

# CONTROL OF PARATUBERCULOSIS IN AN FARM OF RED DEER IN CAPTIVITY IN ARGENTINA

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## INTRODUCTION

Paratuberculosis in deer occurs mainly between 1 and 2 years of age, rarely older animals, the health improvement of the herds will facilitate the eradication of this disease. To automate and adjust diagnosis tests, as well as control strategies, would help to make control programs effective.

In this work we intend to characterize the disease and to design control models to improve production.

## OBJECTIVE

Estimate the seroprevalence of *M. paratuberculosis* by a Commercial Indirect Enzyme Immunosorbent Assay (ELISA) in a population of Deer in captivity and to apply control models of the disease.

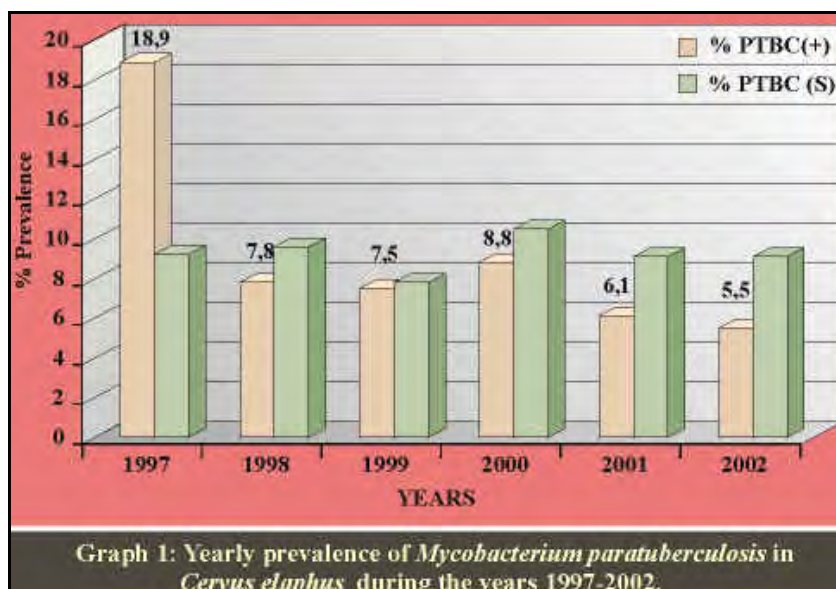
## MATERIALS AND METHODS

The work was carried out during the 1997-2002 period in a red deer (*Cervus elaphus*) farm dedicated to breeding. Management practices for the control of the disease consisted of an annual bleeding of all animals older than 15-months. The total number sera analyzed was 5717 in the 6 years of the work. Those animals that were positive ELISA test were immediately separated from the rest of the animals and most of them were eliminated during the year. Suspected animals were also separated and sampled again.

Serological analysis: The sera were analysed by a commercial indirect enzyme immunosorbent assay (ELISA) using *M. paratuberculosis* antigen (Allied Monitor, Inc, USA). The ELISA method was the same as used with bovine anti-IgG at a dilution of 1:4000. All the sera were previously adsorbed with a suspension of *Mycobacterium phlei* to eliminate non-specific antibodies.

## RESULTS AND DISCUSSION

The annual seroprevalence of Paratuberculosis is shown in Graph1. The percentage of positive or suspect animals that were diagnosed through the serologic test, as well as the evolution of this parameter during the whole period. The proportion of positive animals eliminated every year was always higher than 78% (Table 1).



**Table 1.-** Percentage of animals positives, suspected and eliminated to the ELISA test.

YEARS	PTBC	Positive	PTBC	Sospected	PTBC	Negative	Eliminated (+)		TOTAL	
	n	%	n	%	n	%	n	%	n	%
1997	284	18,9	138	9,2	1074	71,8	260	91,50	1496	100
1998	90	7,8	111	9,6	945	82,5	71	78,80	1146	100
1999	54	7,5	56	7,8	602	84,4	49	90,70	712	100
2000	74	8,6	89	10,5	681	80,6	74	100	844	100
2001	56	6,1	84	9,1	776	84,7	56	100	916	100
2002	50	5,5	82	9,1	771	85,3	56	100	903	100

The high prevalence of positive animals found the first year of work (18.9%) decreased the following year to less than half (7.8%), probably due to the number of seroreactors eliminated after the 1997 analysis. For this reason, management had a great impact at the beginning of the control program. However, in the following years no changes in the prevalence occurred (7.5% to 8.6%), decreasing in the year 2002 to (5.5%). Another important factor is the celerity with which the animals were eliminated after obtaining laboratory results, being crucial to make it immediately after the serological diagnosis, so that positive animals that are the main infection source remain the minimum period time in the farm. It should be kept in mind that each diseased animal eliminates a great amount of bacteria through faeces contaminating pastures and causing the infection of many susceptible animals. An interesting characteristic to analyze is the high percentage of positive animals at 15 months age in compared with adults. This makes relevant the measures in the disease control because they reduced the population of diseased deer; otherwise it should be equal to or higher than the proportion of positive mature deer.

### CONCLUSION

Prevalence levels obtained in the last years of the work evidence the great difficulty that paratuberculosis control in red deer presents, and denote a future need of implementing new measures in the control of this disease to diminish the *M. paratuberculosis* infected population animals.

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