

7. Summary

Occurrence of *Salmonella* and *Campylobacter* in the farm of origin

Six selected pig farms of a fattening association in Lower Saxony, Germany, were surveyed for *Salmonella* and *Campylobacter*. It was the aim of the study to find out possible relationships between positive results and predilection sites or farm management.

The procedure:

Samples were taken from the animal environment. Following the black and white separation scheme of the farms, samples were allocated to the interior (faeces, slatted floors, feeding and drinking troughs, flies, boots), to the exterior (water from the site, soil, bird faeces, rectal swabs from dogs or cats) and from the supply and disposing area (feed silos, municipal or fountain water, compost). In addition, farm internal management factors were taken as well as a ground view of the aerea was set up.

All farms were visited twice during the year 2003 (between January and June and between September and November).

In total, 657 samples were tested for *Salmonella* (following DIN ISO 6579) and *Campylobacter* (following ISO DIS 10272). The obtained *Salmonella* strains were serotyped at the German Federal Institute for Risk Assessment, the species differentiation of the *Campylobacter* isolates was performed via biochemical reactions in the laboratory of the institute.

Results:

Isolates: Results reflect a different burden and distribution of the zoonotic agents in the environment. *Salmonella* was detected in 5,9 % of all samples. Three of six farms were positive, the percentage ranged from 0,0 % to 28,1 %. Based on all results, isolates were obtained from 6 % of samples from the interior, from 7,8 % of samples from the exterior and in 2,7 % of cases from the supply and disposal area. Predominantly identified were *Salmonella* Typhimurium and *Salmonella* Derby.

Campylobacter was obtained from 27,4 % of all samples, with a detection rate between 12,5 % and 41,2 %. *Campylobacter* isolates were only found in the interior (35,0 %) and in the exterior (11,6 %). Predominantly identified species were *Campylobacter lari* and *Campylobacter coli*.

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Management: Circumstances which might promote the occurrence of *Salmonella* and *Campylobacter* were identified. *Salmonella* positive were the animal environments in farms with more than 12 animals per pen (farm D and F) as well as farms with a stocking number of more than 1000 and more animals (farm C and D). However, the effect of stocking number was not always the case: (farm E and F). It was concluded that the presence of more than one species present on the site (farm C) or not appropriate hygiene and farm management (defect drinking trough facilities, spilling liquid manure [farm D]) might further promote the occurrence of *Salmonella* in the animal environment.

A higher burden of *Campylobacter* was obtained in the environment of farms without disinfection in contrast to farms performing disinfection (farm A and C), with the exemption of farm F (no disinfection), showing the second lowest *Campylobacter* detection rate. A massive burden of flies (farm E) went along with a high *Campylobacter* prevalence in the animal environment.