

Parasitism in an Indian Malabari Goat Herd as a measure of health and productivity- a pilot study



Figure 1. Daily walk to grazing, Pookode, Kerala, India

Goat production is viewed globally as a contribution towards alleviation of poverty. In India >25% of the rural population are considered impoverished and 50% of rural households keep goats for provision of meat, milk, manure or as an emergency cash reserve (Agarwal, 2013). Anthelmintic resistance is increasingly prevalent globally. In developing countries where anthelmintic products are less available treatment is based on obtainable products notably the benzimidazole group.

There are few existing studies examining parasitism in Indian goats and fewer studies specific to Keralan goats. This study sought to investigate parasitism in an institutional goat herd at Kerala Veterinary and Animal Science University (KVASU) and to establish the efficacy of their current treatment practices.

Faecal samples were collected per rectum from each goat and examined using the modified McMaster technique with faecal eggs per gram recorded. A faecal egg count reduction test (FECRT) was performed according to WAAVP guidelines. Selected goats were treated according to weight with Fenbendazole and Praziquantel (Fentas Plus®) at the dosage: 5mg/kg body weight (Fenbendazole) and 1.66mg/kg body weight (Praziquantel).

Evidence of anthelmintic resistance was found consistent with the global trends of benzimidazole

resistance in small ruminants (Godara *et al*, 2011). The FECRT revealed a 75% reduction in faecal egg counts in the herd (90%, 41%; upper, lower 95% CI) and thus current treatment practices are ineffective. The unique ability of goats to rapidly metabolise drugs makes them more likely to select for resistance via under-dosing and this study highlights the need to establish effective ways of treating goats worldwide.

To gather benchmark data, goat height to withers and weights were recorded. Data indicated an overall poor herd performance compared to expected breed targets. The mean weight for the adult Malabari goat was $27.04 \pm 5.77\text{kg}$ and the yearlings $11.18 \pm 1.70\text{kg}$ compared to the available breed targets: Malabari does $31.12 \pm 0.90\text{kg}$ and yearlings $15.2 \pm 0.4\text{kg}$ (Acharya *et al*, 1982). Blood samples were collected with a mean total protein of 5.94g/dL (Reference range: $6.1\text{-}7.5\text{g/dL}$). Whilst parasitism is a likely component to the overall poor herd performance, management information collected is highly suggestive of poor husbandry and ineffective nutritional management.



Figure 2. Goat slatted housing



Figure 3. Gathered Jack Fruit Forage

Some parallels may be drawn between this small institutional herd and pastoral goat management in the surrounding area. Namely overgrazing of land, erratic and incorrect use of anthelmintics and inadequate nutritional management (Rajagopal *et al*, 2013). Such practices raise concerns and questions surrounding the long-term sustainability of goat production towards poverty alleviation. To establish reliable data, ground based enquiries and conscientious communication were essential to this study and are also to any future studies investigating Indian agriculture.

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References

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