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Unlocking Productivity: Mastering Gastrointestinal Parasites Management in Small Ruminants

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INTRODUCTION

Small ruminants, such as sheep and goats, play a crucial role in the national economy, providing a reliable source of meat, milk, and fiber. These animals are often raised by smallholder farmers, contributing to rural livelihoods and food security. India ranks 3rd in sheep and 2nd in goat population with an increase in both sheep by 14.13% from 65.07 to 74.26 million and goat by 10.14% from 135.17 to 148.88 million (BAHS, 2019). Sheep and goat production thrive both in temperate and tropical regions of India and principally, it contributes to meat production of the country at 4.13 and 8.36 % respectively. Gastrointestinal parasite infections are one of the most common causes of morbidity and/or mortality in small ruminants, especially in tropical and subtropical regions with pastoral grazing regimes. This, in turn, can result in decreased meat and milk production, as well as lower reproductive rates, ultimately affecting the economic viability of small-scale farming operations.

Gastrointestinal (GI) infections are a major constraint in small ruminant production and cause severe economic losses to smallholder farmers. Most studies on GI infections in small ruminants have focused on sheep, mainly because goats are more common in developing countries (Tesfaheywet & Murga, 2019). As a result, there is a lack of host-specific information on the species prevalence, geographical distribution, host immune responses, and appropriate prevention strategies for GI infections in goats (Hoste *et al*., 2010). In the era of increasing anthelmintic resistance (Swarnkar and Singh, 2010), sustainable animal health management strategies need to be developed with optimization of the use of available resources, underpinned by a thorough understanding of climate change on the dynamics of parasites as well as disease.

Impact of Gastrointestinal Parasites on Productivity

Currently, Rajasthan ranked first in wool production and fourth in sheep population (7.9 million) in India (DAHD 2019). Addressing the climate-changing scenario, the climate-driven

expansion of the niche of *H. contortus* poses a serious threat to the sustainability of the sheep industry. Singh *et al.* (2017) estimated an annual economic loss of Rs. 1191.0 million due to the natural challenge of gastrointestinal nematode infections in sheep flocks of Rajasthan and the components of losses were reduced mutton production (59.56%), increased susceptibility for mortality (16.57%), premature culling (11.25%), reduced fertility (7.97%) and decreased wool yield (4.65%).

Gastrointestinal parasites, such as nematodes, trematodes, and protozoa, can cause a range of health issues in small ruminants, including reduced growth rates, decreased milk production, and even mortality. Most parasitic infections cause diarrhea, anemia, weight loss, decreased production, growth retardation, edema, and hyperproteinaemia, as well as the infiltration of mononuclear inflammatory cells, eosinophils into the lamina propria, and hyperplasia of abomasal mucosal cells (Craig, 2009).

Gastrointestinal parasites can have a significant impact on the productivity of small ruminants. These parasites can reduce feed efficiency, lead to weight loss, and compromise the overall health of the animals. Young animals are very sensitive to infection when compared to older animals, which acquire immunity after continuous or seasonal exposure (Nisbet *et al.,* 2016). Most animals suppress the infection within 6 weeks after the development of IgE and IgA antibodies (Venturina *et al.,* 2013). Anthelmintic drugs (dewormers) have been over-used in attempts to control this problem, which has resulted in high levels of anthelmintic resistance in goat and sheep.

Management Practices on Farms to minimize parasites

The management practices employed on the farm can play a crucial role in minimizing the occurrence and impact of gastrointestinal parasites in small ruminants. Proper pasture management, strategic deworming, and maintaining good sanitation and hygiene can help reduce the risk of parasite infestations. Additionally, selecting parasite-resistant breeds and incorporating integrated parasite management strategies can further enhance the resilience of small ruminant herds against these detrimental parasites, ultimately improving the overall productivity and profitability of small-scale farming operations.

Understanding the impact of these management practices is essential for developing effective parasite control programs and ensuring the well-being of small ruminants. This article will explore the key management practices that can influence the occurrence of gastrointestinal parasites in small ruminants. It will discuss the importance of implementing appropriate grazing strategies, maintaining proper sanitation and hygiene, and developing effective deworming programs. Additionally, the article will highlight the role of environmental factors, such as climate and pasture conditions, in the prevalence of these parasites. By understanding the impact of management on gastrointestinal parasites, farmers can make informed decisions to mitigate the risks and ensure their small ruminant herds' overall health and productivity.

By implementing a comprehensive management strategy that addresses grazing, sanitation, deworming, and environmental factors, farmers can effectively reduce the prevalence of gastrointestinal parasites in their small ruminant herds. This approach can lead to improved animal health, increased productivity, and reduced economic losses associated with parasitic infections.

Adopting best practices in small ruminant management is crucial for ensuring the long-term sustainability and profitability of these farming operations while promoting the overall well-being of the animals under their care.

By staying informed about the latest research and best practices in small ruminant management, farmers can make data-driven decisions to mitigate the risks posed by gastrointestinal parasites. Collaborating with veterinary experts and extension services can also provide valuable guidance on implementing effective parasite control strategies tailored to the unique needs of their farming operations. Through a proactive and holistic approach to management, small ruminant producers can safeguard the health and productivity of their herds, ultimately contributing to the overall sustainability of their farming enterprises.

The Southern Consortium for Small Ruminant Parasite Control (SCSRPC) has investigated several methods of sustainable gastrointestinal nematode parasite control, including Smart Drenching (including FAMACHA©), copper oxide wire particles (COWP), condensed tannin-containing plants, specifically sericea lespedeza (*Lespedeza cuneata*), selection of resistant breeds and other alternative methods.

CONCLUSION

In conclusion, the impact of management on the occurrence of gastrointestinal parasites in small ruminants cannot be overstated. By adopting a comprehensive approach that addresses grazing, sanitation, deworming, and environmental factors, farmers can significantly reduce the prevalence of these parasites and promote the overall health and productivity of their herds. Staying informed, collaborating with experts, and implementing best practices are key to ensuring the long-term sustainability and profitability of small ruminant farming operations while prioritizing the well-being of the animals under their care. Finally, the necessity of reducing the use of anthelmintics and thus minimizing residues in food and environment is stressed.

REFERENCES

Craig, T. M. (2009). Helminth parasites of the ruminant gastrointestinal tract. In *Food animal practice* (pp. 78-91). WB Saunders.

Hoste, H., Sotiraki, S., Landau, S. Y., Jackson, F., & Beveridge, I. (2010). Goat–nematode interactions: think differently. *Trends in parasitology*, *26*(8), 376-381.

Nisbet, A. J., Meeusen, E. N., González, J. F., & Piedrafita, D. M. (2016). Immunity to Haemonchus contortus and vaccine development. *Advances in parasitology*, *93*, 353-396.

Singh, K. M., & Singh, P. (2017). Doubling farmers' income: An action research initiative in Bihar (India).

Swarnkar, C. P., Singh, D., & Solanki, V. K. (2010). Prevalence of gastrointestinal parasites of sheep in semi-arid Rajasthan: a field study. *The Indian Journal of Small Ruminants*, *16*(2), 221-227.

Tesfaheywet, Z., & Murga, S. (2019). Prevalence, species composition and worm burden of abomasal nematodes of small ruminants slaughtered in Hawassa, Southern Ethiopia.

Venturina, V. M., Gossner, A. G., & Hopkins, J. (2013). The immunology and genetics of resistance of sheep to Teladorsagia circumcincta. *Veterinary research communications*, *37*, 171-181.