

## SEROLOGICAL PREVALENCE OF *Lawsonia intracellularis* ACROSS EUROPEAN PIG HERDS

Hardge, T<sup>1</sup>; C. Keller<sup>2</sup>; R. Seinheuer<sup>1</sup>; Ph. Tessier<sup>1</sup>; J.M. Salleras<sup>1</sup>; P. Rubio<sup>3</sup>; K. Vestergaard<sup>1</sup>; G. Cluydts<sup>1</sup>; V. Ceccarelli<sup>1</sup>; M. Bugliesi<sup>1</sup>; R. Schippers<sup>1</sup>; K. Johnson<sup>1</sup>; I. Papatsas<sup>1</sup>; E. Eichin<sup>1</sup>; J. Rigat<sup>1</sup>; T. Trela<sup>1</sup>  
<sup>1</sup>Boehringer Ingelheim Animal Health; <sup>2</sup>bioScreen EVD MC GmbH; <sup>3</sup>University Leon, Spain

### Introduction

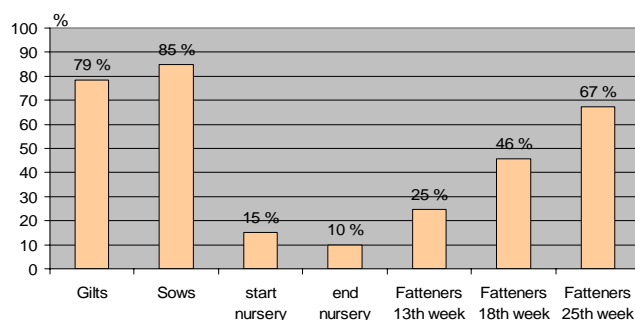
Although it is well established that Ileitis due to *L. intracellularis* infection is an important enteric disease, there is a surprisingly lack of comprehensive and comparable epidemiological data. The development of an easy to use and cost effective blocking ELISA [1] for the detection of antibodies against *L. intracellularis* opened a realistic way for the broad investigation of the prevalence of *L. intracellularis* infection in Europe.

### Material and Methods

The study is based on a cross-sectional serological screening of *L. intracellularis* in farms across Europe during the year 2004. The farms were selected according to the criteria of being typical in size and production system in the respective country. In total 15.997 blood samples from 342 farms in 12 European countries were analyzed by using a blocking ELISA (Svanova) for the detection of antibodies against *L. intracellularis* [1]. All samples were tested at bioScreen according to the description of the manufacturer. To be able to analyze differences in the prevalence between age groups the applied profiling scheme included 50 blood samples in total (5 in sows  $\leq$  1<sup>st</sup> litter; 5 in sows  $>$  1<sup>st</sup> litter; 5 in piglets at the start of nursery (3<sup>rd</sup>/5<sup>th</sup> week); 5 in pigs end of nursery (8<sup>th</sup> to 10<sup>th</sup> week, 10 in fatteners 13<sup>th</sup>, 18<sup>th</sup> and 25<sup>th</sup> week of age each).

### Results and Discussion

The average European seroprofile showed the highest percentage of positive serum samples in gilts and sows (79% and 85%, respectively). The lowest prevalence was found in piglets at the start and at the end of the nursery (15% and 10%, respectively) (Figure 1).



**Fig. 1:** Average percentage of positive pigs in different age groups (n = 15997 samples; 342 European farms)

Piglets at the start of the nursery (3<sup>rd</sup>/4<sup>th</sup> week of age) had consistently more positive serum samples than the ones at the end of the nursery. It is reasonable to assume that a part of these antibodies at the start of the nursery are of maternal origin. With the start of the fattening period a clear increase in the prevalence from 10 % to 25 % is found in the average farm seroprofile. The seroconversion

typically starts between the end of the nursery and the 13<sup>th</sup> week of life. Considering about 2 to 3 weeks from infection to sero-conversion these pigs are infected in the nursery or short after introduction into the fattening units in the majority of European farms. In the 13<sup>th</sup> week of age, each 4<sup>th</sup> pig in Europe is already infected with *L. intracellularis*. Close to marketing, as much as two out of three animals react sero-positive. In 93 % and 97% of all farms in Europe at least one fatterer and/or breeding animal was diagnosed to be ser-positive against *L. intracellularis*, respectively (Table 1).

**Tab. 1:** Average percentage of positive pigs and positive farms (\*fatteners/sows) in European countries

Country	No of farms tested	Positive pigs (%)	Positive farms (%)*
Switzerland	6	67	100/100
Greece	6	57	100/100
Italy	8	57	100/100
Denmark	20	55	100/100
Czech Republic	6	55	100/100
Spain	73	47	92/98
Netherlands	10	46	88/100
France	54	45	92/96
Germany	129	44	94/99
Portugal	8	37	88/100
United Kingdom	11	34	90/100
Belgium	11	32	91/91
Average Europe	342	48	93/97

It should be noted that at the end of the nursery (8<sup>th</sup> to 10<sup>th</sup> week of age) already 40 % of all European herds showed antibodies against *L. intracellularis*. Countries like Denmark and Switzerland, which have banned antimicrobial growth promoters since several years, showed a remarkable earlier sero-conversion than other European countries (data not shown). This implies that the European wide withdrawal of antimicrobials growth promoters since January 2006 will also impact the prevalence and infection patterns of *L. intracellularis* in the other European countries.

The European prevalence survey revealed that Ileitis is a frequently occurring disease which will need increased attention by veterinary surgeons and producers. Serological profiling will help veterinary practitioners to apply tools like vaccination with Enterisol<sup>®</sup> Ileitis [2] and antimicrobial treatment more efficiently.

### References

- [1] Keller, C. et al. (2004): Proc. of the 18th Congress of the International Pig Veterinary Society, Hamburg, Vol. 1, 253
- [2] Hardge, T.; Nickoll, E.; Grunnert et al. (2004): The Pig Journal 54, 17-34