

# Influence of *Lawsonia intracellularis* vaccination on the frequency and severity of tail lesions in fattening pigs



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## Background & Objectives

The pathogen *Lawsonia intracellularis* (LI) is the causative agent of an important intestinal disease in pigs. LI and its prevention by vaccination has been anecdotally connected to a reduction in cannibalism. The aim of this study was to describe the impact of a LI infection and vaccination on frequency and severity of tail lesions in a subclinically LI-infected farm by systematic observation.

## Materials & Methods

A farrow-to-finish German farm with subclinical LI infection (determined by serology and PCR) and history of tail biting was selected for this side-by-side controlled study. In total, 854 piglets were included and divided in 2 groups (separate pens): vaccinated (Porcilis® *Lawsonia* at 6–7 weeks) and unvaccinated control piglets in 6 consecutive batches (Figure 1).



Figure 1: Observation timeline

A score system (Table 1) described by Abriel 2017 (1) was used to score tail lesions in each individual pig during the fattening period. Tail lesions were recorded at beginning, half-way, and end of fattening period. The Mantel-Haenszel test was used for statistical analysis.

| Injuries                      | Bleeding           | Swelling          | Partial losses           |
|-------------------------------|--------------------|-------------------|--------------------------|
| 0 No injury detectable        | 0 None             | 0 None            | 0 No partial loss        |
| 1 Scratches, light bite marks | 1 Freshly occurred | 1 Clearly visible | 1 Up to 1/3 partial loss |
| 2 Small-area injuries         |                    |                   | 2 Up to 2/3 partial loss |
| 3 Large-area injuries         |                    |                   | 3 Over 2/3 partial loss  |

Table 1: Scoring scheme for injuries, bleeding, swelling and partial loss of the tail (Abriel 2017)

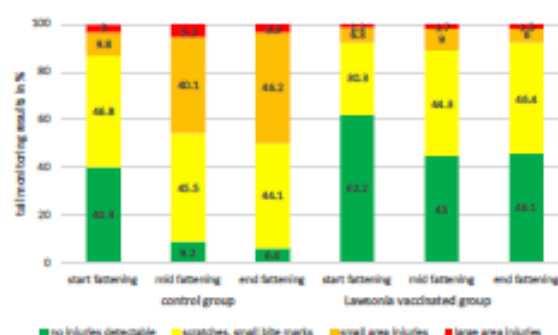


Table 2: Tail scoring results of pigs in control groups and vaccinated groups ( $p < 0.0001$ )

## Results

Average starting weight (controls: 34.6; vaccinated: 34.6 kg) and animal losses were (controls: 2.57%; vaccinated: 2.82%) similar. Over all 6 batches, vaccinated groups had a statistically higher ADWG than unvaccinated groups (943 vs. 921 g/d;  $p = 0.011$ ).

Tail scoring showed significantly fewer injuries, swellings, bleedings and partial losses during the entire fattening process in vaccinated pigs compared to controls (Figure 2). From the beginning of fattening, injuries were observed in the control and vaccination group. Towards the end of fattening, the frequency of injuries in the control group increased, whereas in the vaccinated groups it decreased. At the end of fattening, the proportion of injured tails (small and large areas) was 49.5 % in the non-vaccinated group and 7.5 % in the vaccinated group ( $P < 0.0001$ ).

## Discussion & Conclusion

Tail lesions may be the consequence of many factors, including those related to management, environment, feeding, health, etc. Under the conditions of this study, the reduced frequency of injured tails after *Lawsonia intracellularis* vaccination compared to non-vaccinated pigs highlights that subclinical infection with LI might play a role in the context of tail lesions and shows that vaccination may be an alternative to confer partial protection. Similar results were obtained by Del Pozo Sacristán et al. (2) and Schynoll et al. (3). The reason for this observation could probably be the impact of an LI infection on the gut microbiota (4). Due to the gut brain axis, the microbiota and their disturbance can influence the pig's behaviour systematically and not only locally (5).

## References

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