THE SEROEPIDEMIOLOGY OF COXIELLA BURNETTI, TOXOPLASMA GONDII and CHLAMYDIA PSITTACI IN ONTARIO SHEEP FLOCKS - 1988

WALTNER-TOEWS, D.[1], MENZIES, P.[1], LANG, G.[2], MONDESIRE, R.[3]

As part of a larger observational study of disease, management and production in Ontario sheep flocks (the SHEPHERDS project), seroepidemiologic studies on several agents of veterinary and/or zoonotic importance were carried out. The purpose of these studies was to determine the prevalence, distribution, management determinants, and impact on sheep production, of the agents studied.

One hundred and three sheep flocks of 40 breeding ewes or more were randomly selected from a list of flocks registered with the Ontario Red Meat Plan as of January 1988. Within each flock, adult ewes were randomly sampled in numbers sufficient to detect serological evidence of infection at a prevalence of 5% or greater with 95% probability. The ewes were blood-sampled during the summer of 1988, and the sera frozen at -20 C until needed for analysis. Demographic information on the flock, as well as management and health care practices, were collected by personal interviews using standardized questionnaires. Information on health and production outcomes in these flocks were collected from diaries kept by the farmers over the course of a year.

Coxiella-reactors occurred in 22 of the 103 (21.3%) flocks sampled. However, only 7 of these (6.8%) had more than one reactor. The titres of the sheep from single-reactor flocks were very low compared to the multiple-reactor flocks. Flocks with multiple reactors were classified as positive, and the rest as negative. Clipping of the ewes' perineums ("crutching"), and confinement housing in winter and spring (lambing season) were associated with a lower probability of being a positive flock. Ninety-nine percent of the flocks had some sheep seropositive for T. gondii; within-flock prevalence ranged from 3.8% to 97.8%, with an average of 57.6%. Higher rates of seroprevalence were associated with the presence of intact female cats, more cat litters born per year, the purchase of sheep from other flocks, raising pigs on the same farm, pasture-sharing among species, flowing water available at pasture, and housing available for pastured animals. Of 3872 sera tested 35.4% were positive for Chlamydia psittaci; flock prevalence ranged from a low of 31.7% in Central Ontario to 45.9% in the North. Relationships with management, disease and productivity are still being analyzed.

[1]Departments of Population Medicine and 2 Veterinary Microbiology and Immunology, University of Guelph, Guelph, Ontario, Canada N1G 2W1, and [3] ADI Diagnostics, Rexdale, Ontario, Canada M9W 4Z7

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