

REDUCTION OF THE MORTALITY RATE USING A *CLOSTRIDIUM NOVI* VACCINE

Herve¹, G.; De Cleer², J.; Boix^{*3}, O.

*Corresponding author (oriol.boix@hipra.com)

¹ EPIDALIS-Réseau Cristal, ² HIPRA FRANCE, S.A.S., ³ HIPRA, Amer (Girona) Spain.

INTRODUCTION

Clostridium novyi is an anaerobic, spore-forming, gram-positive rod and ubiquitous bacteria in swine farms(1,2). Beyond that, *Clostridium novyi* alpha toxin is the responsible of porcine infectious necrotic hepatitis and sudden death in sows, especially during the late states of gestation and the peripartum(3). Its diagnosis consists in a rigorous postmortem inspection followed by a collection of the liver parenchyma for a subsequent molecular diagnosis using a PCR test. The aim of this study was to evaluate a commercial subunit vaccine containing the α toxin of *Clostridium novyi* as a sudden death prevention tool.

MATERIALS AND METHODS

This study was conducted in a farrow to finish French farm of 360 sows after reporting an increase of the incidence of the mortality rate during 2018, increasing up to 11.6%. The mortality occurred without any specific clinical signs. Systematic necropsies were performed, and the most relevant findings were swelling of the abdomen and degeneration, emphysema and brown colouring of the liver(4). To confirm the diagnosis, a PCR was carried out and the presence of the gene encoding the α toxin of *Clostridium novyi* type B was detected. The whole farm was vaccinated with SUISENG[®] following the manufacturer's instructions. To evaluate the vaccine's efficacy, the sow mortality rate was compared between two different periods being Period A from January 2018 until January 2019, when no *Clostridium novyi* vaccines were used at the farm, and Period B ranged from February 2019 until December 2019, when the farm started the vaccination with SUISENG[®]. Finally, a Wilcoxon test was performed to compare the two periods.

RESULTS

As it is shown, after the new vaccination protocol established, the mortality rate decreased in 2019 from 4 (SD \pm 2.3) to 2.2 (SD \pm 1.6) sows per month (p-value < 0,05) (Fig.1).

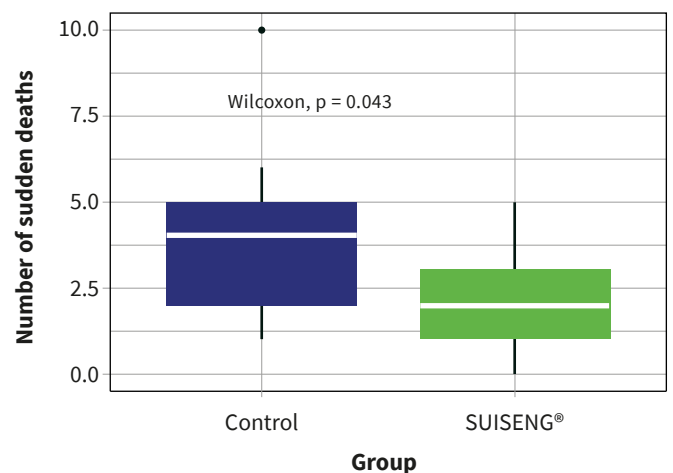


Figure 1. Comparison of the average number of sow mortality rate of period A (blue) and period B (green).

CONCLUSIONS AND DISCUSSION

Sow mortality is a growing concern on pig farms. There are multiple causes behind it, such as *C. novyi*. It is remarkable to highlight the importance of having a good diagnosis of Clostridia disease in order to identify the mortality source. These results demonstrate the importance of the implementation of a vaccination program against *Clostridium novyi* as a primary measure to reduce the incidence of sudden death in commercial farms.

REFERENCES

1. Taylor DJ. Clostridial infections. OM: Straw BE, D'Allaire S, Mengeling WL, Taylor DJ, eds. *Diseases of swine*.
2. Bernal I et al. Detection of *Clostridium novyi* Type B Alpha Toxin antibodies in swine sera in Spain. ESPHM proceedings 2017; BBD-065
3. Songer G. 2012. *Diseases of swine*, 10th ed: 717-718.
4. Akyama N. et al 2017 Fatal *Clostridium novyi* Type B Infection in a Sow