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Short duration acidified feed use as a pre-slaughter Salmonella intervention

Jones H.¹, Smith R.¹, Gilson D.¹, Martelli F.¹, Davies R.¹

¹Animal and Plant Health Agency, Surrey, United Kingdom

Introduction

Salmonella carriage and shedding in finisher pigs is a risk to carcass contamination at slaughter. The main impacts of Salmonella are for human health, thus, on-farm control strategies must be cost-effective to be implemented by farmers. Organic acids have been demonstrated to have an inhibitory effect on pathogens such as Salmonella, proving particularly successful in the poultry sector.

Recent studies indicate that existing on-farm controls can be undermined during transport or at slaughter. Stress, due to transportation, has been demonstrated to increase the shedding of Salmonella in faeces of pigs. Other common practices such as feed withdrawal and lairaging have also been associated with increased faecal shedding of Salmonella.

This study aims to determine the effectiveness of short-interval acidified feed intervention in pigs, in the period prior to slaughter, for reducing Salmonella carriage, faecal shedding and carcass contamination at slaughter. This study also assesses the impact of pig transport and use of lairage facilities on the occurrence of Salmonella.

Methods

Each of the five recruited pig farms supplied two similarly managed groups of finisher pigs. One group of pigs received their normal ration for the duration of the trial (control group). A second group were fed their normal ration with added Fysal MP[®], an organic acid feed additive, at 5kg/tonne for four weeks prior to slaughter.

Each farm was visited before the beginning of the intervention to establish the baseline presence of Salmonella in each trial group. The farms were visited again after four weeks of intervention. At both visits, individual and pooled faecal samples were collected to calculate Salmonella presence. Environmental swab samples from the vicinity of each group of pigs, were also collected to evaluate the environmental contamination of Salmonella.

Study groups were then followed to slaughter. Samples of the lairage were collected prior to the entry of the trial pigs. On the slaughter line, whole guts were collected, from which caecal content samples were harvested. In three trials, ileo-caecal lymph nodes were also harvested from the whole guts, in addition to caecal contents, to determine Salmonella carriage.

To investigate carcass contamination, carcasses were swabbed at the end of the line, prior to blast chilling. The lorry used to transport the pigs was also sampled before and after transport of the pigs to abattoir.

Results

Preliminary results suggest that the effectiveness of a short-duration organic acid intervention on Salmonella presence may be context-specific. Results of the first four trials indicate that abattoir lairages were highly contaminated with Salmonella before the entry of pigs (mean sample prevalence 80.0%). In addition, two transporters used in the first four trials were contaminated with Salmonella prior to the entry of trial pigs (mean sample prevalence 17.5%).

Discussion

Both abattoir lairages and transporters were contaminated with Salmonella before the entry of pigs. Studies have indicated that it is possible for pigs exposed to an environment contaminated with Salmonella to become infected rapidly, in as little as two hours. These environments could therefore pose a threat to contamination of pigs prior to slaughter. More effective cleaning and disinfection is required to minimise this risk.

Although initial results of the intervention were encouraging, reductions were not observed on all of the trial farms. The results of each trial will be presented and discussed in full at the conference.