



Current Recommendations for Equine Deworming Programs

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Introduction

For those of you that have been involved in equine management for several years, you have likely seen the “pendulum” swing to extremes when it comes to recommendations in the equine industry. That may be seen in issues from show ring trends, feedstuff and diet recommendations, shoeing practices, etc. This is true for deworming practices as well. In this article, I want to provide an overview of the most current recommendations for equine deworming practices by the American Association of Equine Practitioners (AAEP).

History of Anthelmintic Drugs in Equine Management

To fully understand today’s recommendations for deworming practices, we need to be familiar with the development of anthelmintic agents (deworming drugs) and how their use has impacted equine management today. The timeline below provides some brief highlights for the past 80 years.

- 1940’s: Phenothiazine widely used to control strongyles
- 1950-1970’s: Large strongyles (bloodworms) are the most devastating internal parasite
- 1950’s & 1960’s: “Deworming cocktail” given by veterinarian is most common treatment
- 1960’s: Reports of strongyles resistant to phenothiazine
- 1960’s & 1970’s: New broad spectrum dewormers make it to market; no set deworming schedule recommendation until a 1966 Journal of the American Veterinary Medical Association article suggests deworming every 6 to 8 weeks with thiabendazole
- 1970’s: Paste formulations become available for administration by horse owners
- 1980’s: Ivermectin was introduced to the market; A game-changer as it killed larval forms too
- 1990’s: Moxidectin introduced to the market
- 2000’s: Large strongyles almost eradicated from managed horse herds; some development of resistance from certain parasites to specific anthelmintic drugs is reported; promotion of rotational deworming programs

Current Concerns of Parasite Resistance to Anthelmintic Agents

Today, the AAEP no longer recommends the “deworm every 6 to 8 weeks” protocol as many equine owners may have grown used to. Rather the AAEP offers that the goal of a parasite control program should be “to minimize the risk of parasitic disease, control parasite egg shedding, and maintain the efficacious drugs and avoid further development of anthelmintic resistance.” This is a response to the fact that many parasites of concern—including small strongyles, ascarids, and pinworms—have developed various levels of resistance to the anthelmintics used to control them, such as benzimidazoles, pyrimidines, and macrocyclic lactones.

The strategic use of testing, drugs, and environmental factors are recommended to make a complete parasite control program. Research has identified practices that contribute to anthelmintic resistance or reduced effectiveness of anthelmintic agents. These include high frequency of anthelmintic administration, repeated use of a single anthelmintic agent without rotation to another chemical class, under-dosing of the drug by only visually estimating body weight and administering anthelmintic agents at times of the year when climatic conditions offer a natural alternative to chemical control. A 2011 nationwide online survey of 11,000 horse owners reported that 99% of owners deworm their own horses, but less than 16% involve a veterinarian in developing deworming plans. However, a 2021 survey of 7,267 horse owners and managers reported that more than 50% of respondents involve a veterinarian in their horses’ deworming plans. This change where more owners are seeking veterinary advice on deworming recommendations should aid in mitigating the problem of parasite resistance seen on many farms across the nation.

How Environmental Factors Influence Parasite Development and Survival

Climatic conditions, such as temperature, humidity, precipitation, and frequency of freeze-thaw cycles, have profound impact on the development and survival of the various free-living stages of small strongyles. A common misconception held by many horse owners is that a “killing frost” will reduce the number of parasites in the environment. This assumption has proven to be inaccurate as the infective L3 stage of small strongyles can survive freezing temperatures in the lab and the field (Table 1). Thankfully in New Mexico, our temperature extremes and arid climate contribute to reducing parasite burdens on pastures where most horses ingest infective small strongyle larvae. In addition, good management practices, such as weekly removal of dung piles and composting manure (sustained temperatures over 130 °F) can reduce the horse’s risk for exposure to internal parasites.

Important Factors to Consider in Developing an Effective Deworming Program

As mentioned previously, it is important to consult your veterinarian in developing a deworming schedule. They can help you understand which internal parasites are of primary concern in your area and in the class of horse you are treating.

Since adults (horses over 3 years-of-age) have a developed immune system that deals with most parasites well—small strongyles being the major exception, they may only require routine deworming three or less times per year. Horses less than three years old have an immature immune system and are still prone to infection with a wider spectrum of internal parasites.

Therefore, it is recommended that they be dewormed three to four times per year with a drug that will appropriately target the parasites they harbor per your veterinarian's advice.

Your veterinarian can conduct a fecal egg count (FEC) test which can indicate how many and what kind of parasites your horse has. This can allow you to select the time of year and anthelmintic agent that will be the most effective for treating the parasites of concern.

Conclusion

As we've covered in this article, there are many points to consider in developing a good and effective deworming program. As we near the close of 2021, take a few minutes to give thought to your management approach to deworming horses on your operation, and discuss any changes you might want to make in 2022 with your veterinarian.

References

2021 AHP Equine Industry Survey Sponsored by Zoetis. Retrieved November 1, 2021, from: <https://www.americanhorsepubs.org/2021-equine-survey/>

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Briggs, K., C. Reinemeyer, D. French, R. Kaplan. 2004. Bad Bug Basics (Parasite Primer Part I). Retrieved November 1, 2021, from: <https://thehorse.com/151965/bad-bug-basics-parasite-primer-part-1/>

Table 1. Effects of temperature on the free-living stages of strongyles.

Development	Temperature Range (°F)	Survival
No development occurs above this level.	> 104	Free-living stages die rapidly. L3 stage may survive for some weeks inside intact fecal balls.
Optimal range for egg and larvae development to reach L3 stage (infective) in as few as 4 days.	77 to 91	Larvae may survive for a few weeks, but temperature is too high for long-term survival.
Eggs develop into L3 within 2 to 3 weeks.	50 to 77	L3 can survive for a few months.
Development takes several weeks to a few months.	43 to 50	L3 can survive for many weeks and months.
At temperatures below 43, eggs don't hatch, and development doesn't progress.	32 to 43	At temperatures slightly above 32, eggs and L3 can survive for several months.
	< 32	Non-embryonated eggs and L3 can survive for several months; developing larvae (L1, L2) die.
	+/- 32	Repeated freeze-thaw events diminish egg and larval survival.

Modified from: AAEP Internal Parasite Control Guidelines. 2019.

Upcoming Equine Extension Events for 2022

2022 NM 4-H Online Horse Bowl Tournament held over Zoom from 7 to 10 pm MST from January 24 to 28. Registration opens on December 1, 2021 and closes on January 10, 2022. Registration, contest rules, and more details will be available from your County 4-H Agent.

2022 TexMex Horse Judging Clinic, Saturday, February 12 at the Roosevelt County Fairgrounds in Portales, NM. Registration opens December 13, 2021 and closes January 28, 2022. Online registration will be available at: <https://aces.nmsu.edu/ces/animal/>



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