

TUBERCULOSIS CASE REPORTS: USE OF CCT IN HERDS

WITH CT REACTORS

P R Wilson
Department of Veterinary Clinical Sciences
MASSEY UNIVERSITY

This paper summarises data from two deer herds chosen to highlight the factors to be investigated when a Comparative Cervical Test (CCT) is to be considered.

CASE 1: SMALL HERD, STRAIGHT FORWARD CASE.

1. TESTING HISTORY

TABLE 1. RESULTS OF Tb TESTS 1982-1986.

Date	No. Tested	Class	Test	Test Type	No. Positive
Sept '82	30	W/H*	CT	W/H	0
Aug '83	36	W/H	CT	W/H	0
June '84	8	MAH	CT	Sale	0
		WnrH			
May '85	9	MAH	CT	Sale	0
		WnrH			
Oct '85	31	W/H	CT	W/H	3
Mar '86	3	MAH	CCT		0+

* W/H = whole herd + Accredited on this basis
MAH mixed age hind, Wnr H = Weaner Hind

2. PURCHASES:

Original hinds and stags were purchased 1979-80, newly captured from the Wairoa and Hawkes Bay areas. One hind was purchased from another farm in 1980.

One wapiti-X red stag was purchased in 1981 from an Invercargill farm with no reactors. A further stag was purchased November 1984 from a farm without a whole herd test, but with sale tests all negative. (See later comment).

All deer were Tb tested prior to purchase.

3. SLAUGHTER:

Approximately 10 stags had been sent to a Deer Slaughter Premises (DSP) for slaughter since 1983. No lesions were reported from post-mortem inspection.

4. FACTORS CONSIDERED FOR USE OF CCT

(1) Past Testing History: Two earlier W/H tests and sale tests all negative.

- (ii) Purchases: The original stock was from areas not known to be Tb endemic. The only "weak link" in the history was the November 1984 purchase of a stag from a property with a poor testing record. (At purchase, seller declared he had a W/H clear Tb test; Subsequent enquiries to the MAF and his testing veterinarian revealed that this was not the case. LESSON = Never trust the seller?).
- (iii) Slaughter History: No lesions from 10 stags.
- (iv) Honesty and reliability of client: Personal association confirmed the owner's integrity.

5. RESULT OF CCT MARCH 1986

The CCT indicated the following:

Deer	STD*	Avian	STD Bovine
1	2		0
2	1		0
3	6		1

* Skin thickness difference (mm)

6. FINAL OUTCOME

ACCREDITATION was achieved on 20 March 1986 on the basis of 3 W/H clear tests, following the necessary paper work, and a covering letter from the testing veterinarian in support of the application.

CASE 2: CHANGE FROM M BOVIS INFECTION TO NON-SPECIFICITY

This case describes a complex situation with one major enigma.

The farm was established in June 1983.

1. PURCHASES:

	June '83	March '84	June '84	Nov/Dec '84	June '85
Stags	30			18	
M A Hinds	420 (A)		200 (C)		
Ylg Hinds		112			10

Group A was brought together from a number of properties, some of which were under DCP.

Group B had a similar history

Group C was purchased from one property, not under DCP.

2. MANAGEMENT

Herds A, B and C were kept separate until October 1985. Group B was kept isolated from A and C by a river. Groups A and C were restricted to defined areas of the farm. Original stags were kept isolated on another area of the property. Their only contact with hinds was with group A during mating in 1984.

3. TESTING HISTORY

All deer were supposedly tested before arrival onto the property. Perhaps, significantly, few veterinary certificates were available. The owner commented that the standard of testing prior to delivery was poor when compared with post-delivery test standard. Thus there was little difficulty in convincing the owner as to how infection may have been introduced.

4. Tb TESTING 1984

TABLE 2: RESULTS OF Tb TESTING 1984

Month	Group	No	Test	No. +ve	P.M.		
					No.	Result	Culture
Feb	Stags	30	CT	3	3	NVL	3 +ve
May	Wnr S & H	365	CT	1	ND	-	*
June	A (MAH)	424	CT	8	8	NVL	N.D.
July	B (ylgH)	112	CT	0			
"	Wnr S & H	194	CT	0			
Aug	Stags	27	CT	2	ND		
"	A (MAH)	416	CT	1	ND		
"	C (MAH)	200	CT	0			
Oct	Stags	25	CT	2	ND		
	A	415	CT	0			
	B	172	CT	0			
	C	200	CT	0			

(ND = Not done).

* Note: One M.A. hind with abscess below the eye in March, M. bovis culture positive.

- a) Summary Stags - 3 tests, approx 10% reactors each test
 - Hinds A - 3 tests, 8.1,0 reactors respectively
 - Hinds B & C- No reactors, 2 tests
 - Weaners - Sold, 1 reactor

b) Autopsy

The first three stags to react were NVL
M. bovis was cultured from pooled lymph nodes from all 3.

Eight hinds were autopsied. All were NVL. Lymph node samples were rejected for culture by MAF Animal Health Lab.

C) CONCLUSIONS BASED ON 1984 TESTING:

- a) The enigma was that there were M. bovis cultures from 3 stags at necropsy and one M.A. hind with a discharging abscess, yet no gross lesions were observed at autopsy. It is possible that samples may have been contaminated at laboratory level but for 4 animals and 2 different submissions this appears unlikely. Alternatively, it could be argued that the autopsy technique was lacking. (This type of critical self-evaluation is difficult but stimulates one to be even more thorough in future). A third alternative is suggested in (C) below.
- b) The continuing occurrence of reactors in the stag group suggested a focus of infection in this group.
- c) The reactors in the hinds (group A) in June could have been new infections contracted during the rut (hence showing no gross lesions).
- d) The fall in reactor numbers to 1 in Aug. and zero in Oct. suggested infection had not become established.
- e) Reactors occurred only in the original herd (Group A). The two groups purchased in 1984 (B & C) remained test negative.
- f) At the end of 1984 there was cautious optimism that the problem may have been resolved.

D) MANAGEMENT DECISIONS:

a) Stags

It was decided to cull for slaughter at a DSP all remaining breeding stags. No lesions were noted at PM inspection. Replacement stags were selected from reactor-free properties.

NOTE: This decision cost the farm \$80,000.

b) Hinds

Groups A, B and C were kept physically separate. Group A was split into 8 groups of 50 on the basis of the first test (June) and were kept in the same subgroups for the following 15 months.

This decision was made to attempt to isolate a possible false negative reactor which may have been carrying M. bovis. This is an essential step in the management of situations such as this.

5. Tb TESTING 1985-86

TABLE 3 - RESULTS OF Tb TESTING 1985-86

Month	Group	No	Test	No.+ve	PM
1985					
March	A	415	CT	1	ND
	B	112	CT	12	not slaughtered
	C	200	CT	2	"
April	Weaner	104	CT	2	"
May	Weaner	423	CT	0	
July	2 weaners	16	<u>CCT</u>	0*	
	14 hinds				
Sept	Ylg H & S	50	CT	8	
	2 y.o.H.	10	CT	6	
	A	410	CT	32	63 not
	B	112	CT	11	slaughtered
	C	200	CT	4	
Nov	Stags	20	CT	2	
1986					
March	CT reactors from Sept - Nov 1985.	63	<u>CCT</u>	0*	

* See results Table 4.

a) Summary

- CT Reactors began occurring in groups which had undergone 3 clear tests in the previous 12 months (one before arriving on the property).

- Yearling hinds and stags (n = 50) had been bred on the property and had passed 2 earlier tests.

- The major reservation was the occurrence in Sept. of 6 reactors in rising 2 y.o hinds bought-in in June. Traceback showed they were from 2 whole herd test negative herds.

Results indicated a non-specificity problem.

- From 1984-1986 the situation can be summarised:

CT tests	4554
CT Reactors	96
Reactors slaughtered	18
Autopsy	12
Lesions at autopsy	0
Clinical lesions	1
Cultures	4
CCT tests	79
CCT reactors	0

6. FACTORS CONSIDERED FOR USE OF CCT

a) Testing history

Reactors began occurring in groups previously tested clear and kept isolated within the property. This did not conform to the expected epidemiological pattern of M. bovis infection.

b) Autopsy results

There remained some disquiet about the N.V.L. autopsies.

c) Culling of stags

The most probable source of infection, based on earlier cultures and reactor rates, had been culled from the herd 4 months earlier and had no contact with hinds through the duration of 3 herd tests in the meantime.

d) Management

The farm was under an intensive veterinary advisory programme with at least monthly visits. Thus the veterinarian had a total understanding of the management of the herd and therefore had complete faith in all aspects of the history of the property.

e) Testing veterinarian

With only minor exceptions all tests were performed by the one veterinarian.

f) Honesty and reliability of the client

Close involvement with the client over two years convinced the veterinarian of his integrity.

7. RESULTS OF CCTs

TABLE 4 - STD (mm) OF CCTs JULY 1985, MARCH 1986

July 1985		March 1986							
Avian (A)	Bovine (B)	A	B	A	B	A	B	A	B
4	0	2	0	3	1	1	0	6	0
3	1	6	2	4	0	4	0	2	0
0	0	1	0	3	0	0	0	9	0
1	0	5	0	1	0	1	0	0	0
5	3	8	1	0	0	4	0	7	1
0	0	3	1	4	0	7	2	5	1
0	1*	0	0	2	0	8	2	2	0
2	0	1	0	2	0	6	0	4	0
2	0	0	0	5	0	2	0	1	0
0	1*	1	1	8	3	2	0	1	0
3	0	1	0	4	0	4	0	2	0
0	0	1	1	8	1	5	0	4	0
0	0	8	1	7	0	1	0	1	0
3	0	7	0	3	0	5	0	6	1
2	2	2	0	1	1	6	1	10	0
1	0	3	0	3	1	6	0		
0	0								

* These results were regarded with caution and the client was advised accordingly. The decision was made not to slaughter, pending further information about the interpretation of the CCT which was under study by MAF. The guidelines produced subsequently supported the interpretation.

8. FUTURE POLICY

The client has signed up to join the accreditation programme. The September 1985 test is the starting point for whole herd clear tests. The next test is planned for September 1986. The aim is for accreditation in September 1987. All reactions to the CT will be given a CCT in future unless CCT positive results occur. The herd is now closed to new introductions.

9. CONCLUSION

This herd problem has been a difficult one to handle from a veterinarian's point of view. The client was initially sceptical about the efficacy of the CT and considerable discussion and persuasion was necessary to convince him to continue testing and to act on the results and advice. The client was educated in the technicalities of the test and the disease. In the event, management decisions appear to have been correct.

The perplexing features in this instance are the M. bovis cultures in the absence of lesions, and the rapid change from a bovine Tb infection to a non-specific problem. Without the intensive effort to control the disease in 1984, and a total understanding of the circumstances on the property, this problem would have been even more difficult to resolve. However, both the farmer and the veterinarian are cognizant of the fact that an M. bovis infection may still be latent in the herd. Only continued testing will detect this possibility.