

Zootechnical performance and return on investment in animals vaccinated against proliferative enteropathy on a commercial pig farm in Brazil

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Background and Objectives

Proliferative enteropathy is an endemic disease caused by *Lawsonia intracellularis* with a prevalence of 75% in Brazilian pig farms. This disease has economic impact and can reduce daily weight gain by 20.8% and increase feed conversion by 20.4%. The vaccination has been shown to be an important tool for control this disease. The aim of this study was to evaluate the effect of vaccination in zootechnical and economic performance compared with non-vaccinated pigs in a commercial farm.

Material and Methods

Piglets from a positive farm for *L. intracellularis* were divided in two groups, negative control (n = 120) and vaccinated group (n = 120). The animals were randomized in block design and Porcilis® Ileitis vaccine (2mL, IM at neck, Merck Animal Health, Madison, NJ, USA) was administered at 24 days old at vaccinated group. The animals were weighed individually at 63 (nursery exit), 120 (growing-finishing transition) and 156 days old (slaughter). Daily feed intake (DFI), daily weight gain (DWG), feed conversion ratio (FCR) and return on investment (ROI) were measured. Data were submitted to ANOVA using the Minitab 19 statistical program. Differences with $p < 0.05$ were considered statistically significant.

Results

Lower FCR were observed for vaccinated pigs considering the interval between 120 and 156 days old (2.143 vs. 2.341; $p = 0.005$), and the entire evaluation period (1.940 vs. 2.015; $p = 0.011$). In addition, vaccinated pigs were 2.52 kg heavier at slaughter ($p = 0.454$, not significant). About economic analysis, vaccination results in a gain of R\$ 37.50/pig and a ROI of 7.11 times the initial cost. The cost efficiency index (CEI, ratio between costs from both groups) shows an improvement of more than 26% for vaccinated pigs.

Discussion and conclusion

According to the results, vaccination results in greater productive and economic efficiency. One potential explanation for these results comes from the type of diarrhea caused by *Lawsonia intracellularis*, which is malabsorptive. The bacteria act on enterocytes, leading to cell proliferation and consequently an increase in immature cells with worse absorptive capacity. Vaccination is a proven tool for improving both clinical and subclinical proliferative enteropathy.

¹ Armbruster et al. 2013. Evaluation of Tylan in a finishing pig subclinical ileitis challenge model. AASV. Pp. 237-242.

² Baldasso et al. 2022. Serology by Flow Cytometry: a smart strategy to assess *Lawsonia intracellularis* circulation in pig farms. 26^o Internacional Pig Veterinary Society (IPVS). p.356.