HUVEPHARMA®

HydroTrim®

HydroTrim® demonstrates excellent recovery of trimethoprim in drinking water

Trial description

Objective

- Trimethoprim has low solubility in drinking water (0.4 mg/ml), which leads to sedimentation when veterinary products containing both sulfonamides and trimethoprim are used in highly concentrated stock solutions (proportioners). However, ensuring the availability of both active compounds is crucial to achieve their synergistic effect.
- A field trial was carried out to compare the recovery of sulfadiazine and trimethoprim from two veterinary products used in drinking water, both containing 500 mg sulfadiazine and 100 mg trimethoprim/g:
  - HydroTrim®: unique formulation based on nanonisation of trimethoprim
  - Other formulation (simple powder mixture)

Set-up

- Medicated water consumed within 12 h after start of administration
  - Registered dose of 25 mg sulfadiazine and 5 mg trimethoprim/kg bodyweight/day (pigs and chickens)
  - Using a highly concentrated stock solution with a proportioner set at 1% (dilution 1:100)
  - Mixture was stirred vigorously immediately after mixing
- Water samples were taken at 2, 6 and 10 hours after start of administration from
  - the stock containers (from the middle of the remaining volume)
  - the drinking nipples in 10 pens

Measured parameters

- The visual appearance of the stock solutions after product administration was evaluated.
- The concentrations of sulfadiazine and trimethoprim were determined at three timepoints in the stock containers and at the drinking nipples (mean values).

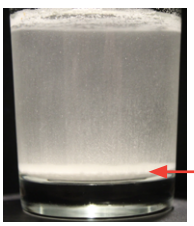
Results

- **Visual appearance**

HydroTrim®

Excellent homogeneity throughout the administration period

Other formulation



Substantial and increasing sedimentation beginning 0.5 h after administration

▸ Concentrations in the stock containers

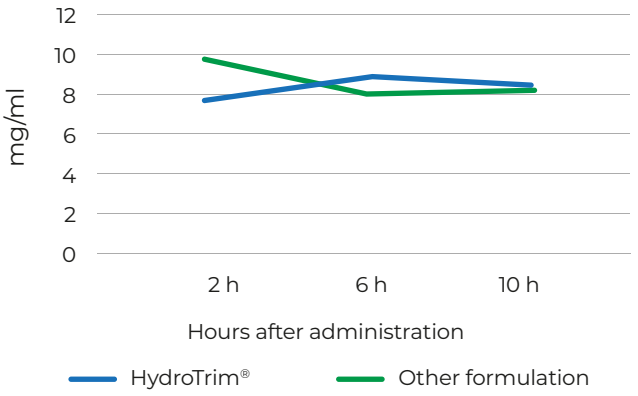


Figure 1. Sulfadiazine concentration in the stock containers

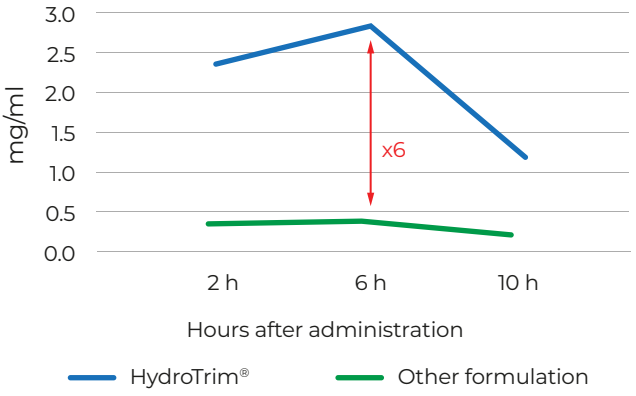


Figure 2. Trimethoprim concentration in the stock containers

▸ Mean concentrations at the nipples

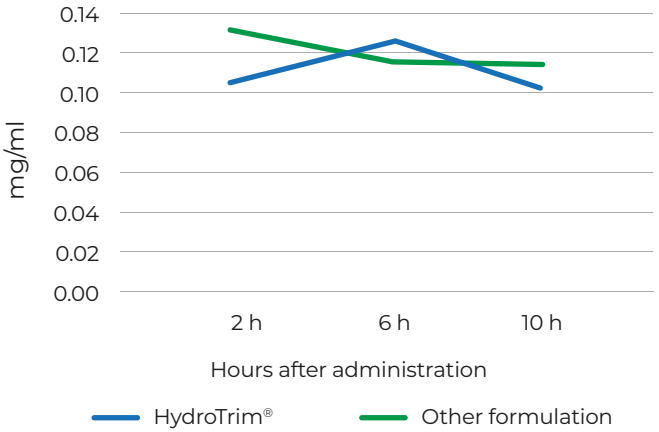


Figure 3. Sulfadiazine concentration at the nipples

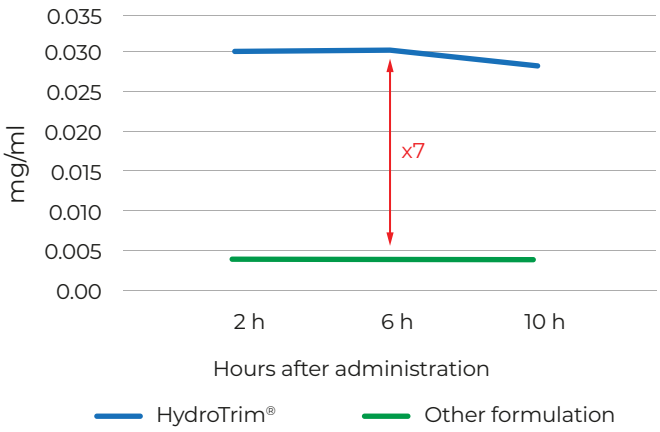


Figure 4. Trimethoprim concentration at the nipples

Conclusions

- HydroTrim® administration through proportioners achieved perfect homogeneity due to its unique formulation technology. In contrast, the other product showed immediate sedimentation of trimethoprim after administration.
- With HydroTrim®, trimethoprim concentrations were significantly higher both in the stock container and at the nipples, leading to superior synergistic activity between sulfadiazine and trimethoprim.

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