

EFFECTS OF A NEW VACCINE AGAINST *CLOSTRIDIoidES DIFFICILE* AND *CLOSTRIDIUM PERFRINGENS* TYPE A ON THE INCIDENCE OF DIARRHOEA AND ANTIBIOTIC TREATMENTS UNDER FIELD CONDITIONS.

Gibert*, X.; Puig, A.; Sabaté, D.; Vidal-Mas, J.; March, R.

HIPRA, Amer (Girona), Spain.

*Corresponding author: xavier.gibert@hipra.com

BACKGROUND & OBJECTIVES

Enteric pathogens such as *Clostridioides difficile* and *Clostridium perfringens* Type A are responsible for significant production and economic losses in piglets during the first week of life¹. Due to the restriction of antimicrobials in animal production systems, the control of enteric, pathogen-induced diarrhoea in piglets should be based on sow vaccination and the passive immunization of piglets. The objective of the present study was to evaluate the passive protection of neonatal piglets by means of the vaccination of sows with a new vaccine (Diff/A), assessing the incidence of diarrhoea and antibiotic treatments applied under field conditions.

MATERIALS AND METHODS

Two farms in Europe using *E.coli* and *C.perfringens* type C vaccines but still suffering from neonatal diarrhoea were included in a randomized, negative-controlled and blinded field trial. The inclusion of the farms was based on exhaustive differential diagnosis combining histopathology, microbiological culture and molecular techniques. *C. difficile*, *C. perfringens* Type A and Rotavirus were detected from the faeces of sick animals using a selective media for Clostridia and Real Time PCR. Products were intramuscularly administered following the vaccination schedule (Figure 1).

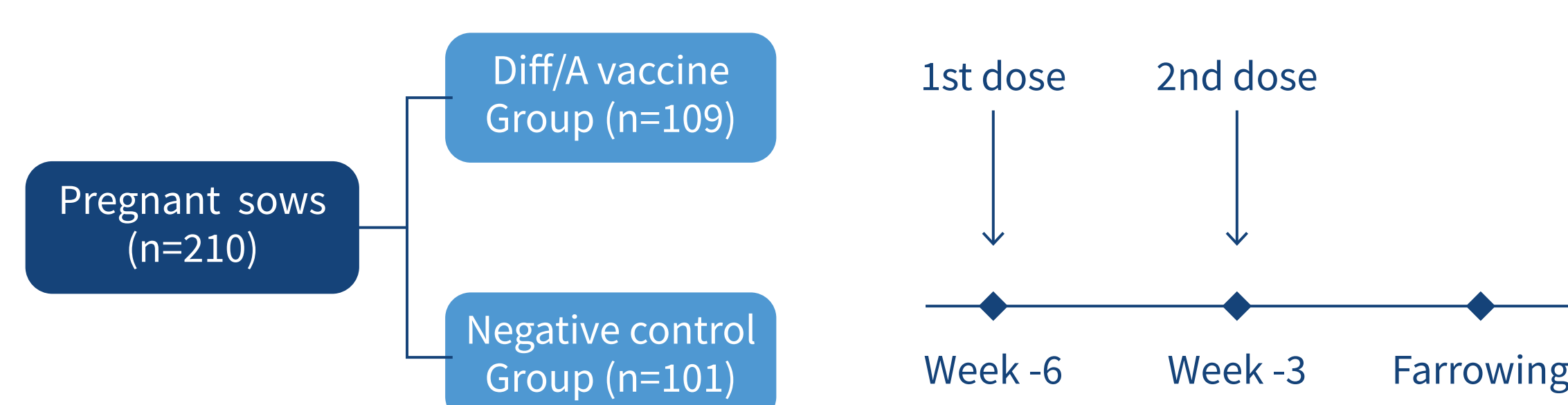


Figure 1. Study design and vaccination schedule.

The mean incidence of neonatal diarrhoea (expressed as the percentage of piglets affected during the first 7 days of age) was compared between groups. The percentage of animals treated with antibiotics against diarrhoea up to 28 days of age was also recorded on one farm.

RESULTS

The incidence of neonatal diarrhoea was significantly reduced in the Diff/A group (Table 1).

Table 1. Incidence of neonatal diarrhoea.

	GROUPS	RESULT	REDUCTION	P-VALUE ¹
Sows with litters with diarrhoea	Control Diff/A	60.4% 45.9%	↓ 24%	0.032
Piglets with diarrhoea / litter	Control Diff/A	24.5% 16.8%	↓ 31%	<0.0001
Piglets with diarrhoea / batch	Control Diff/A	23.0% 15.2%	↓ 34%	0.025

¹ Generalized mixed model with a binary response variable considering the farm as a random effect. Results are significant if $p < 0.05$.

Additionally, a significant reduction of 23% of animals treated with antibiotics was demonstrated in the vaccinated litters (Figure 2).

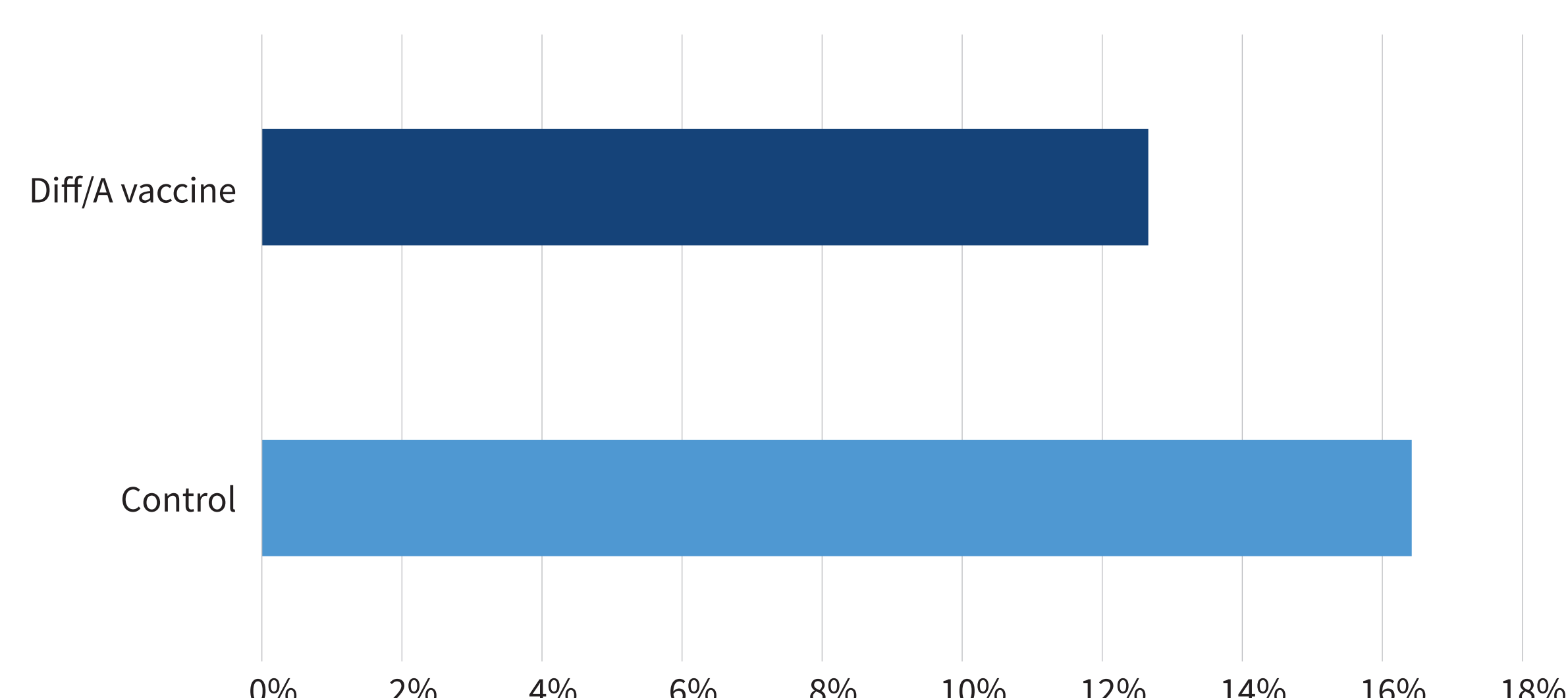


Figure 2. Antibiotic treatments against diarrhoea.

DISCUSSION & CONCLUSION

According to the results, it is concluded that immunization of sows with Diff/A reduces the incidence of diarrhoea and productive losses caused by *C. difficile* and *C. perfringens* Type A. Moreover, it also reduces the proportion of animals treated with antibiotics.

REFERENCES

¹ Baker, A et al., 2010. Environmental Microbiology, p. 2961–2967 vol. 76, no. 9