

Vaccination with Enterisol® Salmonella T/C reduces *Salmonella enterica* colonization of ileocecal lymph nodes in growing pigs



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INTRODUCTION

Salmonellosis in pigs may have both production and food safety impacts. Vaccination has shown to improve pig performance and reduce colonization of pork carcasses. In this study, lymph node colonization was compared between a new, bivalent *Salmonella* vaccine (Protocol A) and a baseline vaccine program (Protocol B).

RESULTS

All farm pre-load samples (0/6) and transport (0/16) samples were culture negative. All lairage samples (9/9) and one carcass swab were positive. Protocol A pigs were positive for *Salmonella enterica* at a significantly lower rate than protocol B pigs (12% vs 63%, $p < 0.0001$). Protocol A pigs had a higher seroprevalence rate in meat juice (75% vs 42%, $p < 0.001$) but not serum (98% vs 95%, $p = 0.26$). There was a two log reduction in CFU in protocol A vaccinated vs protocol B lymph nodes (median = 103 vs 105, respectively).

MATERIALS AND METHODS

Pigs from a 5000 sow farm were placed into a *Salmonella* positive wean to finish barn containing 6 rooms, 288 pens and ~6600 pigs. Pigs were vaccinated in drinking water with Enterisol *Salmonella*® T/C (Boehringer Ingelheim, St Joseph, MO) (44 pens, 1100 pigs; Protocol A), or a baseline vaccination program (remaining pigs; Protocol B). All other medication, vaccination, feed, water, labor and management was applied uniformly. Pigs selected for harvest were placed by treatment onto two separate semitrailers (one per group) and transported approximately 12 hours for harvest. Oral fluid samples were collected from pigs at loading (3/protocol), the common loading chute (1/chute) and transport trailers (8/trailer) prior to loading, and lairage pens prior to pig arrival (four/pen; 1/alleyway). Pigs were harvested by protocol, each after a production break and cleaning of facilities. Protocol B pigs were harvested ~two hours after arrival; protocol A pigs were harvested two hours later. Blood (171 A, 166 B) was collected after stunning, lymph nodes (153 A, 137 B) after removal of viscera sets, and chilled diaphragm (172 A, 171 B) and carcass swabs (342; Specisponge) the following day. Serum, swabs and meat were sent on ice overnight for ELISA or qualitative culture. Lymph nodes were frozen and held for culture. Serum and meat juice samples were tested for antibodies against *Salmonella enterica* by ELISA (SVANOVA, Sweden). Swabs and lymph nodes (0.1g amounts) were cultured via selective enrichment at ISU-VDL (Ames, IA). Data was analyzed using JMP 3.0 (SAS Institute, Cary, NC).

CONCLUSION

Vaccination with Enterisol *Salmonella*® T/C significantly reduced colonization of pigs with *Salmonella enterica* species compared to baseline control vaccination. It should be considered to improve clinical control and reduce carriage in lymph nodes at harvest.

