SEROLOGICAL SURVEY FOR BOVINE LEPTOSPIROSIS IN THE VOLKSRUST DISTRICT

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ABSTRACT
Serum samples (n = 860) from cattle in the Volksrust district were tested for *Leptospira* antibody titres. Seventeen (2%) of the animals were positive for leptospirosis, while 9 (1%) animals showed suspect reactions. Titres against *L. hardjo, L. pomona,* and *L. tarassovi* were the most prevalent.

Key words: Bovine leptospirosis, serology


*Leptospira* organisms could be the cause of disease in cattle, other domestic animals, game and man5 11. In cattle the disease causes economic losses due to abortions, stillbirths, infertility, decreased milk production and deaths3 11. Leptospirosis is a disease of world-wide importance and the organisms causing it have been found in most countries in the world2 3. Epidemiological data on leptospirosis in Africa is lacking2; however the serological surveys that have been done in Africa and southern Africa, suggest that *Leptospira* organisms occur in Africa and that they contribute to economic losses2 4 6 9 10. *Leptospira interrogans* serovars, *pomona* and *hardjo* have been associated with abortions in southern Africa6 9 10. Abortions and infertility occur commonly in cattle in southern Africa and leptospirosis is usually considered to be an important differential diagnosis in the case of abortions (Q T Otto 1990, unpublished data).

This study was conducted to determine the prevalence of *Leptospira* antibodies in cattle in the Volksrust district. The prevalence of antibodies could serve as an indicator of the importance of leptospirosis in this area. Farmers in the Volkarust district do not use leptospirosis vaccines as a rule (Q T Otto 1990 personal communication).

Serum was collected from cattle during a campaign for the detection of antibodies against *Brucella abortus.* Cattle older than 18 months in the Volksrust district, were bled over a 3-month period and tested for brucellosis at the regional veterinary laboratory. Ten per cent of these samples were selected and tested for leptospirosis antibody titres. The sera were tested using the microscopic agglutination micro-volume technique7 8. The following antigens were used: *canicola, copenhageni* (icterohaemorrhagiae), *grippotyphosa, hardjo, mini* (szwajizak), *pomona, pyrogenes* and *tarassovi* (hyos). Antigens were

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*Fig. 1: Number of reactions against serovars for all sera tested*
grown on liquid EMJH (Difco Laboratories, Detroit, Michigan, USA) medium and used between 4 and 14 d when the growth of the leptospires exceeded 2x10^7 organisms per ml. The end-point titre was taken as the dilution where 50% of the organisms, as compared with the negative control, were either absent or visibly agglutinated and where there was a greater degree of agglutination in the immediately preceding lower dilution. A titre of 40 was regarded as negative, 80 as suspect and 160 or higher as positive.

Seventeen (2%) of the animals tested, were positive for leptospirosis, while 9 (1%) animals showed suspect reactions. These animals originated from 44 herds (29.5%) and 13 (29.5%) herds had one or more animals which tested positive. The total number of reactions (positive and suspect) against these serovars are reflected in Fig. 1.

The prevalence of animals with positive antibody titres in this survey is not very high (2%). The low prevalence of positive antibody titres, indicates that leptospirosis is not very widespread or important and conditions are suitable for outbreaks to occur. Excretion of organisms by clinically sick animals or carriers, as well as the contamination of the environment, could cause abortions of epidemic proportions, if a large percentage of the susceptible animals in the herd were pregnant at the time.

In view of the fact that epidemiological data on leptospirosis is lacking, further serological surveys should be done in adjoining and other districts.

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