

COMPARATIVE STUDY OF TREATMENT FOR POST-WEANING COLIBACILLOSIS IN PIGLETS WITH AMOXICILLIN PLUS CLAVULANIC ACID VIA DRINKING WATER VERSUS OTHER ANTIBIOTIC PRODUCTS

J. Morales¹, U. Klein², A. Manso¹, C. Piñeiro¹
¹PigCHAMP Pro Europa; ²Novartis Animal Health Inc., Switzerland

Objective:

Comparison of treatment efficacy of Strenzen (amoxicillin & clavulanic acid) 62.5% with other commonly used antibiotics for the treatment of post-weaning diarrhoea caused by *Escherichia coli*.

Material and Methods:

The experiment was carried out in 72 pens with 6 piglets each (432 piglets in total). Piglets were weaned at 28 days of age. Day 0 was defined as the day after appearing first signs of diarrhoea. The experimental design was completely randomised with 4 treatments: T1, Amoxicillin and colistin; T2, colistin; T3, Strenzen; T4, non-medicated control group. Treatments 1, 2 and 3 were administered via drinking water on day 0 to 4. All 4 treatments also received individual medication by injection (enrofloxacin) if required. All 4 treatments were replicated 18 times and 6 pigs housed together formed the experimental unit.

The primary variable for determining effectiveness was the evolution in time (treatment x time effect) of disease. The mortality related to colibacillosis and the productive performance (average daily gain, average daily feed intake, feed conversion ratio) in prestarter (day 0 to 10), starter (day 10 to 30) and total nursery periods were also evaluated. Presence of disease and zootechnical performance were analysed by GLM models (SAS).

Figure 1. Number of pigs requiring additional treatment for severe *E.coli* symptoms

	Treatment group			
	Strenzen	Amoxicillin/colistin	Colistin	Control
% of pigs requiring additional treatment - injections of enrofloxacin	9.26	22.22	21.50	71.30

Figure 2. Cost (€) per kg piglet produced.

Treatment	Kg of piglet produced	Total cost per place	Cost/kg piglet produced
T1	1765.2	33.96	2.078
T2	1883.5	34.21	1.961
T3	1932.3	34.69	1.939
T4	1909.5	34.62	1.958

Results:

Presence of pathogenic *E. coli* and sensitiveness to the experimental products were proven in an outbreak of diarrhoea 4 days after weaning. The percentage of mortality was high (5.1%), with no significant differences between treatments and productive performance was poor. All treatments demonstrated efficacy and most of the pigs were cured at day 6.

Among treatments, T3 and T4 showed less signs of disease on days 3 to 6, evidencing a faster recovery. Strenzen group required lower amount of individual antibiotic interventions (Figure 1) and showed the highest productive performance in prestarter phase, while no differences were observed in starter and total nursery periods. ADG improvements in T3 vs. other groups was directly correlated with the lower diarrhoea incidence.

Conclusions:

All antibiotics were efficient to treat post-weaning colibacillosis. Strenzen and the individual intervention groups showed overall better results of productive performance and disease recovery, resulting in 49 to 167 kg piglet more and in 2 to 14 eurocent/kg piglet production cost cheaper than costs in the colistin and colistin + amoxicillin groups (Figure 2).

To assess the comparative cost benefit per piglet, the market value of weight gain during the trial period was compared with the total costs per group (including medication). Compared to alternatives tested, Strenzen treated pigs produced the highest economic benefit per piglet (4.22 €) after all costs are accounted for (Figure 3).

Reference:

Morales J & C. Piñeiro (2013). Comparative study of treatment for post-weaning diarrhoea due to *Escherichia coli* in piglets with amoxicillin plus clavulanic acid via drinking water versus other antibiotic products. Internal report June 2013.

Figure 3. Comparative profit performance of treated and control pigs on a pig unit with *E.coli* disease

