

Evaluation of different treatments against cryptosporidiosis on a cattle farm from the Canary Islands.

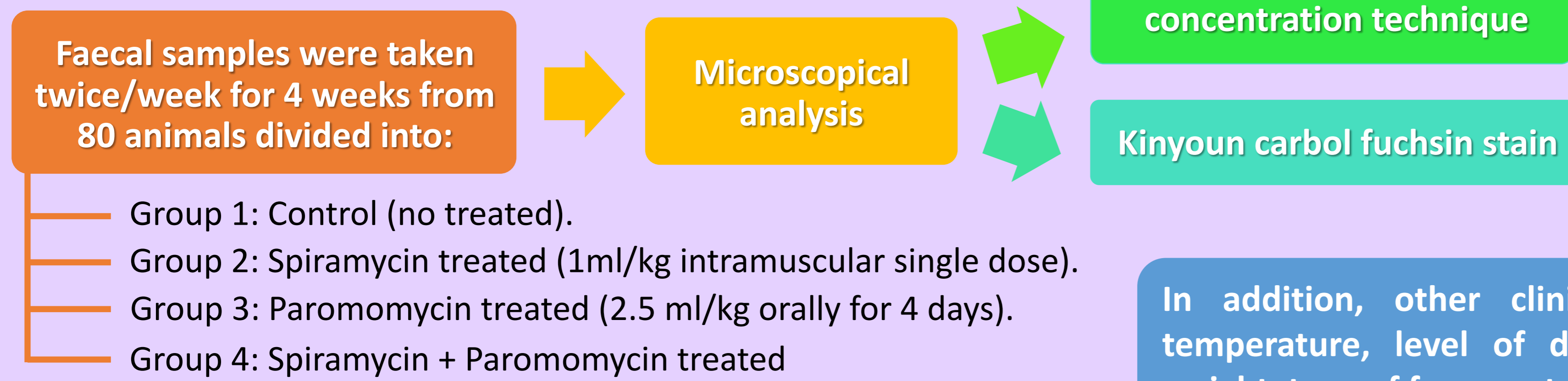
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INTRODUCTION

The different species within the genus *Cryptosporidium spp.* are responsible for cryptosporidiosis, a disease that not only causes great losses in the livestock sector, but also multiple deaths in infants and immunocompromised people every year. Although multiple treatments have been tested in both animals and humans, none have yet been found to be highly effective against this opportunistic parasite.

MATERIALS AND METHODS



OBJECTIVE

- To determine the efficacy of different treatments previously used in humans for cryptosporidiosis in newborn calves.



Fig 1: calf with diarrhoea.

In addition, other clinical symptoms were assessed, such as temperature, level of dehydration, thoracic contour to estimate weight, type of faeces, etc.

RESULTS

NUMBER OF OOCYSTS EXCRETED

The control group had a higher number of *Cryptosporidium spp.* oocyst counts, and the peak of infection occurred earlier than in other groups. Both spiramycin and paromomycin used alone and in combination significantly reduced oocyst excretion, although spiramycin used alone was not as effective in delaying the onset of peak infection (Graph 1).

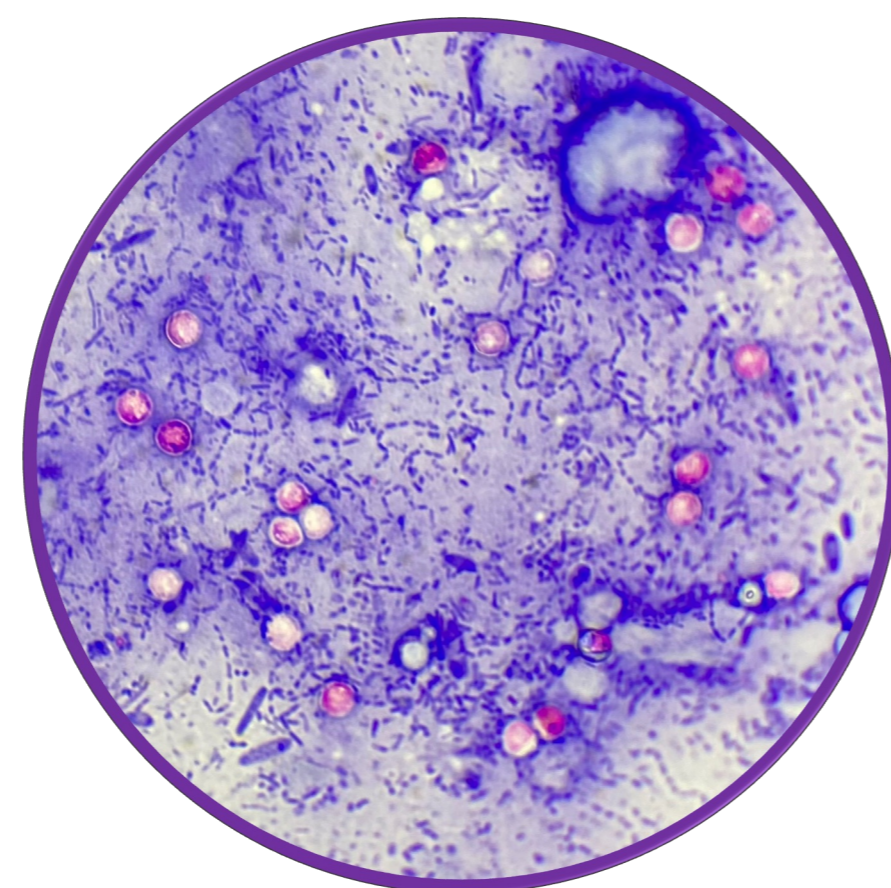
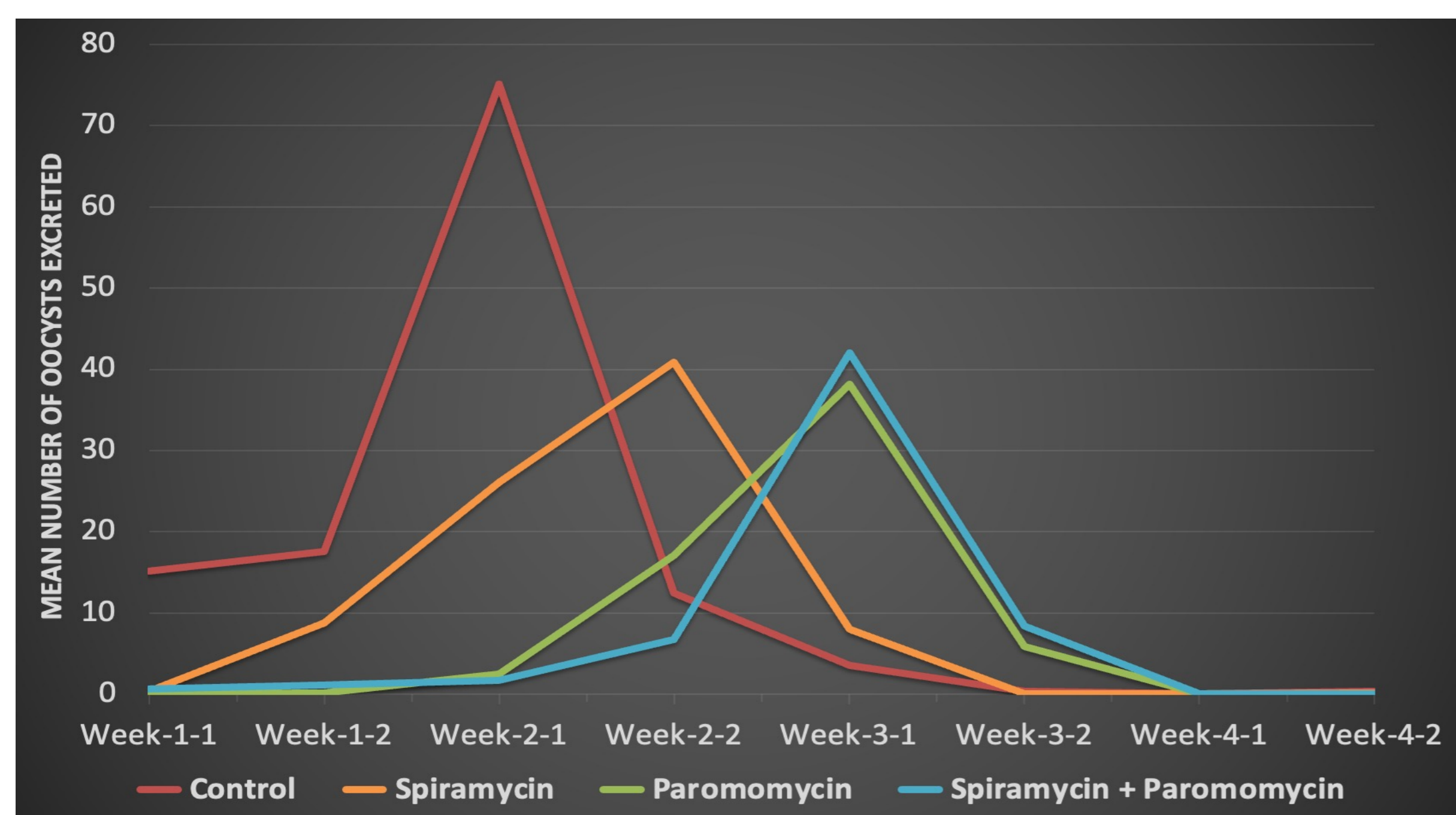


Fig 2: *Cryptosporidium spp.* oocysts stained with Kinyoun stain.



Graph 1: Relative estimation of the mean number of excreted oocysts in faeces of naturally infected calves in the different experimental groups.

TEMPERATURE

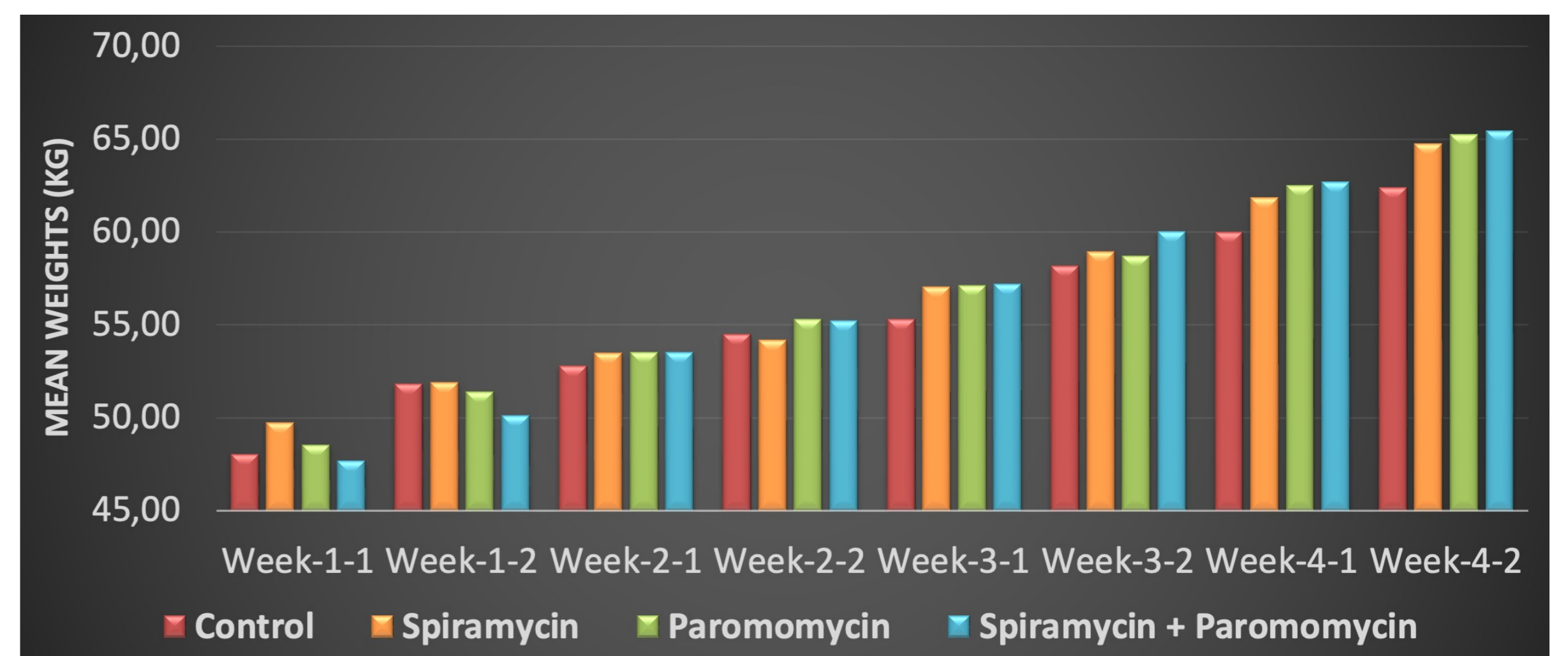
The highest recorded values (40°C) were in the control group, although peaks of higher temperatures were also occasionally observed in other groups.

LEVEL OF DEHYDRATION

The results observed in terms of dehydration were very similar between the different groups.

THORACIC CONTOUR TO ESTIMATE WEIGHT

After measuring the thoracic contour and comparing the result with published tables, an approximate weight of each animal was obtained. As the weeks progressed, lower weight gain was observed in the control group animals compared to the other groups, especially in week 4 (Graph 2).



Graph 2: Mean weight gain of calves over the 4 weeks expressed in kg.

TYPE OF FAECES

The paromomycin treated group, followed by the spiramycin treated group, had a higher percentage of normal faeces compared to the other groups. As for the control group, it was not only the group with the highest percentage of totally liquid diarrhoea, but also the only one where bloody liquid diarrhoea was found. In terms of the group where the combination of drugs was used, the main difference observed was a decrease in the percentage of liquid stools (Table 1).

Type of faeces	Control	Spiramycin	Paromomycin	Spiramycin + Paromomycin
Normal	4,7%	11,7%	14,8%	4,4%
Pasty	32,6%	37,0%	38,7%	32,5%
Loose	40,1%	31,5%	36,8%	51,9%
Liquid	21,5%	19,8%	9,7%	11,3%
Bloody Liquid	1,2%	0,0%	0,0%	0,0%

Table 1: Percentage of the different types of faeces classified according to their consistency in each group.

CONCLUSION

Although paromomycin has a greater effect against cryptosporidiosis in calves, spiramycin has also shown a beneficial effect by delaying the onset of infection and reducing the number of oocysts excreted. Spiramycin could therefore be an interesting option in cases of resistance to other drugs, although more studies are needed to confirm this.

ACKNOWLEDGEMENTS

