Paromomycin Sulphate for Early Control of Cryptosporidiosis in Dairy Calves: Efficacy Across Diverse Production Systems

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INTRODUCTION

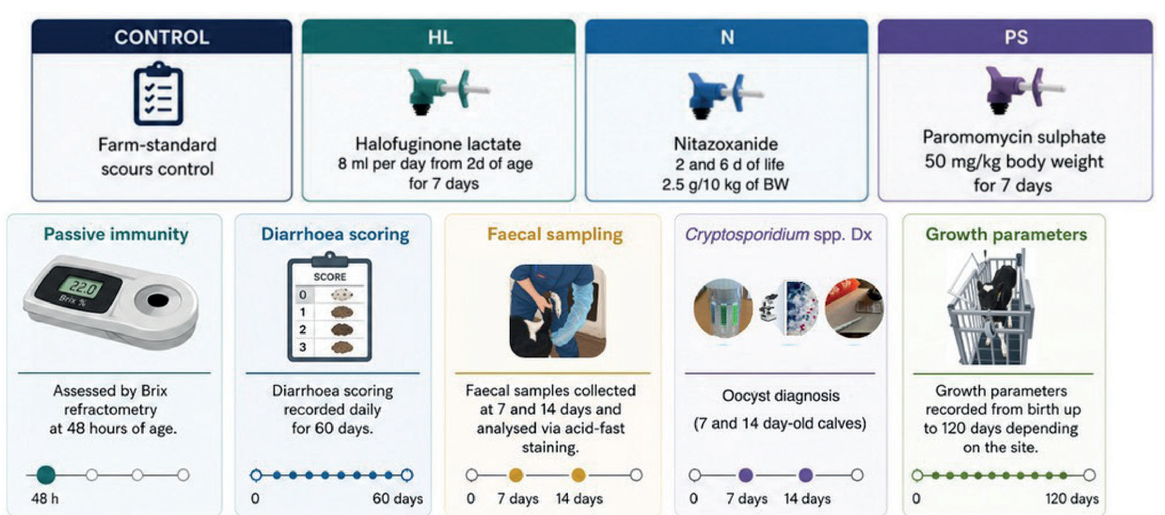
Cryptosporidiosis, predominantly caused by *Cryptosporidium parvum*, is a leading cause of neonatal calf diarrhoea and production losses. Paromomycin inhibits protein synthesis through binding to the 30S ribosomal subunit, disrupting parasite development within the intestine.

OBJECTIVE

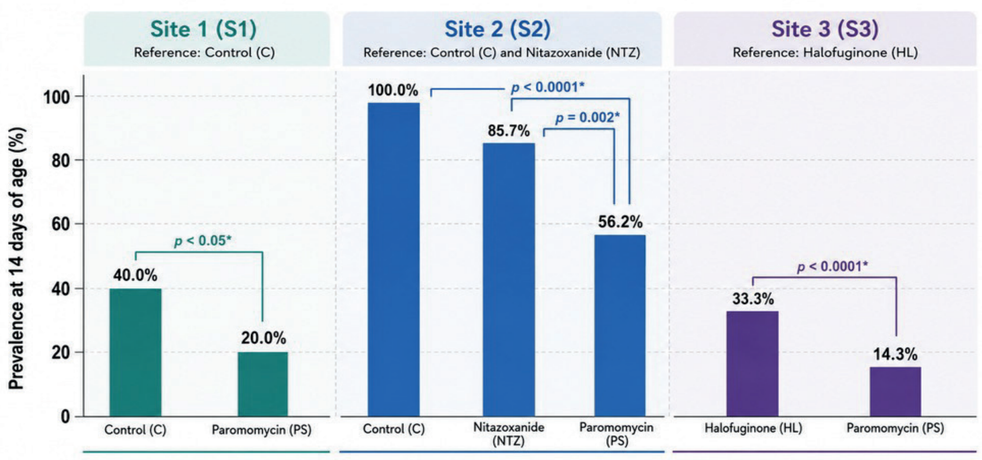
The objective of the field trials was to prevent cryptosporidiosis prior to its clinical presentation during the second-week of life, thereby increasing overall health and growth retardation under varied rearing systems.

METHODOLOGY

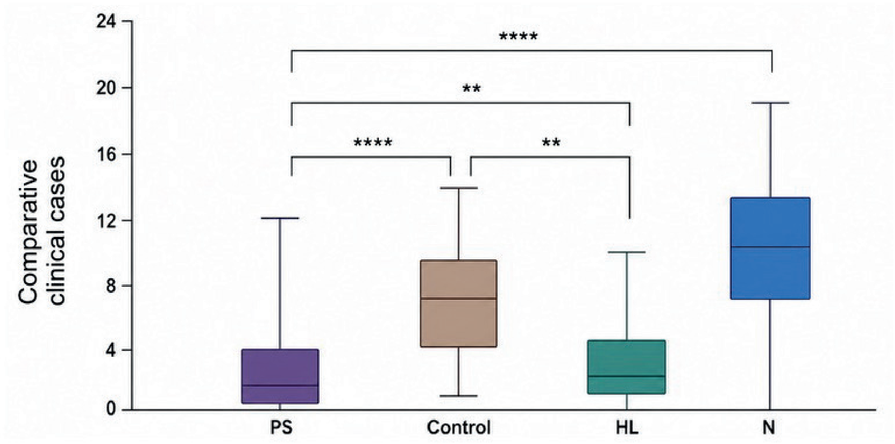
Calves were allocated to individual hutches at birth and followed until 120 d of age, depending on the study site.



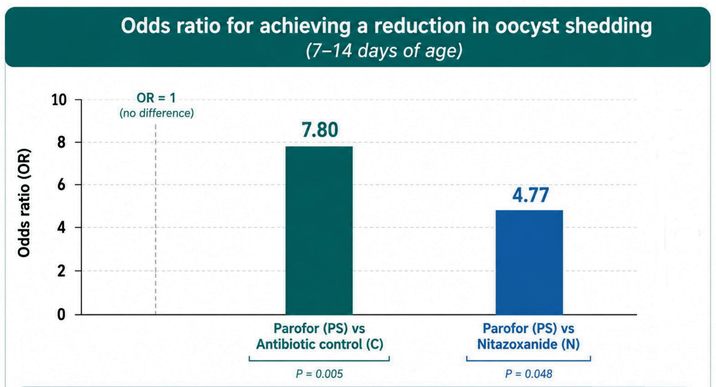
RESULT



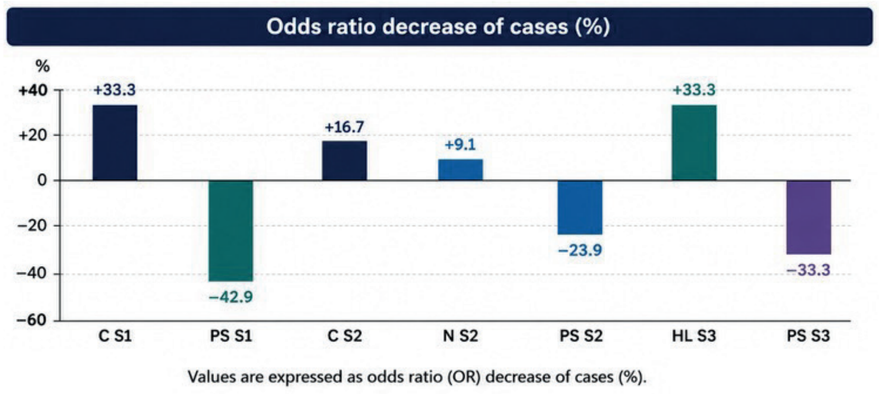
P values correspond to comparisons of prevalence at 14 days of age.
* Statistically significant difference ($p < 0.05$). Statistical tests used: HSU's MCB (multiple comparisons of Hsu) or Tukey (multiple comparisons of Tukey).



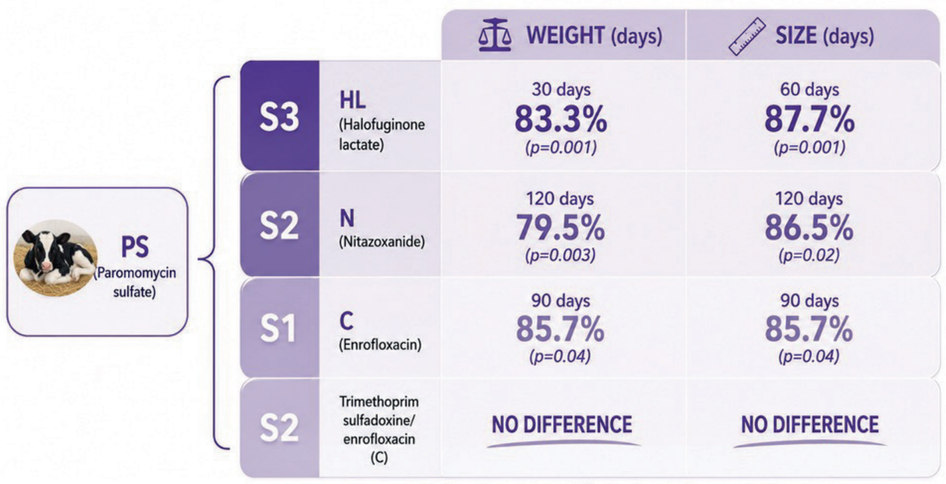
P values correspond to comparisons of prevalence at 14 days of age.
* Statistically significant difference ($p < 0.05$). ** $p < 0.01$. **** $p < 0.0001$.



OR > 1 indicates greater odds of achieving a reduction in oocyst shedding with Parofor (PS).
Fisher's exact test.



Values are expressed as odds ratio (OR) decrease of cases (%).



Statistically significant difference ($p < 0.05$).

CONCLUSION

✓ Reduced oocyst shedding by 34–50% during peak infection, with calves receiving paromomycin being 7.8 X and 4.77 more likely to reduce oocysts shedding than those treated with antibiotics and nitazoxanide treatments, respectively.
✓ The odds of cryptosporidiosis between 7 and 14 days of age were lower with paromomycin (S2: OR=8.14; S3: OR = 14.5 vs halofuginone ($P<0.05$).
✓ Improved growth performance through 120 days of age.
✓ Best outcomes achieved when combined with adequate passive immunity, optimal nutrition, and stringent biosecurity.
✓ Paromomycin sulphate is an effective early strategy for controlling neonatal cryptosporidiosis in dairy calves.