

Issue Chronology: Badgers-TB-Cattle

(paper supporting the blog TB, Badgers and Cattle in The UK: A Campaign Ripe For A Re-boot, at <http://threeworlds.campaignstrategy.org>)

Chris Rose chris@campaignstrategy.co.uk @campaignstrat December 2020

Introduction

Bovine TB (bTB) is a type of TB which humans and badgers can catch as well as cattle. Historically, TB in UK cattle was a significant source of TB in children until transmission was reduced by pasteurisation of milk and meat inspection, cattle movements controls, testing and slaughter regimes. (Drug treatment and vaccines followed – for humans).

This chronology focuses mainly on political and policy developments and is based on various sources (see links) but in particular Angela Cassidy '[Big science' in the field: experimenting with badgers and bovine TB, 1995–2015](#), Katy Stoddard 2014 in [The Guardian](#), Steven McCullough and Mark Reiss, 2017, [Bovine Tuberculosis and Badger Control in Britain: Science, Policy and Politics](#), and T G Chambers 2020, [Approved Judgement of Mrs Justice Andrews in the case of the NFU versus the Secretary of State for Environment, Food and Rural Affairs](#); see also SaveMeTrust [timeline](#). For wider information see <https://www.tbknowledgeexchange.co.uk> (scientific, funded by NERC and Exeter University) with Fact Sheets; and this [review article](#) at Wildlife Online.

Timeline

1911 - [BCG is](#) 'demonstrated to be an efficacious vaccine against TB in cattle' for the first time

[1923](#) – a voluntary UK government scheme is started to eradicate TB in cattle

[1934](#) – '40% of dairy cows in Britain were infected with bovine TB and at least 0.5% of these produced tuberculous milk. Bovine TB was estimated to cause 2500 human deaths and 50,000 new cases arose each year ... Up to 30% of cattle in Britain died from bovine TB in the 1930s'

[1935 - 1950s](#) – Stephen McCullough and Mark Reiss note that 'in 1935, a national programme of attesting herds to be free of disease began, becoming compulsory in 1950, and involving testing cattle for bovine TB and slaughtering those which reacted to the test'.

'The herd was considered as the infectious unit, which resulted in a number of whole herds being slaughtered. Movement restrictions were put in place on herds which suffered reactors [tested positive]. To achieve attested status, a herd had to pass three consecutive tuberculin tests. Attested herds could only buy in cattle from other attested herds. Attested herds also had to demonstrate biosecurity measures'.

By 1960 'eradication was confidently predicted' but 'over the following decades, 'the infection rate started to slowly increase, and then rose sharply from the early 2000s'. Attestation is ended. The Chief Vet warns that ending 'attestation' will lead to a resurgence of the disease. It lingers on in a few areas in South West England.

1971 – 'In 1971, when a dead badger was found on a farm in Gloucestershire suffering persistent outbreaks of bTB, MAFF veterinarians directly connected TB infections in wild badgers with cattle disease'

25 July 1973 – Badgers become a protected species under the 1973 Badgers Act (badgers have long been persecuted for sport and as a pest species by farmers and landowners).

The reforming Lord Arran introduces it in the House of Lords. Following the suicide of his brother, one of Arran's great personal causes had been to prevent persecution of gay men, resulting in the Sexual Offences Act 1967, which decriminalised homosexual acts between two consenting adult men. The other was concern for badgers. He was 'said to have declared that he had only two aims in life, 'to stop people bugging badgers, and to stop people badgering buggers''. Asked why the House 'had been packed for his debate on legalising homosexuality, while it had been almost empty when he was proposing his bill on protecting badgers', his reply was "Because there are no badgers in the House of Lords"

Weaknesses in the 1973 Act meant, in the words of the RSPCA, that badger setts 'were still being dug, bulldozed, blocked or the animals cruelly killed' and they were given further protection under the Protection of Badgers Act 1992, in England and Wales. The law differs in Scotland.

1973 – badger culling (shooting by farmers) begins to try and reduce TB in cattle, licenced under the Badgers Act.

1973 – for animal welfare reasons the Ministry of Agriculture takes over and uses cyanide gassing of badgers in their Setts (Setts being underground networks of burrows). This was later abandoned as inhumane, and a more controlled form of shooting was reinstated.

1980 – a review prompted by welfare concerns is led by Lord Zuckerman who recommends a 'clean ring strategy' based on killing badgers if sampling shows they are infected but it is expensive

1982 – the only empirical data ever to show that TB can be transmitted from badgers to cattle is published. Five of seven calves developed signs of TB exposure or infection up to six months after being closely housed with diseased badgers. Transmission was probably indirect via water or hay contamination and was not particularly efficient.

1986 – a review led by G. M. Dunnett finds a reduction in bovine TB irrespective of culling. McCulloch and Reiss note that for reasons of cheapness:

'an interim strategy was proposed [which] involved farmers taking biosecurity measures to reduce the potential for cattle-to-badger contact. Additionally, badgers were culled where it

was reasonably suspected that herd breakdowns [= break outs of TB] were caused by badgers. The culling was confined to the farmer's own land and the infected herd. Despite the intentions of the interim strategy to be a short term policy, it continued from 1986 to 1997, in part because of MAFF's focus on BSE'.

[BSE or 'Mad Cow Disease' is another cattle disease believed to be caused by feeding infected bone meal, ie dead animal remains, to cows. It can cause CJD disease in humans. BSE infected over 184,000 cattle in the UK from 1986 to 2015, peaking in 1993].

1991 - 655 cattle in the UK test positive for TB

1996 – Conservative Government Agriculture Secretary Douglas Hogg sets up an Inquiry (the third since 1980) into badgers and TB, to be chaired by ecologist John Krebs.

1997 – the Krebs review (by the Independent Scientific Review Group) recommends a large scale randomised experiment to test the effects of culling on TB rates in cattle. John Krebs says it is analogous to 'the evidence required to recommend the widespread use of a new therapeutic drug'.

1998 – the new Labour Government sets up the Independent Scientific Group (ISG, independent of the Ministry of Agriculture) to implement Krebs proposal, leading to the RBCT or Randomised Badger Culling Trial, conducted across 3,000km² of SW England. Badger culling is suspended elsewhere. It takes nine years, kills 10,979 badgers, and costs £49m. It tests the effect on cattle TB rates of three things: reactive culling following a herd outbreak, proactive culling in the absence of herd outbreaks, and controls, where information is gathered but no culling takes place.

2001 – From February 19 – September 30 the UK experiences an outbreak of Foot and Mouth Disease (FMD) affecting cattle, sheep and pigs in 7,000 farms, leading to slaughter of six million cows and sheep. Subsequent inquiries find the probable origin was animal waste fed to pigs. Cattle controls for TB are suspended/interrupted during the FMD epidemic and after the FMD epidemic, cattle moved to re-stock farms include many from areas with a high frequency of TB. Later studies show this probably increased spread of TB. Dominic Dyer of the Badger Trust will later say that lobbying by the NFU persuaded the government not to test cattle for TB prior to restocking, against the advice of Chief Vet Jim Scudamore.

2005 – it becomes apparent that cattle TB rates had increased rather than decreased in reactive culling zones, by 27% (with a range of 4.3% - 53%). The ISG recommends that reactive culling is stopped as a 'non viable' option that makes matters worse.

2005 – The Badger Trust is established

March 2005 – DEFRA publishes a 10 year framework for bovine TB control. It shows the spread of TB to new areas following the 2001 FMD outbreak, during which routine TB inspection was interrupted, and after which new incidents grew.

2006 – it transpires that cattle TB rates fell 19% inside proactive-culling areas but around these areas it increased by 29%.

2006 – DEFRA runs a public consultation on badger culling: 95.6% of the responses are against it.

June 2007 – ISG publishes its final report which in the words of Angela Cassidy of Exeter University:

‘repeated their key findings: that reactive culling increased bTB incidence, while proactive culling decreased it in the areas where badgers were culled, but made the problem worse nearby. They argued that the RBCT data showed that bTB was transmitted between badgers and cattle, but that cattle-to- cattle transmission also contributed to the spread of the disease’ ... and ... ‘The ISG had also developed a coherent theoretical explanation for these apparently contradictory findings: the perturbation effect: “The disruption of the social organisation or structure of badger populations, such as that which is caused where trapping/culling has taken place”’.

Proactive culling reduced badger density within and around the cull area and disrupted the territorial system, leading new badgers to immigrate into the area, increasing the prevalence of TB. The core recommendation of the ISG was to tighten cattle testing and movement controls.

It’s two key conclusions are that:

‘while badgers are clearly a source of cattle TB, careful evaluation of our own and others’ data indicates that badger culling can make no meaningful contribution to cattle TB control in Britain’

and

‘weaknesses in cattle testing regimes mean that cattle themselves contribute significantly to the persistence and spread of disease in all areas where TB occurs, and in some parts of Britain are likely to be the main source of infection. Scientific findings indicate that the rising incidence of disease can be reversed, and geographical spread contained, by the rigid application of cattle-based control measures alone’.

October 2007 – Government Chief Scientist David King publishes his own report ‘Bovine Tuberculosis in Badgers and Cattle’, endorsed by the Chief Veterinary Officer, concluding in contrast to the ISG, that culling in high incidence areas is: “the best option available at the moment to reduce the reservoir of infection in wildlife” and can make a “significant effect” in reducing TB in cattle.

Kings’ remit however had excluded issues considered by the ISG such as cattle control, vaccination, animal welfare, practicalities of culling or economics, and only looked at the effects of ‘badger removal’.

2007 – the House of Commons Select Committee on Environment and Rural Affairs conducts an inquiry into the debate between the pro and anti cull scientists, which develops into a pitched-battle in the media.

18 February 2008 – farmers shout down Hilary Benn, new Environment Secretary, at a NFU meeting in London, ‘as he dampened hopes of a widespread badger cull’.

27 February 2008 – the all-party Environment, food and rural affairs committee says ‘tightly controlled badger culling could be implemented’ in TB hotspots so long as they cover areas of at least 265 square kilometres and repeated for at least four years, "to be 95% confident of an overall beneficial effect". The Badger Trust, RSPCA and National Trust say this casts doubt on whether badger culling is a viable strategy but the NFU disagrees.

May 2008 – a study in journal Preventive Veterinary Medicine confirms that following FMD in 2001, ‘restocked herds were significantly more likely to break down [get TB] at the first test after restocking if they had purchased cattle from previously infected, high risk, herds and also that where farms had had bovine TB prior to foot and mouth disease there was an increased risk of HBD [herd breakdown] , suggesting a local non-cattle source infecting these farms’.

July 2008 – Environment Secretary Hilary Benn announces that he will not implement a culling policy but will invest £20m in a new programme of vaccination research. Cassidy notes: ‘From this time onwards, both sides of the controversy developed a common rhetoric, arguing that ‘sound science’ or ‘the evidence’ supported their arguments, while selectively drawing on different scientists (the ISG or King) to do so’.

15 September 2008 – the government proposes a culling strategy from May 2011 partly paid for by farmers and targeting 6,000 badgers by licensing farmers to kill badgers. Professor Rosie Woodward who worked on the RBCT says: ““I think it is scientifically among the worst options they could have chosen" because farmers might not sustain culling and it could cause the perturbation effect.

June 2009 – A DEFRA ‘Agricultural Change and Environment Observatory’ report on the environmental impact of dairy cows in England finds:

‘There is an increasing incidence and widening geographical distribution of bTB in cattle in England, linked largely to holdings restocking after the 2001 FMD outbreak (and other holdings) buying in infected cattle’.

It adds that ‘In 2007, 90% of cattle slaughtered in England under bTB control measures were from the traditional “hotspots” of the South West and West Midlands’.

November 2009 – an academic study describes bovine TB and badgers in England and Wales as a case of ‘long-term intractable policy failure’. It says:

‘Cattle-to-cattle transmission of the disease has been underemphasised in the debate compared with transmission from badgers despite a contested evidence base. Archival

evidence shows that mythical constructions of the badger have shaped the policy debate. Relevant evidence was incomplete and contested; alternative framings of the policy problem were polarised and difficult to reconcile; and this rendered normal techniques of stakeholder management through co-option and mediation of little assistance'

2010 – Gordon Brown's Labour Government falls and is replaced by a Conservative – Liberal Democrat coalition government. Both of these parties campaigned with pro-cull positions.

2010 - more than 28,500 cattle test positive for TB in the UK. Farmers receive £90m in taxpayers money in compensation for slaughtering 25,000 of them

2011 – A Conservative-Liberal Democrat Coalition Government paper '*the Government's policy on bovine TB and badger control in England*' describes 'a carefully managed and science-led policy of badger control in areas with high incidence of TB in cattle'. This includes 'free-shooting' (of badgers seen above ground) rather than trapping and shooting them as was done in the RBCT. A 'farmer and landowner-led cull' is adopted 'due to the economic costs'. The government cancels five of the six vaccination trials set up by the previous government.

April 2011 – the National Trust starts a pilot vaccine project in Devon while the Gloucestershire Wildlife Trust and the official Food and Environment Research Agency start two separate vaccine trials in Gloucestershire.

11 July 2011 – Fiona Harvey in *The Guardian* reports that Lord Krebs says culling is "not an effective policy" and would be a mistake. She points out that Krebs says four years of intensive culling can achieve a 12-16% reduction in new cases of TB in cattle, leaving 85% of the infection untouched. He instead proposes biosecurity measures to limit transmission in the short term and vaccine development in the longer term. The farming lobby say that the same 16% reduction in cattle TB justifies a culling policy.

19 July 2011 - A week later DEFRA Environment Secretary Caroline Spelman says she is 'strongly minded' to approve a cull, pending a consultation on whether the shooting is "humane, effective and safe". Such a cull would involve two trials in 2012 and then kill 30,000 of England's 190,000 badgers in an area of 150km², over four years.

October 2011 – over 100,000 people sign a petition against the culls

14 December 2011 – Spelman announces that two pilot culls will go ahead in 2012 as 'there is no satisfactory alternative'. If approved by an independent panel, 10 trials a year could start, each running for four years. The Guardian calculates based on previous efforts that this means 70,000 – 100,000 badgers could be killed over four years.

John Krebs attacks the government's claim that the policy is based on science. He tells *The Guardian*:

"It was a mistake to imply it was possible to have a science-led policy. The science base is relatively minimal, and essentially a political decision had to be made. The government have dug themselves into a hole. My personal opinion is not to cull."

The newspaper estimates the total cost will exceed £92m, 'dwarfing' the £20m allocated to vaccine research.

19 January 2012 - Two areas chosen by farmers in Gloucestershire and Somerset are named as the first badger cull pilot areas. The six-week culls will involve farmers and landowners shooting badgers with rifles, to test how 'safe, humane and effective' the system is. The RBCT involved trapping badgers in cages and then shooting them with pistols, so avoiding the chance of only wounding badgers which then run off. The government repeats the line that 'nobody wants to cull badgers' but says it is necessary. It's reported that one local farmer has switched from cattle to chicken farming after losing all his herd to TB slaughter and being told it could happen again, while another says:

"as a farmer and countryman I'm sceptical of the plans and won't be happy to see healthy badgers killed. "There are other ways to identify the infected sets before culling them, but they aren't being listened to because they aren't coming from scientists".

"We also think the most humane way for culling the diseased badgers is by gassing their setts with carbon monoxide. We just think the cull could be done more efficiently and humanely without seeing healthy badgers annihilated."

2012 sees a series of policy changes and legal actions in the UK as later recorded by Katy Stoddard in *The Guardian* newspaper

28 February 2012 - A legal battle over culling begins as the Humane Society raises a complaint under the European Bern Convention and challenges the decision of Caroline Spelman in the High Court. Journalist Damian Carrington writes that Spelman's 'science led' justification has 'disappeared in a puff of smoke' as she is backing free shooting because it is cheaper than trap and shoot, not as it's more effective.

we have a "science-led" cull disowned by the researchers who led the science and one that will cost more than doing nothing. Everyone's first choice - vaccination- has lost funding, and the row is now in the expensive realm of the courts. This is not on track to end well for badgers, cattle, farmers, scientists or the taxpayer.

'20 March 2012 - The Welsh government scraps its plan for culling in favour of vaccination.

12 July 2012 - The high court rules that badger culling is legal in England, paving the way for culls in the autumn.

11 September 2012 - A legal challenge to stop the culling fails at the appeals court.

17 September 2012 - The first (new) culling licence in England is issued. It is to take place in Gloucestershire. The RSPB which opposes culling, starts its own vaccination trial in the county.

By now the Conservative Environment Secretary is Owen Paterson who comes from from a Shropshire farming family. He is a passionate supporter of badger culling, fox hunting and GM crops, is climate-sceptic, pro-Brexit and in 2014 will deride conservation groups as 'the green blob'.

24 September 2012 - An e-petition to stop the culling launched by Queen guitarist Brian May attracts over 100,000 signatures. It reaches 150,000 and leads to a 'Commons debate by MPs.

21 October 2012 - The Badger Trust mounts a last-minute legal challenge over the validity of licences for culling.

23 October 2012- Owen Paterson tells the Commons badger culling will be postponed until next summer. There is confusion over why. Paterson blames wet weather and, due to the London Olympics, a shortage of police to ensure the culls are not interfered with by protestors, along with higher than expected badger numbers in the cull areas. Prime Minister David Cameron is understood to have become involved.

25 October 2012 - MPs vote 147 to 28 to abandon badger culling, reflecting wider public opinion. Former government Farming Minister Jim Paice who supports the cull says of the 'free shooting' method:

"Nobody knows if controlled shooting will cull 70% of badgers [the minimum required] or be humane. There is no science, I readily admit that, because it has never been done."

2013 – pilot culls take place (culling by shooting). Katy Stoddard's record:

'27 February 2013 - Pilot culls in Gloucestershire and Somerset are confirmed by the environment secretary.

28 April 2013 - The RSPCA has come under fire for criticising the proposed badger culls.

5 June 2013 - Labour fails in an attempt to stop the culls with a Commons vote.

4 July 2013 - Environment secretary Owen Paterson vows to eradicate bovine TB from England within 25 years, as he releases plans that include culling and vaccination.

8 August 2013 - David Cameron (Prime Minister) defends the culling, calling it 'the right thing to do.'

22 August 2013 - A high court judge issues an order protecting cull farmers from harassment, banning protesters from entering private land without permission.

27 August 2013 - Badger culls begin in Gloucestershire and Somerset, as the environment secretary defends the move and Labour attacks Defra's decision.

30 August 2013 - Brian May's anti-culling protest song reaches the charts.

6 September 2013 - Four protesters are arrested on suspicion of aggravated trespass in the Gloucestershire cull zone.

24 September 2013 - Police officers threaten to pass details of anti-cull protesters to the National Farmers' Union and hand out NFU leaflets; civil liberties lawyers accuse them of bias.'

8 October 2013 – As it emerges that marksmen had to seek cull extensions to find and shoot enough badgers (70% - it achieved under 60%), expert Prof. Rosie Woodruffe says:

"I would stop the culls now ... "They have failed to meet the legal licensing target. There are now many serious questions about this whole approach to TB control."

9 October 2013 – Gavin Grant of the RSPCA says:

"The whole situation is a farce ... They keep moving the goalposts on how many badgers exist and how many need to be killed but, whatever the figures, it is clear the system has failed".

On the BBC, Owen Paterson says the cull was a success and retorts that “the badgers moved the goalposts” because of “vagaries of the weather and disease and breeding patterns”.
[video]

The government tells MPs:

"The chief veterinary officer (CVO) has advised that the 60% reduction this year will deliver clear disease benefits as part of a four-year cull.

10 October 2013 - Two Imperial College researchers, Christl Donnelly (a member of the former ISP which oversaw the RBCT) and Pierre Nouvellet, publish a paper in the journal PLOS re-analysing data on ‘the contribution of badgers to confirmed tuberculosis in cattle in high incidence areas in England’. Based on modelling, it contends that while there was a possibility of badgers not being involved at all, transmission by badgers might be involved in about half and at least 38% of all cattle herds developing confirmed TB, only 5.7% is due to transmission from badgers to cattle, and the rest is transmission between cattle.

Stoddard:

‘11 October 2013 - The Somerset cull is extended by three weeks, in an attempt to reach the kill targets.

17 October 2013 - The cull in Gloucestershire falls short of its target as marksmen only kill 30% of the population, and may be extended.

19 October 2013 - The badger cull is hit by legal action from the Badger Trust.

23 October 2013 - Sir David Attenborough slams the UK government for 'ignoring' science over culling, as illegal gassing and shooting is reported in the trial counties.

5 November 2013 - The extended badger cull in Somerset fails to reach its target.

29 November 2013 - The badger cull in Gloucestershire is abandoned, as Nature England revokes the licence over a failure to meet reduced targets. The cull may have increased the risk of TB in cattle.

14 January 2014 - Data shows the cost of policing badger culls in Somerset and Gloucestershire was more than double earlier estimates.

23 January 2014 - Figures show that only 24% of badgers culled were killed by controlled shooting, the method the pilot schemes were designed to test' (experts using cages had to be brought in to catch and kill the rest).

28 February 2014 – Documents from an Independent Expert Panel (IEP) established by DEFRA to evaluate the culls, are leaked to the BBC and The Guardian. They show that (BBC): 'up to 18% of culled badgers took longer than five minutes to die, failing the test for humaneness' and rather than killing 70% of badgers, less than half died, raising the likelihood of the 'perturbation' effect and greater transmission of TB.

14 March 2014 – a Parliamentary back-bench vote to halt culling is passed by 200 votes to 1

April 2014 - The government u-turns on plans to expand trials to other locations after an independent assessment shows they were not effective or humane in 2013

3 April 2014 – a 25 year government badger TB strategy is published, aiming to eradicate TB by 2038. It sets out three zones of High Risk, Low Risk and Edge Areas with intermediate risk. Government also starts funding private badger vaccination projects in the Edge Area, using the BCG vaccine. Derbyshire Wildlife Trust (DWT) starts vaccinating badgers in 2014 with part Government funding and continues to date with a gap in 2016 because of vaccine shortages. (DWT's vaccination programme becomes the largest and longest running in the country).

23 June 2014 – Prof Timothy Coulson of Oxford University and a member of the IEP writes that Ministers must be "wilfully" ignoring the concerns of its own scientists and speculates that:

"the government no longer wants to know whether the pilots are effective or humane ... They just want to cull badgers, regardless of whether the population or humaneness consequences can be assessed."

Coulson says he fears independent oversight (the IEP) will be abolished, and the government may adopt a less reliable method of evaluating humane-ness and make it impossible to know if the culls have worked or not. "If culling worked I'd be fully supportive of them rolling it out, but all the evidence is that it does not," he told BBC News.

Speaking on BBC Radio 4, farming Minister George Eustice confirms that the work of the IEP is now “over”. (McCullough and Reiss state: ‘George Eustice has a farming background and his family has a herd of South Devon cattle in Cornwall, an area of the UK with a high incidence of bovine TB’).

17 April 2015 – the BVA, British Veterinary Association, drops it’s support for the government’s planned badger cull because it is based on ‘free shooting’ (called ‘controlled shooting’) rather than the more humane cage-trapping system used in the RBCT.

May 2015 – the Liberal Democrats lose heavily in a General Election and the Conservative Party, which has pledged to implement the 25 year strategy to eliminate bovine TB, forms a majority government. The Conservative manifesto doesn’t mention badgers or wildlife but just says it will “implement our 25-year strategy to eradicate bovine TB”.

2015 – reviewing the history of cattle, badgers and TB, Angela Cassidy of Exeter University notes that

‘Due to the devolution of agricultural policy to Wales, Scotland and N. Ireland, we have now seen six different bTB policies enacted across the UK since the completion of the RBCT, all built upon largely the same evidence base. Policy shifts around badgers and TB have been associated with shifts in political power since at least the post-Thatcher appointment of Lord Zuckerman. However, this more dramatic pattern— of turnabouts in policy supported by careful re-interpretations of data, rhetorically described as ‘the science’—appears to have been set during the 2007 controversy over the RBCT’.

She concludes:

‘Ultimately, the now-routine invocation of ‘the science’ in support of arguments both for and against badger culling ‘cannot meaningfully contribute’ to solving the UK’s bTB problem’.

2 September 2015 – The three science professors John (Lord) Krebs, John Bourne and Randal Munro who led, respectively, the Independent Scientific Review Group, the Independent Scientific Group and the Independent Expert Panel, all sign a letter opposing the government plans to expand culling to Dorset and use free shooting. Patrick Barkham writes in The Guardian that ‘The intervention comes as figures reveal the government has spent nearly £7,000 killing each badger so far’. The cull goes ahead.

August 2016: More than 3,900 badgers have been killed since the cull started in Somerset, Gloucestershire and Dorset

23 August 2016 – the BBC reports that the government will allow badger culls five new areas of England besides Somerset, Devon and Gloucestershire. ‘Shooting ... will begin in early September in South Devon, North Devon, North Cornwall, West Dorset, and South Herefordshire’. ‘Tony Francis, a farmer who had TB in his herd near Okehampton in Devon, said he had signed up to one of the new cull zones to try to prevent the disease from returning’:

"No-one has really got on top of it. I think the agricultural industry feel we've got to try and take control of it."

August 2017 – a paper in the *Journal of Agricultural and Environmental Ethics* by Steven McCulloch of the University of Winchester and Michael Reiss of UCL highlight an observation that ‘a key function of expertise in policy making is to depoliticise policy’ but ‘in bovine TB policy ... the expertise itself has become politicised’. They argue that ‘badger culling is inherently an ethical issue and policy cannot be exclusively based on ‘the scientific evidence base (eg the RBCT), economics (eg a cost benefit analysis) nor public opinion’. They write: ‘weighing up of ethical issues needs to be conducted by ethical experts using established moral frameworks’ and leaving this to politicians would be ‘problematic’.

September 2017 – an epidemiological analysis by the government’s APHA (Animal and Plant Health Authority) finds that:

‘surveillance testing and control measures in cattle herds across GB were disrupted during the FMD epidemic in 2001 ... numbers of TB infected herds increased rapidly ... leaping from 363 in the last quarter of 2000 to 662 in the last quarter of 2002 with an annual rate of increase of 25.3%’.

From 2003-2010 cases grew at 5.6% and then plateaued but ‘note that the current quarterly number of incidents is still more than double that before FMD’.

24 October 2017 - Environment Secretary Michael Gove tells the Sustainable Soils Alliance (SSA) “We have encouraged a type of farming which has damaged the earth” and “If you have heavy machines churning the soil and impacting it, if you drench it in chemicals that improve yields but in the long term undercut the future fertility of that soil, you can increase yields year on year but ultimately you really are cutting the ground away from beneath your own feet. Farmers know that”. It’s taken as a sign that Gove is undergoing an ‘environmental conversion’ at Defra.

12 November 2017 - after a series of pro-environment statements by Gove, *Guardian* columnist George Monbiot has claimed: “This is amazing. One by one, Michael Gove is saying the things I’ve waited years for an environment secretary to say.”

February 2018 – Michael Gove announces the Godfray Enquiry to review strategy, noting that two pilot culls appeared to be reducing bTB but “*However, we do need to consider what further steps or actions should follow the conclusion of each four-year cull. After all, none of us wants to be culling badgers forever. The review will therefore also consider such issues.*”

May 2018 – government publishes new guidance to NE [Natural England, its conservation agency] on culling, while Godfray Review is still going on. It includes what to do if badger vaccination is taking place near a cull area. In 2019 NE issues its own detailed guidance on the processes for issuing culling licences.

22 May 2018 – BBC Wales airs a documentary on an investigation into ongoing and widespread illegal badger-baiting (in which badgers are attacked with dogs and dug from their setts and killed).

12 September 2018 – Michael Gove secures rave green reviews for radical plans (Agriculture Bill) to replace EU-style farm payments with a system in which farmers would mainly receive public money for ‘public goods’, such as delivering soil conservation, reducing greenhouse gas emissions, land-based carbon storage, flood alleviation and habitat creation for biodiversity.

13 September 2018 – Government announces the badger cull area is to be increased by 70% and from 32,500 animals in 2017, to 42,000. Minister George Eustice cites the success in reducing cattle infections in Gloucestershire and Somerset cull areas but does not mention an increase in Dorset.

October 2018 – the Godfray Review is published. It supports both periodic culling and vaccination, and recommends area experiments to find the approach most effective in reducing bTB. It is explicit that while scientific evidence can ‘inform’ decisions, there are ‘deeply held beliefs’ on both sides which means the strategy decisions are political: *‘final decisions have to take into account the irreconcilable views of different stakeholders and so inevitably require judgements to be made by ministers’*.

It adds that: ‘controversy around badger culling and the politicisation of the debate’ has ‘deflected’:

‘focus from what can be done by the individual farmer and by the livestock industry to help control the disease. In particular, the poor take up of on-farm biosecurity measures and the extent of trading in often high-risk cattle is, we believe, severely hampering disease control measures’.

It calls for use of the more sensitive test SICT (as used in Europe, not SICCT), in high TB areas.

November 15 2018 – Carbon Brief reports that the Committee on Climate Change says the UK requires a framing ‘revolution’ to meet its climate goals. ‘Production of beef, lamb and milk is a large source’ of greenhouse gases like carbon dioxide, methane and nitrous oxide, and unlike sectors such as energy, agricultural emissions have shown no decline. ‘In 2016 cattle and sheep directly accounted for around 58% of agricultural emissions, while there are additional soil emissions associated with growing their feed’. Chairman, Lord Deben, says it is absolutely central and essential to have “less and better meat consumption”.

6 January 2019 – the EAT-Lancet Commission on Food, Planet and Health (involving the medical *Lancet* journal) publishes a global “healthy and sustainable diet” or “Planetary Health Diet”, which is largely plant-based and aims to address under-nutrition in some countries and over nutrition in others. It says ‘A planetary health plate should consist by volume of approximately half a plate of vegetables and fruits; the other half, displayed by contribution to calories, should consist of primarily whole grains, plant protein sources,

unsaturated plant oils, and (optionally) modest amounts of animal sources of protein'. This means 'a greater than 50% reduction in global consumption of less healthy foods such as added sugars and red meat' mainly in rich countries.

1 August 2019: In private and after preliminary meetings, a 'Challenge Meeting' is held between a culling company, the NFU, and DEFRA and NE, to test plans for the 'Lunar area' in Derbyshire/ Staffordshire. All parties leave expecting to be able to finalise the cull plan.

August 14 2019 – Prime Minister's fiancé, conservationist Carrie Symonds, meets with Dominic Dyer CEO of the Badger Trust in private rooms at 10 Downing Street to discuss badger cull proposals in Derbyshire.

September 2 2019 – vet Paul Munro, a former member of the official Independent Expert Panel says culling by free-shooting is causing 'immense suffering' of badgers, are not reducing the incidence of TB in cattle and in one cull area it has gone up. The BBC reports: 'up 23% of badgers took more than five minutes to die after they were shot. These figures prompted the group to conclude that the culls were inhumane in its assessment report to government'.

September 6 2019 – to subsequent outrage from the NFU, DEFRA orders NE not to grant badger cull licences in Derbyshire (culls in other areas are not affected). The NFU and the culling company start court proceedings to challenge the legality of DEFRA's decision through a Judicial Review.

September 23 2019 – summarising information, FullFact states that on 11 September 2019 the government announced a next cull in 40 'Badger Control Areas', to kill a minimum of 37,000 and maximum of 60,000 badgers (it was subsequently confirmed that 35,014 badgers had been killed). If the minimum number are killed, the total killed since 2013 will reach 104,000 and if the maximum are killed, it will reach 130,000. The number killed has increased each year, with 33,000 across 33 areas in 2018 and 19,000 in 21 areas in 2017. In a Gloucestershire and Somerset culls had been running since 2013 and in the first, TB "new herd incidents' in cattle has increased compared to pre-cull 2012, whereas in Somerset they had declined.

23 January 2020 – the Committee on Climate Change publishes Land Use: Policies For a Net-Zero UK which notes that UK 'average daily consumption of beef and lamb is around 28g per person per day, over 80% higher than the Eatwell guideline of 5g per person per day'. (Eatwell being the official government health guidance. In fact 28g is 5.6 times more than 5g, implying an 82% reduction. It's unclear if that's what the Committee meant). It adds: 'in our Net Zero report, we identified at least a 20% shift away from beef, lamb and dairy to alternative protein sources per person by 2050, while a more ambitious reduction of 50% may be needed', and, while 'grassland cannot be used continually to offset ongoing methane emissions from livestock. Converting grassland to forest can increase the amount of carbon stored'.

It states '*low-carbon farming measures can deliver air quality improvements, which have a value over the lifetime of the measures of £10.5 billion ... The largest co-benefit from an air*

quality perspective [particularly ammonia] is the reduction in livestock numbers due mainly to diet change. This contributes £3.9 billion of benefits from air quality improvements’.

March 2020 - The Government publishes its response to the Godfray review, The response signals a policy shift towards a disease control programme focused principally on vaccination, and indicates an intention to end most culling by the mid to late 2020s. It states in its conclusion that:

“the government is clear that widespread badger culling cannot continue forever and that there needs to be a gradual transition to badger vaccination, while retaining the option for culling in specific circumstances when and where it is necessary. We have reached a point in the bTB strategy where it is right to move on from widespread culling being the focus

May 13 2020 - the NFU and culling company lose their Judicial Review challenge to DEFRA’s decision to instruct NE not to issue a cull licence in Derbyshire for 2019 [details here including political events]. NFU Deputy President Stuart Roberts says:

“I am shocked and dismayed by the decision of the High Court. The actions of the government last September amounted to a complete U-turn on established government policy”.

5 July 2020: ITN reports that trials of a new ‘DIVA’ test will go ahead which should be able to distinguish between cattle vaccination using BCG TB vaccine, and TB infection of cattle. Environment Secretary George Eustice says:

“This scientific breakthrough is a major step forwards in our battle to see the disease eradicated from this country”.

3 September 2020: Vets, former government scientists and advisers on TB, prominent nature conservationists and others sign an Open Letter to the Prime Minister, published in the Veterinary Record of the British Veterinary Association, calling on him not to continue culling but to support badger vaccination.

7 September 2020: the Badger cull is expanded to include 11 new areas, targeting over 60,000 badgers, including in Derbyshire. The Derbyshire Wildlife Trust (DWT) CEO Jo Smith denounces it as a u-turn. DWT says it would bring the number killed since 2013 to 170,000 or 35% of all badgers in the UK.

1 October 2020: In a Wildlife Trusts streaming video discussion on badgers and TB, Dominic Dyer, CEO of the Badger Trust says: “the Foot and Mouth situation is what fed the significant growth in the disease” with TB cattle cases jumping from 4,800 before 2001 to 28,000 more after restocking. He says:

“Jim Scudamore the Chief Vet at the time, said to Tony Blair and Nick Brown the Agriculture Minister, that you have a choice and you can move cattle and get them back on the fields again in the Midlands and in the North West ... but most of them will probably come up from the South West – where you didn’t have significant levels of Foot and Mouth but ... a

persistent problem with bovine TB but you'll have to test them. And he also said that we need to shut down a lot of the cattle markets because these are the key transmission routes for spread of the disease. I'm afraid the NFU and the food industry being lobbied by them, basically decided that's not what they wanted and they influenced the government to move large numbers of cattle with no controls".

He continues:

"... remember bovine TB is a form of industrial pollution. It pours out of cattle effectively, and it goes into badgers, it goes into rats, stoats, weasels, foxes, domestic animals, dogs, cats, you name it. We are not monitoring a lot of the spread in a lot of these other animals. The focus is primarily on the badger but it is a form of industrial pollution"

He adds:

... "This is about the intensity of that cattle industry and the number of cattle you move – which is what Ian Boyd was saying to be fair, when his view is that we need to reduce that size down and that would reduce disease risk as well."*

*Ian Boyd was Chief Scientific Adviser to DEFRA from 2019 – 2019 and spoke on a panel at the 2020 'virtual' Bird Fair ([video](#)) where he argued that "the argument needs to shift" from debating badger vaccination [he believes it would be ineffective] versus culling, to the need to shift away from cattle and sheep production for dietary and climate reasons, pointing out that without public subsidy "you would take most of the cattle farming out of production".

2 October 2020 - New Statesman, columnist Stephen Bush reports that there is a split over farming and environment within the Conservative party:

'The government is quietly split between committed environmentalists who, led by Michael Gove [no longer Environment Secretary] supported by Zac Goldsmith, want to use Brexit to pursue sustainability and higher food standards – and followers of Liz Truss, who want to use Brexit to strike as many trade deals as possible. To make matters worse, the British public is nervous about changes to food and farming'.

Bush sees the 'campaigning to protect agricultural standards' by Theresa Villers, 'a committed Brexiteer and former environment secretary' as 'the most dangerous development for Johnson' because she can't be written of as a Remainer or uninformed.

11 November - The new (English) Agriculture Act passes its final Parliamentary stage, entering into law

30 November 2020 – government announces a seven year Transition Plan for farming, cutting and redirecting subsidies. It is heralded as the largest shake up in agriculture for 50 years.



The main reviews or inquiries conducted into bovine tb, cattle and badgers in England have included:

Solly Zuckerman, 1980: Zuckerman, O. M. (1980). *Badgers, cattle and tuberculosis*. London: HM Stationery Office.

Dunnet Report 1986: Dunnet, G. M., Jones, D. M., & McInerney, J. P. (1986). *Badgers and bovine tuberculosis: Review of policy*. London: HM Stationery Office.

Krebs Report, 1997: *Bovine Tuberculosis In Cattle and Badgers, Report by The Independent Scientific Review Group* ([link](#))

Bourne Report, 2007: Department for Environment, Food and Rural Affairs, *Bovine TB: The Scientific Evidence: Final Report of the Independent Scientific Group on Cattle TB*, June 2007 ([link](#))

King Report, 2007: *Tuberculosis in Cattle and Badgers: A Report by the Chief Scientific Adviser*, October 2007 ([link](#))

Munro Report, Independent Expert Panel, 2014: *Pilot Badger Culls in Somerset and Gloucestershire* ([link](#))

Godfray Report, 2018: *Bovine TB Strategy Review* ([link](#))

The Zuckerman review proposed a 'clean ring' reactive culling strategy but the Dunnet review found that TB incidence in cattle was anyway falling in areas that were not culled. Dunnet recommended better biosecurity to stop badger-cattle contact and reactive badger culling.

Krebs found that reactive culling was increasing TB incidence around cull zones and recommended it be stopped, and proposed the RBCT scientific trail (Randomized Badger Culling Trial).

Bourne oversaw the RBCT and found that badger culling could make no meaningful contribution' to eliminating TB in cattle, which was mainly caused by cattle-cattle transmission. Immediately afterwards King (government Chief Scientific Advisor) stated that badger culling could make a 'significant' contribution to reducing TB in cattle but did not consider the costs or practicalities.

Munro found that 'free shooting' (also known as 'controlled shooting' by farmers and landowners) for badger culling was failing to be humane.

Godfray found that badger culling could make a 'modest' contribution to reducing TB in cattle but recommended much greater focus on controls to stop TB transmission between cattle, and considered that the focus on badgers 'deflected' attention from the 'poor take up of on-farm biosecurity measures and the extent of trading in often high-risk cattle' [which] 'is, we believe, severely hampering disease control measures'.

With the exception of two years under the Gordon Brown Labour Government in which vaccination was prioritised and culling stopped, badger culling continued in England despite the findings of these reports.

There have also been numerous other reviews and papers commissioned by government and Select Committee Inquiries.