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**Approximate transcript of feature on bovine tuberculosis and the badger cull**

**CG-Caz Graham**

**GE-Gareth Enticott**

CG. Some 30,000 cattle were slaughtered in Great Britain between April last year and March this year because of outbreaks of bovine tb. Measures to prevent the disease include the controversial Killing of badgers, vaccination of badgers and enhanced bio security on farms. There have been decades of work to try and develop a vaccine for cattle but it is still some years away. But Defra are already doing the groundwork for when it's ready for use. They recently commissioned a survey to Research farmers attitudes to a cattle vaccine Dr Gareth Enticott, Professor of human geography at the University of Cardiff and a member of Defra's TB partnership was part of the research team. He's been telling me about their findings, and also ten years on from the start of the badger cull, how the science on whether it's worked isn’t black and white.

GE. So what we did was to look at scenarios in workshops and interviews and the results really were that farmers were kind of more in favour of a mandatory approach. How that mandatory approach would be delivered is up for Debate - whether that would be government, but it could also be three kind of private regulation for example.

CG. Were they positive about the idea of vaccinating their Cattle on the whole?

GE. Yeah, definitely it is fair to say that farmers feel kind of disenfranchised by the way in which TB policy works, often they feel fatalistic about tb and they expect to go down with Tb in those High Risk Areas. Often there's not much they think they can do about it. Vaccination was seen as a real solution and they were keen to see that delivered as quickly as possible.

CG. In the absence of a vaccine, to date one of the main tools made policies has been used in England to try and get a bovine TB under control is culling badgers. Did the Farmers that you met did they feel that culling made a difference?

GE. Definitely, discussions about what would happen to badgers if there was a cattle vaccine rolled out, would farmers still want to have those badgers culled, and so that's quite an interesting debate, because you know they have issues around kind of population control as opposed to kind of disease control, and just reducing the level of badgers in terms of generating other kind of biodiversity benefits.

CG. A couple of weeks ago we reported on the 10th anniversary of the first badger culls and we heard how farmers on the ground thought the Cull was working for them. Tom Langdon got in touch with us because we didn't make it clear that there is no black and white scientific evidence that either the cull or badger vaccination are working. What does the current data show and is it possible to draw any conclusions from it?

GE. I suppose the answer to that is that is that science is never definitive on anything, and that’s how science progresses, that there's always debate about what works and what doesn't work. In terms of the badger cull and TB policy as a whole, what you've got really is a debate about values which are in contest with each other, so the evidence which has been collected around badger culling reflects a set of different values about what constitutes appropriate evidence and those values represent or are reflective of the times in which the evidence was collected. So if we go back 20 - 25 years, you know there was a real hope that the randomized badger culling trial, very scientific approach that form of evidence seemed to be the kind of the highest level of scientific evidence would provide the answer, and would also convert people into believing that badger culling would work. Now it turns out that that wasn't actually the case and it wasn't the case because they're always these kinds of uncertainties around badger culling. But you can look at that in a number of different ways and always challenge it. So there's never really going to be a definitive answer.

CG. Tom Langdon published his paper in the Vet Record last year which suggested that badger culling has not been working across what's called the high risk area. That paper, at the time , was contested by Defra. From what you're saying it sounds like if not necessarily possible to settle a debate on whether culling works or not through data collection and science. Is it just too complex are they just too many variables and too many emotions involved as well?

GE. The answer really is what kind of science do you want to have. So in other another environmental controversies people talk about the need for what's called kind of post-normal science. You often have an issue where the facts are uncertain, values are disputed, the stakes are high, but people need to make a decision quite quickly. Waiting for the evidence of the randomized control trial or whatever, is not going to be appropriate. You need to develop different ways of collecting information and doing science, and people refer to that as post-normal science. Now one of the ways in which you might do that is by kind of accepting that you know different forms of evidence are limited and there are problems with them.