Neospora caninum and Besnoitia besnoiti infection in South Australian cattle

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Background: Both, Neospora caninum and Besnoitia besnoiti are protozoan parasites that infect cattle. The role of N caninum in abortions in cattle world-wide is well established, while B besnoiti appears to be emerging as a significant pathogen of cattle in Europe. Prevalence information about both of those parasites is lacking for South Australia.

Methods: A serological survey of South Australian beef and dairy cattle was conducted for the presence of antibodies to those protozoans. In general, eight sera were tested from each of the heifer and mature cow cohort on 9 dairy and 51 beef properties in South Australia. Tank milks from 122 dairy farms were also available for testing. Two commercially available ELISA kits (HerdChek and PrioCheck® Besnoitia Ab2.0) were used for the detection of antibodies and performed and interpreted according to manufacturers’ specifications.

Results: For N caninum the antibody ELISA indicated an overall sero-prevalence at the individual animal level of 2.70% (95% CI; 1.65% to 3.74%). At the herd level, 29.4% (95% CI; 16.9 to 41.9%) of beef, and 32.5% (95% CI; 12.0% to 76.9%) of dairy cattle herds showed antibodies, as did 3 out of 122 (2.54%; 95% CI -0.28% to 5.36%) of the tank milk samples. The maximum within-herd sero-prevalence detected was 20% for beef herds and 25% for dairy herds.

Testing for B besnoiti antibodies the ELISA identified 18.4% (95% CI: 15.8% - 21.0%) of 869 individual cattle sera as positive, 18.8% (136/723) (95% CI: 16.0% - 21.7%) of beef and 16.5% (22/133) (95% CI: 10.2% - 22.9%) of dairy cattle. At the herd level, 91.8% (45/49) (95% CI: 84.2% - 99.5%) of beef properties and all dairy properties showed evidence of Besnoitia antibodies.

Conclusions: The sero-prevalence of N caninum in South Australian cattle appears to be in general agreement with other reports from cattle populations around Australia. Although N caninum infection is low at the individual animal level, it is widespread across a third of the cattle properties. Antibodies to B besnoiti appear to be widespread throughout the state, with close to 20% of individual cattle showing antibodies, yet clinical cases appear to be absent. Further validation of that ELISA is on-going.