

TUBERCULIN TESTING IN DEER  
A VETERINARY PRACTITIONERS VIEW  
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INTRODUCTION

For Veterinarians the last 3 years has seen an increasing use of the mid-cervical intra-dermal Tb test in deer of all species in N.Z. The Veterinary Profession is at present implementing the Voluntary Tb Control Scheme for deer, which arose from demands by the deer industry to put in place a means of controlling and/or eliminating Tb in farmed deer herds. The format of the present scheme has evolved from the joint inputs of the N.Z.D.F.A. and M.A.F.

It can be noted that there has been little prior information pertaining to the test in deer other than that researched and collated in N.Z. since 1980. The evolution of this test compares with the development of the N.Z. Deer Farming Industry as probably leading the world.

While the aims of the test in disease control etc. are obvious, it would appear that the increasing use of the test has arisen mainly from:

- a) The live market dictating that purchasers accept only Tb tested stock which in many cases has led to:
- b) Herd testing programmes being initiated, which in most cases have arisen from the identification of a Tb problem in the herd.

The fact that Veterinarians are implementing a user-pays scheme places emphasis upon the fact that the scheme must be efficient in what it is designed to do.

This being so, I intend to put forward problems and criticisms which have arisen from field experience of the current Tb test scheme.

1. APPLICATION OF THE TEST IN DEER

(a) Procedure

The test requires the intra-dermal application of tuberculin to a suitably prepared mid-cervical site. In many animals, particularly young animals with thin skin dermis, this is not an easy task and requires care.

There must be (i) Restraint  
(ii) Good site preparation  
(iii) Adequate lighting

- (i) Restraint may be
- physical
  - mechanical (crushes etc.)
  - chemical (drug usage)

- (ii) Site preparation involves
- suitable area = 8 x 10cm
  - clipping
    - (i) Scissors - slow and time consuming to obtain a good job
    - (ii) Electric clippers - cordless, or those operated from a power source (i.e. Oster) are probably better.

Procedure Cont..

With sharp blades these will do a good job even on winter coats, with little problem.

(iii) Lighting - this is important not only at the time of injection of the Tuberculin but at the reading of the test. In reactors, skin thickening can vary from gross visible oedematous plaques to slight thickening of the dermis, and good visual inspection of the area complements the palpation.

It would appear that in many cases the test is not applied as it should be. Apart from reports of variation in test technique, this is suggested from inspection of the state of testing sites upon animals at sale or subsequently delivered to properties.

A site that is a) small in area

b) poorly clipped with considerable residual hair cannot have allowed accurate application of the test. I suggest such animals presented should be justifiably not accepted because of this.

(b) Facilities

Veterinarians must expect and demand of their clients a certain minimum standard of facilities for Tb testing. The procedure in deer can be both physically demanding and potentially dangerous. On many properties Veterinarians are probably regarded as labour units. They are often working in sub-standard facilities and with deer farmers not clear as to the procedures to be followed. No doubt these problems would be resolved with a higher Practitioner profile with his or her client. The cost-efficiency benefit to both, are obvious where the standards of facilities are insisted upon. For example, important factors to consider are:

- (i) Yard design with restraint capability is important.
- (ii) Availability of A/C power source within the yard system
- (iii) Good natural or artificial lighting over the testing area
- (iv) Adequate labour present to facilitate stock handling and restraint.

No doubt the scale of these factors may vary with the size of the deer farming operation, but the basic requirements remain.

(c) Practitioner Training

As part of the implementation of the Bovine Tb Scheme, Veterinary Practitioners are required to undergo a brief training exercise under the supervision of an MAF Veterinarian. They are then appointed to carry out tuberculin tests for the purposes of Section 53 of the Animals Act. Considering the apparent difficulty of the test in deer compared with cattle, it is not unreasonable to expect some input by the MAF also with regard to Cervine testing. Variations in technique between Veterinarians are noted already and a course in testing techniques and standards must help in eliminating this problem.

## 2. CERTIFICATION AND IDENTIFICATION

### Identification

Is the basis of accurate certification. While sex and breed are obvious, individual identification can pose problems. Until a more practical method is devised, the present use of easy to read, plastic ear tags will remain as the best means of ready identification. While this system is open to abuse, it is unlikely that any easier system would not be also. The testing scheme is dependent on the basic honesty of those involved. As long as the testing veterinarian ensures accuracy in testing and recording for certification on the day, then the responsibility goes no further.

### Certification

A wide variety of test certificates are seen. While they achieve their objective in most cases, some efforts are being made to standardise the format. The intention is that it will also incorporate the MAF information requirements. (At present these are not by the use of the modified Bovine test forms which are not always completed by testing Veterinarians) If this cannot be agreed to then it is perhaps the responsibility of the Profession to standardise certificate format.

## 3. THE INFLUENCE OF THE CURRENT LIVE MARKET UPON THE TB TEST SCHEME

With current trading practices and market pertaining to the live animal, it is not uncommon to see,

- 1) The repeated testing of animals often at short intervals (which may be undesirable) as they pass from one sale to the next.
- ii) Emphasis upon testing of sale animals only and the reluctance of farmers to enter herd testing programmes. This will not allow a true interpretation of the herd status and may aid the spread of the disease if sale animals in the early stages of infection pass undetected.
- iii) Refusal by deer farmers to allow slaughter of reactor animals.

Two factors appear to have contributed to the development of these practices.

- (a) The differential between current market value and compensation payments.
- (b) The problem of non visible lesion reactors or test acceptability.

MAF policy appears to be not to enforce the slaughter of reactor animals where farmer agreement is not forthcoming. In the compulsory bovine scheme Ministry control of testing allows closer attention to such a problem with tag identification and movement restrictions. In the voluntary scheme for deer, it is easier for the problem to be circumvented. Another practitioner can be called to retest these animals and if a negative result is obtained, then the animals obtain a certificate and are disposed of.

The Permit to Move requirement applying to DCP properties also would appear not to be working.

The implications of such practices are that.

- (i) There will be movement of infected stock.
- (ii) There will be increasing test acceptability problems within the industry.
- (iii) Veterinary practitioners will become involved in a test scheme of the 'Claytons' variety.

Perhaps in the implementation of the present scheme Practitioners should determine the farmers intention to slaughter should reactors be detected. If not the farmer should not test or the Veterinarian should refuse to do so.

#### 4. NON-VISIBLE LESION REACTORS AND/OR NON SPECIFICITY

Along with the current market value - compensation payment differential this issue appears to be creating the major difficulty in the acceptance of the current Tb test. The efficient 'anecdotal bush telegraph' within the industry does highlight the issue. Not only the industry, but Veterinarians do have concern as to this situation. While it must be accepted that non specificity can occur, many other factors must be considered in evaluation of such a problem.

The following extract is from AHD Circular 1982/16/84 and summarises this issue:

"Because sufficient data has now been obtained to measure the predictive value and specificity of the tuberculin test, it is no longer necessary routinely to post-mortem deer tuberculin reactors (See paragraph 3).

This is not to say that non-specific reactivity to the tuberculin test may not occur in deer, but just as in cattle herds, a more or less lengthy "history" is necessary before an informed opinion can be formed that a herd has a significant problem of non-specific sensitivity.

It should be noted that many reports of "non-specific" reactivity in herds have in fact been based on post mortems of reactors from sale mobs of deer only, not whole herd tests. The folly of such interpretations is obvious.

At the present stage of tuberculin testing of deer, very few herds if any, have such a sufficient history. Obviously then it would be unwise to class reactor herds as not being infected merely because no visible lesions could be demonstrated in reactors.

To state the obvious, post-mortem examinations are at best a crude method of demonstrating infection - microscopic lesions can evoke tuberculin sensitivity; small otherwise macroscopic lesions can be difficult to find in the large tissue masses which must be dissected, and some pre-dilection sites e.g. retropharyngeal nodes are not necessarily easy to find, especially if the operator is unpractised.

E.g. In "lesion case" reactors, approximately 50% yielded only a single small lesion..

All these considerations should make VO's wary of the significance to be attached to NVL reactors.

E.g. 20% of N.V.L. reactors from known infected herds yielded M. bovis on culture of pooled lymph nodes. The true infection rate in such animals is almost certainly greater.

The reliability of laboratory examinations, especially culture work to "confirm" suspect lesions needs to be borne in mind also. E.g. the pre-treatment of tissues to destroy contaminant organisms is also lethal to the majority of M.bovis organisms, thus reducing the chances of successful isolations.

"Confirmation" has been obtained on only 84% of deer showing gross lesions of disease.

Post-mortem examinations therefore do not necessarily help to define the true status of herds. Only if large numbers of reactors are found at retests will post-mortems help to define the situation as one of active infection or of non-specific sensitivity".

When confronting the N.V.L. question, we must keep in mind:

- (i) That in terms of sensitivity the intra-dermal test is more accurate than post-mortem.
- (ii) Herd testing history is so important in the assessment of a non-specificity problem.
- (iii) Because of the apparent nature of the disease in deer, a true M.bovis problem must be expected to produce animals and/or reactors with gross lesions in expected sites. (D.S.P.'s perhaps have a role to play here)
- (iv) Present concerns must not ignore the role that false negative reactions play within the herd status.
- (v) Present or planned research may clarify the role M. avium plays in the N.V.L. situation and this may or may not result in changes to the scheme format. e.g. comparative testing.

## 5. INFORMATION AVAILABILITY

In implementing this Tb scheme the high contact profile of the Veterinarian with the deer farmer places a responsibility upon him/her to be accurately informed. With the current evolutionary state of this test, perhaps even more so. The Ministry is dependent upon the Veterinarian to supply test information. This may be a problem where deer practice is a minor part of

some workloads. However, the profession must accept this as an important requirement. In return it is the duty of MAF to supply Practitioners with the collated information as well as clear indications as to Ministry Policy in respect of the test scheme. While some information is forthcoming, I suggest there is room for improvement in Practitioner/Ministry liaison.

## CONCLUSION

Some of the problems already evident in the current control scheme for deer appear to resemble those that developed in the evolution of the bovine scheme. As such we may accept that this scheme for deer will also evolve as field and research information as to the test and the disease in the cervine becomes better understood. Because of the Practitioner role in implementing this scheme, we are an important link in future development. This input will derive from:

- (i) the field performance of the test.
- (ii) the Practitioner responsibility for collating information as to test performance for the M.A.E.
- (iii) the Practitioner/Deer farmers link being an important aspect in information dissemination.

In having a major role in this scheme, the Veterinary profession must be able to promote change when necessary. While the disease is not an important factor in the true economics of the industry, it would appear to have the potential to be so. It is the responsibility of the industry, MAF and the Veterinary profession to prevent this situation arising and the early implementation of a testing scheme in the history of the industry must be an important insurance as to its future.