V -006

The use of organic acids at lairage and its effect on pig *Salmonella* shedding at slaughter

Alejandro Casanova Higes[1#], Clara Mª. Marín-Alcalá[1], Mario Ruiz-Palacín[2], Raúl C. Mainar-Jaime[2]
[1] *Unidad de Producción y Sanidad Animal, Centro de Investigación y Tecnología Agroalimentaria de Aragón, Instituto Agroalimentario de Aragón -IA2- (CITA-Universidad de Zaragoza), Avda. Montañana 930, 50059, Zaragoza, Spain.*
[2] *Dpt. de Patología Animal, Facultad de Veterinaria -IA2- (Universidad de Zaragoza-CITA), Avda. Miguel Servet, 177, 50013, Zaragoza, Spain.*
*Corresponding Author: rcmainar@unizar.es

Introduction
The presence of *Salmonella* in the pig's feces is a major source of abattoir and carcass contamination. The main objective of this study was to assess whether the addition of organic acids to the water of abattoir pens (during lairage) may be a useful strategy to reduce the proportion of pigs shedding *Salmonella*, therefore mitigating the risk of *Salmonella* slaughter contamination.

Materials and Methods
The study was carried out during 2017. Pigs coming from the same farm and in the same truck, were unloaded into an abattoir pen with the treated water (40 pigs - treated group) and pens with regular water (rest of the pigs - control group). After a waiting period of 10-14 hours, pigs were slaughtered and after evisceration fecal samples collected to determine the presence of *Salmonella* (ISO 6579: 2002/Amd 1:2007). The prevalence of shedding was compared between both groups by Fisher's exact test. A type of formic acid esterified in the form of glycerol (MOLI-M C1, Molimen SL, Barcelona, Spain) was used as treatment (10 kg/1000L of water). Five replicates of this field trial were carried out for this study.

Results
Overall, in 115 (57.5%) out of 200 pigs in the control group *Salmonella* was found in feces, compared to 81 (40.1%) out of 202 in the treated group ($P<0.01$). Since the effect may be also related to the overall amount of water consumed, analysis was repeated after grouping field trials into two categories: water consumption between 0.5-1 litre/head, and >1 litre/head. After adjusting by this variable, results remained similar. The Mantel-Haenszel adjusted odds of shedding *Salmonella* was higher (OR = 2.2; 95%CI = 1.5-3.4) for the control group.

Conclusion
In conclusion, these preliminary results suggest that the addition of this type of organic acid in the water of slaughter pens could help to decrease somewhat the proportion of pigs shedding *Salmonella*. More field trials using different doses or amount of water consumption should be carried out to assess the real potential of this approach.

Keywords: lairage, organic acids, *Salmonella*, slaughter, water treatment