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Efficacy of Tilmicosin (Pulmotil®) for control of swine progressive atrophic rhinitis (AR) involving infection with *Pasteurella multocida*.

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Introduction: Infections with *Bordetella bronchiseptica* (BB) and *Pasteurella multocida* (PM) leading to progressive atrophic rhinitis (AR) remain a reality in modern production systems with SEW[1] and a problem in many conventional one-site farms[2]. Preventive measures such as medications[3] and vaccinations[3] are commonplace.

Tilmicosin (Pulmotil®, Elanco) was approved in 1996 under the Veterinary Feed Directive for control of pneumonic pasteurellosis. An earlier tilmicosin pilot study found the drug might have preventive effects on AR in nursery pigs[4]. This study was designed to determine the efficacy of Pulmotil, fed at the dosage of 363 g/ton for 3 weeks, on 3-6 week old nursery pigs under natural AR exposure.

Materials/Methods: Twenty-four 12-week old crossbred pigs with clinical signs of AR (donor pigs) were purchased from a 100 sow farrow-finish farm that had severe AR problems. Snout cultures were positive for BB and non-toxigenic PMA. Also, a few toxigenic PMD were isolated. Slaughtercheck revealed 96% of market hogs with mild to severe AR. Also, several animals had pneumonia lesions. Animals were housed in eight rooms with 2 pens per room. Donor pigs were randomly distributed 4 pigs/pen into 6 of the rooms. The other pen housed eight 3-week old healthy pigs (recipient pigs) from an AR free herd based on herd history, cultures, slaughterchecks. In addition, four groups of 8 pigs were housed in the remaining 2 rooms as non-exposed controls.

Three of the recipient pig groups were medicated with Pulmotil (TRT 3) and the other 3 groups were non-medicated (TRT2). All control groups were non-medicated (TRT 1). At the start of the trial, all recipient and control pigs were culture negative and the donor pigs were culture positive for BB and PM. At the end of the first 3-weeks, all donor pigs and three pigs in each recipient and control group were cultured, slaughtered and examined for AR and other lesions. The remaining 5 recipient pigs were examined similarly after the last 3 weeks of non-medicated feeding. Total feed intake and ADG were calculated for each of the treatments and for the different time periods.

Results: ADG and feed intake were significantly better ($p<0.05$) in TRT 3 compared to TRT 2 pigs throughout the study. However, TRT 1 pigs performed the best (table 1). Feed efficiency did not differ significantly between groups.

All recipient pigs were PMA and PMD culture negative on Day 0. The TRT 1 pigs remained culture negative throughout the study. In TRT 2, more PM and BB organisms were recovered than from TRT 3 pigs at both 21 and 42 days. However, from 21 to 42 days, the medicated pigs showed a marked increase in positive cultures. Control pigs had minimal pneumonia lesions and low visual snout scores[5] compared to both TRT 2 and TRT 3.

The visual AR scores for the non-medicated group were significantly worse ($p < 0.05$) than the other two groups. When examining the TPR scores[5], Tilmicosin seemed to have a protective effect in the medicated group when compared to the non-medicated group (table 2). Tilmicosin treatment did not completely protect exposed pigs from becoming infected by the donor pigs, but there were consistently significant differences to the advantage of the treated pigs.

Overall the medicated pigs did perform remarkably better than the non-medicated pigs during both the 0-21 and the 21-42 day period.

Table 1: Pen Average Daily Gain (g/day)

Time period	*TRT 1*	*TRT 2*	*TRT 3*
0 to 21 days	282	202	274
21 to 42 days	628b	457a	508a
0 to 42 days	451c	326a	388b

Table 2: Average Turbinate Perimeter Ratio (TPR)

	TRT 1	*TRT 2*	*TRT3*
All TPR	1.55c	1.05a	1.32b
21 d kill	1.67c	1.15a	1.39b
42 d kill	1.48c	1.00a	1.27b

*different letters on the same line indicates a statistically significant difference ($p<0.05$)

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