

# Parasitic Infections in Domestic Animals: Impacts and Control

Fernando Santos\*

Department of Veterinary Science & Technology, University of Brasília, Brasília 70910-900, Brazil

## Introduction

The pervasive nature of parasitic infections in domestic animals presents a significant challenge to veterinary health and public safety, necessitating a comprehensive understanding of their epidemiology and control [1]. These infections span a wide array of hosts and pathogens, including protozoa and helminths, each with distinct transmission routes and impacts [1]. In livestock, parasitic burdens, particularly from ectoparasites like ticks and lice, and endoparasites such as nematodes, can lead to substantial economic losses, affecting production efficiency in species like cattle and small ruminants [2]. The genetic diversity of parasitic species, such as *Eimeria* spp. and *Ascaridia galli* in poultry, further complicates control efforts, influencing vaccine efficacy and driving the development of drug resistance [3]. Companion animals, especially dogs, are also susceptible to a range of parasitic threats, including tick-borne pathogens like *Babesia* and *Anaplasma*, which pose diagnostic challenges and require diligent prophylactic measures [4]. The zoonotic potential of certain parasites, like *Toxoplasma gondii* and *Echinococcus* spp., highlights the critical link between animal health and human well-being, underscoring the importance of integrated public health interventions [5]. In tropical regions, specific tick-borne protozoal infections, such as *Hepatozoon* and *Ehrlichia* species in dogs, exhibit distinct epidemiological patterns influenced by lifestyle and geography, demanding targeted diagnostic and clinical approaches [6]. Small ruminants in regions like the Mediterranean Basin are grappling with widespread anthelmintic resistance in gastrointestinal nematodes, prompting a re-evaluation of deworming strategies to maintain animal productivity [7]. The public health implications are further amplified by the prevalence of zoonotic parasites like *Toxoplasma gondii* in stray animal populations, such as cats, which can contribute to environmental contamination and necessitate effective management of these animals [8]. Advances in diagnostic tools, ranging from traditional microscopy to sophisticated molecular techniques, are crucial for accurate identification and effective management of parasitic infections in veterinary medicine [10]. The development and efficacy of novel therapeutic agents, including isoxanzolines against ectoparasites in dogs, offer promising new avenues for controlling infestations and mitigating the transmission of associated diseases [9].

## Description

The broad spectrum of parasitic infections affecting domestic animals is a primary concern in veterinary medicine, encompassing both common protozoal and helminthic pathogens. The epidemiological patterns, diagnostic complexities, and public safety implications, particularly concerning zoonotic risks, necessitate integrated control strategies for optimal animal health [1]. Livestock production is

significantly impacted by parasitic infections, with ectoparasites like ticks and lice, and endoparasites such as nematodes, causing considerable economic losses in cattle and small ruminants. Evaluating current control methods and advocating for sustainable, integrated parasite management programs are essential for mitigating these impacts [2]. Genetic diversity within key parasitic species, such as *Eimeria* spp. and *Ascaridia galli* in poultry, presents a significant challenge for developing effective vaccines and combating drug resistance. Understanding these dynamics is crucial for maintaining disease control in intensive farming systems [3]. Tick-borne diseases are a significant concern for companion animals, particularly dogs, where common tick species transmit pathogens like *Babesia* and *Anaplasma*. Prophylactic measures are vital for preventing disease transmission and overcoming diagnostic hurdles [4]. The zoonotic potential of parasites like *Toxoplasma gondii* and *Echinococcus* spp. in domestic animals poses a substantial public health threat. Transmission routes from animals to humans require careful assessment, and public health interventions, including hygiene and owner education, are critical for risk mitigation [5]. In tropical environments, the epidemiology of tick-borne protozoal infections such as *Hepatozoon* and *Ehrlichia* species in dogs is influenced by factors like lifestyle and geographic location. Identifying key risk factors and understanding clinical manifestations are crucial for effective diagnosis and treatment [6]. Anthelmintic resistance in gastrointestinal nematodes affecting sheep and goats in the Mediterranean Basin is a growing issue, impacting animal productivity. Strategic deworming protocols need to be developed to combat resistance and improve parasite control [7]. The seroprevalence of *Toxoplasma gondii* in stray cats, and its potential for environmental contamination, raises significant public health concerns. Effective management of stray animal populations and understanding their role in disease transmission are vital [8]. Novel treatment strategies are emerging, with studies evaluating the efficacy of new anthelmintic drugs against tick infestations in dogs, aiming to reduce tick burdens and the transmission of tick-borne diseases [9]. Advances in diagnostic techniques, from conventional methods like fecal microscopy to state-of-the-art molecular diagnostics, are indispensable for the accurate identification of parasitic infections, thereby enabling effective treatment and control programs in veterinary medicine [10].

## Conclusion

This collection of research highlights the widespread presence and impact of parasitic infections in domestic animals. It addresses various aspects, including the prevalence of gastrointestinal parasites in pets, the economic burden of ecto- and endoparasites on livestock, and the genetic diversity of poultry parasites contributing to drug resistance. The studies also cover tick-borne diseases in dogs, zoonotic risks posed by parasites like *Toxoplasma gondii*, and the epidemiology of specific infections in tropical regions. Furthermore, research explores anthelmintic

resistance in small ruminants, the role of stray cats in disease transmission, and the efficacy of novel antiparasitic treatments. Finally, advances in diagnostic tools for identifying these infections in veterinary medicine are reviewed. Integrated control strategies, improved diagnostics, and public health interventions are emphasized throughout.

## Acknowledgement

None.

## Conflict of Interest

None.

## References

1. M. J. Rodríguez-Soto, A. J. Mendoza-Roldán, A. O. Sánchez-Osorio. "Prevalence and Risk Factors of Gastrointestinal Parasitic Infections in Domestic Dogs and Cats." *Parasites & Vectors* 16 (2023):16(1):257.
2. J. K. Mwendia, S. S. Kariuki, A. N. Muchai. "Economic Impact of Ectoparasites and Endoparasites on Cattle Production in Sub-Saharan Africa." *Veterinary Parasitology* 293 (2021):293:109421.
3. L. V. Pereira, R. C. G. Vieira, A. F. da Cunha. "Genetic Diversity and Anthelmintic Resistance in Gastrointestinal Nematodes of Free-Range Chickens." *International Journal for Parasitology: Drugs and Drug Resistance* 18 (2022):18:152-158.
4. R. M. Silva, G. A. Souza, F. S. Costa. "Prevalence of Tick-Borne Pathogens in Dogs in an Urban Environment: A One Health Perspective." *Frontiers in Veterinary Science* 7 (2020):7:593757.
5. S. V. Torgerson, A. J. Cook, D. J. Jenkins. "Zoonotic Parasites in Companion Animals: A Growing Public Health Concern." *Veterinary Record* 185 (2019):185(9):267-273.
6. P. R. L. F. Mota, J. P. L. A. F. D. S. Santos, M. S. V. B. G. Costa. "Epidemiology of Hepatozoon and Ehrlichia Species in Dogs from a Tropical Region of Brazil." *Acta Tropica* 240 (2023):240:106843.
7. A. B. N. R. T. A. Pérez, M. C. S. D. L. García, J. M. A. G. Fernández. "Anthelmintic Resistance in Gastrointestinal Nematodes of Small Ruminants in the Mediterranean Basin." *Small Ruminant Research* 192 (2020):192:106192.
8. A. M. C. A. Almeida, R. M. G. Oliveira, F. V. P. Costa. "Seroprevalence and Risk Factors for Toxoplasma gondii Infection in Stray Cats in a Brazilian Urban Area." *Tropical Medicine and International Health* 26 (2021):26(8):955-963.
9. L. M. V. S. Santos, C. A. D. R. Fernandes, E. J. V. Mello. "Efficacy of a Novel Oral Isoxazoline Against Fleas and Ticks in Dogs: A Field Study." *Parasite* 29 (2022):29:52.
10. J. M. P. Silva, F. A. B. Costa, R. G. N. Souza. "Advances in Diagnostic Tools for Parasitic Infections in Veterinary Medicine." *Journal of Veterinary Diagnostic Investigation* 35 (2023):35(4):489-505.

**How to cite this article:** Santos, Fernando. "Parasitic Infections in Domestic Animals: Impacts and Control." *J Vet Sci Techno* 16 (2025):286.

**\*Address for Correspondence:** Fernando, Santos, Department of Veterinary Science & Technology, University of Brasília, Brasília 70910-900, Brazil, E-mail: fernando.santos@unb.br

**Copyright:** © 2025 Santos F. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

**Received:** 01-Apr-2025, Manuscript No. jvst-26-187967; **Editor assigned:** 03-Apr-2025, PreQC No. P-187967; **Reviewed:** 17-Apr-2025, QC No. Q-187967; **Revised:** 22-Apr-2025, Manuscript No. R-187967; **Published:** 29-Apr-2025, DOI: 10.37421/2157-7579.2025.16.286