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Ileitis and its impact on pig feed efficiency

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Introduction

Lawsonia intracellularis (LI) is the cause of ileitis, whether it is subclinical or clinical [(1)]. However, the impact of the bacterium can also be concluded by monitoring feed efficiency, animal growth, attrition level, or uniformity between animals or batches.

This paper presents the results of 5 international field studies where the impact of vaccination against LI was evident in pig feed efficiency.

Material and Methods

In all studies, the feed conversion rate (FCR) was assessed following usage of Enterisol® Ileitis (Boehringer Ingelheim). Table 1 describes each trial.

Table 1: Characteristics of the 5 field trials.

	Number of Animals	Data	Ileitis form
France	5,800	GTE	Subclinical
Germany	38,510	SPC	Chronical
Philippines	942	SBS	Chronical
Spain	29,060	SPC	Subclinical
USA	120,444	Meta-analysis	Subclinical

The French survey was based on the "gestion technico-économique" technique (GTE). Vaccination was by drench at weaning in a 175-sow farrow-to-finish unit. In Germany [(2)] and Spain, data were processed using Statistical Process Control (SPC) tools. SPC tools are used to monitor and evaluate continuous processes in an existing situation [(3)]. In the Philippines [(4)], there were 3 groups. 2 were vaccinated with Enterisol® Ileitis, one at 22 and one at 56 days of age. The third group was the control group. The vaccinated groups were merged as the results were not statistically different. Five trials were performed in the USA [(5)]. Four used contemporary controls and one historical control in a before-after comparison.

The FCR was measured from the beginning of the finishing phase till slaughter in the German, Spanish and USA trials. The French and Philippines trials provided a broader analysis with a data collection starting from weaning to slaughter.

Results and Discussion

FCR improved in all trials with a range of 0.08-0.54 kg/kg (table 2).

Table 2: Changes in FCR (kg/kg)

	Before	After	**Difference**
France *	2.83	2.74	**-0.09**
Germany	3.16	2.98	**-0.18****
Philippines*	2.90	2.36	**-0.54**
Spain	2.95	2.80	**-0.15****
USA	3.02	2.94	**-0.08****

* only mean value available
** p-value ≤ 0.05

The mean difference was significant in Germany, Spain and the USA. The improvements seen in the Philippines and French trials confirmed the impact of vaccination on FCR. The Philippines and French data did not show statistical significance due to the low number of entry points.

Different hypothesis have been proposed to explain why LI impairs FCR in pigs. Rowan [(6)] suggested that ileitis is associated with mal-absorption of dietary amino acids. Pigs with a thickened ileal wall have lower digestion coefficients than normal pigs. LI infections trigger profound immune responses that consume nutrients otherwise available for growth.

The economic benefit of an improvement in FCR is worth stressing. A benefit of 1.27 €/pig, assuming a feed price of 150 €/T, is achieved with an improvement of 0.1 kg/kg per pig in the finishing phase (30-115 kg).

Conclusion

After vaccination with Enterisol® Ileitis, an improvement in FCR of 0.08–0.54 kg/kg is achieved regardless of the form of the disease.

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