

## 42. Reduction of antibiotic use after implementation of Ingelvac® PRRS MLV piglet vaccination in a Belgian wean to finish farm

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### Abstract

Porcine Reproductive and Respiratory Syndrome (PRRS) infections play an important role in Porcine Respiratory Disease Complex (PRDC). The aim of this study was to evaluate the effect of implementing a PRRS MLV vaccine, as an aid to control PRDC, on the antibiotic use in piglets and fatteners.

The study was performed in a wean-to-finish farm. Piglets were vaccinated upon arrival. In 2012, piglets were only vaccinated against *Mycoplasma hyopneumoniae* (*M. hyo*) with Ingelvac MycoFLEX®. As from 2013, Ingelvac® PRRS MLV was applied at the same time as the *Mycoplasma hyopneumoniae* (*M. hyo*) vaccine, at the other side of the neck. The reason for implementing the PRRS MLV vaccine were PRDC problems occurring at the end of 2012, including cough and poor performance in the nursery and fattening period. Presence of the PRRS virus was confirmed by serology.

A retrospective analysis of the antibiotic use and costs was performed over a 1-year-period before implementation of PRRS vaccination, an intermediate period of 6 months (PRRS vaccinated and non-vaccinated pigs were present) and a period of 1 year in which only PRRS vaccinated pigs were present on the farm.

In the period before PRRS vaccination, 18.56 g active substance/pig place/year was used, equal to an average of 29.3 daily doses/animal year. In the transition period, the antibiotic consumption equalled 20.82 g active substance/pig place/year or 33.6 daily doses/animal year. In the period after the PRRS vaccine implementation, 12.04 g active substance/pig place/year or 13.5 daily doses/animal year was used. The antibiotic costs equalled respectively 3.40€, 4.35€, 1.85€ per pig place per year in the 3 subsequent periods.

Antibiotic use expressed in daily doses/animal year was reduced by 53.9% and antibiotic costs by 45.6% after implementation of PRRS vaccination compared to the period before PRRS vaccination. Furthermore, the use of antibiotics considered as highly important for human medicine (red class) was reduced with 97.4%. Besides the reduction in antibiotic use, an improvement of the technical performance of the pigs was also observed.

### Introduction

Infections with PRRS virus play an important role in the PRDC. The aim of this study was to evaluate the effect of implementing a PRRS modified live virus (MLV) vaccine as an aid to control PRDC, on the antibiotic use in piglets and fatteners.

### Material and Methods

The study was performed in a Belgian wean to finish farm with 800 nursery places and 1200 fattening places. All pigs originated from the same sow herd. Piglets were vaccinated upon arrival in the farm, at a weight between 6 and 7 kg. From January 1st 2012 to December 31st 2012, piglets were only vaccinated against *M. hyo* with Ingelvac MycoFLEX® (1 ml, I.M.). As from January 1st 2013, a vaccination with Ingelvac® PRRS MLV (2 ml, I.M.) was added to the vaccination scheme. This vaccine was applied at the same time as the *M. hyo* vaccine, at the other side of the neck. The reason for implementing the PRRS MLV vaccine was PRDC problems occurring end 2012, including cough and poor performance in the nursery and fattening period.

The presence of the PRRS virus was confirmed by means of serology.

A retrospective analysis of the antibiotic use and antibiotic costs was performed in following 3 study periods: a period of 1 year before the implementation of the PRRS MLV vaccine (January - December 2012), an intermediate period of 6 months in which both PRRS vaccinated and non-vaccinated pigs were present (January - June 2013) and a period of 1 year in which only PRRS vaccinated pigs were present on the farm (July 2013 - June 2014). The antibiotic consumption is expressed in average daily doses per animal year and in grams of active substance consumed per pig place per year.

Furthermore, an analysis of the type of antibiotics used in the 3 study periods was performed. For this analysis, antibiotics were classified according to the guide on responsible antibacterial consumption in pigs of the Belgian Center of Expertise on Antimicrobial Consumption and Resistance in Animals (AMCRA)<sup>(1)</sup>. In this guide, the different antibiotics available in veterinary medicine are given a color to differentiate them in terms of importance for human and animal health. The yellow, orange and red class contain respectively the antibiotics with the lowest importance, intermediate importance and highest importance for human medicine.

## Results

The antibiotic consumption in the 3 study periods, expressed in average daily doses per animal year and in grams of active substance consumed per pig place per year, is shown in table 1. In this table, also the antibiotic costs per pig place per year are indicated.

Table 2 shows the amount of yellow, orange and red class antibiotics consumed in the 3 study periods. The use is expressed in grams of active substance consumed per pig place per year.

Table 1 Antibiotic use and costs in piglets and fatteners; before, during a transition period and after implementation of PRRS MLV vaccination

Period	Average Daily Doses per animal year	Active substance (g/pig place/year)	Antibiotic costs (€/pig place/year)
Before PRRS vaccination (Jan. 2012 – Dec. 2012)	29.3	18.56	3.40
Transition period (Jan. 2013 – June 2013)	33.6	20.82	4.35
With PRRS vaccination (July 2013 – June 2014)	13.5	12.04	1.85

Table 2 Types of antibiotics used according to the AMCRA classification; before, during a transition period and after implementation of PRRS MLV vaccination

Period	Active substance (g/pig place/year)		
	Yellow	Orange	Red
Before PRRS vaccination (Jan. 2012 – Dec. 2012)	3.120	14.876	0.569
Transition period (Jan. 2013 – June 2013)	0.375	20.272	0.175
With PRRS vaccination (July 2013 – June 2014)	0.050	11.976	0.015

### Discussion

The antibiotic consumption expressed in average daily doses per animal year was reduced with 53.9% after implementation of the PRRS MLV vaccine compared to the period before PRRS vaccination, corresponding with a reduction of the antibiotic costs of 45.6%. Furthermore, the use of antibiotics considered as highly important for human medicine (red class) was reduced with 97.4% after implementation of the PRRS MLV vaccine compared to the period before PRRS vaccination.

Besides the reduction in antibiotic use, an improvement of the technical performance of the pigs was also observed.

### Conclusion

On PRRS virus infected farms suffering from PRDC, the implementation of a PRRS MLV piglet vaccination can be used as an aid to control respiratory problems, to reduce the overall antimicrobial consumption and to reduce the use of antibiotics considered highly important for human medicine.

### References

AMCRA, 2013, Formularium voor verantwoord gebruik van antibacteriële middelen, 117p.

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