

7th The Prevention of Ileitis

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The big secret for an effective control of ileitis is the prevention based on the controlled exposure of the animals to *L. intracellularis*, with none or minimal disease, this allowing for the development of a protective immune response. The prevention of ileitis will be the topic of this article.

The good news is that this immunity will last until slaughter age, and there will be no relapse of the disease in these animals. The bad news is that these controlled exposures are easier said than done. In other words, it is not an easy task to accomplish, as each herd may have different kinetics of infection depending on the pig flow, facilities, type of floor, pig density, etc. Anyhow, below we can find the description of the antimicrobial and vaccine protocols available to control acute outbreaks and the chronic or subclinical disease that represent the second scenario based on the clinical presentation in a herd.

CONTROLLED EXPOSURE THROUGH THE USE OF ANTIMICROBIALS

A very popular program to allow the controlled exposure is the use of two or three pulses of therapeutic doses of effective antimicrobials against *L. intracellularis* in feed, with intervals of three to four weeks, avoiding the use of an antimicrobial against this agent during the growing-finishing phase. The first pulse of medication is usually provided at the beginning of the growing phase and is followed by two to three weeks without medication against *L. intracellularis*. Based on the course of the disease, this period would allow infection for a short period of time (three to four weeks), followed by its interruption with the beginning of a new effective medication pulse. The need for a third pulse will depend on the pressure of infection in each herd, but it is usually not necessary if the first two pulses are performed properly.

Some herds in Brazil started to use this “window of exposure” program during the nursery stage, allowing the *L. intracellularis* infection in the middle of this phase for 14 to 18 days with no medication that could affect the *L. intracellularis* infection. This control program has been successful in many herds.

An alternative to this “window of exposure” program would be to perform a serological profile of the herd, collecting 20 to 30 serum samples within three-week age interval groups in a cross-sectional setup, starting with 5 weeks of age at the nursery up to slaughter age. This procedure would sum between 100 and 150 serum samples and the results would be displayed in a bar graph (*Figure 1*).

As seroconversion occurs two to three weeks after exposure, the assumption is that three to four weeks before the peak of seroconversion would be the appropriate time to use one single antimicrobial pulse in the water or in feed, for five days or two weeks, respectively, in order to allow exposure of future batches of pigs to *L. intracellularis*, this allowing the development of an immune response, but without the economic losses caused by the disease.

There is a clear trend about a stricter control and more limitations on antibiotic use that could affect those protocols. A full paper is devoted to the implications of the forthcoming antibiotic reducing policies and/or requirements on the treatment and prevention of ileitis.

VACCINES

The other option for the development of a solid immune response in all the animals in the herd would be the use of vaccines against *L. intracellularis*. As passive immunity can be detected up to five weeks of age, the use of modified live or killed (attenuated) vaccines would be recommendable after this age.

However, due to the withdrawal of antimicrobials for seven days as a requirement to use the modified live vaccine, some herds are using the earlier vaccination of suckling piglets with reported success. Anyhow, published studies using the modified live vaccine have shown efficacy in controlling the disease and improving the growth rate up to slaughter age after vaccination at five weeks of age. This vaccine was first launched in USA in 2001 and is now available in all swine producing countries. The killed vaccine was been launched in USA in 2016 and has been tested in different countries as well.

Its recommended use is as an intramuscular injection of three-week-old pigs or older, and therefore, with no interference due to the use of antimicrobials. Preliminary data regarding the killed vaccine have shown promising results.

A better assessment of the ideal age of vaccination, considering the particularities of each herd, such as management, antimicrobial program used, and other aspects could be obtained with a serum profile of the herd and understanding the kinetics of the *L. intracellularis* infection. The vaccination has to be performed six to seven weeks before the peak of seroconversion in order to generate a solid immune response in time to induce protection (Figure 1). Of course, the appropriate administration of vaccines will guarantee the aimed induction of immunity in the herd, but compared to the other options mentioned above, such as the “window of exposure” program, the vaccination has a cost that must be evaluated based on the severity of the disease in each herd. As an example, as it is more likely to find ileitis in new farms due to the fact that there are only gilts, the prevention of an acute outbreak is always on the table. Breeding companies have recently started to provided re-vaccinated gilts in order to minimize ileitis problems on the recipient farms.

In conclusion, **there is no magic solution that will fit into all pig herds, and the best ileitis control alternative will have to be chosen in each herd.**

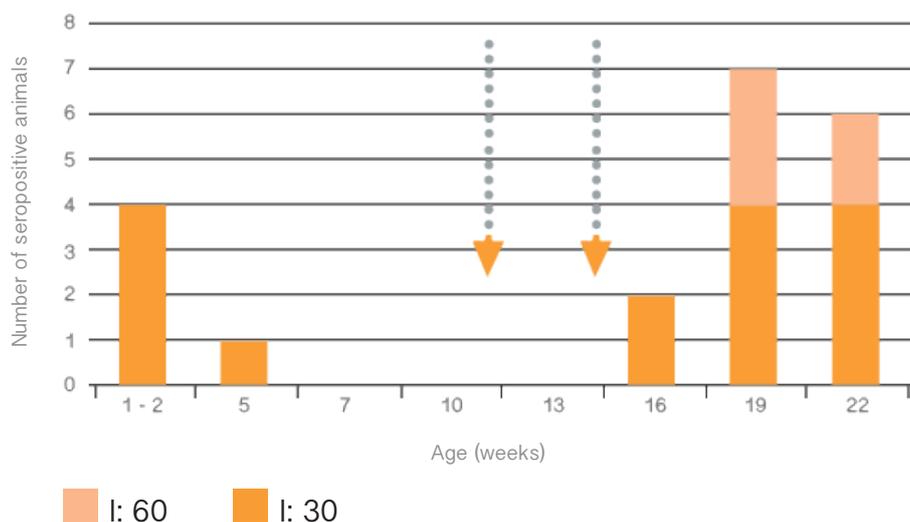


Figure 1. *Lawsonia intracellularis* serum profile of the pig herd showing maternal antibodies up to 5 weeks of age and active seroconversion starting at 17 weeks of age and reaching its peak at 19 weeks of age. The ideal timing of medication would be around 15 weeks of age (black arrow) and vaccination around 12 weeks of age or earlier (empty arrow).