Salmonella infection in pigs: case-control study

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In 2007, a national Salmonella surveillance and control program was implemented in Belgian fattening pigs. Its purpose is to sensitize the farmers starting by identifying the farms with the highest levels of Salmonella-specific antibodies (high risk farms). The high risk farms are required to take part in a Salmonella specific action plan (SSAP) which consists of a checklist and control measures designated to reduce the risk of Salmonella infection. The checklist foreseen in the SSAP was a great opportunity to perform a case-control study on a number of explanatory variables and identify critical on-farm risk factors for being a Salmonella high risk farm in Belgium. The checklist consisted of about 70 questions and was submitted to both case and control farms. Risk factors were analysed individually and simultaneously using a multivariable logistic regression model. The results of the logistic regression showed an association between the physical form of feed (OR=0.22 (0.1-0.48) for flour versus pelleted) and the risk of Salmonella infection. Frequent concomitant respiratory diseases (OR=3.95 (1.85-8.44)) and bird proof housing (OR=4.37(2.68-7.11)) were identified as risk factors. The study demonstrated that the disinfection of boots (OR=0.46 (0.28-0.76)) and the separation of poor-doers (OR=0.33 (0.19-0.56)) were significant protective factors. A negative association was found between the size of the herd and the risk of Salmonella infection (OR=0.99(0.99-0.99). This study identified mainly type of feed, hygiene, and the control of concomitant diseases especially respiratory diseases as on-farm risk factors and therefore acting on those parameters may help control Salmonella on the farm.