

Transforming calf health under commercial conditions: paromomycin reduces diarrhea morbidity and improves growth performance

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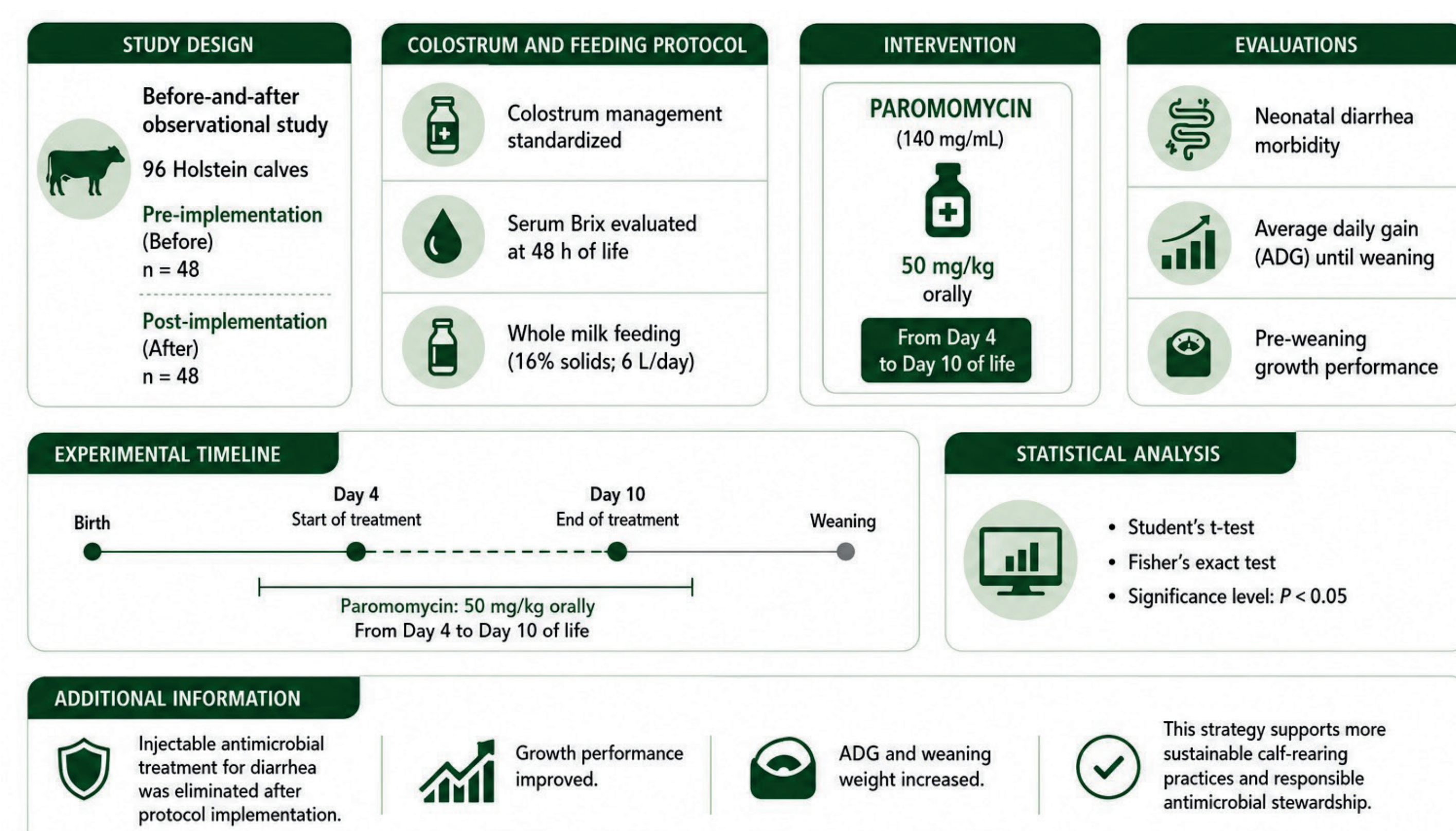
Background and Objectives

Neonatal diarrhea remains one of the most significant constraints to dairy calf health and productivity worldwide, driving antimicrobial use, increasing production costs, and compromising long-term performance.

Cryptosporidium spp. is a primary enteric pathogen during early life, and effective control strategies under commercial conditions are still limited. This study evaluated the impact of including paromomycin in a neonatal health protocol on diarrhea incidence, antimicrobial usage, and growth performance in dairy calves.

Materials and Methods

A longitudinal before-after study was conducted on a commercial dairy farm in Alto Paranaíba, Minas Gerais, Brazil, comparing calves born before (January-September 2025) and after (October 2025-February 2026) the implementation of paromomycin. Passive transfer of immunity was confirmed at 48 h using serum Brix refractometry, with more than 80% of calves achieving values >9.3%. Calves were managed under consistent conditions, receiving whole milk (16% total solids; 6 L/day), live yeast supplementation, and ad libitum starter. After implementation, paromomycin (Parofor Oral Solution®, Huvepharma) was administered orally at 50 mg/kg body weight once daily from day 4 to day 10 of life. Diarrhea incidence between 1 and 15 days of age and average daily gain (ADG) were compared between periods.

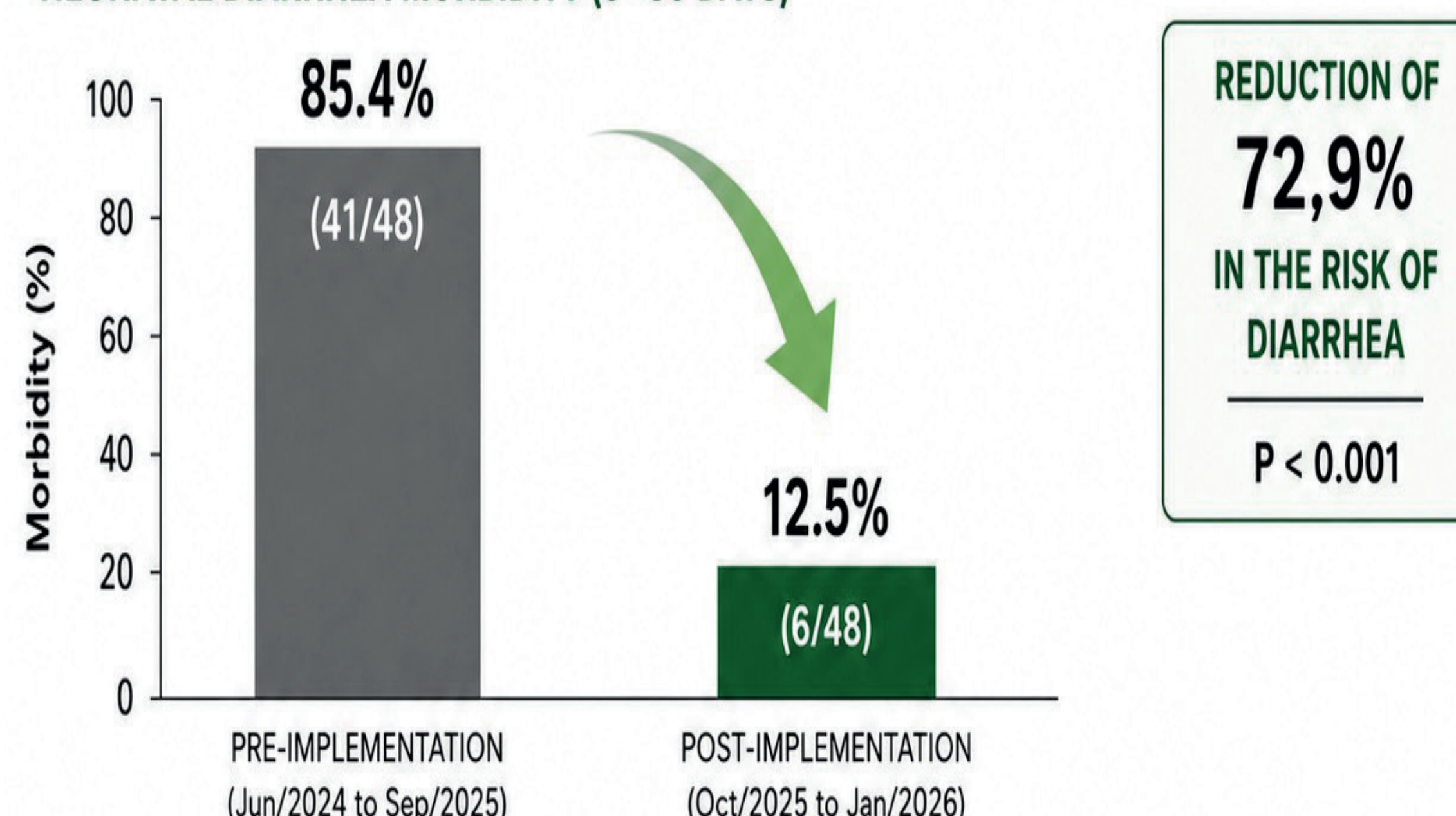


Calves were managed under consistent housing conditions, receiving whole milk, and followed routine management practices on the farm.

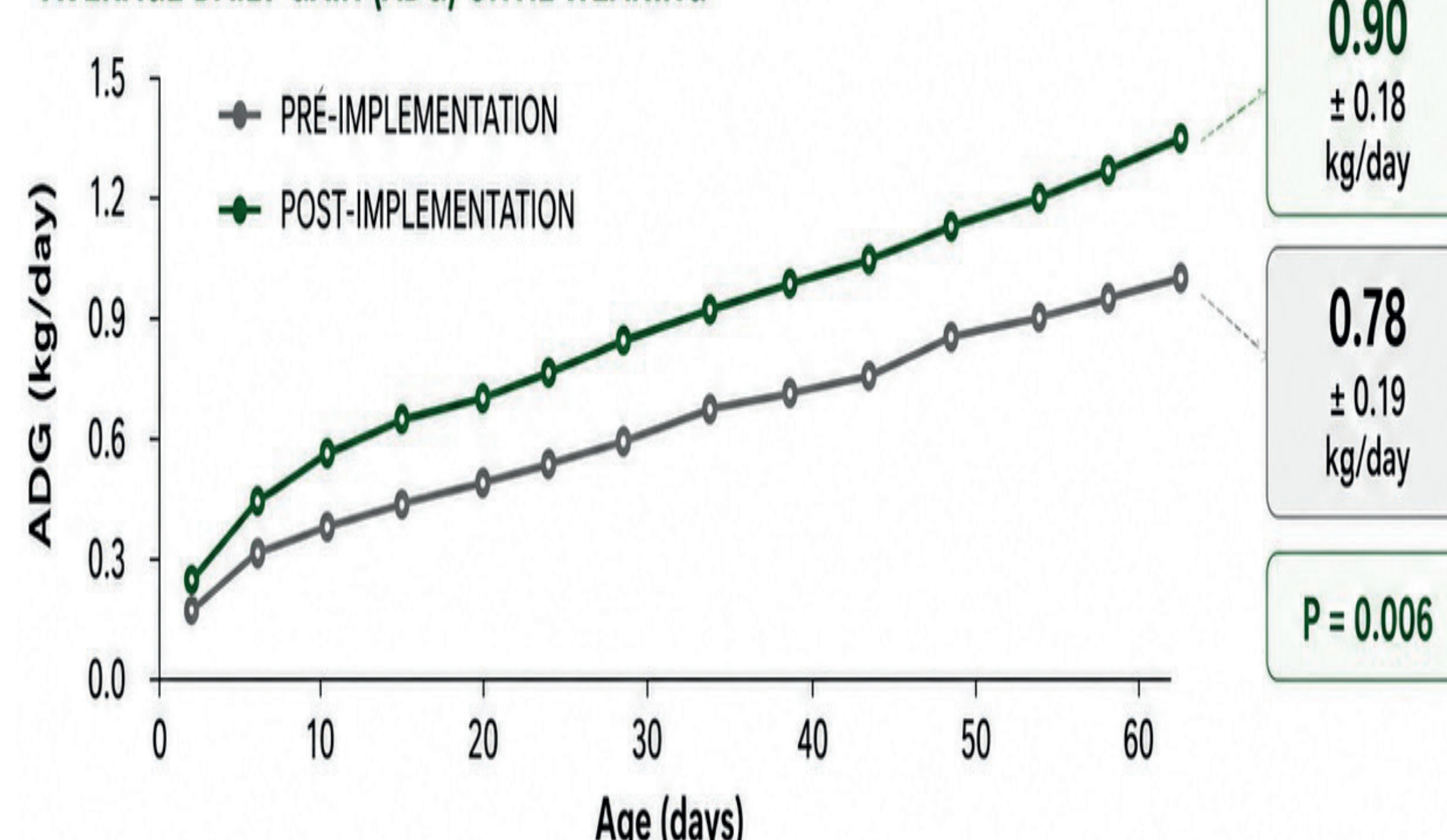
Results

The intervention resulted in a marked reduction in diarrhea burden, with incidence decreasing from 165.6% (reflecting multiple episodes per calf) to 9.56% in average. Importantly, the need for parenteral antimicrobial therapy, previously required in all diarrheic calves, was completely eliminated following protocol implementation. Growth performance improved substantially, with ADG from 0 to 30 days increasing from 710 to 854 g/day, and preweaning ADG increasing from 800 to 902 g/day. Weaning weight increased from 90 kg to 97 kg at a similar weaning age (62 days).

NEONATAL DIARRHEA MORBIDITY (0-30 DAYS)



AVERAGE DAILY GAIN (ADG) UNTIL WEANING



Conclusion

These findings demonstrated that targeted early-life intervention with paromomycin can profoundly improve calf health outcomes under commercial conditions. By simultaneously reducing disease burden, eliminating injectable antimicrobial use, and enhancing growth performance, this strategy represents a scalable and impactful solution for modern dairy systems. The results support a shift toward more sustainable calf-rearing practices aligned with improved productivity and responsible antimicrobial stewardship.

Keywords

neonatal diarrhea • dairy cattle • *Cryptosporidium parvum* • Antimicrobial use • growth performance

