

Clinical trial to determine efficacy of copper oxide wire particle administration to decrease gastrointestinal nematode concentrations in adult alpacas

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Introduction

Gastrointestinal nematode (GIN) parasitism, particularly *Haemonchus contortus* infection, is of grave concern to producers due to its ability to dramatically decrease the productivity and profitability of livestock. With increasing resistance to commonly used antihelmintics, it is important to investigate alternative GIN therapy methods. Copper oxide wire particles (COWP) administered as an oral bolus are effective at decreasing fecal egg counts and *H. contortus* concentrations in sheep and goats. The use of this alternative method of parasite control has not been evaluated in new world camelids. The purpose of this study was to determine if COWP administered as an oral bolus would effectively decrease fecal GIN egg counts in adult alpacas.

Materials and Methods

A double blinded, clinical trial was performed to meet this objective. A total of 57 adult alpacas were enrolled in the trial and administered 2 g of COWP or placebo control capsule twice during the 90-d trial period. At 15-d intervals, fecal samples were collected and Modified McMaster's exams were performed as well as physical examinations, including FAMACHA and body condition score (BCS). Hematocrit concentrations were measured every 30 d. Analysis of variance

was conducted with SAS (GLM procedure, SAS Institute, Cary, NC) and least square means (LSD) compared with Tukey adjustment (HSD) at 5% significance level was used to compare treatment groups. Mean fecal egg counts were analyzed by repeated measures.

Results

The results showed an effective decrease in fecal egg counts in animals administered COWP compared to controls ($P = 0.03$) along with an increase in BCS ($P = 0.05$) over the trial period. No significant difference in FAMACHA or hematocrit concentration ($P > 0.05$) was observed between treatment groups over time. Clinical evidence of copper toxicity was not observed during the trial.

Significance

Oral administration of COWP appears to be a safe and effective method of reducing FEC in adult camelids.