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David Brown

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Assessment of PCv2 strategy box to attempt PCVAD control at a farm level

Angulo JR¹, Rodríguez JC², Díaz E.¹, Hernández J², Quijano M³, Noh M³, Gonzalez P⁴.

¹Boehringer Ingelheim Vetmedica, Guadalajara, Jalisco México; ²Private Consultan; ³Santa Maria Farm; ⁴Universidad de Autónoma de Yucatán.

Introduction and Objective

PCV2 is the cause of PMWS⁽¹⁾ and has been associated to other syndromes like PDNS⁽²⁾ and Enteric complex⁽³⁾. On these PCV Associated Diseases (PCVAD's) have described an economic impact of \$6.60 US dollar per animal in an outbreak phase⁽⁴⁾. Over the last two years, outbreaks of PCVAD's have become an important issue in some Mexican farms, causing and important effect in mortalities and growing parameters⁽⁵⁾. The objective of this study was to implement a strategic box forward to understand and attempt the PCV AD control on farm level and reduction of clinical impact.

Material and Methods

The study was conducted in a 800 sows farrow to finish farm in southeast of Mexico. This farm is PRRS positive stable and in April 2005 a PMWS and PDNS were diagnosed in the farm, the main parameters affected were mortality and grow performance, in order to reduce the economical impact of PCv2 a strategic box was implemented (Chart 1).

PHASE 1. Epidemiology understanding	PHASE 2: CONTROL STRATEGIES	RISKS FACTORS REDUCTION
<ul style="list-style-type: none"> • Diagnostic work <ul style="list-style-type: none"> ○ Clinical signs. ○ Macroscopic lesions. ○ Microscopic lesions. ○ PCV2 detection. • Production Impact <ul style="list-style-type: none"> ○ Mortality-Morbidity. ○ Cull % • Epidemiologic dynamic <ul style="list-style-type: none"> ○ ELISA / PCR / Histopathology • Integral diagnostic (other pathogens) <ul style="list-style-type: none"> ○ Identification, Real impact and dynamics of these pathogens • MONITORING PLAN 	<ol style="list-style-type: none"> 1. Management: <ol style="list-style-type: none"> a. 20 Madec's points. Measurements. 2. Other pathogens control: <ol style="list-style-type: none"> a. Respiratory: PRRSv; SIV; Mfyo; <i>Haemophilus parasuis</i>; <i>Pasteurella</i>; <i>App</i>. b. Enteric: <i>E. coli</i>; <i>Lawsonia intracellularis</i>, <i>Brachispira pilosicoli</i>, <i>Clostridium</i> 3. PCV2's Immunology and epidemiology management <ol style="list-style-type: none"> a. Sow herd immunity (Vaccination, Feed back). b. Virus load reducción. c. Virus excretion reducción d. Pig immunity (vaccination/feed additives) e. Anti-oxidants 	

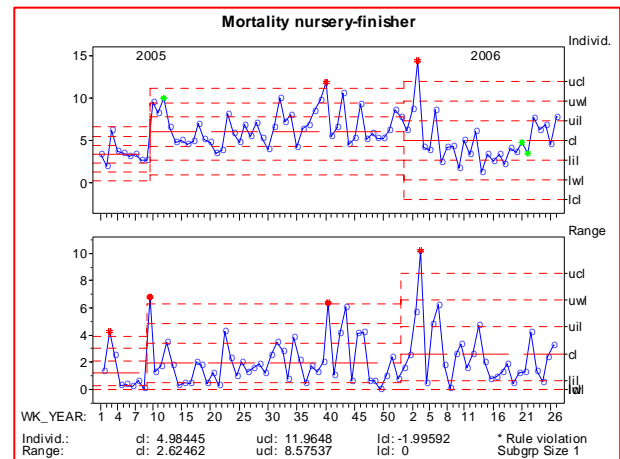
Chart 1. Strategic Box for PCV AD at a Farm level.

This plan action consist in two phases, phase one is focusing in the understanding of the problem based in diagnostic, economical impact of PCV2, dynamic of the clinical presence of PMWS and PDNS, the diagnostic of co-infection (other pathogens) in the farm and the implementation of monitoring plan, once we achieved phase 1, we moved on to phase 2 focusing on control strategies were gathered in 3 main aspects, 1: management aspects, 2: the control of co-infections targeted on phase one and 3: work on immunology and epidemiology of PCv2, all of them focusing on risk factors reduction at the farm level. The mortality rate was recording on Statistical Process Control chart.

Results and Discussion

The diagnostic process confirmed PCVAD's with the four components described by Harding et al⁽⁶⁾. The nursery-finisher mortality increased from 4% to 7.35% affecting mainly at 8 to 15 weeks of age PMWS and PDNS at 16 to 18 weeks of age. The pathogens targeted and controlled by vaccination and strategic medication reducing their clinical impact were PRRS virus, APP, *Lawsonia intracellularis* and *Samolnella sp*.

Madec's points were reviewed on the farm accomplishing 18 out of 20. A disinfectant spread process was made three times per week in nurseries and finisher facilities, a pre-sale affected pigs was made in order to reduce the viral excretion. A micotoxin sequestering, vitamin E and Selenium plus BioMOS in sow herd and pigs were used in feeding. These strategies were implemented thought 2005 and 2006, the mortalities rate were recording on SPC chart (graph 1)



Graph 1. SPC chart of Mortalities rates (nursery-finisher phase).

The mortality average on 2005 was 6.57% showing a reduction in 2006 to 4.98%. The mortality monitoring by statistical control process show only two "signals" out of range of the variability of the process, these data plus the clinical image of pigs suggest a reduction of the clinical impact of PCv2 at the farm by the understanding of clinical status and the integration of strategies focusing on the reduction of risk factors plus monitoring tools. This concept can be implemented by a strategic box helping to achieve the reduction of clinical and economical impact of Porcine Circovirus Associated Diseases.

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