropriate compensation; or, alternatively, the compensation payable under the Order was nonetheless appropriate.

The case was supported by the National Farmers’ Union (NFU), whose legal assistance scheme supported the claimant. The NFU had opposed the Table throughout. Their view is best represented to their response (along with other valuation bodies) to a third round of consultation:

“The NFU understands that questions on which opinions were sought by Defra were roundly rejected by those that responded on both occasions. The industry remains totally opposed to a table based system of valuation, on the grounds that the median price this gives will under compensate some animals and in some instances over compensate others. Such a system is unacceptable to our members who see it as unjust and not within the spirit of partnership and co-operation that Defra are so keen to promote.”

In the High Court Lord Justice Stanley Burnton held that EC law demands that any element of discriminatory unfairness can be struck down unless it can be objectively justified as a proportionate response. This raises the question of what that response must address and the claimants argued that, on the basis of the ECJ judgment in Royal Scholten-Honig (Holdings) Limited v Intervention Board for Agricultural Produce; Tunnel Refineries Limited v Intervention Board for Agricultural Produce (joined cases 103 and 145/77, [1979] 1 C.M.L.R. 675) differential treatment could not be justified by administrative convenience. The judge found it unnecessary to take such an ‘absolutist’ view because the greater the differential treatment then the greater the requirement for justification and here the difference was described in the judgment as ‘enormous’. The judge concluded that the Order attempts to locate a market value for a healthy animal by way of compensation for the slaughtered animal, but this level of compensation was not provided for the claimant, thus entailing discriminatory treatment that the Secretary of State must be able to justify by reference to objective criteria. Although the Court expressed sympathy with the difficulty of devising a fair scheme, it states that it is not its job to devise such a scheme; rather it is required only to rule on the present one.

In the Court of Appeal, Lord Justice Lawrence Collins ruled there was no discrimination and he accepted the argument on behalf of Defra that the true value of any animal, once it had tested positive to bTB, was simply the salvage value of its carcass. On this analysis, the true value of the Partridge cattle was not "materially different" to any other cattle diagnosed with bTB and the Table scheme already compensated farmers in excess of the salvage value:

"All owners of pedigree cattle receive sums in excess of the salvage value of the cattle. It is true that, as a result of the table valuation scheme, some farmers such as the claimant suffer greater losses from TB than others. But that is not the result of discrimination against them."

His Lordship concluded that said the compensation tables were neither disproportionate nor discriminatory under EU law, as they provided a "comprehensive solution to a problem of general public importance."

It is suggested that there are some very clear messages concerning priorities within bio-security policies relating to bTB arising out of the case law. The first is the preference given to precautionary slaughter. The perceived need to eliminate animals suspected as diseased overrides other, even quite significant competing claims as the Shambo incident demonstrates. Moreover the stance is unashamedly precautionary in that notwithstanding the doubts attaching to screening tests, the Government has persisted in its reliance on such tests, defending the policy in the court as necessary. In many instances, farmers will not challenge a slaughter policy where compensation is offered at a reasonable market rate. This is less true, however, of farmers with specialist breeds or elite breeding stock. Here, changes in compensation policy have produced resistance supported by the NFU. The interpretation in the Court of Appeal in *Partridge* might put at risk the compensation policy itself. If the value of an animal is no more than the value of the carcass, then this changes the entire indemnity policy. Breeders are not being indemnified against risk to high value stock so this raises perplexing questions as to the purpose served by compensation.

In the following section, we turn to look at questions relating to culling and compensation arising out of two episodes of foot and mouth disease in the UK during this decade. Part of the purpose here is to assess the nature of compensation not merely in relation to a persistent endemic disease like tBT but in the context of sporadic outbreaks of epidemic disease. Foot and mouth disease provides a perhaps the best instance of this.

Foot and Mouth Disease

The foot and mouth outbreak of 2001 involved the slaughter of at least seven million animals. Many of these animals were not infected by the disease but the chosen method of stamping out the disease by culling the animals meant that there was no time to await confirmatory tests. Such was the virulence of the foot and mouth disease (FMD) that by the time it was discovered in 2001 it had already spread to different areas of the country and thereafter the race was on to outstrip the disease by the culling not only animals suspected as infected but also stock on surrounding, contiguous farms. In the event fewer than one in four animals slaughtered were infected (Vincent, 2006). The estimated costs arising from the 2001 outbreak have been put at no less than £9 billion, with at least £3 billion in direct costs to the public sector and about £5 billion in costs to tourism and the rural economy. Out of the total costs incurred during the outbreak, compensation payments to farmers for the slaughter of their animals were said to amount to £1.34 billion. The lasting impact on the farming and wider rural community of this episode cannot be understated. It has scarred not only those farmers whose animals were culled; those unaffected by the disease as

such but unable to move stock to market arguably suffered more. These losses went uncompensated whereas the mandatory culling of animals at least triggered a payment of compensation under the Animal Health Act 1981.

FMD is an epidemic, viral infection to which all cloven-footed animals, including those commonly domesticated for agriculture, are susceptible (OIE, 2000: Ch. 2.1.1). It has been known for at least four centuries everywhere in the world where livestock are reared. In 1897 the agent responsible for it was identified as the FMD virus, one of two members of the aphthovirus genus within the family *Picornaviridae*. Two points must be stressed about the epidemiology of FMD: it is an extremely contagious disease but also one which is very rarely fatal.

FMD is able to be transmitted by direct contact with infected, carrier animals, by contact with their discharges (FMD virus can survive for weeks or months in animal wastes), by being physically carried on other creatures which cannot actually contract the disease and on inanimate objects such as farm vehicles, and by air over short and long distances (infected animals, especially pigs, exhale the virus). The incidence of long distance transmission by air is highly dependent on environmental factors and on the nature of the specific strain of FMD virus involved, and typically short-range transmission between animals brought into proximity or contact is the major source of infection. In sum, FMD is an extremely contagious disease; 'probably the most contagious virus known in mammals'.

FMD takes its name from a very unpleasant symptom infected animals may display, of the growth of vesicles or blisters chiefly in and around the mouth and feet which are painful and which can make chewing and walking difficult, sometimes to such an extent that the animal becomes lame. However, the principal symptom of FMD is fever. The severity of the symptoms infected animals display can differ widely. Infection may easily pass entirely unnoticed especially in herds of sheep, being very hard to detect in the context of normal husbandry practices. It is also a low mortality disease, for almost all adult cattle and sheep and over 90% of adult pigs will recover within two weeks. On the other hand, weak or young animals may die, and in particular mortality among newly born animals may be high as it induces myocarditis (heart disease). Adult cattle which recover may display 'reduced performance' in that their ability to gain weight and produce milk may be impaired. However, the point which must be stressed here is that FMD is far from an apocalyptic disease: adult animals very rarely die of it but rather recover from what in the literature is often compared to a bout of the flu (Houghton Brown, 2001).

It is very important to note that there are only a tiny number of (disputed) cases of human beings ever contracting the disease, those cases being produced by close contact with infected animals; and it is as certain as one can say that human beings cannot contract the disease by eating food products obtained from infected or vaccinated livestock (Prempeh *et al.*, 2001). The Food Standards Agency (FSA) has said that FMD has 'no implications for the human food chain' (FSA, 2001).

The chosen method of combating the disease in the UK is to stamp it out by culling the animals infected. This was the chosen method at the time of the 2001 outbreak and vaccines were not used even in the hope of confining or slowing down the spread of the disease. Yet stamping out depends upon effective tracing of diseased stock. It is now apparent that before the first case of FMD was discovered in 2001, there certainly were over 50 (LTBL: 51) and there may have been over 100 (King, 2002) sites of infection. Diseased stock had been transported across the UK and the disease spread the entire length of England and into Scotland Wales and Northern Ireland.

This being the case, stamping out was destined to failure and five weeks into the outbreak, Cabinet Office took over strategic responsibility from the Ministry, which had been seen to have failed. A contiguous cull policy was introduced. This policy required the destruction on a 'precautionary' basis of 'animals within ... 3 kilometre zones' established around premises believed to be infected (LTBL: 89) in order to create a firewall around any suspected infection. It was the creation of these firewalls that led to such significant numbers of slaughtered animals.

Elsewhere BRASS has argued that the legality of such a policy was open to considerable doubt (Campbell and Lee, 2003a). The principal legislation establishing the regime for control of livestock diseases, including F.M.D., in force during the 2001 epidemic, was The Animal Health Act 1981 (the 1981 Act). Section 31 introduces Schedule 3 dealing with slaughter for disease control purposes. Paragraph 3(1) of Schedule 3 provides:

The Minister may, if he thinks, fit, in any case cause to be slaughtered

(a) any animals affected with foot and mouth disease, or suspected of being so affected; and

(b) any animals which are or have been in the same field, shed, or other place, or in the same herd or flock, or otherwise in contact with animals affected with foot and mouth disease, or which appears to the Minister to have been in any way exposed to the infection of foot and mouth disease.

The problem for the contiguous cull is that it involved the slaughter of animals with no known contact to the disease and with no known exposure to the infection. This was particularly so since the zoning took the form of a mapping exercise, directed from London, which took no account of geography and the presence of barriers, natural or otherwise, to the spread of disease. Moreover, since we now know that there were significant numbers of misdiagnosis, each such incident took out three or four more farms on average.

Unsurprisingly there were court challenges to this seeming *ultra vires* action. Not all such actions were well conceived. For example in Wales, Janet Hughes acquired ten sheep on the Brecon Beacons in order to gain standing to bring an unsuccessful judicial review of the culling of around 20,000 sheep killed as part of the slaughter policy between 27 July and 16 August in the Brecon Beacons (Hughes, 2003?). However, since these hefted sheep were unfenced, it was more open to the Welsh Assembly Government to argue the possibility of exposure to infection. In Scotland, a challenge was brought but this did not raise the *ultra vires* issue. In England there was only one case which succeeded but this case has been roundly criticised in not providing the court with evidence from the Government's own research establishment that infected sheep could not spread wind borne infection over more than 100 metres (Lord Willoughby de Broke, House of Lords, 25 June 2002). When this evidence was produced in a later case of *Upton* the Court had little hesitation in prohibiting an injunction to prevent the killing of 'Gruntly' - a pig that had starred in the film 'Babe'. The pig, it later transpired was not infected by FMD.

Elsewhere we have tried to chart the M.A.F.F. cases and our analysis has not been disputed. The Department brought just fourteen cases to legally overcome occasions of resistance to the cull in England and Wales (Addey, 2002), withdrawing from eleven and losing two of the three it took into court, the last one being a serious reverse. However, it withdrew from at least 200 other proceedings it had started, such was the low level of confidence in its position under the 1981 Act. The only surprising issue when culling powers were extended by statutory reform in the Animal

Act 2002 to remedy this state of affairs was that so much faith should continue to be placed in culling when the policy had failed so spectacularly. Nonetheless, the 2002 Act now allows the Minister to slaughter “any animals the Secretary of State thinks should be slaughtered with a view to preventing the spread of foot and mouth disease”.

On the whole, however, although there were pockets of resistance to the culling policy, the majority of farmers accepted that their stock would be culled and accepted the compensation. As valuations seemed to rise throughout the epidemic, partly because in the haste to conduct the cull often meant that a sole valuation from a valuer nominated by the farmer was accepted, there were few incentives to resist. On the other hand, farmers not affected by the disease but unable to bring stock to market because of movement restrictions suffered uncompensated losses. This became clear at the time of a later outbreak, in 2007, which was caused by the escape of FMD virus from the Government’s laboratory at Pirbright. FMD broke out within 3 miles of the research establishment and it became clear that the strain of the disease was one confined only to laboratory use.

As with previous FMD outbreaks, herds were culled within the protection zone established in Surrey but following the culling both the protection zone and then the surveillance zone were lifted over a five week period. The Chief Vet stated that “I am satisfied that foot and mouth has been eradicated from the UK in 2007”. This turned out to be mistaken for puzzlingly on four days later a further episode of FMD was confirmed. Coming more than a month after the first outbreak and well outside the likely maximum 14 day incubation period for the virus, this later outbreak was a significant blow to the farming community. As the National Farmers’ Union (NFU) pointed out this outbreak came approaching a time when stock was due to be moving from upland to low-land farm areas. In addition the European Commission immediately revoked its earlier decision to allow the UK to resume meat and livestock exports to other member states. Restrictions on animal movements were put in place throughout Great Britain. These were progressively lifted but some remained until the end of 2007.

Following the settlement of claims with those farmers whose animals were culled under the Animal Health Act 2002, other farming claimants brought proceedings to recover income lost as a result of inability to sell or export animals during the movement restrictions that were put in place. In addition there were further losses such as the extra cost of feeding and keeping animals which could not go to market, whose normal breeding patterns were disrupted, and which suffered a loss of condition or associated welfare conditions.

In Pride v. Institute for Animal Health [2009] EWHC 685 the claimants sued the Institute of Animal Health, Merial (a vaccine manufacturer) and DEFRA, as the licensing authority, in negligence, private nuisance and under the rule in Rylands v. Fletcher. Since this hearing followed an application to strike out claims, it was assumed for the purpose of the case that the outbreak was caused by the negligent escape of FMD virus through faulty drains. The basis of the application to strike out was that the losses claimed fell outside the scope of any duty owed by the defendants, either because they were pure economic in form and/or indirect, being consequential upon the imposition of government measures rather than any physical damage caused by the escape of FMD virus.

Tugendhat J granted the applications to strike out these claims and awarded summary judgment on the basis that the issues of law here could be decided without the expense of a trial. The issue of whether particular losses were purely economic losses was said to depend on the particular

facts. For the most part the judge found pure economic losses, rejecting the notion of an intermediate category of damage which, while not physical damage, could be treated as such on the basis of interference with or effect upon physical property 'analogous to physical damage'.

Economic losses were therefore irrecoverable because of the 'exclusionary rule', which removes such losses from the scope of any duty of care, and which was supported by long standing authority. The purpose of the exclusionary rule was to avoid opening the floodgates to unlimited liability to an indefinite number of persons. Here the judge took note that all British livestock owners were potentially affected by the ban on movements. The exclusionary rule has been applied so as to exclude liability in the case of an earlier outbreak of FMD (Weller v. Foot and Mouth Disease Research Institute [1966] 1 QB 569). The claimants were in no greater proximity than the auctioneers in Weller. There was no 'connecting link' between the livestock infected by the escape of FMD virus and any consequential losses suffered by the claimants. On the basis of the exclusionary rule these losses were outside the scope of any duty owed by the defendants. The judge asserted the similar application of the exclusionary rule in both nuisance and Rylands v. Fletcher.

The judge did allow that the claimants had some prospect of showing physical losses arising out of the condition and welfare status of the animals as a result of the movement ban. This would depend on further exploration of such losses. However, in respect of such damage, any losses fell outside of the scope of any duty of care owed by the defendants because the indirect nature of the damage (citing Marc Rich & Co AG v. Bishop Rock Marine Co Ltd [1996] 1 AC 211; Landcatch Ltd v. International Oil Pollution Compensation Fund [1998] 2 Lloyd's LR 552; [1999] 2 Lloyd's LR 316). The scope of the duty depends upon both the purpose of the rule imposing a duty and the degree of proximity between any breach and any loss.

Summing up these cases on FMD we see again the commitment to slaughter as the sole response to disease control. In the case of the FMD outbreak of 2001 the Government was prepared to stretch its powers beyond the boundaries of legality in pursuit of such a policy. This was to avoid vaccination. In 2007, vaccination was again rejected notwithstanding a review of policy post 2001. The reluctance to vaccinate may seem mysterious unless one takes into account trade policy. The WTO adopts OIE classifications to govern permitted import restrictions under the SPS agreement. Countries without FMD, which do not resort to vaccination to control FMD, will achieve disease free status where there has been no outbreak within a 12-month period. Where foot and mouth disease occurs thereafter, if the outbreak can be restricted by stamping out, then disease free status will be regained within a 3-month period of the last slaughter of diseased stock where this is followed by serological surveillance. This classification offers more favourable treatment to the one-third of countries without FMD which, by choosing not to vaccinate, control the conditions of trade with countries that need to resort to vaccination to control FMD. The desire to protect this trade status governed the choice of a cull in 2001; yet at that time the gross value of the relevant meat exports amounted to around £500m. As stated above the costs of the 2001 outbreak have been estimated at £9bn.

Where animals were slaughtered, compensation was paid. This was at a generous level but was open only to those whose farms were culled out. There were many other farming losses but these went uncompensated. Most farmers were uninsured against FMD. This is unsurprising given the availability of state compensation. Yet those few who were insured apparently received both state and private insurance payments. Before the 2001 outbreak one would have to back to 1967 to find a similar episode. The presence of rare but significant events of damage would seem to be highly

suited to an insurance market but the presence of state compensation seemingly deters the development of an effective insurance market in indemnification of the costs of epidemic disease. More than this, the presence of state compensation hardly provides a great incentive to bio-security since farmers will not themselves bear the losses.

On the other hand losses are occasioned by farmers whose stock is not diseased and as we see from *Pride* we are content to leave those losses to fall on the farmer. This would seem to suggest that compensation is not paid empathetically out of concern for the farming community. Something rather more seems to be going on. It is to this issue that we now turn.

What is Compensation For?

We would suggest that from the analysis above two logics to compensation can be identified:

1. Addressing market failure: where there is a failure of the market to provide adequate indemnity against inherent risk, compensation provided by the state can address this failing. The state may be minded to compensate, therefore, where there is no conviction that the risk can be internalised, by insurance or through pricing mechanisms, and where there is a strong public interest in maintaining production. The latter point is significant. In effect by readily paying compensation, on this analysis we are treating bio-security (and arguably farm production of meat) as a public good.

2. Buying "intervention rights": in order to encourage the public to behave in certain ways, compensation can act as a mechanism to influence behaviour. Compensation can be made dependent on the person following a desirable course of action. This may include both the reporting of disease and the rendering up of stock for slaughter.

The market failure argument must be met with scepticism. Although there may be greater issues with endemic diseases like bTB, there would seem to be little reason why an insurance market could not provide cover in the absence of state compensation. We have argued above that in the case of epidemic disease the sporadic nature of outbreaks makes insurance a ready option since there would be many years in which there would be no claims made. Endemic disease is more problematic since there may be geographical locations which are much more prone to risk, but this might be catered for by premium weighting with premium levels tied to effective bio-security measures. There is no obvious reason why the private insurance policing of bio-security, through usual mechanisms of disclosure, would be less effective than public controls.

We believe that whilst it is commonly asserted within the agricultural industry that the role of compensation for TB is to address failings in public policy, the true purpose of compensation is to buy intervention rights. Historically, compensation for TB was introduced because of the failure of voluntary tuberculin testing schemes before the Second World War. Simply, farmers did not want to present their animals for testing because the resulting losses might outweigh considerations of contributing to the wider public good by reducing the incidence of TB. The failure of these voluntary schemes prompted the government to introduce compensation as a means to intervene and pursue a bTB eradication strategy. In the case of FMD, the chosen mechanism of stamping out the disease by culling depends on rapid tracing of seats of infection and this is most likely to come from reporting from within the farming community. Without the promise of compensation,

there might be great reluctance to report in a speedy manner. Compensation then turns out to be necessary to support the chosen method of intervention, namely the culling of livestock.

Note that in both examples, compensation is a price paid to retain biosecurity policies that are contentious. In each case, the policy seems to be referable to international trade status, which itself is governed by OIE criteria. Whether the protection of that status justifies the policies and in particular the spending on compensation is a complex question but the answer to this question is assumed rather than investigated in any meaningful manner. Certainly at the time of FMD in 2001 it is hard to see that the spending to preserve trade status by resisting vaccination made any sort of economic sense.

Even though we reject the public good explanation that compensation is necessary to rescue agricultural production from an event of market failure, it is important to see that the willingness to pay for the intervention right, in order to take control of animal disease, does treat meat and dairy production as a public good. This must be open to question. The produce is a classic private good. It is not clear that, if the farmer faced the full force of these risks, the farming community would be unable to cope. The costs attaching to animal disease would have to be internalised into the costs of production and prices might rise, but the present policy does represent a form of subsidy.

This being the case, there are curiosities in the workings of that policy. We see from the case of *Partridge* that by no means the full value of livestock is offered to the farmer. That case follows attempts to drive down the amounts of compensation, which had risen because of events of regulatory failure. Yet if the measure of value is no more than carcass value, as stated by the Court of Appeal, then the incentives for farmers of high value breeds to trigger intervention by reporting are significantly reduced. Significantly at the time of FMD, the court challenges came from elite breeders resisting the contiguous cull policy. Not only is full value not offered, but not all losses are compensated. There is considerable evidence in the case of FMD that bio-security measures, such as movement restrictions, can cause considerable losses, which go unmet. Yet we see from the *Pride* that even where there would seem to be some justice in the recovery of such losses (given that the Pirbright laboratory caused the outbreak) these losses are left to lie wherever they fall and whatever the hardship.

In contrast, the general policy would seem to be to pay compensation for slaughter on suspected infection without bothering to wait for firmer evidence to confirm the initial (and usually rather tentative diagnosis). It is clear in the case of both diseases considered here that many unaffected animals are slaughtered. The reason doubtless given would be the need for speed given the presence of infection. Yet the cull at the time of FMD only succeeded in culling out the disease because it culled a very large proportion of the UK stock. Similarly, in the case of bTB, the disease persists and is proving intractable in spite of the present policies.

A final and rather bewildering point might be that compensation is hardly dependent on the quality of bio-security measures. We suggest that compensation is there to provide a financial incentive to farmers to disclose their animals for (e.g.) TB testing); if so it follows that compensation should be consistently applied to achieve this objective. Where this objective has already failed, for example because a farmer is long overdue in testing for bTB, then there would be little logic to compensation. This logic of compensation therefore informs regulatory responses in relation to bio-security.

Compensation should provide an incentive for good practice; equally it ought to deter illegal or inappropriate practices and provide a fair system for taxpayers and farmers. In contrast the current compensation system, to which farmers have grown accustomed, may have perverse effects given the complicated social, economic and natural factors that constitute the problem of a disease like bTB. Evidence from England suggests that attempts to reduce compensation is more likely to drive illegal behaviour (such as badger culling) rather than best practice in disease management (Enticott, 2008). Preventing perverse incentives will therefore require a bTB policy that does not simply address levels of compensation, but addresses also aspects of the management of the disease in a manner which is trusted by the relevant stakeholders. Indeed, it should be recognised that farmers' decision making motivations are not solely financial but rely on other socio-cultural values (Garforth et al).

On one hand, providing some link between compensation and biosecurity might seem a good idea. Research shows that farmers in higher risk areas in Wales possess fatalistic attitudes to suffering a TB breakdown and, accordingly, view precautionary measures as a waste of time and money (Enticott, 2008). Yet the link between compensation and biosecurity is difficult precisely for this reason. Any approach of withdrawing compensation needs to promote biosecurity standards the absence of which can be causally linked to infection. This would be necessary in order to withstand legal challenge. In the case of bTB, however, no such standards exist; there is an absence of research evidence on the effectiveness of biosecurity interventions, and such evidence as does exist acknowledges that such interventions play only a small role (ISG, 2007, NAO, 2009). Given that the time gap between TB tests may be up to 4 years, there would be considerable difficulty in proving when cattle contracted TB. Then contraction of the disease would need to be linked to the presence/absence of biosecurity and compared to other opportunities for TB transmission that can not be reasonably restricted, such as when cattle are at pasture. In the case of FMD, the virus spreads rapidly once an outbreak occurs and there may be relatively little that one can do to resist transmission. Other than seeking to combat illegal activities, then, there appear to be little farm based activity that might reasonably be expected to reduce infections so as to justify any defensible reduction in compensation payments.

Conclusion

In both England and Wales, recent consultations and policy changes seem to view compensation as a tool for driving behavioural change within the industry. Some of the research conducted by BRASS has attempted to uncover the socio-cultural influences in farmers' risk and biosecurity decisions (Enticott, Enticott and Franklin, Campbell and Lee), but there remains a need for further research to understand how compensation affects biosecurity. Changes to compensation rules and levels should be carefully evaluated to assess how and where they lead to changes in disease management and what those changes are. The most plausible role of compensation payments would seem to be to buy rights of intervention in order to combat animal disease. Yet compensation policies seems beset by regulatory confusion, which bedevils not only the legislative but also the many judicial forays into this area.