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Introduction

The 16th annual European Symposium of Porcine Health Management brings together the scientific community, to overcome the challenges the European swine industry is presently facing. From the pressures of diseases to the growing global demand for a reliable food supply, it's more important now than ever to ensure a sustainable pig production. At MSD Animal Health, we believe improving efficiency is the best way forward for the swine industry. We have a strong legacy of innovating for you, that we are committed to build upon.

As a proud Gold Sponsor of this event and a significant contributor to research, we at MSD Animal Health demonstrate our long-standing dedication to pivotal topics and issues that affect swine health and the swine industry as a whole. We are driven by finding solutions that promote efficacy, enhance efficiency and empower veterinarians and producers.

In this booklet, you will find our scientific contributions that showcase our continuous efforts to promote pig welfare and productivity. This content reflects our commitment to The Science of Healthier Animals®, and we hope that you enjoy reading it.

We, and the Swine team at MSD Animal Health, wish you an enjoyable and inspiring learning experience at ESPHM 2025.

Yours sincerely,
Dr. Stephan von Berg and Rebecca Rivara

Dr. Stephan von Berg
Global Technical Director Swine
- PigCare MSD Animal Health

Rebecca Rivara
Global Regional Director, EURAM
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Oral Presentations

Correlation between *Lawsonia intracellularis* shedding and average daily gain in finishers in Danish field trial

Musse, Susanne Leth[1]
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Background & Objectives

Lawsonia intracellularis (LI) is a dose-dependent bacterial infection in pigs associated with intestinal histologic lesions at levels exceeding 4.8 log_{10} bacteria/gram feces, whilst increasing bacterial loads are negatively impacting Average Daily Gain (ADG).
The objective of this study was to evaluate the correlation between *LI* shedding and ADG in *LI*-intramuscularly-vaccinated (V) and *LI*-non-vaccinated (C) finisher pigs.

Materials & Methods

In a Danish case farm from 228 pigs (parallel groups of 112 V and 116 C finishers) in six consecutive batches individual fecal samples were collected every two weeks, starting 3 weeks prior to transfer to finisher barn (30 kg), ending 7 weeks post transfer (approx. 85 kg). Additionally, pigs were individually weighed at time of transfer and eight weeks later. Fecal samples were tested for *LI* in qPCR at Centre for Diagnostic Solutions, The Netherlands. Shedding of *LI* was evaluated as Area-Under-the-Curve (AUC) in a multilevel linear regression, taking clustering of pen and batch into account and including "*LI*-vaccination" and "antimicrobial treatment against diarrhea" as explanatory variables. Correlation between AUC and ADG was evaluated in Pearson's correlation test including only pigs with at least one sample exceeding 4.8.log_{10} bacteria/gram feces ('high-level-shedders').

Results

In total 101 pigs (32 V and 69 C) were identified as 'high-level-shedders'. Shedding, described as AUC, was significantly affected by *LI*-vaccination and treatment against diarrhea (both $p<0.001$). The AUC of V-pigs was reduced by 39% compared to C-pigs. The correlation between AUC and ADG was only significant in the C-group (R=-0.362, $p=0.002$), not in the V-group (R=-0,162, $p=0.376$), indicating that the negative impact of increasing bacterial loads only existed for non-vaccinated pigs.

Discussion & Conclusion

Intramuscular *LI* vaccination reduced the total *LI* shedding. However, in this study of co-mingled pigs, it did not eliminate the infection. Data indicates that *LI*-intramuscularly-vaccinated pigs are more robust and ADG is less affected at increasing bacterial levels.

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IntestiPIG

Influence of *Lawsonia intracellularis* vaccination on the frequency and severity of tail lesions in fattening pigs

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Background & Objectives

The pathogen *Lawsonia intracellularis (LI)* is the causative agent of an important intestinal disease in pigs. *LI* and it's prevention by vaccination has been anecdotally connected to a reduction in cannibalism. The aim of this study was to describe the impact of a *LI* infection and vaccination on frequency and severity of tail lesions in a subclinically *LI*-infected farm by systematic observation.

Materials & Methods

A farrow-to-finish German farm with subclinical *LI* infection (determined by serology and PCR) and history of tail biting was selected for this side-by-side controlled study. In total, 854 piglets were included and divided in 2 groups (separate pens): vaccinated (Porcilis® Lawsonia at 6-7 weeks) and unvaccinated control piglets in 6 consecutive batches (Figure 1).

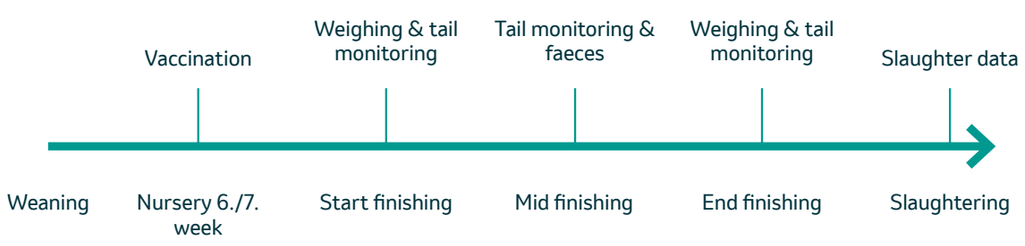

Figure 1: Observation timeline

A score system (Table 1) described by Abriel 2017 (1) was used to score tail lesions in each individual pig during the fattening period. Tail lesions were recorded at beginning, half-way, and end of fattening period. The Mantel-Haenszel test was used for statistical analysis.

Injuries		Bleeding		Swelling		Partial losses	
0	No injury detectable	0	None	0	None	0	No partial loss
1	Scratches, light bite marks	1	Freshly occurred	1	Clearly visible	1	Up to 1/3 partial loss
2	Small-area injuries					2	Up to 2/3 partial loss
3	Large-area injuries					3	Over 2/3 partial loss

Table 1: Scoring scheme for injuries, bleeding, swelling and partial loss of the tail (Abriel 2017)

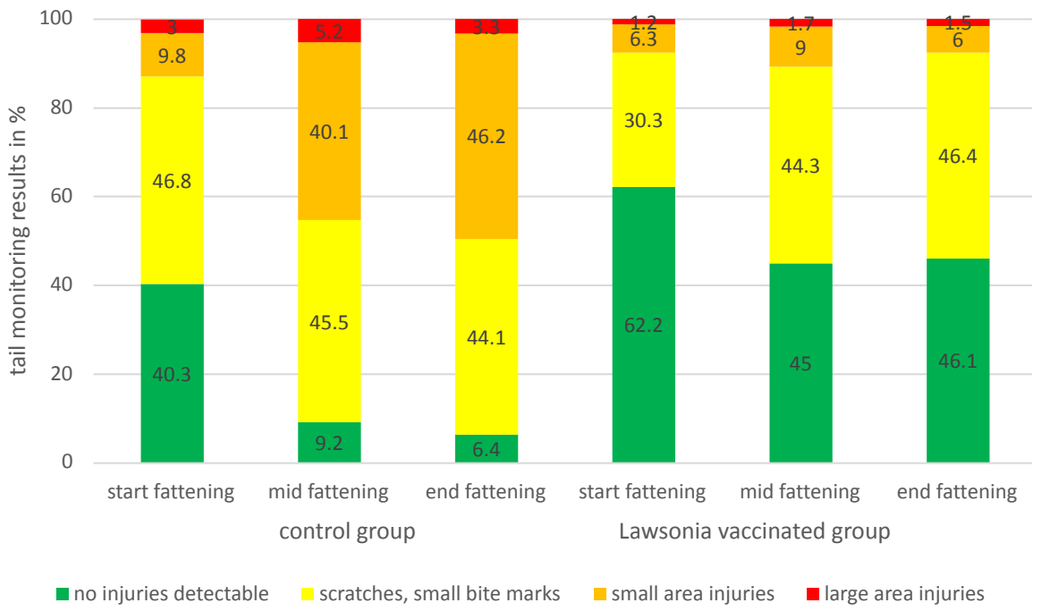

Table 2: Tail scoring results of pigs in control groups and vaccinated groups (p<0,0001)

Results

Average starting weight (controls: 34.6; vaccinated: 34.6 kg) and animal losses were (controls: 2.57%; vaccinated: 2.82%) similar. Over all 6 batches, vaccinated groups had a statistically higher ADWG than unvaccinated groups (943 vs. 921 g/d; p 0.011).

Tail scoring showed significantly fewer injuries, swellings, bleedings and partial losses during the entire fattening process in vaccinated pigs compared to controls (Figure 2). From the beginning of fattening, injuries were observed in the control and vaccination group. Towards the end of fattening, the frequency of injuries in the control group increased, whereas in the vaccinated groups it decreased. At the end of fattening, the proportion of injured tails (small and large areas) was 49,5 % in the non-vaccinated group and 7,5 % in the vaccinated group (P<0.0001).

Discussion & Conclusion

Tail lesions may be the consequence of many factors, including those related to management, environment, feeding, health, etc. Under the conditions of this study, the reduced frequency of injured tails after *Lawsonia intracellularis* vaccination compared to non-vaccinated pigs highlights that subclinical infection with *LI* might play a role in the context of tail lesions and shows that vaccination may be an alternative to confer partial protection. Similar results were obtained by Del Pozo Sacristán et al. (2) and Schynoll et al. (3). The reason for this observation could probably be the impact of an *LI* infection on the gut microbiota (4). Due to the gut brain axis, the microbiota and their disturbance can influence the pig's behaviour systematically and not only locally (5).

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Estimation of *Lawsonia intracellularis* infectious pressure in pig farms suspected of subclinical ileitis in France

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Introduction

Lawsonia intracellularis (L.i.) is a worldwide enteric pathogen causing ileitis in pigs in acute, chronic, or subclinical forms. Several publications reported a negative correlation between *L.i.* fecal load, serology and growth performance in pigs, even in the absence of clinical signs (1,2,3). This study describes *L.i.* infectious pressure assessment, on 41 pig farms, using both PCR on saliva and ELISA serology.

Materials & Methods

Twenty-seven French practitioners selected farms suspected of having the subclinical form of the disease. On the finishing unit of these farms, they carried out a cross-sectional profile at 3 different ages:

- **Age 1:** pigs fattened for around 2 to 4 weeks
- **Age 2:** pigs fattened for around 5 to 7 weeks
- **Age 3:** pigs aged around 18 to 20 weeks.

From each of these 3 production batches, 2 oral fluids (OFs) and 8 sera were collected in a single session. The vets indicated the time required to take the samples.

OFs were tested by qPCR (BactoReal® Kit, Ingenetix) with a cut-off of 50. A Ct below 34 was considered highly positive. Sera were tested by ELISA (Svanovir® *L.i.* / Ileitis-Ab) with a cut-off of 30. A percentage of inhibition greater than 60% was considered highly positive. For each sampling age, ELISA results interpretation was conducted not on individual outcomes, but on the average value of the tested pigs.

Results

A total of **41 farms and 123 batches were included between October 2023 and November 2024.** The time required for sampling ranged from 1 to 1.5 hours, depending on the farm. The characteristics of the 3 sampling ages, oral fluid PCR and ELISA serology results are detailed in table 1, 2 and 3 respectively.

Of the 41 sites tested, 19 (46%) showed long-lasting *L.i.* PCR infection (at least 2 ages with Ct < 34) associated with intense seroconversion (at least one date with ELISA Inhib% mean > 60). An example (farm 2MJ) is shown in figures 1 and 2.

	Mean	**Median**	Minimum	Maximum
Age 1	11.5	**12**	7	15
Age 2	15.2	**15**	10	18
Age 3	19.6	**20**	14	24

Table 1: Mean, median and extreme values for the 3 sampling ages in 41 pig farms, expressed in week.

Farms with no PCR result below 34	6 (14.5%)
Farm with a PCR result below 34 on a single age	13 (31.5%)
Farm with a PCR result below 34 on 2 different ages	18 (44%)
Farms with a PCR result below 34 on 3 different ages	4 (10%)

Table 2: Proportion of farms in which a highly positive PCR outcome (Ct<34) was detected at 0, 1, 2 or 3 sampling date.

	Age 1	Age 2	Age 3
Farms with mean of ELISA Inhib % more than 30 (positive) at…	34%	58%	95%
Farms with mean ELISA Inhib % more than 60 (highly positive) at…	12%	31%	70%

Table 3: Percentage of farms with positive or highly positive average ELISA at age 1, 2 or 3.

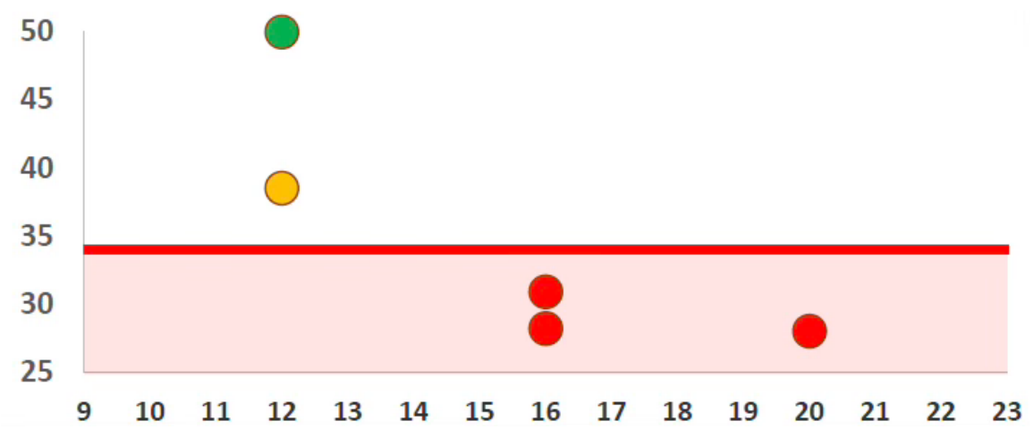

Figure 1: Lawsonia qPCR on OFs: results for farm 2MJ. X axis = age of pigs (weeks); Y axis = Ct for each OFs.

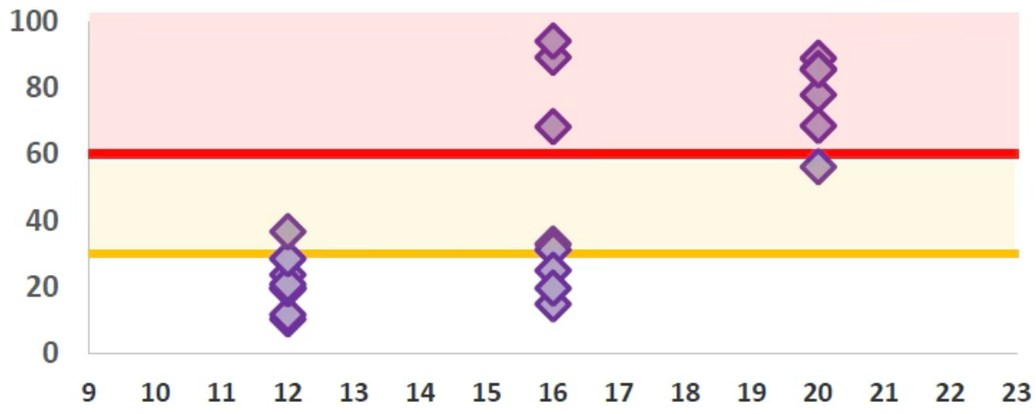

Figure 2: Lawsonia ELISA: results for farm 2MJ. X axis = age of pigs (weeks); Y axis = inhibition % for each individual pig.

Discussion & Conclusions

The study was carried out on pig farms with disappointing fattening performance, although technical and nutritional aspects were monitored. In the condition of this study, a highly positive *L.i.* PCR was detected on several ages in 54% of farms. Intense seroconversion was detected in 70% of farms. **46% of farms showed both criteria simultaneously (long lasting infection + intense seroconversion).**

Several studies have shown that subclinical *L.i.* infection is correlated with a deterioration in growth performance, particularly when it is early, intense, and prolonged (1,2,3).

The combination of ELISA tests on serum and PCRs on oral fluids, performed in a single session and a cross-sectional profile, gives the practitioner a global assessment of *L.i.* infectious pressure in the finishing unit and helps to evaluate the risk of subclinical ileitis.

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3. Pedersen et al. Acta Veterinaria Scandinavica 2012, 54-58

MSD Animal Health

Effect of intradermal vaccination against *Lawsonia intracellularis* on finishers performance in a chronically infected farm

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Background & Objectives

The objective of this trial was to evaluate the effect of an intradermal vaccination against *Lawsonia intracellularis* on productive and economic performance in finishing pigs.

Materials & Methods

The trial was conducted in a commercial 2,000-sow farm located in the South of Spain. Recurrently, from 70-80 kg onwards, pigs were showing growth retardation, negatively affecting the farm's performance. Sporadically, some cases of soft feces were observed. Chronic infection was confirmed by the detection of *L. intracellularis* by qPCR testing in feces.

It was decided to intradermally vaccinate 30.000 piglets with Porcilis® Lawsonia ID, using the IDAL™ device. Vaccine was administered simultaneously with PCV2 vaccination (mixed with Porcilis® PCV ID), at 21 days of age.

To determine vaccine efficacy, a historical comparison was performed, comparing animals before (n=23.081; non-vaccinated; NV) and after (n=23.192; vaccinated; V) implementation of vaccination. Clinical signs and performance data were recorded during fattening in the same 10 finishing barns (statistical unit) during both periods. Performance data was analyzed by ANOVA test, including starting weight as covariance. An economic analysis was also performed.

Results

Growth retardation was observed only in control pigs. No diarrhea was described in any of the study groups.

There were statistical differences in fattening entry weight between groups, with + 1,55 kg in the NV group (V 21,02 kg vs. NV 22,57 kg; p<0,005).

Weight at slaughter was similar between groups but vaccinated reached slaughter weight 5,43 days earlier (NV: 119,85 d; V: 114,42 d; p<0,05).

ADWG was numerically higher in vaccinated animals (NV: 791,7 g/d; V: 837,6 g/d).

Vaccinated batches showed less mortality, although not significant.

FCR and carcass performance did not show differences between groups.

All data are summarized in Table 1.

	Vaccinated	Control	
Nº animals	23.192	23.0881	
Entry weight (kg)	21,02	22,57	p<0,005
End weight (kg)	116,79	117,19	n.s
Days to slaughter	114,42	119,85	p<0,05
F.C.E	2,42	2,44	n.s
ADWG (g/d)	837,6	791,7	n.s
Mortality (%)	3,19	4,03	n.s

Table 1: Performance data of vaccinated and not vaccinated batches at fattening units

In terms of profitability, vaccinated animals showed an estimated extra benefit of 1,62€, including the cost of the vaccine.

Discussion & Conclusion

Under the conditions of this study, piglet's intradermal vaccination against *L. intracellularis* was an efficacious tool to improve productive and economic performance in finishing pigs.

MSD Animal Health

Value of long-term data recordings for evaluation of vaccination efficacy in herds subclinically infected with *Lawsonia intracellularis*

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Background & Objectives

Lawsonia intracellularis (LI) has, besides its relevance as intestinal clinical pathogen, a well described subclinical facete. The *LI* vaccination showed in numerous clinical cases improved performance data like average daily weight gain (ADWG), reduced animal losses, etc. Following these observations, farmers and vets often use simple performance checks on the vaccination efficacy. The aim of this study was to illustrate variations on performance data of unvaccinated and *LI* vaccinated batches in a subclinical *LI* infected farm.

Materials & Methods

A controlled, side-by-side study was performed in a fattening farm with a history of subclinical *LI* infection. In total, 6 consecutive fattening batches (141-142 pigs/batch) were included, in which half of the piglets were left unvaccinated (controls) and half *LI* vaccinated (Porcilis® Lawsonia) at 6-7 weeks.

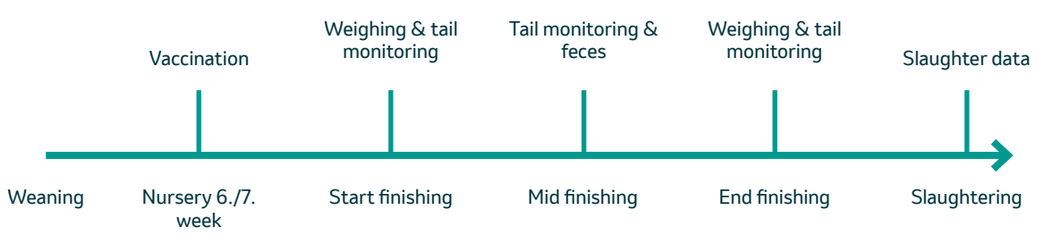

Figure 1: Observation Timeline

Individual weight was recorded at the beginning and at the end of fattening period. The Wilcoxon-Mann-Whitney-U test, two-sided, was used to statistically examine the results.

Results

Average starting weight (controls: 34.6 kg; vaccinated: 34.6 kg) and animal losses (controls: 2.57%; vaccinated: 2.82%) were similar.

Batch cycle		1	2	3	4	5	6
Control	n	72	71	72	71	71	71
	kg (Ø)	34.6	32.8	34.3	32.5	35.1	38.4
Vacc.	n	72	71	71	71	71	70
	kg (Ø)	33.4	33.8	34.9	33.6	33.8	38.0

Table 1: Initial weights per fattening batch

Over all 6 batches, vaccinated groups had a statistically higher average daily weight gain (ADWG) than unvaccinated groups (943 vs. 921 g/d; p 0.011).
The ADWG was also higher in 4 out of 6 single batches (15 - 57 g/day). But in 2 batches, ADWG was very similar with a difference of only 1 to 5 g/day (Figure 2).

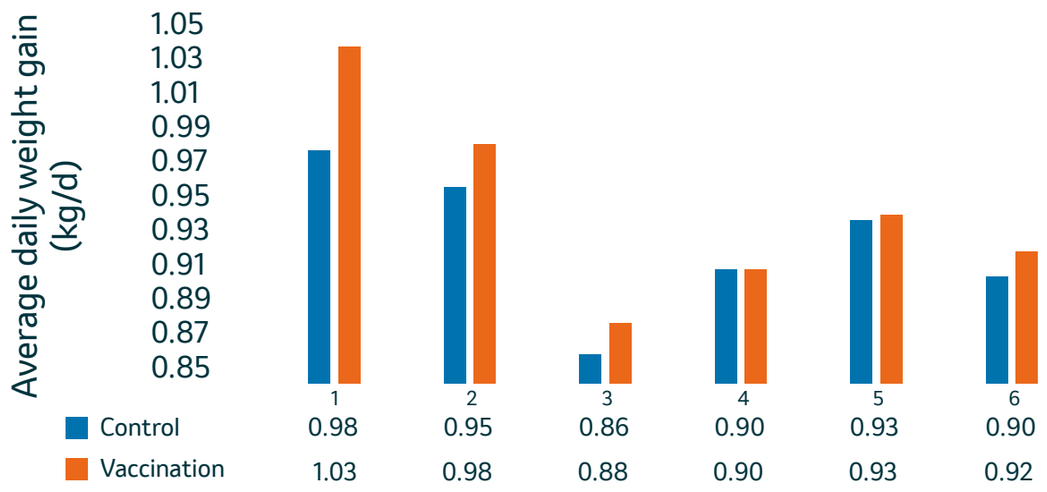

Figure 2: ADWG (kg/day) of the six consecutive fattening batches

Discussion & Conclusion

Farmers and vets are generally aware of variability and limitations of performance data in pig farms, especially when only group weights are available. But often due to practical reasons, this low-quality data is used to make conclusions about the efficacy of interventions such as vaccinations. In this farm, evaluation of vaccine efficacy at a single batch level would have led to wrong conclusions in one third of the batches investigated. Therefore, systematic long-term data recordings are recommended, especially in subclinical situations to make differences visible.

MSD Animal Health

Impact of *Lawsonia intracellularis* vaccination on biodigester performance

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Background & Objectives

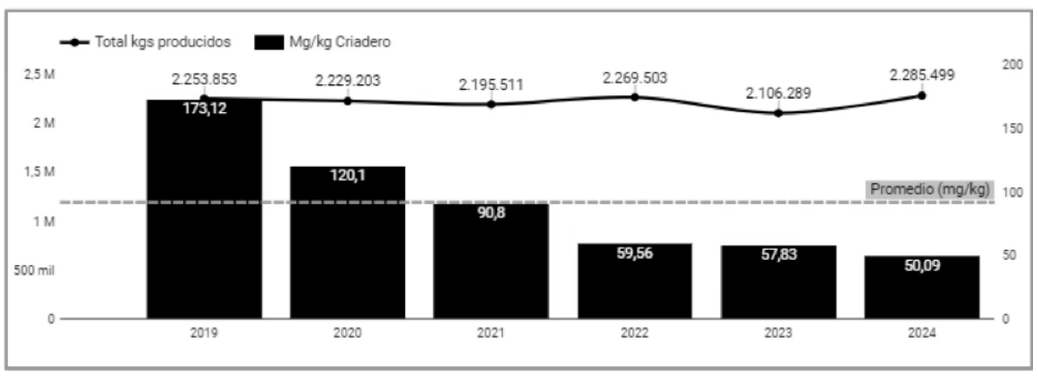
Composting in biodigesters is a renewable energy source that allows recycling of nutrients, leading to environmental, quality of life and economic improvements. The aims of this study were to evaluate the impact of *Lawsonia intracellularis (LI)* vaccination on antimicrobial consumption and its impact on the efficiency and performance of the farm biodigester.

Materials & Methods

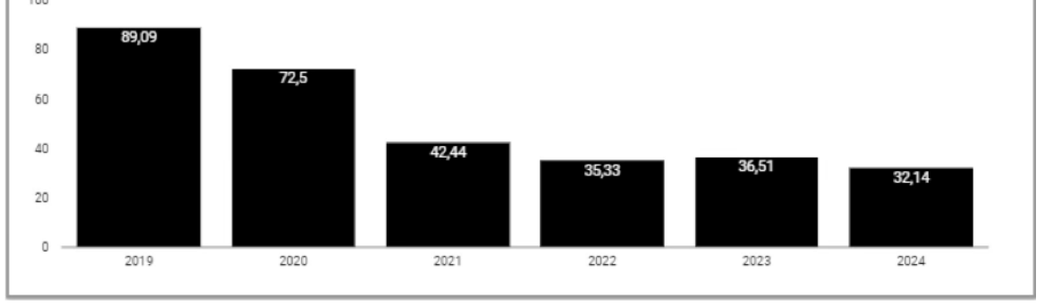
A farm (6,300 sows) with a history of lleitis and operating a biodigester for manure processing was followed up from August 2020 to March 2023. Intramuscular *LI* vaccination (Porcilis® lleitis) was implemented in November 2021 to control clinical disease. A historical comparison was done comparing a period before (Aug 20-Nov 21) and after (Dec 21-Mar 23) implementation of vaccination. Antibiotic consumption and energy production of the biodigesters were measured in mg/kg and Megawatts produced (MW) per biodigester, respectively. The relationship between both variables was investigated by a linear model (Statgraphics Centurion XVI).

Results

Antimicrobial consumption was reduced after vaccine implementation (before: 146,61 mg/kg; after: 64,57 mg/kg). Similar findings were described for antimicrobials used against enteric disorders (before: 80,8 mg/kg; after: 36,6 mg/kg).



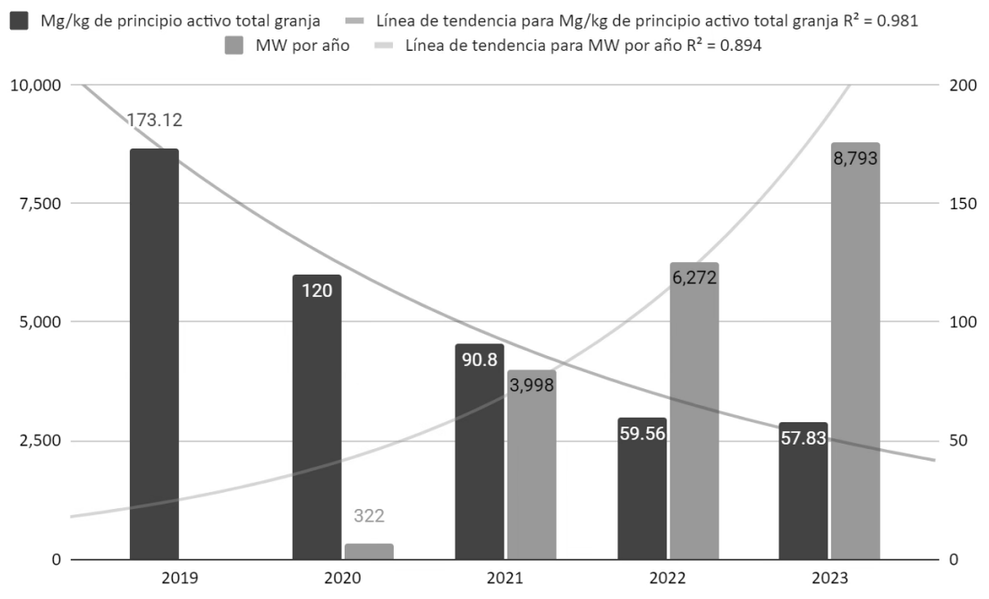
Graph 1: Evolution of antibiotic consumption (mg/kg) over the years.



Graph 2: Evolution of antibiotic consumption (mg/kg) for the control of digestive diseases over the years.

Results - continued

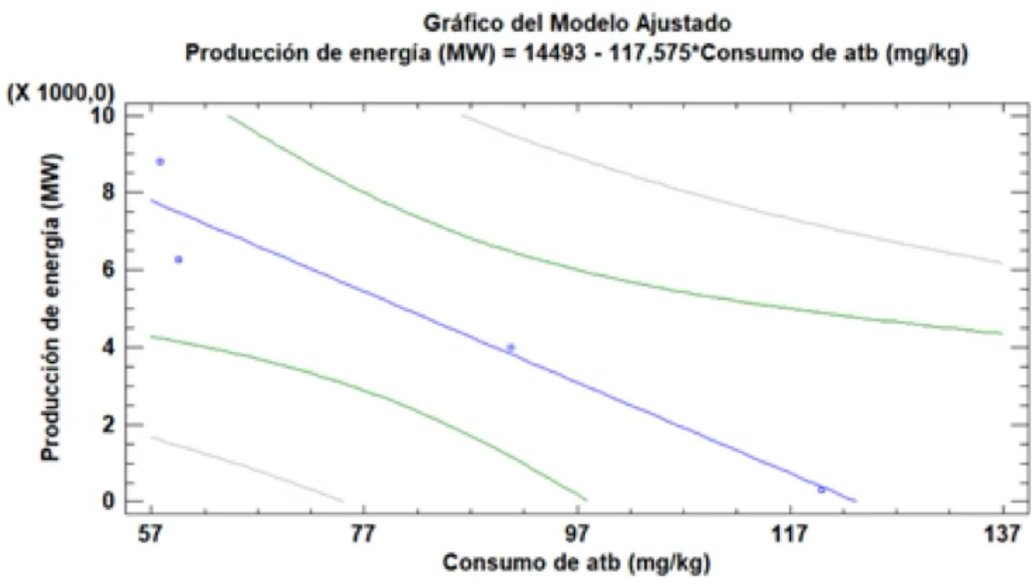
Energy production was increased after vaccination (before: 322 MW; after: 8793 MW).



Graph 3: Evolution of the relationship between antibiotic consumption (mg/kg) and energy production in the biodigester with their respective exponential trend lines.

The equation of the Linear model, fitted to describe the relationship between antimicrobial consumption and energy production was:

Energy production (MW) = 14493 -117.575* antimicrobial consumption (mg/kg).
A significant strong correlation (R2=-0.964186; P<0.05) was determined.



Graph 4: Simple relationship between antibiotic consumption (mg/kg) and energy production (MW).

Discussion & Conclusion

Under the conditions of this case report, *LI* vaccination reduced antimicrobial consumption, having a potential impact on the performance of the biodigester. It is hypothesized that this antimicrobial reduction led to an optimal bacterial growth needed for manure bio-digestion, and therefore, improving the efficiency in the generation of biogas and energy through the effluents.

Vaccination does not only support animal health but also may improve sustainability in pig production under the One Health umbrella, promoting circular economy, less antimicrobial usage and optimizing this renewable energy source.

MSD Animal Health

Association of intestinal lesion scores with histopathology and qPCR results for *Lawsonia intracellularis* in Colombia

María Elena Sánchez*[1], Miquel Collel[1], Stephan von Berg[3], Carolina Escobar[1], Paula Heredia[2], Laura Arias[2]
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Introduction

Porcine proliferative enteropathy (PPE) is a significant pathology impacting pig farming, leading to an estimated productivity loss of $4.65 per pig (Szabo, 2023). The disease is caused by *Lawsonia intracellularis*, a bacterium that predominantly infects intestinal cells, particularly in the small intestine, cecum, and proximal colon (Vannuci FA, 2014).

PPE presents diagnostic challenges, particularly due to its subclinical nature. Diagnosis can involve enzyme-linked immunoassays (ELISA), polymerase chain reaction tests (PCR), and histopathological analysis. The objective of this study is to describe macroscopic and laboratory findings related to PPE using samples from non-vaccinated pigs across four slaughter plants in Colombia.

Materials & Methods

This study was conducted on commercial pigs sent to slaughterhouses in four regions of Colombia: Central, Western, Antioquia, and Coast. An intestinal scoring system based on Christensen-Jansen methodology (T.K Jensen, 1999) was utilized to assess the ileum, with scores ranging from 0 (no lesions) to 3 (severe lesions).

From each score, 10 ileal tissue samples were collected (totaling 40), with groups processed for PCR and histopathology. The sampling occurred in four slaughterhouses: PLAFA and Supercerdo (Antioquia), Cavasa (Western), Santa Cruz (Coastal), and BLE (Central). Tissue inspection was documented photographically.

PCR analysis was conducted using the *Lawsonia intracellularis* MONODOSE dtec-qPCR kit, while histopathological examination involved hematoxylin and eosin staining to evaluate cellular lesions across 29 categories of severity.

Results & Discussion

The macroscopic classification of intestinal lesions revealed consistent evaluations across scores, aligning with established methodologies (T.K Jensen, 1999). The histopathological analysis showed that:

Score 0: 55.2% of samples had no lesions, with mild lesions at 27.6% and mild-moderate lesions at 17.2% (e.g., loss of goblet cells, thrombi).

Score 1: 48.3% showed absent lesions; mild lesions were 31%, indicating an increase in tissue damage.

Score 2: 41.4% absent lesions; tissue damage increased to moderate severity, particularly ulceration.

Score 3: 41.4% absent lesions; significant increases in moderate to severe injuries were noted.

Table data indicated a correlation between the severity of macroscopic injury and the types of cellular lesions present.

qPCR *Lawsonia intracellularis* Results: Genetic material was detected across all scores, with lower CT values indicating a higher bacterial load associated with greater injury severity.

Conclusions

This study demonstrates a clear association between the severity of macroscopic injury and histopathological findings in pigs affected by PPE. Notable injuries included loss of goblet cells, presence of thrombi, and ulceration, with progressive increases in severity from scores 0 to 3. The consistency of these findings across macroscopic, histopathological, and qPCR results indicates a need for improved control measures, such as vaccination, to mitigate the economic impact of PPE more effectively.

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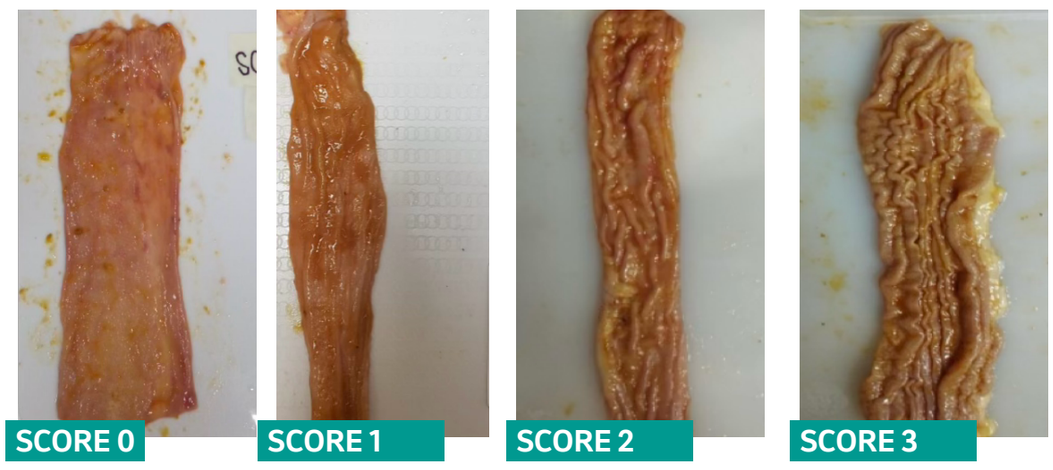
Macroscopic evaluation



SCORE 0 | SCORE 1 | SCORE 2 | SCORE 3

Photo taken by: Carolina Escobar | Photo taken by: Paula Heredia | Photo taken by: Laura Arias | Photo taken by: Laura Arias

Histopathology

For each score, 10 samples of ileum were taken as follows:

Score	Samples number	Histopathology
0	10	2 pool: 3 samples 1 pool: 4 samples
1	10	2 pool: 3 samples 1 pool: 4 samples
2	10	2 pool: 3 samples 1 pool: 4 samples
3	10	2 pool: 3 samples 1 pool: 4 samples

Table 1: Description of histopathology sampling

Lesion Degree	Description	Range
1	No injury	0%
2	Mild injury	0-15%
3	Mild and moderate	15-30%
4	Moderate	30-50%
5	Moderate and severe	50-75%
6	Severe	>75%

Table 2: Ranking of lesion severity

Score	Samples number	qPCR *Lawsonia intracellularis*
0	10	2 pool: 5 sample each one
1	10	2 pool: 5 sample each one
2	10	2 pool: 5 sample each one
3	10	2 pool: 5 sample each one

Table 3: Description of histopathology sampling

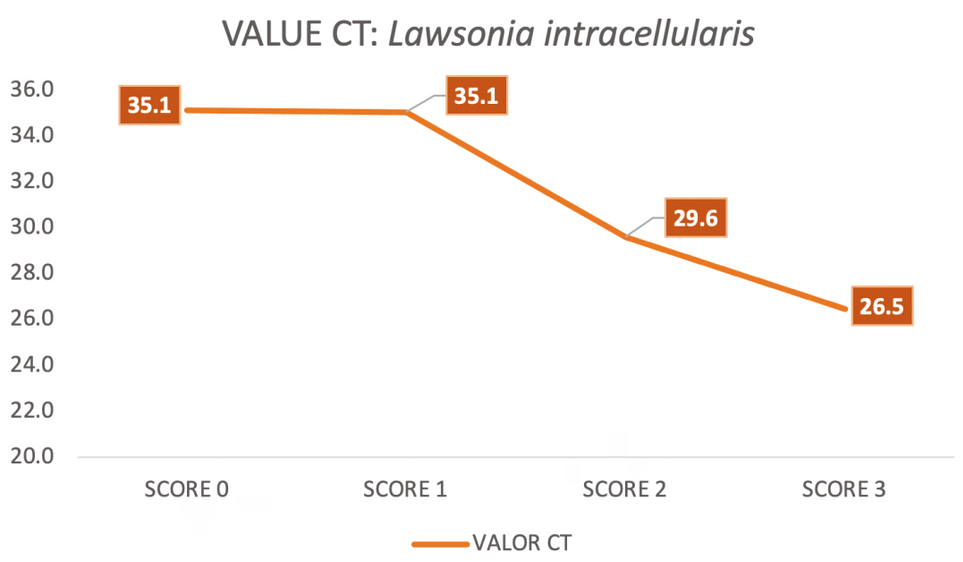


Chart 1: Summary of *Lawsonia intracellularis* qPCR results

MSD Animal Health

Return on investment (ROI) of intradermal Lawsonia vaccination in a Colombian finishing farm

María Elena Sánchez*[1]; Leonardo Villanueva[1], Miquel Collell[1], Stephan von Berg[1], Rocío Tello[2], Sebastián Henao[2]; Luis Guillermo Restrepo[3]
[1]MSD Animal Health, [2]Technical and Management Team Agrocerdos, [3]Vetiplus

Introduction

Ileitis or Porcine Proliferative Enteropathy (PPE) is caused by an obligatory intracellular bacterium *Lawsonia intracellularis*, (1) its manifestation in the field occurs in different forms, the chronic presentation called Porcine Intestinal Adenomatosis (PIA) and the acute presentation known as Proliferative Hemorrhagic Enteropathy (PHE) the subclinical presentation is characterized by a low productive performance (2), this is the form of presentation that most prevails in Colombia with high economic impacts.

The objective of this study is to compare the impact of vaccination for the control of *Lawsonia intracellularis* through zootechnical and economic data at the completion stage, in a commercial farm using the product Porcilis® Lawsonia ID, without changing the control strategies used in the production system via balanced feed.

Materials & Methods

The trial was carried out on a farm with 950 sows located in the region of the Eje Cafetero (Colombia) with a history of ileitis, diagnosed through intestinal inspection in a slaughter plant by the adapted Christensen-Jansen methodology (6) where the degree of severity is rated by a score from 0-3.

For this study, 10,881 animals vaccinated with Porcilis® Lawsonia ID at weaning (21 days) were compared with 10,580 unvaccinated animals (control group). The test for both groups began on the time of transfer to the completion phase, the vaccinated batch had an average weight of 10.01 kg and an age of 42.8 days Vs the control batch had a weight of 10.55 kg and an age of 43 days. For both groups, the strategies of medication via food were the same, as were the environmental and management conditions.

The results of this study were evaluated through univariate and bivariate analysis, statistical simulation and adjusted analysis models; this process was carried out through the R software (7).For the economic evaluation, the variables and mortality (%), food consumed Kg (USD 0.622), Live weight Kg (USD 2.54) additional investment value of the vaccination program with Porcilis® Lawsonia ID.

The exchange rate used from the Colombian peso to the U.S. dollar was $3,933/1 USD as of February 29, 2024, according to the Bank of the Republic.

Results

The group vaccinated with Porcilis® Lawsonia ID obtained better results in feed optimization and mortality compared to control (summary in Table 1).

Program	Initial quantity of animals	Mort %	Conversion	Average daily animal consumption	Final	Final age
Porcilis® Lawsonia ID	10.881	3,44	2,05	194,22	104,76	157,12
Control	10.580	4,61	2,12	199,69	104,81	158,43

Table 1: Parameters evaluated.

Variable	ß	IC 95 %	Value
Vaccine	Ref		
SI Porcilis® Lawsonia ID	-1,16	0,45	**0,017***
R2 tight	0,213		
SI Porcilis® Lawsonia ID	-1,43	0,58	**0,024***
Initial conversion	-7,88	6,88	0,268
Days	-0,07	0,14	0,586
Initial number of pigs	-0,006	0,002	**0,041***
R2 tight	0,647		

Table 2: Mortality linear regression model.

Results - continued

Variable	ß	IC 95 %	Value
Vaccine	Ref		
SI Porcilis® Lawsonia ID	-1,16	0,45	**0,017***
R2 tight	0,213		
SI Porcilis® Lawsonia ID	-1,43	0,58	**0,024***
Initial conversion	-7,88	6,88	0,268
Days	-0,07	0,14	0,586
Initial number of pigs	-0,006	0,002	**0,041***
R2 tight	0,647		

Table 2: Mortality linear regression model.

Variable	ß	IC 95 %	Value
Vaccine	Ref		
SI Porcilis® Lawsonia ID	-0,08	0,016	**0,001***
R2 tight	0,43		
SI Porcilis® Lawsonia ID	-0,06	0,017	**0,001***
% Mortality	-0,009	0,008	0,268
Days	-0,012	0,004	**0,001***
Initial number of pigs	-0,0001	0,0001	0,188
R2 tight	0,598		

Table 3: Linear Regression Model Conversion.

By analyzing the result, when the initial number of pigs, the days of the cycle and initial conversion remain stable over time, the vaccinated animals obtained 1.43% less mortality and an impact of 0.06 points less conversion compared to the control group.

This represents that the group vaccinated with Porcilis® Lawsonia ID presented a lower cost of the food consumed of USD 3.40 and an impact on better health of USD 2.81. Under field conditions comparing both treatments, treatment with Porcilis® Lawsonia ID generated a return on investment (ROI) of 4.37:1. This demonstrates the economic impact of a pathology such as *Lawsonia intracellularis* and that control from the implementation of vaccination programs positively impacts the productivity of the system and even more so in productive phases with high financial impact such as the fattening stage.

Discussion & Conclusion

In this field study, it was possible to show the impact of a health program, such as vaccination with Porcilis® Lawsonia ID, generating a positive ROI (Return on Investment), and the impact at the level of responsible management of medications and intestinal health in the medium and long term, making this sense with the health responsibility we have as producers of safe and innocuous protein.

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MSD Animal Health

Gut-associated cell-mediated immune response in pigs vaccinated against porcine proliferative enteropathy and co-infected with *Lawsonia intracellularis and Brachyspira hyodysenteriae*

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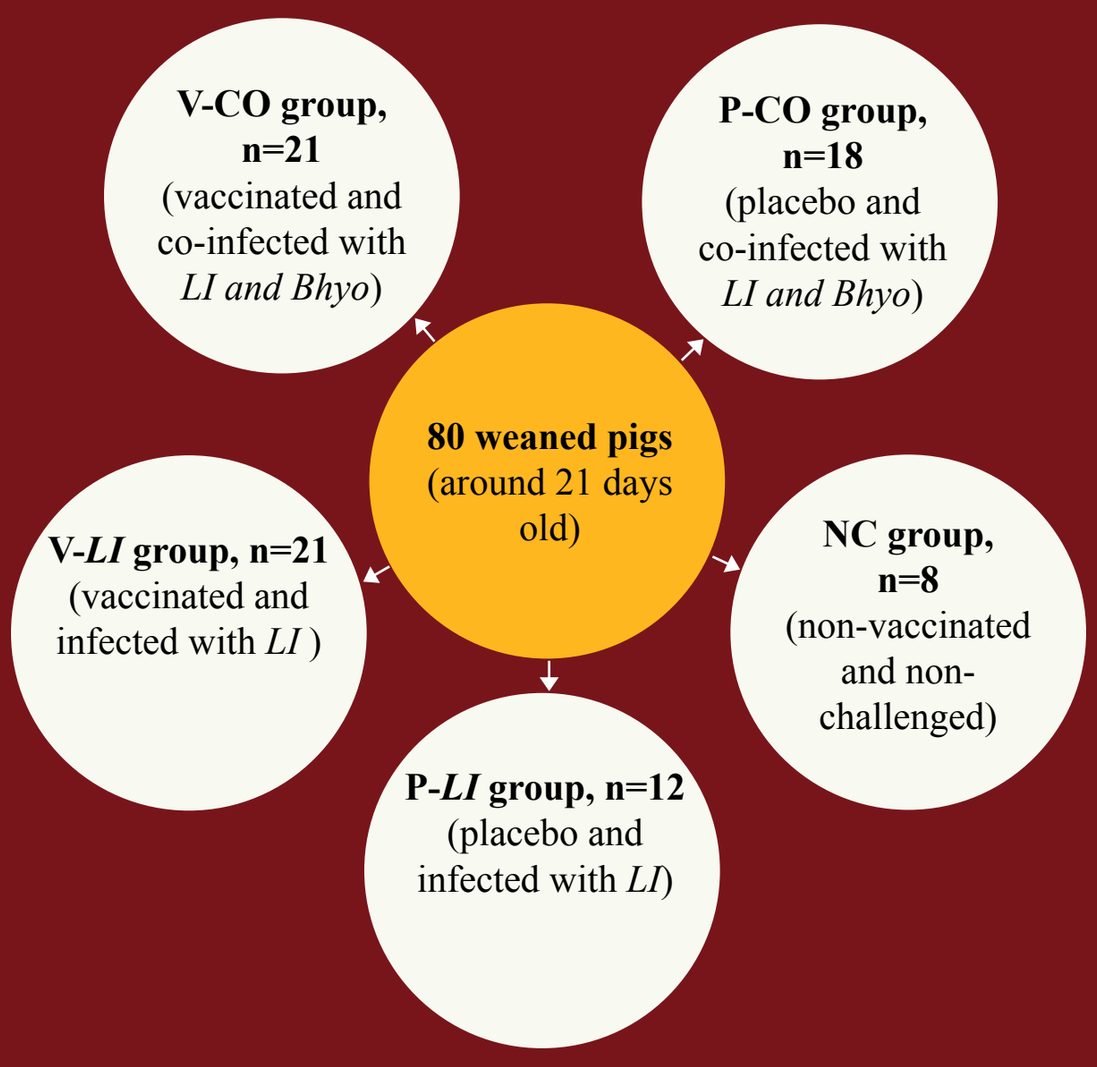
*Presenting author

BACKGROUND AND OBJECTIVES

Co-infections may worsen the clinical signs and lesions caused by ***Lawsonia intracellularis*** (*LI*) and potentially affect the efficacy of the *LI* vaccine. This study aimed to characterize the gut-associated cell-mediated immune response in pigs co-infected with *LI* and ***B. hyodysenteriae*** (Bhyo) and vaccinated with an *LI* vaccine.

MATERIAL AND METHODS



Vaccine: Porcillis® Ileitis (MSD Animal Health), intramuscular (IM).
Study design: pigs received the *LI* vaccine on D0, the *LI* challenge on D22, and the *Bhyo* challenge on D30. Necropsies were performed on:

- D21 (1 day prior *LI* challenge)
- D29 (7 days post *LI* challenge)
- D36 (14 days post *LI* challenge and 6 days post *Bhyo* challenge)
- D43 (21 days post *LI* challenge and 13 days post *Bhyo* challenge)

Parameter analyzed: gut-associated cell-mediated immune (CMI) response.
Lymphocytes were isolated from mesenteric lymph nodes and submitted to an ELISPOT assay to assess IFN-γ production, indicating CMI response. Sonicated ***L. intracellularis*** antigen at 20ug/ml was used to stimulate the cells. Each spot in a well represents one IFN-γ-producing lymphocyte. The average spot count was calculated and statistically analyzed using the Kruskal-Wallis test.

RESULTS

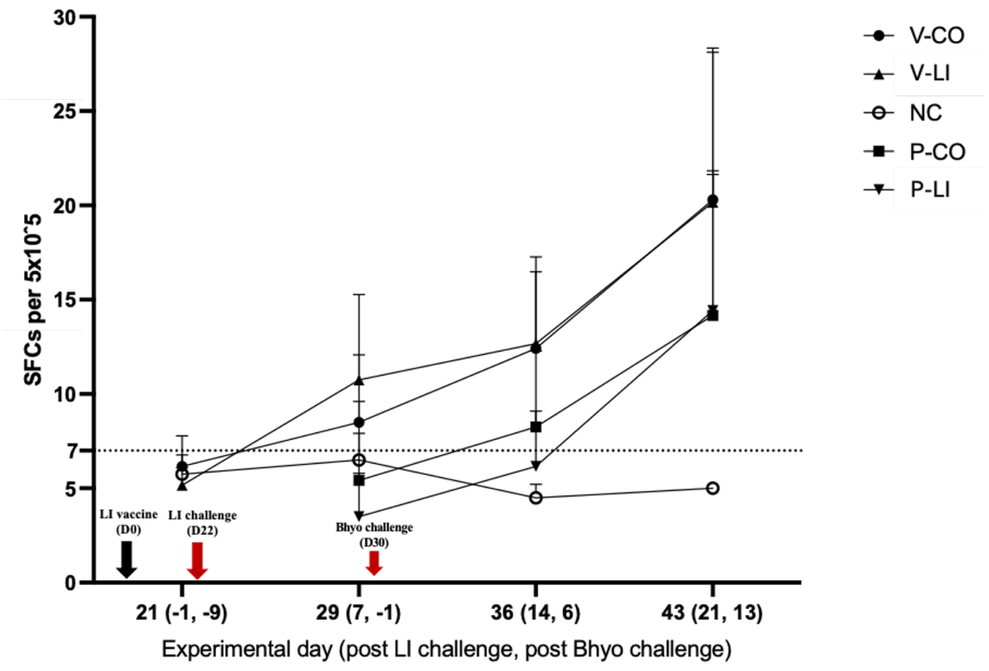


Fig 1. IFN-γ production by lymphocytes on mesenteric lymph nodes, showing the gut-associated cell mediated immune response. The results are expressed in spots-forming cells (SFCs) per 5x10ˆ5cells (total number of cells in each well of the ELISPOT 96-well plate). Each spot represents the average number of spots associated to each individual pig in each group in each time point. The threshold for unspecific IFN-γ response was 7 spots per well and it is represented by the dotted line. The bars represent the standard deviation.

Gut-associated cell-mediated immune response was detected earlier in vaccinated groups, starting on D29 (7 days post *LI* challenge) and reaching the peak at D43 (21 days post *LI* challenge).

28 out of 35 pigs of *LI* vaccinated groups (V-CO+ V-*LI*) vs. 15 out of 30 pigs of the placebo vaccinated groups (P-CO+P-*LI*) had IFN-γ response above the threshold for unspecific response.

DISCUSSION AND CONCLUSION

- IFN-γ from T-cells is crucial for protection against *LI* and limits lesion development.
- This represents the first study showing gut-associated IFN-γ production induced by IM LI vaccination.
- *LI* vaccine was able to stimulate CMI response even in *Bhyo* co-infected pigs.
- Although only numerical differences were observed between groups, primary exposure to the *LI* vaccine antigen allowed a faster and more intense gut-associated CMI response after exposure to the live antigen, suggesting cell-mediated immunological memory.

ResPig

Occurrence and impact of PCV2-infection at weaning in Danish wean-to-finish herds

Musse, Susanne Leth[1] & Lindberg, Maria[1]
[1]MSD Animal Health Nordics

Background & Objectives

Over time, PCV2-vaccination has reduced herd infection pressure so successfully that pockets of "naïve" animals may occur. This may lead to subclinical infections in naïve sows increasing the risk of early PCV2-infections in piglets, and subsequently reducing the benefits of vaccination. Knowing the dynamics of infection before implementing a vaccination program is key for success. The aim of this study was to determine the prevalence of PCV2-infections in Danish wean-to-finish herds.

Materials & Methods

During 2023, 45 randomly selected, wean-to-finish herds were monitored for PCV2 (qPCR). All herds vaccinated piglets against PCV2 at weaning, but none of the source breeding herds vaccinated their sows against it. Oral fluids (OF) were collected post-weaning, and blood samples (n=5) at 30 kg, 60 kg and 90 kg. Both OF and blood samples (pooled by 5) were tested by PCR-qPCV2. Student's t-test and Fishers exact-test were performed to evaluate associations between PCV2 in OF and subsequent PCV2-infection in prevalence and viral load, respectively.

Results

PCV2 was detected in 44.4% of the herds by OF (Figure 1). Viremia was detected in 8.9%, 24.5% and 26.7% of the herds at 30 kg, 60 kg and 90 kg, respectively. A significant association between PCV2 in OF at weaning and prevalence was found at 60 kg (p=0.005) but not at 30 kg or 90 kg (Figure 2). A significant association between PCV2 in OF at weaning and viral load was found at 60 kg (p=0.037) but not at 30 kg or 90 kg (Figure 3).

Discussion & Conclusion

Early PCV2 infection detected by OF immediately after weaning was highly prevalent. Consequently, the benefits of piglet vaccination may be negatively impacted later in life, as suggested by this significant association between early infection and viremia at 60 kg. To achieve optimal benefit after PCV2-vaccination, it is crucial to investigate the entire herd's infection status when designing the right PCV2-control program to ensure vaccination of healthy pigs in due time, before pigs meet the virus.

Detection of PCV2 in OF around weaning

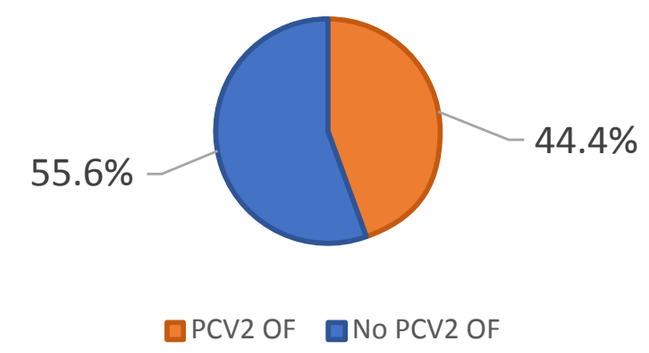


Figure 1: PCV2-detection in oral fluid (OF) of pigs 1-2 weeks post-weaning

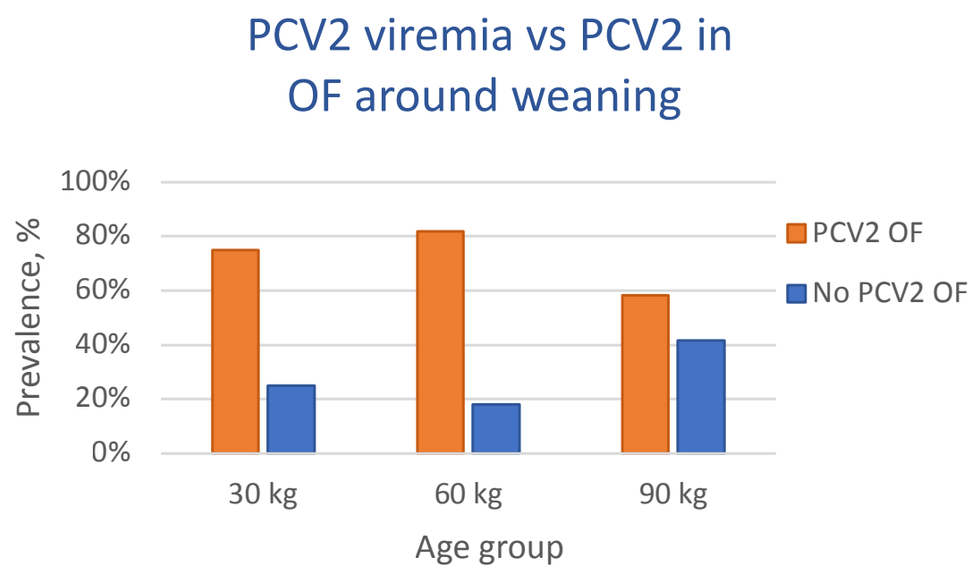


Figure 2: Prevalence of PCV2-viremia at 30 kg, 60 kg and 90 kg split by occurrence of PCV2 in oral fluid (OF) at 1-2 weeks post-weaning

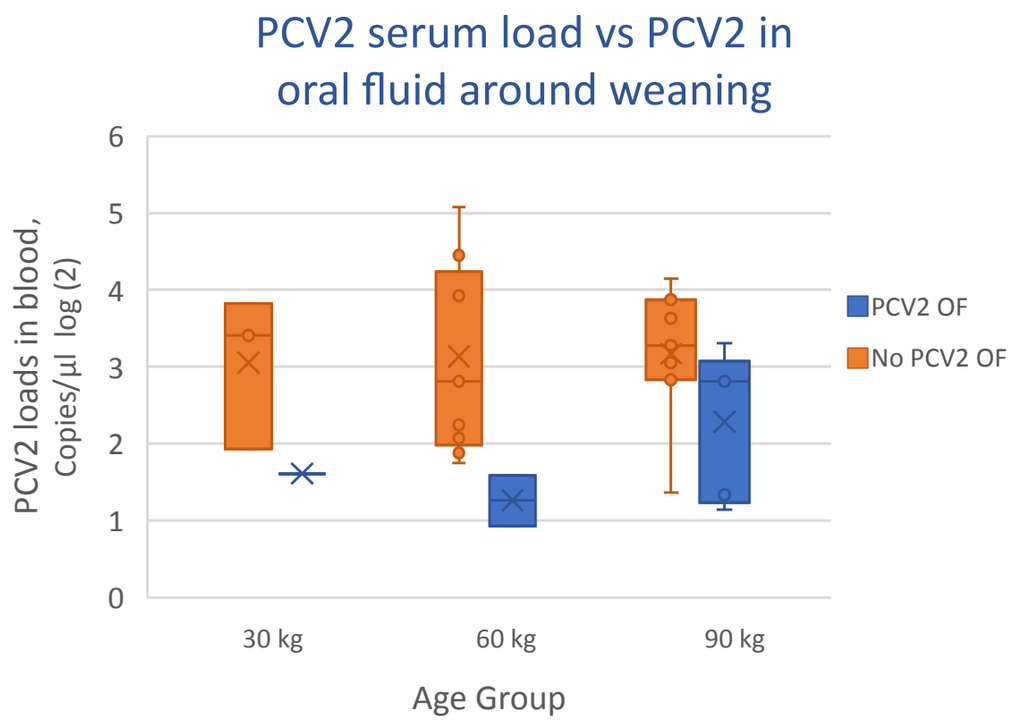


Figure 3: PCV2 load in serum at 30 kg, 60 kg and 90 kg split by occurrence of PCV2 in oral fluid (OF) at 1-2 weeks post-weaning

MSD Animal Health

Fade out of porcine reproductive and respiratory syndrome virus (PRRSV) in an endemic Dutch farrow-to-finish herd

Toine Cruijsen[1], Hans Smit[2], Marc Schyns[1]
[1]MSD Animal Health Benelux, [2]DierGezondheidsCentrum Boven-Veluwe

Background & Objectives

The Netherlands aims to eradicate PRRSV before 2040. Vaccination with stringent biosecurity was already proved successful in SPF farms [1, 2, 3, 4]. This study demonstrates how vaccination and well-defined internal biosecurity was successfully combined to eradicate PRRSV in a commercial farrow-to-finish herd for the first time in the Netherlands.

Materials & Methods

This case took place in a farrow-to-finish farm (300 sows - 3,000 fattening places), situated in a low pig density area, that became endemically infected in the early nineties. Since 2001, all purchased SPF gilts and sows were vaccinated after arrival (Porcilis® PRRS, MLV vaccine). The farm was monitored for years using ResPig®, a biannual cross-sectional serological program investigating blood (ELISA) from gilts, sows, and pigs (3, 10, 16, 22 weeks of age), five samples/ age group. PCR on saliva and on serum pools were added to the program in 2018 (Fig. 3). Since 2018, better hygienic procedures and compartmentalizing were implemented, including strict working lines (from younger to older pigs) using specific clothing, footwear, and equipment for each production site.

Results

In August 2018, PRRS virus was detected for the last time in fatteners via saliva PCR (Fig. 3) and serum antibodies (Fig. 1). After 2018, all 16- and 22-week-old fatteners were PRRSV-seronegative (ELISA) and PCR negative in saliva or pooled sera (Fig. 1, 2, 3). In March 2019, sows and gilts were vaccinated for the last time, no pigs were vaccinated against PRRSV thereafter. Antibodies were detected in sows until May 2020, whereafter those became PRRSV-seronegative (Fig. 1 and 2).

Discussion & Conclusion

Most breeding farms in the Netherlands use PRRSV vaccination to reduce clinical symptoms. Until now, most of these were not successful in eradicating PRRSV. This study demonstrates that eradication using a MLV vaccine combined with strict biosecurity is possible. It was hypothesized that vaccination reduced vertical transmission of PRRSV and shortened the shedding period of breeders. Herd compartmentalizing and hygienic procedures would have further lowered the spread of PRRSV. The infection eventually faded out, resulting in the production of PRRSV-negative fatteners.

Results Figures

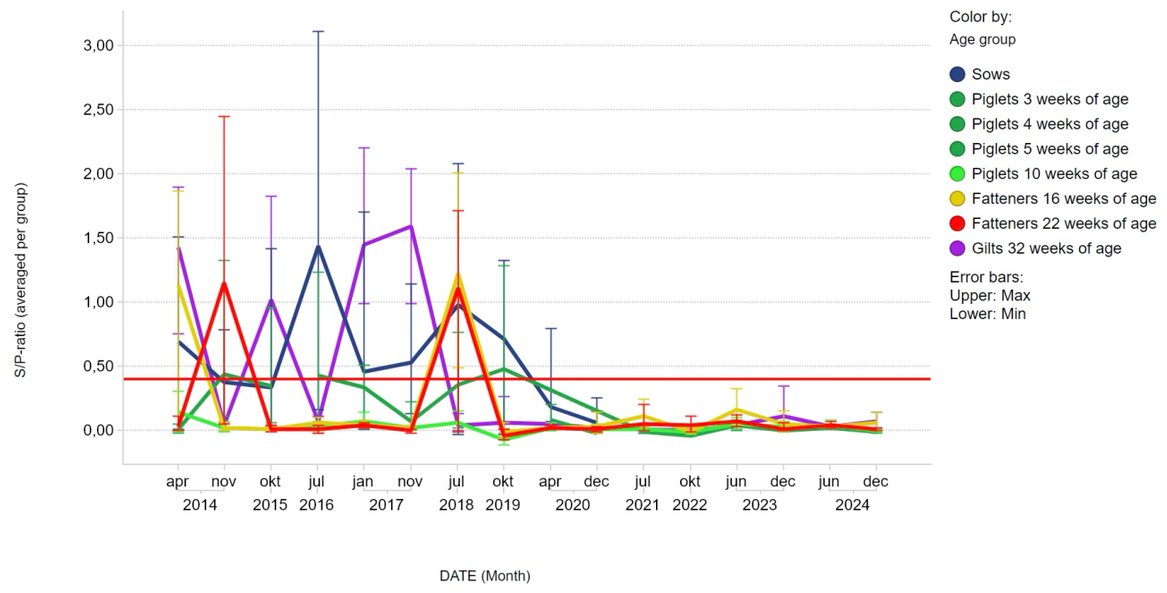


Figure 1: Average results of serum antibody titers (ELISA PRRS Idexx)

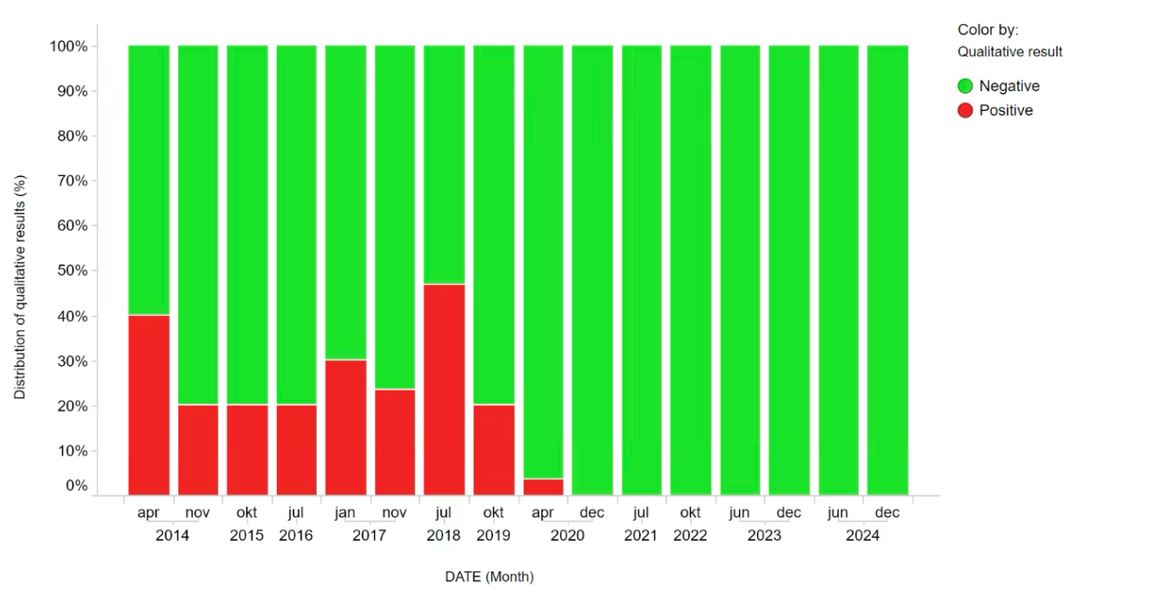


Figure 2: Number of seropositive samples in %

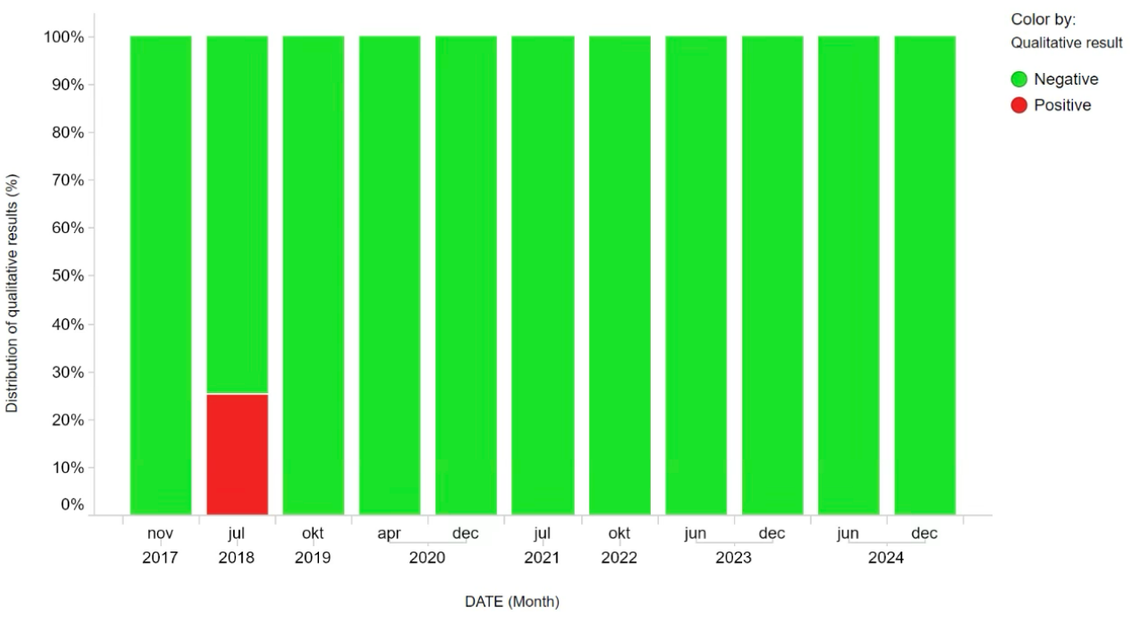


Figure 3: Detection of PRRSV in oral fluids in %

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MSD Animal Health

Eradication of virulent strain of PRRSV program with modified live virus (MLV) vaccine in combination with an integral method

Diego Edo[1], Ana Novoa[1], Marta Jimenez[2], Marcial Marcos[2], Rut Menjon[2]
[1]Terraiberica Desarrollos SL, [2]MSD Animal Health Spain

Background & Objectives

Porcine Reproductive and Respiratory Syndrome virus (PRRSV) causes severe illness and becomes an economically devastating disease of pigs. Highly pathogenic PRRSV (HP-PRRSV) was first described in China in 2006, and new variants continue to emerge. The Spanish pig industry has been affected by a virulent variant named Rosalia since 2020. This strain causes clinical disease and death in all ages, including adult pigs and pregnant sows, leading some producers to launch eradication programs. The objective of this study was to eradicate PRRS on a breeding commercial farm.

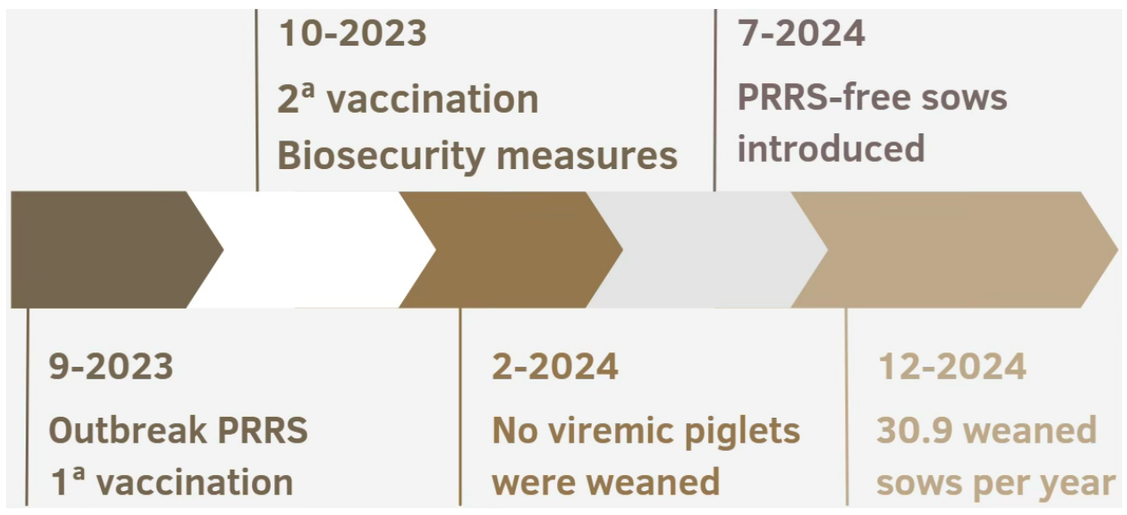
Photo 1

Materials & Methods

Eradication was performed on a new 2,800-sow breeding farm (site 1). This farm was first populated (June 2023) with SPF sows (free from: Rhinitis, scabies, *Actinobacillus pleuropneumoniae*, *Mesomycoplasma hyopneumoniae*, PRRSV, *Brachyspira hyodysenteriae*). PRRSV outbreak occurred in September 2023 (Day 0 virus detected by PCR, cq 24). At Day 1, all animals were intradermally vaccinated and re-vaccinated at 4 weeks (Porcilis® PRRS) using IDAL™.
Before herd closure, all replacement gilts needed were introduced. Strict internal biosecurity measures were implemented. Tongues of dead piglets were weekly tested by PCR.

Results

During the outbreak, sow mortality, abortion rate and conception rate were 3.9% (111 sows), 8.4% (131 abortions) and 62%, respectively.
The first negative piglets were born in January 2024. At day 168, all suckling piglets tested negative (February 2024) and no viremic piglets were weaned. PRRS-free sows were introduced in July 2024 (Day 300) and remained negative after herd opening.



Graph 1

Discussion & Conclusion

Following this protocol, eradication was successful. Implementing herd closure and strict internal biosecurity, together with needle-free intradermal vaccination, were main pillars in virus elimination. Avoidance of new virus entries, minimizing virus iatrogenic transmission and persistence, and providing clinical protection against HP-PRRSV and herd immunity by vaccination were key actions that should be present in any eradication program.

Photo 2

Different PRRS-strains over time on Dutch pig farms: new introductions or circulation of the same strain?

Marc Schyns[1], Nico Wertenbroek[1]
[1]MSD Animal Health Benelux

Background & Objectives

The porcine reproductive and respiratory syndrome virus (PRRSV) is a highly genetically diverse RNA virus which causes reproductive failure in sows and a complex respiratory syndrome in pigs of all ages. The Dutch swine industry aims to eradicate PRRSV by 2050. Most of the time, farmers and veterinarians struggle to eradicate a strain from the farm. The main argument, especially in swine-dense areas, for farmers not to start with eradication is the risk for a new PRRSV strain introduction, for instance by air. The aim of this study was to get more insights in the incidence of a new lateral PRRSV introduction on Dutch pig farms. Therefore, we looked retrospectively to the monitoring data from the Netherlands in the years 2022-2024.

Materials & Methods

In total, 18 farms were selected where two or more field strains were present with a minimum period of 5 months between dates of sampling. As a first step, strains were classified to be “field-strain” or “modified live vaccine-related” based on the nucleotide sequence identity of ORF5. The cut-off of 98% was used for the four modified live vaccines available in the Netherlands (DV, VP-046, 94881 & 96V198). As a second step, “field”- strains from the same farm were compared. The nucleotide sequence identity of ORF5 between the two “field”- strains was used to classify the farm into “internal recirculation” (≥ 98%) or “external introduction” (< 98%).

Results

From the 18 farms, 13 were classified as “internal recirculation” and 5 as “external introduction”. This means that 72% of the farms were classified as “internal recirculation” and 28% of the farms as an “external introduction”.

Discussion & Conclusion

Because PRRSV has a high genetic variability and it mutates quickly, potentially leading to a more clinical severe strain with just a few mutations [1], nucleotide sequence identity could be used to interpret if a strain is “recirculating” on a farm or the strain is introduced in the farm.
The ORF5 sequence alone, however, may not give the complete picture without considering the circulating field strains in the region and time or the full genome sequence to capture recombination. Identifying internal recirculations will help to adjust the measures of internal biosecurity that should be taken on farms (see Figure 1). Based on the limited ORF5 sequence, introductions of a different strain on a Dutch farm were less likely to occur. The argument that new introductions play a major role does not seem to be valid when looking retrospectively at this monitoring data from the Netherlands. Given its limitations, this study may support that 72% of these farms should focus more on internal biosecurity rather than new introductions in swine-dense areas. This needs to be confirmed in a broader dataset containing full sequences of strains from the respective farm, region and time, however.

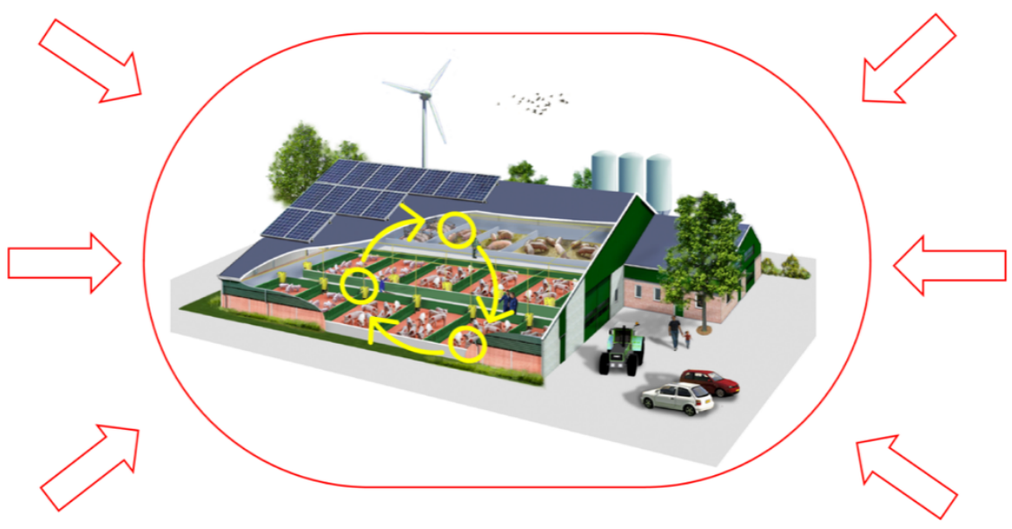


Figure 1: Internal recirculation vs external introduction PRRS strains. Red arrows represent external introduction; yellow arrows internal recirculation of PRRSV-strains

References

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MSD Animal Health

Tonsil scrapings to assess the spread of *Actinobacillus pleuropneumoniae* in an acute outbreak in an SPF sow herd

Marc Schyns[1], Robin van Kampen[2] and Toine Cruijsen[1]
[1]MSD Animal Health Benelux [2]De Oosthof, The Netherlands

Background & Objectives

Actinobacillus pleuropneumoniae (*APP*) is a gram-negative bacterium that causes pleuropneumonia. *APP* can colonize the tonsils and evade the host clearance, leading to so called “carriers” [1,2]. Epidemiological models suggest a horizontal spread in farms even without clinical signs [3]. In this case report from a recent *APP*-infected sow herd, tonsil scrapings were used to determine the spread of the pathogen on farm to evaluate whether partial culling can be considered as an effective control tool.

Materials & Methods

The location affected was a site 1-location for 1,500 sows, where only sows and the suckling piglets were housed. Eight acute-death sows around farrowing were seen in the farrowing crates in a few days. From those eight, two first litter sows were sent for necropsy. Both sows had a unilateral fibrinohemorrhagic pleuropneumonia. Bacterial cultivation on the lungs was positive for *APP*. Whole genome sequencing revealed that the strain belonged to serotype 7. In the months before the outbreak, some sows were transported to the piglet location during their gestation. To renovate part of the gestation unit, some housing was temporarily not available.

The farmer wanted to regain the *APP*-free status of the sow herd as soon as possible. To regain the status, different scenarios were discussed. Potentially, compartments without clinical signs were still not infected and culling infected compartments would be an option. In order to make this strategy successful and eradicate *APP* from the farm, there was a need to detect possible carriers [4]. Therefore, tonsil scrapings from sows in different farrowing rooms and gestation stables were collected (n=96), see the schematic lay-out of the farm in Figure 1. Toothbrushes were used to scrape the tonsils. After scraping, the head of the toothbrush was cut off, suspended in saline (0.9%) and shipped to the laboratory.
Samples were pooled by four and a PCR based on the Apx-IV gene was performed [5].

Results

PCR was positive in 11 pooled samples, 1 pool was suspicious and 12 pools were negative.
In all compartments of the gestation stable and in all farrowing rooms, *APP* was detected, indicating that the pathogen has already spread all over the sow herd.

Discussion & Conclusion

The first idea to regain the *APP*-free status by culling and removing gilts/sows from clinically affected farrowing rooms was no option due to the wide spread of the bacterium on the farm. No other eradication strategy was used.
After a few months, clinical signs diminished and the farm remained *APP* positive. These findings prove that horizontal spread of *APP* may occur fast and without clinical signs.

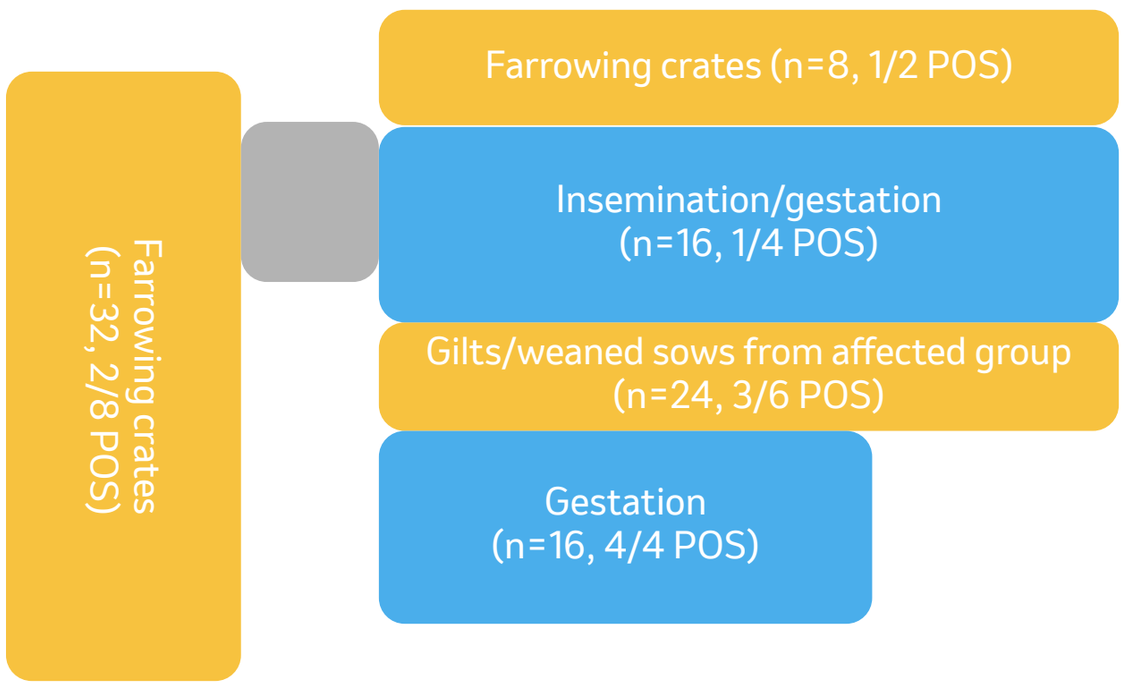

Figure 1: Schematical lay-out of the farm with the distribution of the tonsil scrapings that were collected per compartment. N is the number of sows sampled.

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MSD Animal Health

Sowcare

Correlation between Immunocrit and *E. coli* antibodies levels of suckling piglets: a case report

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Background & Objectives

Immunocrit has been described as a tool to evaluate colostrum intake (1). The objective of this study was to investigate the correlation between Immunocrit levels and *E. coli* antibodies in sucklers and its correlation with their body condition.

Materials & Methods

The study took place on a Spanish commercial farm with sporadic reports of neonatal diarrhea. Sows were regularly vaccinated 4 weeks pre-farrowing against *E. coli* and *C. perfringens* (Porcilis® ColiClos, MSD Animal Health).

A total of 36 piglets born from 6 sows were bled between 5h 45min and 1h 15min post-farrowing. It was confirmed that all piglets had approached the mammary gland and taken colostrum.

Piglets were divided in two groups, weak (W) and strong (S), towards their physical aspect and size.

Blood samples were analyzed for: Immunocrit and antibody titers of 987P, k88ab, k88ac, k99 and LT toxin of *E. coli*. Results were compared between W and S groups (ANOVA two-ways). A correlation and regression analyses between Immunocrit and *E. coli* Ab levels were performed.

Results

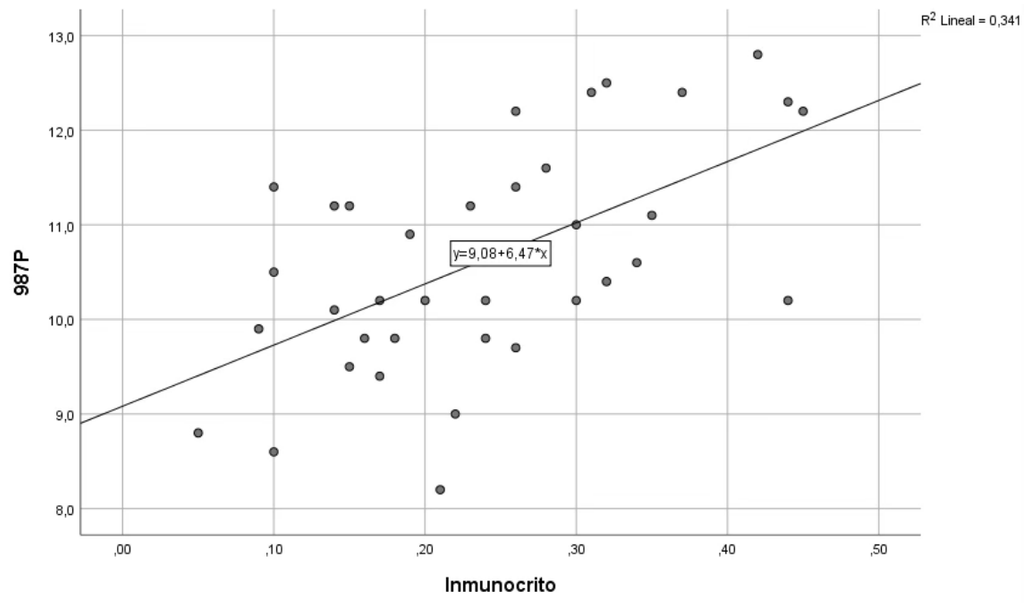
No differences were found for Immunocrit levels between groups. S-piglets showed statistically higher levels of antibodies against k99 and LT than the W-piglets (k99: W 9,93 2^{log} vs. S 10,46 2^{log}; LT: W 9,26 2^{log} vs. S 10,11 2^{log}; $p<0,03$). Titers of 987P, k88ab and k88ac showed higher numerical values in S group (Table 1).

		Ab titres 2^{log}				
	Immunocrit	987P	k88ab	k88ac	k99	LT
Weak	0,25	10,59	13,12	11,81	9,93*	9,26*
Strong	0,23	10,71	13,25	12,18	10,46*	10,11*

Table 1: Antibody titers of *E. coli*
*in different rows indicate statistical differences ($p<0,05$)

All parameters showed statistical differences regarding their dams ($p<0,01$), showing that piglets born from some sows always had higher values of Immunocrit and *E. coli* antibodies titration, independently of their physical condition.

There was a significant positive correlation between Immunocrit and *E. coli* titers, with a medium-high intensity of the correlation (0,6) for all parameters except for LT (0,3). Regression data between Inmmunocrit and *E. coli* Ab levels was highly significant ($p<0,0019$), except for LT ($p<0,02$) (Graph 1).



Graph 1: Regression between Immunocrit and 987P

Discussion & Conclusion

Under the conditions of this study, there was a positive correlation between Immunocrit and *E. coli* antibody titers, as well as between k99 and LT levels and piglet's physical condition, suggesting that Immunocrit can be an easy and valid tool to evaluate colostrum intake.

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MSD Animal Health

Management of reproductive disorders in sows through Leptospirosis vaccination and improved hygiene practices: a case report

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Background & Objectives

Leptospiras are spiral-shaped, aerobic spirochetes and were classified in >300 serovares (1). They can cause reproductive disorders in sows. The transmission of the pathogen occurs through mucous membranes and skin wounds when encountering infected urine. Leptospiras can be transmitted to humans, underscoring the importance of effective control in animals (2). This field case follows up reproductive performance in a Leptospira-infected sow herd after vaccination and implementation of hygienic measures.

Materials & Methods

In a herd with 350 sows in Northern Germany, increased reproductive disorders occurred since October 2021 (table 1).

The molecular biological examination of abortion material revealed the presence of pathogenic group Subclade P1 Leptospira. In view of this Leptospira detection and the decreased performance of the sow herd, all sows were vaccinated with Porcilis® EPL twice in Q1/2022.

At the farmer's request, no antibiotics were used for therapy. In addition, hygienic measures were implemented, such as daily feces removal and use of dry disinfectant behind the sows during the stalled period in the mating area (8d). After removal, the mating center was cleaned and disinfected. To measure the impact, reproductive performance data from Q4/2021 until Q3/2022 was recorded.

Results

In the same quarter (Q) after vaccination, the reproductive parameters improved. Six months later, the reproductive parameters stabilized almost to preclinical-level. In summary, 30.09 piglets/sow/year were weaned in Q3/22, which means 1.7 piglets more than before the Leptospirosis outbreak (table 1).

Discussion & Conclusion

In this specific case, the implemented combination of measures brought the herd to a uniform immune status and were sufficient to contain the clinical signs due to Leptospira infection. In case of a natural Leptospira infection, improvement of herd performance would not have been expected so quickly.

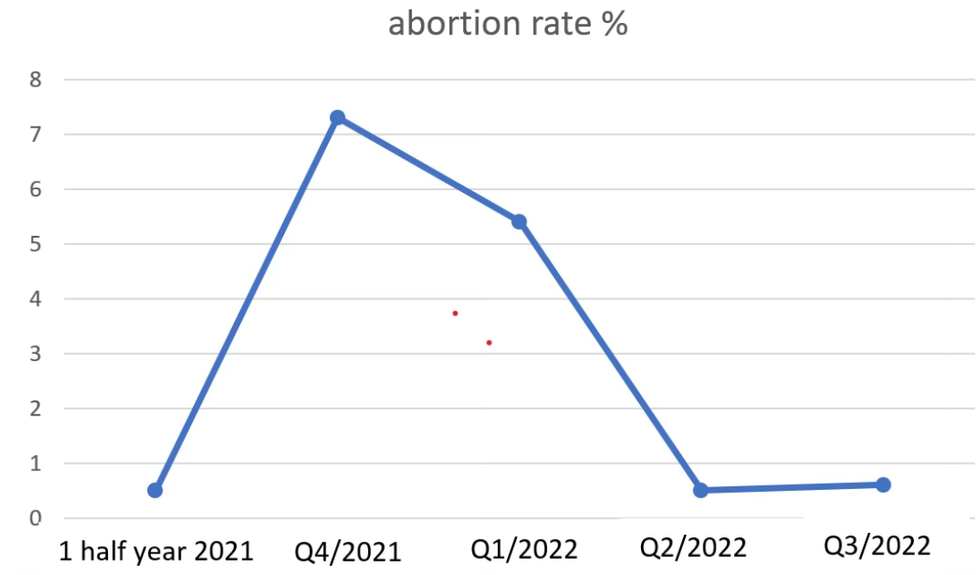

Figure 1: Development of the abortion rate from the beginning of the year 2021 to Q3/2022

Reproductive parameter	Period before clinic	Period with clinic	Q1/ 2022	Q2/ 2022	Q3/ 2022
Period	01.01.-30.06.21	01.10.-31.12.21			
Abortion rate %	0.5	7.3	5.4	0.5	0.6
Farrowing rate %	85.75	80.41	83.47	91.46	89.73
Stillbirth piglets/ litter	1.68	2.05	1.68	1.22	1.35
Return-to-estrus %	10.49	14.9	9.9	8.14	10.04
Piglets born alive/sow/year	36.25	30.42	30.6	40.2	33.85
Piglets weaned/ sow/year	28.39	25.65	36.49	35.53	30.09

Table 1: Comparison of reproductive performance parameters before, during and after the clinic

References

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MSD Animal Health

A SMEDI outbreak in gilts caused by skipping vaccination – a case report

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Background & Objectives

Porcine parvovirus (PPV) is a small, non-enveloped, single-stranded DNA virus that is ubiquitous in pigs worldwide (1). PPV is considered a primary causative agent for SMEDI (stillbirth, mummification, embryonic death, infertility) symptoms in pigs (2). Clinical cases are mostly limited to naïve gilts (3). In older sows, the infection often remains asymptomatic, as they have a well-developed immunity against the virus. This case report describes the importance of vaccination compliance in all populations within a farm.

Materials & Methods

In September 2024, a farrowing batch system on a 300-sow farm in southern Germany exhibited SMEDI-like symptoms. Farrowing occurs every two weeks, involving 26 sows in the group and approx. 5 to 6 gilts in the group with litters averaging around 16 piglets per sow. All gilts and sows in the herd were routinely vaccinated against Parvovirus, Erysipelas and Leptospiras (Porcilis® EPL). At day 205 of age, the gilts were vaccinated the first time. The particular aspect in this case report was that only the gilts in the group were affected by the reproductive disorders on the farm. In addition to the low number of piglets born alive, stillbirths and mummified piglets (figure 1) were observed in the litters of gilts, with an organ pipe-like appearance occurring within the litters. Differential diagnosis targeted SMEDI-associated pathogens. Two mummified litters (1 = 4 mummies, 2 = 6 mummies) were sent for necropsy (CVUA, Fellbach) and four blood samples from noticeable sows were collected for further diagnostics (IVD, Seelze-Letter). Available on-farm records and vaccination history were investigated.

Results

Interestingly, only gilts (n = 10) in the problem batch (n = 26) showed reproductive failure. When compared with older sows, gilts had less piglets born alive per litter, and more stillbirths and mummified piglets (table 1) per litter.

Reproductive parameter	Gilts (n=10)	Multiparous sows (n=16)
Piglets born alive / litter	8.3	15.75
Stillbirth and mummified piglets	3	0

Table 1: Conspicuous reproduction parameters of the farrowing group

PPV was detected by PCR in mummified fetuses, whereas PRRSV, PCV2 and Leptospirosis testing yielded negative results. PCV2 and PRRSV were not detected in blood, but PCV3 by PCR (ct-value: 34). Leptospirosis antibody test (MAT) showed no to low titers. On-farm records revealed the lack of a complete basic immunization of gilts from this batch: only a single dose was administered when the label recommends two.

Discussion & Conclusion

This case describes a PPV-associated reproductive failure, specifically observed in gilts. The underlying cause of this reproductive challenge has been identified as a significant lack of compliance with the vaccination protocols. Incomplete priming of the EPL vaccine in gilts of the group was the most likely cause, as shown by the presence of SMEDI-like signs and the low MAT titers, both restricted to gilts. This was corroborated by on-farm records.

Figure 1: Abandonment of several mummified fetuses during natural birth

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MSD Animal Health

Technology

An Evaluation of Intradermal Vaccination

M. Benedetti, F. De Grau

The Background:

Using needle-free (NF) injection devices to vaccinate pigs intradermally (ID) is a growing practice worldwide.

Proposed benefits of ID vaccination:

- **Improved Welfare**
- **Safer**
- **Improved Labor Efficiency**
- **Faster**

The Why:

There is little experience with needle-free and intradermal vaccination in Canada to date. Can the proposed benefits actually be shown in a Canadian farm setting?

OUR GOAL: To prove to producers the beneficial results from vaccinating intradermally, in a research setting realistic to swine farms in North America.

The Methods:

SCAN TO SEE TRIAL VIDEOS!

Study Group:

1123 weaner piglets

Randomized Treatment Groups:

Intradermal | Intramuscular | Control

One Hour Post-Vaccination:

Blood collection

Two Hours Post-Vaccination:

Behavioral observations

Three Hours Post-Vaccination:

Novel object introduction

The Results:

SCAN FOR RESULTS

Piglets vaccinated intradermally vs. intramuscularly:

- Had **50% LESS** mean serum cortisol.
- Had **8X LESS** vocalizations during vaccination.
- Were 24 seconds **FASTER** to vaccinate per pen.
- Were **MORE** active post-vaccination.
- Played with a novel object 19 seconds **FASTER**, **3X LONGER**, and moved it **20X FARTHER**.
- Resulted in **NO** adverse reactions or human injuries.

DISCUSSION: All the proposed benefits of ID and NF vaccination were observed in an on-farm setting.

CONTACT INFO | SCAN ME | READ MORE

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Miscellaneous

Correlation of temperatures measured with subcutaneous microchip or rectal thermometer for an easier and safer management in boars

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Background & Objectives

Rectal temperature (RT) is the reference standard for clinical evaluation of body temperature in mammals. However, the use of a rectal thermometer to measure temperature causes stress and is very difficult in boars. There is a need for clinical techniques that reduce both stresses. Subcutaneous temperature-sensing identification microchips fulfil the current legal requirements and provide a reading of subcutaneous temperature (MT). This study aims to investigate the correlation between both methods to evaluate body temperature.

Photo 1: Rectal Temperature

Materials & Methods

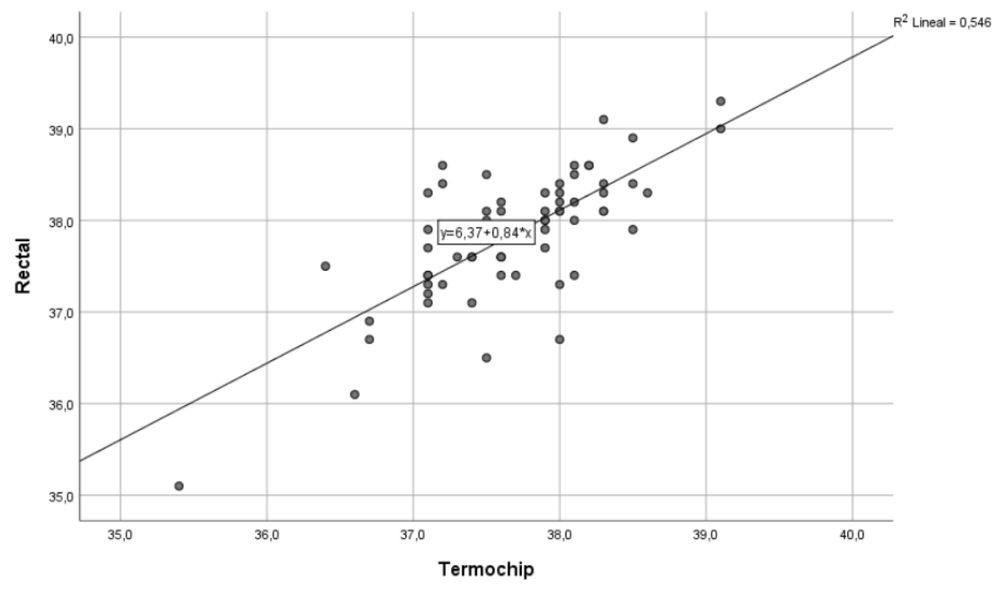
In total, 19 boars, belonging to a boar stud in Zaragoza (Spain), were randomly selected during semen collection (Day 0) and included in this study. A microchip (Thermochip® Mini, MSD Animal Health) was implanted subcutaneously in the perianal area during semen collection and temperature was measured by both chip reader (MT) and a rectal thermometer (RT). Four measurements were taken using both methods in each boar (on consecutive Mondays, same hour, same boars; n=73). Correlation between MT and RT, and differences between MT and RT, were estimated for pairs of data-points from the same individual.
A regression test was performed (SPSS program).

Photo 2: Thermochip implanted subcutaneously in the perianal area

Photo 3: Thermochip reader

Results

There was a significant and positive correlation between MT and RT (r=0.739 to 1.0). A highly significant regression was detected between both variables [y(RT)=6.370 + 0.835x(MT); p<0.001]. Mean temperature was lower for MT (37.68°C; SD:0.619) than for RT (37.85°C; SD:0.699) (p<0.001). However, limits of agreement (95%) [-1.10°C; 0.80°C] between both methods were narrow enough, with MT being an acceptable estimate of RT.



Graph 1

Discussion & Conclusion

MT was demonstrated as a good alternative to RT in boars. Handling of boars is complicated and reading the RT during semen collection is risky and takes almost one minute.
MT does not disturb the animal, nor causes discomfort that leads to interruptions during collection. MT can be useful to monitor daily variations in temperature and detect flaws in sperm quality in advance.

Thank you for reading