

TUBERCULOSIS IN FARMED DEER - PROGRESS IN CONTROL

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Tuberculosis was first diagnosed in farmed deer in 1978 on the West Coast of the South Island in an area with a history of Mycobacterium bovis in feral deer, cattle and possums. Feral deer with M. bovis have also been found in other areas, the most important being the Central North Island and the Wairarapa. All three areas have acted as a source of breeding stock for deer farms. It has also been found that even Tb-infected farmed deer have been a source of infection for cattle and possums. Once a new focus of infection becomes established among possums, it is very difficult and expensive to eradicate. Therefore, under the philosophy of user pays, farmers are going to be very unhappy if tuberculosis becomes endemic in their patch.

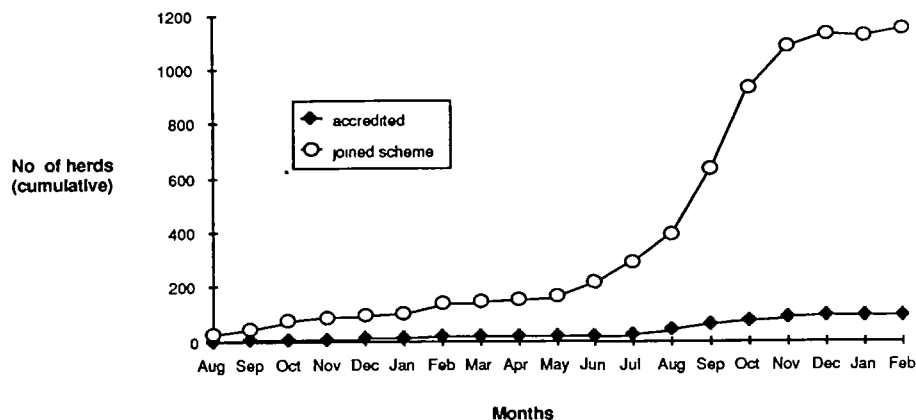
During the 1980's deer farmers were encouraged to tuberculin test not only recently captured, sale and replacement deer, but also whole herds. However, although the number of deer tested annually increased from approximately 5,000 in 1980 to 179,000 in 1985, only a few farmers were committed to whole herd testing. They were wary of having their herds placed under quarantine, and mistrusted the specificity of the tuberculin test.

To help promote whole-herd testing, the New Zealand Deer Farmer's Association requested the Ministry of Agriculture and Fisheries, in conjunction with the New Zealand Veterinary Association, to design a voluntary scheme to accredit qualifying herds as tuberculosis free. Its aims were to reduce the incidence of M. bovis in individual herds and the spread of infection from those herds that were infected. The scheme opened in August 1985, with veterinary practitioners doing the testing, and reporting the results to MAF who administer the scheme. Early in 1986 the CCT was accepted as a supplementary test which improved the specificity of testing and overcame most of the reluctance for whole herd testing.

By February 1987, 1,147 herds, or 33% of all deer herds, had joined the accreditation scheme. Figure 1 shows how the scheme has been adopted. The rapid spring rise in 1985 for membership occurred because 31 October was the last day on which farmers had the opportunity to make application for their previous testing history to contribute towards accreditation.

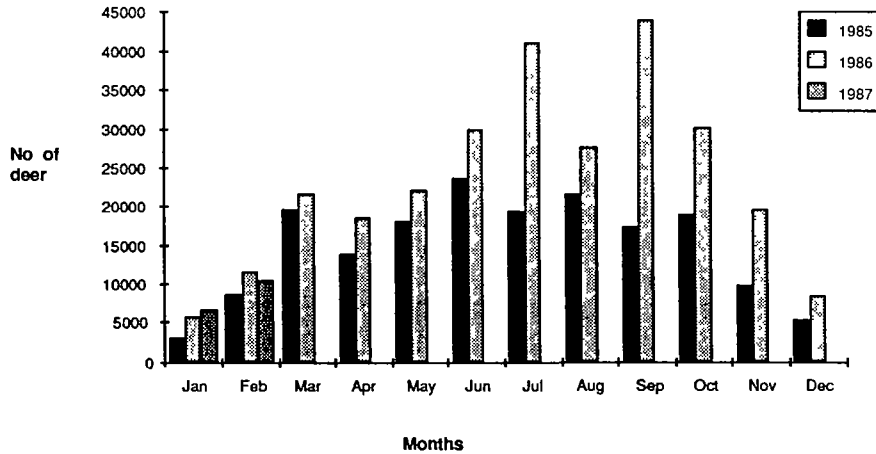
Figure 1

No of deer herds joining scheme & No accredited (Aug '85 - Feb '87)



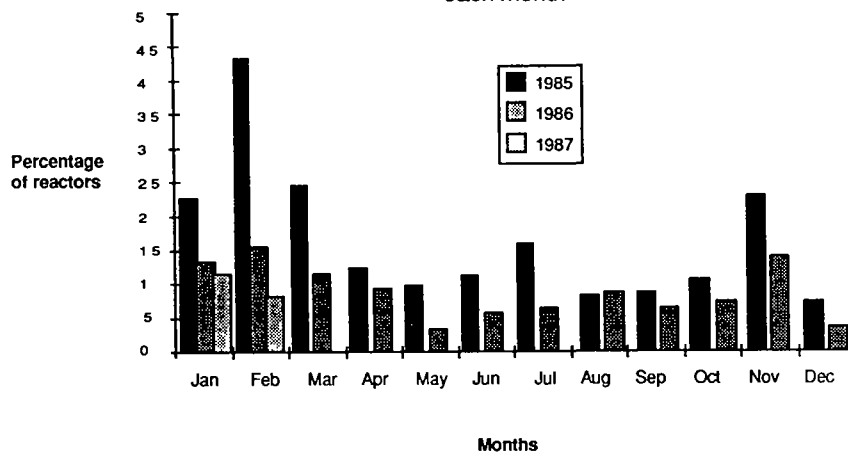
The total number of deer tested each year has increased, and figure 2 shows the monthly testing pattern.

Figure 2 A yearly comparison of the No of deer tested for Tb each month



The reactor rate per month for all tests is shown in figure 3. The seasonal pattern, characterised by a low reactor rate in the winter months observed in earlier years, has been smoothed out to some degree. This may have been associated with the retesting of infected herds in the summer months when fewer herds were being tested.

Figure 3 A yearly comparison of the percentage of Tb deer reactors each month

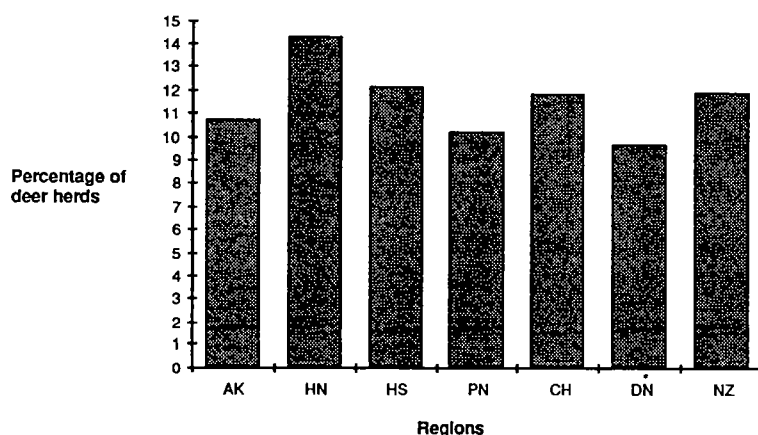


With the introduction of the accreditation scheme, the definition of a reactor was changed. Veterinarians are now given discretion as to what is classed as a

reactor, and consequently the reactor rate has dropped from 1.45% (1985) to 0.78% (1986). The number of deer represented by the difference in the two rates is tested with the CCT. In 1986, 2,194 reactors were found when 280,228 deer were tested. The CCT was applied to a further 1,805 deer and 160 (8.86%) were classed as reactors. The true reactor rate is therefore 0.84%. It is interesting to note that the reactor rate for whole herds in the scheme for 1986 is 0.52% compared to 1.1% for whole herds not in the scheme. It seems, therefore, that deer farmers do some preliminary herd testing before joining the scheme.

Herd numbers under a Disease Control Place notice (DCP) reached a peak in July 1986 (478), and the number has tended to decrease since (February 416). The distribution of DCP herds is shown in figure 4. Approximately one third of DCP herds have *M. bovis* confirmed (165), one third are awaiting further tests and laboratory results for confirmation of Tb, while the remainder are probably not infected and are awaiting further clear whole herd tuberculin tests before coming off DCP.

Figure 4 Percentage of deer herds on DCP in each region (Feb '87)



Statistics relating to deer slaughtered at DSPs and the number with Tb are shown in Table 1. There were 758 reactors slaughtered in 1986, of which 145 (19.13%) were confirmed by laboratory examination to have lesions of *M. bovis*.

Table 1: Tuberculosis found at Deer Slaughtering Premises

	<u>Location</u>	<u>No. Slaughtered</u>	<u>No. with Tb</u>	<u>Rate</u>
1982	North Island	7,817	10	0.13%
	South Island	4,900	27	0.55%
	New Zealand	12,717	37	0.3%
1983	North Island	6,721	39	0.58%
	South Island	5,373	1	0.01%
	New Zealand	12,094	40	0.33%

1984	North Island	18,184	34	0.19%
	South Island	11,622	18	0.15%
	New Zealand	29,806	52	0.17%
1985	North Island	22,435	39	0.17%
	South Island	14,231	15	0.11%
	New Zealand	36,666	54	0.15%
1986	North Island	35,091	137	0.39%
	South Island	17,996	97	0.54%
	New Zealand	53,087	234	0.44%

In 155 lines of slaughtered reactor deer, according to the records of six DSPs for the period June to December 1986, 33 lines (21.3%) were confirmed by laboratory examination to have M. bovis lesions. Of a total of 421 reactors examined, 68 (16.1%) had M. bovis lesions. At the same time these lesions were found in 24 'normal' deer submitted for slaughter. The lesions in these 92 animals were found mainly in the head and thorax (Table 2) as has been shown in other studies (Beatson and Hutton (1981), Brooks (1984)).

Table 2: Distribution, Frequency and Location of Tuberculosis Lesions found in Deer at Slaughter

	<u>Head</u>	<u>Thorax</u>	<u>Abdomen</u>	<u>Body</u>
Carcase had lesion(s) in only 1 area (75 deer)	32	22	12	9
Carcase had lesions in more than 1 area (17 deer)	10	14	10	3
Total for 92 deer	42 (45.6%)	36 (39.1%)	22 (23.9%)	12 (13.0%)

It is too early in the accreditation scheme to be able to show that the incidence of tuberculosis in deer is decreasing, but it is very encouraging for the future to see more whole herds being tested. In the future, as cattle farmers with a Tb problem pay a greater proportion of the costs of Tb control, cattle and deer farmers will become more conscious of the necessity to work together to achieve the control of tuberculosis. This applies particularly in endemic areas. We as practising and state veterinarians can only effectively meet this challenge by working more closely together.

References

- Beatson, N. S.; Hutton, J. B. (1981): Tuberculosis in farmed deer in New Zealand. Proceedings of a Deer Seminar for Veterinarians, 1981, Queenstown, New Zealand.
- Brooks, H. V. (1984): Pathology of tuberculosis in red deer (*Cervus Elaphus*). Proc Deer Course for Vets. Deer Branch Course No. 1.