



## LAWSONIA INTRACELLULARIS

THE INVISIBLE ENEMY THAT HIDES YOUR FARM'S TRUE POTENTIAL

More info at  
[www.lawsonia.net](http://www.lawsonia.net)





# WHAT IS ILEITIS?

Ileitis is the common name of Porcine Proliferative Enteropathy (PPE):

- **Enteropathy**, because it affects the intestines.
- **Proliferative**, because it causes the proliferation of the immature cells in the intestinal crypts (enterocytes).

It is caused by *Lawsonia intracellularis*. It affects a number of animal species.

Present throughout the world, in 3 different forms.



## ACUTE FORM: 4 to 12 month old pigs

- Acute haemorrhagic syndrome<sup>1</sup> (PHE and NE).
- **High mortality.**
- It mainly affects **replacement gilts and fattening pigs** approaching slaughter age.



## SUBCLINICAL FORM: late nursery stage<sup>2</sup>

- **Without evident diarrhoea.**
- Decrease in the growth rate (**worse FCR and ADWG**).
- It appears sooner in **Europe** than in America<sup>3</sup>, during **the period just after weaning**.

The most common form



## CHRONIC FORM: 6 to 20 week old pigs<sup>4</sup>

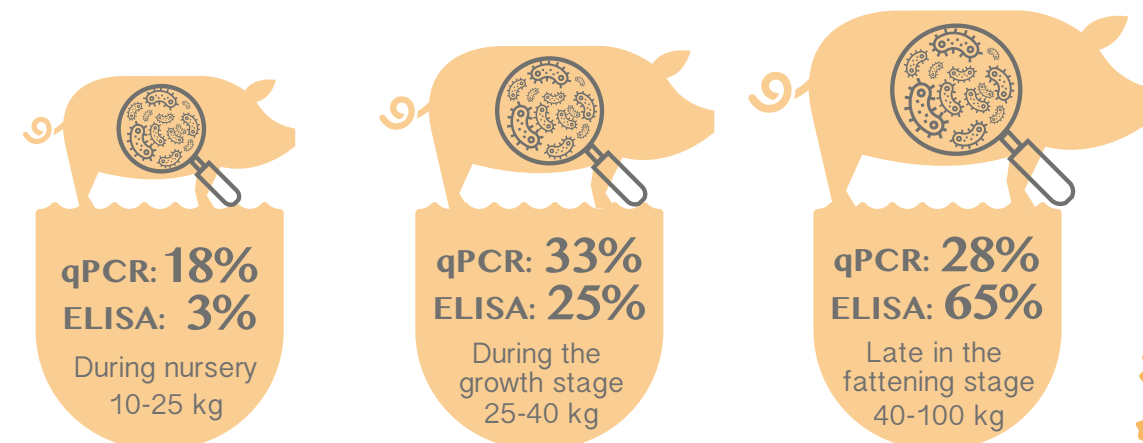
- Porcine Intestinal Adenomatosis (PIA), **diarrhoea** (7-10 days), after which most of the pigs recover.
- **Lack of homogeneity** in pig batches.



# PREVALENCE OF ILEITIS<sup>5</sup>

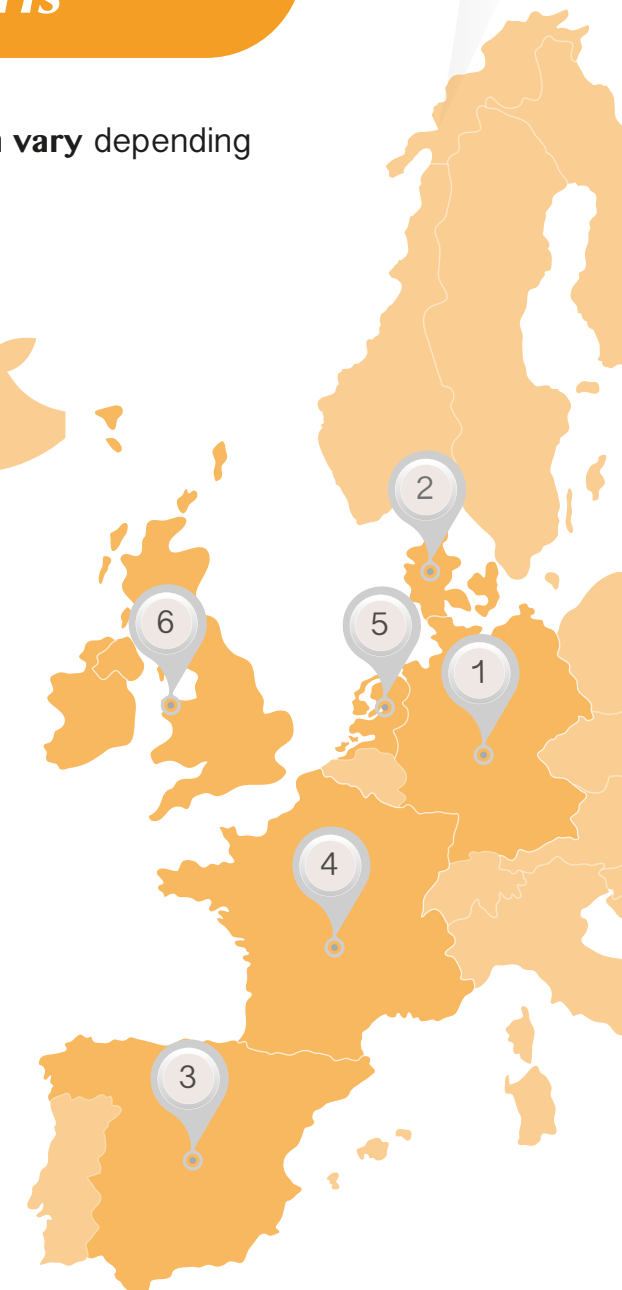
Between 80-100% of European farms are infected with *Lawsonia intracellularis*

High presence of *Lawsonia intracellularis* in **faeces**. The **viral load** can **vary** depending on the age group or the country.



		1 DE	2 DK	3 ES	4 FR	5 NL	6 UK
qPCR	HP*	92%	97%	85%	79%	93%	100%
	WHP*	30%	42%	17%	21%	23%	23%
ELISA	HP*	100%	90%	100%	90%	100%	92%
	WHP*	32%	51%	20%	33%	23%	36%

\*HP: Herd prevalence      \*WHP: Within herd prevalence





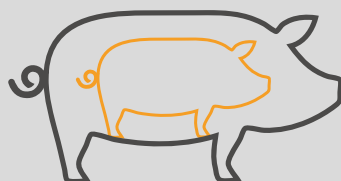


# ECONOMIC IMPACT

The main source of economic loss comes from **production losses**.

**Increase in growth differences → uneven batches → greater costs.**

The estimated loss per commercialised pig in the USA fluctuates between **US\$5.98** and **US\$16.94**.<sup>6</sup>



**AVERAGE DAILY  
WEIGHT GAIN**

**Decreases by up  
to 38%**<sup>7</sup>

**Increase in the time  
to reach** slaughter  
weight.



**FEED CONVERSION  
RATIO**

**Increases by up  
to 27%**<sup>7</sup>

Lower increase in  
weight **with the same  
consumption of feed.**



**MORTALITY**

**Increases by up  
to 70%**<sup>8</sup>

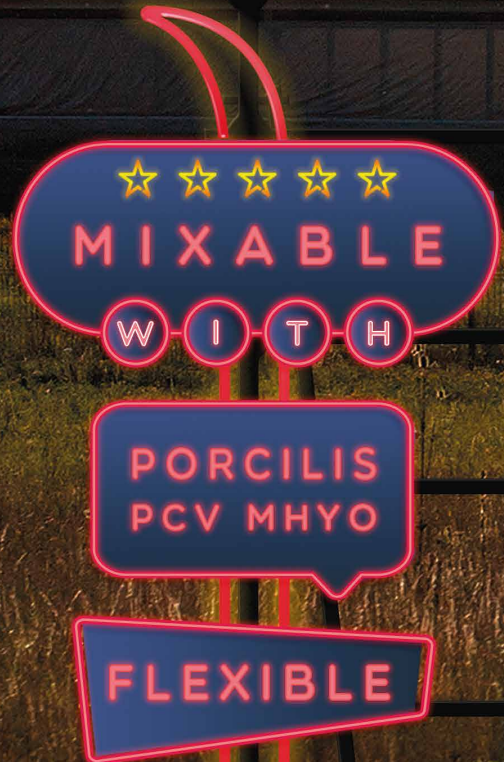
**In the acute stage** of the  
disease (pigs by the end  
of the fattening stage).

**The cost of ileitis causes losses between £2 million and  
£4 million per year in the UK.**<sup>9</sup>

**VACCINATING IS  
THE SOLUTION**







## TURN AN INVISIBLE ENEMY INTO A VISIBLE PROFIT

Porcilis Lawsonia is the 1st ever injectable vaccine in Europe to control *Lawsonia Intracellularis*.



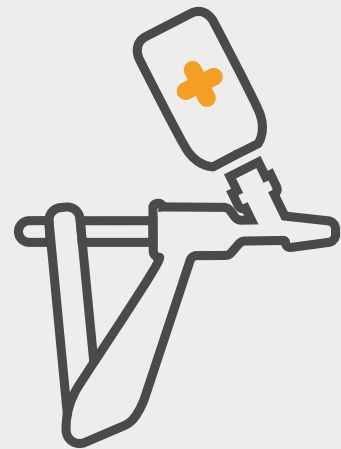
- PROVEN TO:
- REDUCE LOSS OF AVERAGE DAILY WEIGHT
  - REDUCE MORTALITY
  - REDUCE BACTERIAL SHEDDING
  - REDUCE DIARRHOEA AND INTESTINAL LESIONS





# Turn an invisible enemy into a visible profit

Injectable vaccine for the control of ileitis in individual pigs.



ONE STEP & GO

- **Ready to use** in a single step.
- There is no need to use water.
- It guarantees that **each** animal receives the **exact dose** (2 ml).

- **21 weeks of immunity**, protecting the pigs throughout the fattening stage.



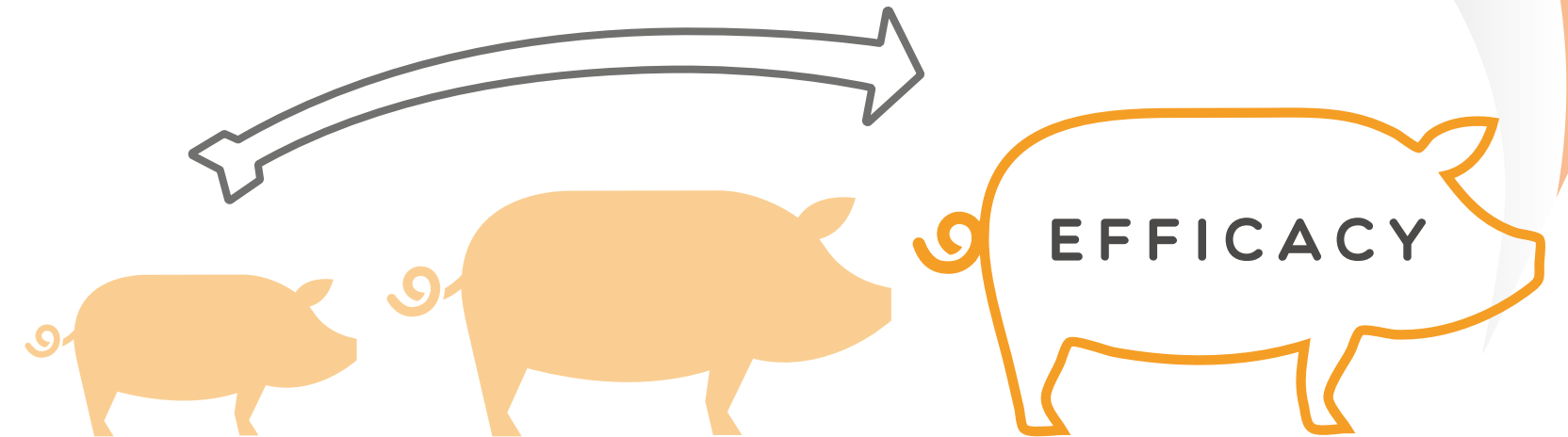
MIXABLE  
WITH

**PORCILIS  
PCV MHYO**

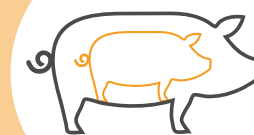
FLEXIBLE

Killed vaccine with maximum flexibility of use:

- **Reducing the use of antibiotics.**
- **No interference** with feed, water chlorination, antibiotics, etc.
- It can be reconstituted with **Porcilis PCV M hyo**.



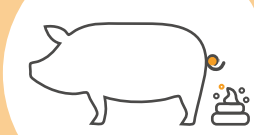
Proven to<sup>11</sup>:



**Increase  
average  
daily weight**



**Reduce  
mortality**



**Reduce  
bacterial  
shedding**



**Reduce  
diarrhoea  
and intestinal  
lesions**

The final result is improved production performance.



# A highly protective Vaccine

This study consisted of two parts:

## 1 EXPERIMENTAL VACCINATION-CHALLENGE TRIALS<sup>12</sup>: PORCILIS® LAWSONIA VS ORAL LIVE VACCINE

75 piglets

3 groups

Challenge\*

- **Group 1:** Porcilis Lawsonia (PL)
- **Group 2:** Oral Vaccine
- **Group 3:** Unvaccinated controls

	Trial 1 Vacc. 4w	Trial 2 Vacc. 4w	Trial 3 Vacc. 5w
G1	PL + Emunade 2ml	PL + Porcilis PCV M Hyo 2ml	
G2	Oral Vacc. 2ml	Oral Vacc. x5w PCV2-M Hyo combo x3w	
G3	Unvaccinated		

### Results:

Post-challenge results ± SD of vaccination-challenge trials 1, 2 and 3.

Vaccine group		Avg clinical score <sup>c</sup> / day 13-20	ADWG g/day / day 13-20	PCR faeces avg log pg DNA/μl / day 21	PCR mucosa avg log pg DNA/μl / day 21
Trial 1	PL + Emunade	0.3 ± 1.2 <sup>a</sup>	935 ± 306 <sup>d,e</sup>	0.23 ± 0.64	0.18 ± 0.43 <sup>a</sup>
	Oral vaccine	0.9 ± 2.3 <sup>a</sup>	655 ± 385	0.60 ± 0.82	0.66 ± 0.84
	Control	4.4 ± 6.5	550 ± 460	0.34 ± 0.62	0.57 ± 0.56
Trial 2	PL + Emunade	3.0 ± 5.5	649 ± 751 <sup>d,e</sup>	0.27 ± 0.54	0.71 ± 0.76 <sup>a</sup>
	Oral vaccine	2.8 ± 5.8	-229 ± 1301	0.11 ± 0.38	1.05 ± 0.84
	Control	5.7 ± 5.5	-655 ± 723	0.46 ± 0.70	1.36 ± 0.57
Trial 3	PL + PCV M Hyo <sup>a</sup>	1.5 ± 2.6	1012 ± 302 <sup>d,e</sup>	1.37 ± 1.17 <sup>a,e</sup>	1.10 ± 0.42
	Oral vaccine <sup>b</sup>	3.9 ± 4.4 <sup>a</sup>	549 ± 597	2.43 ± 0.98	1.10 ± 0.51
	Control	1.0 ± 2.9	537 ± 627	2.47 ± 0.78	1.06 ± 0.49

## The benefits of Porcilis Lawsonia are:

- +

Daily weight gain.
- *Lawsonia intracellularis* shedding.
- Clinical scores.
- Macroscopic as well as microscopic ileum lesion scores.

<sup>a</sup> Porcilis PCV M Hyo. <sup>b</sup> Commercially available PCV M Hyo vaccine also applied. <sup>c</sup> Diarrhoea scoring. <sup>d</sup> p < 0.05 vs control. <sup>e</sup> p > 0.05 vs live vaccine.  
\*The pigs were challenged with virulent *Lawsonia intracellularis* (orally, homogenised *LI* infected intestinal mucosa). Trial 1: 4 weeks after vaccination. Trial 2: 17 weeks after vaccination. Trial 3: 3 weeks after last vaccination.

## 2 FIELD TRIAL<sup>12</sup>: EFFICACY UNDER FIELD CONDITIONS

Total tested pigs: 2.876

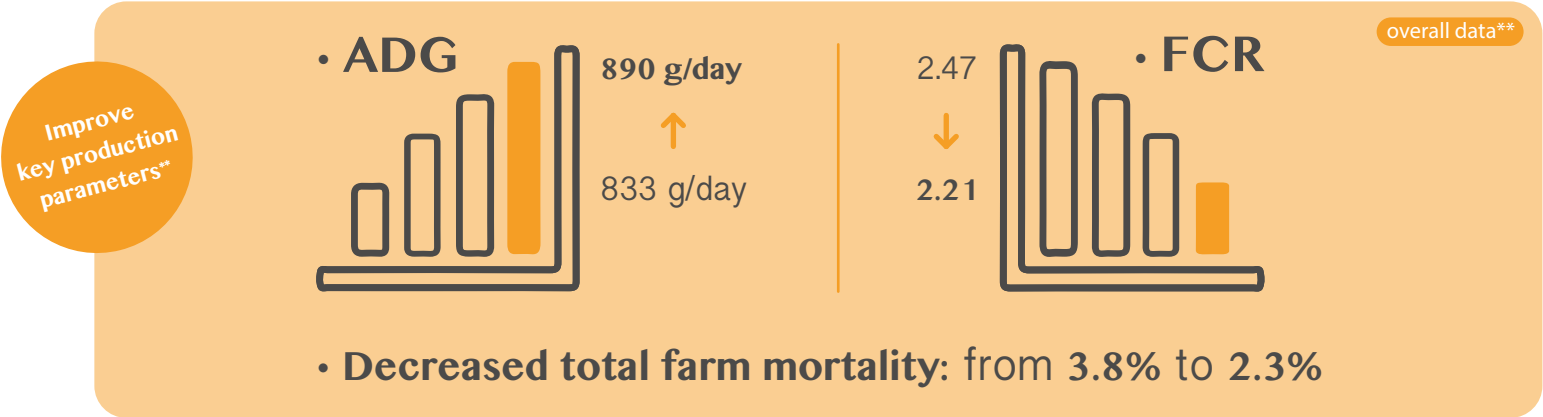
50% vaccinated with PL & 50% unvaccinated

8 MONTHS Assessment for 8 months

Farm with a history of mortality due to acute ileitis

### Results:

Porcilis Lawsonia proved to be highly efficacious:



It reduces Lawsonia-associated mortality in vaccinated pigs groups to 0%\*

## Conclusions of the experimental vaccination challenge and field trials

Porcilis® Lawsonia provided a superior protection when compared to a commercially available oral vaccine.

Porcilis® Lawsonia, either as a standalone treatment or used by mixing it with Porcilis® PCV M Hyo, induced a statistically significant protection against an experimental infection with *Lawsonia intracellularis*.

Porcilis® Lawsonia reduces the losses caused by ileitis in pigs.

\* In the control group 11 animals died or were culled due to acute ileitis.  
\*\* Compared with the year preceding the study. If the whole herd had been vaccinated, the improvement of the key production parameters would likely.



<sup>1</sup> McOrist & Gebhart, 2012.

<sup>2</sup> Paradis M.A., McKay R.I., Wilson J.B., Vessie G.H., Winkelman N.L. and Gebhart C.J. Subclinical ileitis produced by sequential dilutions of *Lawsonia intracellularis* in a mucosal homogenate challenge model.

<sup>3</sup> Guedes R.M.C., Clinical signs of Ileitis. 2018.

<sup>4</sup> Lawson y Gebhart, 2000.

<sup>5</sup> Arnold M. et al. Prevalence of *Lawsonia intracellularis* in pig herds in different European countries. Porcine Health Management (2019) 5:31.

<sup>6</sup> Holtkamp, 2019.

<sup>7</sup> Paradis M.A. *et al*, 2005.

<sup>8</sup> Rubio P., 2018.

<sup>9</sup> McOrist *et al*, 1997.

<sup>10</sup> Roerink F. *et al.*, AASV 2016.

<sup>11</sup> Thechnical data on Porcilis® *Lawsonia* SPC, MSD.

<sup>12</sup> Jacobs A.A.C. et al. Efficacy of a novel inactivated *Lawsonia intracellularis* vaccine in pigs against experimental infection and under field conditions. Vaccine 37 (2019) 2149–2157.

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## International summary of product information

Porcilis *Lawsonia* lyophilisate and solvent for emulsion for injection for pigs.

### Indications for use:

For the active immunisation of pigs from 3 weeks of age to reduce diarrhoea, loss of daily weight gain, intestinal lesions, bacterial shedding and mortality caused by *Lawsonia intracellularis* infection.

Onset of immunity: 4 weeks after vaccination.

Duration of immunity: 21 weeks after vaccination.

### Administration:

A single dose of 2 ml of reconstituted vaccine in pigs starting at 3 weeks of age. Vaccinate pigs by the intramuscular route in the neck.

Reconstitute the lyophilisate in the solvent or in Porcilis PCV M Hyo as follows:

Lyophilisate      Solvent or Porcilis PCV M Hyo

50 doses      100 ml

100 doses      200 ml

Visual appearance after reconstitution: homogenous white to nearly white emulsion after shaking.

### Special precautions for use in animals: Not applicable.

Safety and efficacy data are available in pigs from 3 weeks of age onwards which demonstrate that this vaccine can be mixed with Porcilis PCV M Hyo. The product literature of Porcilis PCV M Hyo should be consulted.

Shelf-life after reconstitution according to directions: 6 hours.

Store in a refrigerator (2°C – 8°C). Do not freeze. Protect from sunlight.

### Composition: Each dose of 2 ml reconstituted vaccine contains:

Active substance (lyophilisate):

Inactivated *Lawsonia intracellularis* strain SPAH-08: ≥ 5323 U\*

\* Antigenic mass units as determined in the in vitro potency test (ELISA).

Adjuvant (solvent):

Light mineral oil: 22.4 mg

Aluminium (as hydroxide): 2.0 mg