The Role of Feeding Type in *Salmonella* Spp. Transmission

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Abstract

The infection with *Salmonella* in pigs farms is usually endemic and largely asymptomatic. The present study aimed the importance of feeding type (dry/wet) administered in the transmission of *Salmonella* in pigs farms.

We had studied two farms, one in which pigs received wet feeding and at the other the given ration was dry. From each farm were collected 100 fecal and 50 feed samples.

After analyzing the samples collected, it was found that the number of positive samples on the farm where the ration was liquid, was 34% from the feces and (2%) from the feed, which was reduced in comparison with the farm where the ration was dry, where the positive samples were (61%) for feces, and 4% from feed.

The results support the ideas that liquid feeding ensures less chance of contamination by 27% compared to dry feeding, because it is inducing an increase of organic acids which facilitates normal bacterial growth, leading to reduction of *Salmonella*.

Keywords: farms, feed, pigs, *Salmonella* spp. samples

Introduction. Pork and pork products are recognized as important sources of human salmonellosis (Smith *et al.* 2010). *Salmonella* is an important cause of food-borne (alimentary) health problems in humans (Hernandez *et al.* 2013). The risk of *Salmonella* might differ between the production systems, caused by components of the husbandry systems affecting disease development and pathogen shedding (Zheng *et al.* 2007), or differences in the level of resistance to the pathogen.

Aims and objectives. The objectives are to determine the carrier state of *Salmonella* spp. which received two types of dry and wet feed.

Materials and methods. The study was conducted in two fattening farms, from which in one was administered wet feeding and in the other dry feeding. In order to emphasize the importance of the type of feed, from each farm were collected 100 feces samples from pigs and 50 feed samples.

Samples were collected in sterile containers and transported to the laboratory of Hygiene, being analyzed by EN ISO 6579:2002 method.

Results and discussion. After analyzing the obtained results, the farm that used wet feeding. In feces samples collected was found a prevalence of 34% compared with the farm that used dry feeding, where was observed a prevalence of 61%. Analyzing and comparing the obtained results from the sampling of feed (50 samples), it was found a prevalence of 2% in the farm where was given dried feeding to a prevalence 2% in farm that used wet feed.

Fecal samples resulted in this study revealed that in the case of liquid feeding were fewer positive samples (figure 1).

The association of liquid feed and the reduction of *Salmonella* spp. prevalence was observed in other studies (Farzan *et al.* 2006). Dubroca *et al.* (2006) after a study conducted in 20 fattening farms in France, established that the prevalence of

Fig. 1. Prevalence with *Salmonella* spp. in the farm with wet and dry feed

Salmonella spp. in cecum was different depending on the type of feed. The seroprevalence was 21.5% for dried feed and 10.3% for wet feed, respectively 28.5% and 12.7% in case of cecum prevalence. There were situations where the studies made didn't found any differences (Rajic et al. 2007).

Conclusion. Administration of the liquid feed may result in a reduction of the state of carrier for *Salmonella* spp. The difference between the two farms studied was 27% in favor of the farm that used liquid feeding.

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