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Worm infections can compromise M. hyo vaccine efficacy in pigs

UK pig producers, already losing up to £6 a pig¹ on worm-infested units, could be blasting a hole knocking millions of pounds off industry profits this year if they fail to reduce worm burdens.

This shock finding, which comes as producers are being urged to achieve two tonnes pigmeat output per sow, is contained in a research study² by a team of Danish and US pig scientists. This shows that worm infections in a pig herd can adversely affect the efficacy of *Mycoplasma hyopneumoniae* vaccines. The other bad news is that, like other nations' pig industries, most UK herds are likely to have worm infections. The study showed that three weeks after vaccination two-thirds of pigs infected with *Ascaris suum*, the large roundworm, had failed to seroconvert (seroconversion is the potentially protective immune response that develops after an animal is vaccinated). This was compared to 100 per cent seroconversion in the worm-free pigs at the same period. By the end of the study 22 per cent of worm-infected pigs had still not seroconverted.

The large roundworm is the most prevalent to infect pigs – underlining the potential adverse impact on vaccine efficacy.

UK producers spent more than £5,297,000³ on M. hyo vaccines last year and are expected to spend about the same amount this year. The potential impact of worms affecting seroconversion could be an immediate loss on vaccine costs.

Added to this are substantial financial losses from reduced growth rate and worse feed conversion efficiency caused by failure to protect against disease. This is on top of production/financial losses caused directly by a worm infection.

Mycoplasma vaccines are used to help prevent enzootic pneumonia which, among other challenges, is estimated to reduce growth rate by up to 15.9 per cent and increase feed conversion by 13.8 per cent⁴.

“The total sum for losses, including the £6 per pig caused directly by worm infection, is potentially staggering,” says Phil Macdonald, business manager, pigs, with Janssen Animal Health.

The authors of the research paper comment: “Our study indicated that *A. suum* significantly compromised the effect of M. hyo vaccination. The impact of reduced vaccine efficacy caused by a common gastrointestinal helminth (worm infection) emphasises the importance of parasite control.

“More focus should be put into this area of research to outline the practical consequences of this interaction, and to be able to predict, prevent and correct negative interactions.”

Poor worming strategies

Results of a recent survey carried out by Janssen Animal Health suggest many pig units in the UK have incorrect worming strategies in place. “Two of the most basic problems on these units are that their worming programmes are not based on the prepatent period – the life cycle – of worms, and they do not cover all pigs in each herd,” says Phil Macdonald.

These factors are a must to achieve effective control and to cut the risk of reinfection, he adds:

- Plan a strategic worming programme that covers all pigs on a unit and takes account of the large roundworm life cycle
- Base treatment on a broad spectrum anthelmintic such as FlubenoI® , given in feed, or SolubenoI® 100mg/g, the only water-soluble benzimidazole in the market
- Purchased gilts and boars – treat on arrival in isolation unit and again on entry to the main herd
- Sows and boars – treat all breeding stock simultaneously two or three times a year, in spring, summer and autumn
- Outdoor herds – treat all sows/gilts just before moving to prevent contamination of clean land or re infection of the herd
- Weaners – treat all batches from six to 10 weeks of age, before their transfer to clean finishing pens
- Grower/finisher pigs – treat all batches every five weeks, leaving seven days after last treatment, before slaughter. The cost of worming a finishing pig three times is about 45p, which will give much better than a ten-fold return on investment, says Phil Macdonald.

Before the British Pig Health Scheme was initiated, Janssen Animal Health undertook numerous abattoir surveys to measure the level of milk spot lesions in pig livers. The lesions are caused by migrating larvae of the large roundworm. The results showed the disease was present in more than 50 per cent of batches of pigs sent for slaughter.

The level of condemned livers is a good indicator of lost saleable meat (Table 1)⁵. Alarm bells should be ringing loudly when 10 per cent or more of livers are condemned. By this time average daily liveweight gain has fallen by 2 per cent and there is a loss of almost 2 kg carcass weight.

Says Phil Macdonald: “The industry can take some simple steps to cut these horrendous financial losses, improving growth rate of pigs and their feed efficiency, and ensuring they gain full value from money invested in Mycoplasma vaccines.” Health issues such as worms are the third pillar of activity where BPEX will help producers to achieve the two-tonne sow.

| Table 1. Correlation between milk spot liver % and loss per pig (kg) | | | |
|---|------------------------------|--------------------|--------------------------|
| Condemned livers at slaughter (%) | Decrease in ADLWG (%) | ADLWG g/day | Loss per pig (Kg) |
| 0 | 0 | 700 | 0 |
| 10 | 2 | 686 | 1.82 |
| 20 | 4 | 672 | 3.64 |
| 30 | 5 | 665 | 4.55 |
| 40 | 6 | 658 | 5.46 |
| 50 | 7 | 650 | 6.50 |

References:

1. £6/pig – A Kanora, Janssen Animal Health, abstract IPVS 2004
2. N R Steenhard et al / Vaccine 27 (2009) 5161-5169
3. Gfk data 2010
4. www.pigprogress.net/health-diseases/e/enzootic-pneumonia-ep-mycoplasma-hyopneumoniae-30.html
5. Janssen Animal Health, 2000 – Belgium Ministry of Agriculture

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Always seek advice on the correct use of medicines from the provider, your veterinarian, pharmacist or suitably qualified person.

Use medicines responsibly. www.noah.co.uk/responsible.

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For the full list of contra-indications and warnings please refer to the products' SPCs

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