Seroprevalence of Neospora caninum, paratuberculosis and Q fever in cattle in Belgium

Vangeel, I.¹, Méroc, E.¹, Roelandt, S.¹, Welby, S.¹, Van Driessche, E.², Czaplicki, G.³, Van Schoubroeck, L.², Quinet, C.³, Riocreux, F.¹, Hooyberghs, J.⁴, Houdart, P.⁴ and Van Der Stede, Y.¹,¹,¹ CODA-CERVA, Belgium, ²DGZ, Belgium, ³ARSIA, Belgium, ⁴FAFSC, Belgium; yves.vanderstede@coda-cerva.be

A large cross-sectional serological survey was conducted between November 2009 and February 2010 to estimate the animal and herd level seroprevalence of Mycobacterium avium subspecies paratuberculosis (MAP, paratuberculosis or Johne’s disease), Neospora caninum (neosporosis) and Coxiella burnetii (Q fever) in cattle in Belgium. A total of 1,100 cattle herds were randomly selected from the list of all Belgian cattle herds (dairy, beef and mixed herds but excluding veal holdings). Within each herd, blood samples were collected from 10 animals of 12-24 months of age and 20 animals >24 months of age. All serum samples (n=18858, n=957) were tested for N. caninum antibodies using a SRS2 sandwich ELISA (Bio K 192, Bio-X Diagnostics). Samples from >24 month old cattle were also tested for MAP antibodies (n=13616, n=937) using an adsorbed indirect ELISA (ID Screen® Paratuberculosis Indirect, ID VET) and for C. burnetii antibodies (n=13641, n=942) using an indirect ELISA (LSIVET ruminant milk/serum Q fever, LSI). The true animal level and herd level seroprevalence for N. caninum was estimated at 3.5% (95% CI: 2.7-4.4) and 62.5% (95% CI: 59.4-65.5), respectively, with no differences in seroprevalence between production types or according to age. For MAP, a true animal and herd seroprevalence of 2.2% (95% CI: 1.7-2.9) and 21.6% (95% CI: 19.0-24.3), respectively, was found. The animal seroprevalence for MAP was slightly higher in dairy than beef herds. The true animal and herd seroprevalence for Q fever was estimated at 13.3% (95% CI: 12.3-14.6) and 55.1% (95% CI: 51.9-58.3%), respectively. The number of Q fever positive animals increased with age and the animal seroprevalence was higher in dairy and mixed herds than in beef herds. This survey demonstrates that C. burnetii and N. caninum are widespread in Belgian cattle and confirms that MAP is still endemic in Belgium.