Serological characterization of Salmonella spp. infection in finishing pigs from NE Spain

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Abstract

The seroprevalence of Salmonella spp. in finishing pigs in Aragón (NE of Spain) and the potential factors associated with it were assessed. Serum samples were collected directly from the Regional Diagnostic Laboratory (RDL). Only farms submitting a minimum of 30 serum samples to the RDL were included, i.e. exporting and farrow-to-finish farms, and those in the last stages of the Aujezsky´s disease eradication program. Farms were randomly selected and proportionally distributed to the 2008 census. A questionnaire was used to obtain information on selected farms. The HerdCheck ELISA (IDEXX Laboratories) was used for serology. Out of a total of 6,182 sera tested from 217 herds (mean of 28.5 pigs/herd), 2,240 (36.2%) were seropositive when the cutoff used was OD% 20%, and 1,219 (19.7%) at OD% 40%. At least one seropositive animal was found in 91.7% (199) of the herds at OD% 20% and in 71.4% (155) at OD% 40%. The percentage of farms presenting a high within-herd seroprevalence (i.e. 40%) varied from 20% to 40% depending upon the cut-off point used (OD% 40% or 20%). A multivariable random-effect logistic regression showed that seroprevalence (using a cut-off OD% 40%) was significantly lower in winter and positively associated with drinking water sources other than the city supply, higher animal densities, the absence of rodent control programs or all-in/all-out systems, famers being members of pig health protection associations, and non-solid box separation (i.e. bars or similar). The SaTScan software was used to identify potential clusters of Salmonella-infected herds in the area, but no significant clusters were found. Results suggest that Salmonella infection is widely spread in the surveyed area and that some of the factors associated with it could be mitigated through overall hygiene and biosecurity measures.