

# Comments on the paper: 'Animal welfare consequences in England and Wales of the 2001 epidemic of foot and mouth disease'

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## Summary

The authors consider that the opinions expressed in the paper on the animal welfare consequences in England and Wales during the 2001 epidemic of foot and mouth disease (FMD) by C.J. Laurence exaggerate the true position and frequently appear to be based on anecdotal evidence presented to the Royal Society for the Prevention of Cruelty to Animals (RSPCA) rather than fact.

The paper fails to recognise the enormous scale of the epidemic and the speed and effectiveness of the response by Government to control the disease. Using epidemiological analysis both during and after the epidemic, the European Union policy of stamping-out was found to result in fewer animals killed than if vaccination had been used.

A veterinary inspector supervised each site where killing occurred for disease control or as part of the Livestock Welfare Disposal Scheme (LWDS). Details of the number of welfare movement licences are given as well as the turnaround time from application to consignment. Transported animals under the LWDS and welfare movement licences were subject to veterinary inspection prior to movement. Over a quarter of a million welfare licences were issued, each of which was subject to veterinary inspection. Analysis found that no such movements resulted in the spread of FMD. Arrangements for casualty slaughter under the 'over-thirty-months scheme' were maintained throughout the epidemic.

## Keywords

Control – Epidemics – Foot and mouth disease – Great Britain – Welfare.

## Introduction

The paper from the Royal Society for the Prevention of Cruelty to Animals (RSPCA) by C.J. Laurence (9) does not reflect the scale of the outbreak or the speed and effectiveness of the response of the Government of the United Kingdom (UK). The paper contains a number of factual errors, exaggerates the true position and makes assertions which are based on anecdotal evidence presented to the RSPCA rather than fact.

This paper considers the points made in the paper with particular reference to the scale of the foot and mouth disease (FMD) outbreak, the ethics of slaughter as a means of control, the methods and veterinary supervision of killing, movement licences, the Livestock Welfare Disposal Scheme (LWDS) and transport.

## Scale of the outbreak

The outbreak of FMD which occurred in the UK in 2001 was widely recognised as unprecedented (4). By the time the first outbreak had been detected, at least 57 other farms had been infected across the country (4). In both effect and reality, these were equivalent to multiple primary cases of FMD that propagated the epidemic locally for days before the first case was diagnosed. This difficult situation was further compounded by the difficulty of diagnosing disease clinically in sheep, and the large-scale movements of sheep, which typically take place in the UK during the autumn and winter.

A total of 2,030 infected premises (IP) were identified in the UK and animals on these premises were culled. Livestock on a further 8,482 affected premises were killed because of links

with an IP. In addition, over 18,000 consignments were removed for welfare reasons as part of the LWDS. A total of 6 million animals were slaughtered, 4 million for disease control purposes and 2 million for animal welfare reasons (LWDS). On the peak day of the epidemic, more than 100,000 animals were slaughtered and disposed of, requiring a massive and complex logistical operation (4).

## Ethics of slaughter as a means of disease control

Foot and mouth disease is one of the most feared epidemic diseases of farmed livestock. The rapid spread, high morbidity and short-lived immunity of FMD point to the need for rapid removal of affected and exposed livestock, coupled with a ban on livestock movements to prevent the spread of disease. The objective is the preservation of healthy, unaffected susceptible livestock.

While supporting the slaughter of infected livestock and those which had a high risk of transmitting the disease to other animals, the RSPCA express their opposition to the slaughter of apparently healthy animals as part of the contiguous cull. They appear to accept the logic of killing animals assessed as likely to be infected and not showing clinical signs of disease, but argue that 'the unnecessary killing of animals which are unlikely to be infected [could have been] prevented by proper risk assessments for each group of animals'. They further express the view that from the information available to them, 'in many instances no proper risk assessment was conducted and many animals were apparently killed without good cause' (9).

Given the infectivity of FMD, livestock that have been exposed to infection must be slaughtered to prevent further propagation of the epidemic. The killing of animals at any risk of infection results in more rapid control and so provides enormous welfare benefit to healthy, unaffected stock.

Allowing FMD to spread unchecked in a susceptible population is unacceptable, due to the following:

- the rapid spread, high morbidity and suffering of livestock contracting the disease
- the financial losses in terms of reduced productivity for survivors of the disease and mortality among the young
- the short-term nature of the natural immunity generated by natural infection and the ability of the virus to undergo changes in antigenicity, thereby resulting in the cycling of infection within the population
- the loss of future earning capacity nationally, due to the change in disease status affecting both the agricultural and tourist industries and UK trading status

– the contradiction to the declared European Union (EU) policy of being FMD-free without vaccination.

Throughout the epidemic, the policy for disease control was kept under constant review. Modelling was used within the Department for Environment, Food and Rural Affairs (DEFRA) to assess likely scenarios, including the uses of vaccination, and to assess the optimum strategy for disease control. These analyses demonstrated that stamping-out was most effective in reducing the number of animals to be killed and eradicating disease. Consideration was given to vaccination in particular circumstances such as those of Cumbria and Devon and contingency plans for use of vaccination to protect vulnerable animal concentrations in other areas were prepared. This analysis is supported by independent modelling studies (7, 8, 11).

As information relating to the diagnosis of FMD and the degree of infectivity of the particular strain became apparent, the policy on culling contiguous and dangerous contact premises was reviewed. Where appropriate, careful veterinary risk assessments were made, based on local knowledge of the livestock industry in an area. The impact of factors, such as weather patterns, was also utilised to determine which premises were at such a risk of infection that the FMD-susceptible animals needed to be killed to halt the epidemic. Aerial dispersal models of FMD virus from heavily infected farms were also utilised to target field resources (5, 13).

The paper also argues that 'little effort or resources have been committed in recent years to developing modern vaccination schemes for use as part of a disease control programme. This omission may well have had a significantly adverse effect on overall animal welfare' (9).

The issues related to vaccination are extremely complex. Where an exotic disease is introduced to a fully susceptible livestock population, three principal options exist, as follows:

- to cull all diseased, suspected diseased, exposed and in-contact susceptible livestock in order to eliminate the disease
- to vaccinate susceptible livestock, to reduce the impact and spread of the disease
- to allow the disease to progress unchecked, until it becomes endemic within the susceptible population and natural immunity builds up.

In deciding whether to deal with the disease by culling or vaccination, due account has to be taken of the nature and geographical extent of the outbreak, the impact of diverting resources from one activity to the other on achieving control, and the policy aims of the country in which control takes place. The UK, like all EU Member States, has a policy of stamping-out the disease to maintain the Office International des Epizooties (OIE: World organisation for animal health)

'FMD-free without vaccination' status. Measures for the control of FMD are set down in Council Directive 85/511/EC which incorporates procedures laid down by the OIE. The legislative controls provide for the emergency use of vaccination (5).

### Methods of killing

'The RSPCA received complaints [...] relating to slaughter incidents on 130 premises, with 83 being fully investigated'. They argue that 'RSPCA inspectors were unable to gain access to the majority of slaughter sites and were therefore unable to effectively monitor the efficacy of slaughter techniques' (9).

The DEFRA did not have an exclusion policy with respect to RSPCA inspectors attending the slaughter of livestock on infected premises. Rather, RSPCA inspectors were asked to confirm to the Local Disease Control Centre (LDCC) the time of their attendance at infected premises so that the necessary licensing and biosecurity arrangements could be implemented to allow their entry to these sites. These are statutory requirements for any person entering infected premises which are under official control. This offer was not taken up.

The complaints referred to are not corroborated to indicate whether the complaint resulted from a misunderstanding of what is legally permitted (e.g. the killing of an animal in the sight of members of their own species [conspecifics], the use of a free bullet), concerns for the foetus *in utero* or apparently inappropriate killing methods resulting in unnecessary pain, suffering or injury.

In the experience of the authors, a number of complaints arose from a misunderstanding of what was legally permitted. For example, although the Welfare of Animals Slaughter and Killing Regulations 1995 (WASK) (3) prohibit the killing of an animal in an abattoir in the sight of conspecifics in England and Wales, this requirement does not extend to the field situation and disease control. Studies at Bristol University found that farm animals were not subject to distress when killing occurred in the sight of conspecifics (1, 2).

In selecting the killing method, the supervising veterinary inspector considered the health and safety of all persons and animals on the premises, the handling facilities available, the type and behaviour/tractability of the animals and the disposal arrangements for the carcasses. Some complaints concerned the use of rifles and free bullets for killing animals. In some cases, the concern was about the use of the method rather than any suggestion that unnecessary pain, suffering or injury had resulted from inappropriate use of the technique. The technique was utilised for the killing of cattle where the animals lacked familiarity with close human contact. The method results in less stress as minimal handling and confinement are required.

Divergent views are held on the need to consider the status of the foetus when a pregnant animal is killed. 'The RSPCA

[...] suggested [...] that [these] animals should first be sedated with a suitable drug which crossed the placenta' (9). However, a detailed review of this issue by New Zealand scientists suggests that because of the low level of oxygen available to the foetus *in utero*, it is unlikely that awareness occurs in the foetus (10). Death of the foetus closely follows that of the dam, and they conclude that the method is humane. In some cases, veterinary inspectors sedated cattle using xylazine prior to slaughter to facilitate handling during killing. This then facilitated killing with captive bolt stunning and pithing in a yard situation, and provided a safer working environment from a health and safety viewpoint.

### Supervision of killing

The paper makes the point that 'in general, veterinary surgeons appear to have supervised slaughter, but at the height of the epidemic, veterinarians were tasked to concurrently supervise slaughter sites which might be miles apart. [...] This operational decision by MAFF may have contributed to some instances of inappropriate slaughter' (9).

Such instructions were issued in anticipation that the epidemic might escalate. They only allowed supervision of more than one site if the veterinarian was content that a suitably qualified and experienced non-veterinary incident commander was available to supervise slaughter teams. In the event, on each site where slaughter occurred throughout the epidemic, this always took place under the direct supervision of a veterinary inspector.

Where any concern was raised about the method of killing which resulted in the possibility of unnecessary pain, suffering or injury, the circumstances were investigated and appropriate corrective action was taken. Depending upon the particular circumstances, this involved re-training of slaughtermen by veterinary staff coupled with supervision until an appropriate methodology was assured. In more serious cases, the decision was taken not to utilise the services of the person concerned forthwith.

The paper also states that 'in a significant number of cases, animals were said to show signs of consciousness some hours after being stunned with a captive bolt pistol, some were even said to be standing. [...] Many slaughtermen seemingly failed to pith animals after stunning or to ensure they were dead, which led to the recovery of consciousness later' (9). The authors would like to point out that the RSPCA presents no evidence to support these allegations. Slaughter always took place under veterinary supervision.

## Movement licences

The paper points out that 'Movement restrictions inevitably play a major part in the control of an epidemic. In the FMD epidemic, these restrictions resulted in significant animal welfare consequences. While these have been in part

ameliorated by Government-sponsored slaughter schemes, the RSPCA used up to a quarter of its inspectors to provide assistance to farmers at the height of the epidemic' (9).

'During the FMD epidemic, all such movement was at first halted and later performed under licence only. The licence system was slow and bureaucratic and, at least at first, insufficiently resourced. It is believed the consequence of this was more animal suffering than that caused to animals slaughtered directly' (9).

Movement licences were organised in such a way as to balance the welfare needs of the animals with the need to control the epidemic (12). An LWDS was introduced to assist farmers in maintaining welfare standards by removing animals they were unable to care for and making a payment to the farmer (4, 12).

Full details of the number of licences issued in England, Scotland and Wales between 9 March and 30 September 2001 are presented in Table I.

**Table I**  
**Type and number of animal movement licences issued in England, Wales and Scotland between 9 March and 30 September 2001**

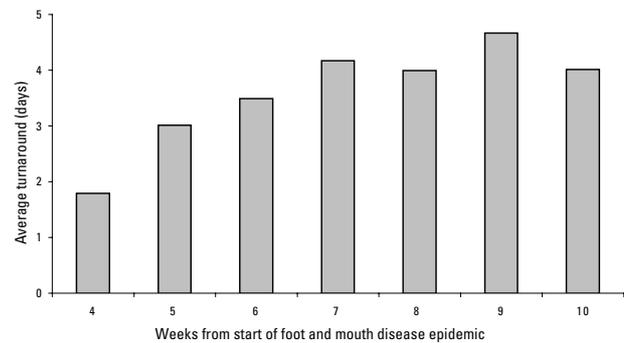
Type of licence	England	Wales	Scotland	Total
Occupational	38,457	12,778	7,456	58,691
Local movement licence	87,746	27,823	7,742	123,311
Longer distance movement licence	61,921	20,679	8,247	90,847
Specific movement licence	NA	NA	20,838	20,838
Common grazing	775	719	NA	1,494
Animal treatment licence	137	83	45	265
Gathering licence	200	254	NA	454
<b>Total</b>	<b>189,236</b>	<b>62,336</b>	<b>44,328</b>	<b>295,900</b>

NA: not applicable

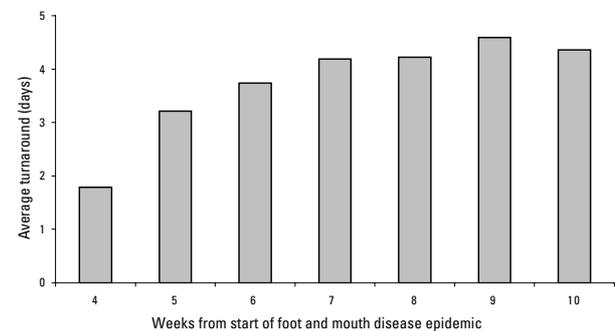
Given the scale of the epidemic, hundreds of additional staff from DEFRA and elsewhere were drafted in when movement licensing commenced in early March, in order to deal with welfare movement licences to meet the expected demand based on information from the industry.

During the operation of the movement licensing arrangements, measures were implemented in England to record the time of receipt of movement applications and the issue of the licence. Figures 1, 2 and 3 provide a summary of the turnaround time by DEFRA for occupational, local and longer distance movement licences in England.

The average response time for occupational licences and local movement licences, despite the issue of up to 5,300 licences a week for occupational licences and 6,200 for local movement licences, was maintained under 5 days. In response to the

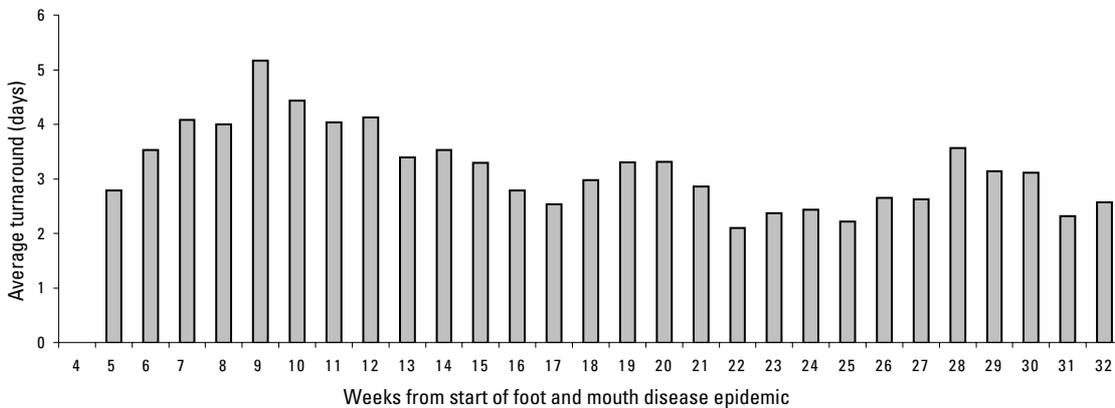


**Fig. 1**  
**Average turnaround time (from receipt of application to release of licence documents) for occupational licences issued in England by the Department for Environment, Food and Rural Affairs**



**Fig. 2**  
**Average turnaround time (from receipt of application to release of licence document) for local movement licences issued in England by the Department for Environment, Food and Rural Affairs**

reported difficulties in obtaining movement licences, particularly in south-west England, new procedures were introduced during week 10 of the epidemic to permit local veterinary inspectors (LVIs) to issue movement licences to their clients following approval of the proposed move by DEFRA personnel. The more complex processing of longer distance movement licences rose to above 5 days in week 9, but the resources released by the take-up of licences by LVIs resulted in a prompt reduction in time. The numbers of longer distance movement licences doubled weekly from 1,000 each week to a peak of 7,500 a week. Given that new arrangements and computer systems had to be implemented, the performance of the licensing system was spectacular. Nevertheless, farmers were frustrated at the imposition of movement restrictions and the impact on their businesses which often utilised several locations. The lesson learnt is that all livestock businesses must be able to care for animals for at least 6 weeks when movement restrictions are imposed and plan accordingly.



**Fig. 3**  
**Average turnaround time (from receipt of application to release of licence documents) for longer distance movement licences issued in England by the Department for Environment, Food and Rural Affairs**

The demand for movement licences during the period when animals are turned out of winter quarters to grass was enormous, and additional resources were allocated to the licensing operations. In practice, these arrangements did meet the needs of the industry as reflected in the data on licences already presented. From March to the end of September, over a quarter of a million welfare licences were issued, all of which were subject to veterinary checks. Epidemiological analysis revealed that these movements did not result in the spread of any case of FMD.

## Livestock Welfare Disposal Scheme

The paper makes the point that the LWDS ‘was intended to alleviate overstocking where this was causing welfare problems on farms. [...] Significant delays between a farmer applying to enter stock into the LWDS and removal of the stock to slaughter were observed’ (9).

When introduced, the LWDS was intended to be utilised as a last resort after all other measures to alleviate welfare problems had been applied or discounted. Considerable resources were devoted to the operation of the scheme and animals were moved off farms as soon as the availability of disposal facilities permitted this.

The paper also argues that ‘movement restrictions and insufficient rendering capacity for carcasses resulted in the suspension of the “over-thirty-months scheme” (OTMS) and since animals were not eligible to enter the LWDS, this also led to overstocking on farms. While there was no direct deleterious effect on the welfare of many of these cattle, they continued to occupy space and eat forage which compounded the shortages (in forage and bedding)’ (9).

The OTMS scheme was suspended in Great Britain from March to end of July, but many ‘over-thirty-month’ (OTM) cattle were taken into the LWDS. The OTM casualty scheme continued, thereby safeguarding the welfare of animals unfit to travel live. These cattle were killed on-farm and moved to incinerators for disposal.

The statement that OTM cattle were ineligible for entry to the LWDS scheme is incorrect. Figures available from the Rural Payments Agency (RPA), which administered the scheme on behalf of DEFRA, do not support the allegation that a backlog of these animals was present on-farm. Table II provides figures for the monthly throughput of the OTM scheme in the UK between January 2000 and May 2002 and clearly indicates that there was no rebound effect, other than the normal seasonal pattern, when the full scheme resumed.

**Table II**  
**Number of ‘over-thirty-month’ (OTM) cattle entered on to the OTM scheme by month between January 2000 and May 2002**

Month	2000	2001	2002
January	118,563	79,878	68,116
February	81,230	45,366	65,370
March	71,373	14,873	66,196
April	55,317	18,323	80,635
May	53,980	18,195	64,789
June	67,217	15,442	N/A
July	70,626	32,622	N/A
August	61,743	59,776	N/A
September	75,236	70,757	N/A
October	133,088	126,389	N/A
November	113,500	100,878	N/A
December	70,648	74,094	N/A
<b>Total</b>	<b>972,521</b>	<b>656,593</b>	<b>345,106</b>

N/A: not available at the time of going to press

## Transport

The slaughter site at Great Orton was not used for killing animals removed under the LWDS, but rather for animals from farms local to the site that had to be slaughtered for disease control purposes. All animals removed from LWDS premises were inspected for fitness to travel by a veterinarian prior to loading. If animals were unfit to travel, arrangements were made to kill them on-farm. The authors received no reports from the RSPCA of animals being sent on the LWDS that were not fit to travel. Regrettably, terms such as 'RSPCA inspectors intervened on a number of occasions' are included in the paper without any indication of actual figures or references detailing the scale of the alleged problem. ■

## Conclusion

The FMD outbreak which occurred in the UK in 2001 was unprecedented and was the largest that the UK has ever experienced.

The DEFRA managed both the disease control and welfare measures with diligence and flexibility by using on-going clinical and management experience, mobilising logistics and resources on a scale not seen since the Second World War and by continually re-evaluating the changing circumstances.

## Remarques sur l'article intitulé « Conséquences pour le bien-être animal de l'épizootie de fièvre aphteuse survenue en Angleterre et au pays de Galles en 2001 »

J.M. Scudamore, D.G. Pritchard & G.M. Whitmore

### Résumé

Selon les auteurs, les opinions exprimées par C.J. Laurence dans son article sur les conséquences pour le bien-être animal de l'épizootie de fièvre aphteuse survenue en Angleterre et au pays de Galles en 2001 déforment la réalité. En outre, elles donnent souvent l'impression de se fonder davantage sur des cas isolés rapportés à la Société royale pour la prévention de la cruauté envers les animaux (Royal Society for the Prevention of Cruelty to Animals : RSPCA) que sur des faits concrets.

L'article en question fait l'impasse sur l'ampleur de l'épizootie, ainsi que sur la célérité et l'efficacité dont ont fait preuve les pouvoirs publics pour maîtriser la maladie. D'après les analyses épidémiologiques réalisées pendant et après l'épisode, la politique d'abattage sanitaire adoptée par l'Union européenne a entraîné la destruction d'un plus petit nombre d'animaux que le recours à la vaccination.

Un vétérinaire inspecteur était présent dans chaque site pour surveiller les opérations, que ce soit dans le cadre des mesures prophylactiques ou dans celui du Programme d'abattage du bétail au nom du bien-être animal (Livestock Welfare Disposal Scheme : LWDS). Les auteurs présentent des données chiffrées et détaillées sur les autorisations de déplacement d'animaux octroyées au titre du bien-être animal, ainsi que sur le délai écoulé entre la demande d'autorisation et l'expédition. Les animaux transportés en vertu du Programme LWDS et des autorisations de déplacement étaient soumis à un contrôle vétérinaire préalablement à leur déplacement. Plus de 250 000 autorisations ont été accordées, chacune d'elles motivant une inspection vétérinaire. Les études ont

démontré que ces déplacements n'avaient nullement contribué à la diffusion de la fièvre aphteuse. Les dispositions d'abattage d'urgence mises en place dans le cadre du programme destiné aux animaux âgés de plus de trente mois ont été maintenues tout au long de l'épizootie.

**Mots-clés**

Bien-être animal – Épizootie – Fièvre aphteuse – Grande-Bretagne – Prophylaxie.



## Observaciones sobre el artículo “Consecuencias sobre el bienestar animal de la epidemia de fiebre aftosa de 2001 en Inglaterra y Gales”

J.M. Scudamore, D.G. Pritchard & G.M. Whitmore

**Resumen**

Los autores entienden que las opiniones vertidas por C.J. Laurence en su artículo dedicado a las consecuencias sobre el bienestar animal de la epidemia de 2001 en Inglaterra y Gales exageran la realidad, y a menudo parecen basadas no tanto en hechos como en información de segunda mano que llegó a la Sociedad Real de Prevención de la Crueldad con los Animales (Royal Society for the Prevention of Cruelty to Animals: RSPCA).

El artículo no tiene debidamente en cuenta la magnitud de la epidemia y la rapidez y eficacia con que respondió el Gobierno para controlar la enfermedad. A juzgar por los análisis epidemiológicos realizados durante y después de la epidemia, la política de sacrificio sanitario total adoptada por la Unión Europea redundó en un menor número de animales sacrificados que si se hubiera recurrido a las vacunaciones.

Un inspector veterinario supervisaba todos los lugares donde se realizaban sacrificios, con fines de control sanitario o como parte del Programa para la eliminación del ganado sin crueldad (Livestock Welfare Disposal Scheme: LWDS). Los autores ofrecen datos sobre el número de autorizaciones de transporte por razones de bienestar animal y sobre el tiempo transcurrido entre la solicitud y el momento del transporte. Los animales transportados como parte del LWDS o a resultas de una autorización de transporte por razones de bienestar eran sometidos previamente a una inspección veterinaria. Se concedieron más de un cuarto de millón de autorizaciones de este tipo, condicionadas todas ellas a una inspección veterinaria. De los análisis realizados se desprende que ninguno de esos desplazamientos propagó la fiebre aftosa. Durante toda la epidemia se mantuvieron los acuerdos sobre sacrificios de animales dentro del plan de eliminación de bovinos de más de treinta meses.

**Palabras clave**

Bienestar animal – Control – Epidemias – Fiebre aftosa – Gran Bretaña.



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