

Efficacy of Paromomycin sulfate in reducing *Cryptosporidium parvum* infection and diarrhea in dairy calves: a field-based trial in Argentinian field conditions

^{1,2}J.A. Lombardelli, ¹C. Catracchia, ³A. Mc Loughlin, ⁴R. Esteves Lopes

¹APSAVET, Argentina ²Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto, Córdoba, Argentina

³AMALGAMAR S.R.L. Buenos Aires, Argentina ⁴HUVEPHARMA® NV, Belgium

Background and Objectives

Cryptosporidium parvum (*C. parvum*) is one of the leading causes of neonatal diarrhea in dairy calves, resulting in significant economic losses and animal welfare concerns. The objective of this study was to evaluate the effectiveness of orally administered paromomycin sulfate (PS) in reducing the incidence of *C. parvum* infection and diarrhea in dairy calves under field conditions.

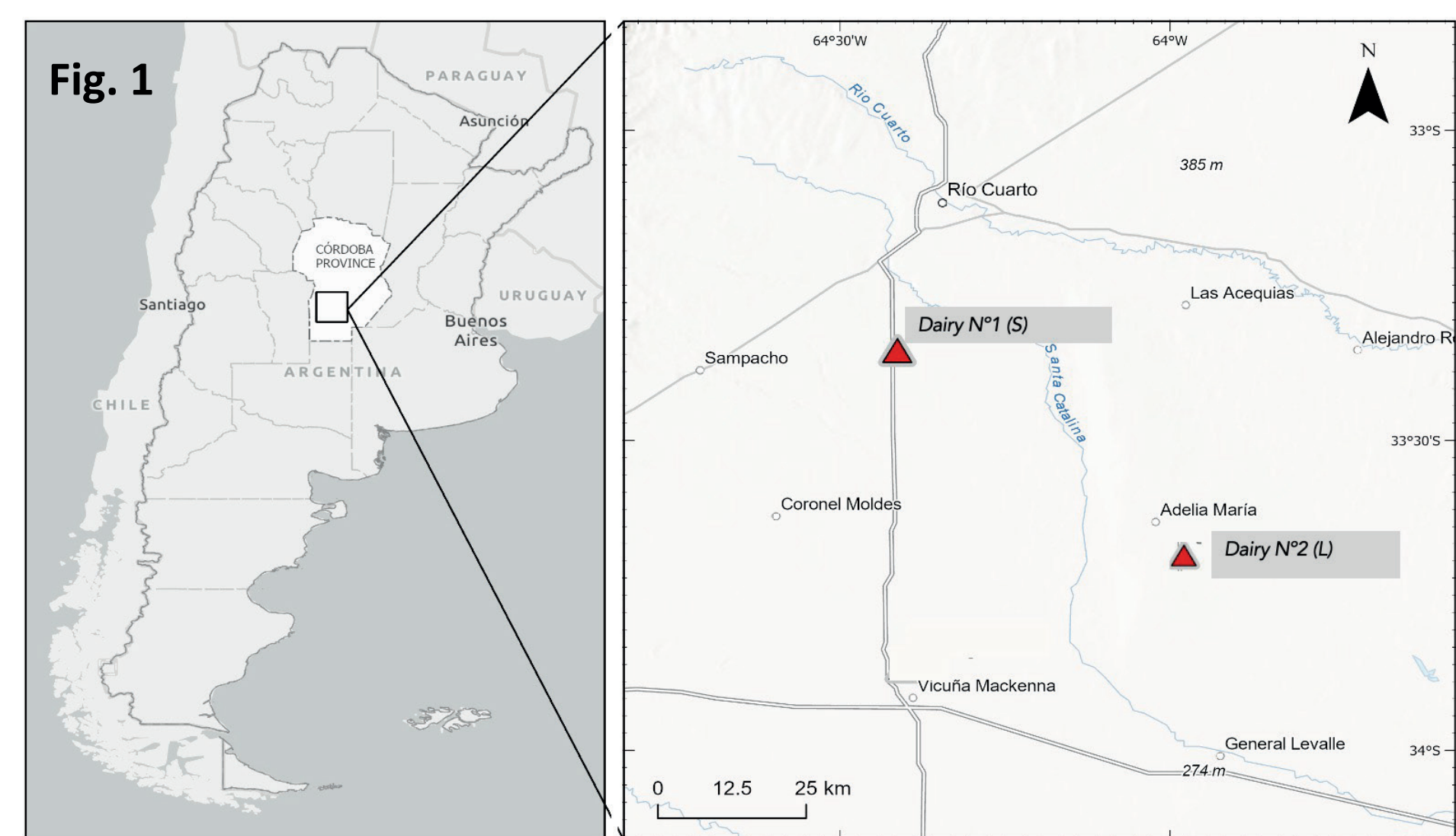


Figure 1. Geographical location of the Dairy Farms where the trial was conducted.

Materials and Methods

A randomized controlled preventive trial was conducted between August and December 2025 on two commercial dairy farms with different housing systems: Farm 1 (calves housed individually in raised, roofed hutches) and Farm 2 (calves raised individually, tethered with stakes). A total of 100 calves (50 per farm) were randomly assigned at birth to one of two groups: Control (no treatment) or Treatment (T1). Calves in T1 received oral PS (Parofo®; Huvepharma) at 50 mg/kg body weight (BW) (~2.5 mL/10 kg BW), daily for 7 consecutive days starting on day 3 of life, mixed with the usual liquid diet. Animals were monitored from birth to 70 days of age. Fecal samples were processed using coproparasitological and molecular techniques, and fecal consistency was scored using a Wisconsin-based scoring system. Data were analyzed using R software; survival curves were used to describe *C. parvum* infection dynamics.

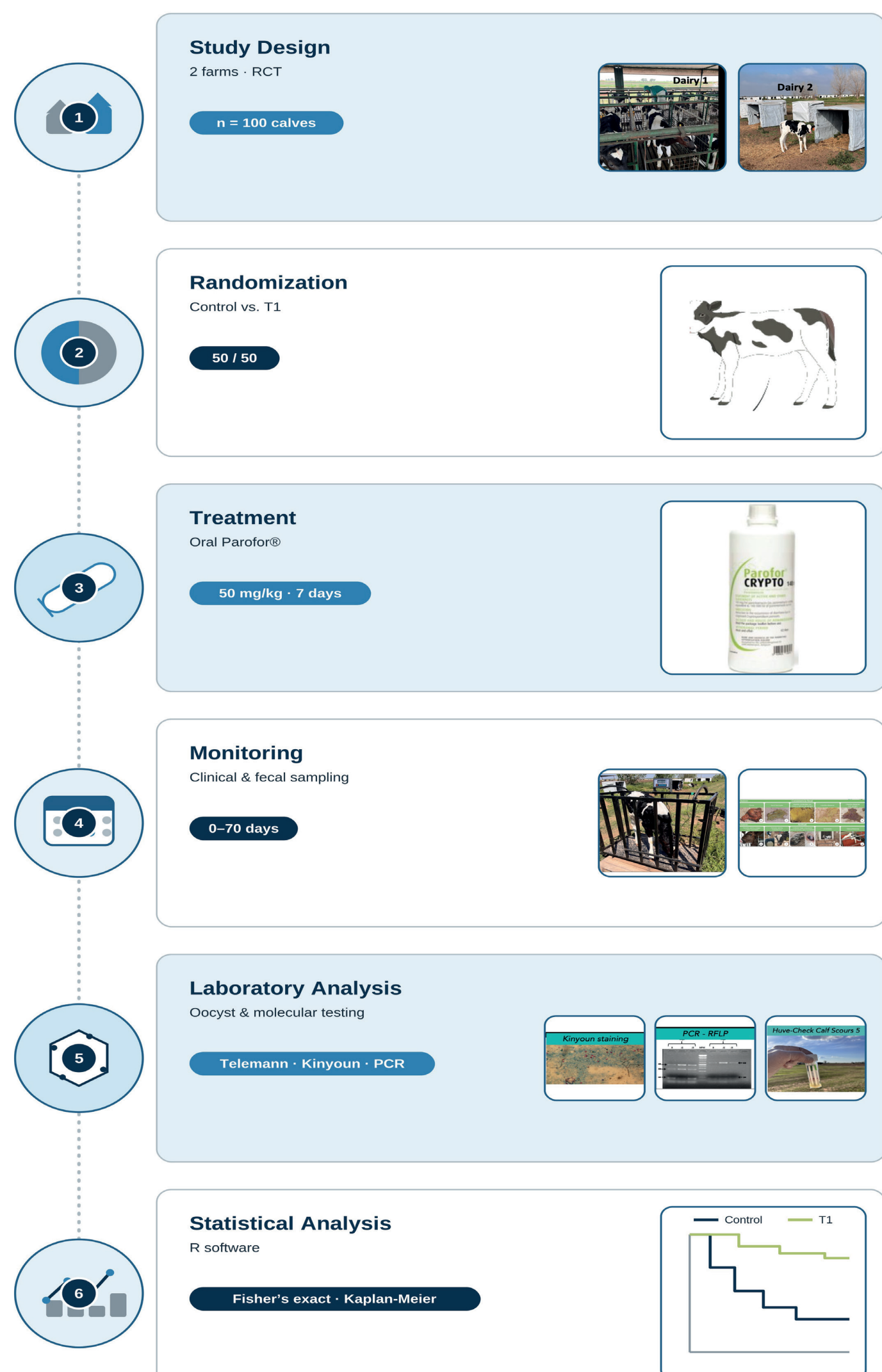
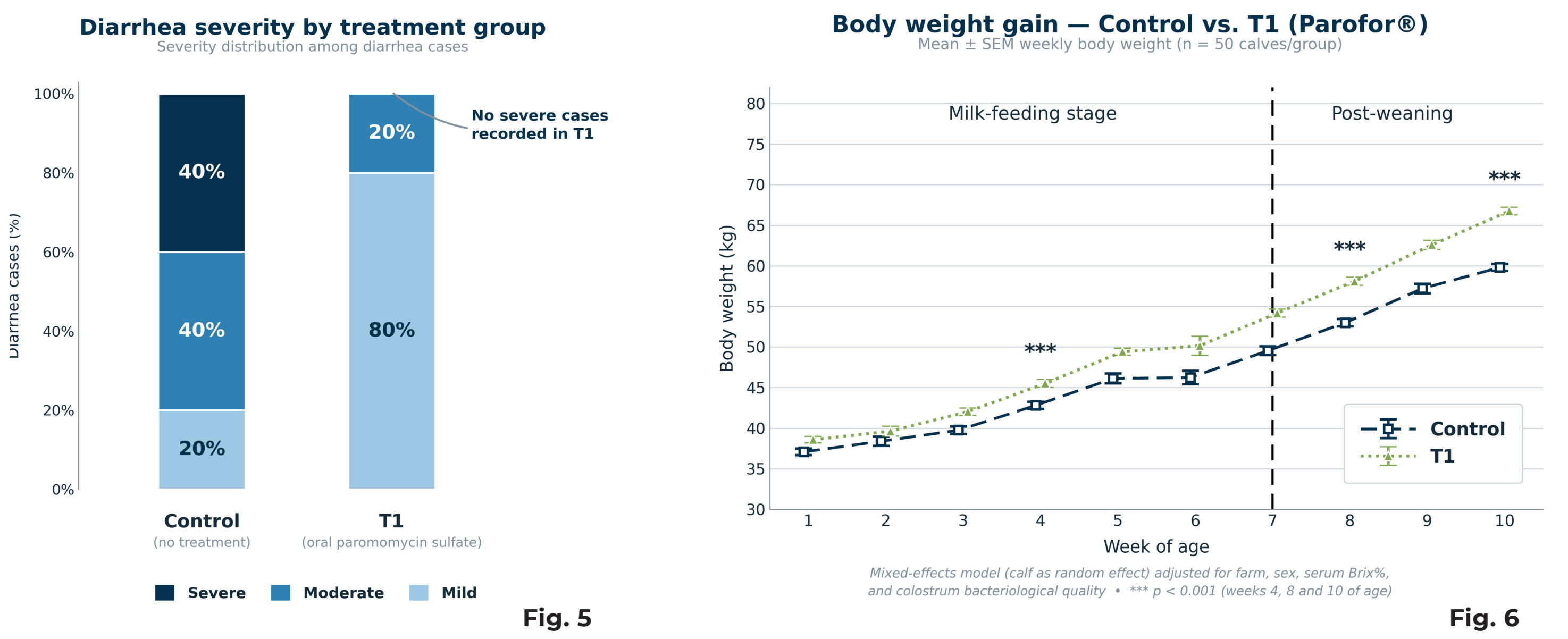
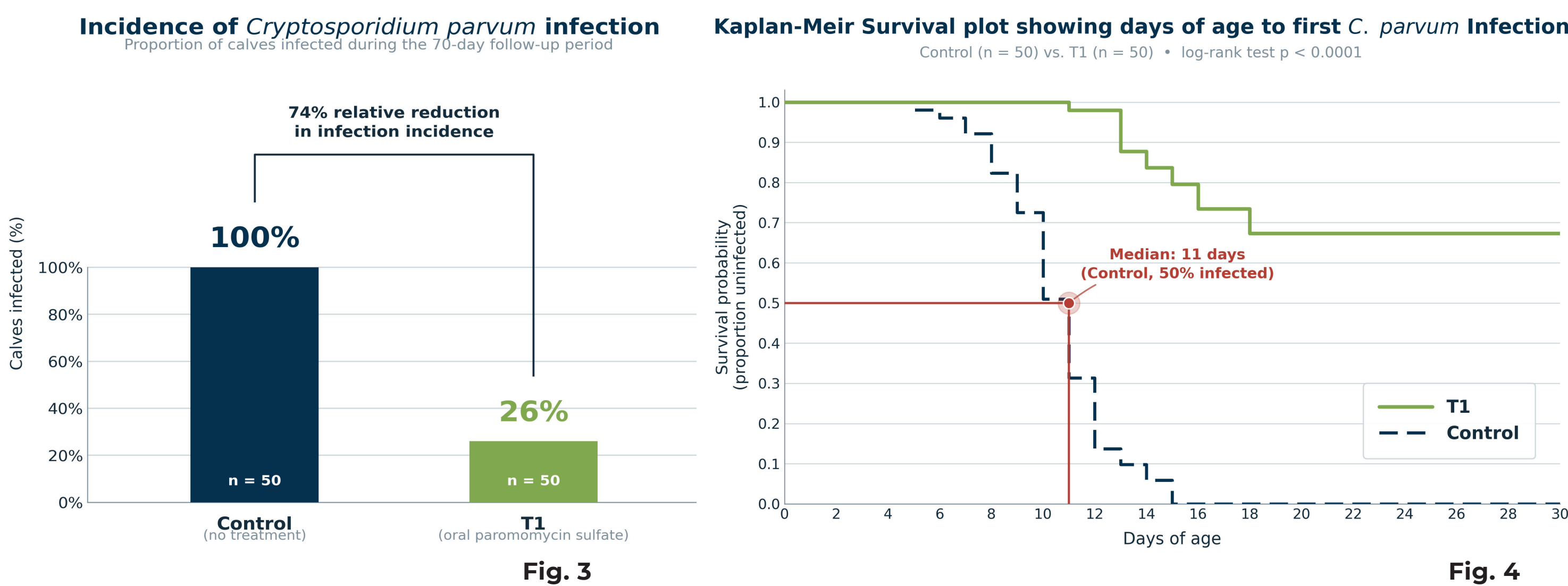


Figure 2. Blind randomized controlled preventive trial - Aug-Dec 2025

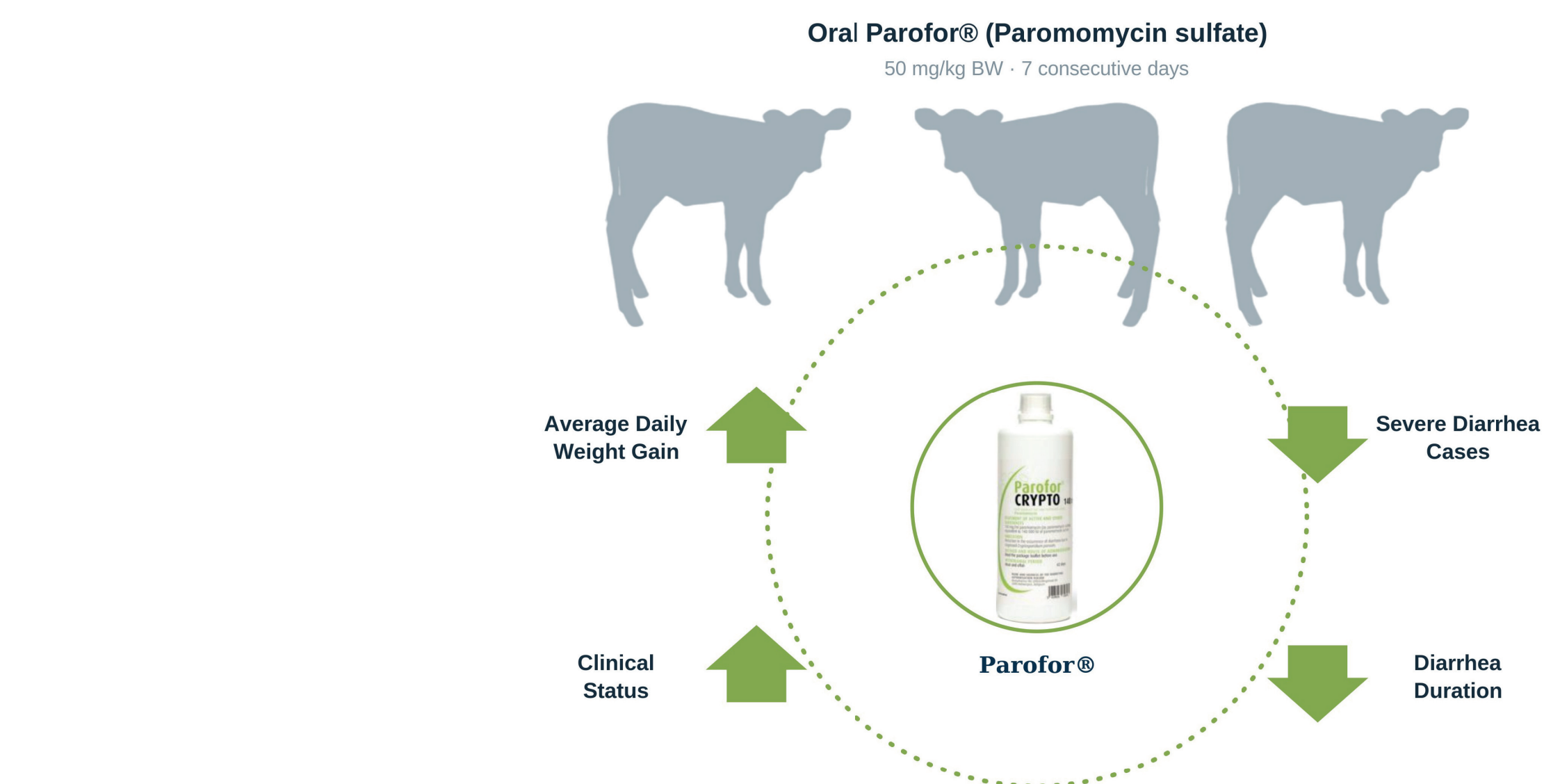
Results

Ninety-eight calves completed the monitoring period; two Control calves died during the trial. *C. parvum* incidence was highest during the second (54%) and third (16%) weeks of life. All Control calves (100%) became infected with *C. parvum*, compared to only 26% in the T1 group, representing a 74% reduction in infection incidence (Fig 3). Diarrhea severity differed markedly between groups: Control calves presented 40% severe, 40% moderate, and 20% mild cases, whereas T1 calves presented only moderate (20%) and mild (80%) cases, with no severe cases recorded (Fig 5). Mean duration of diarrhea was significantly shorter in T1 calves (2.5 ± 1.5 days) compared to Control calves (7.4 ± 2.5 days). Additionally, treated calves showed a mean BW advantage of 5.9 kg (95% CI: 4.5–7.3) at week 8 and 7.1 kg (95% CI: 5.7–8.4) at week 10 compared to Control calves (Fig 6).



Conclusion

- Paromomycin sulfate administered orally at 50 mg/kg for 7 consecutive days demonstrated high efficacy in controlling cryptosporidiosis under field conditions.
- Treatment was associated with a complete elimination of severe diarrhea cases, a significant reduction in diarrhea duration, improved clinical status, and enhanced growth performance in dairy calves, supporting its use as a control strategy in commercial dairy farm under Argentinian field conditions.



Keywords

dairy calves • cryptosporidiosis • promomycin • bovine health • neonatal infection