



TB CONTROL IN THE NEW ZEALAND DEER INDUSTRY HAVE WE PROGRESSED? CE Carter*

Over the last 15 years efforts to control and eradicate *Mycobacterium bovis* (TB) in New Zealand's farmed cattle and deer, have intensified. The presence of infection within feral/wild animal reservoirs has posed a major impediment to the disease's eradication, as they provide a ready source of TB for farmed stock.

Bovine tuberculosis was first diagnosed in farmed deer in 1978, 3 years after it was initially found in feral deer. By 1985 the industry had adopted a voluntary test and slaughter programme to accredit herds as being free from this disease. The scheme was widely accepted and by January 1990 the programme was compulsory for all deer owners.

Progress

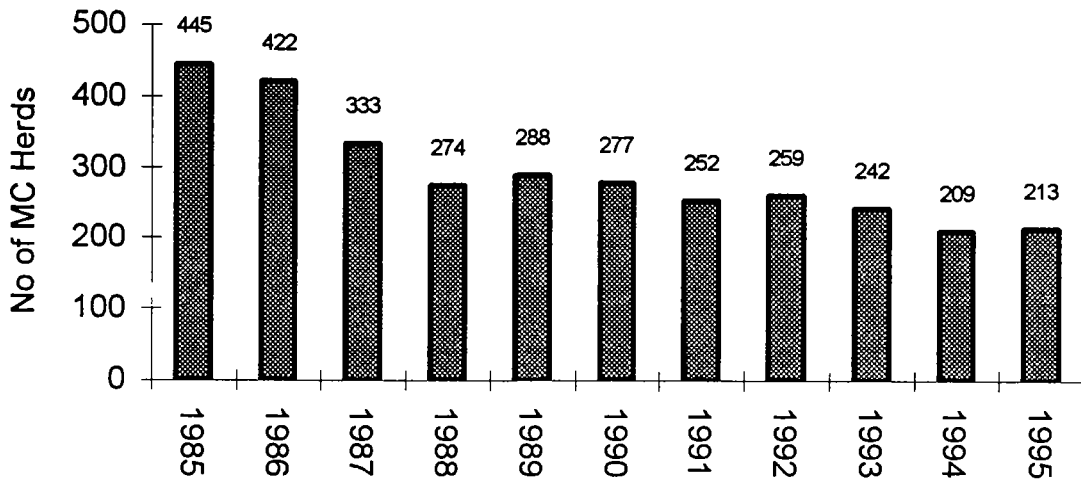
Evaluation of all disease control schemes is an important on-going component of the programme, this paper poses the question, "Has the TB programme in the deer industry achieved what was expected and will progress continue?"

At the start of the voluntary scheme, the industry was undergoing rapid growth. On-farm breeding programmes were supplemented by deer captured from their feral environment and the industry grew around the sale of live animals. Deer were moving the length and breadth of the country and in this environment ideal mechanisms for the spread of disease were established.

Identifying infected herds and controlling the movement of deer out of these herds, were key components of the fledgling TB scheme. As confidence was gained in the performance for a range of diagnostic tests, a whole herd approach to testing was adopted. Measurements of success centred on the prevalence and incidence of infected herds and the incidence of disease within herds.

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DEER TB MOVEMENT CONTROLLED HERDS



At the end of December 1985, 445 deer herds were under movement restrictions for either confirmed or suspect cases of TB. By June of 1995, this figure had dropped to 213 (3.4% of all herds). The incidence of new infected herds was also declining, during 1994, 18 herds per 1000 were placed under movement restrictions nationally, a 14% reduction on the previous year.

At an animal level, a similar picture was also being seen. In the calendar year prior to the programme becoming compulsory, the TB incidence for the national herd was 0.11% (as measured by lesion reactors and lesion non-tested deer diagnosed at slaughter). By 1994, this figure had reduced to 0.03% (Table 1) even though the New Zealand deer population had nearly doubled. The animal incidence also compared favourably to that in cattle (0.05%).

Table 1 NUMBERS OF REACTORS AND INCIDENCE OF TUBERCULOSIS IN DEER FROM 1986-1994

	NZ Deer Population	No Reactors	Reactor Incidence	Lesion Reactors	Lesion Non-Tested Deer & Clinicals	TB % Incidence
1986	392154	2390	0.61	Not Available	234	-
1987	500397	1870	0.37	Not Available	Not Available	-
1988	606042	2132	0.35	Not Available	Not Available	-
1989	780066	2144	0.27	640	254	0.11
1990	976290	2941	0.30	404	165	0.06
1991	1130000	1790	0.16	240	308	0.05
1992	1200000	1798	0.15	327	379	0.06
1993	1330000	1708	0.13	218	313	0.04
1994	1400000	1448	0.10	209	220	0.03

This level of performance has certainly met the expectations of the deer industry and is to their credit. However no programme is static and a more detailed analysis indicates these gains are not evenly spread.

Fourteen (14) percent of all deer herds are located in those regions of the country where *Mycobacterium bovis* is endemic in feral/wild animals, but they contain 66% of all movement controlled herds. In addition, the risk of being placed on movement control is 6 times greater in these areas as compared to other locations.

Progress in reducing the numbers of herds on movement control in endemic areas has also all but stalled over the last 3 years (Table 2), most of the scheme's recent progress is coming from the North Island non endemic areas.

Table 2 NUMBERS OF HERDS ON MOVEMENT CONTROL IN RELATION TO AREA CLASSIFICATION : ENDEMIC OR NON-ENDEMIC

	<i>Area Classification</i>		Total	% Movement Controlled Herds in Endemic Areas
	Endemic	Non-Endemic		
1992	133	112	245	54
1993	138	102	240	58
1994	137	72	209	66

At the animal level, 66% of the lesion reactors and the TB cases detected at routine slaughter, come from deer farms within the endemic areas.

These herd and animal statistics are not unexpected. The emergence of structured testing programmes has effectively lessened the risk of deer-to-deer transmission within herds and allowed the eradication of disease in the absence of an infected feral reservoir. At a herd level, movement restrictions for known infected herds and for endemic areas, has significantly lessened the risk of new herd breakdowns in non endemic areas.

The Future

There is no reason to suspect that the level of infection in non endemic areas will not continue to decrease, albeit at a slower rate, given there is

- on going farmer compliance,
- appropriate management of infected herds,
- maintenance of tight testing programmes,
- use of additional diagnostic tests in infected herds to maximise test sensitivity, and
- judicious use of depopulation in either heavily infected herds or mobs

The greatest challenge to the future success of the programme lies in the endemic areas and our ability

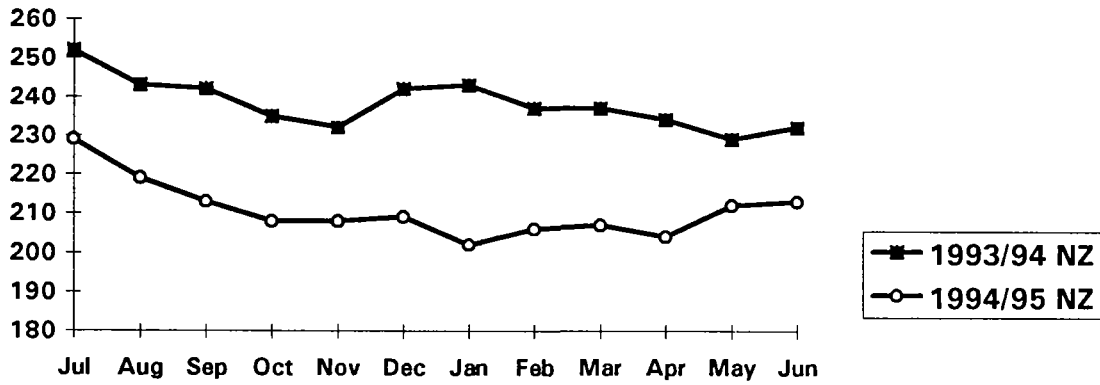
to reduce the level of infection from feral reservoirs while maintaining farmer confidence and investment in tight disease control practices. Clearly recent trends indicate there is significant work still to be done in this area.

In the short to medium term, reducing the level of infection from feral reservoirs, will rely on controlling the level of reservoir hosts. In the 1991/92 financial year, the Animal Health Board and regional councils invested approximately \$8.3 million in control programmes, the vast majority of which was targeted at the brush-tail possum (*Trichosurus vulpecula*). By 1994/95 this investment has grown to \$17.5 million.

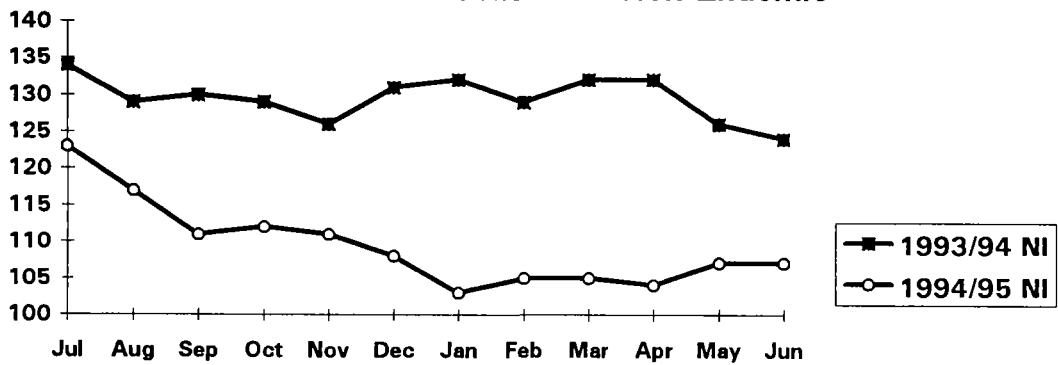
Longer term options through the use of vaccination and/or biological control of the principal feral reservoirs will wait on results of the various research initiatives currently being undertaken both in New Zealand and overseas.

Footnote: The graphs on the following pages examine the number of TB movement controlled deer herds for the 1993/94 and 1994/95 years by various classifications.

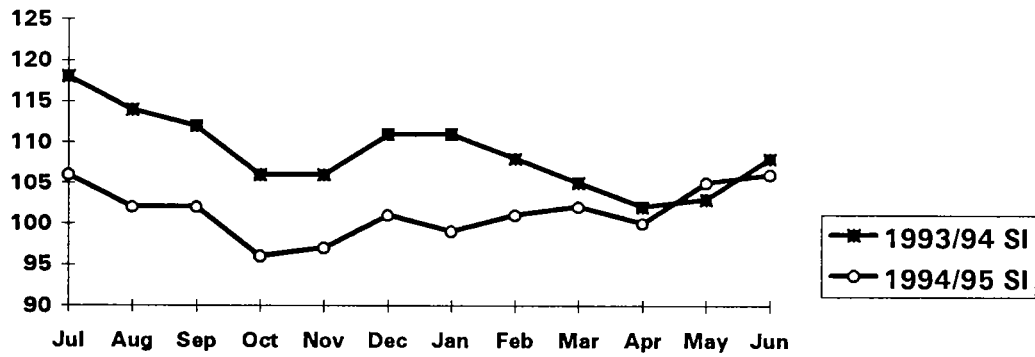
**Deer MC Herds
New Zealand - Endemic & Non-Endemic**



**Deer MC Herds
North Island - Endemic & Non-Endemic**



Deer MC Herds South Island - Endemic & Non-Endemic



Deer MC Herds New Zealand - Non-Endemic

