Research Project into the use of PCR to detect bovine Tuberculosis in camelids.

The possible use of PCR to detect m bovis (bTB) in camelids has been widely discussed and talked about for many years.

The Camelid TB Support and Research Group were frequently asked whether we could pursue the possibility of PCR as a diagnostic tool.

PCR (polymerase chain reaction) is a test that looks for a genetic marker which is present in all strains of TB. PCR focuses on a particular DNA region within the bacterium. In other words it only detects the disease.

Following initial discussions and research, Dr Gina Bromage and Dianne Summers met with leading scientists and microbiologists at the VLA (Veterinary Laboratories Agency) Weybridge in December 2010 to discuss the Possibility of funding a trial to test if PCR could work in detecting m.bovis in camelids.

Following a further meeting in July 2011 we signed contracts with AHVLA Weybridge to conduct such a study.

This technique is already used successfully for other similar diseases and the AHVLA microbiologists were hopeful that due to the advanced gross pathology (lesions) often found in camelids infected with bTB it may be possible to detect m.bovis in faeces, nasal swabs or blood.

The object of the project was to generate data for proof of concept for the use of PCR to detect *M. bovis* in camelids using samples taken from animals euthanized as part of the Defra TB surveillance program. The tests were trialed only on camelids that presented with visible lesions.

In the background document for this trial Scientists at the AHVLA state State:

"There are frequently extensive and severe gross lesions in camelids. This is likely to make them infectious but also means that it should be possible to detect the organism by PCR in clinical samples."

It is common knowledge that alpacas and llamas can be heavily infected and infectious with bTB and yet show no outward signs or symptoms whatsoever. If this project was successful the simplicity of taking a faecal sample or nasal swab to be tested via your local AH VLA would be a huge step forward.

If successful the test could be used:

Where an alpaca or llama in a herd that was not under TB restrictions showed clinical signs that could be attributed to TB.

In herds recently confirmed as infected with M. bovis the test could be used to remove cases which were not picked up by the other ante mortem tests or whilst waiting for culture results or waiting for skin tests and blood tests to be carried out.

As a routine screening test.Testing of faeces and nasal swabs will be quick and affordable. Samples can be taken by owners and sent to the AHVLA without the need for a farm visit from their Vet.

Because the first stage of the trial was so successful a second stage was then conducted on deceased camelids with less severe lesions.

Both trials have now been completed and the results are far better than we had hoped for.

Stage 1 and Stage 2 results in summary form are on this website on the PCR Tab.

This was a Proof of Concept Study; The concept being, can we detect m bovis in fecal and nasal swabs in Camelids. This study has proved we can. The next stage is to validate using live camelids.

Funding of this study

We cannot thank those that donated to this study enough including Farmers Union Of Wales – British Camelids Limited – British llama Society - Alpaka Zucht Verband Deutschland all of which donated £1000 or more and also to the countless others that donated amounts from 5.00 upwards A huge thank you to you all.