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## Effect of different vaccination protocols against *L. intracellularis* on the performance and welfare of piglets in the nursery phase in Brazil

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### Introduction

Ileitis is a disease caused by *Lawsonia intracellularis* (LI), responsible for economic damage for pig farmers and health problems in pigs. Currently, there are two vaccines commercially available in Brazil for the prevention on ileitis. The objective of this study was to measure the impact of two LI vaccines on zootechnical and animal welfare indices in the nursery phase.

### Materials and Methods

This study was carried out in a farm in Brazil. One hundred and eighty pigs were evaluated during the nursery phase (22 to 64 days of life). Three vaccination protocols were investigated with different combinations of Porcine Circovirus type 2 (PCV2), *Mycoplasma hyopneumoniae* (Mhyo) and LI vaccines. (Table 1).

**Table 1:** Vaccine protocols by group: A (live oral vaccine, LI), B (injectable vaccine, LI), C (no vaccine for LI)

	A	B	C
<b>Day 0 – nursery (beginning of the study) – 22 days of age</b>			
Vaccine:	PCV2 (1mL)	PCV2	PCV2 (1mL)
PCV2 and Mhyo	Mhyo (1mL) <sup>2</sup>	Mhyo (RTU)	Mhyo (1mL) <sup>1</sup>
Frequency, dose, route	Single dose: 2mL – IM	Single dose: 2mL – IM	Single dose: 2 mL - IM
Adjuvant	ImpranFLEX®	Mineral oil	-
<b>Day 8 – 29 days of age</b>			
Vaccine: LI	Live	Dead bacterin	Saline solution 0,9%
Frequency, dose, route	Single dose (2ml) Oral	Single dose (2ml) IM	Single dose (2ml) IM

<sup>1</sup>Vaccine PCV2 and Mhyo were mixed at the time of application, as recommended by the manufacturer.

Rectal temperature was measured at the following times: pre-vaccination (D7), post-vaccination D8 (+8 h) and at D8 (+24 h). The welfare assessment was performed by analyzing the behavior of the animals in all pens, according to Weimer (1).

### Results

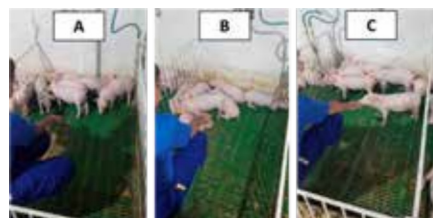
The mean rectal temperature of the pigs from treatment B, 8 hours post vaccination, was 1.31°C higher (P<0.05) than that of the pigs from treatment A (Table 2). The pigs from treatment B showed 4.6 and 1.7 times more individuals lying down compared to those from

treatment, at 4 and 12 hours after vaccination respectively (P <0.05; Figure1).

**Table 2.** Rectal temperature (°C) of pigs from groups, one hour before vaccination for *Lawsonia*.

Time	A	B	C
-1h D0	39.11	39.19	39.15
D0 + 8h	39.59 <sup>b</sup>	40.90 <sup>a</sup>	39.51 <sup>b</sup>
D1	39.44 <sup>b</sup>	39.69 <sup>ab</sup>	39.47 <sup>b</sup>

a-b: different letters in the lines represent a statistically significant difference (P<0.05)



**Figure 1.** Pig's behavior 12 hours post vaccination by group.

Pigs from Group A were heavier (528 grams) in the final weight of the nursery phase and had 12 grams higher ADWG in this phase (Table 3).

**Table 3.** Animal's zootechnical performance in the nursery phase: weight (Kg) and ADWG (gram/day)

Parameters	A	B	C
Average initial weight (22d)	6.344	6.342	6.345
Average final weight (63d)	24.769	24.241	24.976
ADWG	438	426	443

### Discussion and Conclusion

The oral live attenuated LI vaccine in combination with a watery based IM PCV2 and Mhyo combination, did not harm the animals' well-being and performance. On the other hand, the injectable vaccine for LI in combination with a mineral oil based PCV2 and Mhyo combination, caused systemic adverse reactions, like an increased rectal temperature, with a negative impact on animal welfare and zootechnical indices (lower ADWG). When evaluating vaccine interventions, differences in adjuvant platform and its direct effect on pigs should be taken in account for a sustainable way of pig vaccination.

### References

- Weimer, SL. et al. 2014. J of Swine Health and Production, 22 (3):116-124.