



**University of
Nottingham**
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Regulation of bTB testing in the UK - is it time to change the rules?

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Defra acknowledge that the skin test is not perfect (2018)

Preventive Veterinary Medicine 153 (2018) 94–107



Contents lists available at [ScienceDirect](#)

Preventive Veterinary Medicine



The SICCT test at standard interpretation was estimated through the meta-analysis to have a median Se of 0.50 (95% CrI 0.26, 0.78) by model A and 0.64 (95% CrI 0.48, 0.78) by model B ([Table 4](#)).

These estimates can only be described as low or moderate, which is of concern given the widespread use of SICCT test and its official status as a standalone test ([EEC, 1964](#)).



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DOI: 10.1002/vetr.70335

ORIGINAL RESEARCH

Vet Record

Bovine tuberculosis history as a risk factor for recurrence in

However, the test has a less than perfect sensitivity, with a 2018 meta-analysis based on cattle in the UK and Ireland providing a median estimate of 50%, with a credible interval of 26%–78%.⁴ Relying on the SICCT test alone to detect infected animals in a TB breakdown herd increases the risk of leaving undetected infection in the herd.



The Actiphage[®] Test

- Actiphage test shown to be able to detect *M. bovis* in blood samples

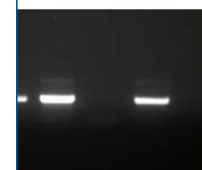
> Microb Biotechnol. 2020 May;13(3):738-746. doi: 10.1111/1751-7915.13518. Epub 2019 Dec 3.

The development and use of Actiphage[®] to detect viable mycobacteria from bovine tuberculosis and Johne's disease-infected animals

Benjamin M C Swift¹, Nathan Meade², Elsa Sandoval Barron³, Malcolm Bennett³,
Tania Perehenic², Valerie Hughes⁴, Karen Stevenson⁴, Catherine E D Rees²

Blood cells

ction of
vis DNA





Commercialisation process



Virulence

Method shown to be able to detect bovine TB in cattle

ISSN: 2150-5594 (Print) 2150-5608 (Online) Journal homepage: <http://www.tandfonline.com/loi/kvir20>

Evidence of Mycobacterium tuberculosis complex bacteraemia in intradermal skin test positive cattle detected using phage-RPA

Benjamin M. C. Swift, Thomas W. Convery & Catherine E. D. Rees

TB hits Asiatic lions at two UK zoos

By Josh Loeb

FOUR Asiatic lions in the UK have been euthanased in the past year due to TB.

Two were housed in a quarantine facility at Whipsnade Zoo, part of the Zoological Society of London (ZSL), and the other two were at Paignton Zoo.

The Whipsnade lions were imported from India but had to be euthanased after the results of a combination of TB tests led vets to conclude there was no other option.

The decision to euthanase was made several months ago but was not announced publicly at the time.

The lions – a male and a female – were prized as important for enhancing the genetic diversity of the European captive population of the endangered species *Panthera leo persicus*.

There are only around 600 Asiatic



Melissa, the lion that has been euthanased at Paignton Zoo recently, pictured before its TB diagnosis during an operation to fit a contraceptive implant.

New applications developed

Patent process started 2014

Seed funding 2017 (£60K)

Angel investment 2018 (£400K)

As badger culls begin, could one pioneering vet's bovine TB test end the slaughter?

Research at a secret location in Devon may help eradicate bovine tuberculosis without a single badger being killed, says leading vet



News of trial of bovine TB test hit the headlines

Animal & Plant Health Agency

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You are here: Home > Exceptional private use of non-validated tests for TB on cattle in England

Vet Gateway Home

- * Private cattle TB blood interferon-gamma testing
- * Exceptional private use of non-validated tests for TB on cattle in England

Exceptional private use of non-validated or non-Defra approved tests for TB on cattle in England

APHA can consider requests from private vets for the exceptional private use of non-validated or non-Defra approved tests for TB on cattle in England under certain conditions.

- Background
- Conditions for private use of non-validated test on cattle in England
- Process for arranging non-validated tests or the IDEXX ELISA test
- Test results
- Further information

Use ADTS to submit your samples with free postage, sample tracking and access to results

Popular links

- * Sam
- * OV instructions
- * Report notifiable diseases

[See full support](#)

Discussions with regulators



Barriers to developing new tests and understanding

- Under the Tuberculosis in Animals (England) Order 2021 legislation it is illegal to test samples from any animal that has given a positive test result using the standard skin test (SICCT) until after it has been slaughtered
- Approval from the Secretary of State is required to test animals using alternative tests to compare results with the SICCT



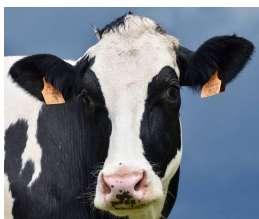
Porter's 5 forces: Bovine TB vs Human TB business case



Competitive Power



New Market Entrants



Bovine TB



Suppliers

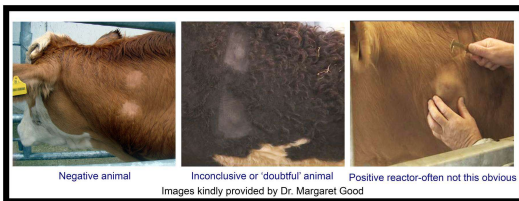


Customers



Substitute products

- No DEFRA TPP
- Market Highly regulated



- Skin test (SICCT) £4/cow (vs £30/cow)

CONCLUSION (2022): FOCUS ON Human TB



UoN Centre for Food Policy and Foresight Intern

Method:

- Reviewed UK legislation governing bovine TB testing
- Analysed Defra, APHA and GOV.UK guidance
- Compared TB testing frameworks in England, Ireland, France, Belgium, Australia and New Zealand
- Reviewed scientific literature



Results at a glance

Country	TB Status	Diagnostic Flexibility	Outbreak Response
England	Endemic (HRA)	Statutory skin test dominant. Ancillary tests tightly controlled. Non-validated tests require approval.	Movement ban, slaughter of reactors, whole-herd retesting, tracing.
Ireland	Endemic		
France	OTF		
Belgium	OTF		
Australia	TB-free (eradicated)		
New Zealand	Mostly TB-free (zoned)		

No legal
constraints on
comparative
research using
new tests



Results & Implications

- *We found that....*
 - Current legislation creates barriers to testing novel diagnostics in the field in UK
 - England, Wales and NI research is concentrated within government-affiliated organisations
 - Comparator countries adopt more flexible approaches to supplementary testing

Clear that existing legislation may unintentionally slow research and innovation



Policy Recommendations

- Amend laws relating to bovine TB testing of cattle to allow testing of naturally infected animals for research purposes
 - Allow testing of SICCT-positive animals prior to slaughter for comparative studies
 - All research/non-validated test results relating to bovine TB in cattle must be shared with the Defra and APHA
- Allow farmers to use a range of tests to try and identify residual infection in herds
 - No mandatory slaughter but test results must be reported to Defra and APHA
 - All test results must be declared before animal movements
- Data sharing will support surveillance and understanding of epidemiology and disease progression of bovine TB in the UK



Acknowledgements



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**Centre for Food
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Delivering research that informs policy worldwide

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