



## Use of Tiamutin® for the treatment of the epizootic rabbit enterocolitis (ERE) syndrome

### “Take home” messages

- Intensive rabbit production is an increasingly significant segment of global food animal production in countries such as France, Spain and Italy in Europe and in China.
- Epizootic rabbit enterocolitis (ERE) is a key emerging disease with a high mortality rate between 35 and 60 days of age and is mainly associated with:

*Clostridium perfringens*  
and  
*Clostridium spiroforme*.

- Antibacterials previously used to control clostridia e.g. dimetridazole and chloramphenicol have been banned for use in food producing animals in many countries on account of public health concerns.
- Tiamutin has been demonstrated to possess potent activity, both in-vitro against the main organisms implicated in E.R.E and in-vivo (feed and water medication), as demonstrated in recent clinical trials.
- When combined with antibacterials with an anti-*E. coli* effect in feed to prevent post-weaning losses, Tiamutin Premix gives good results.

***Tiamutin is well tolerated and effective against ERE in fattening rabbits when administered at 50-150 ppm t.h.f. for 5 consecutive days in water.***

TIAMULIN  
**tiamutin**  
the original – tried, tested, trusted

DEVELOPED EXCLUSIVELY FOR ANIMAL HEALTH • NOT USED IN HUMAN MEDICINE





A summary of the valuable contribution which Tiamutin can make to the successful control of ERE was published in *Rivista di Zootecnia e Veterinaria* (Italy) Vol 31. no. 2 (2003), p3-10 by Grilli, G. et al.

The aetiology of ERE has not been completely evaluated but it appears certain that the high mortality associated with it is caused by Clostridia, namely:

*Clostridium perfringens* and *Clostridium spiroforme*.

The mortality occurs between 35 and 60 days of age.

In the EU control of ERE has been severely complicated by the banning of substances such as nitroimidazoles and chloramphenicol, which in earlier years provided potent activity against clostridial pathogens.

The activity in vitro of Tiamutin versus bacterial pathogens of the rabbit was recently studied. Activity was confirmed against *Staphylococcus aureus*, *Mycoplasma spp.*, *Clostridium perfringens* and *Clostridium spiroforme*.

A key advantage of Tiamutin in treating ERE is that it can be safely combined with other medications which are frequently used in commercial rabbit production e.g:

#### Antibiotics

Aminosidin (aminoglycoside)

Trimethoprim/sulfa

Chlortetracycline

Apramycin

Oxytetracycline

Colistin

#### Anticoccidials

Amprolium

Decoquinate

Robenidine

The value of Tiamutin premix in the treatment of ERE has been demonstrated on a French commercial farm chronically affected by ERE.

The study was carried out on 600 weaned hybrid Hyplus rabbits of 35 days of age housed in standard cages for meat rabbits each holding 6 rabbits.

The rabbits were regularly divided into 4 groups each of 150 rabbits and fed with a commercial feed supplemented with Tiamutin premix as follows:

Group T0 - unmedicated control

Group T1 - Tiamutin thf 40 ppm

Group T2 - Tiamutin thf 80 ppm

Group T3 - Tiamutin thf 160 ppm

The rabbits in the study were medicated for a period of 33 days and a 7 day withdrawal period was applied.

During the trial the following parameters were recorded:

- Weight per cage: day 0, + 14, + 33 (end of the treatment) and + 42 (slaughter).
- Consumption of feed per cage: day 0, +14, + 33 (end of the treatment) and + 42 (slaughter).
- Morbidity of the animals for the whole of the period (from 0 to + 41 days).
- Mortality of the animals for the whole of the period (from 0 to + 41 days) and post-mortem examination of the same.

## Statistical analysis

All the data recorded were subjected to statistical analysis (SAS, version 6.12).



## Results

Table 1: ADG, FCR (mean ± SD) and mortality

	Control	Tia (40ppm)	Tia (80ppm)	Tia (160ppm)
<b>Group bodyweight: Start/Finish (g)</b>	<b>1027 ± 18/ 2682 ± 130</b>	<b>1025 ± 19/ 2762 ± 146</b>	<b>1028 ± 21/ 2820 ± 115</b>	<b>1030 ± 19/ 2803 ± 134</b>
<b>ADG (g)</b> Improvement (%)	40.4 ± 3.2 <sup>a</sup>	42.4 ± 3.6 <sup>ab</sup> <b>4.9%</b>	43.7 ± 2.8 <sup>b</sup> <b>8.2%</b>	43.2 ± 3.2 <sup>b</sup> <b>6.9%</b>
<b>FCR</b> Improvement (%)	5.1 ± 3.4	4.0 ± 1.1 <b>21.5%</b>	3.7 ± 0.5 <b>27.5%</b>	3.9 ± 0.8 <b>23.5%</b>
<b>Mortality</b> Dead animals/ Total animals (%)	21/150 <b>14.0%</b> <sup>a</sup>	12/150 <b>8.0%</b> <sup>b</sup>	7/150 <b>4.7%</b> <sup>b</sup>	12/150 <b>8.0%</b> <sup>b</sup>
<b>Mortality due to ERE</b> Dead animals/ Total animals (%)	17/150 <b>11.3%</b> <sup>a</sup>	3/150 <b>2.0%</b> <sup>b</sup>	3/150 <b>2.0%</b> <sup>b</sup>	4/150 <b>2.67%</b> <sup>b</sup>

Means/percentages in a row with different superscripts differ ( $p < 0.01$ ; ADG:  $p < 0.002$ )

**Mortality rate attributable to ERE** – At the end of the trial, the control group presented a mortality rate attributable to enterocolitis, which was statistically more than 5x greater than the three groups treated with Tiamutin.

**Total mortality rate** – The control group had a statistically higher mortality rate (14%) than the treated groups (4.7% - 8%), which appear to be homogeneous to each other.

**Average daily gain ADG** – The control group had a lower ADG than the treated groups (from 4.9% to 8.2% less) with statistical significance compared with groups T2 and T3 ( $p < 0.002$ ).

**Feed conversion ratio (FCR)** – The total FCRs of the treated groups showed an improvement of 21% in group T1, of 27.5% in group T2 and of 23.5% in group T3 compared with the control T0, respectively.

Field trials in Italy have also been conducted and involved 1,800 closed cycle breeding animals, 140,800 weaned rabbits and 913 post-mortems, over a 22 month period.

The medications most commonly used for prophylaxis in feed were:

50 ppm Tiamutin and 50 ppm apramycin for 15 – 20 consecutive days commencing at Day 35 of age.

Other medications with anti-*E. coli* activity, sometimes used together with Tiamutin, were aminosidin (150 ppm), colistin (120 ppm) and flumequine (150 ppm). The application of the combined medication greatly curtailed the mortality rate.

The authors concluded that:

- Tiamutin has been used successfully against ERE and has proved to be a drug of choice for prophylaxis and treatment.
- For treatment it is well tolerated and effective in drinking water at 50-150 ppm thf for 5 consecutive days.
- When combined with other antimicrobials used routinely on rabbit farms to prevent post-weaning losses Tiamutin has always given very good results.



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**Further information on the Tiamutin® (tiamulin) range of products is available from the Pig Products Manager at Novartis Animal Health operations in over 50 countries worldwide.**