

**Experiment Four (2009)**

**Efficacy of a pumpkin seed drench and ginger in reducing fecal egg counts in meat goat kids**

*Procedure:*

Five month old Boer crossbred meat goat kids were placed in individual pens (4 ft x 4 ft) on solid concrete floors into one of two treatment groups. All kids received a commercially pelleted 15% crude protein meat goat feed from Southern States. In this experiment, ten kids were drenched with water (untreated), ten kids received a pumpkin seed drench (prepared so that each received 6 ounces pumpkin seed/75 lbs body weight), or ten kids received a ginger drench (prepared so that each received 1.4 g/lb of body weight) every other day for 42 d. Pumpkins were purchased from Fifer Orchard in Dover, DE and seeds were removed for use in this study. The pumpkin seed drench was prepared from a traditional method for the treatment of worms in sheep by adding 500 – 600 g of ground pumpkin seeds in 3 liters of water and simmering to remove excess water. The ginger drench was prepared by grinding 300 - 500 g of ginger in 100 ml of water followed by straining to remove ginger trash. The amount of pumpkin seeds and ginger given to each animal was determined weekly based on body weight on sampling days. Kid body weights were measured weekly for 42 days. Fecal samples were also collected at weighing to determine individual fecal egg counts and group worm identification while blood samples were collected to determine packed cell volume (PCV). The packed cell volume determines the anemia level in the animal as a possible indicator of barber pole worm infection. If an individual animals’ PCV was < 15%, animals were dewormed with moxidectin (0.4 mg/kg) and removed from the study. All animals were slaughtered at the end of the study to determine stomach and intestinal worm counts.

*Results:*

During the 42-day period, three kids from the water/untreated group and five kids from the ginger drenched group were dewormed and removed from the study. Even though there were kids in the pumpkin drenched group with fecal egg counts as high as others in the other two groups, none showed clinical signs of infection (PCV<15%, diarrhea, or bottle jaw) and were therefore not dewormed. This indicates that the pumpkin seed drench might actually promote some resilience to high parasite infections and should be investigated further. Body weight increased steadily over the study period in all groups (Figure 1). After 7 days on treatment, fecal egg counts were reduced by 23% in the water/untreated group (CON), 32% in the ginger treated (GIN) group and by 60% in the pumpkin seed drench group (PUM; Figure 2). Figure 3 represents the PCV of each group over the 42 day period. The untreated group barber pole worm population was 93% at the beginning of the study and increased to 97% at the end of the study. For the ginger drenched group, barber pole worm population remained at 97% at the beginning and end of the study, whereas in the pumpkin seed drench group, the barber pole worm population decreased from 100% to 84%. When animals were all slaughtered and stomach worm counts conducted, the untreated group had more worms (1,857) compared to both the ginger (549) and pumpkin seed (869) drenched groups.

Figure 1. Average body weights of meat goat kids drenched with water, ginger, or pumpkin seeds over a 42 day period.

Figure 2. Average fecal egg counts of meat goat kids drenched with water, ginger, or pumpkin seeds over a 42 day period.

 \*1

 \*3

\*Numbers above bars indicates number of animals dewormed at that sampling in the untreated (CON; 3 treated on day 14) and the ginger drenched groups (GIN; 4 dewormed on day 14 and 1 dewormed on day 28).

Figure 3. Average packed cell volume (PCV) of meat goat kids drenched with water, ginger, or pumpkin seeds over a 42 day period.

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