

# Evolution over a period of two years of salmonella serological status of pig farms with low and high prevalence

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## Introduction

The aim of this study is to follow the evolution of the salmonella serological status on farms over a long period in high and low salmonella prevalence farms. For each farm, an investigation on existing risk factors regarding salmonella was done.

## Material and methods

In a previous study, 5 batches of 20 closed farms were studied (period 1).

- 4 farms with high salmonella prevalence and 4 with low salmonella prevalence, were selected from period 1.
- In each farm, 6 batches (20 pigs per batch, 1 batch every two months) were serologically tested using the IDEXX method (cut off = 10%) on meat juice (period 2).

Thus, the seroprevalences of 11 batches per farm were assessed over a 20 to 24 month period.

Two detailed epidemiological surveys were carried out.

## Results and Discussion

On comparing consecutive batches, significant variations were found in 26% of cases (using Fischer's test):

- Farms with very good serological status seem more stable.
- A true batch effect is observed even if some of these significant variations could be partly explained by the small number (20) of pigs sampled per batch.

Only half the farms kept a stable salmonella serological status between the two periods :

- Only 2 of the 4 farms with low salmonella prevalence during period 1 maintained good salmonella serological status during period 2.
- Among the 4 farms which had high salmonella prevalence during period 1, two remained stable and two improved their status significantly.

There is no agreement between salmonella status and number of risk factors identified :

- Farm B3 with only 8 risk factors showed a bad status over period 2
- Contrary to this, farm M4, in spite of 21 risk factors presented a good salmonella status over period 2.
- For the farms whose status changed radically between period 1 and 2, we didn't highlight explanatory factors in hygiene or health status that could explain those changes.

Serological prevalence and significant variations of status between batches

		Farm seroprevalence (%)							
Batch		B1	B2	B3	B4	M1	M2	M3	M4
Period 1	1	10	5	0	5	55	40	40	25
	2	0	0	5	0	20*	20	45	40
	3	0	5	10	0	20	30	55	55
	4	0	0	0	0	35	90*	35	85*
	5	0	0	5	20*	47	5*	45	42*
Period 2	6	0	5	25*	5*	30	0	90*	30
	7	5	5	60*	0	65*	0	79	5*
	8	15*	0	60	65*	65	0	30*	20
	9	10	0	25*	65	39*	0	25	0
	10	0	0	35	10*	10*	5	55*	10
	11	5	0	50	0	28	0	26*	0
Mean for period 1		2	2	4	5	35	37	44	49
Mean for period 2		6	2	42	24	39	1	51	11
Global mean		4	2	25	15	38	17	48	28
Number of risk factors identified		16	9	8	20	13	10	21	21

\*Seroprevalence is significantly different from the preceding batch ( $p < 5\%$ ).