Comparison of tiamulin (Denagard®) with tylosin (Tylan®) premix for the treatment of ileitis

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Introduction:

Ileitis, caused by *Lawsonia intracellularis* (*Li*) is endemic in the UK with approximately 95% of farms being infected (Mortimer *et al*,. 2000). Both tiamulin and tylosin have been shown to be highly effective in treating artificial challenge infections with *Li* (McOrist *et al*,. 1996, 1997) when administered in the feed. It was the purpose of this study to compare the efficacy of these two antibiotics under field conditions.

Materials and methods:

Bishop Burton College's pig unit, comprising 220 sows, farrowing through to finishing, was a high welfare and high health unit. Pigs were reared on a solid-floor, straw-based, scrape-through system, allowing easy faecal access. The pigs were free of enzootic pneumonia, swine dysentery and there were no clinical signs associated with *Streptococcus suis* or *Actinobacillus pleuropneumoniae*. The presence of *Li* had been demonstrated in the faeces of grower pigs (10 weeks plus) and seroconversion was 100% by 17 weeks of age. Non pathogenic and low pathogenic *Brachyspira innocens* and *B. intermedia*, respectively, had also been identified. Clinical signs of ileitis, such as soft diarrhoea (see photo 1), were present but generally in a mild form. On day 0 ninety six, 11 week old pigs were tagged, weighed and divided into 12 pens containing 8 pigs, 4 male and 4 female/pen (see photo 2). They were allocated to 3 different treatment groups on a block and average pen weight basis.

The treatment groups comprised:
1. Untreated controls
2. Tylosin treated group (100ppm for 21 days)
3. Tiamulin treated group (100ppm for 21 days)

The pigs were scored for clinical signs of diarrhoea (DS), faecel samples were taken on a pen basis and pooled for PCR testing for *Li* and *Brachyspira* spp., and blood was taken from 3 pigs/pen, to determine *Li* seroconversion. After the medication period (day 21) the pigs were reweighed scored and sampled. The feed administered over the 3 week period was also recorded on a pen basis, so that feed conversion efficiency (FCE) could be determined.

Photo 1: Typical mild diarrhoea

Photo 2: Straw-based trial pens

Results:

The results are summarised in Table 1 and 2.

Table 1. Comparative performance/financial results

Parameter	Control	Tylosin 100ppm	Tiamulin 100ppm
Start weight (kg)	32.28	31.89	32.16
End weight (kg)	48.66	50.02	50.02
Weight gain (kg)*	16.38[a]	18.13[b]	17.86[b]
Value (£)*	19.00	21.03	20.72
ADG (g)	780(-)	863(10.7%)	850(9.1%)
Feed (kg)	35.8	37.7	36.1
Feed cost/kg (£)	0.287	0.302	0.302
Feed cost (£)	10.27	11.39	10.90
FCE	2.19(-)	2.08(4.9%)	2.02(7.5%)
Margin over feed (£)	8.73	9.64	9.82
Margin/pig (£)	-	0.91	1.09
Med cost (£)	-	0.57	0.54
ROI	-	1.6	2.0

*Liveweight price = £1.16/kg; Diff letters = p≤0.05

Table 2. Disease scores, faecal & serology results day 21

Parameter	Control	Tylosin 100ppm	Tiamulin 100ppm
Diarrhoea score	0.344[a]	0.063[b]	0.093[b]
***L. intracellularis* serology (%)**	58	33	42
***L. intracellularis* PCR (%)**	100	25	50
***Brachyspira* spp PCR (%)**	75	25	0

Diff letters = p≤0.05

Conclusions and Discussion :

Both medications were highly effective in treating a relatively mild ileitis infection, with significant improvements for weight gain and diarrhoea score. Tylosin gave a slightly better growth rate and tiamulin a better FCE. *Brachyspira* spp., infections (*B. innocens* & *B. intermedia*) disappeared in the tiamulin-treated pigs. *Li* could be found in all 3 treatment groups. On a financial basis, the extra margin/pig over medication and feed costs was higher for the tiamulin treated pigs than for the tylosin treated pigs. This meant that the tiamulin treatment gave a higher ROI than the tylosin treatment.

References:

1. McOrist, S. *et al*., 1996, Vet Rec 139: 615.
2. McOrist, S. *et al*., 1997, AJVR 58, 2, 136
3. Mortimer, I. *et al*., 2000, Proc IPVS, p110

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