



Ileitis Symposium, Hamburg, June 28th 2004

Experiences with the Use of Enterisol® Ileitis in Canadian Breeding Animals

Robert Desrosiers, DVM, Dipl. ABVP



Introduction

Porcine proliferative enteropathy, also called Ileitis, is a common condition in Canada. In Quebec, which is the province of this country where the author spends most of his time, the acute form of the disease (proliferative haemorrhagic enteropathy, or PHE) is much more important than the chronic form. As is the case in other countries, PHE is mainly a problem for late finishing pigs and breeding age animals. Gilts and sows of lower parities are at particular risk, but females up to their tenth parity or over are sometimes affected. Collins et al.¹ have reported that using the same isolate and the same dose of *Lawsonia intracellularis* in experimental infections, they reproduced a mild or chronic form of the disease when challenging young pigs of 3 to 8 weeks of age and severe clinical signs, with some pigs showing melena and characteristic gross lesions of PHE, when the animals challenged were 18 weeks of age. It would thus appear that age at the time of infection could be one of the elements involved in the form that pigs will be affected with after infection.

Economics of PHE

One of the main difficulties with PHE is that the interval between detection and death can be extremely short, which often makes the treatment unsuccessful in animals that have begun to show clinical signs. The cost of an outbreak of PHE in a sow herd can be highly variable, and can be calculated different ways. In a 100 sow herd affected with an outbreak of average severity, with 2 commercial sows being lost (let's assume a value of \$400/sow, so \$800 US) and a medication cost of about \$400, the cost of the disease per sow would be about \$12. However, if the outbreak is particularly severe (mortality of 10%), difficult to treat (\$1,000) and if animals of great value (e.g. purebred animals, \$800/sow) are involved, the cost of the disease can reach \$90 or more per sow. This is only taking in consideration the value of the animals lost and the medication cost. Furthermore, the losses involved could be even greater if

expressed in terms of opportunity costs. There are outbreaks where abortions and other losses in performance (e.g. drop in farrowing rate) can also add to the total cost.

Another problem with PHE is that the disease has a tendency to recur after an initial treatment has apparently procured an effective control. What seemingly occurs is that when a group of animals is treated, the medication applied to the group protects the animals against the disease but, since their immune system is not stimulated, can leave many of them susceptible when medication is removed. This was demonstrated by Collins et al.² who showed that with low levels of medication, the animals were not well protected against an initial challenge with *Lawsonia intracellularis*, but were immune afterwards to a second challenge. At intermediate levels, some animals were protected, some not. At high levels however all animals were well protected while on medication, but when this medication was removed, they were as susceptible as if challenged for the first time.

While treatment costs for PHE can be high, the same is true in many North American farms for prevention. In some herds gilts are fed anti-*Lawsonia* antimicrobials on an on/off basis in an attempt to prevent losses, while allowing the animals to build some immunity during the off periods. In others, medication is kept in the feed of gilts from their introduction into the herd to after their first farrowing. In one such herd the cost associated with that strategy was about \$10 US per gilt, and the control was not considered totally satisfactory. Finally, in certain herds where problems are particularly frequent and difficult to control, all sow feeds are sometimes medicated all year long for the sole purpose of preventing this condition.

Enterisol® Ileitis in breeding animals

The Enterisol® Ileitis vaccine (frozen form) is available in Canada for general use since October 2002. Because of the importance of PHE in herds of Quebec, and because it was becoming increasingly difficult and expensive to treat or prevent this condition using medication, practitioners were eager to try this new preventive tool. The results so far can be considered as excellent. In a brief survey conducted at the end of last year with 6 veterinary consultants that had used the product in sow herds, the results that they had obtained up to then were the following (Desrosiers, unpublished data):

- 4 practitioners reported having used the product in a total of 38 herds; clinical signs had not been observed in any of the herds after vaccination.
- Practitioner No. 5 had used the vaccine in 10 herds; clinical signs of Ileitis were not observed in 9 of them after vaccination; in the tenth herd, an outbreak of Ileitis was diagnosed approximately 12 months after vaccination; however the sows involved were all younger animals that had been introduced in the herd after vaccination of the herd, and that had not been vaccinated themselves after their introduction.
- Practitioner No. 6 had also used the vaccine in 10 herds, and in 9 of them no clinical signs of Ileitis were observed after vaccination; in the tenth herd, a few sows did show clinical signs of the disease about 55 to 60 days after vaccination, and one sow died of Ileitis.

Although the author readily acknowledges that this survey is by no means scientific, it is a true reflection of the results that have been obtained with this product in Quebec up to now. The clinical signs observed by practitioner No. 6 in one herd are suggesting that there can be cases where not all animals vaccinated will be protected. Given the very high success rate obtained with vaccination so far in Quebec and Canada as a whole to protect breeding animals from PHE, our assumption

is that in vaccinated herds where clinical signs would be observed, the reason is likely to be that either the vaccine was not properly stored or administered, that some animals did not have access to the proper dose or that products that the animals received in the feed, water or by injection interfered with the efficacy of the vaccine, which is live. This being said, because of the results that have been obtained up to now, many if not most breeding companies of our country are now vaccinating the gilts they are selling. Vaccination of gilts is also very popular in the USA. In a presentation at this year's AASV meeting Dr. Tim Loula, who is a partner in the largest clinic of swine veterinarians in the country, reported: "We still strongly believe that it is a must to vaccinate replacement gilts so that our sow herds are protected"³.

It should be mentioned that the vaccine is presently licensed to be used in animals that are 3 weeks of age and older, but not in pregnant sows or breeding boars. Canadian veterinarians can however recommend the use of the vaccine in these animals when a proper veterinary/client/patient relationship exists, and a sow claim for use of the vaccine in pregnant animals is in preparation.



Duration of immunity

Experimental results suggest that immunity can be detected 21 days post vaccination, and in field cases of PHE in sow herds, clinical signs and losses are usually well prevented from day 35 and over post vaccination. Given the fact that the incubation period is thought to be about two weeks, this tends to corroborate that immunity is present by 21 days post vaccination. The duration of this immunity is a question that has not been adequately addressed yet for the vaccine, or for field strains. Collins et al.² have shown that if an animal were experimentally infected with a field strain of *Lawsonia intracellularis*, recovered, and were challenged again after it had stopped shedding the organism from the first challenge, it was completely protected in the sense that it did not show clinical signs, and did not shed the organism either after the second challenge. Concerning the vaccine, protection was demonstrated in animals challenged 22 weeks post vaccination (Kroll J., unpublished data). However, although it is too early to reach final conclusions, field results suggest that immunity to this vaccine could be long, and possibly last for the productive life of the animal. For example gilts that have been vaccinated only once 3 years ago in the US, and placed in sow herds where previously they were showing clinical signs following introduction, have not shown anything yet. Although the vaccine has not been available for that long in Canada, many herds have been vaccinated more than a year ago now and to date protection appears to be holding very well. As these results continue to accumulate, it will eventually be possible to have a better idea as to how long duration of immunity lasts under field conditions, and whether or not there is a need to revaccinate. For the time being though it does not seem to be the case in Canada.

Conclusion

PHE is an important condition in North America. When one considers the potential losses and costs that can be associated with it, the use of Enterisol® Ileitis is increasingly found to be justified for breeding animals in Canada and the USA. Given the pressure that is mounting to reduce the usage of antimicrobials in animals when other options are available, and the cost effectiveness that the product has shown so far, it seems to be well suited for the swine industry of today and tomorrow.



References

1. Collins, AM; McOrist, S; van Dijk, M; Love, RJ. Effect of age on clinical disease associated with *Lawsonia intracellularis* infection. *Proc. Manipulating Pig Prod. VII*, 1999: 277.

2. Collins, AM; van Dijk, M; Vu, NQ; Pozo, J; Love, RJ. Immunity to *Lawsonia intracellularis*. *Proc. AD Leman Swine Conf.* 2001: 115-120.

3. Loula, TJ. Ileitis: Current thoughts on prevention. *Proc. AASV*, 2004: 511-513.

Boehringer Ingelheim Animal Health GmbH
Binger Straße 173
55216 Ingelheim am Rhein
Germany
Phone +49(0)61 32 77-9 27 22
Fax +49(0)61 32 77-9 81 83
Webmaster-AnimalHealth@ing.boehringer-ingelheim.com
www.boehringer-ingelheim.com

