NEOSPORA AND ABORTION IN NEW ZEALAND DAIRY CATTLE.

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ABSTRACT.

Neospora caninum is a newly recognized *Toxoplasma*-like protozoan organism that infects dogs; *Neospora* also causes spontaneous abortion and neonatal disease in cattle and other animals although it is not clear if the organism concerned is *N. caninum* or another species. The present study aimed to improve the epidemiological knowledge of bovine *Neospora* abortion in New Zealand and describe the pathologic features of *Neospora* sp. infection in cattle and in dogs.

In a retrospective study of preserved material, *N. caninum* was identified for the first time in New Zealand dogs in histologic sections of the CNS of 3/15 animals with a variety of CNS lesions and nervous signs. The diagnosis was confirmed by immunohistochemistry and, in one case, electron microscopy. Two cases of toxoplasmosis were confirmed but neither *N. caninum* or *T. gondii* could be demonstrated in ten cases with granulomatous meningoencephalomyelitis. In neosporosis the histopathological lesions were distributed more widely throughout the CNS and displayed a more marked inflammatory reaction than in toxoplasmosis cases. In an attempt to transmit the disease to dogs, puppies were inoculated with aborted bovine CNS material infected with *Neospora* organisms but this was unsuccessful.

An epidemiological study of *Neospora* abortion in dairy cattle in the North Island revealed that the disease was diagnosed in 15% of abortion material submitted to Batchelar Animal Health Laboratory and Ruakura Animal Health Laboratory in 1992, thus making it the most frequently diagnosed cause of abortion. Descriptive epidemiologic information including age of aborted foetuses, age of aborting cows and seasonal distribution of the disease were obtained through a questionnaire survey of dairy farmers whose herds experienced *Neospora* abortion that year. Information on risk factors was sought but could not be related to *Neospora* infection because of the small scale of the survey. Nevertheless, some useful preliminary data which could be used in future investigations were obtained. An investigation of a herd with a recent history of neosporosis detected

antibodies in cattle of different age groups using an indirect fluorescent antibody (IFA) test. A "cutoff" point of 1:400 was used in sera obtained one month after an abortion "storm". In all age groups on the farm at the time of the abortion there was a prevalence of approximately 29% (56/194) seropositive. However, the weaner heifers which were off the farm at that time, had a prevalence of 3% (1/32) ($p<0.01$) seropositive. This finding indicated that all cattle on the farm were exposed to a source of infection at the same time and no age-susceptibility was evident. The significance of these results and directions for future research are discussed.

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