

A TB OUTBREAK - MAF INVOLVEMENT

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Introduction

In early 1992 an accredited TB-free red deer herd in a surveillance area suffered a massive TB breakdown. As a result the herd was virtually de-stocked, a possum operation undertaken and the situation gained a lot of media attention. This case highlighted to deer farmers, practitioners and MAF the speed with which TB can spread within a herd and the devastating results it can have.

Description

The property involved is 48 hectares in area and is relatively clear of cover except for 2 small plantations and shelter belts. The surrounding countryside is intensively farmed rolling grassland with predominantly sheep, beef and dairy farms. The property is located 8 kilometres from the Ruahine State Forest Park.

The herd was initially formed in 1990. At the time of the outbreak there were 377 deer on the property. The herd was well managed and the farmer kept good records. The latter greatly aided the traceback of stock movements for epidemiological purposes.

Initial Events

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| 16 March 1992 | 25 mixed age hinds were slaughtered and 2 were found with gross lesions typical of TB. Later histology and Ziehl Neelsen stains returned positive. |
| 20 March 1992 | 25 mixed age hinds were slaughtered, and 1 found with gross lesions typical of TB. Later histology returned positive. |
| 6 April 1992 | 30 rising 2 year olds slaughtered, 14 (46%) found with gross lesions typical of TB. |
| 10 April 1992 | Movement Control (MC) Notice was delivered. |

At the time the Movement Control Notice was delivered an epidemiological survey was undertaken and planning on how to best handle the situation began.

As mentioned above the farmer had good records and he gave in detail what stock had been bought in, movements off the property and movements between mobs.

In 1990 the base hinds had been purchased from 2 accredited TB-free herds. A clear whole herd test of these animals was done in 8 October 1990. Subsequent to this test hinds were brought in from an accredited herd in an endemic area which was being

disbanded.

Further introductions were weaner, 2 year and sire stags from accredited-TB free herds.

The farmer related how in July 1991 he had separated out from the main mob 12 low conditioned hinds. A month or so later he noticed that 1 hind, from the final group purchased, had lumps on both sides of the jaw. This was discussed with a veterinary practitioner and as a result the farmer lanced the lumps and washed them out.

He could remember the contents being creamy, similar to condensed milk in consistency and lacking smell. The hind was put back with the other low conditioned hinds but the lumps reappeared.

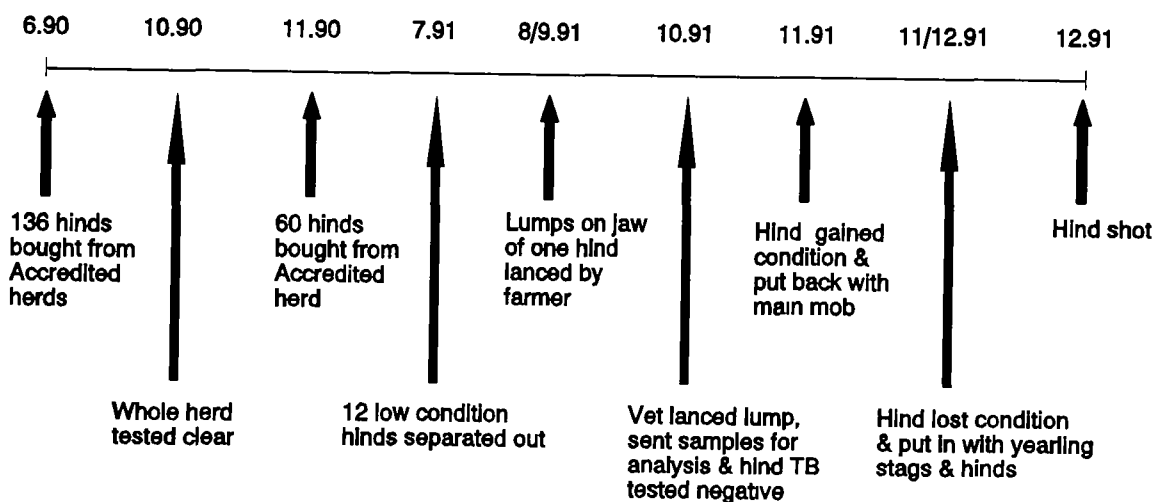
The hind was examined by another veterinary practitioner who lanced and flushed out the swellings and administered antibiotics. Samples were sent for laboratory analysis and the hind was TB tested negative with a standard neck test.

Routine culture, Ziehl Neelsen stain and gram stain were all negative and this was relayed back to the farmer. Unfortunately the requested mycobacterium culture was not done but this was not noticed.

Initially the hind gained condition and was put back with the main hind mob. However, she again lost condition during fawning in November/ December 1991 and was put in with the yearling (hinds and stags) mob. In mid December 1991 she was shot and put down the offal hole.

The information the farmer gave us on the dead hind and the slaughter results at the time indicated that this animal had clinical TB and was a 'spreader'.

Initial Events



Possum Control Requested

At this point the decision was made to put a case to the Animal Health Board for BLIP (Brief Locally Initiated Possum) Control.

This TB outbreak was of particular concern to MAF Quality Management. From the evidence to date there had been rapid spread of TB within the yearling mob. We extrapolated that spread to the local feral animals could possibly have occurred. This was alarming due to the close proximity of the Ruahine Ranges. TB would be very hard to eliminate once it reached the feral population of the Forest Park.

A control area of 1727 hectares, centred on the infected farm and reaching the Ruahine foothills, was drawn up and given approval by the Animal Health Board. It included two nearby waterways originating from the Ruahines that had good possum habitat along their banks.

The Manawatu-Wanganui Regional council undertook possum control immediately. All carcasses were post mortemed by the local MAF staff but no TB lesions were found.

Concurrently the neighbouring beef and dairy farms were TB tested. One cow from the accredited TB-free dairy herd across the road from the infected deer farm reacted and on post mortem had a small TB lesions in a mediastinal lymph node. On discussing this with the owner the Livestock Officers learnt that these cows had grazed the roadside adjacent to the infected deer farm in winter 1991, potentially having contact with the infected hind through the fence.

The 9 cattle on the infected deer farm tested clear apart from one weaner that had no visible lesions of TB on postmortem.

Further Testing

On 16 April 1992, 50 rising 2 year old (R2yr) hinds and 4 rising 2 year old (R2yr) stags were tested. Twenty nine (53%) reacted, of which 22 (76%) had gross lesions of TB on post mortem.

At this point the farmer made the decision to voluntarily slaughter his herd apart from the weaners and two valuable stags.

Several reasons made this the best option. It was considered that with the extent of the TB within the herd it was unlikely that testing would eliminate the problem in the short term. The longer tuberculous animals remained on the farm the higher the chance that the infection would be transferred to the feral animals, potentially causing a new endemic area.

An attempt to test the herd out of its problem would result in high testing costs. In addition potentially non lesion animals would react and be down graded at slaughter.

Slaughter of the infected mobs appeared to be the best financial option as well as the safest for containment of the infection.

Slaughter Results

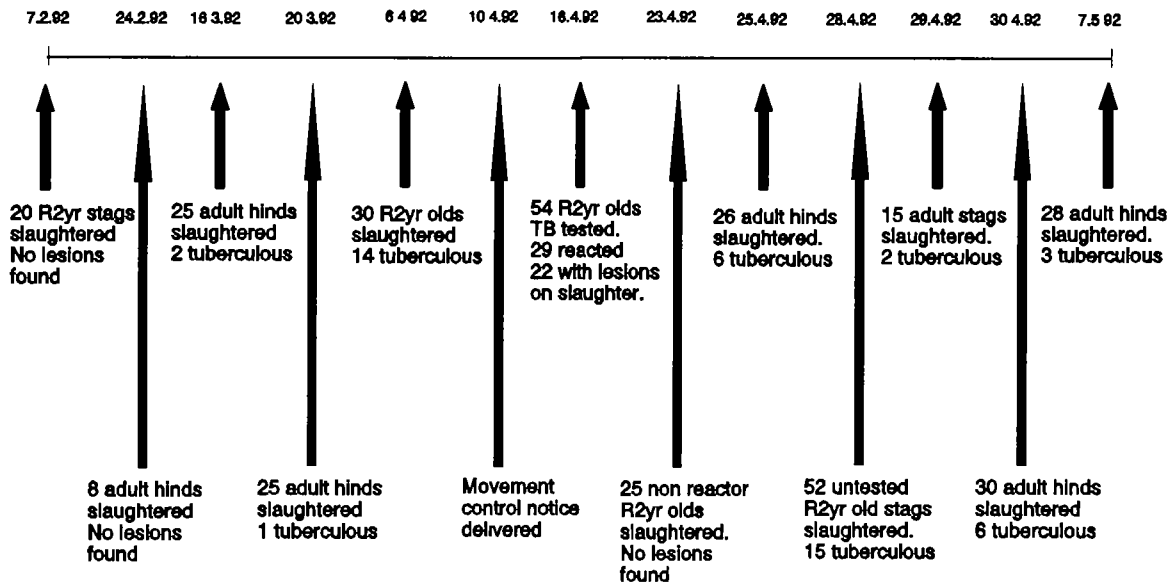
The remainder of the R2yr hind mob was slaughtered on 23 April 1992 and no further TB lesions were found. On 25 April 1992, 26 adult hinds were slaughtered and TB lesions were found in 6.

The untested mob of 52 yearling stags was slaughtered 28 April 1992. These deer had been running with the clinical hind before her death and 15 had lesions of TB.

Fifteen adult stags were slaughtered 29 April 1992 and lesions detected in 2. The 2 tuberculous stags had arrived on the farm in early January 1992.

The remaining 58 mixed age hinds were slaughtered and 9 had lesions.

TB Test and Slaughter Results



The Remaining Herd

On 7 May 1992, when only the weaners and two stags remained on the property, these were TB tested. Of the 170 weaners tested 12 reacted and on postmortem 8 had lesions. The majority of the reactors could be traced to a mob with which the clinical hind had been in contact over fawning. However, two weaners with lesions had not been in direct contact with the 'spreader' hind.

On 24 May 1992 a non-reactor from the 'high risk' weaner mob died. On post mortem this animal had generalised TB with the lesions including miliary TB in the lungs and tubercles on the rib cage.

On 28 May 1992 the remainder of the 'high risk' mob was slaughtered but no further

lesions were found.

MAF Quality Management's advice was that the remaining deer be slaughtered. However, the depopulation to date had already caused the farmer considerable monetary loss. It was not financially viable to slaughter this group of animals until they reached 12 to 15 months of age.

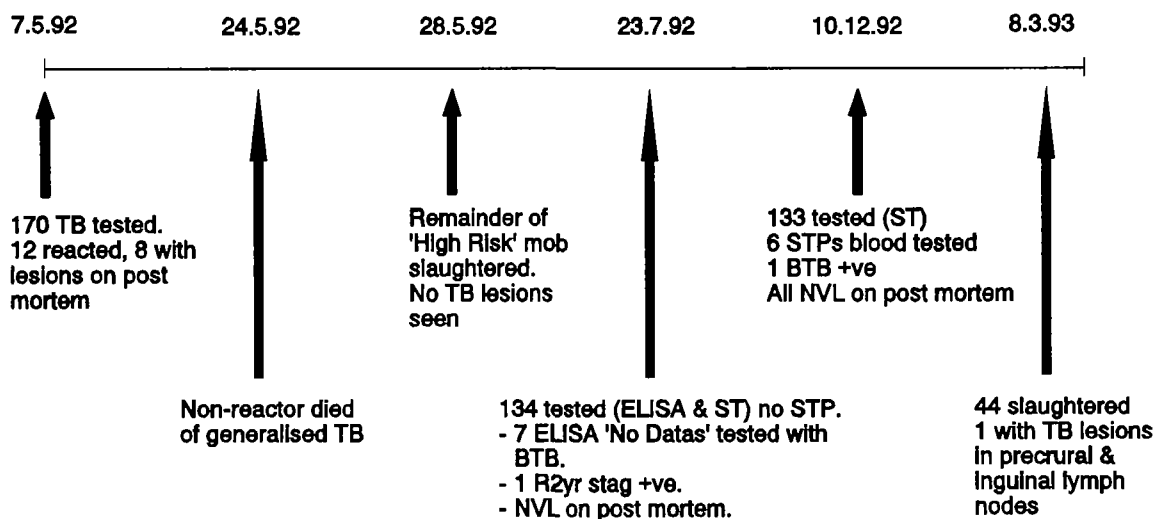
A case was put to the Animal Health Board for compensation to enable the slaughter of the weaners and 2 remaining stags. This was declined when the Board evaluated the situation from a national perspective. Deer farmers had elected to have a 'no compensation, no payment for tests' scheme. At this time the Board considered that if they agreed to meet this claim then they would be open to further claims on what was levy income received from the cattle industry.

The 134 weaners and two stags were subsequently tested in July 1992 with the standard and ELISA tests. No deer reacted to the standard test but 7 ELISA 'no datas' were tested with the Lymphocyte Transformation test and one R2yr stag had a low grade bovine response. This animal was slaughtered and no lesions were found.

In December 1992 the mob was tested with the standard neck test. The 6 positives detected were tested with the Lymphocyte Transformation test and one showed a low grade bovine response. This animal had no lesions on slaughter and *M.bovis* was not isolated from a culture of pooled lymph nodes. The remaining standard test positives were also slaughtered and no lesions found.

These deer are now rising 2 years old. To our disappointment one sent for routine slaughter in March 1993 was found to have lesions typical of TB in the precrucal and inguinal lymph nodes. Histology is typical of TB and *Mycobacterium bovis* has been isolated.

Remaining Herd TB Test Results



Stock Moved

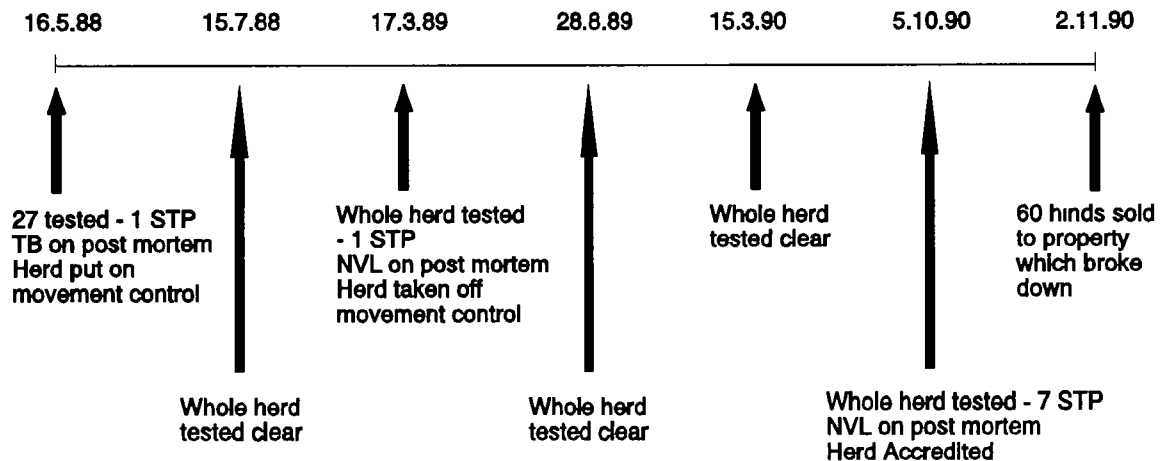
Previous to TB being detected in the herd 133 deer had been moved to 4 other properties. These were traced, the owners notified and the animals tested. Of concern were sixty eight hinds and 15 stags that had moved to a property a few kilometres up the road. Some of these deer had already been slaughtered but forty five hinds originally from the infected farm were TB tested and 15 reacted. Six had lesions of TB on postmortem. The farmer elected to de-stock the property and a further one animal had TB lesions.

This property was also included in the possum control area.

Traceback

The herd from which the 'spreader' hind had originated had been accredited after a test in October 1990 and was disbanded the following month. The agent involved was able to give us details of where stock had moved during 1990, the relevant MAF offices were notified and follow up testing was carried out. Two herds were subsequently tested clear and have remained clear since. A third herd had gone on movement control in October 1991 but the source of the infection could not be traced.

TB History of Herd of Origin of Clinical Hind



The Present

After de-stocking took place the paddocks were rested for a month and new weaners were brought in to fatten. These were put into a section of the farm that had not been grazed for some time and were kept well away from the original weaners.

The farmer is now rebuilding his breeding herd and has a mixed breeding/fattening operation.

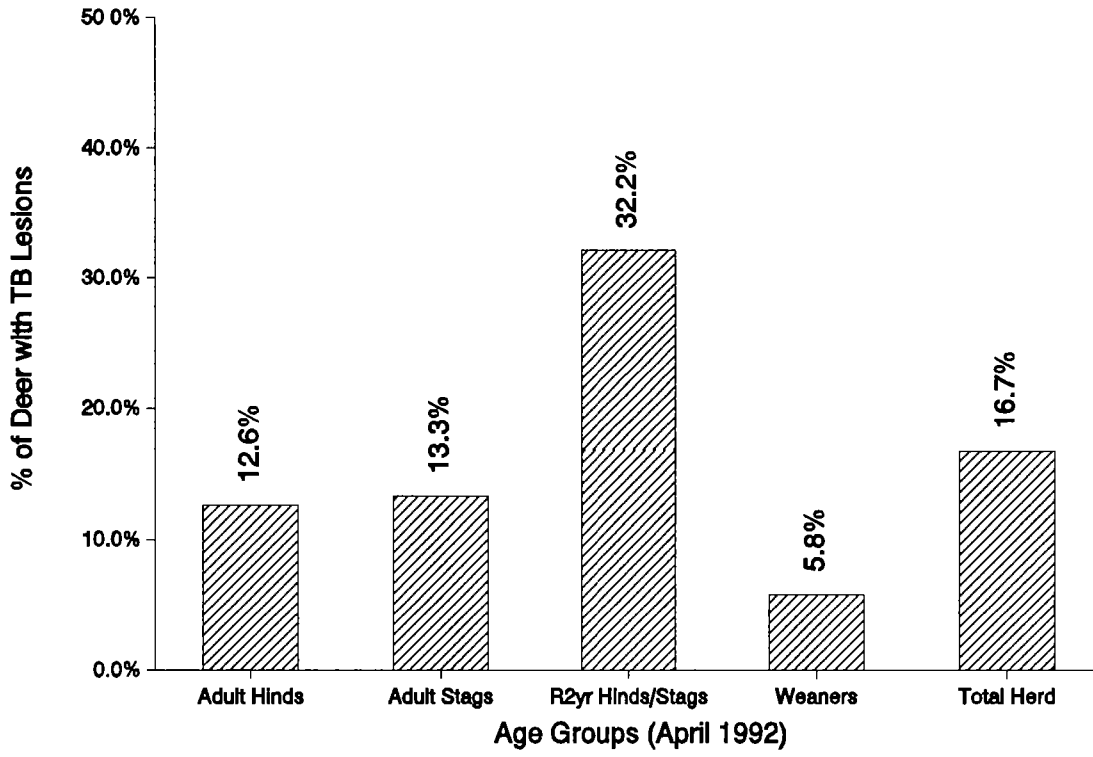
What We Can Learn With Hindsight

It is essential that we learn from situations such as this in order to prevent reoccurrence.

- Extreme care needs to be taken when dealing with abscesses in deer and they should be followed through methodically and logically by practitioners, veterinary officers and laboratory staff.
- Even if a herd is accredited TB-free, TB should be considered as a differential diagnosis. Breakdowns in accredited herds still occur whether due to residual or recent infection. During the calendar year 1992, 52 accredited Tb-free deer herds were put on movement control. Seventeen were put on after a herd test and 35 as a result of works culls. Sixteen of these herds were in endemic areas and 36 in non-endemic areas. This equates to 1.5% of the accredited herds in endemic areas and 1.0 % of the accredited herds in nonendemic areas.
- It is recommended that abscesses are first aspirated and a Zn stain and culture requested before lancing considered.
- The standard test may not be the most appropriate test in these situations. Slaughter or the use of the Lymphocyte Transformation test or ELISA should be considered.
- As part of it's Strategic Plan the Animal Health Board have accepted the principal that compensation should be considered for the depopulation of deer herds (partial or complete) where these herds are hindering the objectives of the control programme.
- In some situations it is recommended to use the Lymphocyte Transformation test as a supplementary test for standard test positives rather than slaughter. Such a situation is an accreditation test in an endemic area.

Conclusion

The potential formation of a new endemic area was averted by the combination of de-stocking of the infected mobs, immediate possum control in the BLIP area, TB testing of neighbouring herds and testing of all known in-contact animals. Vital to the containment of the disease was a very cooperative farmer who assisted whenever necessary and maintained close liaison with the local MAF livestock officers .



The % of deer on the infected farm with gross lesions of TB on post mortem.