

# Impact of *Lawsonia intracellularis* vaccination on antibiotic usage in fattening farms

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## Background and Objectives

The use of antibiotics as antimicrobial growth promoters in the EU was banned from 2006 onwards. Since then, only metaphylactic and therapeutic use of antibiotics is allowed. Due to the pressure put on further improvements in the prudent use of antibiotics in livestock production, national regulations on documentation and reduction plans have been put in place. The aim of this study was to evaluate the impact of *Lawsonia intracellularis* vaccination on reduction of antibiotic costs for enteric use.

## Material and Methods

Clinical data (ileitis-related signs), performance (feed conversion ratio; FCR), and antibiotic usage for enteric purposes (measured indirectly as treatment cost) were recorded in 8 farms with a history of subclinical or clinical ileitis. Pigs from non-vaccinated (NV) and vaccinated with Porcilis®*Lawsonia* (PL) (intramuscularly/intradermally (IM/ID); at 3-11 weeks of age) batches were included. NV batches, used as historical control, were compared to PL vaccinated batches after implementing *Lawsonia intracellularis* vaccination to control ileitis.<sup>1,2</sup>

## Results

In all farms, ileitis-related signs were improved clinically after the start of PL vaccination. Mean FCR was 2.81 and 2.71 in non-vaccinated and vaccinated batches, respectively (Table 1). Average antibiotic treatment costs for enteric reasons (n=7 farms, excluding farm 7) were reduced by 68.3% (50.0–95.2%) in vaccinated batches compared to non-vaccinated batches (Table 1; Fig.1). No group in-feed medication for enteric purposes was necessary anymore on these farms after the introduction of *Lawsonia intracellularis* vaccination. In one exceptional farm, enteric treatment costs were higher (factor 9.7) in vaccinated batches, as vaccination was administered at the beginning of fattening period, leaving no time for the onset of immunity before the pigs showed clinical ileitis-associated symptoms (3 days after vaccination) (Fig.2).

Table 1. Difference in antibiotic treatment costs against enteric diseases on case farms after introduction of *Lawsonia intracellularis* vaccination i.m./i.d. (NV: n=60.992; PL: n=19.917)

Farm	1	2	3	4	5	6	7	8
FCR NV batches	3.07	2.7	2.84	2.93	2.58	2.64	2.84	2.89
FCR PL batches	2.80	2.72	2.81	2.83	2.51	2.58	2.57	2.86
Difference (%) in antibiotic treatment costs	-60.0	-95.2	-72.7	-63.6	-89.0	-48.2	9.7 times higher	-50.0

\* Historical comparison of *Lawsonia i.m./i.d.* vaccinated batches to non-vaccinated batches (farm 4 simultaneous comparison).

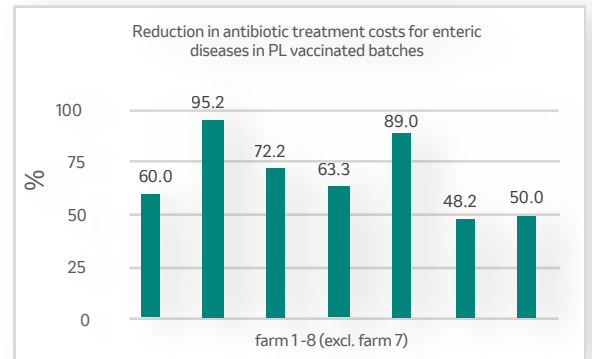


Figure 1. Reduction (%) in antibiotic treatment costs in vaccinated batches (PL) compared to non-vaccinated (NV) batches.



Figure 2. Pigs in farm 7 showed acute ileitis-associated symptoms and lesions in pathology right after placement before onset of immunity and were therefore treated antibiologically.

## Discussion and conclusion

Under the conditions of this report, *Lawsonia intracellularis* vaccination reduced ileitis-related clinical signs, improved FCR and led to a reduction of antibiotic costs for enteric purposes, as an indicator of antibiotic usage. This suggests that *Lawsonia intracellularis* vaccination may be a reliable tool for a more efficient and sustainable pig production.

<sup>1</sup> Mühlen et al., 2021, Praxisdaten zu Klinik und Leistung von Porcilis® *Lawsonia* geimpften Tieren in deutschen Betrieben, Tierärztliche Umschau.

<sup>2</sup> Nieberding et al., 2022 Praktische Beobachtungen zum Einsatz einer intradermalen *Lawsonia* Impfung, Tierärztliche Umschau