Animal & Plant Health Agency

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[redacted]
{By Email}

Our Ref: ATIC1351

02 July 2018

Dear [redacted]

PROVISION OF REQUESTED INFORMATION

Thank you for your request for information about Gamma testing which we received on 31 May 2018. This was followed by your clarification on the 04 June 2018. Your request has been handled under the Freedom of Information Act 2000 (FOIA).

The information you requested and our response is detailed below:

'A report on the number of cattle tested using the Gamma Interferon test and those that failed the test for the periods;

Whole years - 2016 and 2017 (two reports)
Partial years Jan to May 2016, Jan to May 2017 and Jan to May 2018 (three reports)

Please find the responses to your request below:

Year	Number of Tests on Animals	Number of Positive Animals
2016	64,943	2,589
2017	95,038	5,324
2018 (Jan 01 – 31 May	70,597	4,218
2016 (Jan 01 - 31 May)	25,424	1,358
2017 (Jan 01 – 31 May)	38,998	1,840

'With reference to the sensitivity and specificity of the Gamma Interferon test is it possible to detect whether the test is truly a positive or negative or can false results be detected at the laboratory analysis stage of these tests? i.e. How do you know the sensitivity and specificity?'

The performance of the gamma test Sensitivity (Se) and Specificity (Sp) in Great Britain (GB) is as follows;

Se 90% [95% confidence intervals; 87.2%-92.8%]

Sp 96.5% [95% confidence intervals; 95.3%-97.7%]

The confidence intervals referred to above are the plausible values from a sample parameter.

The specificity of the test was arrived at following a Defra-funded Specificity Trial that included cattle from TB-free herds with no TB history and in geographical areas of the country with low to no TB.
The sensitivity of the test was arrived at through the accumulation of data from TB-infected cattle – see also Schiller et al., 2009 CVI 16(8), 1196-1202. We have attached copies of both documents to the covering email as Appendix 1 and Appendix 2.

The gamma test responses from these two groups of cattle (TB-infected and TB-free) are then used in a statistical analysis that provides a sensitivity (with 95% confidence intervals) and specificity (with 95% confidence intervals) for every conceivable numerical test cut-off.
It is then possible to choose the test cut-off that provides the overall best Se and Sp. Se and Sp are linked, so as one goes up, the other comes down, and a balance must be achieved that provides a Se and a Sp that is acceptable (as low false-positives as is possible) and useful (as low false-negatives as is possible).

The stated Se (90%) and Sp (96.5%) are descriptive of the cattle actually in the trial. The 95% confidence intervals are used to infer how descriptive these levels of sensitivity and specificity would be for the wider GB cattle population – the larger the groups in the trial, the better the data and the shorter the 95% confidence intervals. So for example from our GB trials data the Se of the test is 90% but in the wider GB population the sensitivity is expected to vary between 87.2% and 92.8%. Similarly from our GB trials data the Sp of the test is 96.5% but in the wider GB population the specificity is expected to vary between 95.3% and 97.7%.

I attach an Annex which explains the copyright that applies to the information being released to you and contact details should you be unhappy with the service you have received.

If you have any queries about this letter, please contact the Access to Information Team at the email address below or postal address at the top of this letter.

Yours sincerely

ACCESS TO INFORMATION TEAM
Email: enquiries@apha.gsi.gov.uk

Annex

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If you wish to request an internal review, please contact: The Access to Information Team at enquiries@apha.gsi.gov.uk or at the postal address at the top of this letter, who will arrange for an internal review of your case.

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Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
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