

## INFLUENCE OF DIFFERENT VACCINATION STRATEGIES AGAINST *SALMONELLA* TYPHIMURIUM IN PIG FARMS ON THE NUMBER OF CARRIERS IN ILEOCECAL LYMPH NODES

Linda Peeters\*<sup>1</sup>, Jeroen Dewulf<sup>1</sup>, Filip Boyen<sup>2</sup>, Charlotte Brossé<sup>3</sup>,  
Tamara Vandersmissen<sup>3</sup>, Geertrui Rasschaert<sup>4</sup>, Marc Heyndrickx<sup>2,4</sup>,  
Mickaël Cargnel<sup>5</sup>, Frank Pasmans<sup>2</sup>, Dominiek Maes<sup>1</sup>

<sup>1</sup>Faculty of Veterinary Medicine, Department of Reproduction, Obstetrics and Herd Health, Ghent University, Merelbeke, Belgium

<sup>2</sup>Faculty of Veterinary Medicine, Department of Pathology, Bacteriology and Avian Diseases, Ghent University, Merelbeke, Belgium

<sup>3</sup>Animal Health Care Flanders (DGZ), Lier, Belgium

<sup>4</sup>Flanders research institute for Agriculture, Fisheries and Food (ILVO), Melle, Belgium

<sup>5</sup>CODA-CERVA, Brussel, Belgium

### Introduction

Persistent *Salmonella* Typhimurium (ST) infections in pigs are characterized by chronic colonization of the lymphoid tissue and constitute a major source of human Salmonellosis. The present study investigated to which extent different vaccination strategies against ST reduce the number of carriers in ileocecal lymph nodes.

### Materials and methods

Five different vaccination strategies were tested on three Belgian pig farms: 1. vaccination of sows; 2. vaccination of sows and piglets; 3. vaccination of sows and fatteners; 4. vaccination of piglets; 5. vaccination of fatteners. A comparison was made with a non-vaccinated control group (group 6). Each vaccination strategy was implemented in each farm. An attenuated vaccine (Salmoporc®, IDT Biologika) was applied twice with an interval of three weeks (sows and fatteners: subcutaneously, piglets: orally). Ileocecal lymph nodes were collected in the slaughterhouse and tested for the presence of *Salmonella* according to ISO 6579:2002. *Salmonella* isolates were classically serotyped (slide agglutination) or mPCR for identification of *Salmonella* genus and ST was used. To distinguish field and vaccine strains, ST isolates were tested with the “IDT *Salmonella* Diagnostikum®” kit, based on the growth requirements of the auxotrophic vaccine strain.

### Results

In total, 1098 lymph nodes were collected (farm 1: 576, farm 2: 74, farm 3: 448). The overall percentage of ST field strain positive lymph nodes was low in all three farms: 3% in farm 1 and 2 and 8% in farm 3. The percentages ST field strain positive lymph nodes per treatment group (1-6) on farms 1, 2 and 3 were respectively: 1-1-0-8-0-6, 0-0-10-0-4-0 and 4-2-12-14-9- 2. Isolates from 7 lymph nodes (0.6%) originating from vaccinated pigs (groups 2-3-4-5) tested positive for the vaccine strain.

**Table 1.** *Salmonella* Typhimurium field strain positive lymph nodes per treatment group per farm.

Group	Farm 1			Farm 2			Farm 3		
	# analyzed	# positive	% positive	# analyzed	# positive	% positive	# analyzed	# positive	% positive
1	78	1	1%	19	0	0%	69	3	4%
2	74	1	1%	10	0	0%	95	2	2%
3	112	0	0%	10	1	10%	85	10	12%
4	115	9	8%	1	0	0%	78	11	14%
5	93	0	0%	27	1	4%	74	7	9%
6	104	6	6%	7	0	0%	47	1	2%
Total	576	17	3%	74	2	3%	448	34	8%

## Conclusion

At farms with a relatively low prevalence of ST field strain carriers in ileocecal lymph nodes, vaccination does not seem to be the measure to be advocated to further reduce this prevalence.