

# Deworming Schedule in Different Animal Species

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## ABSTRACT

Parasitic infections remain a major challenge to livestock production systems across the globe, contributing to substantial economic losses through their negative impact on growth rate, milk production, feed efficiency, reproductive performance, and, in severe cases, animal survival (Taylor *et al.*, 2016; Bowman, 2021). In addition to affecting animal health and welfare, these infections significantly reduce the overall efficiency and profitability of the livestock sector (FAO, 2019). This review aims to present an overview of the epidemiology, transmission patterns, and species-wise occurrence of important helminth parasites, including nematodes (roundworms), cestodes (tapeworms), and trematodes (flukes), which infect a wide range of domestic animals such as cattle, buffaloes, sheep, goats, dogs, cats, pigs, poultry, and horses (Urquhart *et al.*, 2003).

## INTRODUCTION

Parasitic infections pose a major constraint to livestock production, resulting in considerable economic losses by negatively influencing growth rate, milk production, feed efficiency, and overall animal health (Taylor *et al.*, 2016; Bowman, 2021). In more severe situations, these infections may also lead to anemia and even

mortality (Soulsby, 2012). Internal helminths, including nematodes, cestodes, and trematodes, are among the most prevalent parasites affecting domestic animals and are responsible for widespread health-related problems (Urquhart *et al.*, 2003).

Consequently, the use of anthelmintic drugs for deworming has become an integral

component of modern animal husbandry practices (Kahn *et al.*, 2020). However, effective parasite control cannot depend solely on routine deworming. It requires a systematic and well-designed strategy that considers factors such as species, age, physiological status, management practices, and seasonal variations influencing parasite transmission (FAO, 2019). Strategic deworming is essential for reducing parasite burden, interrupting reinfection cycles, and minimizing the development of anthelmintic resistance, thereby promoting sustainable livestock production (Zajac & Conboy, 2012).

**Deworming in Cattle and Buffalo-** Cattle and buffaloes are particularly prone to gastrointestinal parasitic infections because their grazing behaviour exposes them to infective stages present in pasture environments (Urquhart *et al.*, 2003). Young calves are more susceptible due to their underdeveloped immune system, making early deworming interventions crucial (Taylor *et al.*, 2016). Therefore, deworming is recommended to start at 2–3 weeks of age, followed by monthly treatments up to six months, and subsequently at three-month intervals (Kahn *et al.*, 2020). In adult animals, deworming is typically carried out three to four times per year, with a strategic emphasis on seasonal timing, particularly before, during, and after the monsoon period when conditions are favourable for parasite survival and transmission (FAO, 2019). In areas where liver fluke infections are common, an additional treatment during late winter may be necessary (Soulsby, 2012). A variety of anthelmintic drugs are used for effective parasite control, including benzimidazoles such as Albendazole and Fenbendazole for gastrointestinal worms, Ivermectin for both internal and external parasites, Levamisole for nematode infections, and Closantel and Oxyflosanide for the management of liver flukes (Kahn *et al.*, 2020; Zajac & Conboy, 2012).

**Deworming in Sheep and Goats-** Sheep and goats are particularly vulnerable to parasitic infections, especially in intensive and semi-intensive production systems where close housing conditions increase the risk of exposure (Taylor *et al.*, 2016). Among these, gastrointestinal nematodes, notably *Haemonchus contortus*, represent a major threat due to their ability to cause severe anaemia and even mortality if not adequately controlled (Soulsby, 2012). Deworming in kids and lambs should be initiated at 3–4 weeks of age, followed by monthly treatments up to six months, whereas adult animals generally require more frequent deworming compared to large ruminants, typically at intervals of 2–3 months (Kahn *et al.*, 2020). A strategically planned deworming program that aligns with seasonal variations particularly before, during, and after the rainy season is crucial for controlling heavy parasite burdens (FAO, 2019). Commonly used anthelmintics include Albendazole, Fenbendazole, and Ivermectin, while Levamisole is recognized for its rapid action against nematodes (Kahn *et al.*, 2020). For the control of liver fluke infections, Closantel and Oxyflosanide are considered highly effective (Urquhart *et al.*, 2003). However, the increasing problem of anthelmintic resistance highlights the need for drug rotation strategies and targeted selective treatment based on faecal egg count to ensure sustainable parasite management (Zajac & Conboy, 2012).

**Deworming in Dogs-** Deworming in dogs is essential not only for maintaining their health but also for protecting public health, as several canine parasites are zoonotic in nature (Bowman, 2021). Puppies are especially susceptible to infections such as roundworms and hookworms, which are often transmitted from the dam during early life (Hendrix & Robinson, 2016). Deworming should therefore be initiated as early as 2 weeks of age, followed by treatments at 4, 6, and 8 weeks,

and continued monthly until six months of age (Kahn *et al.*, 2020). In adult dogs, deworming is typically carried out at three-month intervals, while pregnant females should be treated prior to mating and after whelping to minimize the risk of parasite transmission to their offspring (Bowman, 2021). Commonly used anthelmintics include Pyrantel pamoate for the control of roundworms and hookworms, Fenbendazole as a broad-spectrum dewormer, and Praziquantel for the treatment of tapeworm infections (Kahn *et al.*, 2020). Ivermectin may also be administered in certain cases; however, it should be used with caution in specific sensitive breeds due to potential adverse effects (Bowman, 2021).

**Deworming in Cats-** Cats are susceptible to a variety of intestinal parasitic infections, particularly roundworms and tapeworms, which can negatively impact their overall health (Bowman, 2021). Kittens are more vulnerable to these infections and should begin deworming at 2–3 weeks of age, followed by treatments at regular intervals similar to those recommended for puppies (Hendrix & Robinson, 2016). In adult cats, deworming is generally recommended every three months to ensure effective parasite control (Kahn *et al.*, 2020). Commonly used anthelmintics include Pyrantel pamoate for roundworms, Fenbendazole as a broad-spectrum dewormer, and Praziquantel for the treatment of tapeworm infections (Kahn *et al.*, 2020). Regular and timely deworming is essential not only for maintaining feline health but also for minimizing the risk of zoonotic transmission to humans (Bowman, 2021).

**Deworming in Pigs-** Parasitic infections in pigs adversely affect growth rate, feed conversion efficiency, and overall productivity, leading to significant economic losses (FAO, 2019). Young piglets are especially vulnerable and should be dewormed starting at 3–4 weeks of age, followed by monthly treatments up to six months to

support proper growth and health (Kahn *et al.*, 2020). In adult pigs, deworming is generally recommended at intervals of 3–6 months, depending on management practices and the level of parasite burden (Taylor *et al.*, 2016). Broad-spectrum anthelmintics such as Fenbendazole and Ivermectin are commonly used due to their effectiveness against a wide range of internal parasites, while Levamisole is particularly effective against nematode infections (Kahn *et al.*, 2020). Furthermore, pregnant sows should be dewormed prior to farrowing to reduce the risk of transmitting infections to their offspring and to improve overall herd health management (Bowman, 2021).

**Deworming in Poultry-** Parasitic infections in poultry are more commonly observed in backyard and free-range production systems, where birds are more frequently exposed to contaminated surroundings (FAO, 2019). Early deworming is essential; therefore, chicks should be treated starting at 2–3 weeks of age (Kahn *et al.*, 2020). Grower and adult birds are generally dewormed at intervals of 1–2 months, depending on the intensity of infection and management practices (Taylor *et al.*, 2016). Piperazine is widely used for the control of roundworms, while Albendazole and Levamisole provide broader-spectrum efficacy against a range of helminth parasites (Kahn *et al.*, 2020). In organized commercial poultry systems, deworming is usually carried out based on need and supported by diagnostic methods, allowing for a more targeted and efficient approach to parasite control (Hendrix & Robinson, 2016).

**Deworming in Horses-** Horses are highly prone to a wide range of parasitic infections, including strongyles, ascarids, and bots, which can negatively impact their health and overall performance (Taylor *et al.*, 2016). Foals should begin deworming at 2–3 months of age, with follow-up treatments administered every 2–3 months to maintain effective parasite

control during early development (Kahn *et al.*, 2020). In adult horses, deworming is typically recommended at intervals of three months (Urquhart *et al.*, 2003). Ivermectin is widely utilized due to its broad-spectrum activity against numerous internal parasites, while Fenbendazole and Pyrantel are also commonly used in equine parasite management (Kahn *et al.*, 2020). Moxidectin is another potent anthelmintic, particularly effective against encysted larval stages (Taylor *et al.*, 2016). To minimize the risk of anthelmintic resistance, the implementation of drug rotation and strategically planned deworming programs is essential for effective parasite control (Zajac & Conboy, 2012).

#### **Important Considerations in Deworming -**

An effective deworming program must be based on a well-structured and scientific approach that considers several important factors. Precise dosing according to the animal's body weight is crucial to achieve optimal therapeutic results and to avoid underdosing, which may lead to the development of anthelmintic resistance (Zajac & Conboy, 2012). The rotation of different classes of anthelmintic drugs is also essential to maintain their long-term effectiveness (Kahn *et al.*, 2020). Furthermore, administering deworming treatments prior to vaccination can help enhance the immune response in animals (FAO, 2019).

Diagnostic methods such as faecal examination, particularly egg per gram (EPG) estimation, are important tools for assessing parasite burden and implementing targeted deworming strategies (Hendrix & Robinson, 2016). In addition to drug-based interventions, effective environmental management practices including proper sanitation, hygiene, and pasture rotation are equally important in reducing parasite transmission and ensuring sustainable long-term control.

## **CONCLUSION**

Deworming represents a critical component of both livestock and companion animal health management. The implementation of a well-structured, species-specific deworming schedule, along with the judicious selection of appropriate anthelmintic agents, is essential for achieving effective parasite control. A strategic and evidence-based approach to deworming not only enhances animal health, welfare, and productivity but also plays a significant role in reducing economic losses associated with parasitic infections. Furthermore, it helps in mitigating the development of anthelmintic resistance. Therefore, an integrated and holistic parasite control program, combining pharmacological, diagnostic, and management practices, is indispensable for ensuring sustainable and efficient animal husbandry systems.

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