DECREASE OF SOW MORTALITY USING A 
*Clostridium novyi* VACCINE

C Rojo¹, I Rodríguez-Ballarà², J Maldonado²

Technical Services, Agrosuplidores fl, Venezuela³, HIPRA, Amer, Spain², isaac.rodriguez@hipra.com

**INTRODUCTION**

*Clostridium novyi* (Cn) is an anaerobic, spore-forming, gram-positive rod and ubiquitous bacteria in swine farms¹. Cn is a normal inhabitant of the posterior gut and liver of pigs³. However, during a disease outbreak, spores in the liver become vegetative and produce toxin. Cn has been associated with sudden death in sows¹. A correct diagnosis is depending upon the appreciation of the gross pathologic appearance, and an understanding of the factors of laboratory outcomes. This diagnosis is highly dependent on time, since toxin production produce a rapid decomposition of the carcass. Therefore diagnosis of Cn infection in sow is usually missed². Three avenues have been proposed for control of Cn infection². First is to prevent predisposing liver disease. Second is the use of antibiotics. Third is through vaccines³⁴.

Company located in Venezuela had a historical high index of sow mortality. They implemented a *Clostridium novyi* vaccination to diminish this mortality.

**MATERIALS AND METHODS**

An increase of sow mortality was reported in a multi-site swine production system with 9000 sows located in different areas of Venezuela. The historic average of sow mortality among the sites was 4%. Systematic necropsies were performed in all sudden death sows. Clinical signs observed were submandibular edema, pulmonar edema, and serosanguineous exudate in the respiratory tract, so clinical signs compatible with a clostridial septicemia in adult animal. This increase of sow mortality was linked with soil works carried out in some farms in order to be enlarged and amplified.

Firstly predisposal factors were evaluated: soil movements (reactivation of clostridial spores), endoparasites and vitamin E levels.

All the sows were vaccinated and revaccinated massively 3 weeks apart with an inactivated vaccine which contains adhesins and LT toxin for *E.coli*, *Clostridium perfringens* β toxin, and *Clostridium novyi* α toxin (HIPRA). After one month of the revaccination a routine vaccination program was started, vaccinating sows at 30 days before farrowing and vaccinating sows at 30 days respectively. In addition to this vaccination program, an intensive disinfecting plan with peroxides and quaternary ammoniums was implemented in order to reduce the environmental Clostridium pressure. Besides soil movements were not recommended.

**RESULTS**

After the action plan implemented, the sow mortality was significantly reduced. The average cumulated mortality rate decrease from 8% to 1% in 11 weeks.

**Fig.1:** Evolution of the average percentage of sow mortality rate.

**DISCUSSION**

The appearance of anatomopathologic findings suggested that the increase of sow mortality was linked with a Clostridia infection. Laboratory diagnostic was not able to be performed, since in the labs of the area the clostridia isolation was not available. Furthermore the culture of Clostridium novyi is difficult and positive culture does not indicate that this is the cause of the problem, since Cn is a normal habitant of different tissues of the animal²³. Decrease of mortality after to implement the vaccination program and disinfecting plan measures was significant. Therefore the connection among decrease of mortality and vaccination indicate that Cn would be the main responsible of this sow mortality, since Cn is the only antigen in the vaccine indicated for sows.

Besides the efficacy of Cn inactivated vaccine to control sow mortality outbreaks has been demonstrated. Therefore vaccination with inactivated Cn vaccines is a primary measure to prevent high sow mortality rates in farms³⁴. Otherwise Cn laboratorial diagnostic should be improved in order to help in the diferencial diagnostic of sow mortality causes.

**REFERENCES**

2. Reeves, D E. AASV 2002.
4. Amimoto, K et al., 1998.